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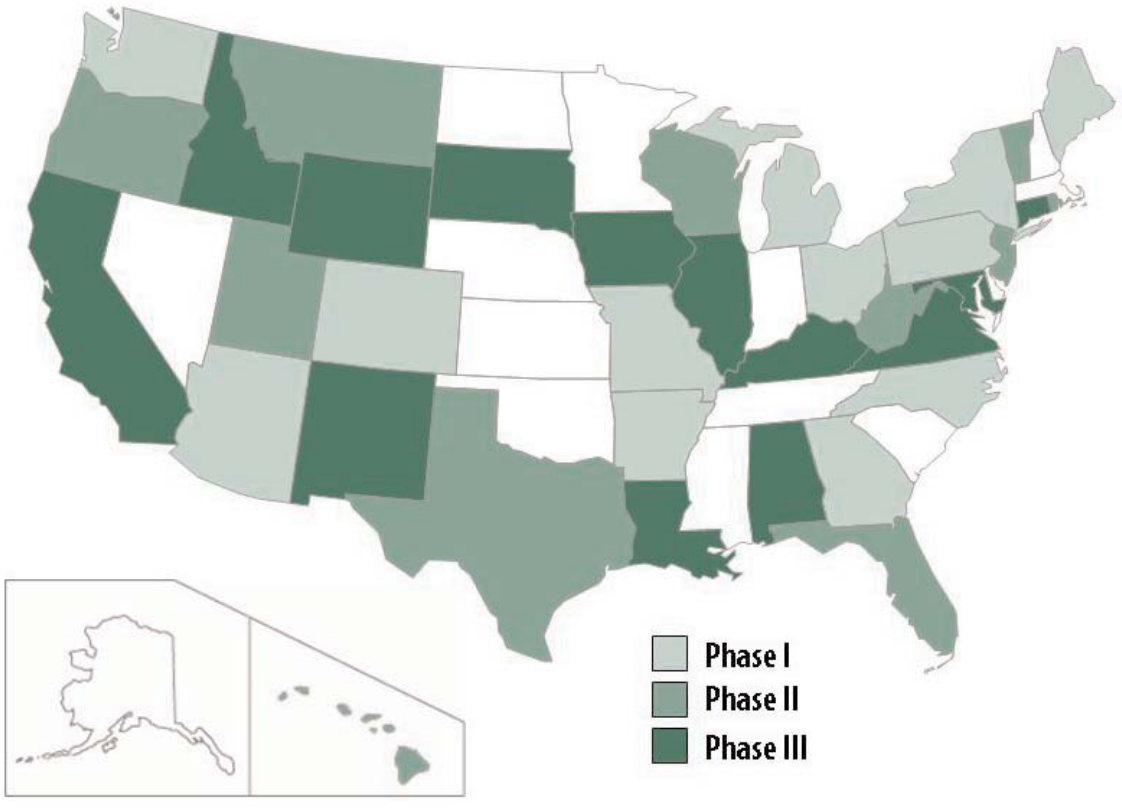
State Wetland Program Evaluation: Phase III



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State Wetland Program Evaluation Phase III

Environmental Law Institute
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The Environmental Law Institute is responsible for the views and research contained in this report, including any omissions or inaccuracies that may appear. The information contained in the report was obtained primarily through legal and policy research and personal interviews conducted from October 2005 to December 2006.

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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 aquatic resources, as well as state agency funding, resources, and enforcement activity.

State Wetland Program Study

This report represents the third 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

[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.

programs), monitoring and assessment, restoration programs and activities, water quality standards, public-private partnerships, and coordination among state and federal agencies. In addition to these six core elements, ELI's study also examines state outreach and education activities, which the EPA deems as "inherent components of water resource programs."[3]

Phases I & II. In the first phase of the study, ELI examined a cross-section of states representing various approaches to wetland protection and regulation, as well as geographic diversity. The study examined state-level programs and activities in twelve states: Arizona, Arkansas, Colorado, Georgia, Maine, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, and Washington. The Phase I report, *State Wetland Program Evaluation: Phase I*, was published in 2005 and is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11079.[4]

In Phase II, ELI examined an additional 12 states: Florida, Hawaii, Montana, Nebraska, New Jersey, Oregon, Rhode Island, Texas, Utah, Vermont, West Virginia, and Wisconsin. *State Wetland Program Evaluation: Phase II*, published in 2006, is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11152.[5]

Phase III. In this third phase of the study, ELI examined 13 additional states: Alabama, California, Connecticut, Idaho, Iowa, Illinois, Kentucky, Louisiana, Maryland, New Mexico, South Dakota, Virginia, and Wyoming.

Phase IV & Roll-up. In 2007, ELI anticipates completing the states not included in Phases I through III of the study. Research conducted in Phases I through III will be updated, and a final report will summarize the findings in all 50 states and provide 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 and was utilized during Phases I, II, and III of the study.[6] 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

[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 Feb. 22, 2006).

[4] The information contained in the Phase I report was obtained primarily through legal and policy research and personal interviews conducted from November 2003 to November 2004.

[5] The information contained in the Phase II report was obtained primarily through legal and policy research and personal interviews conducted from March 2005 to March 2006.

[6] 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 generally not included in the research gathered by ELI. Instead, this study examines the distinguishing features and trends among state wetland activities and programs.

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.

Observations and Analysis

This study examines 37 distinct state wetland programs. Although these programs represent a diversity of approaches and conditions, ELI does not attempt to draw inferences that apply to all 50 states.[1] However, numerous observations can be made about each of the state programs, as well as their core elements.

It should be noted that statements made about Phase I states (Arizona, Arkansas, Colorado, Georgia, Maine, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, and Washington) are based on information collected in 2003 and 2004. Statements made about Phase II states (Florida, Hawaii, Montana, Nebraska, New Jersey, Oregon, Rhode Island, Texas, Utah, Vermont, West Virginia, and Wisconsin) are based on information collected in 2005 and 2006. Finally, statements regarding Phase III states (Alabama, California, Connecticut,

Idaho, Iowa, Illinois, Kentucky, Louisiana, Maryland, New Mexico, South Dakota, Virginia, and Wyoming) are based on information collected in 2005 and 2006. ELI plans to update information collected on these states prior to the 50-state review.

I. State Laws, Regulations and Programs

Wetland Definitions and Delineation

Of the 37 states examined in Phases I through III of the study, all include wetlands in their definitions of "state waters."[2] Several states do not specifically identify "wetlands," "marshes," or other wetland classes in the definition for state waters, but do include broad definitions of surface waters, groundwaters, and/or bodies of water that may include wetlands. For example, Hawaii defines "waters of the state" to include "any and all water on or beneath the surface of the ground, including natural or artificial watercourses, lakes, ponds, or diffused surface water and water percolating, standing, or flowing beneath the surface of the ground."[3] See *Figure 1*.

In Colorado, 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."[4] Alabama also does not explicitly include wetlands in its definition of state waters; however, in 2000 the Alabama Department of Environmental Management wrote in its Water Quality Report to Congress, required under the Clean Water Act §305(b), that "waters within wetlands are, by

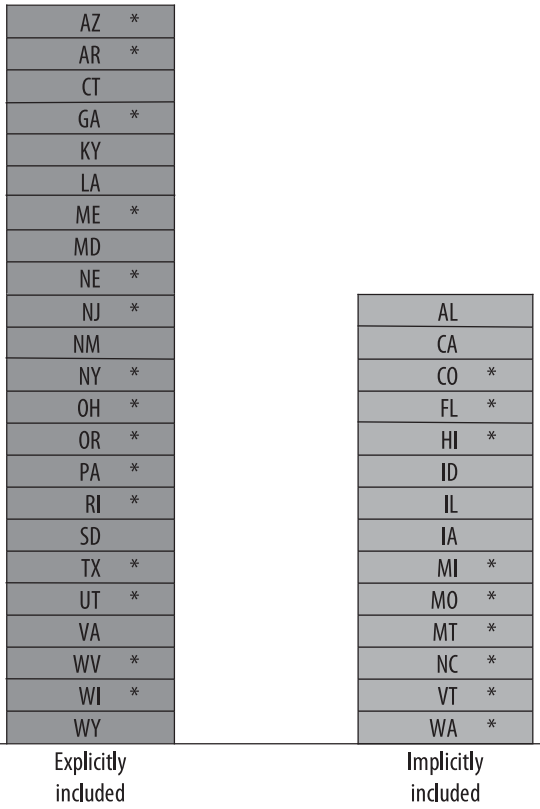
[1] ELI anticipates completing the states not included in Phases I through III of the study in 2007. A final report will summarize the findings in all 50 states and provide comparative analysis.

[2] Michigan does not include wetlands in its definition of "waters" for the purposes of the state point discharge program. Mich. Comp. Laws § 324.3101. Wetlands are instead regulated under the a separate authority. Mich. Comp. Laws § 324.30301.

[3] Haw. Rev. St. Ann. § 174C-3.

[4] 5 Colo. Code Regs. § 1002-31.27

Figure 1.
Number of states (out of 37) that include wetlands in the state definition of "waters."



* *Based on research conducted in 2003-2006. The Phase I and II reports, which include detailed summaries of these 24 states, may be accessed at: http://www.elistore.org/reports_detail.asp?ID=11079 and http://www.elistore.org/reports_detail.asp?ID=11152, respectively.*

definition, waters of the State in Alabama Water Pollution Control Act, but wetlands are not defined for their inherent values such as function, rareness, type, habitat, or value."[5,6] In North Carolina and Washington, the states' definitions of "waters" do not explicitly include wetlands, but court decisions in both states have ruled that wetlands must be included.[7]

[5] Alabama Department of Environmental Management, *Alabama's 2000 Water Quality Report to Congress (Clean Water Act §305(b) Report)* Part VIII-2, *available at* http://www.adem.state.al.us/waterdivision/WQuality/305b/2000WQRC/2000part8.pdf.

[6] ADEM did not include this statement in its subsequent 2002, 2004, or 2006 §305(b) reports. *See:* Alabama Department of Environmental Management, *Alabama's 2002 §305(b) Report* Part IX, *available at* http://www.adem.state.al.us/waterdivision/WQuality/305b/Draft2002/02305(b)Pt9%5BWet%5D.pdf; Alabama Department of Environmental Management, *Alabama's 2004 §305(b) Report* Part 4, *available at*

Most states have also adopted one or several definitions of wetlands. Many states' definitions echo that of the Clean Water Act (CWA).[8] State laws and regulations in California, Colorado, Connecticut, Georgia, Hawaii, Maine, Maryland, New Jersey, New York, Rhode Island, Vermont, and Virginia provide definitions for multiple wetland types that are regulated in the state.[9] The two delegated states, Michigan and New Jersey, supply further clarification for wetlands that are regulated by the state's §404 program.[10] North Carolina, one of three of the study's 24 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."[11]

Most states rely on the delineation methodology outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*,[12] although some states use other state and/or federal delineation manuals that either supersede or supplement the 1987 Corps *Manual*. For example, California's state and regional water quality boards have authority to develop wetland delineation criteria for their regions; however, in practice, the

http://www.adem.state.al.us/waterdivision/WQuality/305b/2004Report/2004%20Alabama%20%BA305(b)%20Part%204%20%5BWetlands%5D.pdf; and Alabama Department of Environmental Management, *Alabama's 2006 §305(b) Report* Ch. 4, *available at* http://www.adem.state.al.us/waterdivision/WQuality/305b/2006/2006%20AL%20IWQMAR%20Ch4%20(Wetlands)%20.pdf.

[7] *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.

[8] 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).

[9] California defines wetlands in both its coastal laws and its wildlife preservation laws. *See* Cal. Pub. Res. Code § 30121, Cal. Code. Reg. § 13577, and Cal. Fish and Game Code § 2785. Colorado water quality regulations provide definitions for "compensatory wetlands," "constructed wetlands," "created wetlands," and "tributary wetlands." *See* 5 Colo. Code Regs. § 1002-31.5. Connecticut regulates tidal and inland wetlands separately and provides definitions for both. *See* Conn. Gen. Stat. § 22a-36 *et seq.* and Conn. Gen. Stat. § 22a-28 *et seq.* 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. Hawaii regulations define "coastal wetlands," "elevated wetlands," and "low wetlands." *See* Haw. Admin. Rules § 11-54-1. 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). Maryland regulates tidal and inland wetlands separately and provides definitions for both. *See* Md. Code Ann., Envir. § 5-901(h)(1) and Md. Code Ann., Envir. § 16-101(n). The state's tidal wetland law further defines "state tidal wetlands" and "private tidal wetlands." *See* Md. Regs. Code tit. 26, § 24.01.02 (B)(52) and Md. Code Ann., Envir. § 16-101(j). In addition to "wetlands" as defined under the state water quality laws, Virginia also defines "vegetated wetlands" and "non-vegetated wetlands" in its tidal wetland protection regulations. *See* Vir. Code Ann. §§ 62.1-44.3 and 2.82-1302. New Jersey laws provide definitions for regulated freshwater wetlands and coastal wetlands, as well as separate definitions for coastal and inland wetlands within the boundaries of the New Jersey Pinelands. *See:* N.J. Stat. Ann. §§ 13:9A and 13:9B; N.J. Admin. Code. §§ 7:50-6.3 to 7:50-6.5. 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.

[10] Mich. Comp. Laws § 324.30301; Mich. Admin. Code § 281.921. Rhode Island law elaborates three categories of wetlands: "freshwater wetlands," "freshwater wetlands in the vicinity of the coast," and "coastal wetlands." *See:* R.I. Gen. Law § 2-1-20; RICRMC, Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast, § 5.04; and R.I. Gen. Law § 46-23-6(B)(3)(e), respectively. Finally, Vermont regulations provide definitions for "alpine peatland," "bog," "deep marsh," "fen," "shallow marsh," and "wooded swamps." *See:* Vermont Wetland Rules § 2.

[11] N.C. Admin. Code tit.15A, r. 02H.1300.

[12] 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.

boards mainly rely on the Corps or consultants' delineations.[13] When delineations are conducted by the state, they vary from region to region. Some regions use the Corps' 1987 *Manual* for all wetlands in their regions, while other regions use it only for wetlands within the Corps jurisdiction and adopt stricter criteria outside these areas.[14,15] Furthermore, the California Coastal Commission uses its own wetlands definition[16] when delineating coastal wetlands, as well as information on hydrophytes from the U.S. Fish and Wildlife Service and information on soils from the Natural Resources Conservation Service; however, the Coastal Commission also refers to the Corps *Manual* for delineation methods and parameters.[17] In Connecticut, wetland delineation criteria correspond to state statute.[18] Florida has adopted a unified wetlands delineation methodology that is binding on all state, regional, and local governments throughout the state.[19] The methodology is specific to Florida and recognizes the unique vegetation, hydrology, and soil features that exist in the state. Although the Florida methodology differs from the 1987 Corps *Manual*, state and federal wetland delineation lines are often very close or identical.[20] Maryland's nontidal delineation criteria are made in accordance with the 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*.[21] Tidal delineation criteria are based on the state's 1971-1972 tidal wetland boundary maps and tidal vegetation.[22] New Jersey also relies on the 1989 *Manual*,[23] with the exception of the New Jersey Pinelands, where the 1991 *New Jersey Pinelands Commission Manual for Identifying and Delineating Pineland Area Wetlands* is utilized.[24] New York utilizes its 1995 *Freshwater Delineation Manual*, which emphasizes, but is not limited to, vegetation criteria. The state's delineation techniques parallel those offered in the Corps' manual, and soil and hydrological classifications can be used if needed.[25] Generally, criteria are similarly stringent, but the amount of documentation required by New York State is less rigorous than that required by the Corps.[26] Oregon's Department of State Lands works closely with the U.S. Army Corps of Engineers' Portland District and U.S. Environmental Protection Agency Region X in issuing wetland delineation guidelines and has adopted regulations for wetland delineation reporting.[27] These additional requirements supplement those outlined in the 1987 Corps *Manual.* Virginia code instructs the state to utilize the Corps *Manual* and also requires the adoption of guidance and

[13] Personal Communication with Glenda Marsh, State Water Resources Control Board (Dec. 7, 2006).
[14] Personal Communication with John Short, North Central Regional Water Quality Control Board, Region 1 (Nov. 29, 2006).
[15] Personal Communication with Chiara Clemente, San Diego Regional Water Quality Control Board, Region 9 (Dec. 4 2006).
[16] For the Corps to delineate a wetland, it must meet criteria related to hydrology, soils, and vegetation, whereas wetlands only need to meet one of these criteria for delineation under the Coastal Commission's wetlands definition.
[17] Personal Communication with Charles Lester, California Coastal Commission (Dec. 6, 2006).
[18] Conn. Gen. Stat. §§ 22a-28 *et seq*. and 22a-36 *et seq*.
[19] *See* Fl. Stat. Ann. § 373.421; Fl. Admin. Code § 62-340.
[20] Florida Department of Environmental Protection, *Florida Wetland Regulatory Program Demonstration Project (undated) (on file at ELI)*, at 9.
[21] Md. Code Ann., Envir. § 5-901(h)(2).
[22] Every county planning and zoning office whose jurisdiction includes tidal wetlands has a set of these tidal wetland boundary maps. The original mylars are at the Maryland Geological Survey office in Baltimore; Personal Communication with Robert Tabisz, Maryland Department of the Environment (October 27, 2006).
[23] N.J. Stat. Ann. § 13:9B; N.J. Admin. Code. § 7:7A-2.3(a).
[24] N.J. Admin. Code. § 7:50-6.3.
[25] 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.
[26] Personal communication with Pat Reixinger, New York Department of Environmental Conservation (Nov. 12, 2003).
[27] Or. Admin. R. § 141-090-0030 and 141-090-0035 (2005).

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 rely on §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.[1]

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

regulations to ensure consistency with the Corps' implementation of delineation practices.[28] Finally, Washington has also created a state delineation manual,[29] but again, its criteria are consistent with the Corps' 1987 *Manual*.[30]

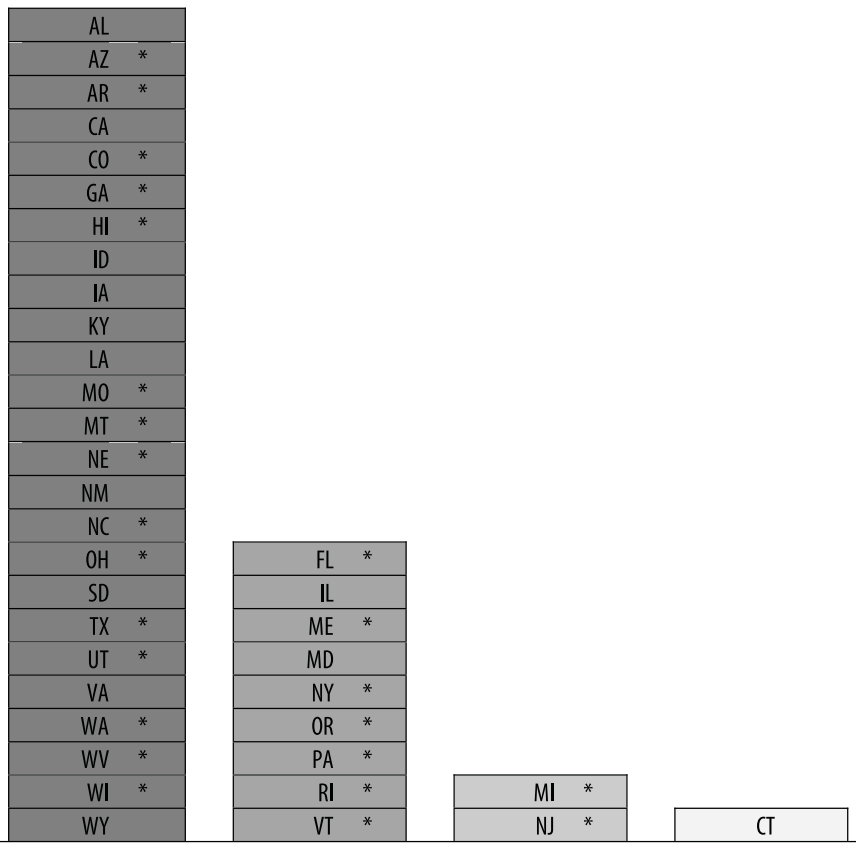
States utilize a variety of regulatory tools to protect wetlands. Many states rely on water quality regulations and CWA §401 (See *Box A*). Two states, Michigan and New Jersey, have assumed the CWA §404 program. Other states have enacted laws establishing resource-based permitting programs that include wetlands. Still others have adopted laws establishing non-regulatory measures. Multiple states have enacted different types of laws in combination, creating a more comprehensive approach to wetland protection. See *Figures 2 and 3*.

[28] Vir. Code Ann. § 62.1-44,15:5 D5.

[29] *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.

[30] 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.

Figure 2.
Primary type of law utilized for wetland protection/regulation at the state level.



* *Based on research conducted in 2003-2006. The Phase I and II reports, which include detailed summaries of these 24 states, may be accessed at: http://www.elistore.org/reports_detail.asp?ID=11079 and http://www.elistore.org/reports_detail.asp?ID=11152, respectively.*

State Water Quality Programs. Many states rely primarily on water quality laws to regulate wetlands as "waters of the state." In Alabama, Arizona, Arkansas, Colorado, Hawaii, Idaho, Iowa, Kentucky, Montana, Missouri, Nebraska, New Mexico, South Dakota, Texas, Utah, West Virginia, and Wyoming, §401 water quality certification is the sole mechanism by which wetlands are regulated at the state level. North Carolina, Ohio, and Wisconsin rely on §401 water quality certification, but have also enacted legislation regulating "isolated wetlands." Virginia has adopted the State Water Control Law, which provides for a water permitting program that serves as §401 certification for federal §404 permits and as a state permit regardless of federal permit

Figure 3.
States utilizing a combination of wetland laws.

State	*Wetland-related law*				
	Water Quality/401	**Other Resource**	**Local reg.**	**CWA §404**	**Other**
AR*	✓				✓
CA	✓				✓
CT	✓		✓		
FL*	✓	✓			✓
GA*	✓	✓	✓		
IL	✓	✓			
LA	✓	✓			
ME*	✓	✓	✓		
MD	✓	✓			✓
MI*		✓		✓	
NJ*		✓		✓	
NC*	✓	✓			
OR*	✓	✓	✓		✓
PA*	✓	✓			
RI*	✓	✓			
VT*	✓	✓			
VA	✓	✓			✓
WA*	✓	✓	✓		
WI*	✓		✓		✓
WY	✓				✓

* *Based on research conducted in 2003-2006. The Phase I and II reports, which include detailed summaries of these 24 states, may be accessed at: http://www.elistore.org/reports_detail.asp?ID=11079 and http://www.elistore.org/reports_detail.asp?ID=11152, respectively.*

requirements.[31] Finally, California and Washington rely primarily on §401 water quality certification to regulate wetlands at the state level, but have also adopted several other statutes that authorize additional approaches for state or regional oversight as well.[32]

Assumption of CWA §404. To date, Michigan and New Jersey are the only two states in the nation that have assumed authority to administer dredge and fill permits under CWA §404.

State Resource Permitting Programs. Fifteen of the thirty-seven states have established permitting regimes focused on particular state natural resources. In Florida, the Environmental Resource Permit Program[33] effec-

[31] Vir. Code Ann. § 62.1-44.15:5.

[32] All states included in the study, with the exception of Michigan and New Jersey, do apply § 401 water quality certification to wetlands. However, some rely primarily on other types of regulation, with §401 certification serving an auxiliary role in wetland-related permitting processes.

[33] Fl. Stat. Ann. § 373, Part IV.

tively regulates all alterations to the landscape, including all tidal and freshwater wetlands and other surface waters (including isolated wetlands) and uplands. The program addresses dredging and filling in wetlands and other surface waters, as well as stormwater treatment and attenuation and flooding of other properties, including flows resulting from alterations of uplands.[34] Maine's Natural Resources Protection Act[35] 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."[36] Illinois' Interagency Wetlands Policy Act establishes a wetland regulatory program requiring permits for state-funded projects and activities that impact wetlands.[37] (State regulation of wetlands on private lands occurs through the CWA §401 water quality certification.) In California, Connecticut, Georgia, Louisiana, Michigan, North Carolina, Rhode Island, and Virginia, state permitting programs have been established for coastal wetlands.[38] North Carolina has also developed riparian area buffer rules.[39] New York relies on three separate resource-based authorities to protect wetlands. These statutes address, respectively, freshwater wetlands,[40] tidal wetlands,[41] and resources adjacent to the state's navigable waters.[42] Maryland has established permitting programs for both tidal[43] and non-tidal wetlands.[44] Pennsylvania has enacted the Dam Safety and Encroachments Act.[45] The law is designed to regulate dams and reservoirs, water obstructions, and encroachments in Pennsylvania, including wetlands. Vermont's Wetland Rules require permits for regulated activities in certain wetlands, classified according to functional value. Oregon has also adopted wetland legislation that requires permits for certain removal/fill activities. California has enacted the McAteer-Petris Act, which established the San Francisco Bay Conservation and Development Commission as the management and regulatory agency for the San Francisco Bay and Delta.[46] The Act gives the Commission jurisdiction over all tidal areas and requires regulation of tidal wetlands and waters of the San Francisco Bay through a permitting system.[47]

[34] Florida's panhandle operates under a wetland resource permit program that regulates dredging and filling in waters of the state. The rules applicable to the panhandle program are currently "grandfathered" until the year 2010, when they will be replaced by the Environmental Resource Permit program. *See:* Fl. Stat. Ann. § 373.4145, which preserves Fl. Admin. Code §§ 62-312.010-312.470; and Fl. Admin. Code § 62-25.

[35] 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).

[36] Me. Rev. Stat. Ann. tit. 38, § 480-C(1).

[37] 830 Ill. Comp. Stat. § 20/1-1 *et seq*.

[38] State permitting programs for coastal resources are authorized in California, Connecticut, Georgia, Louisiana, Michigan, North Carolina, and Rhode Island under Cal. Pub. Res. Code § 30600(a), Conn. Gen. Stat. § 22a-28 *et seq*., Ga. Code Ann. § 12-5-280, L.A.R.S. 49 § 214.21 *et seq.*, Mich. Comp. Laws §§ 324.32301 - 324.32315, N.C. Gen. Stat. § 113A-100, R.I. Gen. Law § 46-23 *et seq.*, and Vir. Code Ann. § 28.2-1300 – 1320, respectively. Rhode Island has also adopted regulations that address "freshwater wetlands in the vicinity of the coast. *See:* R.I. Gen. Law § 46-23-6.E.

[39] N.C. Admin. Code tit.15A, r. 02B.0233, 02B.0259.

[40] N.Y. Envtl. Conserv. Law § 24, Title 7.

[41] N.Y. Envtl. Conserv. Law § 25.

[42] N.Y. Envtl. Conserv. Law § 15, Title 5.

[43] Md. Code Ann., Envir. §§ 16-101–16-503.

[44] Md. Code Ann., Envir.§§ 5-901-911.

[45] 32 Pa. Cons. Stat. §§ 693.1–693.27.

[46] Cal. Govt. Code § 66601.

[47] Cal. Govt. Code § 66632(a).

Local Authority. Seven of the thirty-seven states have established laws requiring local governments to adopt ordinances that provide wetland regulation and protection and/or incorporate planning criteria into their minimum standards.[48] Although administered locally, state resource agencies in Connecticut, Georgia, Maine, Oregon, Washington, and Wisconsin are charged with providing guidance and technical assistance to local governments. Maryland's Chesapeake Bay Critical Area Act requires that local jurisdictions adopt zoning regulations for lands within 1,000 feet of the Chesapeake Bay. Additionally, the Act places restrictions on grading, filling, excavating, draining, flooding, and removing vegetation in nontidal wetlands.[49] 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.[50]

Other Wetland-related Authorities. Some states have adopted other types of legislation aimed at wetland protection. For example, 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.[51] The Wyoming Wetlands Act is a notification program for draining wetlands over five acres.[52]

Many states have also adopted rules outlining best management practices pertaining to wetlands, coastal conservation provisions, and/or protection measures for specific wetland resources in the state. For example, Louisiana's Coastal Wetlands Conservation and Restoration Act provides revenue from oil and gas for wetland restoration efforts in the state,[53] while the Coastal Protection, Conservation, Restoration and Management Act establishes the state's Coastal Protection and Restoration Authority and Coastal Protection and Restoration Fund.[54] California's Suisan Marsh Preservation Act protects the Suisan Marsh, the largest wetland system in California comprising 10 percent of the state's wetlands.[55]

Others have laws and regulations that indirectly affect wetlands. Washington has adopted a forest-focused law[56] and a water resource-focused law,[57] both of which indirectly involve wetland protection. In Illinois, the Rivers, Lakes, and Streams Act provides the Illinois Department of Natural Resources with peripheral authority to regulate construction activities in floodplains.[58]

[48] This does not include states, such as New York or Virginia, that allow local governments to assume authority under state wetland laws.
[49] Md. Code Ann., Nat. Res. § 8-1808.
[50] *See* Me. Rev. Stat. Ann. tit. 38, §§ 435-449 and Wash. Rev. Code § 90.58.
[51] Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, Ark. Code Ann. §§ 26-51-1501.
[52] Wyo. Stat. § 35-11-308 *et seq*.
[53] L.A.R.S. 49 §214.1.
[54] L.A.R.S. 49 §213.1.
[55] Cal. Pub. Res. Code §§ 29000-29612.
[56] Wash. Rev. Code § 76.09; Wash. Admin. Code § 222.
[57] Wash. Rev. Code § 77.55; Wash. Admin. Code § 220-110.
[58] IDNR, *available at* http://dnr.state.il.us/wetlands/Ch4f.htm

§401 Certification

All states reported a low percentage of §401 water quality certifications that are outright denied. Permit review staff often stated that they 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 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.[59]

Organization of State Activities

The majority of the 37 states studied in Phases I through III 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, Connecticut, Georgia, Michigan, Montana, New Mexico, North Carolina, Pennsylvania, Vermont, Wisconsin, and Wyoming—states with widely varying economies, ecologies, and wetland program sizes and approaches—state-level wetland-related activities are administered by one main environmental agency, although programs are often operated by multiple divisions within the single agency.

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 Alabama, Colorado, Hawaii, Kentucky, Maryland, Missouri, Nebraska, Ohio, and Utah, where water quality regulation is generally overseen by one agency[60] and restoration, landowner partnership, and other non-regulatory programs are administered by another agency.[61]

Although Maine, New York, and Rhode Island also divide their state wetland-related programs between two agencies, 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

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

[60] The Alabama Department of Environmental Management, Colorado Department of Public Health Environment, Hawaii Department of Health, Kentucky Department of Environmental Protection, Maryland Department of Environment, Nebraska Department of Environmental Quality, Missouri Department of Natural Resources, Ohio Environmental Protection Agency, and Utah Department of Environmental Quality administer these states' regulatory programs.

[61] The Alabama Department of Conservation and Natural Resources, Colorado Department of Natural Resources, Hawaii Department of Land and Natural Resources, Kentucky Department of Fish and Wildlife Resources, Maryland Department of Natural Resources, Missouri Department of Conservation, Nebraska Game and Parks Commission, Ohio Department of Natural Resources, and Utah Department of Natural Resources conduct these states' restoration and landowner stewardship activities.

Environmental Conservation in all areas of the state except the Adirondack Park, where the Adirondack Park Agency administers state wetland laws. Rhode Island also divides regulation by jurisdiction—the Department of Environmental Management oversees most freshwater wetland regulation and the Coastal Resources Management Council oversees regulation of coastal wetlands and freshwater wetlands in the vicinity of the coast.

Both Florida and California administer regulatory programs jointly at the state and regional level. In Florida, the Department of Environmental Protection (FLDEP) and four of five regional Water Management Districts (WMDs)[62] implement the state's environmental resource permitting program. In practice, FLDEP and the four WMDs have divided responsibilities according to categories of activities.[63] FLDEP has entered into operating agreements with each of the four WMDs that implement the program to outline the division of responsibilities.[64] California's State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) together constitute the state Water Board entities responsible for regulating wetlands.

In ten of the thirty-seven 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. In New Jersey, the Department of Environmental Protection is the state's leading agency on wetland-related regulation and conservation; however, the Pinelands Commission and the Meadowlands Commission conduct some wetland activities in their respective jurisdictions. In addition to California's SWRCB and RWQCBs, multiple agencies regulate and conserve wetland resources in the state, including the Resources Agency, Coastal Commission, San Francisco Bay Conservation and Development Commission, Department of Fish and Game, Department of Parks and Recreation, Coastal Conservancy, and Department of Water Resources. *See Figure 4.*

In most 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 the Arizona Department of Environmental Quality's §401 program to as

[62] The five regional WMDs are: Northwest Florida, Saint John's River, South Florida, Southwest Florida, and Suwanee River. The Florida Department of Environmental Protection administers the wetland permitting program in the Northwest Florida WMD, covering the "panhandle" region in the northwest portion of the state.

[63] FLDEP generally reviews and takes action on activities involving extraction, waste disposal, dredging, energy production, industry, and communications, as well as those involving coastal zone construction. WMDs generally take action on applications involving commercial and residential developments. *See:* Florida Department of Environmental Protection, *ERP Primer (undated) (on file at ELI)*, at 5.

[64] The operating agreements are adopted as rules and regulations at Fl. Admin. Code § 62-113.

Figure 4. State agencies conducting signi cant wetland-related activities.

State	*Name of Agency(ies)*							
AB	Dept. of Env'l Management	Dept. of Conserv'n and Nat. Resources						
*AZ**	Dept. of Env'l Quality							
*AR**	Dept. of Env'l Quality	Soil and Water Conservation Comm.	Game and Fish Comm.	Natural Heritage Comm.	Forestry Comm.	Univ. of Ark. Coop. Ext. Service		
CA	State and Reg'l Water Boards	Resources Agency	Coastal Commission	SF Bay Conserv'n and Dev't Comm.	Dept. of Fish and Game	Dept. of Parks and Recreation	Coastal Conservancy	Dept. of Water Resources
*CO**	Dept. of Public Health and Env't	Dept. of Natural Resources						
CT	Dept. of Env'l Protection							
*FL**	Dept. of Env'l Protection	Reg'l Water Mgmt Districts						
*GA**	Dept. of Natural Resources							
*HI**	Dept. of Health	Dept. of Land and Natural Resources						
ID	Dept. of Env'l Quality	Dept. of Fish and Game	Dept. of Lands					
IL	Dept. of Natural Resources	Environmental Protection Agency						
IA	Dept. of Natural Resources	Dept. of Ag. and Land Stewardship						
KY	Dept. of Env'l Protection	Dept. of Fish and Wildlife Resources						
LA	Dept. of Env'l Quality	Dept. of Natural Resources	Dept. of Wildlife and Fisheries					
*ME**	Dept. of Env'l Protection	Land Use Regulatory Comm.						
MD	Dept. of Environment	Dept. of Natural Resources						
*MI**	Dept. of Env'l Quality							
*MO**	Dept. of Natural Resources	Dept. of Conservation						
*MT**	Dept. of Env'l Quality							
*NE**	Dept. of Env'l Quality	Game and Parks Comm.						
*NJ**	Dept. of Env'l Protection	Pinelands Comm.	Meadowlands Comm.					
NM	Environment Department							
*NY**	Dept. of Env'l Conservation	Adirondack Park Agency						
*NC**	Dept. of Env. and Nat. Resources							
*OH**	Env'l Protection Agency	Dept. of Natural Resources						
*OR**	Dept. of State Lands	Dept. of Env'l Quality	Watershed Enhancement Board	Dept. of Land Conserv'n & Devt.	Dept. of Forestry			
*PA**	Dept. of Env'l Protection							
*RI**	Dept. of Env'l Management	Coastal Resources Mgmt. Council						
SD	Dept. of Env. and Nat. Resources	Dept. of Game, Fish, and Parks	Dept. of Agriculture					
*TX**	Commission on Env'l Quality	General Land O ce	Parks and Wildlife	Forest Service				
*UT**	Dept. of Env'l Quality	Dept. of Natural Resources						
*VT**	Dept. of Env'l Conservation							
VA	Dept. of Env'l Quality	Marine Resources Commission	Dept. of Game and Inland Fisheries	Dept. of Conserv'n and Recreation				
*WA**	Dept. of Ecology	Dept. of Fish and Wildlife	Dept. of Natural Resources	Dept. of Community, Trade, & Econ. Devt.				
*WV**	Dept. of Env'l Protection	Division of Natural Resources						
*WI**	Dept. of Natural Resources							
WY	Dept. of Env'l Quality							

* *Based on research conducted in 2003-2006. The Phase I and II reports, which include detailed summaries of these 24 states, may be accessed at: http://www.elistore.org/reports_detail.asp?ID=11079 and http://www.elistore.org/reports_detail.asp?ID=11152, respectively.*

much as $630 million for California's water quality boards. 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 1⅓ 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. In contrast, California employs more than 1,500 staff statewide to administer the state's water quality control law.

Nationwide Permits

Twenty-six of the thirty-seven states examined conduct regular reviews of the U.S. Army Corps of Engineers' Nationwide Permits (NWPs). These states provide comment on Corps regional NWP conditions, and many issue general conditions or denials. Seven of the remaining states, Connecticut, Maine, Maryland, Pennsylvania, Rhode Island, Vermont, and Wisconsin, operate under State Programmatic General Permits (SPGPs) in lieu of NWPs.[65] Colorado and Utah do not provide review and comment, condition, or deny NWPs (Colorado certifies all NWPs by state statute).

In Michigan and New Jersey, although the state has assumed authority to administer dredge and fill permits under CWA §404, the Corps retains jurisdiction of traditionally navigable waters. NWPs are still applicable in these areas. The states have also issued general permits for their assumed 404 programs. Analogous to the federal NWPs, general permits in Michigan and New Jersey allow the state agencies to evaluate applications on an expedited basis. For the most part, general permit categories are similar those found in the Corps' NWPs.[66]

North Carolina has also created a general permit for wetlands regulated under the state's isolated wetlands rules and buffer rules,[67] while Florida has issued a number of general permits for the Environmental Resource Permitting Program.[68] Virginia has issued four general permits under its Water Protection Permit Program for activities considered to have minimal impact to human health and the environment.[69]

State Programmatic General Permits

Connecticut, Maine, Maryland, Pennsylvania, Rhode Island, Vermont, and Wisconsin operate under an SPGP and therefore do not have applicable NWPs. The SPGPs expedite the Corps' review of certain activities that are

[65] Florida, Hawaii, Louisiana, Oregon, and Virginia also have SPGPs, although they cover limited sets of activities and/or defined geographic portions of the state.

[66] *Id*.

[67] 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://h20.enr.state.nc.us/ncwetlands/isogp.pdf; 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).

[68] Activities subject to a general permit include: construction and modification of boat ramps of certain sizes; installation and repair of riprap at the base of existing seawalls; installation of culverts associated with stormwater discharge facilities; and construction and modification of certain utility and public roadway construction activities. *See*: Fl. Stat. Ann. § 403.927; Fl. Admin. Code § 373.406.

[69] 9 Va. Admin. Code §§ 25-660, 25-670, 25-680, 25-690.

subject to federal jurisdiction, but do not preclude permit applications required under state regulations. Florida, Hawaii, Louisiana, Oregon Virginia, and Wyoming also have SPGPs, although they cover limited sets of activities and/or defined geographic areas within the state.

Mitigation

Mitigation regulations vary greatly from state to state. Alabama, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Idaho, Kentucky, Missouri, Montana, Nebraska, New Mexico, South Dakota, and Utah, 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 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. For example, Kentucky's *Wetland Compensatory Mitigation and Monitoring Plan Guidelines*, jointly prepared by the Louisville Corps District, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Kentucky Division of Water, and Kentucky Department of Fish and Wildlife Resources, assists applicants with the creation of mitigation and monitoring plans for projects requiring a §404 permit and §401 certification.[70] Although no specific wetlands mitigation goals are established in the document, it contains guidelines for development site description, mitigation site description, success criteria and performance standards for the mitigation site, monitoring details, permanent protection plan, and contingency plans. When applying for a water quality certification through KDOW, an applicant must follow the Kentucky Guidelines for wetland-related impacts involving greater than one acre. Iowa regulations require that a "protected wetland [be] replaced by the applicant with a wetland of equal or greater value as determined by the [Iowa Department of Natural Resources."[71] However, regulations do not specify exactly how mitigation should be achieved, and so the method, type, and location of mitigation vary from project to project.

North Carolina, Ohio, Texas, Virginia, Washington, West Virginia, and Wisconsin also rely on water quality provisions, but have adopted mitigation regulations in addition to requirements under the federal §404 program. Connecticut, Florida, Illinois, Louisiana, Maine, Maryland, New York, Oregon, Pennsylvania, Rhode Island, and Vermont have adopted 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, Oregon, Michigan, and Wyoming, four states with extremely different strategies for wetland protection, have each 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 states covered in this review participate in Mitigation Banking Review Teams to some degree.

[70] Kentucky Division of Water, *Wetland Compensatory Mitigation and Monitoring Plan Guidelines for Kentucky, available at* http://www.water.ky.gov/NR/rdonlyres/BC3F4926-1327-4965-A50C-2B1FCE01FDE5/0/Wetland_guide.pdf (last visited on Apr. 26, 2006).
[71] Iowa Code § 456B.13(2)(a)

Kentucky, Maryland, Pennsylvania, Louisiana, North Carolina, Montana, and New Jersey also 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.[72] The Montana Wetlands Legacy partnership operates an in-lieu fee program to mitigate impacts on wetlands and, beginning in 2006, impacts to streams as well. Payment to the program is one option for satisfying §404 mitigation requirements, as well as for settling some enforcement cases.

The North Carolina Ecosystem Enhancement Program 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.[73] 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.[74] Florida has also established a mitigation program specific to the state's Department of Transportation (FLDOT).[75] FLDOT annually provides an inventory of anticipated wetland impacts to the regional Water Management Districts, which then develop mitigation plans in coordination with other state and federal regulatory agencies.[76] South Dakota Department of Transportation (SDDOT), in agreement with the Federal Highway Administration, South Dakota Game, Fish, and Parks, and the U.S. Fish and Wildlife Service, established an umbrella mitigation bank in 1988 to mitigate for wetlands impacted by highway construction.[77] As of 2006, SDDOT was developing a new mitigation banking agreement with the Corps.[78]

Separate standards and procedures for stream mitigation are uncommon among the 37 states reviewed. Kentucky, Maine, Maryland, North Carolina, Pennsylvania, and Virginia offer the only examples of states that have adopted regulations or guidelines specifying criteria for stream mitigation.

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

[73] 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).

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

[75] Fl. Stat. Ann. § 373.4137.

[76] This program does not relieve FLDOT from eliminating or reducing impacts or obtaining permits for the impacts and FDOT must provide funding to conduct the required mitigation projects. *See* Florida Department of Environmental Protection, *Florida Wetland Regulatory Program Demonstration Project (undated) (on file at ELI)*, at 15.

[77] Environmental Law Institute, *Banks and Fees: The Status of Off-Site Wetland Mitigation In the United States*, *at* http://www2.eli.org/wmb/umbrelladetail.cfm?AgreementID=22 (last visited July 10, 2006)

[78] Personal communication with John Miller, South Dakota Department of Environment and Natural Resources (Apr. 19, 2006).

Enforcement and Compliance

In most of the 37 states reviewed, wetland-related enforcement falls under the state's water quality provisions. Such is the case in Alabama, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Idaho, Iowa, Kentucky, Louisiana, Missouri, Montana, Nebraska, New Mexico, North Carolina, Ohio, South Dakota, Texas, Utah, Washington, West Virginia, and Wyoming. Enforcement tools vary from state to state and may include compliance orders, injunctions, and civil and criminal penalties/prosecution. Many of these states, however, defer to the U.S. Army Corps of Engineers and/or U.S. Environmental Protection Agency to pursue wetland-related enforcement under CWA §404.[79]

In California, Connecticut, Florida, Louisiana, Maine, Maryland, Michigan, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin, enforcement provisions are outlined in the states' other wetland-related laws and regulations. Again, typical enforcement mechanisms include civil and criminal penalties/prosecution, abatement orders, and injunctions. Enforcement actions are rarely pursued at elevated levels.

Tracking Systems

Most states maintain systems to track permits and/or certifications to some degree. In Connecticut, Florida, Illinois, Iowa, Louisiana, Maine, Maryland, Michigan, Oregon, New Jersey, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin, tracking systems also include data related to enforcement, mitigation, restoration, monitoring, and/or assessment.

Other states have developed, or 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.[80] Arkansas' Wetland Information Management System (AWIMS) utilizes GIS and includes a variety of data fields such as mitigation (based on proposed actions only), individual wetland planning areas, ecoregions and watersheds, congressional districts, counties, §404 permits, acreages, and conservation programs.[81] 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

[79] One notable 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. In addition, 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.

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

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

management systems in the state. Rhode Island's statewide permit tracking system keeps record of all §401 water quality certification decisions, as well as coordinated enforcement and compliance efforts. Rhode Island Department of Environmental Management maintains a computerized tracking system for wetland permit decisions and associated loss/gain data.[82] The agency has incorporated a geographic component for internal use, and Rhode Island's official website recently launched a wetland application search tool.[83] The state's Coastal Resource Management Council is currently proposing to add a loss/gain tracking function to their permit database as well.

II. Water Quality Standards

Six states have adopted wetland-specific water quality standards: Colorado, Hawaii, Nebraska, North Carolina, Ohio, and Wisconsin. Pennsylvania has incorporated wetlands into the state's water quality provisions by creating linkages between state wetland regulations and water quality standards. Wyoming has one limited narrative standard pertaining specifically to wetlands: "Point or non-point pollution shall not cause the destruction, damage or impairment of naturally occurring wetlands except when mitigated through an authorized wetlands mitigation process."[84]

In Maine, wetlands are identified in the state's antidegradation policy and designated uses; Illinois' antidegradation policy also specifies wetlands. In California, some Regional Water Quality Control Boards have adopted uses specific to wetlands. New Mexico has assigned secondary aquatic life and contact recreation uses to unclassified ephemeral, intermittent, and perennial waters; once the state has developed supporting use attainability analyses, EPA may approve these provisions as effective under the CWA.[85] In South Dakota, wetlands are designated the beneficial uses of fish and wildlife propagation, recreation, and stock watering.[86]

Most remaining states have not adopted water quality criteria, anti-degradation policies, or designated uses specific to wetlands, although surface water quality standards, uses, and antidegradation policies do apply to wetlands included in state-defined waters.

III. Monitoring and Assessment

Few of the states examined maintain a formal monitoring and assessment program for wetlands. In Maine, the biological monitoring and assessment program has been under development since 1998. It is adminis-

[82] RIDEM, *Freshwater Wetland Protection and Regulation Status and Trends Report 2001 through 2003 (Oct. 2004), available at* http://www.dem.ri.gov/programs/benviron/water/wetlands/pdfs/wet2003.pdf, at 7.
[83] RIDEM, *Wetlands Permit Application Search, at* http://www.ri.gov/dem/wetlands/ (last visited Feb. 10, 2006).
[84] Ch. 1 of Wyoming Water Quality Rules and Regulations § 12
[85] Personal communication with U.S. Environmental Protection Agency – Region VI (Mar. 20, 2007).

tered as part of the Maine Department of Environmental Protection's overall water quality assessment program, which also oversees biological assessment and monitoring for streams and rivers.[87]

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

In California, state and federal agency representatives and scientists developed the California Rapid Assessment Method (CRAM) to evaluate physical wetland conditions across a range of wetland types and geographic areas. In addition, the State Water Resources Control Board administers the Surface Water Ambient Monitoring Program (SWAMP), a program that provides a statewide framework to "coordinate comparable, consistent, and scientifically defensible methods and strategies to improve surface water monitoring, assessment and reporting."[88]

Vermont's wetland classification, conducted for regulatory purposes, relies on Adamus et al.'s *Wetland Evaluation Technique*, a functional criteria methodology.[89] Functional criteria include: water storage for flood water and storm runoff; surface and groundwater protection; fisheries habitat; wildlife and migratory bird habitat; hydrophytic vegetation habitat; threatened and endangered species habitat; education and research in natural sciences; recreational value and economic benefits; open space and aesthetics; and erosion control through binding and stabilizing the soil.[90]

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.[91] 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-

[86] S.D. Admin. R. §§ 74:51:01:34-39.

[87] 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).

[88] Surface Water Ambient Monitoring Program, *Comprehensive Monitoring and Assessment Strategy to Protect and Restore California's Water Quality* (2005), State Water Resources Control Board.

[89] *See* P.R. Adamus et al., Wetland Evaluation Technique (WET) Volume II: Methodology (1987).

[90] Vermont Wetland Rules §5.

[91] 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.

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.[92] 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.[93]

A variety of assessment methodologies are used in wetlands management and protection in Ohio. The Ohio Rapid Assessment Method was developed specifically for regulatory purposes in the late 1990s, with the final version released in February 2001 (Version 5.0).[94] Bioassessment methodologies are also being utilized more and more by Ohio Environmental Protection Agency staff.[95] 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 U.S. EPA-recommended three-tiered protocol.[96] Finally, Washington State utilizes a quantitative, HGM-based, functional assessment methodology, used mainly for mitigation decision-making.[97]

The Montana Department of Environmental Quality employs several assessment methodologies for wetlands. The state currently has landscape-level and rapid assessments and is developing a bioassessment focused on vegetation, birds, and amphibians. In the future, Montana hopes to develop a strategy to integrate the assessment of wetlands with stream and landscape assessments to focus on overall watershed health. Beginning in 2006, the state will use assessments in watersheds to identify sites for wetland protection and restoration. The main purposes of the methodology will be local watershed management, identification of wetland restoration priorities, and general ambient assessment.[98]

Many of the remaining states are in the process of developing wetland monitoring and assessment methodologies and strategies and capacity-building. In Maryland, an interagency effort to develop a wetland monitoring strategy will eventually allow the state to report, track, monitor, and enhance the condition and functions of the state's wetland resources on a regular basis. In addition, the strategy will lay the foundation for all state agencies to use a consistent wetland assessment methodology so they can share data and compare

[92] 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.

[93] 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).

[94] Ohio Envtl. 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).

[95] Personal communication with Randy Bournique, Ohio Envtl. Prot. Agency (Nov. 6, 2003).

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

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

[98] Personal Communication with Randy Apfelbeck, Montana Department of Environmental Quality (Mar. 9, 2005).

results. Maryland Department of Natural Resources has conducted in the past and is currently conducting pilot projects to test wetland assessment methodologies.[99]

IV. Restoration and Partnerships

Most of the 37 states reviewed 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 Conservation Service's Wetland Reserve Program or programs related to the North American Waterfowl Management Plan).

For example, one of Wisconsin's notable wetland restoration efforts is funded by waterfowl stamp revenues. State, federal, and conservation groups within the State of Wisconsin are eligible for funding to conduct restoration. The program allocates funds according to criteria based on wildlife priorities identified in the *Upper Mississippi River and Great Lakes Region Joint Venture - Wisconsin Plan*. The Wisconsin Joint Venture Plan states its goal to be the involvement of "state and federal agencies and private organizations in a broad-based, unified effort to increase populations of waterfowl and other wildlife species by preserving, restoring, and enhancing wetland and upland habitat..." The plan outlines multiple, concrete objectives designed to achieve this goal, including increasing bird populations and additional habitat – specifically, "a minimum of 55,500 additional acres of habitat (3,700 acres per year) in perpetuity with a 3:1 upland to wetland ratio" and "177,350 acres of habitat on public (4,340 acres per year) and private (7,500 acres per year) lands by the year 2005."[100] As of 2005, the program has accomplished more than 70 percent of the goal.[101]

Oregon's Watershed Enhancement Board administers a watershed enhancement program that focuses on the protection and restoration of naturally functioning habitats. The program was established, partially, as a result of salmon listing and water quality degradation and assists with salmon recovery and water quality improvement.[102] Funding for the board's activities comes from the state lottery and is used for land acquisition, watershed restoration, technical assistance, monitoring, watershed assessment, outreach, and education.

Florida has restoration projects underway in multiple regions of the state, each with its own individual legislation, targeted plan, goals, sponsors, and partners. Two major, multi-year, multi-billion dollar wetland restoration efforts include those on the Kissimmee River and in the Florida Everglades. In addition, the Florida Forever program is the state's major land conservation and acquisition program, devoting $300 million annually to land acquisition and management. Nearly a quarter of those funds may be used for facilities development, ecological or hydrological restoration, or other capital improvements.[103] The Florida Department of

[99] Personal Communication with Christine Conn, Maryland Department of Natural Resources (November 20, 2006).
[100] *See:* Upper Mississippi River Great Lakes Region Joint Venture – Wisconsin Plan (1992) (on file with author).
[101] Personal Communication with Michele Cipiti, Wisconsin Department of Natural Resources (Nov. 28, 2005).
[102] Personal Communication with Ken Bierly, Oregon Watershed Enhancement Board (July 13, 2005).
[103] Florida Department of Environmental Protection, *Florida Forever, at* http://www.dep.state.fl.us/lands/acquisition/FloridaForever/default.htm (last updated Feb. 14, 2006); ; *See also:* Florida Department of Environmental Protection, *Florida State Parks Land Management, at* http://www.dep.state.fl.us/parks/bncr/landmanagement.htm (last updated May 26, 2005).

Environmental Protection also maintains a wetland restoration database to aid local governments and community organizations by providing online tools and research materials needed for the implementation and management of restoration projects.[104] The state also has a very active invasive plant management program that is critical to its wetlands restoration programs.[105]

Florida has also established the Surface Water Improvement and Management (SWIM) Program to address the degradation and impairment of surface water bodies throughout the state.[106] SWIM required that each Water Management District identify and maintain a priority list of water bodies of regional or statewide significance and develop plans and programs for their improvement. In implementing SWIM, the districts work with all levels of government and the private sector, with each partner contributing funding or in-kind contributions, or both. SWIM has proven to be one of the state's most important public-private partnership that preserves and restores state wetlands, in large part because program is designed to address a waterbody's needs as a system of connected resources on a priority basis.[107]

Louisiana operates several coastal protection and restoration planning initiatives. In response to Louisiana's land loss, the U.S. Congress passed the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) in 1990. CWPPRA required the development of a state coastal wetland conservation plan, funds wetland enhancement projects nationwide, and designates approximately $50 million annually for work in Louisiana. In addition, the joint local, state, and federal Coast 2050 planning effort was initiated by the CWPPRA task force in 1996 and was designed to build upon and reconcile several prior restoration plans in order to strategically address coastal land loss in Louisiana and define future coastal restoration projects to be implemented under CWPPRA. More recently, the hurricanes of 2005 prompted Congress to direct the Corps to initiate a comprehensive and integrated hurricane protection plan in Louisiana. The state also passed the Louisiana Coastal Protection, Conservation, Restoration and Management Act in 2005 to address the protection and restoration of coastal resources through comprehensive planning. The state's Coastal Protection and Restoration Authority is charged with developing, implementing, and enforcing the comprehensive coastal protection master plan and annual coastal protection plans under the Act. The Coastal Protection and Restoration Fund provides revenues from oil and gas activities for the restoration projects.

Other state-initiated restoration programs are 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.[108] The Georgia Department of Natural Resources' Wildlife Resources Division operates the Bobwhite Quail Initiative, a voluntary and experimental program that pro-

[104] Florida Department of Environmental Protection, *Florida Wetland Restoration Information Center, at* http://www.dep.state.fl.us/water/wetlands/fwric/index.htm (June 8, 2005).
[105] Florida Department of Environmental Protection, *State Lands Invasive Plant Management, at* http://www.dep.state.fl.us/lands/invaspec/index.htm (last updated Jan. 30, 2006).
[106] Fl. Stat. Ann. §§ 373.451-373-4595.
[107] Florida Department of Environmental Protection, *Summary of the Wetland and Other Surface Water Regulatory and Proprietary Programs in Florida (May 22, 2002) (on file at ELI)*, at 24.
[108] Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, Ark. Code Ann. §§ 26-51-1501.

vides private landowners with monetary incentives to restore habitat for bobwhite quail, songbirds, and other farm wildlife, improve water quality, and reduce soil erosion.[109] The Montana Wetlands Legacy (MWL) is voluntary, incentive-based partnership that focuses on wetland conservation and private landowners. MWL provides a point of contact for landowners looking for technical and financial assistance from federal, state, tribal, and local government, as well as private conservation organization programs.[110]

V. Education and Outreach

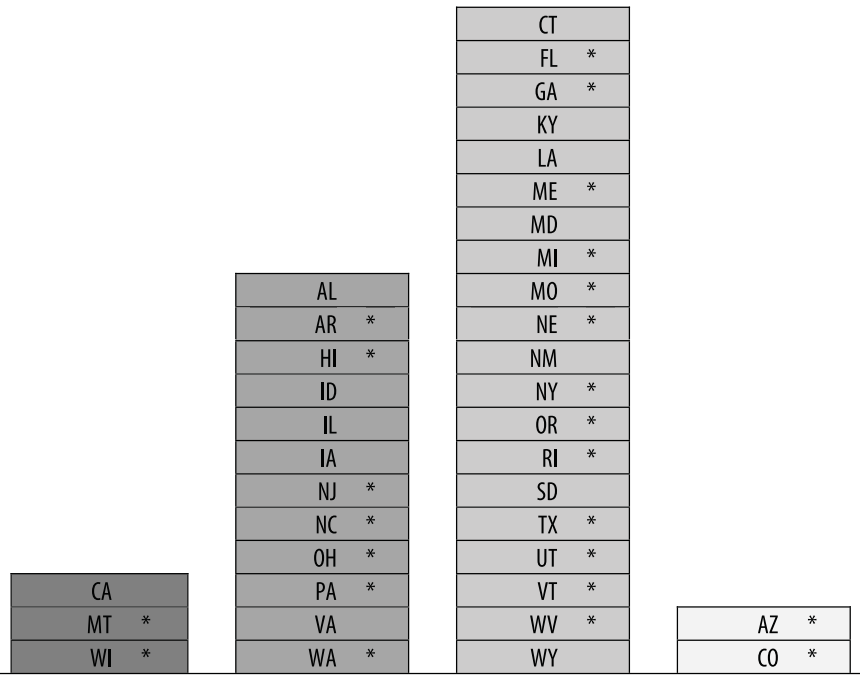
Most of the 37 states conduct some level of wetland-related education and outreach (See *Figure 5*). Three states, California, Montana and Wisconsin, conduct strategic education and outreach activities specific to wetlands. In California, the Coastal Commission has an extensive wetlands education program. One of its foremost programs is a community-based restoration program in upper Newport Bay in Orange County. Through the program, the Commission recruits volunteers to conduct coastal wetland restoration work on a monthly basis and conducts outreach on wetlands issues. In conjunction with this program, the Commission has developed a curriculum called "Our Wetlands, Our World" for teachers. Commission staff are conducting workshops for teachers on this curriculum and provides school bus scholarships for student field trips. Another important Commission education program is the "Waves, Wetlands, and Watersheds" Program. This is a statewide education program for third through eighth grade students that is aligned with state education standards. Each grade focuses on a coastal topic. Wetlands are addressed throughout, but are the specific focus for third grade. Finally, the Commission also has a grants program through which it awards funding for wetland educational programs that may involve restoration as well. All the Commission's education programs are funded by the sale of whale tail license plates.[111]

Montana's proactive wetland outreach and education program includes: public service television and radio spots about the importance and value of wetlands; targeted outreach material for landowners, local government planning officials, wetland pond owners, developers, and the regulated community; and numerous community meetings addressing local wetland issues. The state has also partnered with local governments experiencing rapid growth and land use change to conduct wetland mapping and classification, as well as capacity building so that local governments can better manage and protect local wetland resources. In addition, the Montana Watercourse is a statewide education and outreach program that provides information, tools, and resources on water resources, including wetlands.

Wisconsin's state wetland conservation plan specifically addresses education and outreach goals, strategies, and performance measures. Envisioning that "[p]ublic and private owners of wetlands make sound decisions

[109] 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).
[110] Montana Wetlands Legacy, *Protecting and Restoring Wetland and Riparian Habitat in Montana (Home), at* http://www.wetlandslegacy.org/home.htm (last visited Sept. 7, 2005).
[111] Personal Communication with Christiane Parry, California Coastal Commission (Dec. 12, 2006).

Figure 5. Education and outreach activities.



* *Based on research conducted in 2003-2006. The Phase I and II reports, which include detailed summaries of these 24 states, may be accessed at: http://www.elistore.org/reports_detail.asp?ID=11079 and http://www.elistore.org/reports_detail.asp?ID=11152, respectively.*

to use their land in a way that sustains both wetlands and socio-economic benefits," the plan outlines ten strategies, which include message development and presentation by the Wisconsin Department of Natural Resources; partnerships, guidance, and education for the public, including regulated parties, youth, and landowners; citizen monitoring programs; demonstration of land use management techniques; and strong, continued communication with agricultural and transportation communities.[112]

Other states operate broader environmental education programs, of which wetlands may be a component. For example, the Alabama Department of Conservation and Natural Resources partners with Alabama Wildlife

[112] Wisconsin Department of Natural Resources, *Reversing the Loss: A Strategy for Protecting & Restoring Wetlands in Wisconsin* (Dec. 2000), *available at* http://www.dnr.state.wi.us/org/water/fhp/wetlands/documents/Reversing_the_Loss.pdf, at 8.

Federation, Alabama Power, Alabama Cooperative Extension System, National Wildlife Federation, Georgia Wildlife Federation, Alabama Forestry Commission, and Oregon State University Extension Service to run the Alabama Outdoor Classroom program. The program helps educators and communities establish wildlife habitat and outdoor classrooms on their school grounds. Of the ten schools with certified outdoor classrooms, half include a wetland component.[113] 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.[114]

Numerous states have not adopted strategic environmental education strategies or formal programs, but do conduct various wetland-related education and outreach activities, such as: giving wetland-related presentations to scientific/professional meetings, contractors and developers, schools, conservation groups, and others; producing materials aimed at promoting stewardship among local governments and landowners, K-12 students and teachers, and the general public; displaying wetland materials at events; creating curricula for K-12 students and teachers; offering training programs for the regulated community and the general public; and sponsoring and organizing 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.

VI. Coordination with State and Federal Agencies

Each of the 37 states reviewed 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 California, Florida, Hawaii, Idaho, Kentucky, Louisiana, Maine, Maryland, Michigan, Oregon, New Jersey, New York, North Carolina, Ohio, Rhode Island, South Dakota, Virginia, West Virginia, Wisconsin, and Wyoming are party to intrastate memoranda of agreement involving wetland practices and/or regulation within the state.

Utah has an inter-agency group specifically devoted to the review and coordination of technical and policy actions that may affect the state's natural resources.[115] The Resource Development Coordinating Committee

[113] Alabama Wildlife Federation, *Welcome to the Alabama Outdoor Classroom Program*, *at* http://www.alabamawildlife.org/conservation_education/classrooms.asp (last visited July 3, 2006).

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

[115] Governor's Office and Planning and Budget, *Resource Development Coordinating Committee, at* http://governor.utah.gov/planning/rdcc.htm (last visited Nov. 1, 2005).

(RDCC), a group of state and federal natural resource agencies, serves as a state clearinghouse for development projects involving natural resources, including wetlands. The RDCC ensures that the appropriate state and local agencies are involved and that the proposed actions are consistent with state plans.[116]

California's Wetlands Conservation Policy, created by Executive Order in 1993, calls for the establishment of an Interagency Task Force to direct and coordinate administration and implementation of the policy.[117] California's state agencies cooperate extensively on wetlands issues, as prescribed in the policy.

Under Montana's wetland conservation plan, *Conservation Strategy for Montana's Wetlands*, the state has created the Montana Wetland Council, which includes representatives from state, tribal, and federal groups and non-government entities. The council promotes cooperative wetland resource management for the state and is charged with implementing the wetland conservation strategy.[118]

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.[119]

[116] Personal communication with Eric Millis, Utah Department of Natural Resources - Division of Water Resources (Oct. 25, 2005).

[117] California Resources Agency, California Environmental Resources Evaluation System, California Wetlands Information System, *California Wetlands Conservation Policy*, *at* http://ceres.ca.gov/wetlands/policies/governor.html (1993).

[118] Personal Communication with Lynda Saul, Montana Department of Environmental Quality (September 14, 2005).

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

Conclusion and Plans for Continued Study

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 37 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.

The 37 states examined in Phases I, II, and III of ELI's study represent a diversity of approaches to wetland protection, and numerous observations can be made about each of the states and the core elements of their wetland programs.[1] Phase IV of the study will examine the remaining 13 states. In 2007, ELI will complete a "roll-up" report of all 50 state programs that examines the status of and trends among the nation's 50 state wetland programs.

[1] *State Wetland Program Evaluation: Phase I*, published in 2005, is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11079. *State Wetland Program Evaluation: Phase II*, published in 2006, is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11152.

Appendix: Phase III State Wetland Program Summaries

Alabama

California

Connecticut

Idaho

Illinois

Iowa

Kentucky

Louisiana

Maryland

New Mexico

South Dakota

Virginia

Wyoming

* *State Wetland Program Evaluation: Phase I*, published in 2005, includes individual summaries for Arizona, Arkansas, Colorado, Georgia, Maine, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, and Washington. The report is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11079.

** *State Wetland Program Evaluation: Phase II*, published in 2006, includes individual summaries for Florida, Hawaii, Montana, Nebraska, New Jersey, Oregon, Rhode Island, Texas, Utah, Vermont, West Virginia, and Wisconsin. The report is available for free download on ELI's website at: http://www.elistore.org/reports_detail.asp?ID=11152.

Alabama

I. Overview

Historically, Alabama contained an estimated 8,000,000 acres of wetlands. In the past 200 years, over 50 percent of this wetland area has been lost to timbering, agricultural drainage, suburban sprawl, and siltation.[1] Wetlands, consisting mostly of bottomland forests in alluvial flood plains and coastal salt marshes, cover between 8 to 10 percent of Alabama's surface area.[2] Alabama contains the greatest number of endangered species in any of the lower 48 United States, which makes wetland conservation in the state important not only for the watershed services they provide, but also for maintaining wildlife habitat.[3]

II. Regulatory Programs

Wetland Definitions and Delineation

The Alabama Water Pollution Control Act defines "waters" as "all waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation, unless such waters are used in interstate commerce."[4] In 2000, the Alabama Department of Environmental Management (ADEM) wrote in its Water Quality Report to Congress, required under the Clean Water Act §305(b), that "waters within wetlands are, by definition, waters of the State in Alabama Water Pollution Control Act (AWPCA), but wetlands are not defined for their inherent values such as function, rareness, type, habitat, or value."[5] ADEM did not include this statement in its subsequent 2002, 2004, or 2006 §305(b) reports.[6]

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[1] Doug Phillips, *Discovering Alabama Wetland (2002)*, The University of Alabama Press, *quoted at* http://www.discoveringalabama.com/teachersguides/Alabama%20Wetlands.pdf.

[2] U.S. Department of Transportation Federal Highway Administration, *Results of the FHWA Domestic Scan of Successful Wetland Mitigation Programs*, *at* http://www.fhwa.dot.gov/environment/wetland/scanrpt/al.htm (last viewed June 26, 2006), and U.S. Fish and Wildlife Service, *Southeast Wetlands (1991)*, *at* http://www.fws.gov/nwi/Pubs_Reports/Sewet/execsum.html.

[3] U.S. Department of Transportation Federal Highway Administration, *Results of the FHWA Domestic Scan of Successful Wetland Mitigation Programs, at* http://www.fhwa.dot.gov/environment/wetland/scanrpt/al.htm (last viewed June 26, 2006).

[4] Ala. Code §22-22-1(B)(2) (1982).

[5] Alabama Department of Environmental Management, *Alabama's 2000 Water Quality Report to Congress (Clean Water Act §305(b) Report)* Part VIII-2, *at* http://www.adem.state.al.us/waterdivision/WQuality/305b/2000WQRC/2000part8.pdf.

[6] Alabama Department of Environmental Management, *Alabama's 2002 §305(b) Report* Part IX, *at* http://www.adem.state.al.us/waterdivision/WQuality/305b/Draft2002/02305(b)Pt9%5BWet%5D.pdf; Alabama Department of Environmental Management, *Alabama's 2004 §305(b) Report* Part 4, *at* http://www.adem.state.al.us/waterdivision/WQuality/305b/2004Report/2004%20Alabama%20%BA305(b)%20Part%204%20%5BWetlands%5D.pdf; and Alabama Department of Environmental Management, *Alabama's 2006 §305(b) Report* Ch. 4, *at* http://www.adem.state.al.us/waterdivision/WQuality/305b/2006/2006%20AL%20IWQMAR%20Ch4%20(Wetlands)%20.pdf.

Although wetlands are not explicitly included in the definition of state waters, Alabama's Conservation and Natural Resources code includes wetlands in its definition of coastal areas. The Preservation and Development of Coastal Areas chapter of the Alabama Code defines "coastal areas" as "the coastal waters, including the lands therein and thereunder, and the adjacent shorelands, including the waters therein and thereunder, strongly influenced by each and in proximity to the shorelines of Alabama and including transitional and intertidal areas, salt marshes, wetlands, and beaches. The area extends seaward to the outer limit of the United States territorial sea and extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters."[7] ADEM Administrative Code defines the inland boundary of the coastal area as being where the land surface elevation reaches the continuous 10-foot elevation above mean sea level.[8]

The state relies on the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*[9] for delineating wetlands.

Organization of State Activities

The primary state agencies that participate in wetland management and protection in Alabama are the Alabama Department of Environmental Management (ADEM) and the Alabama Department of Conservation and Natural Resources (ADCNR). ADEM's Coastal Section and ADCNR's State Lands Division Coastal Section share the responsibility of running the Alabama Coastal Area Management Program (ACAMP), which is authorized by the Environmental Management Act.[10] Within this program, which includes rules relating to the "dredging and/or filling of waterbottoms and/or adjacent wetlands" as well as mitigation,[11] ADEM is responsible for permitting, monitoring and enforcement activities, while ADCNR is responsible for planning.

The ADEM Coastal Section issues coastal consistency and Clean Water Act (CWA) §401 water quality certifications or permits for projects proposed within the coastal area. The ADEM Coastal Section has approximately five full-time equivalent staff, composed of four staffers who address wetland issues, one who addresses Gulf-front beach and dune issues, and one supervisor. The wetland staff spend around 80 percent of their time entering facility data into computerized tracking systems, writing public notices, general correspondence, permitting, reviewing applications, negotiating avoidance and minimization, and ensuring proposed projects are consistent with Department regulations prior to formalizing recommendations for project authorization. The remainder of their time is spent in the field evaluating proposed project sites, monitoring, and enforcing.[12]

[7] Ala. Code § §9-7-10(1) (1982).

[8] ADEM. Ala. Admin. code r. 335-8-1-.02(k) (1994).

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

[10] Ala. Code §22-22A-2 (1988).

[11] Ala. Admin. code r. 335-8-2-.02 (1994).

[12] Personal communication with Leslie Turney, Alabama Department of Environmental Management (Jan. 17, 2006).

ADEM's Mining and Nonpoint Source Section issues §401 water quality certifications for projects affecting wetlands outside of the coastal area. ADEM collects approximately $40,000 to $50,000 a year in certification application fees and uses this money to fund about half a full time equivalent employee's work on §401 water quality certification. This work is divided among several employees, anywhere from two to four depending in the year and staffing level.[13]

§401 Certification

ADEM's Coastal Section is responsible for reviewing CWA §401 certification applications and issuing the certifications for projects in Mobile, Baldwin, and Washington counties while ADEM's Mining and Nonpoint Source Section issues §401 certifications in the remaining 64 counties.[14] The application for ADEM for §401 water quality certification is joint with the §404 application to the Army Corps of Engineers, and the Corps reviews each application before ADEM will consider it. As a result of this arrangement, most of the Individual Permit applications ADEM receives have already made the modifications to their projects to meet water quality standards, and ADEM approves the majority of §401 applications that it reviews. The two sections issued a combined 42 §401 certifications in fiscal year (FY) 2006. They issued 79 certifications in FY 2005, and 50 in 2004.[15]

Nationwide Permits

ADEM's Coastal Section has provided coastal consistency certification to 17 categories of the Nationwide Permits promulgated by the Department of the Army in the January 15, 2002, Federal Register Notices without any additional conditions or requirements.[16] It also authorized conditioned coastal certification to 15 other categories of Nationwide Permits.[17] Furthermore, three categories of Nationwide Permits were determined to be non-applicable within the coastal area of Alabama,[18] and eight categories of Nationwide Permits

[13] Personal communication with Richard Hulcher, Alabama Department of Environmental Management (May 11, 2006).

[14] Turney, *supra* note 12.

[15] Hulcher, *supra* note 13.

[16] Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers 1-4 (March 12, 2002) *(on file at ELI)*. The Nationwide Permits that ADEM has approved for the coastal area are: NWP#1- Aids to Navigation; NWP#2 – Structures in Artificial Canals; NWP#4 Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP# 6 - Survey Activities; NWP #8 - Oil and Gas Structures; NWP# 9 – Structures in Fleeting and Anchorage Areas; NWP# 11 - Temporary Recreational Structures; NWP#15 – U.S. Coast Guard Approved Bridges; NWP# 17 – Hydropower Projects; NWP #22 - Removal of Vessels; NWP#23 Approved Categorical Exclusions; NWP #28 – Modifications of Existing Marinas; NWP#30 – Moist Soil Management for Wildlife; NWP# 31 – Maintenance of Existing Flood Control Facilities; NWP#33 - Temporary Construction, Access and Dewatering; NWP#35 Maintenance Dredging of Existing Basins; and NWP# 37 Emergency Watershed Protection and Rehabilitation.

[17] Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers 1-4 (March 12, 2002) *(on file at ELI)*. The Nationwide Permits that ADEM has conditionally approved for the coastal area are: NWP#3 – Maintenance; NWP#5 – Scientific Measuring Devices; NPW#7 – Outfall Structures and Maintenance; NWP#10 – Mooring Buoys; NWP#12 – Utility Line Activities; NWP#13 - Bank Stabilization; NWP#16 – Return Water From Upland Contained Disposal Areas; NWP#18 – Minor Discharges; NWP#19 – Minor Dredging; NWP#20 – Oil Spill Cleanup; NWP#25 – Structural Discharges; NPW#27 – Stream and Wetland Restoration Activities; NWP#32 – Completed Enforcement Actions; NWP#36 – Boat Ramps; and NWP#38 – Cleanup of Hazardous and Toxic Waste.

[18] Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers 4 (March 12, 2002) on file with author. The Nationwide Permits not applicable within the coastal area of Alabama are those related to: Surface Coal Mining Activities; State Administered Section 404 Programs; and Cranberry Production Activities

were denied coastal consistency certification.[19] The ADEM Mining and Nonpoint Source Section has established a list of thirty-four §401 water quality certification conditions applicable to all Nationwide Permits throughout the state, including those certified for the coastal area, and the agency has reserved the right to request additional information or add additional requirements to these certifications.[20] ADEM water quality certification for the current Nationwide Permits expires on March 15, 2007.

Mitigation

With the exception of a few basic regulatory requirements for mitigation of coastal area wetland impacts, as defined in the state rules for the Coastal Program, the State of Alabama has not adopted legislation, policies, or guidelines regarding compensatory mitigation for wetlands and generally defers to the Corps for wetland-related jurisdictional and mitigation issues. State regulations do require that "[m]itigation for wetland impacts resulting from an approved project shall involve the creation of wetlands or the restoration and enhancement of existing degraded wetlands; [and] [p]rior to permitting or certification of a use for which mitigation is required, the applicant shall submit to the Department for review and approval a mitigation plan..."[21]

Although Alabama has no formal guidelines for Mitigation Banking Review Teams, both ADCNR and ADEM have participated in MBRTs in coordination with Army Corps of Engineers Mobile and Nashville Districts.[22]

III. Water Quality Standards

Alabama has not adopted wetland-specific water quality standards (WQS), although state standards do apply to surface water. The surface WQS outline numeric and narrative water quality criteria.[23] The state anti-degradation policy is also not specific to wetlands, but does provide that the level of water quality necessary "to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life... and to provide for the prevention, abatement and control of new or existing water pollution" should be maintained and protected.[24]

[19] Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers 4-5 (March 12, 2002) *(on file at ELI)*. The Nationwide Permits that ADEM has denied coastal consistency certification are: NWP#14 – Linear Transportation Crossings; 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; NPW#43 – Stormwater Management Facilities; and NWP#44 – Mining Activities.

[20] Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers, and Lt. Colonel Steven W. Gay, District Engineer U.S. Army Corps of Engineers 1-5 (March 15, 2002) *(on file at ELI)*.

[21] Ala. Admin. code r. 335-8-2-.03 (1994).

[22] Personal communication with Phillip Hinesley, Alabama Department of Conservation and Natural Resources (Jan. 11, 2006); and Turney, *supra* note 12.

[23] Ala. Admin. code r. 335-6-10 (1991).

[24] Ala. Admin. code r. 335-6-10-.04 (1991).

IV. Monitoring and Assessment

Alabama does not have a formal program for wetland monitoring and assessment, but does conduct related activities through grant-funded projects. The most comprehensive of these projects is funded by a FY 2000 U.S. Environmental Protection Agency (EPA) Wetland Restoration Grant to the ADEM Coastal Section. ADEM used a portion of these funds to assess wetlands within the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP) Management Area of Mobile and Baldwin counties. Assessment included field reconnaissance, aerial photography, anecdotal observations, natural resource surveys and reports, and interviews with local natural resource managers.[25]

Additionally, ADEM, ADCNR, and the ACNPCP have been coordinating with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the Mississippi Department of Marine Resources to develop regionalized wetland functional assessment tools such as Hydro-Geomorphic (HGM) guidebooks.[26]

However, until the ADEM Coastal Section develops "a suitable suite of regionalized wetland HGM guidebooks to address the various wetland types in the state," the Wetland Rapid Assessment Procedure (WRAP) (developed by the South Florida Water Management District) is being used, with some regional interpretation, to evaluate wetlands when there is a question of wetland quality and function. Mitigation banks operating outside of Alabama's coastal area are also using WRAP to assess their bank site, determine credits available in the bank, and to evaluate wetlands that are being impacted when mitigation credits for those impacts will be purchased from their bank.[27]

Also, the Mobile Bay National Estuary Program (MBNEP), ADCNR's State Lands Division, and the ADEM's Coastal Program are conducting a joint effort to map wetlands and submerged aquatic vegetation (SAV) in the coastal counties of Mobile and Baldwin. Mapping of wetlands in the two counties is nearly complete and the mapping of SAVs was completed in 2002.[28] In the report, *Historical SAV Distribution in the Mobile Bay National Estuary Program Area and Ranking Analysis of Potential SAV Restoration Site,* the distribution of historic SAV is compared with the 2002 MBNEP SAV survey in coastal Alabama to identify areas of major change and to provide a guide to potential restoration.[29] "Future investigations will enhance the [geographic information systems] database to facilitate more comprehensive analysis of historic changes in SAV occurrence in the MBNEP study area."[30]

[25] Alabama Department of Environmental Management, *2006 Integrated Water Quality Monitoring & Assessment Report 60*, *at* http://www.adem.state.al.us/WaterDivision/WQuality/305b/WQ305bReport.htm (last viewed July 3, 2006).
[26] Turney, *supra* note 12.
[27] *Id.*
[28] Personal communication with Carl Ferraro, Alabama Department of Conservation and Natural Resources (July 28, 2006).
[29] Barry A. Vittor & Associates, Inc., *Historical SAV Distribution in the Mobile Bay National Estuary Program Area and Ranking Analysis of Potential SAV Restoration Sites*, *at* http://www.mobilebaynep.com/news/Documents/NEP_historicSAV.pdf (last viewed August 7, 2006).
[30] *Id.*

V. Restoration and Partnerships

Alabama does not operate a formal, state-level, wetland restoration program; however, both ADEM and ADCNR conduct some restoration-related activities. As noted above, ADEM Coastal Section is using funds from an EPA Wetland Restoration Grant to restore wetlands in coastal Mobile and Baldwin counties. In ADEM's 2006 §305(b) report, the agency tentatively suggests four focus restoration areas based on the assessment data they have gathered to date.[31]

In 1992, Alabama's Forever Wild Program was established by constitutional amendment.[32] The amendment establishes the Forever Wild Land Trust to fund the purchase and preservation of lands, explicitly including wetlands, "to protect the natural heritage and diversity of Alabama for future generations."[33] The Forever Wild Land Trust is funded by the trust income earned from the Alabama Trust Fund each year. Forever Wild receives ten percent of the trust income earned each year, not to exceed $15 million dollars.[34] ADCNR is the lead management agency of the Forever Wild Program. As of January 20, 2006, the Forever Wild Program had purchased and preserved approximately 44,000 acres of wetlands.[35]

Additionally, the Gulf of Mexico Foundation's Community-based Restoration Partnership (GCRP) combines the efforts of the National Oceanic and Atmospheric Administration (NOAA) Community-Based Restoration Program, the Gulf of Mexico Program's Gulf Ecological Management Sites program, and other Gulf State natural resource agencies in order to bring together state and federal governmental entities, non-profit organizations, citizens, and businesses to provide funding and support for coastal habitat restoration projects. The partnership funds citizen-driven projects that restore aquatic marine habitats, benefit living marine resources and foster local stewardship of sites throughout the Gulf of Mexico region and the adjacent Caribbean.[36] Currently, the majority of funding comes from two sources: NOAA's community-based restoration programs and the EPA Gulf of Mexico Program.[37] This program has funded numerous restoration projects in the two coastal counties in Alabama; sites that have been funded thus far include Bohemian Park, Alonzo Landing, Mon Louis Island, Robinson Island and the Weeks Bay National Estuarine Research Reserve (NERR).[38]

VI. Education and Outreach

ADCNR partners with Alabama Wildlife Federation, Alabama Power, Alabama Cooperative Extension System, National Wildlife Federation, Georgia Wildlife Federation, Alabama Forestry Commission, and Oregon State

[31] Alabama Department of Environmental Management, *supra* note 25.
[32] Ala. Const. Amend. 543.
[33] *Id.*
[34] *Id.*
[35] Alabama Department of Conservation and Natural Resources, *Forever Wild Program Acquisitions*, *at* http://www.outdooralabama.com/publiclands/stateLands/foreverWild (last viewed July 3, 2006).
[36] Gulf of Mexico Foundation, *at* http://www.gulfmex.org/restoration.htm (last viewed August 7, 2006).
[37] Personal communication with Quenton Dokken, Gulf of Mexico Foundation (August 8, 2006).
[38] Ferraro, *supra* note 28.

University Extension Service to run the Alabama Outdoor Classroom program. The program helps educators and communities establish wildlife habitat and outdoor classrooms on their school grounds.[39] Of the ten schools with certified outdoor classrooms, half include a wetland component.[40]

ADCNR also invites educators and leaders to attend free introductory workshops and receive activity guides for three education series, all of which relate to, but do not focus solely on, wetlands. Project WILD introduces participants to wildlife and ecological conservation; Aquatic WILD, to aquatic ecology and conservation; and Project WET (Water Education for Teachers), to the water cycle, watersheds, and water conservation.[41]

ADEM also coordinates through ACNPCP to present best available wetland-related technologies in the form of technical studies, workshops, and conferences, which are made available to state and federal regulatory staff, consultants, and the general public. Recent accomplishments have included the presentations of the *Alabama Coastal Wetland Rapid Assessment Procedure (WRAP) Workshop* and the *Alabama Coastal Wetland Plant Identification Workshop*. In April of 2006 the ACNPCP sponsored, through ADEM, the first regional *Alabama Stream and Wetlands Restoration Conference 2006.* These and other similar projects have been accomplished in partnership with the Mobile County Soil and Water Conservation District, the Alabama Coastal Foundation and the South Alabama Regional Planning Commission.[42]

VII. Coordination with State and Federal Agencies

ADEM coordinates regularly with the U.S. Army Corps of Engineers on §404 permit applications and wetland mitigation banking issues.[43]

ADEM, ADCNR, and the ACNPCP have regularly coordinated with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the Mississippi Department of Marine Resources to develop wetland mitigation guidance, Mitigation Banking Instrument Templates, and regionalized wetland functional assessment tools such as HGM guidebooks. These guidebooks apply to specific wetland types within the Northern Gulf of Mexico (i.e. Tidal Fringe Marshes and Headwater Slope Wetlands).[44]

ADCNR also coordinates with the Mobile Bay National Estuary Program and the Dauphin Island Sea Lab to run the Dauphin Island Sea Lab Coastal Policy Center, which works on wetland education, research, site analysis, and construction, among other subjects.[45] ADCNR, with funding from NOAA, also runs the Weeks Bay NERR,

[39] Alabama Wildlife Federation, *Welcome to the Alabama Outdoor Classroom Program*, *at* http://www.alabamawildlife.org/conservation_education/classrooms.asp (last accessed July 3, 2006).
[40] *Id.*
[41] Alabama Department of Conservation and Natural Resources, *Conservation Education, at* http://www.outdooralabama.com/education (last visited July 3, 2006).
[42] Personal Communication with Randy Shaneyfelt, Alabama Department of Environmental Management (Aug. 7, 2006).
[43] Turney, *supra* note 12.
[44] *Id.*
[45] Dauphin Island Sea Lab, *Coastal Planning Center*, *at* http://www.disl.org/coastal (last updated June 18, 2006).

which includes over 1,600 acres of marsh and wetland.[46] Finally, ADCNR works with the Natural Resources Conservation Service to help private landowners implement best management practices on their lands containing wetlands.[47]

VIII. Acronyms and Abbreviations

ACAMP – Alabama Coastal Area Management Program

ACNPCP – Alabama Coastal Nonpoint Pollution Control Program

ADCNR – Alabama Department of Conservation and Natural Resources

ADEM – Alabama Department of Environmental Management

AWPCA – Alabama Water Pollution Control Act

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

FY – Fiscal Year

GCRP – Gulf of Mexico Foundation's Community-based Restoration Partnership

HGM – Hydro-Geomorphic

MBNEP – Mobile Bay National Estuary Program

NERR – National Estuarine Research Reserve

NOAA – National Oceanic and Atmospheric Administration

(Project) WET – Water Education for Teachers

SAV – Submerged Aquatic Vegetation

WQS – Water Quality Standards

WRAP – Wetland Rapid Assessment Procedure

[46] National Estuarine Research Reserve System, *Weeks Bay Reserve*, Alabama, *at* http://nerrs.noaa.gov/WeeksBay/welcome.html (last revised Apr. 6, 2006).
[47] Hinesley, *supra* note 22.

California

I. Overview

Historically, wetlands of diverse types, including coastal and inland wetlands and vernal pools, covered an estimated five million acres in California. However, by the mid-1980's California had less than 450,000 acres of wetlands, a decrease of approximately 90 percent.[1] Today, the majority of these wetlands, about 300,000 acres, are located in the Central Valley. Only five percent of the state's coastal wetlands remain.[2]

To protect these valuable resources, the state has passed numerous laws that pertain to wetlands and many state agencies play a role. The state relies on the Clean Water Act (CWA) §401 water quality certification for regulating dredged or fill material discharges to wetlands, and additional laws have been enacted to provide further protection for wetlands in coastal counties and the San Francisco Bay area. In addition to the various state agencies involved, regional and local agencies also regulate wetlands. Thus, there are multiple overlapping jurisdictions in regards to wetlands protection and management in California. In order to provide an overarching legal mechanism for the protection of wetlands in the state, the Governor of California created the State Wetland Conservation Policy in 1993. This policy calls for agencies to work together to ensure no net loss of wetlands in the state.[3]

II. Regulatory Programs

Wetland Definitions and Delineation

California's Porter-Cologne Water Quality Control Act (WQCA) implicitly includes wetlands in its definition of state waters. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state."[4]

Wetlands are defined in various laws and regulations. Coastal wetlands are defined in California's Coastal Act (CCA) of 1976 as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes,

[1] Thomas E. Dahl, U.S. Fish and Wildlife Service, *Wetlands Losses in the United States 1780's to 1980's, Summary of Findings 1780's to 1980's*, *at* http://www.npwrc.usgs.gov/resource/wetlands/wetloss/findings.htm (last modified Aug. 3, 2006).

[2] California Wetlands Information System, *California's Valuable Wetlands*, *at* http://ceres.ca.gov/wetlands/introduction/values.html (last modified Aug. 13, 1998).

[3] Office of the California Governor, *Executive Order W- 59-93 California Wetlands Conservation Policy* (1993), *at* http://ceres.ca.gov/wetlands/policies/governor.html.

[4] Cal. Water Code §13050(e).

swamps, mudflats, and fens."[5] The California Coastal Commission (Coastal Commission) provides a more specific definition for coastal wetlands in its regulations:

> land where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats.[6]

The Keene-Nejedly California Wildlife Preservation Act (WPA) defines wetlands similarly to the CCA. Wetlands are defined as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools."[7]

Although the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) have authority to develop wetland delineation criteria for their regions, they typically do not perform delineations. For §401 water quality certifications, the boards mainly rely on the U.S. Army Corps of Engineers' (Corps) or consultants' delineations.[8] When delineations are conducted by the state, they vary from region to region. Some regions use the Corps' 1987 *Wetlands Delineation Manual*[9] for all wetlands within their regions, while other regions use the 87 Manual only for wetlands within the Corps jurisdiction and adopt stricter criteria outside these areas.[10] [11] The Coastal Commission uses its own wetlands definition[12] when delineating coastal wetlands, as well as information on hydrophytes from the U.S. Fish and Wildlife Service (USFWS) and information on soils from the Natural Resources Conservation Service (NRCS). However, the Coastal Commission also refers to the 87 Manual for delineation methods and parameters.[13]

Wetland-related Laws and Regulations

California relies primarily on §401 water quality certification and the WQCA to regulate wetlands statewide, but also has adopted laws and regulations directed at regional and/or coastal wetlands protection: the CCA, the McAteer-Petris Act, WPA, and the Suisan Marsh Protection Act.

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[5] Cal. Pub. Res. Code §30121.

[6] Cal. Code Regs. tit. 14, § 13577.

[7] Cal. Fish & Game Code § 2785.

[8] Personal communication with Glenda Marsh, State Water Resources Control Board (Dec. 7, 2006).

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

[10] Personal communication with John Short, North Central Regional Water Quality Control Board (Region 1) (Nov. 29, 2006).

[11] Personal communication with Chiara Clemente, San Diego Regional Water Quality Control Board (Region 9) (Dec. 4 2006).

[12] For the Corps to delineate a wetland, it must meet criteria related to hydrology, soils, and vegetation, whereas wetlands only need to meet one of these criteria to be considered a wetland under the Coastal Commission's wetlands definition. Personal communication with Charles Lester, California Coastal Commission (Dec. 6, 2006).

[13] Personal communication with Charles Lester, California Coastal Commission (Dec. 6, 2006).

Porter-Cologne Water Quality Control Act.[14] The 1969 WQCA is the primary legislation guiding water quality protection in California and incorporates parts of the CWA such as National Pollutant Discharge Elimination System permit requirements and §401 water quality certification. The Act also includes water quality standards and sets the state's antidegradation policy. Although it does not define wetlands, the Act applies to all waters of the state, which includes wetlands and isolated waters. As such, it provides protection for isolated waters throughout the state.[15] The Act also establishes the SWRCB as the state water quality planning and control agency[16] and gives authority to nine, semi-autonomous RWQCBs to carry out water quality planning and control activities within their regions.[17]

McAteer-Petris Act.[18] In response to "uncoordinated, haphazard filling" of the San Francisco Bay, the California legislature passed the McAteer-Petris Act in 1965. This Act established the San Francisco Bay Conservation and Development Commission (BCDC) as the management and regulatory agency for the San Francisco Bay and Delta.[19] The BCDC plans for and protects the San Francisco Bay's resources, including wetlands. The Act gives the Commission jurisdiction over all tidal areas of the Bay including sloughs, marshlands, and submerged lands, the shoreline of the Bay up to 100 feet inland, salt ponds, managed wetlands,[20] and additional areas subject to tidal action.[21] BCDC is required to regulate tidal wetlands and waters of the San Francisco Bay through a permitting system.[22] Activities requiring a permit include fill, materials extraction, and substantial changes to use of waters, lands, or structures.[23] This Act also requires that the BCDC include conditions for minimizing impacts to wetlands and offsetting unavoidable impacts. The BCDC issues four types of permits: major, administrative, emergency, and regionwide permits.[24] In 2005, BCDC issued eight major permits, 57 minor permits (includes administrative and regionwide permits), and 93 amendments. These permits resulted in a net increase of 3,807 acres of the San Francisco Bay.[25] The Act also requires the BCDC to develop, adopt, and implement the San Francisco Bay Plan, which includes policies and objectives for managing and protecting the Bay's resources, including but not limited to marshes.[26]

[14] Cal. Water Code § 13050(e).

[15] Memorandum from Celeste Cantu, Executive Director, California Environmental Protection Agency to Regional Board Executive Officers (Jun. 2 2004), (*available at* http://www.waterboards.ca.gov/cwa401/docs/isol_waters_guid.pdf).

[16] Cal. Water Code § 13160.

[17] Cal. Water Code § 13200.

[18] Cal. Gov't Code §§ 66600-66694; Cal. Code Regs. tit. 14, §§ 10110-11990.

[19] Cal. Gov't Code § 66601. The San Francisco Bay Conservation and Development Commission (BCDC) was established prior to the Coastal Commission and the two agencies have separate jurisdictions (BCDC - San Francisco Bay, Coastal Commission – California's coastal zone) and both are responsible for reviewing federal permits for coastal consistency under the federal Coastal Zone Management Act for their respective jurisdictions. Personal Communication with Will Travis, San Francisco Bay Conservation and Development Commission (Dec. 7, 2006).

[20] Managed wetlands consist of "all areas which have been diked off from the bay and have been maintained during the three years immediately preceding the effective date of the amendment of this section during the 1969 Regular Session of the Legislature as a duck hunting preserve, game refuge or for agriculture." *See* CAL. GOV'T CODE § 66610(b).

[21] Cal. Gov't Code § 66100.

[22] Cal. Gov't Code § 66632(a).

[23] *Id* at § 66632 (b).

[24] California Wetlands Information System, *McAteer Petris Act*, *at* http://ceres.ca.gov/wetlands/permitting/McAteer_Petris_summary.html (last modified Feb. 13, 2002).

[25] Personal communication with Will Travis, San Francisco Bay Conservation and Development Commission (Dec. 7, 2006).

[26] Cal. Gov't Code § 66651(b).

California Coastal Act.[27] Recognizing the importance and value of California's coastal resources, the state legislature passed the CCA in 1976. Prior to this Act, a 1972 voter initiative called Proposition 20 Coastal Zone Management Act created the Coastal Commission and granted the Commission permit authority within the coastal zone[28] for four years.[29] The Proposition also required the Commission to develop a Coastal Plan for the protection, preservation, and restoration of the coastal zone environment.[30] This Act expired after four years. The legislature then enacted the CCA, which formally established the Coastal Commission as the state's coastal regulatory and management agency.[31] The CCA also contains requirements related to coastal zone management and wetlands protection, including coastal development permits.[32] All development in the coastal zone[33] and activities that impact resources in the coastal zone require a permit. The CCA prohibits dredge and fill activities in coastal wetlands, with the exception of low impact allowable uses such as restoration or research.[34] Coastal development permits for these activities must include appropriate mitigation measures.[35] Additionally, no "coastal-dependent development" is permitted in wetlands.[36]

The CCA also authorizes local governments to administer coastal development permits within their jurisdictions if they have established a Local Coastal Program (LCP) approved and certified by the Coastal Commission.[37] Specific requirements and guidance for developing LCPs are provided in the CCA.

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[27] Cal. Pub. Res. Code §§ 30000-30900.

[28] Coastal zone is defined in Proposition 20 "as the area between the seaward limits of state jurisdiction and 1000 yards landward from the mean high tide line, subject to specified exceptions." *See*: University of California, Berkley – Hastings Law Library, *California Ballot Propositions, at* http://holmes.uchastings.edu/cgi-bin/starfinder/0?path=calprop.txt&id=webber&pass=webber&OK=OK (last visited Mar. 21, 2007).

[29] Rusa Gustaitis, *How the Coast Was Won: An Interview with Lew Reid*. 18 CALIFORNIA COAST AND OCEAN 4 (2003) *at* http://www.scc.ca.gov/coast&ocean/winter2002-03/pages/five.htm.

[30] University of California, Berkley, Hastings Law Library, *California Ballot Propositions, at* http://holmes.uchastings.edu/cgi-bin/starfinder/0?path=calprop.txt&id=webber&pass=webber&OK=OK (last visited Mar. 21, 2007)..

[31] The California Coastal Commission through its Coastal Zone Management Division coordinates the review of certain coastal activities for the state's federally approved coastal zone management program. S*ee* Cal. Pub. Res. Code § 30008.

[32] Cal. Pub. Res. Code §§ 30600(a), 30106. Development includes "placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511). As used in this section, 'structure' includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line." *See* Cal. Pub. Res. Code § 30106.

[33] The coastal zone as defined in the California Coastal Act (CCA) includes three miles seaward and approximately 1,000 yards inland or in areas that are significant and undeveloped, it extend up to five miles inland. However, it excludes the coastal areas within the San Francisco Bay. *See* Cal. Pub. Res. Code § 30103(a).

[34] Cal. Pub. Res. Code § 30233.

[35] Cal. Pub. Res. Code § 30607.1.

[36] Cal. Pub. Res. Code § 30255.

[37] City and county governments can establish Local Coastal Programs (LCP) to guide planning, development, and conservation for the coastal zone within their jurisdictions. LCPs specify what new or changed land and water uses may occur and where they may take place. LCPs must include a land use plan and implementation plan. The Coastal Commission is responsible for reviewing LCP plans for coastal consistency and approving and certifying all LCPs. All amendments also must be approved by the Commission. Currently, 74 cities and counties have LCPs. *See*: California Coastal Commission, *Local Coastal Program*, *at* http://www.coastal.ca.gov/lcps.html (last visited Mar. 21, 2007).

Keene-Nejedly California Wetlands Protection Act.[38] The state legislature passed the 1976 WPA in recognition of the state's valuable wetlands and the need to protect them in perpetuity for the public benefit. Under this Act, the state developed a plan in 1979 to guide wetlands protection, acquisition, enhancement, and restoration to be implemented through 2000.[39] The Act was updated in 2000 recognizing the need "for state agencies that are responsible for wetlands conservation to develop and disseminate a wetlands conservation strategy" for use by the legislature, local governments, and regional wetlands programs.[40] The updated WPA calls for the California Resources Agency (Resources Agency) to update all the state's existing wetlands inventory resources in order to prepare a study with a variety of goals that include, but are not limited to, identifying: (1) restoration and enhancement opportunities in publicly-owned wetlands in the state; (2) mechanisms to protect and enhance existing publicly-owned wetlands; (3) opportunities to form voluntary public-private partnerships for wetlands restoration, enhancement, and management on private lands; and (4) privately-owned wetlands that are significant and where there may be a willing seller.[41] The study will "set forth, for consideration by the Legislature, a plan for the acquisition, protection, preservation, restoration, and enhancement of wetlands, including funding requirements and the priority status of specific proposed wetlands projects."[42] The WPA also creates a Coastal Wetlands Fund, which is an interest-bearing fund administered by the California Department of Fish and Game (CDFG) to provide a continuous source of funding for "wetlands maintenance."[43]

Suisan Marsh Preservation Act.[44] The Nejedly-Bagley-Z'berg Suisan Marsh Preservation Act was passed in 1974 by the state legislature to protect the Suisan Marsh, the largest wetland system in California comprising 10 percent of the state's wetlands. This Act required the BCDC and the CDFG to write a Suisan Marsh Protection Plan, which was completed in 1976. The legislature re-enacted the Act as the Suisan Marsh Protection Act in 1977 to incorporate the plan's objectives and policies and to provide the BCDC with administrative authority. The Act further requires that the Suisan Marsh Protection Plan supplement the San Francisco Bay Plan for all areas within the BCDC's jurisdiction.[45] Finally, the Act mandates that a resolution to salinity intrusion problems in the marsh be developed.[46]

Lake and Streambed Alteration Agreements.[47] California's Fish and Game Code requires notification of the CDFG, through submission of an application for a Lake or Streambed Alteration Agreement to the CDFG,

[38] Cal. Pub. Res. Code §§ 5810-5818.
[39] Cal. Pub. Res. Code § 5811(b).
[40] *Id.* at § 5811(e).
[41] Cal. Pub. Res. Code § 5814(a).
[42] *Id.* at § 5814(b).
[43] Cal. Pub. Res. Code § 5818.1.
[44] Cal. Pub. Res. Code §§ 29000-29612.
[45] Cal. Pub. Res. Code § 29008.
[46] Cal. Pub. Res. Code § 29010(a)(6). In 1978 the State Water Resources Control Board (SWRCB) passed water salinity standards for October to May for the Suisan Marsh to ensure the areas remains a brackish-water tidal marsh with optimum waterfowl food plant production. *See* California Environmental Protection Agency – State Water Resources Control Board, *Water Right Decision-1485* (Aug. 1978), *available at* http://www.waterrights.ca.gov/hearings/decisions/WRD1485.PDF.
[47] Cal. Fish & Game Code § 1600-1616.

before conducting any of the following activities, which may or may not affect wetlands depending on how one defines wetlands: substantial diversion or obstruction of the natural flow of a river, stream, or lake; substantial change to or use of materials from the bed, channel, or bank of any river, stream, or lake; or disposal of debris, waste, or other material containing pavement where it may pass into any river, stream, or lake.[48] Lake or Streambed Alteration Agreements also may be required for certain construction projects that impact wetlands associated with rivers, streams, and lakes.[49] In 2005-2006, the CDFG Streambed Alteration Program received approximately 3,000 notifications and issued approximately 900 Lake or Streambed Alteration Agreements.[50] The CDFG also issues permits for suction dredging for waters of the state.[51]

California Wetlands Conservation Policy. In August 1993, Governor Wilson announced his "California Wetlands Conservation Policy," created by Executive Order W-59-93. The goals of the policy are to:

1. Ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property;
2. Reduce procedural complexity in the administration of [s]tate and federal wetlands conservation programs; and
3. Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.[52]

This policy calls for the Resources Agency to establish an Interagency Task Force in cooperation with the California Environmental Protection Agency (CAL-EPA) to direct and coordinate administration and implementation of the policy. Elements also include statewide initiatives and regional strategies to implement, adapt, and refine wetlands programs for three regions: the San Francisco Bay area, Central Valley, and Southern California. Statewide initiatives for wetlands include: "a statewide wetlands inventory, support for wetland planning, improved administration of existing regulatory programs, strengthened landowner incentives to protect wetlands, support for mitigation banking, development and expansion of other wetlands programs, and integration of wetlands policy and planning with other environmental and land use processes."[53]

California Environmental Protection Act. Projects or activities carried out by state or local agencies or activities that require a state permit or approval must go through an environmental review process pursuant to the California Environmental Protection Act (CEQA).[54] The environmental review involves an evaluation of alter-

[48] Cal. Fish & Game Code § 1602.

[49] California Wetlands Information System, *California Department of Fish and Game, at* http://ceres.ca.gov/wetlands/agencies/dfg.html (last modified Jun. 6, 2002).

[50] Personal communication with Catherine Vouchilas, California Department of Fish and Game (Dec. 8, 2006).

[51] *See* California Department of Fish and Game, *2006 California Miscellaneous Licenses and Permits*, *at* http://www.dfg.ca.gov/licensing/specialpermits/specialpermitsdescrip.html (last visited Mar. 21, 2007).

[52] California Wetlands Information System, *California Wetlands Conservation Policy*, *at* http://ceres.ca.gov/wetlands/policies/governor.html (last modified May 18, 2002).

[53] *Id.*

[54] Cal. Pub. Res. Code § 21000 *et seq*.

natives and impacts and identification of mitigation if avoidance is not possible.[55] Coastal development permits, Lake or Streambed Alteration Agreements, and §401 water quality certifications may only be issued after a review of final CEQA documents is complete. Although not specific to wetlands, CEQA can play a role in wetlands protection and management.

Organization of State Agencies

Various state agencies participate in both regulatory and non-regulatory wetlands activities throughout the state.

State Water Resources Control Board and Regional Water Quality Control Boards. The SWRCB - Division of Water Quality and nine RWQCBs (North Coast, San Francisco Bay, Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River Basin, Santa Ana, and San Diego Regions) together constitute the California Water Board entities responsible for regulating wetlands. The nine RWQCBs are considered state agencies and are responsible for implementing state laws and regulations. Their boundaries are primarily based on the state's watershed boundaries. Organizationally, these Boards fall within CAL-EPA; however, they are semi-autonomous and are directed by nine board members who are appointed by the Governor. CAL-EPA consists of the State and Regional Water Boards along with five other Boards, Departments, and Offices that regulate air pollution, waste, toxic substances, pesticides, and other environmental health hazards.[56]

The SWRCB develops statewide water quality plans, policies, and standards and determines water rights. Beginning on January 1, 2007, the State Water Board will have new powers to initiate enforcement actions within each region. It also carries out regulatory functions under the CWA and the WQCA including §401 water quality certifications, monitoring, assessment, enforcement, and compliance. RWQCBs abide by statewide plans and policies, but also have regulatory and planning authority for their regions. Each RWQCB is responsible for developing and adopting a Water Quality Control Plan (Basin Plan), which includes beneficial uses (designated uses) and water quality objectives (water quality standards) for protecting uses in their regions. They also issue permits for discharges into waters of the state and §401 water quality certifications.[57] RWQCBs also oversee monitoring, assessment, enforcement, and compliance within their regions.

The State and Regional Water Boards were funded for 1,542.3 positions for fiscal year 2007, with a total budget of approximately $630 million. Of this, approximately $460 million comes from state general funds, special funds, and bond funds.[58] SWRCB staff works out of a headquarters office in Sacramento. The SWRCB employs five full-time staff persons for its statewide §401 water quality certification program.[59] RWQCBs have over 650 employees that work in 12 locations across California.[60] The number of full-time equivalents

[55] Cal. Pub. Res. Code § 21002.1.

[56] California Environmental Protection Agency, *About CA/ EPA*, *at* http://www.calepa.ca.gov/About/ (last updated Mar. 1, 2006).

[57] Cal. Pub. Res. Code §§ 13225, 12241.

[58] California Department of Finance, *Enacted Budget 2006-2007*, *at* http://www.ebudget.ca.gov/Enacted/StateAgencyBudgets/3890/3940/department.html (last visited Dec. 12, 2006).

[59] Marsh *supra* at note 8.

[60] Central Valley Regional Board has three regional offices and Lahontan has two regional offices.

(FTE)[61] dedicated to §401 water quality certification programs vary by region; however, a total of 13.8 regional staff work on §401 certifications statewide. State fees generated by §401 water quality applications fund §401 certification programs at the state and regional levels.[62] In addition to these state fees, many regional §401 water quality certification programs use funds from other programs and/or interns to supplement their programs.[63] Other State and Regional Water Board programs may conduct wetlands-related activities such as stormwater programs. As such, it is difficult to calculate the exact amount of staff time and funding devoted specifically to wetlands regulation and protection within the State and Regional Water Boards.

California Resources Agency. The Resources Agency is an umbrella agency for 34 departments, boards, commissions, and conservancies and is a sister agency to the CAL- EPA. Its primary wetland-related responsibilities are implementing the California Wetlands Conservation Policy and updating the state wetland inventory, as outlined in the policy and in the WPA.[64] The Secretary for Resources oversees and has legal authority over various agencies with wetlands management or restoration responsibilities (including the Coastal Commission, BCDC, CDFG, California Department of Parks and Recreation (CDPR), California Department of Water Resources (CDWR), and the State Coastal Conservancy). The Agency also is responsible for administering the EPA-funded Wetlands Development Pilot Grant (WDPG)[65] and managing the California Wetlands Information System (CWIS) as a part of the larger California Environmental Resources Evaluation System (CERES). One staff person at the agency works on wetland-related activities. The Agency has spent approximately $1.2 million dollars on developing the state wetland inventory since 2001, and its budget for the program varies year to year. The EPA gave the agency one million dollars for the WDPG.[66]

California Coastal Commission. The Coastal Commission is the primary regulatory agency responsible for protecting and managing coastal resources along California's Pacific Coast. The Coastal Commission's main tool for regulating wetlands is its coastal development permit program, authorized under the CCA. In some cases, local governments have assumed authority to issue these permits within their jurisdictions; however, the Commission retains authority over development in submerged lands, tidelands, and public trust lands.[67] Permits are prepared by staff in district offices and presented to the Commission for approval.[68] Permit appeals from local governments also are handled by the Commission. The Coastal Commission also assists local governments on coastal development planning, issues coastal consistency determinations for federal

[61] California uses the term personal years (PY) instead of full-time equivalents (FTE).
[62] Marsh *supra* note 8.
[63] Clemente *supra* note 11.
[64] California Wetlands Information System, *California Resources Agency*, *at* http://ceres.ca.gov/wetlands/agencies/resources.html (last modified Jun. 6, 2002).
[65] Wetlands Development Pilot Grants were awarded to fifteen states by the U.S. Environmental Protection Agency (EPA). The purpose of the grant is to set up a comprehensive state wetlands monitoring program that will evaluate and monitor state wetlands programs as well as actual wetlands to determine if the state is working towards its no-net-less policy. The Resources Agency is coordinating the effort to establish this monitoring framework. Personal communication with Chris Potter, California Resources Agency (Jan. 4, 2006).
[66] Personal communication with Chris Potter, California Resources Agency (Jan. 4, 2006).
[67] California Coastal Commission, *Local Coastal Programs*, *at* http://www.coastal.ca.gov/lcps.html (last visited Mar. 21, 2007).
[68] Lester *supra* at note 13.

permits and activities, administers an enforcement program and a non-regulatory water quality program, and provides public education and outreach on coastal wetlands.[69]

The Coastal Commission employs a total of 143 staff divided among its various programs and offices. The Commission's headquarters office in San Francisco also serves as its North Central Coast district office. The five other district offices are in Eureka (North Coast), Santa Cruz (Central Coast), Long Beach (South Coast), Ventura (South Central Coast), and San Diego (San Diego Coast). The Commission also has a separate Oceans and Energy Resources Division located at headquarters. Because many of the Commission's activities and programs relate to wetlands, it is difficult to estimate the number of FTEs that work on wetland-related activities and the percentage of the Commission's budget dedicated to wetlands activities.[70] The Commission's annual budget for fiscal year 2005 was approximately $15 million and was derived from state general funds, federal coastal zone management funding (a portion of which the Commission administers to the BCDC), and reimbursements from other state agencies. The Commission also received approximately $1.3 million in whale tail license plate sales[71] for its education program, of which $778,000 was redistributed in the form of grants to other organizations.[72]

San Francisco Bay Conservation and Development Commission. The BCDC's primary regulatory responsibility towards wetlands is issuing permits for any fill or extraction activities or any changes to land or water use in tidal wetlands and waters of the San Francisco Bay and Delta. Because the BCDC is the state coastal management agency for the San Francisco Bay and Delta under federal and state law,[73] the agency also reviews all federal permits for coastal consistency. The Commission also is responsible for administering the San Francisco Bay Plan and the Suisan Marsh Preservation Act and planning for protection, restoration, and enhancement of the Bay.[74]

The BCDC employs 43 FTEs that work out of its office in San Francisco. Seventeen of these employees operate the BCDC Permitting, Enforcement, and Technical Unit and are responsible for permitting, monitoring, enforcement, and technical support activities. BCDC's $5.5 million annual budget is funded primarily by state general funds, but the Commission also receives federal coastal zone funding (administered to it by the Coastal Commission) and grants from state and federal agencies. The Permitting, Enforcement, and Technical Unit receives approximately $3.2 million of the Commission's budget for its activities.[75]

[69] Personal communication with John Dixon, California Coastal Commission (Nov. 29, 2006).

[70] Personal communication with Susan Hansch, California Coastal Commission (Dec. 12, 2006).

[71] Whale Tail License Plates are sponsored by the Coastal Commission. Proceeds from their sale go to the Commission's education programs, beach clean-up programs, and the California Coastal Conservancy habitat restoration program. *See* Coastal Commission, *Whale Tail License Plates*, *at* http://www.coastal.ca.gov/publiced/plate/platefaq.html (last visited Mar. 21, 2007).

[72] Hansch, *supra* note 70.

[73] California is the only state in the United States (U.S.) that has two state agencies federally authorized to implement the federal Coastal Zone Management Act.

[74] California Wetlands Information System, *San Francisco Bay Conservation and Development Commission*, *at* http://ceres.ca.gov/wetlands/agencies/bcdc.html (last modified Jan. 24, 2002).

[75] Travis, *supra* note 23.

California Department of Fish and Game. Although the CDFG has no specific regulations for managing wetlands, it plays a role in regulating wetlands through the Lake and Streambed Alteration Program.[76] The agency also is responsible for wetlands protection through its various grants programs such as the Landowner Incentive Program (LIP) and California Waterfowl Habitat Program.[77] The CDFG also works with other state and federal agencies that issue wetlands permits including the Corps on §404 permits, the Coastal Commission on coastal development permits, and the State and Regional Water Boards on §401 water quality certifications and permits.[78] Finally, CDFG also reviews and comments on CEQA documents, which can pertain to wetlands issues.

CDFG operates from a headquarters office in Sacramento and eight regional offices: Northern California - North Coast, Sacramento Valley - Central Sierra, Central Coast, San Joaquin Valley - Southern Sierra, South Coast, Eastern Sierra-Inland Deserts, Marine, and the Central Valley Bay Delta Regions. Approximately 30 staff in six regional offices issue Lake or Streambed Alteration Agreements for the Lake and Streambed Alteration Program. These employees also review notifications, conduct site assessments, review CEQA documents as responsible or lead agency, draft agreements, and carry out compliance activities. The Program's annual budget is approximately $2.5 million and is derived entirely from notification fees.[79] The LIP program employs two FTEs (one employee is under contract with the CDFG and employed by Ducks Unlimited) and has an annual budget of approximately $500,000.[80]

California Department of Parks and Recreation. The CDPR - Natural Resources Division is responsible for managing wetlands located within the State Park System.[81] The CDPR also administers two local grants programs, the Federal Land and Water Conservation Fund and the Habitat Conservation Fund Grant Programs through its Office of Grants and Local Services. CDPR also is responsible, as mandated by the WPA, to identify wetlands preservation opportunities on lands adjacent to state parks. It also has some jurisdiction over granted and ungranted tidelands and submerged lands adjacent to state parks.[82] A portion of the 40 staff employed by the Office of Grants and Local Services work on wetland-related grants.[83] In addition to administering grants, staff also provide technical assistance and conducts field visits. The Land and Water Conservation Fund annual budget varies from year to year and is derived entirely from the National Park Service.[84] The Habitat Conservation Fund Grant Program has an annual budget of two million dollars, is funded through State Fiscal Year 2019/2020, and is derived primarily from state general funds.[85]

[76] Vouchilas, *supra* note 56.
[77] Personal communication with Marc Kenyon, Ducks Unlimited (Dec. 11, 2006).
[78] California Wetlands Information System, *supra* note 49.
[79] Vouchilas, *supra* note 56.
[80] Kenyon, *supra* note 77.
[81] Personal communication with Rick Rayburn, Department of Parks and Recreation (Jan. 3, 2006).
[82] California Wetlands Information System, *Department of Parks and Recreation*, *at* http://ceres.ca.gov/wetlands/agencies/dpr.html (last modified Jan. 24, 2002).
[83] Personal communication with Joshua Brady, Department of Parks and Recreation (Dec. 4, 2006).
[84] *Id.*
[85] Personal communication with Deborah Viney, Department of Parks and Recreation (Dec. 1, 2006).

California Coastal Conservancy. The California Coastal Conservancy works through non-regulatory mechanisms to protect, restore, and enhance coastal wetlands as well as other coastal resources. The Conservancy may work on wetlands restoration or enhancement projects directly or provide funding and technical assistance to government agencies and organizations for projects. The Conservancy employs approximately 70 staff members working in four locations: Oakland, Fort Bragg, Santa Cruz, and Southern California. Three employees work for the Conservancy's Restoration Enhancement Program; however, their time is not allocated solely to wetland restoration projects. The Conservancy's operating budget is eight million dollars, while its capital budget varies year to year. Funding for this program is derived primarily from state bonds but also from federal funds.[86]

California Department of Water Resources. The CDWR is responsible for managing the state's water resources, as outlined in the California Water Plan, and for constructing, operating, and maintaining the State Water Project. Impacts to wetlands that result from its activities must be avoided, minimized, or mitigated based on permit conditions. Currently, it mitigates water quality impacts to the Suisun Marsh, manages the Upper Stream Restoration Program to help projects fix bank erosion and flood problems, provides staff to the Upper Sacramento River Advisory Council, develops and carries out the San Joaquin River Management Project, and implements a Floodplain Management Program.[87] It is also working to establish a mitigation bank. The CDWR employs approximately seven FTEs in its Environmental Services Division (ESD) that work on mitigation issues. In total (including the seven in the ESD), there are 14 environmental scientists in the CDWR that work on wetlands-related activities.[88]

§401 Certification

Section 401 water quality certification is a primary mechanism for statewide wetlands regulation.[89] The State and Regional Water Boards administer the state's §401 water quality certification program pursuant to section §401 of the CWA and California's WCQA. The SWRCB issues §401 water quality certifications for projects located in more than one region of the state, while the RWQCBs issue §401 water quality certifications for projects located solely within their regions.[90] Both the State and Regional Water Boards may make "general" certification actions for specific classes of activities if certain conditions apply, such as no adverse impacts on water quality.[91] All proposed activities must receive a §401 certification before the Corps may issue a §404 permit. In addition to §401 certifications, RWQCBs also must issue Waste Discharge Requirements (WDRs) for all activities resulting in a discharge into state waters.[92] For activities that fall outside the purview of the CWA

[86] Personal communication with Scott Schuchat, California Coastal Conservancy (Dec. 5, 2006).

[87] California Wetlands Information System, *Department of Water Resources*, *at* http://ceres.ca.gov/wetlands/agencies/dwr.html (last modified Jun. 6, 2002).

[88] Personal communication with Jim Martin, Department of Water Resources (Dec. 8, 2006).

[89] State Water Resources Control Board, *CWA §401 Water Quality Certification Program §401 Program Scope and Strategy* (Dec. 19, 2002), *available at* http://www.waterboards.ca.gov/cwa401/docs/programscope_strategy.pdf.

[90] Personal communication with Nancy Dagle, State Board of Water Resources (Nov. 29, 2006).

[91] Cal. Code Regs. tit. 23, § 3861.

[92] The California Water Code requires that all dischargers file a report of waste discharge (ROWD) and that the Regional Water Quality Control Boards (RWQCB) issue Waste Discharge Requirements (General WDR). These General WDRs require that all conditions of §401 certifications be implemented to ensure water quality standards are met. *See* State Water Resources Control Board, *Water Quality Order No 2003-0017-DWQ*

§404 program, such as isolated waters, the state still requires that WDRs for all dredge and fill projects be issued by either the RWQCB or, if multi-regional, by the SWRCB.[93]

The SWRCB issues approximately 2 to 5 §401 certifications for multi-regional projects per year.[94] Waiving applications is prohibited by state law.[95] The number of regional certification approvals and denials vary by region; boards may work with applicants to obtain information for the applications so that they meet approval.[96] See Table 1.

RWQCBs use a variety of factors to ensure that discharges of dredged or fill material comply with state water quality plans. State and Regional Water Boards tend to rely heavily on Corps' and CEQA documents to make their decisions, as well as information from the applicant required as part of the certification.[108] The state is currently exploring the use of more quantitative methods, such as the California Rapid Assessment Methodology (see more on this assessment methodology in *IV. Monitoring and Assessment*).[109]

Nationwide Permits

The SWRCB denied without prejudice 26 nationwide permits (NWPs),[110] because they have "wide breadth and scope, which makes it extremely difficult to determine their potential direct, indirect, and cumulative

Statewide General Waste Discharge Requirements for Dredged or Fill Discharges That Have Received State Water Quality Certification (General WDRs) (Nov. 9, 2003), *available at* http://www.swrcb.ca.gov/resdec/wqorders/2003/wqo/wqo2003-0017.pdf.

[93] Memorandum from Celeste Cantu, Executive Director, California Environmental Protection Agency, *supra* note 15 at 2.

[94] Personal communication with Bill Marshall, Central Valley Regional Water Quality Control Board (Region 5) (Dec. 28, 2006).

[95] Short, *supra* note 10.

[96] Personal communication with Adam Fisher, Santa Ana Regional Water Quality Control Board (Region 8) (Nov. 29, 2006); Personal communication with Kirk Larkin, Colorado River Basin Regional Water Quality Control Board (Region 7), (Dec. 7, 2006).

[97] State Water Resources Control Board, *CWA Section 401 Water Quality Certification: Action Summary* (*on file at ELI*).

[98] *Id.*

[99] Short, *supra* note 10.

[100] Personal communication with Shin-Roei Lee, San Francisco Water Quality Control Board (Region 2) (Jan. 10, 2007).

[101] Personal communication with Dominic Roques, Central Coast Regional Water Quality Control Board (Region 3), (Dec. 1, 2006).

[102] Personal communication with Bill Marshall, Central Valley Regional Water Quality Control Board (Region 5) (Dec. 8, 2006).

[103] Personal communication with Tobi Tyler, Lahontan Regional Water Quality Control Board (Region 6) (Dec. 13, 2006)

[104] Personal communication with Kirk Larkin, Colorado River Basin Regional Water Quality Control Board (Region 7), (Dec. 7, 2006).

[105] Personal communication with Adam Fisher, Santa Ana Regional Water Quality Control Board (Region 8) (Nov. 29, 2006).

[106] Clemente, *supra* note 11.

[107] This does not include the number of time expired applications. Personal communication with Chiara Clemente, San Diego Regional Water Quality Control Board (Region 1) (Dec. 4, 2006).

[108] Marsh, *supra* note 8.

[109] Clemente, *supra* note 11.

[110] The State Board has denied the following permits: NWP #2 - Structures in Artificial Canals, NWP #3 - Maintenance, NWP #7 - Outfall Structures and Maintenance, NWP #8 - Oil and Gas Structures, NWP #12 - Utility Line Activities, NWP #13 - Bank Stabilization, NWP #14- - Linear Transportation Projects, NWP #15 - U.S. Coast Guard Approved Bridges, NWP #16 - Return Water from Upland Contained Disposal Areas, NWP #17 - Hydropower Projects, NWP #18 - Minor Discharges, NWP #19 - Minor Dredging, NWP # - 21 Surface Coal Mining Activities, NWP #23 - Approved Categorical Exclusions, NWP #25 - Structural Discharge, NWP #26 - RESERVED (Not included in this certification), NWP #27 - Stream and Wetland Restoration Activities, NWP #31 - Maintenance of Existing Flood Control Facilities, NWP #33 - Temporary Construction, Access and Dewatering, NWP #35 - Maintenance Dredging of Existing Basins, NWP # 37 - Emergency Watershed Protection and Rehabilitation, NWP #39 - Residential, Commercial, and Institutional Developments, NWP #40 - Agricultural Activities, NWP #41 - Reshaping Existing Drainage Ditches,

Table 1. Water Quality Certifications by Region.

Region	*Approximate Approvals/ year*	*Actual Approvals from Oct '03 to Oct '06*[97]	*Approximate Denials/year*	*Denials from Oct '03 to Oct '06*[98]
North Coast[99]	60	152	30	15
San Francisco Bay[100]	300	368	Rarely deny	8
Central Coast [101]	150	230	5	0
Los Angeles	Not available	242	Not available	14
Central Valley[102]	300	56 (Fresno), 164(Redding), 572 (Sacramento)	Rarely deny	1 (Fresno), 0 (Redding), 2 (Sacramento)
Lahontan[103]	100	39 (Tahoe), 29 (Victorville)	2	0,0
Colorado River Basin[104]	36	38	Rarely deny	0
Santa Ana[105]	150	223	Rarely deny	9
San Diego[106]	150[107]	195	2	9

impacts." The SWRCB may certify these NWPs at a future date. All CWA §401 certification applications that fall under these 26 NWPs are considered on a case by case basis.[111]

The SWRCB also set forth the following special conditions and limitations for the 17 remaining NWPs:[112]

1. **Porter-Cologne Water Quality Control Act:** All permitted activities shall comply with all requirements of California's *Porter-Cologne Water Quality Control Act*.
2. **Non-Severability:** If any condition is found to be invalid or unenforceable, certification for all activities to which that condition applies is denied.
3. **Water Diversion and Use:** Certification is denied for any activity involving a new or modified diversion or impoundment of water, unless the SWRCB has already approved a water rights permit, or such diversion or impoundment is solely for the purpose of drainage or flood control.
4. **Other Federal Permits and Licenses:** Certification is denied for any activity requiring the issuance or renewal of more than one federal permit or license.
5. **Hydroelectric Facilities Requiring a Federal Energy Regulatory Commission (FERC) License:** Certification is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license.
6. **Endangered Species Act:** Certification is denied for any project that would result in the taking of any candidate, threatened, or endangered species or the violation of the federal or California Endangered Species Act.

NWP # 42 - Recreational Facilities, NWP #43 - Storm water Management Facilities, and NWP #44 - Mining Activities. *See* Letter from Celeste Cantu, Executive Director, California Environmental Protection Agency, to Chief of Engineers, U.S. Army Corps South Pacific Division (March 12, 2002) (*available at* http://www.spn.usace.army.mil/regulatory/nwp/401cert.pdf).

[111] Letter from Celeste Cantu, Executive Director, California Environmental Protection Agency, to Chief of Engineers, U.S. Army Corps South Pacific Division (March 12, 2002) (*available at* http://www.spn.usace.army.mil/regulatory/nwp/401cert.pdf).

[112] The State Board has conditionally approved the following permits: NWP #1 – Aids to Navigation, NWP #4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities, NWP #5 Scientific Measuring Devices, NWP #6 – Survey Activities, NWP #9 – Structures in Fleeting Anchorage Areas, NWP #10 - Mooring Buoys, NWP # 11 Temporary Recreational Structures, NWP #20 - Oil Spill Cleanup, NWP #22 - Removal of Vessels, NWP #24 - State Administered 404 Programs, NWP #28 - Modification of Existing Marinas, NWP #29 - Single Family Homes, NWP #30- Moist Soil Management for Wildlife, NWP #32 - Completed Enforcement Actions, NWP #34 - Cranberry Productions Activities, NWP #36 - Boat Ramps, and NWP #38 - Cleanup of Hazardous and Toxic Wastes. *See* Memorandum from Celeste Cantu, Executive Director, California Environmental Protection Agency, to Chief of Engineers, U.S. Army Corps South Pacific Division (March 12, 2002) (*available at* http://www.spn.usace.army.mil/regulatory/nwp/401cert.pdf).

7. **Subject to Review:** Certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13320 of the California Water Code and Title 23 California Code of Regulations (23 CCR) §3867 *et seq.*
8. **Payment of Fees:** Certification is conditioned upon total payment of any fee which is required, pursuant to 23 CCR Chapter 28 and is owed by the applicant.
9. **Enforcement:** In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state law.[113]

The conditionally approved NWPs must not result in more than minimal individual or cumulative impacts. Additionally, NWPs 5, 6, 11, 20, 28, 29, 30, 32, 34, 36, and 38 are certified subject to notification requirements. The SWRCB also coordinated a review among all the RWQCBs of the NWP updates released in 2006 and submitted a set of comments to the Corps.[114] The Coastal Commission and the BCDC review all NWPs for coastal consistency.[115]

State General Permits

The SWRCB is currently working on a state general permit for small aquatic habitat restoration activities.[116]

Mitigation

The California Wetlands Conservation Policy's goal of "no net loss" of wetlands guides mitigation procedures.[117] Compensatory mitigation for both wetlands and streams is required by the SWRCB regulations for §401 water quality certifications. Regulations state that all applications for a §401 water quality certification must include the proposed amount of waters of the state that will be restored, enhanced, or created, or for which mitigation bank credits will be purchased.[118] There are no specific SWRCB regulations or guidelines regarding mitigation procedures;[119] however, CEQA requires that individual and cumulative impacts be mitigated.[120] Each RWQCB has the authority to decide on and apply mitigation conditions to water quality certifications.[121] Mitigation requirements are developed to fully replace the wetland functions, values and acreage of the affected habitats. Usually the RWQCB will establish the minimum acceptable ratio of mitiga-

[113] Memorandum from Celeste Cantu, Executive Director, Cal. Environmental Protection Agency, *supra* note 11.

[114] Dagle, *supra* note 90.

[115] Lester, *supra* note 13; Travis, *supra* note 25.

[116] Dagle, *supra* note 90.

[117] Short, *supra* note 10.

[118] Cal. Code Regs. tit. 23, § 3856(h)(5).

[119] The SWRCB currently is drafting a Dredge and Fill Policy that is due out for review in February 2007. This Policy incorporates the Corps' §404 regulations and will have parallel processes to the Corps in regards to avoidance, minimization, and mitigation procedures. It also incorporates the proposed federal rule on compensatory mitigation. Although the Policy mirrors the Corps §404 regulations and will not result in any new procedures, it does elaborate and reflect state goals. This Policy will apply to all waters of the state including those outside of federal jurisdiction. Personal communication with Glenda Marsh, State Water Resources Control Board (Dec. 7, 2006).

[120] San Francisco Water Board, *Fact Sheet for Reviewing Wetland and Riparian Projects by the San Francisco Bay Water Board* (2006), *at* http://www.waterboards.ca.gov/sanfranciscobay/certs.htm.

[121] Cal. Code Regs. tit. 23, § 3859(a).

tion to impact acres, or bank credits to debits.[122] For example, the Central Coast Water Board requires a three to one ratio for wetlands mitigation;[123] Lahontan Regional Water Board has policy language in connection with permitting activities and follows the an avoidance, minimization, and mitigation sequence to ensure no net loss of wetland function and values.[124] Other boards make mitigation decisions on a case by case basis. Most boards usually apply at least a one to one ratio. To address mitigation needs, the San Francisco Water Board requires development of a Mitigation Plan.[125] Some RWQCBs such as the Santa Ana Regional Water Board allow contributions to specific in-lieu fee programs.[126] The SWRCB also is in the process of drafting a dredged or fill material policy that will have mitigation guidance for all waters of the state impacted by dredging or filling discharges including wetlands and streams.[127]

The CCA requires that all coastal wetland functions be maintained by minimizing impacts.[128] As such, coastal development permits issued for dredge and fill activities in coastal wetlands must include mitigation,[129] including acquisition of wetlands that are of equal or great biological value at a one to one ratio or opening up an equivalent amount of areas to tidal action. If no adequate restoration sites are available, an in-lieu fee may be dedicated to a public agency that is sufficient to purchase a site of equal or greater biological value.[130] However, in-lieu fees must go towards a project that has already been designed and approved.[131] To provide a framework for reviewing mitigation plans and evaluating mitigation projects, the Coastal Commission also published "Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone" in 1995.[132] This guidance applies CEQA's mitigation definition which calls for a sequence of avoidance, minimization, restoration, and compensation.[133]

The San Francisco Bay Plan, which was adopted into law by the state legislature, outlines guidelines for compensatory mitigation for impacts to state waters within the BCDC's jurisdiction. The Plan mandates that actions should be taken in the following sequence: avoidance; minimization; repairing, rehabilitating, and restoring; and compensatory mitigation.[134] The guidelines also provide that a mitigation program should include project goals, performance standards, and a monitoring plan.[135]

[122] Personal communication with Bill Orme, State Water Resources Control Board (Jan. 16, 2007).
[123] Roques, s*upra* note 101.
[124] Personal communication with Bill Orme, State Water Resources Control Board, (Jan. 17, 2007).
[125] San Francisco Water Board, *supra* note 120.
[126] Fisher, s*upra n*ote 105.
[127] Marsh, *supra* note 8
[128] Cal. Pub. Res. Code § 30231.
[129] Cal. Pub. Res. Code § 30233(a)
[130] Cal. Pub. Res. Code § 30607.1.
[131] Hansch, *supra* note 70.
[132] California Coastal Commission, *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone, Executive Summary* (1995), *at* http://www.coastal.ca.gov/web/weteval/weexecsu.html.
[133] California Coastal Commission, *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone*, *Mitigation Defined* (1995), *at* http://www.coastal.ca.gov/web/weteval/we3.html.
[134] San Francisco Bay Conservation and Development Commission, *San Francisco Bay Plan* (2006) 73, *available at* http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf.
[135] Travis, *supra* note 25.

The California Fish and Game Code requires that CDFG Lake and Streambed Alteration Agreements include requirements to avoid and minimize impacts to fish and wildlife resources. In cases where mitigation is necessary, the CDFG includes relevant requirements.[136] Additionally, the Fish and Game Commission established a Wetlands Resource Policy that opposes any wetland development or conversion unless mitigation will result in a minimum of no net loss of wetlands.[137]

Mitigation banking is legislatively authorized in a Resource Agency policy regarding conservation and mitigation banks.[138] Additionally, in 1993 Governor Wilson signed Sacramento-San Joaquin Valley Wetlands Mitigation Bank Act that required the CDFG to establish mitigation banks in the Central Valley and set out requirements and procedures for the banks.[139] The CDFG has developed policies and procedures for establishing conservation and mitigation banks, and many mitigation banks in California are approved by the CDFG and the Corps. There are 39 CDFG-approved conservation and mitigation banks in California, of which seven have sold out of credits. Additional banks approved by other agencies also exist.[140]

The North Coast Regional Water Board and the San Francisco Bay Regional Water Board actively participate on the Mitigation Banking Review Team (MBRT) with the Corps San Francisco District.[141] The Coastal Commission will participate on an MBRT when the project is relevant to their activities.[142]

Compliance and Enforcement

Each state agency is responsible for enforcing its own regulatory program. The State and Regional Water Boards have legal authority to enforce violations of §401 certifications under the WQCA. The Corps also enforces §401/404 violations.[143] RWQCBs may issue administrative civil liability complaints, and the State Water Board handles the claims.[144] State and Regional Water Boards also may issue cease and desist orders,[145] clean up and abatement orders[146], and civil penalties that may not exceed $10,000 for each day in which the violation occurs.[147] Any person may petition the SWRCB to review an act or failure to act on the part of the RWQCBs. The SWRCB took 14 enforcement actions between 2002 and 2005.[148]

[136] Vouchilas, *supra* note 50.

[137] *See* California Fish and Game Commission, *Policies of the California Fish and Game Commission*, *at* http://www.fgc.ca.gov/html/p4misc.html#WETLANDS (last amended Aug. 18, 2005).

[138] In 1995, the state adopted an official policy regarding conservation banks, which are used for mitigating impacts to various habitats including wetlands. *See* Douglas P. Wheeler, California Resources Agency and James M. Strock, California Environmental Protection Agency, *Official Policy on Conservation Banks* (1995), *at* http://ceres.ca.gov/topic/banking/banking_policy.html.

[139] Cal. Fish & Game Code § 1775.

[140] California Department of Fish and Wildlife – Habitat Conservation Planning Branch, *Conservation and Mitigation Banking*, *at* http://www.dfg.ca.gov/hcpb/conplan/mitbank/catalogue/catalogue.shtml (last revised Oct. 18, 2006).

[141] Short, *supra* note 10; Shin-Roei Lee, *supra* note 100.

[142] Hansch, *supra* note 70.

[143] Orme, *supra* note 122.

[144] Cal. Water Code §§ 13350, 13261, 13268, 13265, 13385.

[145] Cal. Water Code § 13301.

[146] Cal. Water Code § 13304.

[147] Cal. Water Code § 13308(b).

[148] Personal communication with Glenda Marsh, State Water Resources Control Board, (Dec. 18, 2006).

Table 2. Enforcement and Compliance Statistics for 2004, by District.

Office	*Ongoing Cases*	*Cases Opened*	*Cases Closed*	*Cases Resolved*	*Cases Resolved and Closed*	*Elevated to HQ*	*Pending*
North	94	30		10		2	
North Central		15	21				62
Central		46		62		2	195
South Central		36			36		
South		27			23		
San Diego		29		23			

The Coastal Commission has the authority to issue cease and desist and restoration orders.[149] Civil liabilities may be imposed by superior court for any violation of the CCA or coastal development permit, which may not exceed $30,000 but may not be less than $500.[150] The Commission's Enforcement Program has staff in five district offices as well as the headquarters office. Cases are brought at a district level. If they are not resolved, then they are submitted to headquarters. All cease and desist and restoration orders are issued from the headquarters office. In 2004, 13 cease and desist orders, 3 executive director cease and desist orders, and 4 restoration orders were issued by headquarters.[151] Thirteen cases were elevated from the district to headquarters level. Headquarters had 163 on-going cases, and of these, 116 were pending at the attorney General's Office. See Table 2.

The BCDC also has authority to issue cease and desist orders, bring cases before the courts and the Attorney General, and issue civil penalties. In 2005, BCDC started the year with 140 on-going cases, opened 61 cases, closed 76 cases, and had 126 open cases at the end of the year. The Commission issued no cease and desist orders and did not refer any cases to the Attorney General's office. Collected civil penalties totaled approximately $290,000.

Tracking Systems

The SWRCB tracks most §401 certifications in a stand alone Access database.[152] The SWRCB also is working to migrate its Access database into the California Wetland Tracker system,[153] which was developed by the San Francisco Estuary Institute.[154] This database will be web-based and compatible with the California Integrated Water Quality System Project (CIWQS).[155] The SWRCB also will be using the Wetlands Tracker system for online

[149] California Coastal Commission, *Enforcement Program Annual Report 2004*, *available at* http://www.coastal.ca.gov/legal/enforcement-2004.pdf.

[150] Cal. Pub. Res. Code §§ 30800-30812, 30820(a)(1).

[151] California Coastal Commission, *supra* note 149.

[152] Personal communication with Jenny Chen, State Water Resources Control Board (Jan. 8, 2007).

[153] The California Wetland Tracker System "map-based website that provides wetland scientists, managers, and the caring public information about wetland distribution, projects, and condition in selected regions of California." The program includes covers projects in the San Francisco Bay Area, Central California, and Southern California. *See* California Wetland Tracker, *at* http://dev.wetlandtracker.org/ (last visited Mar. 21, 2007).

[154] Chen, *supra* note 152.

[155] The SWRCB operates the California Integrated Water Quality System Project, which is designed to manage all permits and track inspections and enforcement actions. However, for this project, the board is initially is focusing only on the National Pollution Discharge Elimination System program. *See* (State Water Resources Control Board, *California Integrated Water Quality System Project*, *at* http://www.swrcb.ca.gov/ciwqs/index.html (last updated Mar. 20, 2007).

§401 applications.[156] Most regional boards have informal, electronic tracking systems to record information on §401 applications and other permits. Several regions' databases, such as San Diego Water Board, track proposed mitigation activities, although not geospatially.[157] The Central Coast Water Board is in the process of developing a database to track implementation conditions for its §401 certifications, which will include mitigation.[158] Although there is no statewide mitigation tracking system for §401 certifications, the SWRCB contracted the University of California, Los Angeles to conduct a study to evaluate an applicant's compliance with §401 certification compensatory mitigation projects as well as wetland condition to determine how to improve regulatory and administrative procedures to help monitor and track compensatory mitigation.[159]

The Coastal Commission, BCDC, and CDFG have permit tracking systems for the permits/agreements they issue, but have no formal system for tracking mitigation.[160] Their permit tracking systems primarily record administrative-related information such as information recorded on an application, permit conditions, and review process. Although the Coastal Commission has no wetlands mitigation tracking system, it keeps track of mitigation through individual permit condition compliance review.[161] The BCDC's tracking system is tied to a Bay Resource Assessment Tool, and it is working to develop a mitigation tracking system in coordination with the San Francisco Regional Water Board and San Francisco Estuary Institute.[162]

III. Water Quality Standards

The SWRCB sets the antidegradation policy for all "waters of the state," which include wetlands.[163] The board also sets statewide water quality standards that must be applied in each region.[164] Each RWQCB adopts and implements Water Quality Control Plans (Basin Plans). These plans are approved by the SWRCB, adopted as "Resolutions" of the RWQCBs, and are legally binding. They also are approved by the Office of Administrative Law and the U. S. Environmental Protection Agency (EPA). Basin Plans include beneficial uses and numeric and narrative water quality objectives (standards) to protect these uses.[165] Regions 1, 3, 5, 7, and 9 have no water quality objectives or beneficial uses specific to wetlands; however, wetlands are addressed via other beneficial uses (i.e., Saline, Estuarine, and Marine Habitats, and Warm and Cold Freshwater Habitats), and

[156] Chen, *supra* note 152.
[157] Clemente, *supra* note 11.
[158] Roques, *supra* note 101.
[159] Dagle, *supra* note 90. The report is not finalized but is available online. *See* Richard F. Ambrose, John C. Callaway, and Steven F. Lee, *An Evaluation of Compensatory Mitigation Projects Permitted Under the Clean Water Act Section 401 by the California State Water Resources Control Board, 1991- 2002*, (Aug. 2006), *available at* http://www.waterboards.ca.gov/cwa401/docs/wetlandmitstudy_rpt.pdf.
[160] Lester, *supra* note 13; Travis, *supra* note 25; Vouchilas, *supra* note 50.
[161] Lester, *supra* note 13.
[162] Travis, *supra* note 25.
[163] State Water Resources Control Board, *Statement of Policy with Respect to Maintaining High Water Quality of Waters in the State (1968),* Resolution 68-16, *available at* http://www.waterboards.ca.gov/plnspols/docs/wqplans/res68-16.pdf.
[164] Marsh, *supra* note 8.
[165] Basin Plans must be approved by the SWRCB prior to Regional Board adoption. The California Office of Administrative Law and the EPA also approve the plans, but Regional Boards may adopt the plans prior to this approval. *See* Cal. Water Code §§ 13240, 13245.5; Dagle, *supra* note 90.

water quality objectives are set for protection of inland surface waters, enclosed bays and estuaries, and coastal lagoons.[166] Both the San Francisco and North Coast Water Boards are proposing to amend their Basin Plans to include a Stream and Wetlands Protection Policy.[167] Water Boards for Region 2 (San Francisco), Region 4 (Los Angeles), Region 6 (Lahontan) and Region 8 (Santa Ana) use Basin Plans that assign beneficial uses to wetlands. San Francisco's Basin Plan assigns water quality objectives for the San Francisco Bay and Delta and the Suisan Marsh;[168] Los Angeles' Basin Plan assigns narrative water quality objectives to all wetlands;[169] Lahontan explicitly recognizes wetlands as surface water bodies in its Basin Plan and has a number of beneficial uses related to wetland functions including Water Quality Enhancement and Flood Peak Attenuation/Flood Water Storage, which are assigned to wetlands in each hydrologic area;[170] and Santa Ana's Basin Plan includes water quality objectives for the San Joaquin Freshwater marsh.[171]

IV. Monitoring and Assessment

California Rapid Assessment Method

A variety of assessment methodologies are used in wetlands management and protection in California;[172] however, these methods cannot be applied to all California wetland types equally.[173] To fill gaps and standardize practices, state and federal agency representatives and scientists from the South, Central, and North Coasts and Bay Area developed the California Rapid Assessment Method (CRAM) to evaluate physical wetland conditions across a range of wetland types and geographic areas. Mainly intended as a cost-effective, science-based monitoring and assessment tool, it can be used as a part of a probabilistic sampling program

[166] Personal communication with Chiara Clemente, San Diego Water Quality Control Board, (Region 9) (Dec. 18, 2006).

[167] The Stream and Wetlands System Protection Policy will recognize that "it is necessary to protect and restore the physical characteristics of stream and wetlands systems-stream channels, wetlands, riparian areas, and floodplains-including their connectivity and natural hydrologic regimes, to achieve water quality standards and protect beneficial uses." It calls for integrating stream and wetlands protection with pollution prevention strategies. The policy also will promote regulatory consistency and efficiency. *See* San Francisco Water Board, *Streams and Wetlands Protection Policy*, *at* http://www.waterboards.ca.gov/sanfranciscobay/streamandwetlands.htm (last updated Feb. 7, 2006).

[168] San Francisco Region Water Quality Control Board, *Water Quality Control Plan*, *Chapter 3 Water Quality Objectives, at* http://www.swrcb.ca.gov/rwqcb2/basinplan/web/BP_CH3.html (last visited Mar. 21, 2007)

[169] Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan: Los Angeles Region*, *Chapter 2 Beneficial Uses* (1995), available at http://www.swrcb.ca.gov/rwqcb4/html/meetings/tmdl/Basin_plan/el_doc/BP2%20Beneficial%20Uses_text.pdf.

[170] Orme, *supra* note 124.

[171] Santa Ana Regional Water Quality Control Board, *Water Quality Control Plan* (1995), Resolution Number 94-1, *available at* http://www.waterboards.ca.gov/santaana/pdf/R8BPlan.pdf.

[172] Assessment methodologies include a method used by the San Francisco Bay Water Board called Wetland Ecological Assessments. *See* Andree Breaux and Molly Martindale, *Wetland Ecological and Compliance Assessments in the San Francisco Bay Region, California* (Jul. 31, 2003) *available at* http://www.waterboards.ca.gov/sanfranciscobay/download/wecareport0803.pdf. *See also* A .Breaux et al. *Wetland Ecological and Compliance Assessments in the San Francisco Bay Region, California,* 74 Journal of Environmental Management (2005), or by request from abreaux@waterboards.ca.gov. Other assessment types include: Wetland Rapid Assessment Method (Miller & Gunsalus 1999), Rapid Impact Assessment Method (Stein & Ambrose 1998), the UCLA-CRAM method (Ambrose & Lee 2004) and various others in Bartoldus 1999 or Fennessy et al. 2004. *See* San Francisco Water Board, *Fact Sheet for Reviewing Wetland and Riparian Projects by the San Francisco Bay Water Board* (2006) at 9, 16-17, *at* http://www.waterboards.ca.gov/sanfranciscobay/certs/ab111506/Fact%20Sheet%20for%20Wetland%20Projects%2012-1-06.doc.

[173] Joshua N. Collins, Eric Stein, and Martha Sutula, *DRAFT: California Rapid Assessment Method (CRAM) for Wetlands, v 3.0. User's Manual and Scoring Forms* (2004), *available at* http://www.wrmp.org/docs/cram/DRAFT_CRAMv3.pdf.

(like that used by EPA's Environmental Monitoring and Assessment Program [EMAP]) to develop a landscape level profile of the condition of different wetlands within a watershed. This information can, in turn, be used to help plan, monitor, and assess restoration activities. The tool provides a preliminary determination of the need for additional analysis or monitoring and supplementary regulatory information and can be used in §401 certification, §404 permitting, and coastal development permit decision-making by providing information for permit evaluation, site selection, and evaluation of mitigation success.[174] Although the CRAM project currently focuses on wetlands located in coastal watersheds, calibration for the remaining classes of wetlands is planned.[175] CRAM Version 4.0 has been released for public distribution; however, the methodology is still in the pilot phase.

Surface Water Ambient Monitoring Program

The SWRCB administers the Surface Water Ambient Monitoring Program (SWAMP),[176] a program that provides a statewide framework to "coordinate comparable, consistent, and scientifically defensible methods and strategies to improve surface water monitoring, assessment and reporting."[177] The program is designed around beneficial use assessment and regulatory requirements. There also are two statewide monitoring protocols currently being developed – one to assess the fishable beneficial use and the other to assess aquatic life use. It also has a regional component.[178] SWAMP, developed in response to the California State Assembly Bill AB 982 requiring state water quality monitoring programs, was designed to integrate the different monitoring programs between and within Regions and to ensure collection of comparable data.[179] Regions implement SWAMP and may use various monitoring collection and analysis methods that provide comparable data.[180] Most regional monitoring programs involve water and sediment chemistry and toxicity testing and habitat and biological assessments. For example, the North Coast Regional Board uses bioassessments methods that were developed by the CDFG on its streams.[181] The Lahontan Regional Board has conducted baseline and effectiveness monitoring at wetlands restoration sites. It also monitors in-stream biological integrity. Part of this process may involve some wetlands monitoring to better assess the state of in-stream waters, but the wetlands do not receive a separate "score."[182] In many cases, little funding exists for implementation of

[174] Environmental Law Institute, National Symposium on Compensatory Mitigation and the Watershed Approach: Symposium Materials (2004) (on file with author).

[175] San Francisco Bay Area Wetlands Regional Monitoring Program, *California Rapid Assessment Method for Wetlands*, *available at* http://www.wrmp.org/docs/cram4/CRAM%20Prospectus%205-18-2006.pdf (last visited Mar. 21, 2007).

[176] For this program, ambient monitoring includes collection of biological, chemical, and physical characteristics of surface waters to determine the status and trends of these factors in relation to water quality. *See* State Water Resources Control Board, *Surface Water Ambient Monitoring Program*, *at* http://www.swrcb.ca.gov/swamp/ (last updated Mar. 19, 2007).

[177] State Water Resources Control Board and Regional Water Quality Control Boards, *Comprehensive Monitoring and Assessment Strategy to Protect and Restore California's Water Quality* (October 2005), *available at* http://www.swrcb.ca.gov/swamp/docs/cw102swampcmas.pdf.

[178] Personal communication with Emilie Reyes, State Water Resources Control Board (Dec. 14, 2006).

[179] State Water Resources Control Board, *Surface Water Ambient Monitoring Program*, *at* http://www.swrcb.ca.gov/swamp/ (last updated Mar. 19, 2007).

[180] *See* Beverly H. van Buuren, Valerie Connor, Amara Vandervort, Megan Kilner, and William Hagan, *Achieving Comparability for a Statewide Program Through Careful Selection of Quality Assurance and Quality Control Systems*, available at http://www.swrcb.ca.gov/swamp/docs/swa_comp.pdf (last visited Mar. 21, 2007).

[181] Short, *supra* note 10.

[182] Personal communication with Tom Suk, Lahontan Regional Water Quality Control Board Region (Dec. 15, 2006).

SWAMP at regional levels; thus, regions focus on high quality waters and priority watersheds, and monitoring is primarily conducted through contracts.

SWAMP data also is used by the Board's Water Quality Assessment Unit for developing 303(d) lists and 305(b) reports.[183] SWAMP officials hope to include monitoring data from other programs such as Nonpoint Source, and Watershed Project Support Programs.[184] SWAMP also is coordinating to test CRAM as a core indicator for wetland condition, which will provide an "unbiased" estimate of the condition of estuarine wetlands. [185]

Additional Efforts

The San Francisco Estuary Institute, in collaboration with the San Francisco Regional Water Board and the regulated community, has developed a Regional Monitoring Program (RMP) that collects monitoring data on "spatial patterns and long term trends in contamination through sampling of water, sediment, bivalves, and fish, and evaluates toxic effects on sensitive organisms and chemical loading to the Bay." The RMP combines this data with data from various other programs to provide for a "comprehensive assessment of chemical contamination in the Bay."[186]

Volunteer monitoring is also an important program within the SWRCB. The Clean Water Team is a volunteer water quality monitoring program that focuses on non-point source pollution, which can have significant impacts to state wetlands.[187]

The CDWR and the CDFG signed the Suisan Marsh Preservation Agreement in 1987 along with Suisan Marsh Conservation District and the Bureau of Reclamation to protect the marsh. The agreement included a provision to develop a monitoring program for the marsh.[188] As a result, the CDWR developed a monitoring program based on the parameters in the Suisan Marsh Preservation Plan.

CDFG's Aquatic Bioassessment Laboratory established a standardized protocol for wadeable streams and rivers based on the EPA's EMAP. The protocol contains methods for sampling invertebrates, fish, and periphyton and for assessing physical/habitat and biotic integrity.[189]

[183] Reyes, *supra* note 178.

[184] State Water Resources Control Board, *Surface Water Ambient Monitoring Program*, *at* http://www.swrcb.ca.gov/swamp/ (last updated Mar. 19, 2007).

[185] State Water Resources Control Board and Regional Water Quality Control Boards, *supra* note 177.

[186] San Francisco Estuary Institute, *Regional Monitoring Program*, *at* http://www.sfei.org/rmp/ (last visited Mar. 21, 2007).

[187] State Water Resources Control Board, *Clean Water Team: Citizen Monitoring Program*, *at* http://www.swrcb.ca.gov/nps/volunteer.html#highlights (last updated Mar. 19, 2007).

[188] Department of Water Resources – Environmental Services Office, *Suisan Marsh Monitoring Program Reference Guide, Version 1* (1999), *available at* htttp://www.iep.water.ca.gov/suisun/dataReports/referenceGuide/SuisunMarshMonitoringProgramReferenceGuideVersion1.pdf.

[189] Personal communication with James Harrington, California Department of Fish and Game (Jan. 5, 2007).

V. Restoration and Partnerships

The California Wetlands Conservation Policy makes restoration a priority for the state and calls for the identification of "regional and [s]tatewide goals for conserving, restoring, and enhancing wetlands." The policy goes on to state that "[a]chievement of these goals will emphasize maintaining economic uses (e.g., agriculture) of restored and enhanced lands and be achieved through the voluntary participation of landowners." The California Policy also calls for no net loss of wetlands. To achieve this goal, several state agencies administer various restoration programs including landowner incentive programs, easements, technical and cost-share assistance, and grant programs.

Coastal Commission and State and Regional Water Boards

The Coastal Commission, SWRCB, and most Regional Water Boards have no direct involvement in formal restoration programs other than issuing grants for wetland-related restoration projects.

The San Francisco Bay Water Board, however, worked with EPA, the San Francisco Estuary Institute, and many other agencies and organizations in the San Francisco Bay Area to produce habitat goals for wetlands and related habitats. The San Francisco Bay Area Wetlands Ecosystem Goals Project (Goals Project) published "Baylands Ecosystem Habitat Goals," [190] which provides recommendations for extensive wetland restoration throughout San Francisco Bay that have been followed extensively by partners and stakeholders interested in ecosystem restoration.[191]

California Department of Parks and Recreation

The CDPR also provides grants for wetland-related restoration projects. CDPR's Office of Grants and Local Services administers the Federal Land and Water Conservation Fund and Habitat Conservation Fund Grant Programs. The Land and Water Conservation Fund Program does not include wetlands as a funding category; however, occasionally an applicant has requested funding for an acquisition that has a wetlands component. The Habitat Conservation Fund Program does include wetlands as one of six funding categories. Habitat Conservation Fund Program grant applicants can apply for funds for projects to either acquire wetlands property or to enhance or restore properties. The program provides $2 million per year, including wetland- and non-wetland-related projects. Applicants must meet a one to one non-state match requirement.[192] Since the Program's inception, the CDPR has funded 42 wetlands projects throughout California, most of which have been enhancement/restoration of existing wetlands.[193] The CDPR also conducts restoration activities on state parks lands.[194]

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[190] *See* San Francisco Bay Area Wetlands Ecosystem Goals Project, Baylands Ecosystem Habitat Goals: A Report of Habitat Recommendations (1999), *available at* http://sfep.abag.ca.gov/pdf/habitat_goals/Habitat_Goals.pdf.

[191] Personal communication with Andree Breaux, San Francisco Regional Water Quality Control Board (Region 2) (Jan. 11, 2007).

[192] Central Valley Joint Venture, *Conservation Programs Public Funding Information*, *available at* http://www.centralvalleyjointventure.org/materials/cvjv_funding.pdf (last visited Mar. 21, 2007).

[193] Viney, *supra* note 85.

[194] Restoration projects in state parks include: coastal wetlands projects at Pescadero Marsh Natural Preserve in San Mateo County, Wilder Beach Natural Preserve in Santa Cruz County, San Simeon State Park in San Luis Obispo County, Gaviota State Park in Santa Barbara County, and Tijuana Estuary Natural Preserve in San Diego County. *See* California Resources Agency – California Wetlands Information System, *Department of Parks and Recreation*, *at* http://ceres.ca.gov/wetlands/agencies/dept_parks_recreation.html (last modified Jan. 24, 2002).

California Coastal Conservancy

The Coastal Conservancy also provides grants for wetland acquisition and restoration, but conducts restoration and provides technical and planning guidance as well. Through its Resource Enhancement Program, the Coastal Conservancy has restored over 40,000 acres in the San Francisco Bay Area and 5,000 to 6,000 acres in Southern California.[195] The Conservancy works cooperatively with many agencies, organizations, and private partners to achieve its restoration goals.[196] It also has published "Options for Wetland Conservation: A Guide for California Landowners."[197]

California Department of Fish and Game

The CDFG administers a Landowner Incentive Program in the Central Valley, which provides landowners with incentive payments for implementing a habitat conservation plan for threatened and endangered species on restored wetlands, riparian lands, and native grasslands.[198] The program is funded by the U.S. FWS and the California State Wetland Fund. The CDFG works with the U.S. FWS and the Natural Resources Conservation Service (NRCS) to select projects. The CDFG also administers the California Waterfowl Habitat Program, under which the agency enters into agreements with landowners to protect waterfowl habitat. Through the agreement, landowners receive $20 for each acre of waterfowl habitat protected per year. The landowners must abide by specific agreement terms for wetlands. The CDFG ensures that compliance takes place and that payments are issued.[199]

Wildlife Conservation Board

The Wildlife Conservation Board (WCB) operates as an arm of the CDFG and retains independent authority. The WCB created the Inland Wetland Conservation Program in 1990 to increase waterfowl populations by protecting and restoring wetland habitat in the Central Valley and to advance the goals of the Central Valley Joint Venture. Through this program, the WCB administers a cost-sharing Program. It awards grants to nonprofit organizations, state and local governments, Resource Conservation Districts, and Special Districts for projects that will restore and enhance lands or that will place wetlands into easements.[200] The WCB also may purchase degraded wetlands, restore them, and sell them to a public agency or private entity.[201]

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[195] Major projects include restoration of Napa Salt Marsh and South Bay Salt Ponds with the California Department of Fish and Game (CDFG) and the BCDC, the Southern California Wetlands Restoration Project (see below), and Bolsa Chica Restoration Project as well as many smaller projects. Personal communication with Sam Schuchat, California Coastal Conservancy (Dec. 5, 2006).

[196] Schuchat, *supra* note 86.

[197] For an excerpt and information on how to obtain the California Coastal Conservancy's "Options for Wetland Conservation: A Guide for California Landowners," *see* California Wetlands Information System, *Voluntary Landowner Incentive Programs, at* http://ceres.ca.gov/wetlands/introduction/management.html (last modified Aug. 13, 1998).

[198] California Department of Fish and Game, *Landowner Incentive Program*, *at* http://www.dfg.ca.gov/lands/lip/(last visited Mar. 21, 2007); Email communication with Marc Kenyon, Ducks Unlimited (Dec. 11, 2006).

[199] California Wetlands Information System, *supra* note 59.

[200] California Wildlife Conservation Board, *Inland Wetlands Conservation Program*, *at* http://www.wcb.ca.gov/Pages/inland_wetlands_conservation_program.htm (last visited Mar. 21, 2007).

[201] California Wetlands Information System, *Wildlife Conservation Board*, *at* http://ceres.ca.gov/wetlands/agencies/wcb.html (last modified Jan. 24, 2002).

Department of Water Resources

The CDWR has the authority from recently passed Proposition 84 to allocate $1 billion in grants to local agencies to meet long-term water resource needs including protection of water quality and the environment.[202] Although projects are not required to be specific to wetlands, they must have multiple benefits. One of the eleven possible benefits includes "[r]emoval of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands."[203]

Regional and Local Efforts

There also are numerous restoration projects taking place throughout California at regional and local levels involving many partners, including various state agencies. A prominent example is the Southern California Wetlands Recovery Project (SCWRP). The SCWRP was initiated "to accelerate the pace, the extent, and the effectiveness of coastal wetland restoration" and to increase the quality and quantity of wetlands in the state over the long-term. The SCWRP is chaired by the Resources Agency and supported by the Coastal Conservancy. The Project is a partnership that includes public agencies,[204] non-governmental organizations, communities, and scientists. The partners work together to acquire and restore wetlands, rivers, and streams in Southern California. Using an ecosystem framework and a non-regulatory approach, the SCWRP prioritizes wetlands for acquisition and restoration from Point Conception in Santa Barbara County to the border with Mexico. The SCWRP also develops and implements plans for these priority wetlands, combines funding to implement the projects, and maintains and monitors projects.[205] The program also manages a database which includes an inventory and profile of the wetlands within the project area.[206] Initial funding from the state derived from an interagency grant from the CDFG. Several partner agencies also contributed funds and services for SCWRP development.

Additional major restoration efforts that involve state agencies as partners include the Bolsa Chica Restoration Project,[207] Ballona Wetlands Restoration Project,[208] and the San Francisco Bay Area Wetlands Restoration Program,[209] and the CALFED Bay-Delta Program.[210]

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[202] Cal. Pub. Res. Code § 75026(a).

[203] *Id* at § 75026(a)(3).

[204] State agencies involved include: the State Coastal Conservancy, the Resources Agency, the Coastal Commission, the CDFG, the California Department of Parks and Recreation (CDPR), the California State Lands Commission (CSLC), the California Environmental Protection Agency (CAL-EPA), the Wildlife Conservation Board (WCB), the SWRCB, and the Central Coast, Los Angeles, Santa Ana, and San Diego Regional Boards. *See* Southern California Wetlands Restoration Project, *Background, at* http://scwrp.org/governing_board.htm (last visited Mar. 21, 2007).

[205] Southern California Wetlands Restoration Project, *Southern California Wetlands Restoration Project, at* http://scwrp.org (last visited Mar. 21, 2007).

[206] California Coastal Conservancy, *Southern California Wetlands Recovery Project Information System*, *at* http://www.wrpinfo.scc.ca.gov/ (last visited Mar. 21, 2007).

[207] State agencies involved include: CSLC, California Coastal Conservancy, and the Resources Agency. *See* National Oceanic and Atmospheric Administration – National Marine Fisheries, Southwest Regional Office, *Bolsa Chica Wetlands Steering Committee*, *at* http://swr.nmfs.noaa.gov/hcd/bolsa.htm (last visited Mar. 21, 2007).

[208] State agencies involved include: CDFG, California Coastal Conservancy, and CSLC. *See* California Coastal Conservancy, *Ballona Wetlands Restoration Project-Project Organization*, *at* http://www.scc.ca.gov/Ballona/images/project-org-chart3.jpg (last visited Mar. 21, 2007).

[209] The Executive Council is made up of the following state agencies: CALFED Bay-Delta Authority, CDFG, CAL-EPA, Resources Agency, BCDC, San Francisco Bay Regional Water Quality Control Board, California Coastal Conservancy, CSLC, SWRCB, and WCB. *See* San Francisco Bay Area

Tracking Restoration

The Natural Resource Project Inventory (a collaborative effort between the California Biodiversity Council and the University of California at Davis) tracks a range of information on many types of projects including wetlands restoration projects. Tracked information includes funding, partners/ participants, contact information, and any technical data available. This source is used by both the general public and government agency staff.[211]

The Resources Agency began developing a state wetlands inventory by updating the state's existing wetlands inventory resources (as mandated by the Wetlands Protection Act (WPA) and the California Wetlands Conservation Policy) in 2001 with funding from the Legacy Project.[212] The Legacy Project helped convene three or four workshops with state and federal agency staff to determine the best science-based approach for developing the inventory. The consensus decision was to use and build upon the U.S. FWS's National Wetlands Inventory approach.[213] When the inventory was initiated, only 40 percent of the state's wetlands had been mapped—today, 80 percent have been mapped. [214] The goal of the inventory is to use it to assist with conservation planning and local restoration needs. [215] The Agency plans to map the remaining wetlands in the state and re-map wetlands that were mapped in the 1980's to ensure their accuracy. Primary partners include the Coastal Conservancy, CDFG, USFWS, and EPA Region Nine.[216]

VI. Education and Outreach

RWQCBs conduct some education through watershed or stormwater programs or specific grants. For example, the Lahontan Regional Water Board received an EPA grant to develop a teacher's wetland curriculum that will be for kindergarten to grade five in the Lake Tahoe area.[217] Additionally, the San Francisco Bay Regional Board included the need to apply for dredge and fill permits as part of its construction site management

Wetlands Restoration Program, *Objectives and Benefits*, *at* http://www.sfwetlands.ca.gov/objectivesbenefits.html (last visited Mar. 21, 2007).

[210] CALFED is a program that involves the collaboration of 25 state and federal agencies. It was established in 1994 through a Framework Agreement to "improve water supplies in California and the health of the San Francisco Bay/Sacramento-San Joaquin River Delta." The Bay-Delta Authority was established to over see CALFED's 30 year plan, which was developed to guide the goals and development programs for the area. CALFED provides grants for various projects including wetlands restoration projects through its Ecosystem Restoration Program. *See* California Bay-Delta Authority, *About CALFED*, *at* http://calwater.ca.gov/AboutCalfed/AboutCALFED.shtml (last visited Mar. 21, 2007). *See also* California Bay-Delta Authority, *Ecosystem Restoration Project, ERP Project Locator, at* http://www.delta.dfg.ca.gov/erpin/displaymap.asp (last visited Mar. 21, 2007).

[211] Natural Resources Project Inventory, *The National Resources Project Inventory Brochure Foreword*, *available at* http://www.ice.ucdavis.edu/nrpi/Brochure/Foreword.pdf (last visited Mar. 21, 2007).

[212] The Legacy Project was an information gathering initiative that the Resources Agency led in coordination with numerous state agencies and citizens groups to develop tools, such as databases and analytical maps, to help make important natural resource conservation decisions. Personal communication with Chris Potter, California Resources Agency (Jan. 4, 2007).

[213] California Resources Agency, *Legacy Project Archive: 2002 Accomplishments*, *at* http://legacy.ca.gov/2002_accomplishments.epl (last visited Mar. 21, 2007).

[214] Potter, *supra* note 66.

[215] California Resources Agency, *supra* note 213.

[216] Potter, *supra* note 66.

[217] Personal communication with Cindy Wise, Lahontan Regional Water Quality Control Board (Region 6) (Dec. 13, 2006).

workshops for developers and consultants.[218] However, most of the RWQCBs efforts are not formalized and are not specific to wetlands. The CDWR works with the Central Valley Joint Venture to produce a junior duck stamp calendar. Calendars contain pictures painted by children, include captions regarding wetlands information, and are distributed to schools throughout the state.[219] The Coastal Conservancy often adds interpretive signs to completed restoration projects. It also funds nature centers that are working to restore wetlands and provide wetlands education programs.[220]

The Resource Agency administers and maintains a major education and outreach effort through its California Environmental Resources Evaluation System (CERES). The system is designed to provide a variety of environmental information and data to the public, government agencies, and scientists. The information can be used for environmental planning and analysis.[221] Part of the CERES, the California Wetlands Information System (CWIS) is another important educational tool. This system provides information on wetlands including maps, environmental documents, agency roles in wetlands management, and restoration and mitigation. All information is accessible online and is intended for the general public and government agencies.[222]

The Coastal Commission has an extensive wetlands education program. One of its foremost programs is a community-based restoration program in upper Newport Bay in Orange County.[223] Through the program, the Commission recruits volunteers to conduct coastal wetland restoration work on a monthly basis and conducts outreach on wetlands issues. In conjunction with this program, the Commission has developed a curriculum called "Our Wetlands, Our World" for teachers. Commission staff is conducting workshops for teachers on this curriculum and provides school bus scholarships for student field trips. Another important Commission education program is its "Waves, Wetlands, and Watersheds" Program. This is a statewide education program for third through eighth grade students that is aligned with state education standards. Each grade focuses on a coastal topic. Wetlands are addressed throughout, but are the specific focus for grade three. Finally, the Commission also has a grants program through which it awards funding for wetland educational programs that may involve restoration as well. All the Commission's education programs are funded by the sale of whale tail license plates.[224]

[218] Shin-Roei Lee, *supra* note 100.

[219] Martin, *supra* note 88.

[220] Schuchat, *supra* note 86.

[221] California Resources Agency, *California Environmental Resources Evaluation System*, *at* http://www.ceres.ca.gov/ (last visited Mar. 21, 2007)

[222] California Resources Agency, *California Wetland Information System*, *at* http://ceres.ca.gov/wetlands (last modified Jan. 17, 2003).

[223] As a spin-off to this community-based program in Newport Bay, the Commission is developing a guide to assist grassroots initiatives interested in establishing their own restoration programs. The guide is due out for review in February 2007. Personal communication with Christiane Parry, California Coastal Commission (Dec. 12, 2006). [0]

[224] Personal communication with Christiane Parry, California Coastal Commission, (Dec. 12, 2006).

VII. Coordination with State and Federal Agencies

As prescribed in the California Wetlands Conservation Policy, California's state agencies cooperate extensively on wetlands issues. For example, the BCDC has a Memorandum of Understanding (MOU) with the San Francisco Water Board that states that a §401 certification may not be issued until a BCDC permit has been issued. Commissioners of the BCDC are appointed from various state agencies, including the Resources Agency and SWRCB. The BCDC also works through MOUs with the Coastal Commission and the Coastal Conservancy on various projects.[225] The Coastal Commission works closely with the CDFG on wetlands and sensitive habitat issues when preparing permits.[226] The CDWR coordinates with the CDPR and CDFG to carry out its compensatory mitigation on state-owned lands. RWQCBs work together and meet bimonthly on §401 water quality certification related issues.[227]

State agencies also work regularly with federal agencies. State and Regional Water Boards may coordinate with the U.S. FWS and the Corps on §401/404,[228] although the degree of cooperation varies by region. The BCDC also coordinates closely with the Corps, because the Corps may not issue a §404 permit for a project in the BCDC jurisdiction before an applicant has received its BCDC permit.[229] The Coastal Commission works closely with the U.S. FWS and National Oceanic and Atmospheric Administration when issuing permits to ensure there are no impacts to federal threatened and endangered species.[230] The CDFG and WCB work closely with the National Resources Conservation Service (NRCS) on its Wetlands Preserve Program and on other mitigation and restoration initiatives.[231] Finally, extensive coordination takes place between state and federal agencies on the state's numerous restoration efforts (See *V. Restoration and Partnerships*).

VIII. Acronyms and Abbreviations

BCDC – San Francisco Bay Conservation and Development Commission

CCA – California Coastal Act

CAL-EPA – California Environmental Protection Agency

CERES – California Environmental Resources Evaluation System

CEQA – California Environmental Quality Act

Corps – U.S. Army Corps of Engineers

[225] Travis, *supra* note 25.
[226] Lester, *supra* note 13.
[227] Short, *supra* note 10.
[228] Tyler, *supra* note 103; Personal communication with Greg Vaughn, Central Valley Water Quality Control Board (Region 5) (Dec. 27, 2006)
[229] Travis, *supra* note 25.
[230] Lester, *supra* note 13.
[231] Personal communication with Alan Forkey, Natural Resources Conservation Service (Dec. 12, 2006).

CRAM – California Rapid Assessment Methodology

CWA – Clean Water Act

CWIS – California Wetlands Information System

EPA – U.S. Environmental Protection Agency

CDFG – California Department of Fish and Game

CDPR – California Department of Parks and Recreation

CDWR – California Department of Water Resources

FTE – Full-time Equivalent

MBRT – Mitigation Banking Review Team

MOU – Memorandum of Understanding

NRCS – Natural Resources Conservation Service

NWPs – Nationwide Permits

RMP – Regional Monitoring Program

RWQCB – Regional Water Quality Control Board

SCWRP – Southern California Wetlands Restoration Project

SWAMP – Surface Water Ambient Monitoring Program

SWRCB – State Water Resources Control Board

U.S. FWS – U.S. Fish and Wildlife Service

WCB – Wildlife Conservation Board

WPA – Wetlands Protection Act

WQCA –Water Quality Control Act

Connecticut

I. Overview

As of the mid-1980s, Connecticut had lost approximately 74 percent of its estimated original wetland area—a higher rate of wetland loss than any other New England state.[1] However, the state has lost only 35 percent of its tidal wetlands since the late 1880s.[2] Wetlands currently comprise approximately 17 percent of Connecticut's land area[3] and are protected under separate regulatory programs for inland and tidal wetlands, both distinct from the federal §404 permitting program under the Clean Water Act (CWA). Tidal wetlands are regulated exclusively by the Connecticut Department of Environmental Protection's (CTDEP) Office of Long Island Sound Programs (OLISP); regulation of inland wetlands occurs primarily at the municipal level under Municipal Inland Wetland Agencies (MIWA).

II. Regulatory Programs

Wetland Definitions and Delineation

Connecticut defines "waters" as "all tidal waters, harbors, estuaries, rivers, brooks, watercourses, waterways, wells, springs, lakes, ponds, marshes, drainage systems and all other surface or underground streams, bodies or accumulations of water, natural or artificial, public or private, which are contained within, flow through or border upon this state or any portion thereof."[4]

As previously mentioned, Connecticut regulates tidal and inland wetland activities separately from those covered by §401/404 of the CWA. Authority for these programs is provided by the Inland Wetlands and Watercourses Act (IWWCA),[5] the Tidal Wetlands Act (TWA),[6] and the "Structures, Dredging and Fill Statutes."[7] Under the TWA, the statutory definition of a wetland includes:

> 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 whose surface is at or below an elevation of one foot above local extreme high water; and upon which may grow or be capable of growing some, but not necessarily all, of the following...[species].[8]

[1] National Oceanic and Atmospheric Administration, *Habitat Connections: Wetlands, Fisheries and Economics (undated), at* http://www.nmfs.noaa.gov/habitat/habitatconservation/publications/habitatconections/num3.htm (last viewed Nov. 10, 2006).
[2] Personal communication with Ron Rozsa, Connecticut Department of Environmental Protection (Nov. 7, 2006).
[3] Connecticut Department of Environmental Protection, *at* http://dep.state.ct.us/wtr/wetlands/inland_wetlands.htm (last viewed Nov. 10, 2006)
[4] Conn. Gen. Stat. §22a-423 (2007).
[5] Conn. Gen. Stat. §22a-36 *et seq*. (2007).
[6] Conn. Gen. Stat. §22a-28 *et seq*. (2007).
[7] Conn. Gen. Stat. §22a-359 through §22a-363f (2007).
[8] Conn. Gen. Stat., *supra* note 6.

Under the Structures, Dredging and Fill statutes,[9] the landward boundary of regulation is the high tide line; therefore, activities conducted in tidal wetlands require a coastal permit. The Coastal Management Act establishes policies for other categories of estuarine wetlands (including intertidal flats, eelgrass beds and estuarine embayments); the issuance of a permit under the Structures and Dredging and Fill statutes is contingent upon the proposed activities' consistency with these policies.[10]

IWWCA similarly defines "wetlands" and "watercourses." "Wetlands" include "land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive [tidal wetlands], which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey [. . .]."[11] "Watercourses" are:

> rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon this state or any portion thereof, not regulated pursuant to sections 22a-28 to 22a-35, inclusive [tidal wetlands]. Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation.[12]

Wetland delineation criteria correspond to the criteria listed within the state statutes.[13] There is no threshold or minimum size or quality requirement for the delineation of wetlands and watercourses. Any wetland or watercourse that can be observed on the ground is subject to jurisdiction.[14] The Connecticut delineation criteria for wetlands and watercourses almost always exceed the stringency of federal delineation criteria.[15]

Organization of State Activities

Under the IWWCA, regulation of inland wetlands occurs primarily at the municipal level under MIWAs. There are 169 municipalities in Connecticut and a total of 170 MIWAs, and application of the IWWCA varies among municipalities.[16] CTDEP does operate a Wetlands Management Section (WMS), which regulates the actions of state departments, agencies or instrumentalities only. Municipal decisions cannot be appealed to CTDEP; all such appeals must go to the state courts. The primary function of the WMS is to assist the municipal MIWAs in the administration of the IWWCA, including providing training and oversight.[17] To carry out these tasks, the WMS has two full-time equivalent staff and a budget of $200,000/year, derived from federal and

[9] Conn. Gen. Stat., *supra* note 7.
[10] Rozsa, *supra* note 2.
[11] Conn. Gen. Stat., *supra* note 5.
[12] *Id.*
[13] *Id;* and Conn. Gen. Stat., *supra* note 6.
[14] Personal communication with Steve Tessitore, Connecticut Department of Environmental Protection (July 26, 2006).
[15] *Id.*
[16] *Id.*
[17] *Id*.

state grants.[18] The CTDEP's Inland Water Resources Division (IWRD) administers the state's §401 certification program for inland wetlands.

Tidal wetlands are regulated exclusively by CTDEP's OLISP under the Tidal Wetlands Act and Coastal Management Act. The OLISP has eleven staff members that work at least part-time on wetland-related enforcement, permitting, monitoring, and §401 certification.[19] The program's funding is derived from federal grants and, to some extent, fees and penalties. Individual tidal wetland restoration projects are funded largely by federal agencies (e.g., National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (FWS), Natural Resources Conservation Service, and Department of Transportation). Nonprofit groups such as Save the Sound and The Nature Conservancy also make contributions, although those funds are largely derived from federal agencies as well.[20]

§401 Certification

The IWRD makes 12-15 individual certifications each year for inland wetlands, approving approximately 85-90 percent of received applications.[21] Less than 5 percent of decisions are waived, and approximately 10 percent are denied.[22] The IWRD relies on a qualitative assessment for §401 certification decision-making. Upon receiving the application and a certified copy of the Notice of Application, a project coordinator reviews the application for sufficiency. If the application is sufficient, a detailed technical review is then conducted, including an evaluation of the technical documentation provided in the application and an assessment of the site, the anticipated effects of the proposed activity, and the proposed impact's mitigation or compensation. If permit issuance is proposed, a draft permit with proposed terms, limitations, and conditions is prepared and made available for review and comment, and the public is given notice of a formal hearing for the application.[23]

Although the TWA is the primary mechanism for protecting tidal wetlands at the state level, state agency staff consider §401 certification as an important element of state tidal wetland protection.[24] The OLISP relies on both qualitative and quantitative assessment to ensure that discharges into wetlands and state waters are consistent with water quality standards.[25] In 2005, seven water quality certification applications were received and four were approved.[26]

[18] *Id.*

[19] Personal communication with Peter Francis, Connecticut Department of Environmental Protection (Aug. 11, 2006).

[20] Personal communication with Harry Yamalis, Connecticut Department of Environmental Protection (Oct. 16, 2006).

[21] Personal communication with Robert Gilmore, Connecticut Department of Environmental Protection (Sept. 12, 2006).

[22] *Id.*

[23] Connecticut Department of Environmental Protection, *at* http://www.dep.state.ct.us/pao/iwrdfact/inlandww.htm (last viewed Aug. 11, 2006).

[24] Francis, *supra* note 19.

[25] *Id.*

[26] Personal communication with Kristen Bellantuono, Connecticut Department of Environmental Protection (Oct. 16, 2006).

State Programmatic General Permits

The New England District of the U.S. Army Corps of Engineers (Corps) has issued a Programmatic General Permit (PGP) to expedite the review of minimal impact projects in coastal and inland waters and wetlands within the State of Connecticut.[27] The PGP is used in lieu of the federal nationwide permits. There are two categories of activities that qualify for authorization under the PGP.[28] The specific activities covered by the PGP are: (1) work and structures that are located in, or that affect, navigable waters of the United States and (2) the discharge of dredged or fill material into waters of the U.S. The Corps has outlined 38 conditions that apply to all activities authorized under the PGP.[29]

Mitigation

The 1996 amendment to the IWWCA authorizes inland wetland mitigation and establishes the following prioritization for types of compensatory mitigation: restore, enhance and create productive wetlands or watercourse resources. The state law also provides general standards on mitigation. The state does not participate on a Mitigation Banking Review Team.

Although there are no guidelines, policies, or legislation that guide compensatory mitigation for permitted impacts to tidal wetlands,[30] the OLISP has developed a policy for the compensation of unavoidable tidal wetland losses for public agency projects with significant public benefits. This policy requires avoidance of impacts and mitigation to the fullest extent possible. Remaining adverse impacts must be deemed acceptable by state permitting staff.[31]

Enforcement and Compliance

The IWWCA does contain enforcement provisions for violations to the Act. First, a MIWA may issue a written order to cease immediately any activity, facility or condition in violation of the Act or to correct such facility or condition.[32] Second, a municipality may establish, by ordinance, a fine for violations of regulations not to exceed $1,000 for each day during which such violation continues. Persons in violation of the act may also be imprisoned for up to six months.[33] For subsequent violations, fines of up to $2,000 (for each day of a violation) may be issued, as well as imprisonment of up to one year.[34]

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[27] Department of the Army Corps of Engineers, *Department of the Department of the Army Programmatic General Permit State of Connecticut and Lands Located Within the Exterior Boundaries of an Indian Reservation (May 21, 2006), at* http://www.nae.usace.army.mil/reg/ctpgp.pdf (last viewed Oct. 17, 2006).

[28] *Id.* Category 1: Non-reporting. Projects are eligible without screening (provided other authorizations are obtained which this permit states are necessary for activities to be eligible for authorization under this category) and do not require notification to the Corps of Engineers. Category 2: Screening/Reporting. These projects require the submittal of an application to the Corps followed by screening the proposal by the Corps, the U. S. Fish and Wildlife Service (U.S. FWS), the U. S. Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS), and the Connecticut Department of Environmental Protection (DEP). Category 2 projects may not proceed until written notification in the form of a Corps PGP authorization letter is received.

[29] *Id.*

[30] Francis, *supra* note 19.

[31] Rozsa, *supra* note 2.

[32] Conn. Gen. Stat.§ 22a-44 (2007).

[33] Conn. Gen. Stat. §23a-42(g) (2007).

[34] Conn. Gen. Stat.§22a-44(c) (2007).

Violations to the TWA can lead to "liability to state for cost of restoration and fine up to $1,000 for each offense (each day of violation is considered a separate offense)."[35] During fiscal year 2005, the OLISP issued 22 violations, 5 consent orders, and 2 unilateral orders, and conducted 204 inspections.[36]

Tracking Systems

The IWWCA requires that MIWAs report all permit and enforcement actions to the Commissioner of CTDEP, who then enters the information into a computerized database.[37] Although not required by legislation, a similar system for tracking permits is used by the tidal wetlands program; every permit issued is recorded in a computerized database.[38]

The MIWAs track mitigation as a part of their permit tracking system. Approximately one quarter of the MIWAs have staff specifically for mitigation tracking; however, the processes that the MIWAs use to evaluate mitigation construction and performance are varied.[39]

The OLISP tidal wetlands program tracks acres of wetlands that have been restored or enhanced. The methods of evaluating mitigation construction and performance are unique to each project. Generally, for large projects, permit applicants must submit detailed monitoring reports; for smaller projects, CTDEP staff travel to the sites and use their best professional judgment to evaluate mitigation construction and performance.[40] OLISP tracks permitting and mitigation in an electronic database.[41]

OSLIP has also implemented a program that utilizes geographic information systems (GIS) to track all permit actions for both tidal wetlands and structures and dredging, from 1939 to the present. All permit actions, such as issued permits, are scanned and are retrievable as electronic documents through GIS software.[42]

III. Water Quality Standards

Connecticut's water quality standards (WQS) do not identify criteria specific to wetlands; however, the WQS do identify narrative, chemical and biological standards for the state's surface water, which includes wetlands:

[35] Conn. Gen. Stat. §22a-35 (2007).

[36] Connecticut Department of Environmental Protection, *at* http://www.dep.state.ct.us/enf/stat/ffy2005.htm (last viewed Oct. 16, 2006). Comparable information was not available for the inland wetland program.

[37] Conn. Gen. Stat.§ 22a-39m.

[38] Francis, *supra* note 19.

[39] Tessitore, *supra* note 14.

[40] Francis, *supra* note 19.

[41] Bellantuono, *supra* note 26.

[42] Rozsa, *supra* note 2.

> Surface Water means the waters of Long Island Sound, its harbors, embayments, tidal wetlands and creeks; rivers and streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, federal jurisdictional wetlands, and other natural or artificial, public or private, vernal or intermittent bodies of water, excluding groundwater.[43]

The CTDEP uses the WQS along with specific wetlands regulations (ie. IWWCA and TWA) to guide decisions on the issuance of §401 certification and National Pollutant Discharge Elimination System permits.[44]

Connecticut has not adopted wetland-specific designated uses; however, uses for surface waters are designated for each waterbody in the state based on an AA through D classification system for inland surface waters and SA through SD classification system for coastal waters. Specific wetlands may fall within any of these classification groups and thus designated uses differ. The WQS and associated designated uses relate to fish and wildlife habitat.[45]

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

Neither the inland nor tidal wetland program has a state-wide wetland-specific monitoring or assessment program. However, overall wetland gain and loss is tracked by the WMS as part of the permit tracking program sanctioned by the IWWCA and OLISP (See *V. Restoration*). Additionally, Connecticut has completed the National Wetland Inventory and mapping program which has made available maps for the entire state.

CTDEP-IWRD staff have participated in both the National and New England Biological Assessment of Wetlands Workgroups to evaluate pilot wetlands monitoring programs in other states. Additionally, the CTDEP provided a staff person to work in Washington at EPA headquarters for two years on this effort. If financial resources are available, the CTDEP plans to implement its own wetland monitoring program.[46]

Monitoring and Assessment for Rivers, Streams, Lakes, Ponds and Estuaries

Connecticut has documented its water quality assessment methodology for surface waters in the Connecticut Consolidated Assessment & Listing Methodology (CT CALM).[47] The CT CALM is used for assessing the quality of surface waters (streams, rivers, lakes, ponds and estuaries)[48] for the state's 305(b) Report and 303(d) List, as well as for planning and management.[49] Methodologies outlined in the CT CALM are based primarily on

[43] Connecticut Department of Environmental Protection, *Water Quality Standards (Dec. 2002)*, *at* http://dep.state.ct.us/wtr/wq/wqs.pdf#search=%22water%20quality%20standards%20and%20criteria%20regulations%20Connecticut%22 (last viewed Mar. 21, 2006).

[44] *Id.*

[45] *Id.*

[46] Personal communication with Lisa Wahle, Connecticut Department of Environmental Protection (Oct. 11, 2006).

[47] Connecticut Department of Environmental Protection, *Connecticut Consolidated Assessment and Listing Methodology for 305(b) and 303(d) Reporting (2004)*, *at* http://www.dep.state.ct.us/wtr/wq/calm/2004_calm.pdf (last viewed Oct. 17, 2006).

[48] Though both wetlands and streams included in the definition of surface waters, the "CTDEP does not have the staff or the methodology to monitor or assess wetlands under CALM." Wahle, *supra* note 46.

[49] Connecticut Department of Environmental Protection, *supra* note 47.

monitoring by the CTDEP and U.S. Geological Survey, with input from state and federal agencies and academic and volunteer entities.[50] The extent to which waterbodies support their designated uses under the Connecticut WQS is the key element of 305(b)/303(d) assessments.[51]

V. Restoration

Connecticut does not operate a formal restoration program for inland wetlands; thus, any inland wetland restoration projects, apart from compensatory mitigation projects, are carried out by the municipalities. However, the Connecticut Coastal Management Act of 1980 established a policy to "encourage the restoration and rehabilitation of degraded tidal wetlands." This Act is the foundation for the tidal marsh restoration efforts of the CTDEP's Wetland Habitat and Mosquito Management Program (WHMMP).[52]

The primary approach used by the WHMMP in restoring tidal wetlands has been the restoration of degraded wetlands' tidal flow by removing tide-gates and replacing undersized culverts.[53] With support from the NOAA Coastal Services Center, which provides two-year coastal fellows to states with approved coastal management programs, the OLISP has created a database to track tidal wetland restoration projects.[54]

In the 1980s, there were few dedicated funds available to support tidal wetland restoration. Between 1985 and 1993, many of the wetland restoration projects were completed in partnership with the Mosquito Control Section of the Connecticut Department of Health Services. In 1989, the Connecticut Legislature created the Long Island Sound Cleanup Account (LISCA) to support various estuarine restoration projects. With the increasing number of federal agency grant programs in the 1990s to support wetland restoration, the LISCA became an important source of matching funds that reduced the states' cost for individual projects.[55]

Funds for monitoring restoration projects were also limited in the 1980s. However, the CTDEP was able to direct funds to scientists at Connecticut College to periodically monitor strategic sites (as examples of the different types of restoration). The CTDEP also used photostations at many sites to record the progress of vegetation change, assuming that vegetation could be used as an index of other ecological services. Over time, the Connecticut College scientists developed trajectory models for the restoration of various ecological services using data from various restoration sites and the duration of restoration at these sites.[56] The results of this investigation are presented in *Salt marsh restoration in Connecticut: 20 years of science and management*.[57]

[50] Personal communication with Lisa Wahle, Connecticut Department of Environmental Protection (September 29, 2006).
[51] Connecticut Department of Environmental Protection, *supra* note 47.
[52] Rozsa, *supra* note 2.
[53] National Oceanic and Atmospheric Administration, *Connecticut's Dedication to Wetland Restoration (2003), Coastal Services*, *at* http://www.csc.noaa.gov/magazine/2003/02/conn.html (last viewed March 21, 2007).
[54] Rozsa, *supra* note 2.
[55] *Id.*
[56] Rozsa, *supra* note 2.
[57] Warren, R.S., P. E. Fell, R. Rozsa, A.H Brawley, A.C. Orset, E.T. Olson, V. Swamy and W.A. Niering. *Salt marsh restoration in Connecticut: 20 years of science and management (2002)*. *Restoration Ecology 10*(3):497-513.

CTDEP also routinely partners with towns and local property owners to obtain support or permission to conduct restoration activities. Unlike other restoration programs, the CTDEP does not seek or require conservation easements on tidal wetlands, as the TWA only allows the CTDEP to permit restoration-related activities in tidal wetlands.[58]

Additionally, Connecticut is a partner to the Long Island Sound Study (LISS), a restoration initiative formed in 1985 by the states of New York and Connecticut, as well as the EPA, non-governmental organizations and private citizens. The study has completed a *Comprehensive Conservation and Management Plan* (CCMP) that seeks to address: hypoxia, habitat restoration, public involvement and education, and water quality monitoring.[59] In 1994, EPA agreed to fund the CCMP recommendation to create a habitat management plan. The LISS then funded a habitat restoration coordinator in New York and Connecticut. In 1998, this Habitat Restoration Initiative switched from planning to implementation and set a 10-year goal for restoration. The current target is the restoration of 300 acres of coastal habitats (i.e., terrestrial and aquatic) by 2011.[60]

Funding for restoration is provided by several federal sources. The Natural Resources Conservation Service provides funding for habitat restoration projects (tidal wetlands, coastal grasslands, dunes, and riverine migratory corridors) in Connecticut through two programs: the Wildlife Habitat Incentives Program and the Wetlands Restoration Partnership, which provide funding on a project-by-project basis. Monies for restoration is also provided by NOAA's Community-Based Restoration Program, EPA's CWA §319 non-point source funds, the U.S. FWS's Partners for Wildlife Program, the North American Wetlands Conservancy Act, and the Department of Transportation Intermodal Surface Transportation Efficiency Act.[61]

VI. Public-Private Partnerships

The federally-funded, state-administered Landowner Incentive Program (LIP) provides technical advice and financial assistance to landowners for habitat management that will result in the "protection, restoration, reclamation, enhancement, and maintenance of habitats that support fish, wildlife and plant species considered at risk." The majority of Connecticut's LIP at-risk species are dependent on early-successional habitats, tidal wetlands and freshwater wetlands, and so these habitat types have been designated priority habitats. Interested landowners need to apply to the Wildlife Division of the CTDEP, which uses a biological ranking system to determine which projects will be issued LIP assistance.[62]

[58] Rozsa, *supra* note 2.

[59] Environmental Protection Agency Long Island Sound Office, *About the Long Island Sound Study (undated)*, *at* http://www.longislandsoundstudy.net/about_liss.htm (last viewed March 21, 2007).

[60] Rozsa, *supra* note 2.

[61] Personal communication with Paul Capotosto, Connecticut Department of Environmental Protection (Dec. 7, 2006).; and Rozsa, *supra* note 2.

[62] Connecticut Department of Environmental Protection, *Landowner Incentive Program, at* http://dep.state.ct.us/burnatr/Wildlife/geninfo/fedaid/lip/lip.htm (last viewed Oct. 11, 2006).

The Connecticut Corporate Wetlands Restoration Partnership (CT CWRP) was created in 2000 to facilitate wetland restoration projects in the state through public-private partnerships; the CT CWRP seeks to "bring together corporations, state and federal regulatory agencies, academia, conservation groups, community groups, and municipalities to restore degraded wetlands and other aquatic habitat" at both coastal and inland locations.[63] Corporations donate funds and consulting firms donate services (e.g., survey, studies) for restoration projects.[64] CTDEP staff participate on the CT CWRP advisory board, provide project oversight, and propose projects for funding.[65]

VII. Education and Outreach

The WMS offers training and education programs for MIWA staff. Annual programs cover the administrative and technical requirements of the IWWCA, as well as other related state and federal laws. Additionally, the WMS conducts workshops covering a wide range of topics, including: the function and values of wetlands, construction practices and procedures in and around wetlands, and site plan reviews.[66]

VIII. Coordination with State and Federal Agencies

The Connecticut Department of Transportation and the CTDEP have a Memorandum of Agreement relating to regulatory issues.[67] The CTDEP meets with other New England state agencies and the EPA four times per year regarding regulatory issues; these meetings are coordinated through the New England Interstate Water Pollution Control Commission and also are attended by Corps and FWS staff. The CTDEP also meets monthly with Corps, FWS, EPA and NOAA staff to screen §404/401 applications.[68]

Additionally, the LISS HRI has a current Memorandum of Understanding signed by the CTDEP Commissioner, the New York State Department of Environmental Conservation Commissioner, EPA Region 1 and 2 Regional Administrators, as well as many other federal, state and local agencies, and NGOs.[69]

Finally, Tidal Wetland Workgroups, comprised of representatives from the CTDEP and New York's Department of Environmental Conservation, meet on a quarterly basis to discuss project monitoring and new proposals for the LISS. These meetings are overseen by the EPA.[70]

[63] Connecticut Corporate Wetlands Restoration Partnership, *at* http://www.cwrp.org/connecticut.html (last viewed Oct. 11, 2006).
[64] Rozsa, *supra* note 2.
[65] Personal communication with Christie Bradway, Connecticut Corporate Wetlands Restoration Partnership (Sept. 13, 2006).
[66] Connecticut Department of Environmental Protection, *Inland Wetlands Management, at* http://dep.state.ct.us/wtr/wetlands/inland_wetlands.htm (last viewed Oct. 11, 2006).
[67] Gilmore, *supra* note 21.
[68] *Id.*
[69] Yamalis, *supra* note 20.
[70] Capotosto, *supra* note 61.

IX. Acronyms and Abbreviations

CALM – Consolidated Assessment & Listing Methodology

CCMP – Comprehensive Conservation and Management Plan

CTDEP – Connecticut Department of Environmental Protection

CT CWRP - Connecticut Corporate Wetlands Restoration Partnership

CWA – Clean Water Act

DOT – Department of Transportation

EPA – Environmental Protection Agency

FWS – U.S. Fish and Wildlife Service

HRI – Habitat Restoration Initiative

ISTEA – Intermodal Surface Transportation Efficiency Act of 1991

IWRD – Inland Water Resources Division

IWWCA – Inland Wetlands and Watercourses Act

LIP – Landowner Incentive Program

LISCA – Long Island Sounds Cleanup Account

LISS – Long Island Sound Study

MIWA – Municipal Inland Wetland Agencies

NOAA – National Oceanic and Atmospheric Administration

NRCS – Natural Resources Conservation Service

OLISP – Office of Long Island Sound Programs

PGP – Programmatic General Permit

TWA – Tidal Wetlands Act

WHMMP – Wetland Habitat and Mosquito Management Program

WMS – Wetland Management Section

WQS – Water Quality Standards

Idaho

I. Overview

Idaho has lost approximately 56 percent of its wetlands since the 1780s. Many of the remaining wetlands have been degraded by alterations to hydrology, vegetation, and soil.[1] The state relies primarily on §401 certification under the Clean Water Act to regulate impacts to wetlands and has also recently initiated efforts to increase coordination among state agencies involved with wetland issues. Between October 2005 and October 2006, with support from the U.S. Environmental Protection Agency (EPA), Boise State University assessed interest among state agencies in developing a wetland classification and management program. The Idaho Department of Fish and Game (IDFG) volunteered to lead the initiative because of the importance of wetlands to the department's species protection efforts. Although wetlands make up only one to two percent of the land mass in Idaho, they are critical for the survival of 80 to 90 percent of the state's species. Idaho also received a U.S. EPA grant in October 2006 to assemble a coalition of state agencies, tribes, businesses, citizens, and other stakeholders to generate ideas both on wetland delineation and how the state should manage wetlands.[2] Past EPA grants have also supported IDFG's efforts to inventory and assess wetlands throughout the state.[3]

II. Regulatory Programs

Wetland Definitions and Delineation

Idaho defines "waters of the state" as "[a]ll the accumulations of water, surface and underground, natural and artificial, public and private, or parts thereof which are wholly or partially within, which flow through or border upon the state."[4] The state does not define wetlands separately.

Idaho Department of Environmental Quality (IDEQ), the agency that oversees §401 certification for the state, does not have formal delineation criteria for wetlands.[5] When parties apply to the Corps and to IDEQ for permission under §404 to alter wetlands, IDEQ relies on the Corps to determine whether the impacted area falls under federal and state jurisdiction.[6] IDFG has adopted criteria to define wetland plant communities and animal assemblages for game and non-game management issues. This departmental framework is used to determine how to spend management dollars on habitat protection and restoration.[7]

[1] Idaho Department of Fish and Game, *Idaho's Wetlands, at* http://fishandgame.idaho.gov/cdc/ecology/wetlands.cfm (last visited Nov. 7, 2006).
[2] Personal Communication with Walt Poole, Idaho Department of Fish and Game (Oct. 30, 2006).
[3] Personal Communication with Chris Murphy, Idaho Department of Fish and Game (Nov. 13, 2006).
[4] Idaho Code Ann. § 22-4904(17) (2006). See also Idaho Code Ann. § 39-103(16) (2006) and § 39-3602(28) (2006).
[5] Personal Communication with Michael McIntyre, Idaho Department of Environmental Quality (Oct. 30, 2006); Poole, *supra* note 2.
[6] Personal Communication with Michael McIntyre, Idaho Department of Environmental Quality (Nov. 14, 2006).
[7] Poole, *supra* note 2.

Wetland-related Laws and Regulations

The State of Idaho regulates wetlands primarily under §401 of the Clean Water Act. However, wetlands may also be regulated two additional water-related laws: the Idaho Lake Protection Act and the Idaho Stream Channel Protection Act.

§401 Program. Idaho relies on §401 certification to protect wetlands by approving, conditioning, or denying federal §404 and National Pollutant Discharge Elimination System permits. The Idaho Department of Environmental Quality (IDEQ) makes approximately 85-100 certifications per year. Approximately 20 percent of decisions are waived, 70 percent are approved, and 10 percent are denied. The certification process is decentralized; applications are processed in field offices. As of 2006, the department is developing a standardized approach to the §401 decision-making process to make application outcomes more consistent. The standardized approach will likely include both a quantitative methodology and a qualitative assessment.[8]

Idaho Lake Protection Act. Parties that intend to work on or above the lake bed and below the ordinary high water mark must obtain a permit from the Idaho Department of Lands (IDL).[9] Although rare, some areas covered by this act may include wetlands. IDL staff rely on best professional judgment when reviewing these applications and may require parties to conduct mitigation for impacts to wetlands.[10, 11]

Idaho Stream Channel Protection Act. Alterations to stream channels below the ordinary high water mark must be approved by the Idaho Department of Water Resources (IDWR).[12] Approximately one to two percent of applications involve impacts to riparian wetlands. IDWR evaluates these wetland applications using the same criteria as it uses for projects impacting streams.[13] These criteria consider the effect of the alteration on water flows, fish and wildlife habitat, aquatic life, water quality, recreation, and aesthetic beauty of the area.[14]

Organization of State Activities

Idaho Department of Environmental Quality. The IDEQ handles regulatory issues regarding wetlands, including §401 certification, compensatory mitigation, and enforcement. IDEQ is based in Boise and maintains field offices in Coeur d'Alene, Lewiston, Boise, Twin Falls, Pocatello, and Idaho Falls. The department employs multiple staff that spend portions of their time on wetland-related issues, combining to represent approximately one-half full-time equivalent (FTE). Staff activities include coordination among state agencies, §401 certification, and compensatory mitigation. The department spends approximately $35,000 to $45,000 on wetland-related activities annually, derived from the state's general fund for water quality issues.[15]

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[8] McIntyre, *supra* note 5.

[9] Idaho Department of Environmental Quality, *Permit Requirements for Working in Idaho Streams, Rivers, Lakes, and Wetlands*, *at* http://www.deq.state.id.us/about/regions/lro_water_permit_requirements.pdf (last visited Nov. 7, 2006).

[10] Personal Communication with Eric Wilson, Idaho Department of Lands (October 26, 2006).

[11] Idaho Code Ann. § 58-13 (2006); Idaho Admin. Code r.20.03.04 (2006)

[12] Idaho Department of Environmental Quality, *supra* note 9.

[13] Personal Communication with Ervin Ballou, Idaho Department of Water Resources (October 19, 2006).

[14] Idaho Admin. Code r.37.03.07 (2006)

[15] McIntyre, *supra* note 5.

Idaho Department of Fish and Game. The Idaho Department of Fish and Game (IDFG) currently leads a statewide initiative to establish coordination on wetland issues among a wide variety of stakeholders, including state agencies.[16, 17] Other wetland activities include oversight of wildlife management areas that include riparian features and associated wetlands and an education and outreach program that includes a strong wetland component.[18] The department also partners with other state agencies on wetland conservation prioritization[19] and state lands issues and offers advice on wetland-related issues such as conservation of species that depend on wetlands, restoration, and mitigation.[20, 21]

IDFG is also home to the Idaho Conservation Data Center (IDCDC), which conducts research on wetlands and has conducted an inventory and assessment of many wetlands in the state.[22] The agency employs a number of biologists, whose time adds up to approximately two to three FTEs. In addition to federal grant money, IDFG spends approximately $200,000 annually on wetlands, funded by charitable donations and license fees. The department is based in Boise and has field offices in Salmon, Pocatello, Twin Falls, Nampa, Coeur d'Alene, Lewiston, and Jerome. There is also sub-regional office in McCall and a regional office in Salmon.[23]

Idaho Department of Lands. The Idaho Department of Lands (IDL) administers the Lake Protection Act, which may involve wetlands on rare occasions. The department also handles regulatory functions for surface mining and placer mining. These projects often impact wetlands, and IDL cooperates with the Corps, IDWR, IDEQ, IDFG, and U.S. EPA to provide oversight. Parties seeking approval for mining projects that involve filling wetlands must complete both a §404 application and an IDL application. IDL incorporates mitigation and other corrective actions into the project approval.[24]

Nationwide Permits

Idaho has conditioned a number of federal Nationwide Permits (NWPs).[25] Applicants for these conditioned NWPs must obtain a water quality permits IDEQ if the project impacts a 303(d)-listed stream or a stream with

[16] Poole, *supra* note 2.
[17] Personal Communication with Chris Murphy, Idaho Department of Fish and Game (November 28, 2006).
[18] Poole, *supra* note 2.
[19] Murphy, *supra* note 3.
[20] Poole, *supra* note 2.
[21] Murphy, *supra* note 17.
[22] Idaho Conservation Data Center, *Idaho Wetland Conservation Prioritization Plan, at* http://www.idahoparks.org/assets/content/docs/SCORTP/SCORTP_wetlands.pdf#search=%22idaho%20wetlands%20conservation%20plan%22 (last visited Nov. 13, 2006).
[23] Poole, *supra* note 2.
[24] Wilson, *supra* note 10.
[25] The following NWPs have been conditioned: NWP #3 - Maintenance; NWP #4 - Fish and Wildlife Harvesting; NWP #5 - Scientific Measuring Devices; NWP #6 - Survey Activities; NWP #7 - Outfall Structures and Maintenance; NWP #12 - Utility Line Activities; NWP #13 - Bank Stabilization; NWP #14 - Minor Road Crossings; NWP #15 - U.S. Coast Guard Approved Bridges; NWP #16 - Return Water from Upland Contained Disposal Areas; NWP #17 - Hydropower Projects; NWP #18 - Minor Discharges; NWP #19 - Minor Dredging; NWP 20 Oil Spill Cleanup; NWP #21 - Surface Coal Mining Activities; NWP #22 - Removal of Vessels; NWP #23 - Approved Categorical Exclusions; NWP #25 - Structural Discharges; NWP #27 - Stream and Wetland Restoration Activities; NWP #29 - Single-Family Housing; NWP #30 - Moist Soil Management for Wildlife; NWP #31 - Maintenance of Existing Flood Control Practices; NWP #32 - Completed Enforcement Actions; NWP #33 - Temporary Construction, Access and Dewatering; NWP #34 - Cranberry Production Activities; NWP #36 - Boat Ramps; NWP #37 - Emergency Watershed Protection and

TMDLs. Additionally, NWP #12 (Utility Line Activities) and NWP #14 (Minor Road Crossing) require an individual water quality certification from IDEQ if the project exceeds 250 linear feet in waters of the U.S. [26] IDEQ reviews NWPs every five years.[27]

Mitigation

Idaho has not adopted guidelines, policies, or legislation regarding wetland mitigation outside of that required under §404 of the Clean Water Act. IDEQ actively participates on a Mitigation Banking Review Team (MBRT) with the Walla Walla Corps District. There are formal guidelines for how the MBRT functions.[28]

Compliance and Enforcement

Idaho's water quality code establishes authority for IDEQ to issue abatement or corrective action orders,[29] injunctions,[30] criminal prosecution proceedings,[31] civil penalties,[32] and criminal penalties.[33] However, the state generally defers to the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency for wetland-related enforcement and compliance.

Tracking Systems

IDEQ keeps records on elements of §401 certifications, including the location of project sites, the result of the application, conditions on certifications, and the primary contact.[34]

III. Water Quality Standards

Idaho has not adopted wetland-specific water quality standards. Wetlands are included under the narrative standard for "waters of the state." Point discharges must obtain certification from U.S. EPA (Idaho does not administer NPDES). The §401 certification review process applies the narrative water quality standards. Wetland functions to which the water quality standards and designated uses apply include general aesthetics, wildlife habitat, aquatic life, and water quality/pollution prevention.[35]

Rehabilitation; NWP #38 - Cleanup of Hazardous and Toxic Waste; NWP #39 - Residential, Commercial, and Industrial Developments; NWP #40 - Agricultural Activities; NWP #41 - Reshaping Existing Drainage Ditches; NWP #42 - Recreational Facilities; NWP #43 - Stormwater Management Facilities; and NWP #44 - Mining Activities.

[26] U.S. Army Corps of Engineers, *Nationwide Permits for Idaho, Walla Walla District, August 27, 2003*, *at* http://www.nww.usace.army.mil/html/offices/op/rf/nwp-ww/nwp02rev.pdf#search=%22nationwide%20permit%20idaho%22 (last visited Nov. 7, 2006).

[27] McIntyre, *supra* note 5.

[28] *Id.*

[29] Idaho Code Ann. §§ 39-108 (3) (a) (iv), (v) (2006)

[30] Idaho Code Ann. § 39-108 (2006)

[31] Idaho Code Ann. § 39-117 (2006)

[32] Idaho Code Ann. § 39-117 (3) (b) (2006). The statutory limits on civil penalties are $10,000 per day per violation or $1,000 per day for ongoing violations.

[33] Idaho Code Ann. § 39-117 (2006). The statutory limit on criminal penalties is the larger of either $10,000 per violation or $1,000 per day for ongoing violations.

[34] McIntyre, *supra* note 5.

[35] *Id.*

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

Idaho does not have a formal state assessment methodology for wetlands. IDFG conducts monitoring and assessment of wetlands in management areas to identify habitat issues that affect game and non-game species.[36]

The IDFG Conservation Data Center (IDCDC) also conducts field inventories of wetlands. IDCDC has received U.S. EPA Wetland Program Development Grants to inventory and assess wetlands throughout the state. As of 2006, they have covered about 60 percent of the state, although the funding will expire at the beginning of 2007. The inventories identify wetlands of relatively high ecological integrity, and hence high conservation value. These wetlands are often very important for biodiversity. The conservation and restoration values of inventoried wetlands are prioritized for development of watershed-based Wetland Conservation Strategies. These strategies have been used by groups such as The Nature Conservancy and land trusts to identify priorities for easements and acquisitions. They have also been used by restoration ecologists at IDFG and private consulting firms to identify high quality reference wetlands. Finally, IDFG uses the strategies to improve land management practices in wildlife management areas.[37]

IDCDC maintains several databases with wetland inventory information, including a conservation site database, a plant community occurrence database, a vegetation database, and rare plant and animal occurrence databases.[38]

Monitoring and Assessment for Streams

Idaho has adopted a functional assessment methodology for streams, large rivers, lakes, and reservoirs.[39] The methodology is used for developing the state's 303(d) list, 305(b) report, and water quality standards.

V. Restoration

IDFG conducts restoration on wildlife management areas, which can include wetlands. The department measures restoration success by evaluating progress toward goals like bank stability, vegetation diversity, soil stability, soil saturation, and stability for flood events.[40] IDFG also provides technical support to private landowners specifically for restoration or mitigation. IDFG regional and district offices also coordinate with the U.S. Department of Agriculture (USDA) on agricultural programs that may involve wetlands.[41]

[36] Poole, *supra* note 2.
[37] Murphy, *supra* note 3.
[38] *Id*.
[39] McIntyre, *supra* note 5.
[40] Poole, *supra* note 2.
[41] *Id.*

VI. Public-Private Partnerships

In addition to offering technical advice to private landowners on restoration projects, IDFG coordinates with corporations on land management projects. The department works with private power companies to ensure that dams do not impact anadromous fish or water quality. The department also works with ranches and farms to protect streams from agricultural impacts. These are voluntary initiatives on the part of the corporations.[42]

VII. Education and Outreach

IDFG's outreach and education program has a strong wetland component. The program provides materials for K-12 teachers, maintains adjunct faculty positions at local universities, and conducts presentations and events for the general public, citizen groups, and organizations focusing on the importance of protecting wetland resources. The education and outreach division often conducts market penetration assessments to determine the success of efforts.[43]

VIII. Coordination with State and Federal Agencies

IDFG's IDCDC wrote the *Idaho Wetland Conservation Prioritization Plan* as part of the Idaho State Parks and Recreation Department's *State Comprehensive Outdoor Recreation and Tourism Plan (SCORTP)*. In order to be eligible for federal Land and Water Conservation Funds, states must address wetlands as an important recreation and natural resource in their SCORTP.[44] This plan used data from the IDCDC wetland inventory and assessment.[45]

IDFG coordinates with IDL on state land issues, which sometimes include wetlands; with IDWR on water rights, stream channel restoration, and impacts to streams; and with IDEQ on §401 certification (IDFG sometimes offers input on decisions).[46]

IDFG is also party to memoranda of understanding/agreement on land management issues with federal partners, including the Corps, Bureau of Land Management (BLM), USDA Forest Service, the Bureau of Reclamation, Natural Resources Conservation Service (NRCS), and U.S. Fish and Wildlife Service. There is a focus on riparian areas, which cover hundreds of thousands of acres and include wetlands.[47]

IDEQ and IDFG participate in water quality meetings that touch on wetland issues with the Corps, EPA, BLM, and the U.S. Forest Service; however, these take place relatively infrequently.[48] Additionally, IDEQ and IDFG

[42] *Id.*
[43] *Id.*
[44] Idaho Conservation Data Center, *supra* note 22.
[45] Murphy, *supra* note 3.
[46] Poole, *supra* note 2.
[47] *Id*
[48] McIntyre, *supra* note 5.

are also part of a natural resource group that includes the Corps, EPA, BLM, USDA Forest Service, National Oceanic and Atmospheric Administration, and NRCS. This group meets bi-monthly to discuss issues that could impact member agencies, such as endangered salmon and steelhead and other riparian issues.[49]

IX. Acronyms and Abbreviations

CREP – Conservation Reserve Enhancement Program

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

IDCDC – Idaho Conservation Data Center

IDEQ – Idaho Department of Environmental Quality

IDGF – Idaho Department of Game and Fish

IDL – Idaho Department of Lands

IDWR – Idaho Department of Water Resources

EPA – U.S. Environmental Protection Agency

FSA – USDA Farm Service Agency

FTE – Full-time Equivalent

MBRT – Mitigation Banking Review Team

NAWCA – North American Wetland Conservation Act

NAWMA – North American Waterfowl Management Act

NEPA – National Environmental Protection Act

NPDES – National Pollution Discharge Elimination System

NRCS – USDA Natural Resources Conservation Service

NWPs – Nationwide Permits

USDA – United States Department of Agriculture

WQS – Water Quality Standards

WRP – Wetlands Reserve Program

[49] Poole, *supra* note 2.

Illinois

I. Overview

Less than nine percent of the historic 8.2 million acres of wetlands in Illinois remain intact today.[1] Furthermore, one-fourth of the remaining nine percent has been modified or created by dikes, impoundments, or excavation activities.[2] However, the destruction of wetlands in Illinois "no longer appears to be occurring at extremely rapid rates," due, in part, to statewide regulatory measures.[3]

The Interagency Wetlands Policy Act of 1989 (IWPA) established a wetland regulatory program separate from the federal §404 permitting program under the Clean Water Act (CWA). The IWPA authorizes the Illinois Department of Natural Resources (IDNR) to regulate state-funded projects and activities that impact wetlands.[4] However, state regulation of wetlands on private lands occurs through the CWA §401 water quality certification.

II. Regulatory Programs

Wetland Definitions and Delineation

Illinois defines waters of the state as "all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon this State."[5] The IWPA defines wetlands as:

> land that has a predominance of hydric soils (soils which are usually wet and where there is little or no free oxygen) and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation (plants typically found in wet habitats) typically adapted for life in saturated soil conditions. Areas which are restored or created as the result of mitigation or planned construction projects and which function as a wetland are included within this definition even when all three wetland parameters are not present.[6]

State delineation criteria generally follow the U.S. Army Corps of Engineers (Corps) 1987 Wetlands Delineation Manual, or, for agricultural lands, the National Food Securities Act Manual. In practice, delineation of wetlands is similar between the two manuals.[7]

[1] 830 Ill. Comp. Stat. §20/1-1 *et. seq.*

[2] Illinois Department of Natural Resources, *History*, *at* http://dnr.state.il.us/wetlands/ch3b.htm (last viewed March 21, 2007).

[3] *Id.*

[4] Ill. Comp. Stat., *supra* note 1.

[5] Environmental Protection Act §3.550 (415 Ill. Comp. Stat. § 5/3.550)

[6] Ill. Comp. Stat., *supra* note 1.

[7] Illinois Department of Natural Resources, *Delineation*, *at* http://dnr.state.il.us/wetlands/ch1b.htm (last viewed March 21, 2007).

Organization of State Activities

Two state agencies, the IDNR and the Illinois Environmental Protection Agency (IEPA), are involved in wetland protection in the state. IDNR's primary authority is established under the IWPA. As previously mentioned, this Act provides the INDR with regulatory authority over state activities that affect wetlands.[8] Additionally, the Rivers, Lakes, and Streams Act provides the IDNR peripheral regulatory authority to regulate construction activities in floodplains; persons proposing such activities must first secure a permit from IDNR.[9] The IDNR's wetland program has one full-time equivalent (FTE) and a minimal budget derived from general revenue funds.[10]

The Interagency Wetlands Committee (Committee) was created by the IWPA to advise the Director of the IDNR in the administration of the Act.[11] Committee members include representatives from the IDNR, IEPA, Department of Transportation, Capital Development Board, Department of Agriculture, Department of Commerce and Economic Opportunity, and the Historic Preservation Agency; representatives from several federal agencies are also invited to attend Committee meetings.[12] Each state agency serving on the Committee is required to prepare an "Agency Action Plan, which shall be used as the agency's procedural plan for the implementation of this Act."[13]

IEPA's Wetlands Management Section (WMS) sets water quality standards in Illinois and administers the state's §401 certification program.[14] Approximately 2.5 FTEs work primarily on §401 certification activities.[15] Since 2003, funding for the §401 certification program has come from §401 certification fees.[16]

§401 Certification

Section 401 water quality certification is Illinois' primary mechanism for regulating wetlands on private lands. The IEPA issues approximately 150 certifications each year, conditionally approving almost all received applications.[17] No decisions are waived and less than 1 percent of decisions result in denial.[18] The IEPA staff use both qualitative assessment and best professional judgment in making §401 certification decisions.

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[8] Ill. Comp. Stat., *supra* note 1.

[9] Illinois Department of Natural Resources, *Rivers, Lakes, and Streams Act, at* http://dnr.state.il.us/wetlands/Ch4f.htm (last viewed March 21, 2007).

[10] Personal communication with Patrick Malone, Illinois Department of Natural Resources (Sept. 29, 2006).

[11] Other duties of the Committee include: establishing guidelines for developing individual Agency Action Plans, developing and adopting "technical procedures for the consistent identification, delineation, and evaluation of existing wetlands and quantification of their functional values and the evaluation of wetland restoration or creation projects," developing a research program for wetland function, restoration and creation, and developing educational materials to promote the protection of wetlands. Illinois Department of Natural Resources, *The Interagency Wetlands Committee*, *at* http://dnr.state.il.us/Wetlands/IWC_intro.htm (last viewed March 21, 2007).

[12] Ill. Comp. Stat., *supra* note 1.

[13] *Id.*

[14] Illinois Department of Natural Resources, *Introduction*, *at* http://dnr.state.il.us/wetlands/ch4a.htm (last viewed March 21, 2007).

[15] Personal communication with Bruce Yurdin, Illinois Environmental Protection Agency (September 25, 2006).

[16] *Id.*

[17] *Id.*

[18] *Id.*

The state's §401 certification review process is initiated upon notification from the U.S. Army Corps of Engineers regarding the Corps permits required for a project. IEPA must then evaluate the next action for the project. If the project falls under a Nationwide Permit (NWP) or regional permit that has been certified, the agency takes no further action on the project because certification has already granted. If the project is not subject to a NWP or regional permit that has been certified, an individual review is conducted. The individual certification process begins with an antidegradation review in accordance with state water quality regulations. A public notice consisting of an antidegradation fact sheet on the project is posted on the IEPA's website. Following the public notice period, the agency reviews any comments received including requests for hearing. The agency may decide to hold a hearing, prepare a response to the letters, request additional information from the applicant or prepare a certification. If the project meets antidegradation criteria and narrative and numeric water quality standards, the agency will request a fee (unless the applicant is exempt from paying the fee).[19] Once the fee is received, a §401 water quality certification is issued and sent to both the U.S. Army Corps of Engineers and the applicant.[20]

Nationwide Permits

On January 12, 2002, the Corps issued the final notice of NWPs under §10 of the 1899 Rivers and Harbors Act and §404 of the Clean Water Act.[21] Section 401 certifications are issued for eight NWPs without conditions[22] and eight NWPs with regional conditions.[23] Section 401 certification is denied for 18 NWPs.[24] Please note that at the time of writing the NWP program is under review; new and modified NWPs and Corps regional conditions will become effective January 2, 2007.[25]

Mitigation

To accomplish "no net loss," the IWPA established a review process for all projects being pursued by a state agency or being accomplished with state funds that have the potential to adversely impact a wetland.[26]

[19] For example, state agencies and school districts are not required to pay a fee for a certification.

[20] Yurdin, *supra* note 15.

[21] Letter from Bruce Yurdin, Manager of the Watershed Management Section of the Bureau of Water Illinois Environmental Protection Agency, to the Rock Island District Corps of Engineers (*March 14, 2002), at* http://www.mvm.usace.army.mil/regulatory/Permit/NWP.IL.WQC.2002.pdf (last viewed March 21, 2007).

[22] *Id.* The following NWPs have been certified without conditions: NWP#4-Maintenance; NWP#4-Fish and Wildlife Harvesting; NWP#%-Scientific Measuring Devices; NWP#6-Survey Activities; NWP#&-Outfall Structures; NPS#20-Oil Spill Cleanup; NWP#22-Removal of Vessels; NWP#36-Boat Ramps.

[23] *Id.* The following NWPs are issued §401 certifications subject to regional conditions: NWP#12-Utility Line Activities; NWP#13-Bank Stabilization; NWP#14-Linear Transportation Projects; NWP#27-Stream and Wetland Restoration Activities; NWP#29-Single-family Housing; NWP#38-Cleanup of Hazardous and Toxic Waste; NWP#41-Resahping Existing Drainage Ditches; NWP #44-Mining Activities.

[24] *Id.* The following NWPs are denied §401 certification: NWP#15- U.S. Coast Guard Approved Bridges; NWP#166- Return Water from Upland Contained Disposal Areas; NWP#17-Hydropower Projects; NWP#18-Minor Discharges; NWP#19-Minor Dredging; NWP#21-Surface Coal Mining Activities; NWP#23-Approved Categorical Exclusions; NWP#25-Strucural Discharges; NWP#30-Moist Soil Management for Wildlife; NWP#31-Maintenance of Existing Flood Control Facilities; NWP#32-Completed Enforcement Actions; NWP#33-Temporary Construction, Access and Dewatering; NWP#34-Cranberry Production Activities; NWP#37-Emergency Watershed Protection and Rehabilitation; NWP#39- Residential, Commercial and Institutional Developments; NWP#40-Agricultural Activities; NWP#42-Recreational Facilities; NWP#43-Stormwater Management Facilities.

[25] U.S. Army Corps, *Nationwide Permits*, *at* http://www.lrc.usace.army.mil/co-r/PNnwp2006.pdf (last viewed September 25, 2007).

[26] Illinois Department of Natural Resources, *Interagency Wetland Policy Act of 1989*, *at* http://dnr.state.il.us/wetlands/ch4e.htm (last viewed March 21, 2007).

Projects must first be reviewed by the IDNR to determine whether a wetland impact will occur; if it is determined there will not be an impact, the project will be approved and funds may be released. If an impact is expected to occur, the agency requesting approval must create a plan detailing how it will compensate for the impact before the project may move forward.[27]

The administrative rules of the IWPA establish guidelines for wetland compensation plans and include a set of mitigation ratios.[28] Each state agency is authorized to establish a Wetland Compensation Account "to reconcile debits and credits established as the result of Wetland Compensation Plans."[29]

Enforcement and Compliance

Illinois has neither an enforcement or compliance program with respect to wetlands. The state defers to the Corps to on §404 enforcement and compliance issues.[30]

Tracking Systems

The IEPA has created two separate databases to track §401 permits and mitigation requirements.[31]

III. Water Quality Standards

Illinois has not adopted wetland-specific water quality standards (WQS). However, wetlands are subject to general use WQS, which "must be met in waters of the State for which there is no specific designation."[32] National Pollutant Discharge Elimination System source permit decisions are tied to antidegradation standards and effluent WQS.[33]

State WQS do not specify designated uses for wetlands; however, General Use Waters designated uses state that all waters that are not specified in another designated use category must meet the standards laid out in §302(B) of the state WQS.[34] There are, however, anti-degradation standards specific to wetlands that set the state's goal for no net loss of existing wetland acres or their functional value due to state-supported activities.[35]

IV. Monitoring and Assessment

Based on information provided in each project's delineation and monitoring report, the IDNR staff use "best professional biological judgment" to assess the success of mitigation and compensation efforts, as well as

[27] Ill. Comp. Stat., *supra* note 1.
[28] Illinois Department of Natural Resources, *supra* note 26.
[29] 820 Ill. Comp. Stat. 20/3-3
[30] Yurdin, *supra* note 15.
[31] *Id.*
[32] Ill. Admin Code tit. 35, §303.201
[33] Yurdin, *supra* note 15.
[34] Ill. Admin Code tit. 35, §302(B)
[35] Ill. Comp. Stat., *supra* note 1.

wetland impacts.[36] With funding from a U.S. Environmental Protection Agency (U.S. EPA) - Region V grant,[37] IEPA is developing a monitoring and assessment protocol for wetlands as a mechanism for reporting wetland quality in future 305(b) reports. The protocol is expected to be established by 2007.[38]

As part of their water quality program, the IEPA employs the Index of Biological Integrity and the Macroinvertebrate Biological Index to track chemical and biological criteria to assess aquatic life-use support of streams to aid in the compilation of the list of impaired waters to fulfill the requirements set forth in Section 303(d) of the Clean Water Act.[39] The IEPA also uses the stream assessment data to ensure that WQS are met and to aid in permitting decisions.[40] Additionally, IEPA has recently begun a collaborative effort with five other states in U.S. EPA - Region V to develop a uniform assessment methodology for the Mississippi River; quarterly meetings are coordinated by the Mississippi River Basin Association.[41]

IDNR participates in the Critical Trends Assessment Program (CTAP), a monitoring effort for forests, wetlands, grasslands, and streams throughout the State of Illinois. The program assesses changes in ecological conditions against a baseline in order to compare regional and site-specific patterns throughout Illinois. Between 1997 and 2001, surveys were conducted at 139 wetland sites and 149 stream sites. These were randomly selected from across the state on both public and private lands, so that once extrapolated, statewide wetland conditions could be reported. CTAP is now in its second five-year cycle (2002-2006), during which each site that was visited from 1997-2001 will be resampled.[42]

V. Restoration and Partnerships

IDNR operates several state wetland restoration initiatives. Since 1975, the IDNR has used money collected from the sale of duck stamps to restore, manage, and enhance wetlands to increase waterfowl habitat to support waterfowl hunting.[43] The IDNR spends approximately $300,000 annually on projects throughout the state, many of which are along the Illinois, Mississippi, and Kaskaskia River basins. In 2005, 146 acres of wetlands were restored in northeastern Illinois. The agency's ultimate goal is to establish 46,313 new acres of wetlands in Illinois.[44]

[36] Malone, *supra* note 10.

[37] Note, "[the IEPA] is under a grant condition to develop a protocol- there is no obligation at this point, without additional resources, to fully engage and implement wetland monitoring and assessment throughout the state." Personal communication with Gregg Good, Illinois Environmental Protection Agency (November 15, 2007).

[38] *Id.*

[39] Yurdin, *supra* note 15.

[40] Good, *supra* note 37.

[41] *Id.*

[42] *Critical Trends Assessment Program*, *at* http://ctap.inhs.uiuc.edu/index.asp (last viewed March 22, 2007).

[43] Personal communication with Ray Marshalla, Illinois Department of Natural Resources (September 27, 2006).

[44] *Id.*

The IDNR also administers the Private Land Wildlife Habitat Program, which strives to "protect, enhance, and develop wildlife habitat, including wetlands, on private land for the purpose of improving wildlife populations, soil and water conservation, and quality of life for Illinois residents."[45] The program offers assistance to qualifying landowners with "plans, field equipment, plant materials, and labor to develop, implement, and maintain wildlife habitat management practices that require specialized training, equipment, or resources which would otherwise be unavailable to landowners."[46] The IDNR also participates in the U.S. Department of Agriculture's Conservation Reserve Enhancement Program[47] and Wetland Reserve Program.[48] Technical recommendations on techniques for restoring wetland wildlife habitat are made available to private landowners through the IDNR's District Wildlife Biologists and District Heritage Biologists.[49] The IDNR also produces the *Illinois Wetland Restoration and Creation Guide,* which outlines the steps necessary to develop and implement a wetland restoration or creation project.[50]

Illinois' Farmland Assessment Act (FAA) of 1977 provides property tax relief to landowners and farmers for non-intensive uses of land. The FAA requires the Department of Revenue to consider wetlands "open lands" and assess them as such at "fair cash value" instead of as croplands. To be eligible for tax relief, the wetlands must be a minimum of 10 acres in size; lands enrolled in federal or other conservation programs are also eligible for tax relief under the FAA.[51]

VI. Education and Outreach

The IDNR formerly provided an extensive education and outreach program that was abandoned approximately three years ago when funding was cut. There is currently one state program, Environment and Nature Training Institute for Conservation Education, that teaches educators about wetland functions and values as a minor component in the program.[52]

VII. Coordination with State and Federal Agencies

The IWPA requires the following state agencies to include "[p]rocedures to coordinate the responsibilities contained within [the] Act with other State programs" within the Agency Actions Plans for IDNR, IEPA, the

[45] Illinois Department of Natural Resources, *Voluntary Incentive Programs*, *at* http://dnr.state.il.us/wetlands/ch5b.htm (last viewed March 22, 2007).
[46] *Id.*
[47] *See:* Illinois Conservation Reserve Enhancement Program, *at* http://www.ilcrep.org/
[48] *See*: United States Department of Agriculture, Natural Resources Conservation Service, *Wetlands Reserve Program*, *at* http://www.il.nrcs.usda.gov/programs/wrp_ewp/wrp_index.html (last viewed March 22, 2007).
[49] Marshalla, *supra* note 43.
[50] Illinois Department of Natural Resources, *The Interagency Wetlands Committee*, *at* http://dnr.state.il.us/Wetlands/IWC_intro.htm (last viewed March 22, 2007).
[51] Illinois Department of Natural Resources, *supra* note 45.
[52] Malone, *supra* note 10.

Department of Transportation, Capital Development Board, Department of Agriculture, Department of Commerce and Economic Opportunity, and the Historic Preservation Agency.[53] Representatives from several federal agencies, including the Natural Resources Conservation Service, the Corps, U.S. Fish and Wildlife Service, and the U.S. EPA, are also invited to attend meetings of the Committee in order to exchange technical information and further coordinate.[54]

Additionally, the IEPA and the IDNR meet with the Corps to discuss regulatory issues on a project-by-project basis.[55]

VIII. Acronyms and Abbreviations

Committee – Interagency Wetlands Committee

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

FAA – Farmland Assessment Act

FTE – Full-time Equivalent

IDNR – Illinois Department of Natural Resources

IEPA – Illinois Environmental Protection Agency

INHS – Illinois Natural History Survey

IWPA – Interagency Wetlands Policy Act of 1989

NWP – Nationwide Permits

USDA – United State Department of Agriculture

U.S. EPA – U.S. Environmental Protection Agency

WQS – Water Quality Standards

[53] Ill. Comp. Stat., *supra* note 1.
[54] Illinois Department of Natural Resources, *supra* note 50.
[55] Malone, *supra* note 10.

Iowa

I. Overview

Since the mid-1800s, Iowa has lost approximately 90 percent of its historic wetlands to systematic draining for the purpose of agricultural production.[1] The state's first comprehensive effort to protect and restore wetlands was launched in the 1990s.[2] This initiative culminated in the publication of the *Iowa Wetlands and Riparian Areas Conservation Plan* in 1998, which sought to coordinate all wetland protection, conservation, and restoration efforts in the state.[3] These efforts are led by the Iowa Department of Natural Resources (IDNR), which oversees the §401 Water Quality Certificate program, as well as multiple conservation and restoration projects. IDNR is currently in the process of developing an updated, comprehensive state-wide wetland protection plan, as well as monitoring and assessment protocols aimed specifically at protecting wetlands.

II. Regulatory Programs

Wetland Definitions and Delineation

Iowa's definition of waters of the state includes any "body or accumulation of water, surface or underground, natural or artificial, public or private, which are [sic] contained within, flow through or border upon the state or any portion thereof."[4] Iowa's regulatory definition for "wetlands" is "an area of two or more acres in a natural condition that is mostly under water or waterlogged during the spring growing season and is characterized by vegetation of hydric soils."[5]

Iowa's wetland protection plan, *Iowa Wetlands and Riparian Areas Conservation Plan,* defines wetlands as:

> [L]ow areas where water stands or flows continuously or periodically.... They are referred to as swamps, sloughs, marshes, potholes, lakes, bogs, wet meadows and seeps. Most definitions of wetlands refer only to shallow water areas with vegetation. Our definition includes lakes, rivers, river oxbows, overflow areas, and human-made waterbodies.

[1] Iowa Department of Agriculture and Land Stewardship Division of Soil Conservation, *Iowa Wetlands and Riparian Areas Conservation Plan (1998)*, *at* http://www.ag.iastate.edu/centers/iawetlands/IWRACPhome.html (last visited Mar. 20, 2007).
[2] Iowa Department of Natural Resources, *Iowa Wetland Assessment Program: Development of a Comprehensive Wetland Protection Plan (grant proposal) (2005)* (on file with author).
[3] Iowa Department of Agriculture and Land Stewardship Division of Soil Conservation, *supra* note 1.
[4] Iowa Code § 455B.171(37) (2007)
[5] Iowa Code § 456B.1(5) (2007)

This broader, non-regulatory definition is based on a 1995 National Academy of Sciences study that characterizes wetlands by an area's water, hydric soils, and hydric vegetation content and emphasizes the connections between wetlands and aquatic and riparian ecosystems.

Iowa law designates "protected wetlands" according to types defined in *Wetlands of the United States*, 1971 Edition, published by the United States Department of the Interior.[6] Protected wetlands include types 3 (inland shallow fresh marshes), 4 (inland deep fresh marshes), and 5 (inland open fresh water, open water or submerged aquatic systems). A protected wetland does not include land where an agricultural drainage well has been plugged, causing a temporary wetland, or land within a drainage district or levee district.[7] In practice, however, IDNR no longer uses these types to identify protected wetlands, and instead uses the Cowardin classification system.[8]

Wetland-related Laws and Regulations

Iowa Wetland Protection Program. State law requires IDNR to inventory the wetlands and marshes of each county and designate those wetlands that constitute "protected wetlands." Draining of a protected wetland is prohibited without a §401 water quality certification, and a permit may not be issued unless: (a) the protected wetland is replaced by the applicant with a wetland of equal or greater value as determined by the department; or (b) the protected wetland does not meet the criteria for continued designation as a protected wetland.[9]

Permits. There are three permitting programs apart from §401 certification that are potentially applicable to wetlands:

- The state water quality permitting program (National Pollution Discharge Elimination System, or NPDES) applies to wetlands generally as part of the "waters of the state,"[10] although NPDES discharges to wetlands are extremely rare.[11]
- Wetlands that constitute "floodplains" or "floodways" in the state are regulated under the Flood Plain Development Permit program. IDNR has authority to regulate construction on all floodplains and floodways in the state for the purpose of establishing and implementing a program to promote the protection of life and property from floods and to promote the orderly development and wise use of the flood plains of the state."[12]
- Any person wishing to conduct construction activities on, above or under state-owned water and land is required to have a sovereign lands construction permit.[13]

[6] See U.S. Department of the Interior Fish and Wildlife Service, *Classification of Wetlands and Deepwater Habitats of the United States (1979)*.
[7] Iowa Code § 456B.1(4) (2007)
[8] Personal Communication with Christine Schwake, Iowa Department of Natural Resources (Aug. 14, 2006).
[9] Iowa Code § 456B.12 et seq (2007)
[10] Iowa Code § 455B.171 et seq. (2007)
[11] Personal Communication with Adam Schnieders, Iowa Department of Natural Resources (Dec. 8, 2005).
[12] Iowa Code § 455B.275(1) (2007)
[13] Iowa Code § 461A.1 et seq. (2007)

Organization of State Activities

Iowa Department of Natural Resources. IDNR employs four staff to work on wetlands protection. One position is devoted to §401 water quality certification and two (one full-time, one part-time) conduct wetland-related monitoring.[14] An additional staff spends 80 percent of his time on wetland conservation and restoration activities.[15] The IDNR Water Resources Section administers the §401 certification process.[16] IDNR funding for wetlands protection comes exclusively from federal grants.[17, 18] Section 401 permitting is funded by U.S. Environmental Protection Agency (EPA) 604(b) Grants.[19]

Iowa Department of Agriculture and Land Stewardship (IDALS). IDALS administers the USDA Conservation Reserve and Enhancement Program (CREP) to promote development of constructed wetlands to protect water quality. IDALS also coordinated the production of Iowa's first wetland protection plan, the *Iowa Wetlands and Riparian Areas Conservation Plan.*

§401 Certification

The Water Resources Section of IDNR's Water Quality Bureau oversees the §401 Water Quality Certificate program. Iowa uses §401 certification to protect wetlands by approving, conditioning, or denying §401 certificates. This is the primary method by which IDNR regulates impacts to wetlands and all waters of the state.[20]

The state issues approximately 80 to 120 §401 certifications per year. Few §401 water quality certifications are denied outright by the IDNR. Typically, staff members work with the applicants to avoid or minimize impacts, or redesign projects where necessary, relying on best professional judgment to assess and issue water quality certifications. Of those denials that do occur, most are based on lack of adequate mitigation. Some projects are withdrawn due to complications caused by the presence of threatened or endangered species or by requirements of the State Historical Preservation Office.[21]

When IDNR does deny §401 water quality certification, as it does when projects have multiple problematic aspects, the project is put in abeyance. Applicants then have the option of conducting additional surveys or research to revise their project plans in an acceptable manner to receive certification.[22]

When evaluating projects that will have wetland impacts and require mitigation, IDNR §401 certification staff rely on the best professional judgment of local fisheries and wildlife field biologists in evaluating the proposed mitigation plan. These field biologists examine the ecological impacts of proposed projects and

[14] Personal Communication with Vince Evelsizer, Iowa Department of Natural Resources (Dec. 9, 2005).
[15] Personal Communication with Todd Bishop, Iowa Department of Natural Resources (Jan. 31, 2006).
[16] Personal Communication with Christine Schwake, Iowa Department of Natural Resources (Dec. 8, 2005).
[17] *Id.*
[18] Evelsizer, *supra* note 14.
[19] Schwake, *supra* note 16.
[20] *Id.*
[21] *Id*.
[22] *Id*.

determine if planned compensatory mitigation will be adequate. Follow-up monitoring is extremely important in this process; if mitigation results are not satisfactory, IDNR can require the applicant to adopt more aggressive methods, such as making changes or repairs to the existing monitoring site or by adding another mitigation site.[23]

Nationwide Permits

IDNR reviews Nationwide Permits (NWP) as they are revised by the Corps every five years. IDNR also requests Pre-Construction Notification for any project that will impact any water body on a pre-determined list of high quality water bodies. This list of water bodies, which includes some state-owned lakes and drinking water sources, is reviewed and updated if necessary by IDNR on the same five year cycle as the NWP review.[24]

IDNR has certified all current NWPs pursuant to §401 of the Clean Water Act, subject to the following regional conditions:

(1) Side slopes of a newly constructed channel will be no steeper than 2 horizontal to 1 vertical and planted to permanent, perennial, native vegetation if it is not armored.
(2) Nationwide permits with mitigation may require recording of the permit with the registrar of deeds or other appropriate official charged with the responsibility for maintaining records of title to, or interest in, real property and provide proof of recording to the Corps.
(3) Mitigation shall be scheduled for construction prior to or concurrent with the construction of the main project.[25]

Mitigation

Under state regulations, IDNR may not issue a certification for a protected wetland unless "the protected wetland is replaced by the applicant with a wetland of equal or greater value as determined by the department."[26] The regulations do not specify exactly how mitigation should be achieved, and so the method, type, and location of mitigation vary from project to project. IDNR permitting staff typically require mitigation sites to be located on-site or as close as possible to the impact site. Off-site mitigation is allowed, but usually requires a higher mitigation ratio. IDNR's preferred form of mitigation is wetland restoration, but the agency will accept creation, enhancement, and preservation projects as long as "no net loss" is achieved. Mitigation ratios vary according to the type and quality of the wetlands involved; IDNR considers whether the mitigation site is on-site or off-site and if it is in-kind or out-of-kind.

The state also actively participates on the Mitigation Banking Review Team (MBRT) with the Rock Island District of the Corps.[27] When the MBRT receives a proposal sufficiently complete for group evaluation, the Team determines how successful the mitigation will be. If it is unlikely to be successful, the applicant is dis-

[23] *Id*.
[24] Personal Communication with Christine Schwake, Iowa Department of Natural Resources (Jul. 10, 2006).
[25] Iowa Admin. Code r.567.61.2(2)(h) (2007)
[26] Iowa Code § 456B.13(2)(a) (2007)
[27] Schwake, *supra* note 16.

couraged from taking action.[28] Mitigation banking instruments, designated service areas, mitigation sites, and associated wetland credits are subject to final approval by the MBRT.[29]

Compliance and Enforcement

The state does not operate a compliance and enforcement program specifically for wetlands, generally deferring to the Corps for violations under §404 of the Clean Water Act.

Tracking Systems

The IDNR Water Resources Section maintains a database of permits in order to track projects and determine the number of §401 permits that have been issued or denied.[30]

The Water Resources Section has recently made efforts to comprehensively track all mitigation sites. Attention is paid to acres of mitigation and types of wetlands mitigated. The intention is to determine whether permittees are meeting their goals and conducting required monitoring and reporting. If IDNR finds problems with the reports, the Corps follows up with the permittee and, if necessary, conducts a site inspection.[31]

III. Water Quality Standards

Iowa's surface water quality standards apply to wetlands, as they do to all waters of the state that are classified for protection of beneficial uses. Under the Iowa Administrative Code, wetlands fall under the "designated use" category of "classified waters."[32] These standards were developed primarily to protect lakes, but are also used for evaluating wetlands. Thus, IDNR wildlife biologists generally rely on best professional judgment to assess wetland water quality. The major causes of impairment in Iowa wetlands include siltation, flow alteration, exotic species, excess nutrients, algae, noxious aquatic plants, and turbidity. These assessments aid IDNR's decision to grant or deny §401 Water Quality Certification. It is important to note that a very small minority of wetlands do not fall under the designated use category and are subject only to the general narrative rules on water quality.[33]

There are very few, if any, discharges to wetlands. If one were to occur, the lake criteria for issuing an NPDES permit would apply to designated use wetlands. A discharge to non-designated use wetlands (the minority of wetlands) would be subject to the general narrative rules on water quality.[34]

[28] *Id.*

[29] Personal Communication with Christine Schwake, Iowa Department of Natural Resources (February 28, 2006).

[30] Schwake, *supra* note 16.

[31] *Id.*

[32] Iowa Admin. Code r.567.61.3(1) (2007)

[33] Schnieders, *supra* note 11.

[34] *Id.*

Wetland-specific water quality standards are currently in development at IDNR.[35]

Designated Uses

According to the Iowa Administrative Code, wetlands can fall under the designated use segment category that combines most wetlands and all lakes.[36] General use segments must be of quality sufficient to protect "livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by the specific numerical criteria of subrule 61.3(3)."[37] Designated use lakes and wetlands (B(LW)) waters are to be protected for "wildlife, fish, aquatic and semiaquatic life."[38]

Anti-degradation Policy

Iowa does not have an anti-degradation policy specific to wetlands. There is a general anti-degradation policy to protect and maintain the designated uses and the existing physical, biological, and chemical integrity of all waters of the state, which include wetlands.[39]

IV. Monitoring and Assessment

Iowa has not adopted an assessment methodology for wetlands, although IDNR has recently received three EPA grants to establish a wetlands monitoring and assessment program.[40] IDNR biologists currently use an informal assessment methodology to categorize wetlands into four quality categories. This assessment is used to determine the amount of mitigation required for proposed activities affecting wetlands. If the wetland to be impacted is of the lowest quality, IDNR will require less mitigation. If the wetland is of the highest quality, IDNR will try to change the project in order to avoid impacting the area. Landowners operating under §401 certifications submit monitoring reports to IDNR. If the report indicates problems with the wetlands, IDNR defers to the opinion of the Corps, which determines whether follow-up should be conducted.[41]

The forthcoming wetlands monitoring and assessment program will be integrated with a surface water quality monitoring program. The goal for the wetlands monitoring program is to provide data to wetland-related programs for impact site assessment, mitigation site assessment, mitigation site monitoring, and water quality improvement initiatives.[42]

[35] Schwake, *supra* note 16.
[36] Iowa Admin. Code r.567.61.3(1)(b)(10) (2007)
[37] Iowa Admin. Code r.567.61.3(2) (2007)
[38] Iowa Admin. Code r.567.61.3(b) (2007)
[39] Iowa Admin. Code r.567.61.2(2) (2007)
[40] Evelsizer, *supra* note 14.
[41] Schwake, *supra* note 16.
[42] Evelsizer *supra* note 14.

IDNR conducted its first wetland monitoring in the summer of 2005 as part of its first EPA grant to estimate the condition of permanent and semi-permanent wetlands in the state. Sixty wetlands were sampled to begin development of a wetlands inventory and to develop a wetland sampling methodology. Water and sediment samples were tested for contaminants, such as excessive nutrients, pesticides, and heavy metals. IDNR also conducted biological surveys for invertebrates, plants, and fish on 22 of the 60 sampled wetlands. Eventually, IDNR will assess water and sediment contaminant data from all wetlands to determine what proportion of wetlands are impaired. Finally, the agency will develop wetlands biological assessment methods based on this data and data from subsequent years of sampling, such as indexes of biological integrity.[43]

A second EPA grant is funding the development of a comprehensive wetland protection plan. This project includes the continuation of identification of "reference wetlands" that can be used as benchmarks for quality when assessing wetlands throughout the state. The project also includes the development of a rapid biological assessment methodology for wetlands.[44]

The final aspect of IDNR's approach to developing a monitoring and assessment program is the development of a rapid biological assessment method for fens, a unique type of wetland. IDNR will document existing fens, develop a rapid assessment process, and create appropriate water quality and biological standards to protect fens.[45]

Support for Volunteer Wetland Monitoring Programs

IDNR's successful IOWATER program for volunteer surface water monitoring plays an important role in maintaining healthy waters of the state. Since 1999, IDNR has trained volunteers to conduct water monitoring in lakes and streams. These volunteers undergo a 10-hour introductory course in the classroom and in the field, and are eligible to register a monitoring site and submit water quality data to the IOWATER Internet database. The volunteers use simple field test kits to monitor dissolved oxygen, phosphates, nitrates, and chloride. The data from these volunteers are periodically reviewed, but can be difficult to analyze due to data quality and quantity (IDNR recommends monthly monitoring, but it is not required). IDNR does pay closer attention to data at regularly monitored sites. This data can fill an important gap in IDNR's water quality data – in many cases, no other data exist, and so volunteer data may help provide a baseline for water quality. In 2004, IDNR classified two water bodies as impaired waters because of evidence brought to the Agency's attention by volunteers. About 2,200 people have completed the introductory workshop, about 27 percent of which have registered a site and submitted data.[46]

IDNR is currently developing IOWATER workshops devoted to volunteer wetland monitoring.[47] The workshops will adapt the successful aspects of the program to wetlands sampling. The volunteer data will be incorporated into EPA's STORET database. Like in the current IOWATER program, volunteer-collected data may help

[43] *Id.*
[44] *Id.*
[45] *Id.*
[46] Personal Communication with Brian Soenen, Iowa Department of Natural Resources (Dec. 9, 2005).
[47] *Id.*

provide a baseline of water quality in the state's wetlands. The data will help track trends in water quality and could identify sources of pollution or resources of exceptional quality.[48]

V. Restoration

The IDNR Wildlife Bureau seeks to acquire 2,000 acres of wetlands per year, with an upland-to-wetland ratio of three-to-one. Land is acquired in a way that creates buffer zones around wetlands to provide nesting cover for ground-nesting birds and to provide water quality benefits.[49]

In order to prioritize land and water restoration projects, IDNR examines existing wetland complexes throughout the state and focuses on expanding them. Iowa has an extremely complex sub-surface drainage system for its agricultural land, so careful attention is paid to drainage districts and watersheds to determine where there is the greatest potential for restoration without affecting adjacent land.[50]

IDNR monitors restoration success by comparing restored wetlands to historic wetlands that have never been drained. The goal is to completely restore the hydrology of the soil and re-vegetate the area. If the project is intended to provide habitat for waterfowl, the state aims for 50-percent open water and 50-percent vegetation. A higher vegetation-to-water ratio is sought for water quality protection. IDNR has recently begun to conduct water quality monitoring as another measure of success. Monitoring of restored wetlands is conducted annually by IDNR to maintain water levels and ensure adequate vegetation.[51]

Restoration Programs at IDNR

IDNR funds its various restoration projects with a combination of federal and state money. Federal grants from the North American Wetland Conservation Act (NAWCA) fund IDNR's two regional restoration programs, *Identification of Potential Wetland Complex Restoration in the Prairie-Pothole Region of Iowa* and the *Upper Mississippi River & Great Lakes Region Joint Venture*. Additional federal funds come from the Federal Migratory Bird Fund. State money is provided by state waterfowl stamp sales; state habitat stamp sales; hunting and fishing license fees; and the Resource Enhancement and Protection (REAP) program, a general fund for natural resources.[52] IDNR also partners with United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to implement federal restoration programs for private landowners in Iowa. Please see *Section VI. Public-Private Partnerships*.

Restoration Programs at IDALS

Conservation Reserve Enhancement Program (CREP). This voluntary state-federal program develops wetlands to remove nitrates from agricultural drainage water. Federal funds from USDA Farm Service Agency (FSA)

[48] Evelsizer, *supra* note 14.
[49] Personal Communication with Jeff Joens, Iowa Department of Natural Resources (Dec. 10, 2005).
[50] *Id.*
[51] *Id*
[52] Bishop, *supra* note 15.

match states funds 4:1 to create a potential $38 million program, which provides financial incentives to private landowners to develop and restore wetlands that receive drainage waters from agricultural areas.[53] Iowa State University research has shown that this strategic restoration and development of wetlands will remove 40 to 90 percent of nitrates and over 90 percent of herbicides in drainage water from croplands.[54] The program removes an estimated 5,000 tons of nitrates annually. The wetlands will also provide wetland habitat and recreational opportunities.[55] Iowa State University conducts field monitoring at constructed sites to verify wetland nutrient removal performance. The program has been very popular amongst landowners, and program staff believe the strategy should be applied across the Corn Belt.[56]

VI. Public-Private Partnerships

IDNR Wildlife Bureau Private Lands Program. IDNR private land staff and wildlife management biologists offer technical expertise to private landowners wishing to protect wildlife habitat, with an emphasis on restoring and conserving wetlands.[57] Wildlife biologists around the state work with landowners to assess their property's potential for wetland restoration, identify priorities, and set restoration goals.[58] Biologists can also help landowners identify potential sources of federal funding (i.e., through the USDA Wetland Reserve Program and federal farm programs), since the state has limited funds for cost-sharing.[59] The NRCS county office provides a one-stop shopping spot for farmers, and state staff are housed at NRCS offices. Partnerships among NRCS, FSA, and IDNR ensure the success of these restoration programs.[60] The major USDA and NRCS programs to which IDNR commonly refers landowners are the Wetland Reserve Program and the Conservation Reserve Program.[61]

VII. Education and Outreach

The Information and Education (I&E) section of IDNR currently has only general aquatic outreach programs which include sections on wetlands such as Projects WET (Water Education for Teachers), WILD, and Learning Tree. There are also additional fact sheets on general wetland issues available from Iowa State University Extension and wetland monitoring information from the IDNR watershed and assessment section. IDNR is attempting to obtain funding for more updated and comprehensive wetlands materials.[62]

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[53] Iowa Department of Agriculture and Land Stewardship, *Conservation Reserve and Enhancement Program, at* http://www.agriculture.state.ia.us/CREP.htm (last visited Jan. 30, 2006).

[54] Personal Communication with Dean Lemke, Iowa Department of Agriculture and Land Stewardship (Jan. 17, 2006).

[55] Iowa Department of Agriculture and Land Stewardship, *supra* note 53.

[56] Lemke, *supra* note 54.

[57] Joens, *supra* note 49.

[58] Iowa Department of Natural Resources, *Assistance Programs for Landowners, at* http://www.iowadnr.com/wildlife/files/plassist.html (last visited Jan. 30, 2006).

[59] Joens, *supra* note 49.

[60] *Id.*

[61] Bishop, *supra* note 15.

[62] Evelsizer, *supra* note 14.

VIII. Coordination with State and Federal Agencies

IDNR regularly coordinates with federal agencies on regulatory issues. IDNR regularly meets with the Corps, EPA, FWS, Iowa Department of Transportation (IDOT), Federal Highway Administration, and NRCS to discuss IDOT projects. This group also discusses upcoming activities that might impact each agency's activities. Other agencies or groups may be invited to these meetings, depending on the topic. IDOT and IDNR also conduct occasional talks if the agencies are working on joint or controversial projects or if IDOT projects are expected to impact state lands or listed threatened or endangered species.[63]

IDNR is also a member of the Mitigation Banking Review Team (MBRT) along with the Corps, NRCS, EPA, and FWS. The Corps chairs the MBRT, except when impacts are related to agriculture and NRCS takes the lead. The role of the MBRT is to coordinate mitigation banking activities in Iowa for regulation by the Corps, NRCS, EPA, and/or IDNR. [64] *See Section II. Regulatory Programs, Mitigation*.

IX. Acronyms and Abbreviations

CREP – Conservation Reserve Enhancement Program

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

IDNR – Iowa Department of Natural Resources

IDOT – Iowa Department of Transportation

IDALS – Iowa Department of Agriculture and Land Stewardship

EPA – U.S. Environmental Protection Agency

FSA – USDA Farm Service Agency

FTE – Full-time Equivalent

FWS – U.S. Fish and Wildlife Service

MBRT – Mitigation Banking Review Team

MOUs/MOAs – Memorandums of Understanding/Memorandums of Agreement

NAWCA – North American Wetland Conservation Act

NAWMA – North American Waterfowl Management Act

[63] Schwake, *supra* note 16.
[64] Schwake, *supra* note 29.

NEPA – National Environmental Protection Act

NPDES – National Pollution Discharge Elimination System

NRCS – USDA Natural Resources Conservation Service

NWPs – Nationwide Permits

REAP – Iowa Resource Enhancement and Protection

USDA - United States Department of Agriculture

(Project) WET – Water Education for Teachers

WQS – Water Quality Standards

WRP – Wetlands Reserve Program

Kentucky

I. Overview

Most of Kentucky's 300,000 acres of wetlands are classified as palustrine forested wetland and are dominated by hydrophytic trees, shrubs, and herbaceous plant species. Like most states, however, Kentucky has lost a significant portion (81 percent) of its historical wetland area to agricultural conversion.[1] Kentucky relies primarily on §401 water quality certification under the Clean Water Act (CWA) to regulate impacts to its remaining wetlands. However, the CWA §404 Task Force, a group of state agencies and private stakeholders, was created in 2005 as part of an ongoing assessment of the benefits of state administration of the federal CWA §404 Program.[2] The Kentucky Department for Environmental Protection - Division of Water (KDOW) and the Kentucky Department of Fish and Wildlife Resources (KDFWR) have collaborated with federal agencies to develop comprehensive mitigation guidelines for wetlands.[3] KDFWR also conducts various non-regulatory wetland-related activities, including wetland restoration and education and outreach.[4]

II. Regulatory Programs

Wetlands Definitions and Delineation

Under Kentucky's environmental protection statute, "water" or "waters of the Commonwealth" includes "any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction."[5] With regard to §401 certification, the state relies on federal wetlands delineation criteria outlined in the U.S. Army Corps of Engineers (Corps) 1987 *Wetlands Delineation Manual*.[6]

The regulatory definition for "surface waters" also includes wetlands. Surface waters are:

[1] Thomas E. Dahl, U.S. Department of the Interior, Fish and Wildlife Service, *Wetlands losses in the United States 1780's to 1980's* (1990), *available at* http://www.npwrc.usgs.gov/resource/wetlands/wetloss/index.htm#contents.

[2] Kentucky Division of Water, *404 Task Force, at* http://www.water.ky.gov/taskforce/ (last visited on Apr. 26, 2006). *See* Environmental and Public Protection Cabinet (EPPC), *Status Report to the General Assembly on the Kentucky Clean Water Act Section 404 Task Force*, (Dec. 2005) *available at* http://www.water.ky.gov/NR/rdonlyres/0738B4E3-39B6-47A6-956E-797B0ECE408E/0/404EPPC_Final_Report.pdf.

[3] Kentucky Division of Water, *Wetland Compensatory Mitigation and Monitoring Plan Guidelines for Kentucky, available at* http://www.water.ky.gov/NR/rdonlyres/BC3F4926-1327-4965-A50C-2B1FCE01FDE5/0/Wetland_guide.pdf (last visited Apr. 26, 2006).

[4] Personal communication with Kevin Tucker, Kentucky Department of Fish and Wildlife Resources (July 13, 2006).

[5] Ky. Rev. Stat. § 224.01-010(33).

[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.

> those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Effluent ditches and lagoons used for waste treatment which are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the commonwealth.[7]

Kentucky regulations further define a wetland as "land that has a predominance of hydric soils and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions."[8]

Wetland-related Laws and Regulations

In addition to §401 and the state's water quality rules, Kentucky also has adopted laws related to agricultural water quality planning and compensatory mitigation.

§401 Certification. Any activities which require a federal permit or license and that involve a discharge into waters of the state require §401 certification by Kentucky's Water Quality Certification program to ensure consistency with state water quality standards. KDOW's Water Quality Certification Section (WQCS) issues approximately 150 §401 certifications per year. Almost all of the §401 applications received by WQCS are approved, but applications are occasionally withdrawn or revised by the applicant with regard to design or mitigation to avoid denial. Few certifications are waived. The WQCS relies almost exclusively on a qualitative assessment of certification applications, which is based on narrative water quality standards.[9]

The WQCS also imposes a number of general conditions to §401 certification. These conditions include: measures to prevent spills; requirements to retain the original streamside elevation; requirements for re-vegetation of the project area; a restriction for in-stream work other than during low flow conditions; a restriction for work with heavy equipment within the stream channel; requirements for the use of fill or rip-rap that "will not adversely affect the biological, chemical or physical properties of the receiving waters and/or cause violations of water quality standards;" notification requirements for any affect to water supply intakes located downstream; removal restrictions for existing riparian vegetation; and notification requirements for evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards.[10]

Kentucky Agricultural Water Quality Act.[11] In 1994, the Kentucky General Assembly passed the Kentucky Agriculture Water Quality Act in order to protect surface and groundwater resources from agricultural pollution.[12] The law requires all agricultural operations with ten or more contiguous acres to develop and imple-

[7] 401 Ky. Admin. Reg. 5:002(298).

[8] 401 Ky. Admin. Reg. 5:002(330).

[9] Personal communication with Jenni Garland, Kentucky Division of Water, Water Quality Certification Section (Apr. 18, 2006).

[10] Kentucky Division of Water, *General Conditions of the Water Quality Certification, at* http://www.water.ky.gov/permitting/wqcert/General_Conditions.htm (last visited July 17, 2006).

[11] Ky. Rev. Stat. §§ 224.71-100; 224.71-140.

[12] *Id.*

ment a site-specific Agricultural Water Quality Plan using a model state plan (Kentucky Agricultural Water Quality Plan) for guidance.[13] The state plan includes guidance on how agricultural projects can be certified under the CWA §401 and several nationwide permits and provides information on some of the Corps' permit and notification requirements under the CWA §404 program.[14]

Wetland or Stream Compensatory Mitigation Projects — Mitigation Fund.[15] State statute allows the KDFWR to contract with any state agency or other organization to undertake any compensatory mitigation project including establishing mitigation banks and in-lieu-fee programs.[16] In addition, it establishes the Kentucky Wetland and Stream Mitigation Fund within the Kentucky State Treasury "for the purpose of restoring, creating, enhancing or preserving the Commonwealth's wetlands or streams that may be damaged or destroyed due to any project, recovering costs associated with performing these projects, and administering these programs."[17] The KDFWR administers the Mitigation Fund.

Organization of State Activities

Two state agencies are involved in wetlands issues in Kentucky: KDOW and KDFWR. KDOW administers the state's §401 water quality certification program and is also responsible for monitoring Kentucky's waters. KDFWR takes a primarily non-regulatory approach, implementing wetlands restoration and protection programs; the agency also helped KDOW and other agencies to prepare Kentucky's mitigation guidelines.

Kentucky Department of Environmental Protection - Division of Water. KDOW's Water Quality Certification Section was created in 1995 to oversee the §401 water quality certification program. The WQCS operates on an annual personnel budget of approximately $214,000. Seventy percent of these funds come from state general appropriations, while the remaining 30 percent come from federal sources.[18] WQCS has five full time staff including one supervisor, one secretary and three program managers. The staff is responsible for reviewing project applications for compliance with Kentucky's water quality standards and issuing §401 certifications. In addition, the staff reviews annual reports for all mitigation sites (submitted by applicants as a condition of §401 certification), and occasionally helps to coordinate enforcement activities.[19] The KDOW also helped to prepare Kentucky's mitigation guidelines and in-lieu-fee (ILF) policy guidance[20] and participates in the mitigation review team (MRT) established by the ILF guidance. The WQCS is based in Frankfort.

[13] Email from Steve Coleman, Director, Division of Conservation (May 8, 2006). (The Kentucky Agricultural Water Quality Plan is a compilation of 59 best management practices (BMPs) that have been approved by the Kentucky Agriculture Water Quality Authority as being the most affective in preventing pollution. In addition to minimum requirements defined in each BMP, the state plan also serves as a planning tool for agriculture and silviculture producers and provides regulatory guidance for those producers as they develop and implement their site-specific plans.)

[14] *Id.*

[15] Ky. Rev. Stat. § 150.255.

[16] *Id.*

[17] *Id.*

[18] Email from Jenni Garland, Kentucky Division of Water, Water Quality Certification Section (July 31, 2006).

[19] Personal communication with Jenni Garland, Kentucky Division of Water, Water Quality Certification Section (Apr. 18, 2006).

[20] U.S Army Corps, *Local procedures on the functions of the mitigation review team and use of in-lieu-fee mitigation in Kentucky* (2003) *available at* http://www.lrl.usace.army.mil/orf/article.asp?id=156 (last visited Aug. 4, 2006).

Kentucky Department of Fish and Wildlife Resources. KDFWR operates various activities and programs involving wetland restoration. For example, the KDFWR collaborates with other state, federal, and non-governmental partners on federal wetland programs such as the USDA Natural Resources Conservation Service (NRCS) Wetlands Reserve Program (WRP) and the Kentucky Partners for Wetland Wildlife program (KPWW).[21] The KDFWR also provides landowners with technical guidance on restoration projects. The KDFWR's wetland-related restoration programs are staffed by 2.25 biologists, including the agency's Migratory Bird Program Coordinator.[22] In addition, the KDFWR administers the Kentucky Stream and Wetland Mitigation Trust Fund,[23] signed the ILF policy guidance for Kentucky, and participates in the mitigation review team (MRT) established by the ILF guidance. The KDFWR also participated in the preparation of Kentucky's mitigation and monitoring guidelines. The KDFWR is funded solely through the sale of hunting and fishing licenses and boat registrations.[24]

Nationwide Permits

Kentucky has applied various conditions to the Corps' Nationwide Permits (NWPs), while others have been certified as written or denied.[25] In addition, the following statewide regional conditions have been issued:

- For several NWPs,[26] activities in waters classified as Outstanding State Resource Waters (OSRWs)[27] require the permittee to provide the appropriate written notification to the applicable Corps District;

[21] Kentucky Department of Fish and Wildlife, *Kentucky Partners for Wetland Wildlife*, *at,* http://www.kdfwr.state.ky.us/wetlandwildlife.asp?lid=1048&NavPath=C100C153 (last visited March 21, 2007) (The KPWW is jointly administered by the KDFWR, the NRCS, Ducks Unlimited and the U.S. Fish and Wildlife Service.).

[22] Tucker, *supra* note 4.

[23] Ky. Rev. Stat. § 150.225

[24] Kentucky Department of Fish and Wildlife Resources, *supra* note 21.

[25] The following NWPs have been certified as written: NWP#1 - Aids to Navigation; NWP#2 - Structures in Artificial Canals; NWP#4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#5 - Scientific Measurement Devices; NWP#6 - Survey Activities; NWP#10 - Mooring Buoys; NWP#15 - U.S. Coast Guard Approved Bridges; NWP#18 - Minor Discharges; NWP#19 - Minor Dredging; NWP#20 - Oil Spill Cleanup; NWP#22 - Removal of Vessels; NWP#28 - Modification to Existing Marinas; NWP#29 - Single-Family Housing; NWP#33 - Temporary Construction, Access; NWP#35 - Maintenance of Existing Boat Ramps; NWP#36 - Boat Ramps; NWP#40 - Agricultural Activities; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities. The following NWPs have certified with conditions: NWP#3 - Maintenance; NWP#7 - Outfall Structures and Maintenance; NWP#12 - Utility Activities; NWP#13 - Bank Stabilization; NWP#14 - Linear Transportation Projects; NWP#21 - Surface Coal Mining Activities; NWP#23 - Approved Categorical Exclusions; NWP#25 – Structural Discharges; NWP#27 - Stream and Wetland Restoration Activities; NWP#30 - Moist Soil Management; NWP#31 - Maintenance of Existing Flood Control Facilities; and Dewatering; NWP#37 - Emergency Watershed Protection and Rehabilitation; NWP#39 - Residential, Commercial, and Institutional Developments; NWP#43 - Stormwater Management Facilities. The following NWPs have been denied: NWP#16 - Return Water From Upland Contained Disposal Areas; NWP#17 - Hydro Power Projects; NWP#32 - Completed Enforcement Actions; NWP#38 - Cleanup of Hazardous and Toxic Wastes; NWP#44 (Mining Activities).

[26] NWP # 3 (Maintenance), NWP #7 (Outfall Structures and Maintenance), NWP #12 (Utility Line Activities), NWP #14 (Linear Transportation Crossings), NWP #27 (Stream and Wetland Restoration Activities), NWP #29 (Single Family), NWP #39 (Residential, Commercial, and Institutional Developments), NWP #40 (Agricultural Activities), NWP #41 (Drainage Ditches), NWP #42 (Recreational Facilities), NWP #43 (Stormwater Management Facilities), NWP #44 (Mining Activities).

[27] OSRWs include certain unique waters of Kentucky, including those waters with federally threatened or endangered species (401 Ky. Admin. Reg. 5:031, Section 7). OSRWs may have unique water quality characteristics that shall be protected by criteria established in 401 Ky. Admin. Reg. 5:031, Section 8.

- For NWP #14 (Linear Transportation Projects), activities in §10 navigable waters[28] require written notification to the applicable Corps District and public projects are limited to the maximum loss of 500 linear feet of stream with compensatory mitigation;
- For NWP #27 (Stream and Wetland Restoration Activities), activities in §10 navigable waters and activities not described by paragraphs a(1), a(2) or a(3) of this NWP require written notification to the applicable Corps District.[29]

The KDOW has also established conditions applicable to the Corps' regional permit #32 (Commercial Sand and Gravel Dredging Ohio River Mile 438.0 to Mississippi River). These conditions prohibit dredging in OSRWs or sites providing habitat to important biological communities, and in sites dredged in the previous five years, 1500 feet upstream or 500 feet downstream of known mussel beds, and within 2500 linear feet of drinking water intake. In addition, permitees are required to: provide the appropriate notification to the KDOW; obtain a Kentucky Pollutant Discharge Elimination System permit from KDOW; take measures to prevent or control spills of fuel, lubricants or other materials; and notify the KDOW upon violation of water quality standards. A §401 certification is required for any dredging that does not meet these conditions.[30]

Mitigation

The *Wetland Compensatory Mitigation and Monitoring Plan Guidelines for Kentucky* (Kentucky Guidelines) was jointly prepared in 1993 by the Louisville Corps District, U.S. Fish and Wildlife Service (FWS) Region IV, U.S. Environmental Protection Agency (EPA) Region V, KDOW, and KDFWR to assist applicants with the creation of mitigation and monitoring plans for projects requiring a §404 permit and §401 certification.[31] Although no specific wetlands mitigation goals are established in this document, it contains guidelines for development site description, mitigation site description, success criteria and performance standards for the mitigation site, monitoring details, permanent protection plan, and contingency plans. When applying for a water quality certification through KDOW, an applicant must follow the Kentucky Guidelines for wetland-related impacts involving greater than one acre.[32]

The KDOW has also developed stream mitigation guidelines.[33] The guidelines include: criteria for determining when compensatory mitigation will be required; data required to support stream relocation projects; general criteria for stream relocation design; physical monitoring requirements for stream relocation/mitigation projects; biological monitoring requirements of stream projects; acceptable compensatory mitigation

[28] Section 10 of the Rivers and Harbors Act (1899) prohibits dredging or disposal of dredged material, or excavation, filling, or other modifications to the navigable waters of the United States (33 U.S.C. § 403).

[29] U.S. Army Corps of Engineers Louisville District, *Kentucky Regional General Conditions, available at* http://www.lrl.usace.army.mil/orf/article.asp?id=140 (last visited Aug. 4, 2006).

[30] Letter from Tom C. Van Arsdall, Manager, Water Quality Branch, Kentucky Division of Water, to Mr. Jim Townsend, Chief of Engineers, U.S. Army Corps of Engineers Louisville District (June 19, 2006).

[31] Kentucky Division of Water, *Wetland Compensatory Mitigation and Monitoring Plan Guidelines for Kentucky, available at* http://www.water.ky.gov/NR/rdonlyres/BC3F4926-1327-4965-A50C-2B1FCE01FDE5/0/Wetland_guide.pdf (last visited Apr. 26, 2006).

[32] *Id.*

[33] Kentucky Division of Water, *Draft Stream Mitigation Guidelines*, *available at* http://www.water.ky.gov/NR/rdonlyres/B8FE078D-6100-4A61-93A0-A7B49A007FDC/0/New_Guidelines.pdf (last visited on Apr. 26, 2006).

types; draft guidance for calculating "credits" for each mitigation type; and an example of potential stream mitigation credits.[34] Applicants are required to submit a detailed plan and profile drawings, along with an application for stream-related impacts that involve more than 200 linear feet of stream disturbance. In addition, impacts to streams or lakes designated as Special Use Waters require an individual certification and a detailed sediment and erosion control plan.[35]

In 2002, the KDFWR signed an ILF agreement with the Great Lakes and Ohio River Divisions of the Corps (Louisville, Huntington and Nashville districts) that allows the Kentucky Wetland and Stream Mitigation Fund (described above) to receive in-lieu-fees from Department of Army permittees.[36] The primary focus of this agreement is mitigation for impacts to streams. In 2003, state and federal agencies, including the Louisville, Huntington and Nashville Corps Districts, EPA Region V, FWS Kentucky Field Office, KDFWR, and KDOW, created local procedures and established an MRT that defines the conditions under which the Stream and Wetland Mitigation Fund may be used. The MRT reviews proposed projects for design and construction, and performs a yearly review of ongoing and completed projects.[37] The Louisville Corps District serves as chair but gives deference to other Corps districts for projects in their respective areas.[38]

Compliance and Enforcement

The Kentucky Department for Environmental Protection (KDEP) - Division of Enforcement has a general enforcement program for water quality but does not operate a separate wetlands program. Most of Kentucky's §404/§401 violations are referred to the Corps; however, major violations are directly referred to the KDEP Division of Enforcement.[39]

Tracking Systems

KDEP manages Kentucky's permit and mitigation tracking system. The system, a large database called TEMPO (Tools for Environmental Management Protection Organizations), tracks all aspects of air, water, and waste permits, including enforcement and mitigation provisions. Mitigation tracking is fairly limited but includes: acres of wetland lost, length of stream lost, acres of wetland mitigated, length of stream mitigated, and feet of stream stabilization. Most of the tracking data is collected from §401 certification applications and required annual mitigation reports. Site visits, performed by WQCS project managers, are occasionally required if the annual report indicates a problem with the site. If action needs to be taken, a letter is written to the applicant to notify them of the problem and to request a remediation plan. The remediation plan may extend the length of the required monitoring period for the mitigation project.[40]

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[34] *Id.*

[35] Kentucky Division of Water, *Water Quality Certification General Information*, *at* http://www.water.ky.gov/permitting/wqcert/General+Information.htm (last visited Aug. 4, 2006).

[36] Agreement Concerning In Lieu Mitigation Fees Between Kentucky Department of Fish and Wildlife Resources and the U.S. Army Corps of Engineers *available at* http://www.orn.usace.army.mil/cof/notices/inlieuKY.pdf (last visited Aug. 4, 2006).

[37] Local procedures on the functions of the mitigation review team and use of in-lieu-fee mitigation in Kentucky (2003) *available at* http://www.lrl.usace.army.mil/orf/article.asp?id=156 (last visited Aug. 4, 2006).

[38] Garland, *supra* note 19.

[39] *Id*.

[40] *Id*.

III. Water Quality Standards

Kentucky has not adopted wetland-specific water quality standards (WQS), anti-degradation policies, and designated uses. However, general WQS applicable to all surface waters also are applicable to wetlands.[41] Wetlands and all surface waters not specifically assigned designated uses are designated for the use of warm water aquatic habitat, recreation use and water supply/quality.[42] Kentucky's water quality standards are based on chemical, biological and narrative criteria.[43]

IV. Monitoring and Assessment

KDOW oversees the state's aquatic monitoring programs, which integrate the collection of physical, chemical, and biological elements to assess the quality of the aquatic environment. KDOW's Watershed Management Section monitors aquatic resource issues under a rotating watershed approach.[44] KDOW uses the monitoring data to determine designated use, as defined by the state's WQS regulations, and to identify water quality problems. Kentucky has no state monitoring program specifically for wetlands.[45] KDOW also administers the volunteer monitoring program "Water Watch" and provides technical support for the "Watershed Watch" program.[46]

Kentucky has worked with the Corps to develop a regional hydrogeomorphic (HGM) guidebook for assessing the functions of low gradient, riverine wetlands in Western Kentucky in the context of the §404 regulatory program.[47] In addition, Kentucky has developed two indices, The Kentucky Macroinvertebrate Bioassessment Index and the Kentucky Index of Biotic Integrity (uses fish as a biological indicator), to assess the quality of streams.[48]

[41] 401 Ky. Admin. Reg. 5:002(298).

[42] 401 Ky. Admin. Reg. 5:026(Section 5)(2).

[43] 401 Ky. Admin. Reg. 5:031.

[44] Kentucky Division of Water, *Monitoring and Assessment*, *at* http://www.water.ky.gov/sw/swmonitor/ (last visited Aug. 4, 2006) (KDOW operates 71 fixed long-term water quality monitoring stations throughout the commonwealth, and an additional 20 - 25 rotating watershed monitoring sites that provide more intensive scrutiny of water quality conditions).

[45] Garland, *supra* note 19.

[46] *Id.* The "Water Watch" program is dedicated to helping to protect Kentucky's streams, rivers, lakes and wetlands through volunteer monitoring, community education initiatives and community leadership and action. *See* Kentucky Division of Water, *Water Watch*, *at* http://www.water.ky.gov/ww/ (last visited Aug. 4, 2006) (The "Watershed Watch" program helps to improve Kentucky's waterways through a coordinated campaign of water quality monitoring, skills development and advocacy) *and see* Watershed Watch, *Watershed Watch Program Information*, *at* http://kywater.org/watch/ (last visited Aug. 4, 2006).

[47] A Regional Guidebook for Assessing the Functions of Low Gradient, Riverine Wetlands in Western Kentucky, Operational Draft (1999), *available at* http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde17/wrpde17.pdf (Last visited Aug. 4, 2006).

[48] The Kentucky Macroinvertibrate Bioassessment Index (MBI) *available at* http://www.water.ky.gov/NR/rdonlyres/7F189804-4322-4C3E-B267-5A58E48AAD3F/0/Statewide_MBI.pdf (Last visited July 17, 2006); The Kentucky Index of Biotic Integrity (KIBI) *available at* http://www.water.ky.gov/NR/rdonlyres/04C65101-AF1C-4751-809B-4F5D09B7269A/0/KIBI_paper.pdf (Last visited July 17, 2006).

The KDFWR is responsible for monitoring Kentucky's volunteer wetland restoration projects under the WRP and KPWW programs.[49] KDFWR's wetlands biologists visit each site at least once annually to determine the success and long-term management needs of each restoration site. A four-page monitoring document designed to assess waterfowl use, aquatic vertebrate use, plant distribution, and recruitment (bottom and hardwood trees spacing) is completed for each site visit.

V. Restoration and Partnerships

Although there is no formal state restoration program, KDFWR collaborates with the NRCS and other state, federal, and non-governmental partners on wetlands restoration programs. KDFWR works with NRCS to provide technical and financial support to help landowners with their wetland restoration efforts as part of the WRP. KDFWR funds an average of 11 WRP easements per fiscal year; depending on the size of the easements.[50]

The KPWW, a joint effort of the KDFWR, FWS, NRCS, and Ducks Unlimited, was establish in 1995 with a goal of increasing shallow water seasonal habitat for wetland wildlife. The KPWW program provides water-control structures at no cost to landowners and may reimburse as much as 50 percent of levee construction costs (up to a $5000 maximum payment).[51] The program operates about 20 new projects for a total of approximately 400 acres of shallow water per year. The KDFWR and KDNR - Division of Conservation also collaborate with the NRCS on the Conservation Reserve Enhancement Program (CREP).[52] In addition, KDFWR is working closely with The Nature Conservancy to identify important wetland systems for priority restoration. The results of this partnership will be used to guide future wetlands restoration in Kentucky and focus federal money to priority sites.[53]

KDFWR biologists provide technical guidance to landowners who are interested in restoring the wetlands on their property and assist landowners in choosing the appropriate federal restoration funding program. The KDFWR receives 60 to 70 requests for assistance each year.[54]

VI. Education and Outreach

Kentucky has no formal outreach or education programs specific to wetlands. However, in addition to the technical assistance and outreach described above, KDFWR runs wetland programs upon request at the

[49] Tucker, *supra* note 4.
[50] *Id.*
[51] Kentucky Department of Fish and Wildlife Resources, *Kentucky Partners for Wetland Wildlife, at* http://www.kdfwr.state.ky.us/wetland-wildlife.asp?lid=1048&NavPath=C100C153 (last visited Aug. 4, 2006).
[52] Tucker, *supra* note 4.
[53] Personal communication with Rocky Pritchert, Kentucky Department of Fish and Wildlife Resources (July 13, 2006).
[54] Tucker, *supra* note 4.

Salato Wildlife Education Center.[55] The Salato Wildlife Education Center offers indoor and outdoor exhibits and activities, as well as a variety of scheduled programs, events, and workshops. Wetland-related programs are designed by KDFWR biologists and are tailored to the audience requesting the program. In addition, KDFWR has developed informational literature on management, restoration, and other wetland topics, which are provided to the public upon request.[56]

VII. Coordination with State and Federal Agencies

Kentucky state agencies work closely with federal agencies on wetland restoration projects and mitigation programs and guidelines. In 2003, the KDFWR and the NRCS established a collaborative and effective WRP program in Kentucky.[57] Under this agreement, two KDFWR biologists work together with NRCS staff on projects related to wetland restoration for the WRP. KDFWR also collaborates with NRCS and FWS on the KPWW and CREP programs.

KDOW, KDFWR, Kentucky Department of Transportation (KDOT), Corps, EPA, and FWS have created an ILF agreement and have formed an associated MRT. The MRT meets on project and programmatic issues approximately five to seven times per year, but additional meetings are scheduled to discuss new KDOT mitigation projects.[58] KDOW and KDFWR also coordinate with the Corps, EPA and FWS on other §401/404 issues. KDFWR also occasionally works informally with KDOT on mitigation issues and has received mitigation land from the transportation agency.[59]

VIII. Acronyms and Abbreviations

BMP – Best Management Practice

Corps – U.S. Army Corps of Engineers

CFR – Code of Federal Regulations

CREP – Conservation Reserve Enhancement Program

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

FTE – Full-time Equivalent

[55] *Id*.
[56] Pritchert, *supra* note 53.
[57] Tucker, *supra* note 4.
[58] Garland, *supra* note 19.
[59] Tucker, *supra* note 4.

FWS – U.S. Fish and Wildlife Service

HGM – Hydrogeomorphic

ILF – In-lieu-fee Mitigation

KDEP – Kentucky Department for Environmental Protection

KDFWR – Kentucky Department of Fish and Wildlife Resources

KDOW – Kentucky Division of Water

KDOT – Kentucky Department of Transportation

KPWW – Kentucky Partners for Wetland Wildlife

MRT – Mitigation Review Team

NRCS – Natural Resources Conservation Service

NWPs – Nationwide Permits

OSRW – Outstanding State Resource Water

USDA – U.S. Department of Agriculture

WRP – Wetlands Reserve Program

WQCS – Water Quality Certification Section

WQS – Water Quality Standards

Louisiana

I. Overview

The State of Louisiana contains approximately 15 percent of the freshwater wetlands and 40 percent of the salt marshes that remain in the contiguous United States.[1] In total, Louisiana's wetlands comprise nearly 7.8 million acres and provide habitat for over 5 million waterfowl. Although it has been difficult to measure historic statewide wetland loss, it is estimated that Louisiana currently loses 25 to 35 square miles of coastal wetland area annually to natural, agricultural, and anthropogenic conversion. Furthermore, preliminary estimates indicate that Hurricanes Katrina and Rita caused the transformation of 217 square miles of coastal land to open water.[2] Given current trends, Louisiana is predicted to lose an additional 800,000 acres by 2050.[3]

To address the dramatic loss of coastal land in Louisiana, the Louisiana Department of Natural Resources (LA DNR) - Coastal Restoration Division (CRD) and planning authorities based in the Governor's office administer coastal wetland restoration projects throughout the state. Louisiana's extensive restoration programs are funded in part by the federal Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), which designates approximately $50 million dollars annually for coastal restoration projects in the state. The Louisiana Department of Environmental Quality administers the state's §401 water quality certification program, and coastal wetlands are also regulated through coastal use permits (CUP) issued by the LADNR's Coastal Management Division (CMD) and delegated local authorities.[4] The Louisiana Department of Wildlife and Fisheries (LA DWF) also plays a role in state wetland regulation by commenting on permit and certification applications and conducting other non-regulatory activities, such as restoration and education and outreach.[5]

II. Regulatory Programs

Wetland Definitions and Delineation

Louisiana defines state waters to include "both the surface and underground waters within the state of Louisiana including all rivers, streams, lakes, groundwaters, and all other water courses and waters within the confines of the state, and all bordering waters and the Gulf of Mexico."[6] However, for purposes of the Louisiana Pollutant Discharge Elimination System, waters are defined as:

[1] Louisiana Department of Environmental Quality, *Surface Water Assessment Chapter 6: Wetlands Water Quality Assessment*, *available at* http://www.deq.louisiana.gov/portal/Portals/0/planning/305b/2004/PART%20III.doc (last visited March 20, 2007).

[2] Barras, John A., 2006, Land area change in coastal Louisiana after the 2005 hurricanes—a series of three maps: U.S. Geological Survey Open-File Report 06-1274 *at* http://pubs.usgs.gov/of/2006/1274/ (last visited March 20, 2007).

[3] National Wetlands Research Center, *CWPPRA*, *at* www.lacoast.gov (last visited March 20, 2007).

[4] La. Rev. Stat. § 49:241.21(H)(1).

[5] Personal communication with Heather Warner-Finley, Louisiana Department of Wildlife and Fisheries (Oct. 26, 2006).

[6] La. Rev. Stat. § 30:2073.

> all surface waters within the state of Louisiana and, on the coastline of Louisiana and the Gulf of Mexico, all surface waters extending there from three miles into the Gulf of Mexico...[including] all surface waters which are subject to the ebb and flow of the tide, lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, impoundments of waters within the state of Louisiana otherwise defined as 'waters of the United States' ... and tributaries of all such waters. 'Waters of the state' does not include waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act...[7]

Louisiana Coastal Management Regulations define "wetlands" in the state's coastal zone to include "open water areas or areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions."[8] However, it should be noted that the Rules and Procedures for Mitigation section of the state's Coastal Management Regulations exclude "fastlands and lands more than five feet above mean sea level which occur within the designated coastal zone of the state."[9]

Louisiana delineates jurisdictional wetlands in accordance with the criteria outlined in the U.S. Army Corps of Engineers' (Corps) 1987 *Wetlands Delineation Manual*.[10]

Wetland-related Law and Regulations

In addition to protections offered under §401/404 of the Clean Water Act (CWA), Louisiana protects coastal wetlands under the Louisiana State and Local Coastal Resources Management Act. The Louisiana Coastal Wetlands Conservation and Restoration Act and the Louisiana Coastal Protection, Conservation, Restoration and Management Act of 2005 establish wetlands protection and restoration efforts in Louisiana.

Louisiana State and Local Coastal Resources Management Act.[11] The goal of the State and Local Coastal Resources Management Act is to protect, develop, and where feasible, restore or enhance the resources of Louisiana's coastal zone. The Act, as amended in 1989, establishes the Louisiana Coastal Resources Program (LCRP), which includes a Coastal Use Permit (CUP) program to help ensure the management and reasonable use of resources within the Louisiana Coastal Zone (LCZ). The LCZ is defined by the Act with referral to certain roads and canals. Special areas in the LCZ with unique and valuable characteristics requiring special management procedures may be designated under the Act. Although the CUP program is implemented by the LA DNR - CMD's Louisiana Coastal Resources Program, the Act includes a provision allowing local governments to assume permitting authority by developing local coastal management programs (LCPs).[12]

[7] *Id.*

[8] La. Admin. Code tit. 43 § 700.

[9] La. Rev. Stat. § 49:214.3

[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] La. Rev. Stat. § 49: 214.21 et seq.

[12] La. Rev. Stat. § 49: 214.28.

Coastal Management Regulations, developed under the Act, include: coastal use guidelines; rules and procedures for the issuance, denial, renewal, modification, suspension, and revocation of CUPs and general CUPs; rules and procedures for mitigation; guidelines for the development, approval, modification, and periodic review of LCPs; guidelines for public hearings related to a proposed action; and procedures for the designation, utilization and management of special areas.[13] The Coastal Use Guidelines include both general provisions applicable to all uses and specific provisions applicable only to certain types of uses within the LCZ.[14] The guidelines were designed so that development in the LCZ could be accomplished with the greatest benefit and the least amount of damage.

CUPs are required for uses of both state and local concern,[15] in the LCZ, including but not limited to dredge and fill work, bulkhead construction, shoreline maintenance, and other development projects.[16] A CUP is not required for all activities regulated under §404, but does cover some upland activities that are exempt from §404 permits. Due to Coastal Zone Management Act consistency provisions, a §404 permit cannot be issued for impacts in the LCZ until an applicant receives an approved CUP from the CMD. An online joint permit application is available for CUP and §404 permits, and 60 percent of permit applicants currently use this system.[17]

The CMD rarely denies a permit. Instead, the agency staff work with the federal agencies to negotiate with the permit applicant to complete a successful permit application. The CMD and the Corps' New Orleans District issue joint public notices for CUPs and §404 permits within their jurisdiction. The public is generally allowed a 25 day comment period on these permits. The LA DEQ, LA DWF, and other state and federal agencies also provide comment on CUPs.[18]

Local governments may assume coastal permitting authority by developing local coastal management programs (LCPs). Once an LCP has received federal and state approval, the local government is authorized to issues CUPs for coastal uses of local concern.[19] Ten coastal parishes have active LCPs, including: Calcasieu, Cameron, Lafourche, Jefferson, Orleans, Plaquemines, St. Bernard, St. James, St. Tammany, and Terrebonne. Two additional parishes, St. Charles and St. John the Baptist, are currently developing LCPs.[20]

[13] La. Admin. Code tit. 43 §§ 700–729.

[14] La. Admin. Code tit. 43 § 701 (Specific Uses include: levees, linear facilities, dredged spoil deposition, shoreline modification, surface alterations, hydraulic and sediment transport modifications, disposal of wastes, uses that result in the alteration of waters draining into coastal waters, and oil, gas and other mineral activities).

[15] La. Rev. Stat. § 49:214.25. (Uses of local concern are "those uses which directly and significantly affect coastal waters and are in need of coastal management but are not uses of state concern and which should be regulated primarily at the local level if the local government has an approved program." Uses of local concern include: privately funded projects which are not uses of state concern; publicly funded projects which are not uses of state concern; maintenance of uses of local concern, jetties or breakwaters, dredge or fill projects not intersecting more than one water body, bulkheads, piers, camps and cattlewalks; and maintenance dredging and private water control structures of less than $15,000 in cost.).

[16] *Id.*

[17] Personal communication with Jim Rives, Louisiana Coastal Resources Program (Oct. 11, 2006).

[18] *Id*.

[19] La. Rev. Stat. § 49:214.25.A.2.

[20] Louisiana Coastal Management Division, *Local Coastal Programs, at* http://dnr.louisiana.gov/crm/coastmgt/interagencyaff/lcp/lcp.asp (last visited March 20, 2007).

Louisiana Coastal Wetlands Conservation and Restoration Act[21] *& Louisiana Coastal Protection, Conservation, Restoration and Management Act of 2005*.[22] The Louisiana Coastal Wetlands Conservation and Restoration Act created the Wetlands Conservation and Restoration Authority and Wetlands Conservation and Restoration Fund, which provided revenue from oil and gas for wetland restoration efforts in Louisiana.[23] In 2005, Louisiana Coastal Protection, Conservation, Restoration and Management Act created the Coastal Protection and Restoration Authority (CRPA) and Coastal Protection and Restoration Fund (CRPF). The 2005 Act also established the LA DNR - CRD and the Governor's Advisory Commission on Coastal Protection, Restoration and Conservation. The Commission was formed to: advise the governor on the status of the state's coastal protection and restoration programs; provide a forum for cooperation and collaboration among federal, state, and local governmental agencies, conservation organizations, and the private sector; review programs, conditions, trends, and scientific and engineering findings that affect coastal protection, restoration and conservation; and assist in the identification of potential sources of funding for coastal protection, restoration and conservation programs. In addition, the Act established programs and funds for barrier islands, shoreline and coastal pass stabilization and preservation programs.

The CPRA, an expanded and restructured version of the previous Wetlands Conservation and Restoration Authority, is charged with developing, implementing, and enforcing a comprehensive coastal protection master plan as well as annual coastal protection plans. A draft Comprehensive Coastal Protection Master Plan for Louisiana was released in November 2006.[24] The CRPA also represents the state's position in policy implementation relative to coastal protection, conservation, and restoration. CPRA is chaired by the Governor's Executive Assistant for Coastal Activities and includes representatives from several other state agencies.[25]

Upon ratification of a constitutional amendment by the voters of Louisiana, the CRPF, also established by the 2005 Act, will provide revenues derived from oil, gas, and mineral activities for coastal wetlands conservation, coastal restoration, hurricane protection, and infrastructure impacted by coastal wetland losses.

Water Quality Certification.[26] Louisiana's water quality certification regulations, developed under Louisiana's Water Quality Control Law,[27] apply to all applications for federal licenses or permits. The regulations include procedures for issuance, modification and revocation of water quality certifications including application requirements and public notice requirements.

[21] La. Rev. Stat. § 49:214.1.

[22] La. Rev. Stat. § 49:213.1.

[23] The Wetlands Conservation and Restoration Fund provided revenue from oil and gas for wetland restoration efforts in Louisiana.

[24] Coastal Protection and Restoration Authority, Comprehensive Coastal Protection Master Plan for Louisiana, Preliminary Draft, *available at* http://www.louisianacoastalplanning.org/documents/Comprehensive%20Coastal%20Protection%20Master%20Plan%20for%20Louisiana%20-%20Preliminary%20Draft.pdf (last visited March 20, 2007).

[25] Coastal Protection and Restoration Authority Integrative Planning Team, *About the CPRA and IPT*, *at* http://www.louisianacoastalplanning.org/about.html (last visited March 20, 2007).

[26] La. Admin. Code tit. 33 § 1501- 1507.

[27] La. Rev. Stat. § 30:2071 et seq.

In Louisiana, five categories of activities require §401 certification. These include: oil and gas activities, commercial projects, private non-profit projects, residential development, and government (municipal) projects. In 2005, the LA DEQ processed 1,086 certification applications, of which 687 applications required certification action.[28] The LA DEQ generally does not deny certification applications; instead the department negotiates with applicants until each permit contains all information necessary for LA DEQ staff to approve a permit decision. LA DEQ staff relies on a combination of quantitative methodology, qualitative assessment, and best professional judgment to make certification decisions. The agency also utilizes the state's water quality management plan to make certification decisions within a basin-by-basin framework. The CMD, CRD, LA DFW, and other state and federal agencies provide comments to the LA DEQ on §401 certification applications. The LA DEQ also issues a joint public notice on §401 certifications with the three local Corps districts.[29]

Following the hurricanes of 2005, the number of applications for water quality certification dropped dramatically from 100 applications in August 2005 to 9 applications in September 2005. The number of applications rebounded steadily over the following few months, and is now back to pre-hurricane levels. Prior to the hurricanes, the majority of the §401 certification applications were related to oil and gas activities. Following Katrina, there was an increase in residential applications.[30]

Organization of State Activities

The LA DEQ administers the §401 water quality certification program statewide. Wetlands in the coastal zone are regulated by the LA DNR - CMD or delegated local governments. Planning authorities based in the Governor's office and the LA DNR - CRD administer and implement coastal protection and restoration efforts.

Louisiana Department of Environmental Quality. The LA DEQ implements Louisiana's §401 water quality certification program, which operates from the headquarters in Baton Rouge. The LA DEQ employs one full-time equivalent (FTE), who issues §401 certifications, maintains the program's database, and coordinates with the CMD on CUPs as well as a part-time engineer on wetland related duties. The water quality certification program is funded through fees generated from processing §401 applications and general appropriations. The LA DEQ also serves on the CPRA and manages wetland-related efforts associated with CWA §319 grants.[31]

Louisiana Department of Natural Resources. The LA DNR's Office of Coastal Restoration and Management is responsible for the maintenance and protection of the state's coastal wetlands. The LA DNR Coastal Management Division is the regulatory authority for coastal wetlands in Louisiana, while the Coastal Restoration Division is responsible for wetlands protection, restoration, planning, and monitoring efforts. LA DNR staff also participate on the CPRA's Integrated Planning Team (IPT), which serves to coordinate the development of the comprehensive coastal protection master plan with local, state and federal agencies. The IPT

[28] Personal communication with Jamie Phillippe, Louisiana Department of Environmental Quality Water Quality Certification Program, (Oct. 12, 2006) (Of the 687 applications, 18 were associated with Nationwide Permit #39 (Residential, Commercial, Institutional Developments), 462 were individual permits, and 207 were associated with the state programmatic general permit general category 2).
[29] *Id.*
[30] *Id*.
[31] *Id.*

consists of representatives from the LA DNR, Louisiana Department of Transportation and Development (LA DOTD), and the New Orleans District of the Corps.

Coastal Management Division. LA DNR - CMD's Coastal Resources Program is the regulatory authority for coastal wetlands and issues CUPs under the State and Local Coastal Resources Management Act (local governments also may assume CUP authority over certain uses by developing LCPs).[32] The CMD has about 40 full-time equivalents (FTEs), as well as several specialists working on wetland related activities. Eighteen FTEs, including six field staff, are involved with writing and monitoring CUPs. The program is funded through a variety of mechanisms, including an in-kind match of approximately $2.5 million dollars annually through the federal Coastal Zone Management Program, CWA §310 funds dedicated to nonpoint source pollution, permit and mitigation fees of about $600,000 to $800,000 annually, and grants through the Wetland Conservation and Restoration Fund of approximately $800,000 a year.[33]

Coastal Restoration Division. The Coastal Restoration Division was created in 1989 by the Louisiana Coastal Wetlands Conservation and Restoration Act.[34] The Division is responsible for planning and monitoring projects aimed at creating, protecting and restoring the state's coastal wetlands.

Louisiana Department of Wildlife and Fisheries. The LA DWF partners with various state and federal agencies and private land owners on wetland management and restoration projects. The agency also owns and manages several coastal wetland refuges and develops and manages CWPPRA-funded projects on these lands. The department also comments on §404 permits, §401 certifications, and CUPs and serves on the CPRA. In addition, the LA DWF regulates Louisiana's oyster harvest, which includes over 2 million acres of public grounds.[35]

Nationwide Permits

Section 404 Nationwide Permits (NWPs) are reviewed by the LA DEQ when the Corps revises them every five years. The LA DEQ requires individual certifications for NWPs #31 (Maintenance of Existing Flood Control Facilities), #39 (Residential, Commercial, Institutional Developments), #40 (Agricultural Activities), and #44 (Mining Activities). However, the LA DEQ issued only 18 certifications for NWP #39 in 2005. No applications classified at NWP #31, #40, or #44 were received in 2005.[36]

The LA DNR has denied Coastal Zone Consistency to certain NWPs[37] and has conditionally approved others.[38] Conditions applied to coastal zone consistency include: (1) preconstruction notification requirements for pro-

[32] La. Rev. Stat. § 49:241.21(H)(1).
[33] Rives, *supra* note 17.
[34] La. Rev. Stat. § 49:214 et seq.
[35] Warner-Finley, *supra* note 5.
[36] Phillippe, *supra* note 28.
[37] U.S. Army Corps, *Regional Conditions for the Nationwide Permits in Louisiana, at* http://www.mvk.usace.army.mil/offices/od/odf/REGION%20CONDS%20%20NWP%20LA%202002.doc (last visited March 20, 2007). (LA DNR denied coastal zone consistency to NWPs #3 (Maintenance), #7 (Outfall Structures and Maintenance), #12 (Utility Line Activities), #13 (Bank

posed activities covered by the NWP within the LCZ or the Louisiana Conservation Plan Boundary; (2) a CUP or other authorization from the LA CMD for proposed activities in the LCZ; and (3) compensatory mitigation requirements for all wetland losses that occur within the Louisiana Conservation Plan Boundary, regardless of the size of the wetland loss.

Programatic General Permit. Louisiana has programmatic general permit for wetland uses within the LCZ.[39] Category I uses cannot impact greater than 0.5 an acre of special aquatic sites.[40] The LA DEQ has issued blanket water quality certification for Category I uses.[41] Category II uses not related to oil and gas may impact no more than 2.0 acres of tidal or 3.0 acres of non-tidal special aquatic sites, while oil and gas related activities may impact no more than 3.5 acres of tidal or non-tidal special aquatic sites. [42] Category II permits only apply for projects within the Corps' New Orleans District jurisdiction and within the LCZ. Category II activities have not been granted water quality certification by the LA DEQ.[43]

Stabilization), #14 (Linear Transportation Projects), #18 (Minor Discharges), #20 (Oil Spill Cleanup), #22 (Removal of Vessels), #23 (Approved Categorical Exclusions), #27 (Stream and Wetland Restoration Activities), #29 (Single-Family Housing), #31 (Maintenance of Existing Flood Control Facilities), #33 (Temporary Construction, Access and Dewatering), #35 (Maintenance Dredging of Existing Basins), #36 (Boat Ramps), #38 (Cleanup of Hazardous and Toxic Waste), #39 (Residential, Commercial, Institutional Developments), #40 (Agricultural Activities), #41 (Reshaping Existing Drainage Ditches), #42 (Recreational Facilities), #43 (Stormwater Management Facilities), and #44 (Mining Activities)).

[38] *Id*. (The Louisiana Department of Natural Resources has conditionally issued coastal zone consistency to NWPs #1 (Aids to Navigation), #2 (Structures in Artificial Canals), #4 (Fish and Wildlife Harvesting, Enhancement, and Attracting Device), #5 (Scientific Measurement Devices), #6 (Survey Activities), #8 (Oil and Gas Structures), #9 (Structures in Fleeting and Anchorage Areas), #10 (Mooring Buoys), #11 (Temporary Recreational Structures), #15 (U.S. Coast Guard Approved Bridges), #16 (Return Waters from Upland Contained Disposal Areas), #17 (Hydropower Projects), #19 (Minor Dredging), #21 (Surface Coal Mining Activities), #25 (Structural Discharges), #28 (Modifications of Existing Marinas), #30 (Moist Soil Management for Wildlife), #32 (Completed Enforcement Actions), #37 (Emergency Watershed Protection and Rehabilitation)).

[39] U.S. Army Corps of Engineers, *New Orleans District. Programmatic General Permit for use in the New Orleans District within the Boundaries of the Louisiana Coastal Zone, available at* http://www.mvn.usace.army.mil/ops/regulatory/PGP.pdf (last visited March 20, 2007).

[40] *Id.* (Category I uses include some oil and gas activities, survey activities, flowlines/pipelines less than 10,000 feet in length and 6 inches in diameter and other transmission lines 500 feet or less in length, emergency work, dredging of existing waterbodies less than 1,000 cubic yards of material, maintenance of existing structures and fill provided the structures, miscellaneous structures, scientific measuring devices, sealed forms or cell for pile supporting structures, fish and wildlife harvesting, enhancement, and attraction devices and cultivation activities, single piles, pile clusters, trenasse maintenance, minor road crossings, bank stabilization less than 200 feet in length without land reclamation, erosion protection and restoration along public highways less than one mile in length, wharves, piers, and similar structures less than 300 square feet, federal categorical exclusions, activities specifically designed which have a beneficial effect on wetlands, work involving the clearing, grading, filling or excavation of less than 0.5 acre of special aquatic sites.)

[41] Phillippe, *supra* note 28.

[42] Army Corps, *supra* note 39. (Category II uses include some oil and gas activities, seismic surveys, flowlines/pipelines greater than 6 inches in diameter and 10,000 feet in length and all other transmission lines greater than 500 feet in length, cleanup of hazardous and toxic waste, oil spill cleanup, dredging of existing waterbodies where excavation is between 1,000 and 40,000 cubic yards of material, outfall structures, wharves, piers, and similar structures exceeding 300 square feet, erosion protection and restoration along public highways greater than one mile in length, bank stabilization less than 500 linear feet with land reclamation, categorical exclusions, mitigation banks and areas of wetland restoration and creation activities, completed enforcement actions, work which clears, grades, fills or excavates up to 2.0 acres of tidal special aquatic sites or, up to 3.0 acres of non-tidal special aquatic sites, and oil and gas activities impacting no more than 3.5 acres of tidal or non-tidal special aquatic sites.)

[43] Phillippe, *supra* note 28.

Mitigation

The LA DEQ does not require mitigation for §401 water quality certifications above that required by the Corps under a §404 permit. However, state statutes and regulations address mitigation for impacts to wetlands in the LCZ. CUPs must contain requirements for compensatory mitigation to offset any loss of wetland ecological value.[44] Compensatory mitigation can include CMD-approved mitigation bank credits, advanced mitigation credits, project-specific mitigation, or a monetary contribution to an approved compensatory mitigation plan or to the Louisiana Wetland Conservation and Restoration Fund when the permittee is unable to provide mitigation through an individual project or a mitigation bank.[45] The CMD serves on the Mitigation Banking Review Team for banks in the LCZ and conservation plan areas.[46] The CMD uses the wetland value assessment methodology, a numeric computer model, to determine the mitigation fund contribution that an applicant must make based on the impacts outlined in the permit.[47]

State staff require a 1:1 replacement of impacted wetlands for all mitigation projects in order to achieve a goal of 'no-net-loss' of wetland acreage,[48] and Louisiana statute stipulates that mitigation should be of the same habitat type as the impact.[49] If in-kind mitigation is not possible, the mitigation should produce similar ecological value to the impacted site or should contribute to the overall health of the hydrologic basin despite being a different habitat type. In addition, land owners have the option to require on-site mitigation for impacts that occur on their land, provided that the mitigation plan is approved by the CMD. Some of the larger land owners develop mitigation plans in anticipation of future mitigation opportunities on their land.[50]

Louisiana's mitigation regulations provide general procedures for avoiding, minimizing, restoring, and compensating for potential wetland losses and for quantifying the anticipated net gain and unavoidable losses of ecological value.[51] In addition, regulations include stipulations for the use of mitigation banks and advanced mitigation projects.[52]

Compliance and Enforcement

The LA DEQ refers violations of §401 water quality certifications to the local Corps districts.[53] The LA DNR - CMD and delegated local governments monitor impact and mitigation sites to ensure the proper enforcement of the CUP program.[54] Under Louisiana statue, permit infractions may result in cease and desist orders;

[44] La. Rev. Stat. § 49:241.41.
[45] La. Admin. Code tit. 43 § 724.
[46] Rives, *supra* note 17.
[47] *Id.* (The wetland value assessment methodology was developed to evaluate the value of restoration projects.)
[48] *Id.*
[49] La. Rev. Stat. § 49:241.41.
[50] Rives, *supra* note 17.
[51] La. Admin. Code tit. 43 § 724.
[52] *Id.* (An advanced mitigation project is a project implemented to create, restore, protect, and/or enhance wetlands for the purpose of producing ecological values, measured as average annual habitat units or cumulative habitat units (advanced mitigation credits). Such projects must be approved by the secretary prior to implementation, and the advanced mitigation credits shall have limited utility for the purpose of compensating for the ecological values lost due to a permitted activity.)
[53] Phillippe, *supra* note 28.
[54] La. Rev. Stat. § 49:241.36.

suspension, revocation or modification of CUPs; or injunctive, declaratory, or other actions. Violators may be issued a fine of between $100 and $500, jail time of up to 90 days, or both.[55] Enforcement actions are tracked in the CMD's enforcement database.[56]

Tracking Systems

The LA DEQ maintains a records tracking system called Electronic Document Management System (EDMS), which is accessible to the public. Since 1998, all components of each §404 permit have been included in the database.[57]

The LA CMD maintains an extensive database system, PermitTrak, to track all CUPs, consistency applications, compliance and enforcement actions and local programs.[58] PermitTrak is live, making information available in the database as it is updated. The tracking system helps the agency to manage the large number of permit applications, while allowing permittees to track the status of their applications. State and federal natural resource agencies, local governments, university researchers, environmental and community associations, and various industry groups also use the information in the database. The CMD also tracks mitigation in a GIS system and records data from all mitigation monitoring visits.[59]

III. Water Quality Standards

Louisiana has not adopted water quality criteria, designated uses, or anti-degradation standards specific to wetlands. Although not specific to wetlands, there are seven water use designations for surface waters: primary contact recreation, secondary contact recreation, fish and wildlife propagation, drinking water supply, oyster propagation, agriculture, and outstanding natural resource waters.[60] Uses of drinking water supply, oyster propagation, and outstanding natural resource apply only to specifically designated waters. Water quality standards are general and numeric in nature, are based on drainage basin, and may be seasonal.[61] Numeric criteria include chemical conditions.[62] The LA DEQ is in the process of developing a water body category for wetlands, with specific criteria applied to those receiving wastewater discharges.[63] There is also growing interest throughout Louisiana in using natural wetlands for wastewater management.

[55] *Id.*

[56] Louisiana Coastal Management Division, *Coastal Management PermitTrak System, at* http://dnr.louisiana.gov/crm/coastmgt/databases.asp (last visited March 20, 2007).

[57] Phillippe, *supra* note 28.

[58] Coastal Management Division, *supra* note 56.

[59] Rives, *supra* note 17.

[60] La. Admin. Code tit. 33 § 1113.

[61] *Id.*

[62] *Id.*

[63] Louisiana Department of Environmental Quality, *supra* note 1.

IV. Monitoring and Assessment

Although there is no wetland monitoring program specific to wetlands outside of the LCZ, wetland water quality is assessed by the LA DEQ as part of the overall water quality assessment and conditions are reported in the state's 305(b) report.[64] The department is also currently in the process of developing an interactive data access feature that will allow the public to access all collected ambient surface water quality data.[65]

In the 1990s, the CRD, in collaboration with the U.S. Geological Survey National Wetlands Research Center, several federal agencies, and academic institutions, began development of a coast-wide reference monitoring system (CRMS) for coastal wetlands.[66] The monitoring program, which evolved from an earlier project-by-project monitoring effort, allows for a broad assessment of cumulative and indirect effects on a basin or coast-wide scale.[67] CRMS was authorized and funded by the CWPPRA task force in 2003 and both provides a scientific evaluation of the effectiveness of each coastal wetland restoration project and supports decisions on future restoration projects. Monitoring sites were selected using historic LA DWF helicopter survey data.[68] Wetland monitoring data, including water level, salinity, temperature, accretion, herbaceous marsh vegetation, soil properties, and surface elevation are available to the public on the CRD's website.[69] One third of the CRMS stations are within CWPPRA projects, and all CWPPRA project monitoring plans have been revised to incorporate CRMS monitoring methods.[70]

V. Restoration and Partnerships

There are several ongoing and evolving coastal protection and restoration planning initiatives designed to address coastal land loss in Louisiana. In response to Louisiana's land loss, the U.S. Congress passed the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) in 1990.[71] CWPPRA funds wetland enhancement projects nationwide, and designates approximately $50 million annually for work in Louisiana.[72] In addition, a task force, which includes one Louisiana state representative, was convened under the CWPPRA to prepare a priority list of coastal wetlands restoration projects in the state and to develop a comprehensive plan to restore and prevent the loss of coastal wetlands in Louisiana.[73] The 1993 plan's goal

[64] *Id*.
[65] Louisiana Department of Environmental Quality, Ambient Water Quality Monitoring Data, *available at* http://www.deq.louisiana.gov/portal/Default.aspx?tabid=2421 (last visited March 20, 2007).
[66] Personal communication with Richard Raynie, Louisiana Costal Restoration Division (Nov. 2, 2006).
[67] Watermarks, Louisiana Coastal Wetlands Planning, Protection and Restoration News, April 2004, Number 25 Monitoring: The Measure of Success in Saving Louisiana's Coastal Wetlands, *available at* http://www.lacoast.gov/watermarks/2004-04/1monitoring/index.htm (last visited March 20, 2007).
[68] Raynie, *supra* note 56.
[69] DNR Coastal Restoration Monitoring Data, available *at* http://dnr.louisiana.gov/crm/coastres/monitoring.asp (last visited March 20, 2007).
[70] Raynie, *supra* note 56.
[71] National Wetlands Research Center, *supra* note 3.
[72] *Id.*
[73] *Id.*

was no net loss of wetlands in the coastal areas of Louisiana as a result of development activities initiated after approval of the plan.[74] Funds are allocated among task force members to carry out coastal wetlands restoration projects in accordance with the priorities developed by the task force.[75] In an effort to increase the planning focus at the ecosystem level, approved CWPPRA projects from annual priority lists are described in terms of the restoration objectives to which they contribute in each of the nine coastal hydrologic basins. Assessing contributions at the basin level allows the state to identify objectives that are not being met and to use that knowledge in future decision-making. Costs for CWPPRA projects are shared between the federal and state government (15 percent state/85 percent federal).[76]

The joint local, state, and federal Coast 2050 planning effort was initiated by the CWPPRA task force in 1996 and was designed to build upon and reconcile several prior restoration plans in order to strategically address coastal land loss in Louisiana and define future coastal restoration projects to be implemented under CWPPRA.[77] *Coast 2050: Toward a Sustainable Coastal Louisiana*, developed by the federal Louisiana Coastal Wetlands Conservation and Restoration Task Force and Wetlands Conservation and Restoration Authority, was published in 1998 and drew heavily on public input.[78]

The Louisiana Coastal Area Ecosystem Restoration Plan (LCA) was initiated as the first step towards implementing and prioritizing the long-range, large-scale ecosystem restoration strategies outlined in the Coast 2050 plan. The original plan outlined $14 billion for coastal restoration, with costs to be shared between federal (65 percent) and non-federal agencies (35 percent). Due to budgetary concerns, a scaled-down, near-term plan that defines the first ten years of the LCA program was developed in 2005. This near-term plan identifies around $2 billion in restoration efforts and includes provisions for the implementation of 15 restoration projects, creation of a science and technology program, development of a comprehensive coast-wide assessment of hurricane damage, implementation of coastal monitoring projects, completion of a coast-wide vegetation survey, and analysis of barrier island changes.[79]

The hurricanes of 2005 prompted Congress to direct the Corps to initiate a comprehensive and integrated hurricane protection plan in Louisiana. The state also passed the Louisiana Coastal Protection, Conservation, Restoration and Management Act in 2005 to address the protection and restoration of coastal resources through comprehensive planning. CPRA is charged with developing, implementing, and enforcing the comprehensive coastal protection master plan and annual coastal protection plans under the Act. This state effort

[74] Louisiana Coastal Wetlands Conservation and Restoration Task Force, *Coastal Wetlands Restoration Planning Protection and Restoration Act: a response to Louisiana's wetland loss* (April 17, 2006) available at http://lacoast.gov/reports/program/CWPPRA%20A%20Response%20to%20Louisiana's%20Land%20Loss.pdf.

[75] *Id.*

[76] Louisiana Department of Natural Resources, *Louisiana Coast Lines* (March 1996) *available at* http://dnr.louisiana.gov/crm/coastmgt/coastlines/1996-03.htm.

[77] Personal communication with Jon Porthouse, Coast2050 Program (Oct. 16, 2006).

[78] Coast 2050: Toward a Sustainable Coastal Louisiana, a*vailable at* http://www.lca.gov/net_prod_download/public/lca_net_pub_products/doc/2050report.pdf

[79] Porthouse, *supra* note 77.

is in addition to the LCA and Coast 2050 efforts and includes similar restoration strategies (e.g. river diversions, delta management, barrier island restoration, marsh creation using material dredged out of navigation channels, shoreline protection, etc.).[80] The CPRF will provide revenues from oil and gas activities for the restoration projects identified by the plan.

The LA DEQ's Nonpoint Source Pollution Section also manages innovative, voluntary restoration programs in Louisiana. The section, with the help of local officials, educates the public on the value of wetlands restoration through demonstration projects. For example, the section is currently involved with a 22-acre demonstration stormwater treatment project in the city of Mandelville, Louisiana. Called Neighborwoods, the site includes a wetland ecological channel with native vegetation, wetland-themed gardens, boardwalks, and interpretive signage.[81] For successful projects, the section will work with local governments to incorporate coastal resource restoration into local ordinances or master plans. These projects are funded through CWA §319 sources for nonpoint source pollution.

Finally, the Coastal Impact Assistance Program, authorized under the Energy Policy Act of 2005, provides $135 million dollars annually of outer continental shelf mineral revenues for the conservation, restoration and protection of coastal areas including wetlands, mitigation of damage to fish, wildlife and natural resources, implementation of a comprehensive management plan, and mitigation of the impacts of outer continental shelf activities. Funds, available from 2007 through 2010, are provided by a 37.5 percent royalty revenue for production that is generated offshore.[82]

VI. Education and Outreach

The LA DNR - CMD's outreach and education efforts are designed to increase awareness of the value of coastal habitats and to protect these resources. The division has developed and distributed guides and lesson plans for elementary school teachers on wetlands topics, LCZ maps that include nonpoint source pollution sources, and an official boundary map.[83] The division also distributes public information packets on coastal issues, slide shows, video tapes, CD products on coastal and wetland issues, and a free CD on wetland functions and values.[84] In addition, the CMD regularly takes a coastal resources management and restoration "information booth" to festivals, fairs, and schools.

[80] *Id.*

[81] Personal communication with John James Clark, Louisiana Department of Environmental Quality, Nonpoint Source Pollution Section (Oct. 26, 2006).

[82] Louisiana Coastal Restoration Division, *The Coastal Impact Assistance Program of 2005*, *at* http://dnr.louisiana.gov/crm/background/ciap.asp.

[83] Rives, *supra* note 17.

[84] Department of Natural Resources Louisiana Coastal Management Division, *Support Services*, *at* http://dnr.louisiana.gov/crm/coastmgt/supportserv/supportserv.asp (last visited March 20, 2007).

The *America's WETLAND* public education campaign focuses on issues related to Louisiana's high rate of coastal wetlands loss.[85] The campaign is raising awareness of the impact of Louisiana's wetland loss on the state, nation, and world and increasing support for efforts to conserve and save coastal Louisiana.[86] The campaign is privately funded, and works closely with Governor's office on coastal activities.[87]

VII. Coordination with State and Federal Agencies

Louisiana state agencies regularly coordinate both with each other and with federal agencies on wetlands related issues. The Governor's Commission was formed in part to provide a forum for cooperation and collaboration among federal, state, and local governmental agencies, conservation organizations, and the private sector. Members of the committee include the Governor's Executive Assistant for Coastal Activities, the Governor's Special Assistant for Environmental Affairs, the secretaries of the LA DNR, LA DEQ, and LA DOTD, the Commissioner of Administration, and the Director of the State Soil and Water Conservation Committee.[88] The Executive Assistant for Coastal Activities also serves on the CWPPRA task force.

The Governor's Executive Assistant for Coastal Activities also chairs the CPRA, which is charged with developing, implementing, and enforcing a comprehensive coastal protection master plan and annual coastal protection plans, as well as representing the state's position in policy implementation relative to coastal protection, conservation, and restoration. CPRA participants include: the secretaries of the LA DNR; the LA DOTD; the LA DEQ; the LA DWF; the Department of Economic Development; the commissioners of the Department of Agriculture and Forestry; the Department of Insurance; and the Division of Administration; the Director of the State Office of Homeland Security and Emergency Preparedness; and the chair of the Governor's Advisory Commission on Coastal Protection, Restoration, and Conservation. Additionally, CPRA includes participants from the Police Jury Association of Louisiana and three levee district presidents from coastal Louisiana.[89]

In addition, the state agencies regularly coordinate with each other and the federal agencies on other wetlands regulatory and non-regulatory efforts. LA DEQ has entered into a Memorandum of Understanding (MOU) with the three Corps districts and the LA DEQ to coordinate public notice on permits and NWPs.[90] The U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service also provide comments on LA DEQ's water quality certification applications and CMD's CUPs.[91] The CMD has also developed an MOU with the Louisiana Oil Spill Coordinators Office to utilize their database for natural resources damage assessments after

[85] Personal communication with Lisa Noble, America's WETLAND: Campaign to Save Coastal Louisiana (Oct. 11, 2006).
[86] America's WETLAND: Campaign to Save Coastal Louisiana, *About Us*, *at* http://www.americaswetland.com/custompage.cfm?pageid=2 (last visited March 20, 2007).
[87] Lisa Noble, *supra* note 85.
[88] The Governor's Office on Coastal Activities, *Mission Statement*, *at* http://www.goca.state.la.us/index.html (last visited March 20, 2007).
[89] Louisiana Coastal Protection and Restoration Authority Integrated Planning team, *About the CPRA and IPT*, *at* http://www.louisiana-coastalplanning.org/about.html (last visited March 20, 2007).
[90] Phillippe, *supra* note 28.
[91] Rives, *supra* note 17; Phillippe, *supra* note 28.

oil spills. In addition, the LA DNR - CMD collaborates with the LA DWF and is working with the Department of Forestry on a coastal estuarine land acquisition program.[92]

VIII. Acronyms and Abbreviations

Corps – U.S. Army Corps of Engineers

CMD – Louisiana Coastal Management Division

CPRA – Coastal Protection and Restoration Authority

CRD – Louisiana Coastal Restoration Division

CRMS – Coast-wide Reference Monitoring System

CRPA – Coastal Protection and Restoration Authority

CRPF – Coastal Protection and Restoration Fund

CUP – Coastal Use Permit

CWA – Clean Water Act

CWPPRA – Coastal Wetlands Planning, Protection and Restoration Act

EDMS – Electronic Document Management System

FTE – Full-time Equivalent

IPT – Integrated Planning Team

LA DNR – Louisiana Department of Natural Resources

LA DOTD – Louisiana Department of Transportation and Development

LA DWF – Louisiana Department of Wildlife and Fisheries

LCA – Louisiana Coastal Area Ecosystem Restoration Plan

LCP – Local Coastal Management Program

LCRP – Louisiana Coastal Resources Program

LCZ – Louisiana Coastal Zone

MOU – Memorandum of Understanding

NWP – Nationwide Permit

[92] Rives, *supra* note 17.

Maryland

I. Overview

The State of Maryland has operated a tidal wetland regulatory program since 1970 and nontidal wetland regulatory program since 1991.[1] Through these programs, Maryland has achieved a "no net loss" of wetlands. The state now seeks to increase wetland acreage through restoration and preservation and operates a variety of non-regulatory programs that include planning, preservation, restoration, and enhancement to help meet these goals.[2]

II. Regulatory Programs

Wetland Definitions and Delineation

Maryland defines "waters of the state" under its Water Pollution Act:[3]

> 'Waters of this State' includes: (a) Both surface and underground waters within the boundaries of this State subject to its jurisdiction, including that part of the Atlantic Ocean within the boundaries of this State, the Chesapeake Bay and its tributaries, and all ponds, lake, rivers, streams, tidal and nontidal wetlands, public ditches, tax ditches, and public drainage systems within this State, other those designed and used to collect, convey, or dispose of sanitary sewage; (b) The flood plain of free-flowing waters determined by the Department of Natural Resources on the basis of the 100-year flood frequency.[4]

Maryland state code defines tidal and nontidal wetlands. A "nontidal wetland" is "an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation."[5] "Tidal wetlands" include "any land under the navigable waters of the State below the mean high tide, affected by the regular rise and fall of the tide."[6] Maryland's rules further define "state tidal wetlands" as "all State and private tidal wetlands, marshes, submerged aquatic vegetation, lands, and open water affected by the daily and periodic rise and fall of the tide within the Chesapeake Bay and its tributaries, the coastal bays adjacent to Maryland's coastal barrier islands, and the Atlantic Ocean to a distance of 3 miles offshore of the low water mark."[7] "Private tidal wetlands" are

[1] Maryland Department of the Environment, *Maryland State Wetland Conservation Plan (2003)*, *at* http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/wetland_conservation/index.asp (last visited Oct. 16, 2006).
[2] Maryland Department of the Environment, *Prioritizing Sites for Wetland Restoration, Mitigation, and Preservation in Maryland (2006), at* http://www.mde.state.md.us/assets/document/wetlandswaterways/ES.pdf (last visited Oct. 16, 2006)
[3] Md. Code Ann., [Envir.] § 9-101; Md. Code Regs. 26.08.01(B)(103)
[4] Md. Code Regs. 26.08.01(B)(103)
[5] Md. Code Ann., [Envir.] § 5-901(h)(1)
[6] Md. Code Ann., [Envir.] § 16-101(n)
[7] Md. Code Regs. 26.24.01.02 (B)(52)

defined separately and include "any land not considered 'State wetland' bordering on or lying beneath tidal waters, which is subject to regular or periodic tidal action and supports aquatic growth."[8]

Maryland's nontidal delineation criteria are made "in accordance with the publication known as the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, published in 1989 and as may be amended."[9] Tidal delineation criteria are based on the state's 1971/1972 tidal wetland boundary maps and tidal vegetation.[10]

Wetland-related Law and Regulation

Nontidal Wetlands Protection Act. The Nontidal Wetlands Protection Act regulates and restricts all activities that could impact nontidal wetlands or waters of the state. The act also helps to ensure "no net loss" of wetlands by requiring mitigation or compensation for any wetland losses. This law differs from federal regulation on issues of isolated wetlands, the alteration of vegetation and hydrology, and regulation of a 25-foot buffer. In Maryland, buffer requirements are expanded to 100 feet for "nontidal wetlands of special State concern," which have been designated by regulation as having exceptional ecological or educational value.[11,12]

Tidal Wetlands Act. Under this act, permits are required for filling or dredging in private tidal wetlands from the Maryland Department of the Environment (MDE) Tidal Wetlands Division and licenses are required for filling or dredging state-owned wetlands from the State Board of Public Works.[13]

Water Pollution Act. This act contains water quality standards and §401 certification provisions. MDE issues water quality certifications for proposed discharges to waters of the state pursuant to §401 of the Clean Water Act. Certifications are integrated into MDE reviews of activities under tidal and nontidal wetland permit applications.[14]

Chesapeake Bay Critical Area Act. This act requires that local jurisdictions adopt zoning regulations for lands within 1,000 feet of the Chesapeake Bay in order to improve the water quality and habitat in the Bay. Local jurisdictions must minimize alterations to the drainage area, surface and subsurface flow of water, and water quality to protect the hydrology and water quality of wetlands. Additionally, the act places restrictions on grading, filling, excavating, draining, flooding, and removing vegetation in nontidal wetlands.[15,16]

[8] Md. Code Ann., [Envir.] § 16-101(j)

[9] Md. Code Ann., [Envir.] § 5-901(h)(2)

[10] Every county planning and zoning office whose jurisdiction includes tidal wetlands has a set of these tidal wetland boundary maps. The original mylars are at the Maryland Geological Survey office in Baltimore; Personal Communication with Robert Tabisz, Maryland Department of the Environment (Oct. 27, 2006).

[11] Md. Code Ann., [Envir.]§§ 5-901—911

[12] Maryland Department of the Environment, *Wetland Regulations, at* http://www.mde.state.md.us/assets/document/wetlandswaterways/regulation.doc (last visited Oct. 16 2006).

[13] Md. Code Ann., [Envir.] §§ 16-101–16-503

[14] Md. Code Ann., [Envir.] §§ 9-313—9-316, 9-319, 9-320, and 9-325

[15] Md. Code Ann., [Nat. Res.] § 8-1808

[16] Maryland Department of the Environment, *supra* note 12.

Organization of State Activities

The MDE Wetlands and Waterways Program, located within the agency's Water Management Administration, is primarily responsible for state wetlands protection and comprehensive wetland management under the Nontidal Wetlands Protection Act and Tidal Wetlands Act. In addition to its regulatory responsibilities for wetlands, MDE also sponsors voluntary wetland restoration efforts and is the state lead for tracking wetland restoration and protection gains. Within the Wetlands and Waterways Program, there is both a Tidal and Nontidal Division.

Although MDE is primarily responsible for wetlands protection, the State Board of Public Works is responsible for issuing licenses required for filling or dredging state-owned tidal wetlands. In addition, the Maryland Department of Natural Resources (MDNR) acquires land for conservation and recreation and accepts easement donations, which may contain wetlands, and conducts wetland restoration projects. MDNR also monitors ambient condition and quality of the state's aquatic resources and is helping develop the state's wetland assessment program.

Maryland Department of Environment. MDE has offices in Salisbury, Cambridge, Centerville, and Frostburg. Tidal and nontidal wetlands are regulated separately under their respective state laws.

The Wetlands and Waterways Tidal Division handles authorization for minor projects on state tidal wetlands and all projects on private tidal wetlands. The division is based in Baltimore and maintains a field office in Cambridge. Staff members are assigned by regions to Southern Maryland, Central Maryland, the Upper Western Shore, the Upper Eastern Shore, and the Lower Eastern Shore. The division operates on state general funds.[17]

The Wetlands and Waterways Nontidal Division, which employs approximately 25 FTEs, handles review and evaluation of nontidal wetlands, the associated buffers, waterways, floodplains, and mitigation. The division employs natural resource planners that examine wetland issues on a watershed basis and track figures on impacted, restored, and created wetlands. Division staff review permit applications and categorize them according to the Maryland State Programmatic General Permit. If the impacted area is greater in size than 5,000 square feet, the application is often jointly reviewed with the Corps.[18] The Nontidal Division is based in Baltimore and maintains one staff member at the Cambridge field office, five in the Salisbury field office, and four in the Frostburg field office.[19] The division's budget is provided by state general funds and a few federal grants.[20]

Maryland Department of Natural Resources. MDNR is responsible for a host of wildlife management areas and parks. Approximately 25 staff members work on wetland-related issues, including wildlife biologists, land

[17] Personal Communication with Robert Tabisz, Maryland Department of the Environment (Oct. 12, 2006).
[18] Personal Communication with Amanda Sigillito, Maryland Department of the Environment (Jul. 25, 2006).
[19] Personal Communication with Amanda Sigillito, Maryland Department of the Environment (Oct. 26, 2006).
[20] Sigillito, *supra* note 18.

managers, and managers of programs such as Program Open Space, which purchases wetland areas among other lands. The agency conducts restoration projects in a variety of habitats, including wetlands, under its own programs as well as in coordination with private landowners, federal agencies, private corporations, and citizen groups. MDNR maintains offices in Cambridge and Wye Mills.[21]

MDNR staff also monitor and track the condition of the state's aquatic and natural resources. Data are analyzed and used in 305(b) reports and 303(d) lists. The report will be expanded in the near future to include assessments of wetland condition.[22] The agency's budget fluctuates annually depending upon federal, state, and private grants.[23] Staff are funded under state appropriations and special funds.[24]

§401 Certification

Parties that intend to impact tidal or nontidal wetlands must obtain state authorization, which include §401 water quality certification, under the Tidal and Nontidal Wetlands Acts.[25] Applicants must demonstrate that the proposed impacts are necessary and unavoidable. MDE's application review process is designed to reduce impacts through avoidance and minimization and may require mitigation and associated monitoring.[26]

Tidal Wetlands. Under the Tidal Wetlands Act, parties must obtain authorization from MDE to make impacts to a tidal wetland.[27] Under the Act, MDE must consider the ecological, economic, developmental, recreational, and aesthetic values of the proposed project to determine if the project qualifies for a general wetlands license or permit and if it requires mitigation.[28] Water quality certification (WQC) is incorporated into the authorization process via the State Programmatic General Permit, except for projects involving hydraulic dredging. In these cases, MDE issues an individual WQC. The Tidal Division makes between 2,200 and 2,500 tidal wetland authorizations per year. The Division approves roughly 95 percent of applications and denies approximately 5 percent. Decisions are based on quantitative and qualitative assessments, best professional judgment, and provisions in the state laws and regulations.[29]

Nontidal Wetlands. Under the Nontidal Wetlands Act, authorization is required for any activity that alters a nontidal wetland or its 25-foot buffer.[30] When evaluating a permit application, MDE must find that:

- The project is water-dependent and requires access to a nontidal wetland, or is not water-dependent and has no practicable alternative;

[21] Personal Communication with Christine Conn, Maryland Department of Natural Resources (Nov. 20, 2006).
[22] Personal Communication with Christine Conn, Maryland Department of Natural Resources (Nov. 21, 2006).
[23] Personal Communication with Kevin Smith, Maryland Department of Natural Resources (Aug. 15, 2006).
[24] Personal Communication with Kevin Smith, Maryland Department of Natural Resources (Oct. 26, 2006).
[25] Md. Code Ann., [Envir.] § 5-901—5-911 and § 16; Md. Code Regs. 26.23—24
[26] Maryland Department of the Environment, *Water Management Permits (undated), at*
http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.17 (last visited Oct. 16, 2006).
[27] Maryland Department of the Environment, *Applications for Water Permits, Approvals and Certifications (undated)*, *at*
http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/permits_applications/index.asp (last visited Oct. 16, 2006).
[28] Md. Code Regs. 26.24.02.04—05
[29] Tabisz, *supra* note 17.
[30] Md. Code Regs. 26.23.5.901—911

- The activity will avoid and minimize impacts by considering topography, vegetation, fish and wildlife, and hydrological conditions;
- The activity will not degrade ground or surface waters; and
- The activity is consistent with any applicable comprehensive watershed management plan.[31]

The Nontidal Division receives approximately 1,200 applications per year. The review period for a minor project typically takes eight to ten months, while reviews for major projects take ten to twelve months. As of 2006, data was not available for the percentage of decisions waived, approved, or denied.[32]

Nationwide Permits/State Programmatic General Permit

The majority of NWPs were suspended in Maryland when the Corps issued the Maryland State Programmatic General Permit (MDSPGP-3).[33] If the Corps wishes to authorize a project under one of the few remaining NWPs and the project falls under state jurisdiction, MDE would also review the project application to issue a state permit.[34] The state does not regularly review applicable NWPs, although the Corps will occasionally ask for state comments.[35]

The MDSPGP-3 covers impacts to tidal and nontidal wetlands and waterways.[36] Projects with minimal impacts are eligible for approval under the MDSPGP if nontidal wetland impacts are less than five acres and tidal wetland impacts are less than three acres.[37]

Mitigation

Maryland state law and regulations include general standards on mitigation, including banking and in-lieu fee.[38] The state has different regulations for impacts to streams. Wetland mitigation provisions require projects impacting more than 5,000 square feet to provide mitigation in the form of restoration, enhancement, or creation.[39] When determining the type and amount of mitigation required of the permittee, MDE prefers in-ground, on-site mitigation projects. When that option is not feasible, the department evaluates off-site options, mitigation banks, and, lastly, payment into the State's Nontidal Wetland Compensation Fund, which MDE uses to conduct mitigation projects statewide.[40]

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[31] Md. Code Regs. 26.23.02.04

[32] Sigillito, *supra* note 18.

[33] The NWPs that remain in effect in Maryland are NWP#23 (Approved Categorical Exclusions), NWP#27 (Stream and Wetland Restoration Activities), NWP#30 (Moist Soil Management for Wildlife), NWP#31 (Maintenance of Existing Flood Control Facilities), NWP#32 (Completed Enforcement Actions), and NWP#37 (Emergency Watershed Protection and Rehabilitation). U.S. Army Corps of Engineers, Baltimore District. *Public Notice #02-07: Nationwide Permits Regional Conditions and Suspensions (May 7, 2002), at* http://www.nab.usace.army.mil/Regulatory/Permit/nwp_regcond_pa_pn.pdf (last visited Mar. 20, 2007).

[34] Sigillito, *supra* note 19.

[35] Sigillito, *supra* note 18.

[36] Sigillito, *supra* note 19.

[37] Maryland Department of the Environment, *supra* note 12.

[38] Md. Code Regs. 26.23.04 and 24.05

[39] Sigillito, *supra* note 18.

[40] Sigillito, *supra* note 19.

MDE holds pre-application meetings during which agency staff meet with applicants and discuss how to avoid or minimize wetland impacts, as well as various mitigation and restoration options. Permittees who choose to conduct their own mitigation projects are required to submit regular monitoring reports for five years.[41]

Compliance and Enforcement

Compliance and enforcement for wetlands is handled by the MDE Water Management Administration's Compliance Program. The program inspects impacted sites, advises permittees to address discrepancies between the land and inspection report, issues orders for correction, initiates legal action, and processes administrative penalties. The program refers cases requiring legal action to the Attorney General with recommendations as to whether to pursue the case criminally or civilly.[42]

In fiscal year 2005, the program issued eight corrective action orders and resolved 18 (some of which were carried over from previous years).[43] The program issued one injunction, which was concluded,[44] and issued three penalties.[45] The statuary penalty amounts for tidal and nontidal wetlands violations are $10,000 per day,[46,47] although the amount of penalty the program typically seeks depends upon factors such as the willfulness of the violation, environmental harm, and the violator's compliance history.[48] No criminal penalties have been pursued in recent years.[49]

Enforcement cases are typically resolved with compliance assistance using inspection reports. When an inspector notices a problem he or she will address it with the permittee, and the problem is usually resolved in a reasonable amount of time. MDE conducted 143 compliance assistances in 2005 on nontidal wetlands. Only 18 sites were found to have significant violations, and 13 were resolved through compliance assistance. MDE conducted 55 compliance assistances on tidal wetlands, and found six significant violations. Cases rarely make it to court.[50]

Tracking Systems

The Corps' Regulatory Analysis Management System (RAMS) tracks all regulatory actions, and information from RAMS is exchanged nightly with databases in Maryland state government and subscribing local governments. Additional databases also track regulatory gains and losses and non-regulatory wetland gains. Reports are generated to track "no net loss" by watershed, losses and gains by regions, authorization type, wetland type, and mitigation required. Additionally, MDE tracks aspects of mitigation in a database, includ-

[41] Sigillito, *supra* note 18.
[42] Personal Communication with Tom Boone, Maryland Department of the Environment (Aug. 2, 2006).
[43] *Id.*
[44] Personal Communication with Tom Boone, Maryland Department of the Environment (Aug. 3, 2006).
[45] Boone, *supra* note 42.
[46] Md. Code Ann., [Envir.] § 16-502
[47] Md. Code Ann., [Envir.] § 5-911
[48] Boone, *supra* note 44.
[49] Boone, *supra* note 42.
[50] *Id.*

ing data on amount of land, type of mitigation, and location by county and watershed.[51] Finally, voluntary wetland gains are generally recorded by county. In 2006, MDE began making substantial upgrades to its databases to improve and expand tracking and reporting capabilities.[52]

III. Water Quality Standards

Maryland has not adopted wetland-specific water quality standards, designated uses, or anti-degradation standards. However, tidal and nontidal wetlands are explicitly included in the regulatory definition of "waters of this state" and so are included in the state's general water quality standards and designated uses. Under the water quality standards, discharges (covered by the National Pollutant Discharge Elimination System, or NPDES) are examined on the bases of erosion and sediment. Discharges that receive NPDES permits are certified by MDE under the §401 certification review process.[53]

As of 2006, MDE Wetlands and Waterways Program was operating under a U.S. Environmental Protection Agency (EPA) grant to develop a wetland monitoring strategy. The strategy will outline steps to develop designated wetland-specific use classes and water quality criteria.[54]

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

Maryland's interagency effort to develop a wetland monitoring strategy includes MDE, MDNR, the Maryland State Highways Administration, and the Maryland Department of Agriculture. The workgroup hopes to broaden this coalition to include federal agencies, local governments, academia, consultants, and non-profit organizations. The ultimate goal is to develop a wetland monitoring plan that will allow the state to report, track, monitor and enhance the condition and functions of the state's wetland resources regularly and comprehensively. In addition, the strategy will lay the foundation for all state agencies to use a consistent wetland assessment methodology so they can share data and compare results.[55]

MDNR's Natural Heritage Division has played a particularly active role in developing a wetland monitoring strategy. MDNR is using key wildlife habitat types identified by the Division through the Maryland Wildlife Diversity Conservation Plan as a framework for wetland monitoring activities. A key aspect of the wetland monitoring program is to inform wetland management, protection, and restoration actions in order to support Maryland's biological resources, particularly those species of greatest conservation need.[56]

[51] Sigillito, *supra* note 18.
[52] Personal Communication with Denise Clearwater, Maryland Department of the Environment (Nov. 1, 2006).
[53] Md. Code Regs. 26.08.02.10(A)(2)
[54] Clearwater, *supra* note 52.
[55] Conn, *supra* note 21.
[56] *Id.*

MDNR has conducted in the past and is currently conducting pilot projects to test wetland assessment methodologies. These pilot projects have employed the EPA-recommended three-level wetland evaluation approach. The first level uses GIS indicators to determine how landscape factors, such as development near a wetland, influence wetland conditions. The second level is a rapid site assessment, and the third consists of an intensive field study, including stem counts, soil samples, and plant community characterization. This third-level analysis allows MDNR to calibrate the assessment methods used in levels one and two.[57]

As of 2006, MDNR had already completed a pilot project focused on the Nanticoke watershed in cooperation with the Delaware Department of Natural Resources and Environmental Control (DNREC), The Nature Conservancy, and the Smithsonian Environmental Research Center to assess wetland conditions and develop functional condition indices and a single score index of wetland condition. MDNR also completed a project in cooperation with DNREC and the Virginia Institute of Marine Sciences (VIMS) to evaluate the condition of tidal wetlands in the Nanticoke watershed. MDNR is planning a third project, in collaboration with VIMS, to develop level-one indicators for all nontidal wetlands in Maryland. MDE will play an advisory role on this project.[58]

MDE recently received an EPA grant to develop a wetland monitoring strategy to assess wetland health and function.[59] As part of this project, MDNR will be conducting a pilot study to explore methodologies for monitoring wetland conditions. This will be an opportunity for MDNR to test strategies and approaches developed by the interagency workgroup.[60]

Monitoring and Assessment for Streams

MDNR conducts statewide monitoring for the health of all waterways annually through the Maryland Biological Stream Survey. Monitoring sites are selected randomly and monitored for physical, chemical, and biological conditions.[61]

Coordination with State Watershed Programs

The Nontidal Wetlands Protection Act provides for the development of watershed management plans, which may be used to guide regulatory decisions. These plans are developed in cooperation with local governments and protect wetlands by incorporating them into a jurisdiction's land use decision-making process.[62] MDE is also represented in the Chesapeake Bay and Coastal Bays Programs—multi-agency efforts with management goals that include wetland considerations such as no-net-loss and restoration. MDE has completed a number of technical tools and documents to assist watershed-based stakeholders in wetland management protection, and restoration.[63]

[57] *Id.*
[58] *Id.*
[59] Clearwater, *supra* note 52.
[60] Conn, *supra* note 21.
[61] Smith, *supra* note 23.
[62] Maryland Department of the Environment, *supra* note 12.
[63] Clearwater, *supra* note 52.

V. Restoration

In 1997, Maryland's governor established by executive order a statewide goal of restoring 60,000 acres of wetlands.[64] Additionally, Maryland is party to the 2000 Chesapeake Bay Agreement, which aims to restore 25,000 acres of wetlands by 2010.[65] Under the agreement, Maryland is committed to creating or restoring a total of 15,000 acres and enhancing 35,000 acres.[66] As of 2005, Maryland had created or restored between 7,000 and 8,000 acres.[67] Finally, the *Comprehensive Coastal Bays Management Plan* also establishes a goal of restoring 10,000 acres in the Coastal Bays watershed by 2010.[68,69]

MDE Restoration Programs

MDE has conducted several wetland restoration and enhancement projects through partnerships with schools, local governments, and organizations such as The Nature Conservancy.[70,71] Funds for these projects come from the state compensation fund that supports mitigation projects (*see II. Regulatory Programs, Mitigation*) and from state general funds.[72,73] MDE also coordinates with the Resource Conservation and Development Council, which conducts conservation projects in various regions of the state. MDE initiates these tidal and non-tidal wetland restoration and creation projects, such as shoreline stabilization restoration, and the Council acts as the contractor.[74]

MDE recently completed a project funded by U.S. EPA to prioritize wetland areas for restoration, preservation, and mitigation in the state. MDE compiled information from resource inventories and management plans to create a comprehensive background document on wetlands and their surrounding environment. GIS and other data were used to identify desirable and undesirable locations for wetland work. The resulting document, *Prioritizing Sites for Wetland Restoration, Mitigation, and Preservation in Maryland*, also includes management and restoration recommendations based on input from counties, state agencies, and other interested parties. The May 2006 version of the report is available online.[75] MDE is now promoting the use of the project's findings among permit applicants seeking mitigation sites. They are also encouraging local governments to refer to the results when planning TMDLs.[76]

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[64] Maryland Department of the Environment, *Maryland's Wetland Restoration Initiative, at* http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/about_wetlands/restoration.asp (last visited Oct. 16, 2006)

[65] Personal Communication with Denise Clearwater, Maryland Department of the Environment (Aug. 2, 2006).

[66] Maryland Department of the Environment, *supra* note 2.

[67] Personal Communication with Denise Clearwater, Maryland Department of the Environment (Sep. 29, 2006).

[68] Maryland Department of the Environment, *What do the Chesapeake Bay Agreement, The Coastal Bays Plan, and an executive order from the State have in common?*, *at* http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/about_wetlands/agreement.asp (last visited Oct. 16, 2006)

[69] Maryland Department of the Environment, *supra* note 64.

[70] Sigillito, *supra* note 18.

[71] Clearwater, *supra* note 52.

[72] Sigillito, *supra* note 18.

[73] Clearwater, *supra* note 52.

[74] Personal Communication with George Beston, Maryland Department of the Environment (Jul. 27, 2006).

[75] Maryland Department of the Environment, *Prioritizing Areas for Wetland Restoration, Preservation, and Mitigation, at* http://www.mde.state.md.us/ Programs/WaterPrograms/Wetlands_Waterways/about_wetlands/prioritizingareas.asp (last visited Oct. 16, 2006).

[76] Clearwater, *supra* note 65.

MDNR Restoration Programs

MDNR has a Restoration Services Division that implements restoration projects for a variety of habitat types, including wetlands. Staff members in the Wildlife and Forestry Divisions also work on restoration. Typically, ecological problems are identified and assessed, and if appropriate, a solution is designed and developed. Staff members find or apply for funds, which are allocated to the projects. This occurs mainly on public lands. The Department does some creation work, but most projects involve restoration. MDNR also works on projects proposed by watershed groups, private landowners, and community groups.[77]

MDNR also uses GIS to: identify areas on public land that have been disturbed, determine what type of restoration is needed, and decide where restoration would be most effective. As of 2006, the Department was doing much of this work in the Corsica Watershed.[78]

The department also assists individuals or private organizations that request assistance with restoration projects. MDNR can provide technical, design, and implementation assistance, as well as help with grant applications. The primary funds MDNR solicits in these cases are the Chesapeake Bay Trust and the National Fish and Wildlife Foundation.[79]

MDNR monitors restoration success to ensure the project objectives have been met. Typical objectives include improving water quality or habitat.[80]

Coastal Bays Program

The Maryland Coastal Bays Program was established in 1996 to assist the Coastal Bays region in developing a comprehensive restoration and protection plan. The program is a joint effort among the Towns of Ocean City and Berlin, Worcester County, MDNR, MDE, Maryland Department of Agriculture, Maryland Office of Planning, National Park Service, and EPA. In 2000, the program adopted *A Comprehensive Conservation and Management Plan for Maryland's Coastal Bays* to protect and enhance the Coastal Bays.[81] The plan charges MDE and MDNR with targeting wetland restoration and creation in areas of historic wetland loss for water quality improvement and wildlife habitat.[82] Additionally, MDE completed a comprehensive plan to target areas for wetland mitigation in watersheds of wetland impact, replacing lost wetland types and functions.[83,84]

[77] Smith, *supra* note 23.
[78] *Id.*
[79] *Id.*
[80] *Id.*
[81] Maryland Coastal Bays Program, *Maryland Coastal Bays Program, at* http://www.mdcoastalbays.org/ (last visited Oct. 16, 2006).
[82] Maryland Coastal Bays Program, *A Comprehensive Conservation and Management Plan for Maryland's Coastal Bays*, *at* http://mdcoastalbays.org/archive/2003/ccmp.pdf (last visited Oct. 5, 2006).
[83] *Id.*
[84] Clearwater, *supra* note 52.

Coordination with USDA on agricultural programs

MDE has a number of joint projects with the U.S. Department of Agriculture (USDA) on properties not already enrolled in USDA programs. There are approximately 24 conservation districts in Maryland, and MDE works with about half of them. Soil district conservation staff members often approach MDE with private landowner projects, and MDE will assist landowners with project design and implementation. These projects are often intended to create wildlife benefits or to restore agricultural land.[85]

MDNR also coordinates with USDA on programs such as the Wetlands Reserve Program (WRP), Wildlife Habitat Incentives Program (WHIP), Conservation Reserve Enhancement Program (CREP), and Natural Resources Conservation Service (NRCS).[86]

VI. Public-Private Partnerships

Landowners

Neither MDE nor MDNR have formal, wetland-related programs for partnering with private landowners.[87, 88] Landowners may call MDE or MDNR staff, such as wildlife managers, to ask for assistance with or collaboration on a specific project. MDNR staff members have worked with private landowners on restoration and conservation projects, as well as a limited number of mitigation projects.[89] MDE helps match landowners with other funding agencies to support the landowner's objectives.[90]

Other partnerships

MDE has partnered with groups such as The Nature Conservancy and Ducks Unlimited on restoration projects.[91] The funds that MDE contributes to these projects come from the state's Nontidal Wetland Compensation Fund.[92]

MDNR has coordinated with private companies to complete restoration projects. In some cases, MDNR identifies an opportunity to do additional restoration on a current corporate mitigation project and obtains funding to complete the additional work. In other cases, companies offer MDNR the opportunity to collaborate on a project.[93] MDNR also partners with the Isaak Walton League of America to conduct monitoring on wetlands for amphibians, reptiles, and vegetation.[94]

[85] Beston, *supra* note 74.
[86] Smith, *supra* note 23.
[87] Sigillito, *supra* note 18.
[88] Smith, *supra* note 23.
[89] *Id.*
[90] Clearwater, *supra* note 52.
[91] Sigillito, *supra* note 18.
[92] Sigillito, *supra* note 19.
[93] Smith, *supra* note 23.
[94] *Id.*

VII. Education and Outreach

MDE does not have a wetland-specific outreach and education strategic plan or program, though certain tasks and goals have been outlined in the Maryland Wetland Conservation Plan.[95,96] When invited to community or citizen organization meetings, the Department does provide information on wetlands. MDE does have a grant from EPA which includes plans for the development of education and outreach materials.[97] Additional guidance is under development to assist people with the permit application process, such as sample drawings for marsh creation for shoreline stabilization.[98]

MDNR occasionally conducts outreach and education activities on wetlands. When they do, they use the Planning of Wetlands (POW) materials developed by the non-profit organization Environmental Concern.[99]

VIII. Coordination with State and Federal Agencies

A State Wetland Conservation Plan was completed in 2003. Certain elements of the plan have been implemented, including the identification of priority areas for restoration and preservation, assessment the effectiveness of the mitigation program, and development of a wetland monitoring strategy. MDE hopes to conduct a progress report in the future.[100]

MDE has also received an EPA implementation grant designed to facilitate improvements to the state regulatory program.[101] The grant will help promote and support better wetland assessment, gain and loss tracking, project analysis, and mitigation. [102]

MDE is party to Memoranda of Understanding (MOUs) with MDNR and the Maryland Department of Agriculture on some mitigation projects and the development of the wetland monitoring program.[103] MDNR is party to MOUs with the Maryland Department of Agriculture, MDE, and the Energy Administration. The MOUs provide for the exchange of technical services and funding for projects.[104]

MDE participates in monthly Jurisdictional Evaluation meetings with the Corps, National Marine Fisheries, U.S. Fish and Wildlife Service, and EPA, as well as with state agencies (MDNR and the Critical Area

[95] Sigillito, *supra* note 18.
[96] Clearwater, *supra* note 52.
[97] Sigillito, *supra* note 18.
[98] Clearwater, *supra* note 52.
[99] Personal Communication with Elena Takaki, Maryland Department of Natural Resources (Aug. 24, 2006).
[100] Clearwater, *supra* note 65.
[101] *Id.*
[102] Clearwater, *supra* note 52.
[103] Personal Communication with Amanda Sigillito, Maryland Department of the Environment (Oct. 18, 2006).
[104] Smith, *supra* note 23.

Commission) to discuss specific projects for which they have received permit applications. Applicants are invited to these meetings to receive feedback from all of the participating groups.[105,106]

IX. Acronyms and Abbreviations

CREP – Conservation Reserve Enhancement Program

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

FSA – USDA Farm Service Agency

FTE – Full-time Equivalent

FWS – U.S. Fish and Wildlife Service

GIS – Geographic Information Systems

MBRT – Mitigation Banking Review Team

MDE – Maryland Department of the Environment

MDNR – Maryland Department of Natural Resources

MOUs/MOAs – Memorandums of Understanding/Memorandums of Agreement

MDSPGP – Maryland State Programmatic General Permit

NAWCA – North American Wetland Conservation Act

NAWMA – North American Waterfowl Management Act

NEPA – National Environmental Protection Act

NOAA – National Oceanic and Atmospheric Administration

NPDES – National Pollution Discharge Elimination System

NRCS – USDA Natural Resources Conservation Service

NWPs – Nationwide Permits

POW – Planning of Wetlands

[105] Sigillito, *supra* note 18.
[106] Smith, *supra* note 23.

RAMS – Regulatory Analysis Management System

REAP – Iowa Resource Enhancement and Protection

USDA – United States Department of Agriculture

(Project) WET – Water Education for Teachers

WQC – Water Quality Certification

WQS – Water Quality Standards

WRP – Wetlands Reserve Program

WHIP – Wildlife Habitat Incentives Program

New Mexico

I. Overview

New Mexico has lost more than one-third of its original 720,000 acres in the 1780s. Today, wetlands cover approximately 482,000 acres in New Mexico—less than one percent of the state's total area. Recognizing the value of the state's remaining wetland resources, the New Mexico Environment Department is currently developing a comprehensive program to protect wetlands.[1]

New Mexico regulates wetlands through surface water quality management and §401 certification under the Clean Water Act (CWA). The New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) is responsible for the protection and management of the waters of the state, including wetlands. The SWQB's Watershed Protection Section (WPS) coordinates all CWA §401 certification, §319(h) activities in watersheds with Total Maximum Daily Loads (TMDLs) or with assessed data, and §404 dredge-and-fill permits with the U.S. Army Corps of Engineers (Corps).

II. Regulatory Programs

Wetland Definition and Delineation

Wetlands are not explicitly included in New Mexico's statutory definition of "water," which is defined as "all water, including water situated wholly or partly within or bordering upon the state, whether surface or subsurface, public or private, except private waters that do not combine with other surface or subsurface water."[2] However, wetlands are explicitly included in the regulatory definition of "surface water:"[3]

> all interstate waters including interstate wetlands, and all intrastate waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds the use, degradation, or destruction of which would affect interstate or foreign commerce. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands, and any manmade bodies of water which were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state. Surface waters of the state does not include private waters that do not combine with other surface or subsurface water or any water under tribal regulatory jurisdiction pursuant to § 518 of the Clean Water Act.[4]

[1] New Mexico Environment Department, Surface Water Quality Bureau, *Wetlands Conservation Plan (2002)*, at http://www.nmenv.state.nm.us/swqb/wetlandsplan-2000.html (last viewed March 22, 2007).
[2] N.M Stat. Ann § 74-6-2 (1978).
[3] N.M Code R. §20.6.4.7(RR) (2007).
[4] *Id.*

Surface water quality rules define wetlands as "those areas which are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico."[5]

Wetland delineation criteria correspond to §404 of the CWA and the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*. In addition, in 2000, the New Mexico Natural Heritage Program, Biology Department, and the University of New Mexico published the *Handbook of Wetland Vegetation Communities of New Mexico, Volume I: Classification and Community Descriptions*, an inventory and assessment of the state's wetland vegetation communities.

Organization of State Activities

The basic authority for water quality management in New Mexico is provided through the State Water Quality Act.[6] This law establishes the Water Quality Control Commission (WQCC)[7] and specifies its duties and powers. The commission is the state water pollution control agency for New Mexico for all purposes of the Clean Water Act and the Safe Drinking Water Act.

The NMED SWQB oversees protection and management of the waters of the state, including wetlands. The SWQB's WPS coordinates all CWA-related activities with the Corps. Funding for the WPS comes from U.S. Environmental Protection Agency (EPA) grants on a project-by-project basis. Approximately 1.5 full-time equivalents within the WPS are devoted to wetland-related activities, including developing the program, gathering baseline assessment data for wetlands, completing wetland restoration projects, coordinating efforts with watershed groups (state or federal watersheds and/or private landowners) and other state and federal agencies, and coordinating §401 certification and §404 dredge-and-fill permits with the Corps.[8]

§401 Certification

Section 401 certification is the primary mechanism for state-level regulation of New Mexico's wetlands. The WPS makes an average of 130 certifications per year and has never denied an application for certification, although conditions that ensure that water quality standards are met are included in virtually all certifications. While reviewing an application for certification, WPS officials use best professional judgment to: identify potential water quality impacts from a project that is being permitted under §404; provide conditions for certification that protect water quality; and ensure that the permit will not violate state water quality standards, the Water Quality Act or the Water Quality Management Plan.[9]

[5] N.M Code R. §20.6.4.7(CCC) (2007).

[6] N.M Stat. Ann § 74-6-1 *et seq*. (1978).

[7] *See:* New Mexico Environment Department, *Water Quality Control Commission*, *at* http://www.nmenv.state.nm.us/wqcc/members.htm (last viewed Mar. 22, 2007).

[8] Personal communication with Maryanne McGraw, New Mexico Environment Department (July 31, 2006).

[9] Personal communication with Neal Schaeffer, New Mexico Environment Department (July 19, 2006).

Nationwide Permits

On September 18, 2001, the Albuquerque District Engineer proposed to use discretionary authority to modify certain Nationwide Permits (NWPs) by adding statewide regional conditions to the NWPs promulgated by the Department of the Army in January 15, 2002. These regional conditions were developed in consultation with the SWQB and the New Mexico Department of Game and Fish.[10] On April 15, 2002 the South Pacific Division Engineer (SPDE) approved six regional conditions applicable to specific NWPs within the State of New Mexico[11] and fifteen regional conditions applicable to all NWPs within the state.[12]

Mitigation

The State of New Mexico has no guidelines, policies or legislation (beyond federal requirements) that outline mitigation requirements for permitted impacts to wetlands or streams. As of 2007, there are no mitigation banks in New Mexico; therefore the state does not participate on a Mitigation Banking Review Team.

Compliance and Enforcement

New Mexico generally defers to the Corps for violations under §404 of the Clean Water Act.

Tracking Systems

The State of New Mexico has not developed a system for tracking permits or mitigation.

III. Water Quality Standards

New Mexico has not adopted wetland-specific water quality standards. However, the state's surface water quality standards (WQS) do apply to "all surface waters of the state at all times," which includes wetlands. The New Mexico Administrative Code outlines numeric and narrative surface water quality standards, including both site-specific and use-specific criteria, which are established by the WQCC to protect designated, existing, and attainable uses. State code does not identify separate designated uses or anti-degradation standards for wetlands, defaulting to designated uses and anti-degradation provisions for surface waters.[13]

In 2005, New Mexico assigned secondary aquatic life and contact recreation uses to unclassified ephemeral, intermittent, and perennial waters; however, EPA was unable to approve some specific provisions without supporting use attainability analyses (UAAs) for uses less than those specified in CWA §101(a)(2). As of 2007,

[10] Personal communication with Gene Manger, US Army Corps of Engineers, Albuquerque District (Aug. 16, 3006).

[11] United States Army Corps of Engineers, *Issuance of Statewide Regional Conditions to the Nationwide Permit Program in the State of New Mexico*, *at* http://www.spa.usace.army.mil/reg/NATIONWIDES-NEW/RegCon-NM.pdf (last viewed March 22, 2007). Nationwide permit (NWP) #12 – Utility Line Discharges; NWP#13 –Bank Stabilization; NWP#14–Linear Transportation Crossings; NWP#27–Stream and Wetland Restoration Activities; NWP#39 – Residential, Commercial, and Institutional Developments; and NWP#44 – Mining Activities.

[12] *Id.* These conditions relate to permits that concern: Activities Involving Fills in Perennial Waters or Wetlands Larger Than 1/2 Acre; Springs; Temporary Water Diversion; Non-Water Dependent Activities; Pre-Construction Notifications; Soil Erosion and Sediment Controls; Pollution Controls; Equipment Inspection; Fuel and Petrochemicals; Vegetation Removal and Mitigation; Aquatic Life Movements; New Mexico State Threatened and Endangered Species; Important Spawning Areas; Gradient; Designated Critical Resource Waters in New Mexico.

[13] N.M Code R. 20.6.4.12 (2007).

New Mexico is developing procedures for categorical and site-specific UAAs. Once the UAAs are approved, EPA may approve these provisions as effective under the CWA.[14]

IV. Monitoring and Assessment

New Mexico has not yet developed an assessment methodology or a monitoring program specifically for wetlands. However, EPA has provided funding to the WPS for the development and institution of a hydrogeomorphic (HGM) approach for assessing wetland and stream functions in the state. This assessment methodology, to be developed by the WPS and the Corps, will be used to assure adherence to §401/404, to determine water quality standard designated uses, and to facilitate enforcement and mitigation. The state plans to model their HGM methodology after that developed for Colorado.[15]

In addition, over a five-year period, NMED and the New Mexico Natural Heritage Program (NMHP) are developing the *New Mexico Wetlands Identification and Assessment Manual*, which is intended to serve as a supplement to the New Mexico Wetlands Conservation Plan.[16]

While New Mexico does not yet actively support a volunteer wetland-monitoring program, NMED plans to allocate part its federal grants to start one such program on the lower Rio Grande.[17]

V. Restoration and Partnerships

Since 2003, the state has operated a wetland restoration program that is part of a larger initiative to improve the state's watersheds and water quality. Funding for the program has come from six separate EPA grants. The larger initiative employs a cost-share approach to further the state's mitigation, restoration, and conservation efforts. The SWQB provides funding for watershed groups to reduce TMDL pollutants in their watersheds and uses TMDL pollutant levels to prioritize sites for funding.[18]

SWQB also provides funding to watershed groups to develop wetland action plans that delineate goals for protection and restoration. The SWQB's overall restoration goals are to add two new watershed groups to the program every year and to create 30 new acres of wetlands within the watershed of each group that has created a wetland action plan. The SWQB has also developed GIS databases of the wetlands within the watersheds of the participating groups and identified potential sites for restoration projects.[19]

[14] Personal communication with U.S. Environmental Protection Agency Region VI (Aug. 16, 2006).
[15] McGraw, *supra* note 8.
[16] New Mexico Environment Department, *supra* note 1.
[17] McGraw, *supra* note 8.
[18] *Id.*
[19] *Id.*

The watershed restoration program also provides funding to private landowners. With a forthcoming $20,000 grant from the EPA, the WPS plans to create a website that will provide detailed information on how the public may take part in this program.[20]

VI. Education and Outreach

New Mexico does not operate an education and outreach program specific to wetlands. However, a portion of the EPA's restoration grants is used to fund outreach activities tailored to particular watersheds in which restoration will be conducted. Two examples of past outreach activities include: an intensive one-week course for the New Mexico Department of Transportation (NMDOT) on wetland restoration techniques and protection measures for transportation projects and a three-week training program for invited restoration experts from state and federal agencies and watershed groups.[21]

VII. Coordination with State and Federal Agencies

In 2000, NMED released a comprehensive Wetlands Conservation Plan. State staff view the plan as a useful resource and will implement some elements, but also plan to develop a new, more specific plan in the future.[22]

The SWQB will participate for the first time in a meeting with federal agencies on regulatory issues in August 2006.[23]

VIII. Acronyms and Abbreviations

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

HGM – Hydrogeomorphic

NMED – New Mexico Environment Department

PLJV – Playa Lakes Joint Venture

SWQB – Surface Water Quality Bureau

[20] *Id.*
[21] *Id.*
[22] *Id.*
[23] *Id.*

TMDL – Total Maximum Daily Load

UAA – Use Attainability Analyses

WPS – Watershed Protection Section

WQCC – Water Quality Control Commission

South Dakota

I. Overview

Wetland area in South Dakota has decreased by approximately 35 percent over the last 200 years, from 2.7 million acres to 1.8 million acres.[1] Most of these wetland losses are due to agricultural conversions, particularly in the state's prairie pothole region.[2] Today, wetlands compose almost four percent of the state's land area, including a vital portion of the remaining prairie pothole habitat. In the eastern prairie pothole region of the state, wetlands occupy 9.8 percent of the landscape.[3] Most of western South Dakota's wetlands are found along stream and river corridors and associated riparian areas.[4]

South Dakota regulates wetlands primarily through §401 certification under the Clean Water Act (CWA), which is overseen by the Water Management Board of the South Dakota Department of Environment and Natural Resources (SDDENR). The SDDENR's Surface Water Discharge Permit Program also issues permits for the discharge of pollutants from a point source into a wetland. Because most of South Dakota's wetlands are embedded in an agricultural landscape, the Swampbuster conservation provisions in the Federal Farm Bill provide some of the most important protection for the state's wetlands. The state's resource agencies are also active in non-regulatory wetland management and conservation efforts.[5]

II. Regulatory Programs

Wetlands Definitions and Delineation

South Dakota defines "waters of the state" as:

> all waters with the jurisdiction of this state, including streams, lakes, ponds, impounding reservoirs, marshes, 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, situated wholly or partly within or bordering on the state, but not waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA other than cooling ponds as defined in 40 C.F.R. § 423.11(m)."[6]

[1] South Dakota Department of Environment and Natural Resources, *The 2006 South Dakota Integrated Report for Surface Water Quality Assessment*, *available at* http://www.state.sd.us/DENR/Documents/06IRFinal.pdf.

[2] USGS Natural water summary on wetland resources, *Natural water summary on wetland resources*, *United States Geological Survey Water Supply Paper 2425*, *at* http://water.usgs.gov/nwsum/WSP2425/state_highlights_summary.html (last visited April 26, 2006).

[3] R.R. Johnson and K.F. Higgins, *Wetland Resources of Eastern South Dakota* (1997), *available at* http://www.npwrc.usgs.gov/resource/wetlands/sdwet/index.htm (last visited Aug. 7, 2006).

[4] South Dakota Department of Game, Fish and Parks Division of Parks and Recreation, *2002 South Dakota State Comprehensive Outdoor Recreation Plan, Chapter Five: South Dakota Wetland Component*, *available at* http://www.sdgfp.info/Publications/Parks/SCORP_MASTER.pdf.

[5] Email from Tim Olson, South Dakota Department of Game, Fish and Parks (July 20, 2006).

[6] S.D. Admin. R. § 74:51:01:01(63).

State surface water quality regulations define "wetlands" as "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 including swamps, marshes, bogs, and similar areas."[7]

The state relies upon the U.S. Army Corps of Engineers' (Corps) 1987 *Wetlands Delineation Manual* for delineating wetlands.[8]

Organization of State Agencies

The primary state agencies involved in wetlands protection include the SDDENR, South Dakota Department of Game, Fish, and Parks (SDGFP), and the South Dakota Department of Agriculture (SDDA).

South Dakota Department of Environment and Natural Resources. The SDDENR oversees §401 water quality certifications for the state. Approximately one-quarter 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. Because §401 certification activities are integrated into most agency activities, it is difficult to identify the specific amount or source of funding devoted specifically to certification.[9] The SDDENR participates on South Dakota's Interagency Wetlands Working Group, provides informal comments and recommendations to the Corps on compensatory mitigation requirements under CWA §404, and occasionally makes enforcement referrals to the Corps.[10]

The SDDENR Surface Water Discharge Permit Program issues permits under the state's National Pollutant Discharge Elimination System (NPDES) program. Any discharge of pollutants from a point source into a wetland requires a Surface Water Discharge Permit. The state does not track wetland-specific permits.[11]

South Dakota Department of Game, Fish, and Parks. The SDGFP partners with various state and federal agencies, private landowners, and other organizations on wetland management and restoration programs. As part of its general private- and public-land wildlife habitat programs, the SDGFP promotes conservation, restoration, and where appropriate, creation of wetland habitat. The SDGFP devotes two full-time biologists to its Wetland/Grassland Habitat Program, and expects to increase the program's staff to four full-time biologists. The program is funded primarily from South Dakota's hunting and fishing license fees.[12]

The South Dakota Department of Agriculture. Under a grant from the U.S. Environmental Protection Agency (EPA), SDDA hired a wetlands coordinator to help provide consistency in wetland management across the

[7] S.D. Admin. R. § 74:51:01:01(64).

[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] Personal communication with John Miller, South Dakota Department of Environment and Natural Resources (April 19, 2006).

[10] *Id.*

[11] Email from Kelli Buscher, NPDES Program, Department of Environment and Natural Resources (May 31, 2006) (South Dakota's definition of point source is similar to the federal definition).

[12] South Dakota Department of Game, Fish, and Parks, *at* http://www.sdgfp.info/ (last visited March 20, 2007).

state and to develop state wetlands guidance.[13] The *Wetland Conservation and Management Guidelines for South Dakota State Agencies* was developed under the oversight of the Interagency Wetland Working Group (IWWG), which included representatives from the SDDA, SDDENR, SDGFP, and South Dakota Department of Transportation (SDDOT). The SDDA's Division of Resource Conservation and Forestry led coordination of the IWWG's activities. The IWWG is no longer active.[14]

§401 Certification

South Dakota requires §401 certification for all activities that require a federal permit, such as a §404 permit, to ensure that projects will not violate South Dakota's surface water quality standards. The SDDENR conducts the permit review and then grants, conditions, or denies §401 certification. Approximately 20 to 25 certifications are issued annually. SDDENR staff rely on best professional judgment to make certification decisions.[15]

Nationwide Permits

Section 404 nationwide permits (NWPs) are reviewed by both the SDDENR and SDGFP as they are revised by the Corps every five years. Section 401 water quality certification has been issued for all nationwide permits (NWPs) requiring authorization under §404 of the Clean Water Act (CWA), except for #16 (Return Water from Upland Contained Disposal Areas), #29 (Single-Family Housing), and #39 (Restoration, Commercial, and Institutional Development). SDDENR requested that these NWPs be certified with conditions.[16]

Mitigation

South Dakota has no formal guidelines, policies, or legislation (beyond CWA §404 requirements) for compensatory mitigation for permitted impacts to wetlands or streams. However, the SDDENR and SDGFP do review and comment on mitigation during the §401 certification process and often informally comment on mitigation projects for the SDDOT.[17]

The SDDOT, in agreement with the Federal Highway Administration, SDGFP and the U.S. Fish and Wildlife Service, established an umbrella mitigation bank in 1988 to mitigate for wetlands impacted by highway construction.[18] The SDDOT is also developing a new mitigation banking agreement with the Corps.[19]

Compliance and Enforcement

SDDENR is responsible for wetland enforcement actions as part of the §401 water quality certification program. Violations of §404 permits are generally elevated to the Corps, unless they specifically violate state

[13] Email from Pete Jahraus, Agriculture Program Administrator, South Dakota Department of Agriculture, (July 11, 2006).
[14] *Id*.
[15] Miller, *supra* note 9.
[16] Email from John Miller, Department of Environment and Natural Resources (May 11, 2006).
[17] Miller, *supra* note 9.
[18] Environmental Law Institute, *Banks and Fees: The Status of Off-Site Wetland Mitigation In the United States*, available *at* http://www2.eli.org/wmb/umbrelladetail.cfm?AgreementID=22 (last visited July 10, 2006).
[19] Miller, *supra* note 9.

water quality standards. Violations of water quality standards in South Dakota result in both civil and criminal penalties.[20]

III. Water Quality Standards

South Dakota's water quality standards (WQS) do not identify criteria specific to wetlands. Surface water quality standards, applicable to all "waters of the state," are applicable wetlands.[21] The state surface WQS are narrative and numeric in nature and include criteria related to conductivity, nitrogen, pH, total dissolved solids, hydrocarbons, and grease. Wetlands are designated the beneficial uses of fish and wildlife propagation, recreation, and stock watering.[22] Antidegradation standards are not specifically identified for wetlands, so the provisions that apply to all "waters of the state" apply to wetlands.[23]

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

South Dakota does not have a monitoring and assessment program specific to wetlands.[24] South Dakota State University researchers, in cooperation with SDGFP and EPA, are developing a wetland rapid assessment protocol for eastern South Dakota.[25] The protocol uses a scoring convention to quantify the condition of six wetland variables including: wildlife utilization, wetland cover-story/shrub canopy, wetland vegetative ground cover, adjacent upland/wetland buffer, field indicators of wetland hydrology, and water quality input and treatment systems. Upon completion, the protocol will be used by SDGFP's Natural Heritage and Wildlife Habitat Programs to identify reference wetlands, monitor randomly selected sites, and evaluate wetland restoration efforts.[26] In addition, North Dakota State University researchers are studying the health of eastern South Dakota's prairie pothole wetlands.[27] Using data related to riparian land-use, hydrologic functional-

[20] S.D. Codified Laws § 34A-2-11 (Violation of the water quality standards, which are applicable to wetlands, is subject to § 34A-2-75, which states, "Any person subject to this section is guilty of a Class 1 misdemeanor. In addition to a jail sentence authorized by § 22-6- 2, a Class 1 misdemeanor imposed by this chapter is subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, or for damages to the environment of this state, or both.")

[21] S.D. Admin. R. § 74:51:01:11 ("Wetlands are waters of the state and are allowed protection under the provisions of this chapter. The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment of wetlands except where authorized under § 402 or § 404 of the Federal Water Pollution Control Act as amended to February 4, 1987, or under 40 C.F.R. Parts 257 and 258, Solid Waste Disposal Facility Criteria; Final Rule, as amended to July 1, 1996. The provisions of §§ 74:51:01:06 to 74:51:01:10, inclusive, 74:51:01:12, 74:51:01:34 to 74:51:01:39, inclusive, 74:51:01:52, and 74:51:01:63 to 74:51:01:65, inclusive, apply to all wetlands. In addition, the department shall evaluate wetlands to determine the applicability of such wetlands to the toxic pollutant standards provided in § 74:51:01:55 and Appendix B at the end of this chapter.")

[22] *Id.*

[23] S.D. Admin. R. §§ 74:51:01:34—74:51:01:39.

[24] Personal communication with Jim Feeney, Gene Stueven and Paul Lorenzen, DENR Watershed Protection Program (April 19, 2006).

[25] *Id.*

[26] South Dakota Department of Environment and Natural Resources, *The 2006 South Dakota Integrated Report for Surface Water Quality Assessment*, *available at* http://www.state.sd.us/DENR/Documents/06IRFinal.pdf.

[27] *Id*.

ity, habitat condition and biotic composition, these efforts will provide a measure of ecological integrity for many eastern South Dakota wetlands.

Monitoring and Assessment for Streams

The SDDENR maintains a surface water quality monitoring network consisting of 137 active ambient monitoring stations at many of South Dakota's streams. This information is entered into a national database called STORET (storage and retrieval system) and is used to develop Surface Water Discharge permits and evaluate ambient stream quality. Stream reference protocols are in development, but SDDENR staff estimate five years of monitoring before the protocols are implemented.[28] In addition, the SDDENR Watershed Protection Program supports volunteer monitoring of lakes and streams, including the Adopt-A-Stream and Lake Monitoring programs.

V. Restoration and Partnerships

SDGFP's Wildlife Division conducts some restoration-related activities for wetlands as they relate to habitat protection. Because approximately 80 percent of South Dakota's land is privately-owned, most of SDGFP's restoration efforts are conducted on private land. However, SDGFP also owns and manages approximately 51,000 acres of wetlands.[29] Wetland restoration on public lands is conducted as opportunities arise, particularly when SDGFP acquires new land. The SDDENR also helps local sponsors find funding for restoration projects.[30]

SDGFP's Wetland/Grassland Habitat Program encourages willing land owners to protect, restore and enhance wetland and grassland habitats in South Dakota.[31] The program provides technical and financial assistance for wetland restoration, creation, and enhancement and upland restoration and enhancement. For some wetland restoration projects, the program provides up to 100 percent of the cost share. SDGFP may also provide up to two-thirds of the cost of wetland creation and enhancement projects. The wetland creation program is designed to assist landowners in developing livestock water, while providing shallow water areas for wildlife such as breeding waterfowl.

SDGFP is also an active member of the Prairie Pothole Joint Venture (PPJV), a joint venture formally recognized under the North American Waterfowl Management Plan whose goal is permanent protection of 1.4 million acres of high priority, at-risk wetlands.[32] The partnership involves federal and state agencies, conservation groups, private landowners, scientists, universities, policymakers, resource managers, corporations interested in conservation, communicators, tribes, resource conservation districts, and land trusts, among others.

[28] Personal communication with Paul Lorenzen, DENR Watershed Protection Program (July 23, 2006).

[29] Personal Communication with Tim Olson, South Dakota Department of Game, Fish and Parks (April 28, 2006).

[30] *Id.* (SD GFP often encourages landowners to utilize federal restoration programs, which often provide more financial resources than the state programs can offer.).

[31] South Dakota Department of Game, Fish and Parks, *Wetland/Grassland Habitat Program*, *available at* http://www.sdgfp.info/Wildlife/privatelands/WetlandGrasslandHabitatProgramHandout.pdf (last visited Aug. 7, 2006).

[32] Email from Tim Olson, South Dakota Department of Game, Fish and Parks (Apr. 28, 2006). *See* Prairie Pothole, Who We Are, *available at* http://www.ppjv.org/whoweare2.htm (last visited March 21, 2007).

VI. Education and Outreach

SDDFP conducts some outreach as part of their restoration initiatives, as well as limited wetlands education and outreach for landowners, school groups, hunters and fishers, and outdoor groups. For example, SDGFP runs the Outdoor Campus, an outdoor skills learning and nature center that offers classes such as Wet and Wild (discovering the prairie wetlands) and Wetland Ecology (exploring wetlands environments).[33]

The SDDENR Watershed Protection Program also supports Project WET (Water Education for Teachers).[34] The South Dakota Discovery Center in Pierre, through §319 Information and Education Project grants from the SD DENR, provides training and information using *Wonders of Wetlands* and *Project Webfoot* materials, maintains 'Wetlands Trunks' of learning activities for classrooms and youth associations, and offers §319 mini-grants to fund local information and education projects.[35] The Watershed Protection Program also published the "Citizens Guide to Lake and Watershed Restoration Projects."[36] The guide is intended to assist citizens in the program's efforts to restore lakes and streams through the implementation of watershed projects.[37]

VII. Coordination with State and Federal Agencies

The SDGFP enters into formal agreements for many wetland and grassland restoration, management and enhancement efforts.[38] Partners may include: the U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program, Ducks Unlimited, Izaak Walton League, South Dakota Association of Conservation Districts, and many local conservation districts.[39] The agency also collaborates with the U.S. Department of Agriculture's (USDA) Farm Services Agency and Natural Resources Conservation Service and private landowners to promote and implement wetland and grassland conservation programs such as the Conservation Reserve, National Wetlands Reserve, and Farmable Wetlands Programs. For example, SDGFP offers an additional incentive payment on certain Farmable Wetlands contracts that are ineligible for USDA payment.

Under an EPA grant, SDDA hired a wetland coordinator to provide consistency in wetland management and to develop state wetlands guidance. The resulting working group, the IWWG, consisted of members from the

[33] Personal communication with Anne Lewis, South Dakota Discovery Center and Aquarium (June 22, 2006).
[34] *Id.*
[35] Email from Anne Lewis, South Dakota Discovery Center (July 14, 2006). (The *Wonders of Wetlands* curriculum provides a comprehensive introduction to wetlands issues and ideas. *Project Webfoot* is a nonprofit wetlands education program and curriculum created by Ducks Unlimited for educators and 4th-6th grade students.) *See* Environmental Concerns Inc, Wow! The Wonder of Wetlands, http://www.wetland.org/wowteacher.html (last visited March 21, 2007), *and* Protect Webfoot, About Webfoot, http://www.projectwebfoot.org/about_us2.htm (last visited March 21, 2007).
[36] South Dakota Department of Environment and Natural Resources, *Citizens Guide to Lake and Watershed Restoration Projects*, *available at:* http://www.state.sd.us/denr/DFTA/WatershedProtection/citizens.htm (Last visited Aug. 7, 2006).
[37] Olson, *supra* note 29.
[38] U.S. Fish and Wildlife Service, South Dakota Partners for Fish and Wildlife, *at* http://southdakotapartners.fws.gov/ (last visited March 21, 2007) (a voluntary private lands habitat restoration program administered by the U.S. Fish and Wildlife Service).
[39] Olson, *supra* note 5.

SDDA, SDDENR, SDGFP, and SDDOT. The IWWG developed *Wetland Conservation and Management Guidelines for South Dakota State Agencies*.[40] Under these guidelines, all state agencies are required to gather and share wetland information in order to make informed decisions when projects or programs affecting wetlands arise. The guidelines include: promoting awareness and understanding of wetlands, identifying personnel who can respond to public inquiry, promoting interagency consultation to develop wetland strategies, encouraging development of Best Management Practices for wetlands, ensuring state government policies and programs that encourage the maintenance of wetlands through cooperation with landowners, and gathering wetland use information to provide landowners with effective and economically feasible management options. The SDDA Division of Resource Conservation and Forestry was charged with coordinating wetland information activities. The IWWG is no longer active.

VIII. Acronyms and Abbreviations

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

FTE – Full-time Equivalent

IWWG – Interagency Wetlands Working Group

NPDES – National Pollutant Discharge Elimination System

NWPs – Nationwide Permits

PPJV – Prairie Pothole Joint Venture

SDDA – South Dakota Department of Agriculture

SDDENR – South Dakota Department of Environment and Natural Resources

SDDOT – South Dakota Department of Transportation

SDGFP – South Dakota Department of Game, Fish, and Parks

USDA – U.S. Department of Agriculture

WQS – Water Quality Standards

[40] South Dakota Interagency Wetlands Working Group, *Wetland Conservation and Management Guidelines for South Dakota State Agencies*, *available at*, http://www.state.sd.us/doa/forestry/publications/wetlandmanagement.pdf (last visited Aug. 7, 2006).

Virginia

I. Overview

Virginia's 1.2 million acres of wetlands cover approximately 4.5 percent of the Commonwealth's total land area.[1] Three quarters of Virginia's wetlands are nontidal, but both shores of the Chesapeake Bay have extensive estuarine wetlands. Over the last two centuries, Virginia has lost approximately 42 percent of the state's historical wetlands to agricultural, industrial, and urban development.[2]

Virginia law requires no net loss of existing wetland acreage and function.[3] The state's wetland regulation and protection programs are operated by the Virginia Department of Environmental Quality (VA DEQ) – Office of Wetlands and Water Protection/Compliance, as well as the Virginia Marine Resources Commission (VMRC) – Division of Water Quality Programs and the VMRC – Habitat Management Division. In 2000, Virginia passed the Nontidal Wetlands Act, which provided the state with additional jurisdiction and enabled the VA DEQ to regulate activities in wetlands outside federal jurisdiction. Local governments also play an important role in Virginia by adopting zoning ordinances and assuming permitting responsibilities for their own tidal wetlands through citizen's Wetland Boards.[4] In addition, state agencies conduct many non-regulatory wetland activities, such restoration and education.

II. Regulatory Programs

Wetland Definitions and Delineation

Wetlands are explicitly included in Virginia's definition of "state waters," defined as "all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands."[5]

Wetlands are defined in various state statutes. In the State Water Control Law, "wetlands" are those areas 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 saturat-

[1] Hershner, C., Havens, K., Berman, M., Rudnicky, T., & Schatt, D. (2000). *Wetlands of Virginia: total, isolated and headwater. Special Report*, 03-1. Center for Coastal Resources Management, Virginia Institute of Marine Science, *available at* http://ccrm.vims.edu/pubs/WetlandsOfVA203.pdf.
[2] Augustine, H.H., III (Coordinator). (2004, September). Final 2004 305(b)/303(d) Water Quality Assessment Integrated Report. Virginia Department of Environmental Quality, *available at* http:// www.deq.virginia.gov/wqa/ir2004.html.
[3] Va. Code Ann. § 62.1-44.15:5
[4] Personal communication with Tony Watkinson, Virginia Marine Resources Commission Habitat Management Division (August 3, 2006).
[5] Va. Code Ann. § 62.1-44.3.

ed soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."[6] The amended Virginia Tidal Wetlands Act defines "nonvegetated wetlands" and "vegetated wetlands."[7]

The Code of Virginia instructs the state to utilize the U.S. Army Corps of Engineers' (Corps) 1987 *Wetlands Delineation Manual*[8] to delineate wetlands and to adopt appropriate guidance and regulations to ensure consistency with the Corps' implementation of delineation practices.[9] In 2002, the General Assembly passed a voluntary certification program for professional wetland delineators and expanded the Board of Certified Soil Scientists to include wetland professionals.[10]

Wetland-related Law and Regulation

Virginia Tidal Wetlands Act.[11] The Virginia Tidal Wetlands Act, enacted in 1972 and revised in 1982, recognizes the environmental value of tidal wetlands and establishes a permitting system for impacts to tidal wetlands, including vegetated tidal wetlands and non-vegetated shoreline between low and mean high water. The VMRC is the regulating authority for tidal wetlands, although localities in tidewater Virginia have the option to regulate their own tidal wetlands through citizen Wetlands Boards, with oversight from VMRC.[12] The Virginia Water Protection (VWP) permit program also has authority to permit tidal impacts.[13]

The act regulates any activity that disturbs tidal wetlands. Regulatory jurisdiction extends to the mean high tide line where no emergent vegetation exists, and to 1.5 times the mean tide range where marsh is present. The act also covers state-owned submerged lands below the low water line, including shallow water areas. Permits are required from VMRC to build on, dump into, or encroach upon the beds of the bays and ocean, rivers, streams, or creeks that are the property of the Commonwealth. Dredging, filling, and building on shallow water areas and establishing moorings and marinas are regulated.[14] Virginia regulations also include an expedited general wetland permit process for non-vegetated shoreline stabilization during emergency situations.[15]

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[6] *Id.*

[7] Va. Code Ann. § 2.82-1302. ("Nonvegetated wetlands" means "unvegetated lands lying contiguous to mean low water and between mean low water and mean high water, including those unvegetated areas of Back Bay and its tributaries and the North Landing River and its tributaries subject to flooding by normal and wind tides but not hurricane or tropical storm tides." "Vegetated wetlands" means "lands lying between and contiguous to mean low water and an elevation above mean low water equal to the factor one and one-half times the mean tide range at the site of the proposed project in the county, city, or town in question, and upon which is growing and of the following species...")

[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] Va. Code Ann. § 62.1-44, 15:5 D5.

[10] Va. Code Ann. §§ 54.1-2200 - 54.1-2208.

[11] Va. Code Ann. § 28.2-1300 – 1320.

[12] Watkinson, *supra* note 4 (Of the 46 tidewater jurisdictions, 36 have formed Wetlands Boards and adopted a zoning ordinance that regulates development in wetlands).

[13] *Id*. *See* Va. Code Ann. § 28.2-1302.

[14] Virginia Marine Resources Commission, *Subaqueous Guidelines*, *available at* http://www.mrc.state.va.us/regulations/subaqueous_guidelines.shtm (last visited March 21, 2007).

[15] 4 Va. Admin. Code § 20-345-10.

State Water Control Law.[16] The State Water Control Law provides statutory authority for the VWP permit program, which serves as §401 certification for federal §404 permits and as a state permit regardless of federal permit requirements in both tidal and nontidal wetlands. VWP permit regulations provide detailed standards and procedures for wetlands permitting.[17] Two types of VWP permits exist: general permits for certain specified activities and individual permits.

VWP permits are required for: dredge, fill, or discharge of pollutant into, or adjacent to surface waters; other alteration of the physical, chemical or biological properties of surface waters; and excavation in wetlands. Exempt activities include: certain activities covered under other federal and state general permits; construction of septic tanks; normal residential landscaping; silviculture and agriculture best management practices;[18] general infrastructure maintenance; construction or maintenance of farm ponds or irrigation ditches; construction of temporary sedimentation basins; and construction or maintenance of farm roads, forest roads or temporary roads associated with mining activities.[19] It should be noted that these activities may still require other permits under state and federal law. VWP regulations also outline compensatory mitigation requirements and procedures.[20] New VWP general permit regulations became effective on August 1, 2006, and the VWP Program Regulation was expected to become effective in early 2007.[21]

Nontidal Wetlands Act.[22] In 2000, the Nontidal Wetlands Act amended the State Water Control Law to include a goal of no net loss of existing wetland acreage and function for the Commonwealth. The act also required development of voluntary and incentive-based programs to achieve a net resource gain in wetlands. The amendments, fully implemented in 2001, removed the dependence of state nontidal wetlands program on the issuance of a federal permit and added to the activities that are already regulated through §401/404.[23]

Chesapeake Bay Preservation Act.[24] The Chesapeake Bay Preservation Act (Bay Act) establishes water quality protection measures specifically for the Chesapeake Bay, its tributaries, and other state waters, which include wetlands. Each of Virginia's 84 tidewater jurisdictions is required to designate Resource Protection Areas (RPAs) along the shorelines of streams, rivers, and other waterways, including tidal wetlands, and to regulate certain activities in those RPAs, such as building and tree cutting.[25]

[16] Va. Code Ann. § 62.1-44.15:5.

[17] 9 Va. Admin. code § 25-210.

[18] Association of State Wetland Managers, *State Wetland Programs, Virginia, at* http://aswm.org/swp/virginia9.htm (last visited March 21, 2007) (State exemptions for agriculture and silviculture follow the federal exemptions).

[19] 9 Va. Admin. code § 25-210-60.

[20] 9 Va. Admin. Code §§ 25-210, 660, 670, 680, and 690.

[21] Personal communication with Catherine Harold and Brenda Winn, Virginia Department of Environmental Quality (July 26, 2006).

[22] Va. Code Ann. § 62.1-44.15:5.

[23] *Id.* (New activities regulated under the Nontidal Wetlands Act include new activities to cause draining that significantly alters or degrades existing wetland acreage or functions, filling or dumping, permanent flooding or impounding, and new activities that cause significant alteration or degradation of existing wetland acreage or function).

[24] Va. Code Ann. §§ 10.1-2100 – 2116.

[25] 9 Va. Code Ann § 10-20-10 et seq *available at* http://www.cblad.virginia.gov/docs/Regs3-01-02.pdf.

The Chesapeake Bay Preservation Area Designation and Management Regulations, developed and administered by the Chesapeake Bay Local Assistance Board, outline criteria for implementation of the Bay Act.[26] Amendments to the regulations, implemented in 2001, require RPAs to be designated around all water bodies with perennial flow. A permit applicant must submit a Water Quality Impact Assessment for the review and approval of a local government to achieve compliance with the Bay Act. Chesapeake Bay Program regulations also establish 100-foot buffer zones in which shoreline development is regulated and limited.[27]

Organization of State Agencies

State wetland regulation is conducted by the VA DEQ, as well as the VMRC, which oversees tidal wetland regulation. The permit process for both tidal and nontidal wetlands relies on a Joint Permit Application (JPA) that receives review by local Wetlands Boards, the VMRC, the VA DEQ and the Corps, as appropriate.[28] The Virginia Department of Game and Inland Fisheries (VA DGIF) implements voluntary wetlands restoration and protection programs, while the Department of Conservation and Recreation (VA DCR) tracks all voluntary wetlands restoration efforts in the state.

Virginia Department of Environmental Quality. The VA DEQ Office of Wetlands and Water Protection/ Compliance implements the VWP permit program. The office also conducts outreach and technical support, enforcement, and research activities related to wetlands. Large reservoir and transportation permits, mitigation bank and transportation site inspections, and policy and programmatic matters are generally handled by the central office in Richmond. The VA DEQ also has seven regional offices that conduct most of the permit writing for commercial and residential projects for each region. VA DEQ's wetlands program employs a total of 37 full-time equivalents (FTEs) and is funded through a mix of general appropriations, fees, and U.S. Environmental Protection Agency (EPA) grants. [29]

The VA DEQ also serves as the lead agency for Virginia's Coastal Zone Management Program (CZM), a network of state and local agencies that serves to protect and manage the coastal zone, including wetlands, and plays an important role in the Chesapeake Bay Program (See *VI. Coordination with State and Federal Agencies* below).[30]

Virginia Marine Resources Commission. The VMRC – Habitat Management Division and local Wetlands Boards serve as the primary regulatory authority for tidal wetlands, issuing permits under the Tidal Wetlands Act. The Habitat Management Division is involved in three regulatory programs: tidal wetlands, state-owned submerged land, and coastal primary sand dunes. Localities in tidewater Virginia may assume permitting and enforcement responsibilities for tidal wetlands and coastal primary sand dunes through citizen Wetland Boards; however, the VMRC retains oversight.[31]

[26] *Id.*

[27] *Id.*

[28] U.S. Army Corps of Engineers, *Joint permit application*, *at* http://www.nao.usace.army.mil/Regulatory/JPA.html (last visited March 21, 2007).

[29] Harold and Winn, *supra* note 21.

[30] *Id.*

[31] Watkinson, *supra* note 4.

The VMRC, headquartered in Newport News, has a staff of approximately ten FTEs that review applications for tidal wetland permits and other uses of state owned bottomland. The Virginia Institute of Marine Science provides technical assistance. Staff engineers perform site inspections, enforce violations, attend local wetland boards meetings, and issue permits in for tidewater jurisdictions without Wetlands Boards. The division's annual budget ranges from $400,000 to $500,000 and is funded through general appropriations.[32] In addition, one FTE is supported by CZM funds. Local Wetlands Boards are supported by local funds.

Virginia Department of Game and Inland Fisheries. The VA DGIF partners with various state and federal agencies, private landowners, and other organizations on voluntary wetland management and restoration programs. As part of its private- and public-land wetland restoration program, the VA DGIF promotes conservation and restoration of wetland habitat. The VA DGIF wetland restoration program employs one full time wetland biologist. The program is funded by general game protection funds and grants.[33] In addition, proceeds from the sale of a new waterfowl stamp will be split between restoration and protection projects and grants to conservation organizations for restoration work.

Virginia Department of Conservation and Recreation. The VA DCR partners with the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) on wetland restoration programs, such as Conservation Reserve Enhancement Program (CREP), and provides financial incentives through these programs. The agency also tracks all voluntary wetland restoration efforts in the Commonwealth.[34] The VA DCR collaborates with other state and federal agencies on the Chesapeake Bay Program and provides support for the Chesapeake Bay Restoration Fund program.

§401 Certification and Virginia Water Protection Permit

The VWP permit, applicable for both tidal and nontidal wetlands, serves as both §401 certification for federal permits and as a state permit regardless of federal requirements, thus regulating so-called "isolated wetlands" and Tulloch ditching. A VMP permit is issued if it has been determined that the proposed activity is consistent with the provisions of the Clean Water Act and the State Water Control Law and will protect instream beneficial uses. The permit process relies on a Joint Permit Application (JPA), which receives review by local Wetlands Boards, the VMRC, the VA DEQ and the Corps, as appropriate.[35] Most JPAs are reviewed by VA DEQ regional permit managers working in eight offices across Virginia,[36] although the agency often waives their permitting authority for tidal wetland permits that the Corps and the VMRC have already approved.[37] Other state agencies, such as the VA DGIF, VA DCR, Virginia Department of Health, and the Virginia Department of Agriculture and Consumer Services, are allowed 45 days to submit comments on individual VWP permits.[38] In

[32] *Id.*

[33] Personal communication with David Norris, Virginia Department of Game and Inland Fisheries (September 15, 2006).

[34] Personal communication with Susan Block, Virginia Department of Conservation and Recreation (September 15, 2006).

[35] U.S. Army Corps of Engineers, *supra* note 28.

[36] Harold and Winn, *supra* note 21 (VA DEQ headquarters staff review large reservoir and transportation permits).

[37] *Id.*.

[38] Va. Code Ann. § 62.1-44.15:5.

addition, all VWP permit applicants are required to provide a functional assessment for wetland impacts greater than one acre, which is then used to determine the type of compensatory mitigation required.[39]

In 2005, the VA DEQ issued about 600 VMP permits, including individual and general permits. Permitting decisions are occasionally waived, but very few permits are denied outright due to extensive coordination between VA DEQ, the applicant, and the public prior to the Board's decision.[40]

General Permits

Nationwide Permits. Section 404 Nationwide Permits (NWPs), Letters of Permission (LOPs), and Regional Permits (RPs) are reviewed by the VA DEQ when they are revised by the Corps.

Virginia has applied conditions to several NWPs, while others have been certified as written, or denied.[41] NWP#40 (Agricultural Activities) has been certified except for the location of Concentrated Animal Feeding Operations or waste storage facilities in surface waters. Eleven other NWPs have been certified except under the following circumstances: when compensatory mitigation is accomplished through the purchase of mitigation bank credits and the bank is not located within the same or adjacent hydrologic unit as the impacted site (unless certain regulatory conditions are met);[42] when compensatory mitigation involves only preservation of wetlands and/or buffers without creation or restoration of wetlands or the purchase of mitigation bank credits, or does not meet the goal of no net loss of wetland acreage and function; for the location of a stormwater management facility in perennial streams or in oxygen- or temperature-impaired waters; for impacts to perennial streams in excess of 500 linear feet and for impacts to intermittent streams in excess of 1500 linear feet; or for any water withdrawal project.[43] Several of these NWPs have also been applied additional conditions.[44]

Conditional certification has also been provided for RP#37 (Discharges performed or funding by NRCS under its Emergency Watershed Protection Program)[45], RP#40 (Minor maintenance dredging in nontidal waters),

[39] *Id.*

[40] Harold and Winn, *supra* note 21.

[41] Summary of DEQ Certification of USACE permits, *available at* http://www.deq.virginia.gov/wetlands/pdf/certificationcorpspermits.pdf (last visited March 21, 2007) (Section 401 Water Quality Certification has been denied for NWP#16 (Return Water from Upland Contained Disposal Sites) and NWP#17 (Hydropower Projects)).

[42] *Id. (*The conditions are listed in Va. Code Ann. § 62.1-44.15:5(E)).

[43] *Id. (*The eleven NWPs to which these conditions apply are: NPW#7 (Outfall Structures and Maintenance), except for associated intake structures; NWP#12 (Utility Line Activities), except for associated intake structures for the purposes of transporting non-potable raw surface water; NWP#13 (Bank Stabilization), except when used for ht protection of intake structures; NWP#14 (Linear Transportation Projects); NWP#18 (Minor Discharges), except when used to authorize water withdrawals such as the construction of an intake structure, weir or water diversion structure; NWP#19 (Minor Dredging), except when used to create a deep space for water withdrawal; NWP#21(Surface Coal Mining Activities); NWP#25 (Structural Discharges), except when used to authorize structures such as pilings to construct a platform to mount a pump for water withdrawals; NWP#27 (Stream and Wetland Restoration Activities), provided that when used to permit a wetland mitigation bank, compensation for any surface water impacts is debited from the bank credits; NWP#39 (Residential, Commercial and Industrial Developments), except for impoundments for irrigation of golf courses; NWP#42 (Recreational Facilities), except for impoundments for irrigation of golf courses; NWP#43 (Stormwater Management Facilities); NWP#44 (Mining Activities), except for hydraulic dredging.).

[44] *Id.*

[45] *Id.* (RP #37 replaced NWP #37 in Virginia on November 21, 2005).

and LOP#2 (Letter of Permission for central navigationally-related recreational and commercial dredging projects).[46] Other RPs have been certified as written.[47] Virginia has denied §401 certification to LOP#1 (Virginia Department of Transportation Projects)[48] and RP#05 (Construction of Small Impoundments).[49]

State Program General Permit.[50] Various state program general permits (SPGP) apply in Virgina. SPGP#1 pertains to the discharge of dredged and/or fill material in nontidal waters of the U.S. associated with residential, commercial, and institutional developments, and linear transportation projects that have minimal individual and cumulative impacts. The adoption of SPGP – 01 suspends NWP#39 (Residential, Commercial and Industrial Developments) and the nontidal portion of NWP#14 (Linear Transportation Projects). SPGP#1 applies only to projects that have first avoided and minimized impacts. SPGP Standard Operating Procedures are reviewed and updated annually.[51] A memorandum of agreement (MOA) between VA DEQ and the Corps' Norfolk District clarifies programmatic responsibilities, addressing pre-application consultations, jurisdictional determinations and delineations, permit compliance and enforcement, use of the Virginia Wetlands Restoration Trust Fund, and mitigation performance standards.[52]

Virginia Water Protection Permit Program General Permits. The VA DEQ has issued four general permits under the VWP permit program for activities considered to have minimal impact to human health and the environment. VWP General Permit #WP1 allows permanent and temporary impacts to less than one-half of an acre of nontidal wetlands or open water and up to 300 linear feet of nontidal stream bed.[53] VWP General Permit #WP2 governs permanent and temporary impacts related to the construction and maintenance of utility lines, including facilities and activities of utility and public service companies regulated by the Federal Energy Commission or the State Corporation Commission.[54] However, #WP2 may not be used to authorize water withdrawal projects and/or reservoirs, even those regulated by Federal Energy Regulatory Commission.[55] VWP General Permit #WP3 governs impacts related to the construction and maintenance of Virginia

[46] *Id*.

[47] *Id. (*The following RPs have been certified as written: RP #15 (Maintenance of existing drainage ditches and mosquito control ditches), RP #17 (Private open- pile piers, mooring piles, certain covered boathouses and devices associated with shellfish gardening), RP #18 (Private piers not covered by RP-17, but with minimal individual and cumulative navigational and environmental impacts), RP #19 (Certain activities covered by VMRC and/or Local Wetland Boards), RP #20 (Development of state-owned and operated artificial fin and shellfish reefs), RP #22 (Installation of certain structures in Lake Gaston), and RP #24 (Certain activities in Claytor & Smith Mountain Lake)).

[48] *Id*.

[49] Letter from Catherine M. Harold, Manager Office of Wetlands, Water Virginia Department of Environmental Quality, to Mr. J. Robert Hume, U.S. Army Corps of Engineers, March 2, 2006 *available at* http://www.deq.virginia.gov/wetlands/pdf/certificationcorpspermits.pdf.

[50] U.S. Army Corps, *State Program General Permit – 01*, *available at* http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/spgp_2005/SPGP-05.pdf (last visited March 21, 2007).

[51] Virginia Department of Environmental Quality, *Permits, Fees, Regulations* at http://www.deq.virginia.gov/wetlands/permitfees.html (last visited March 21, 2007).

[52] Memorandum of Understanding between the Virginia Department of Environmental Quality and the Norfolk District, Corps of Engineers Concerning Operation of the Virginia Nontidal Wetlands Program, *available at* http://www.deq.virginia.gov/wetlands/pdf/mou.pdf (last visited March 21, 2007).

[53] 9 Va. Admin. Code § 25-660 et seq.

[54] 9 Va. Admin. Code § 25-670 et seq.

[55] Personal communication with Brenda Winn, Virginia Department of Environmental Quality, (Email October 24, 2006).

Department of Transportation or other linear transportation projects.[56] VWP General Permit #WP4 governs permanent and temporary impacts related to the construction and maintenance of development activities, and activities directly associated with: aggregate mining (e.g., sand, gravel, and crushed or broken stone); hard rock/mineral mining (e.g., metalliferous ores); and surface coal, natural gas, and coalbed methane gas mining, as authorized by the Virginia Department of Mines, Minerals and Energy.[57] A series of requirements and exemptions apply to all four general permits.[58]

Mitigation

Virginia State Water Control Law requires that permits contain compensatory mitigation requirements that are sufficient to achieve "no net loss" of existing wetland acreage and function.[59] The VWP permit regulations define compensatory mitigation as "actions taken that provide some form of substitute aquatic resource for the impacted aquatic resource" and further state that "mitigation means sequentially avoiding and minimizing impacts to the extent practicable, and then compensating for remaining unavoidable impacts on wetlands."[60] The VA DEQ has prepared guidance for project managers, VWP permit applicants, and other interested parties on avoidance and minimization procedures.[61]

In Virginia, compensatory mitigation may include: wetland creation or restoration; stream restoration; purchase or use of VA DEQ-approved wetland mitigation bank credits; contributing to a VA DEQ-approved in-lieu fee fund; preservation of existing wetland and streams, when utilized in conjunction with creation, restoration, or mitigation bank credits; or preservation or restoration of upland buffers adjacent to surface waters, when utilized in conjunction with creation, restoration, or mitigation bank credits.[62] The VA DEQ and Corps Norfolk District have prepared a Wetland Mitigation Checklist, as well as technical guidelines[63] that include information on site design, example permit conditions for compensation, monitoring report criteria, and mitigation site compliance. [64]

[56] 9 Va. Admin. Code § 25-680 et seq.

[57] 9 Va. Admin. Code § 25-690 et seq.

[58] Virginia Department of Environmental Quality, *supra* note 51 (All four general permits require that that project impacts, both temporary and permanent, result from a single and complete project, and that the applicant submit notification; remit the required application processing fee; comply with the limitations and other requirements of the regulation; receive approval from the Virginia Department of Environmental Quality; provide compensation for unavoidable impacts; and has not been required to obtain a VWP individual permit under the VWP permit regulation (9 VAC 25-210) for the proposed project impacts. Additional requirements and exemptions, specific to each permit, also apply.)

[59] Code of Virginia § 62.1-44.15:5D.

[60] 9 Va. Admin. Code § 25-210-10.

[61] Guidance Memorandum Number 04-2007 *Avoidance & Minimization of Impacts to Surface Waters*, (Feb. 6, 2004) *available at* http://www.deq.virginia.gov/waterguidance/pdf/042007.pdf.

[62] Virginia Department of Environmental Quality, *What is Compensatory Mitigation, at* http:// www.deq.virginia.gov/wetlands/mitigate.html (last visited March 21, 2007).

[63] Norfolk District Corps and Virginia Department of Environmental Quality *Recommendations for Wetland Compensatory Mitigation*, *available at* http://www.deq.virginia.gov/wetlands/pdf/mitigationrecommendabbrevjuly2004.pdf (last visited March 21, 2007).

[64] Norfolk District Corps and Virginia Department of Environmental Quality *Wetland Mitigation Checklist*. *Available at http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/Guidance/Corps-DEQ_Mit_Checklist_7-04.pdf* (last visited on March 21, 2007).

VMRC has also prepared a wetland mitigation policy and supplemental guidelines. The policy encourages the compensation of all permitted impacts to tidal wetlands, provided that all measures have been taken avoid impact. Mitigation must be dedicated to wetland creation and restoration and can include compensation on-site, compensation in the watershed, or compensation through an approved mitigation bank or in-lieu-fee program.[65]

Mitigation banks and in-lieu-fee programs have been legislatively authorized.[66] The VA DEQ is authorized to serve as a signatory on agreements governing the operation of wetlands mitigation banks. A mitigation bank may be utilized: if it is located in the same or adjacent Hydrological Unit Code as the impacted site or meets prescribed certain conditions;[67] if it is ecologically preferable to practicable on-site and off-site mitigation options; and if the banking instrument has been approved by a process that included public review and comment.

The Virginia Mitigation Banking Review Team (MBRT) oversees mitigation bank permitting. Representatives from the Corps, EPA, U.S. Fish and Wildlife Service (FWS), VA DEQ, VA DGIF, VMRC, and VIMS serve on the MBRT.[68] VA DEQ and the Corps take the lead on nontidal mitigation banking permits, while the VMRC and Corps take the lead on tidal mitigation banks. Currently, Virginia has 40 approved nontidal mitigation banks, 2 tidal mitigation banks, and approximately 20 proposed mitigation banks.[69] VMRC and VIMS, with assistance from the Mitigation Banking Advisory Committee,[70] private sector developers, consultants and environmental groups, have developed guidelines for the development and operation of tidal wetland mitigation banks in Virginia.[71] Additional guidelines for proposing mitigation banks have been developed jointly by the VA DEQ and the Corps Norfolk District.[72] Finally, the VA DEQ, in collaboration with the Corps, EPA, and FWS, has also developed a template to assist in developing a mitigation banking instrument.[73]

Contribution to an in-lieu-fee fund is authorized when on-site or off-site projects are deemed to be impracticable, provided that the fund is approved by the VA DEQ and is dedicated to the achievement of no net loss

[65] 4 Va. Admin. code § 20-390-10 et. seq.

[66] Va. Code Ann. §§ 62.1-44.15:5 - 9 VAC 210-115 E.

[67] Va. Code Ann. § 62.1-44.15:5 (When the bank is not located in the same or adjacent hydrological unit as the impacted site, the purchase or use of credits shall not be allowed unless the applicant demonstrates that (i) the impacts will occur as a result of a Virginia Department of Transportation linear project; (ii) there is no practical alternative; (iii) the impacts are less than one acre; (iv) there is no significant harm to water quality or fish and wildlife resources due to the impacts; and either (v) impacts within the Chesapeake Bay watershed are mitigated within the Chesapeake Bay watershed or (vi) impacts within U.S.G.S. cataloging units 02080108, 02080208, and 03010205, as defined by the Hydrologic Unit Map of the United States (U.S.G.S. 1980), are mitigated in-kind within those hydrologic cataloging units, as close as possible to the impacted site.)

[68] Harold and Winn, *supra* note 21.

[69] Personal communication with David Davis, DEQ Office of Wetlands and Water Protection (August 8, 2006).

[70] Virginia Marine Resources Commission, *Guidelines for the Establishment, Use and Operation of Tidal Wetland Mitigation Banks in Virginia, available at* http://www.mrc.state.va.us/regulations/fr391.shtm (last visited March 21, 2007) (The Mitigation Banking Advisory Committee represents local, state and federal interests involved in tidal wetlands management and mitigation issues).

[71] *Id.*

[72] Virginia Department of Environmental Quality, *Suggestions for Proposing Mitigation Banks*, *available at* http:// www.deq.virginia.gov/wetlands/pdf/mitigation.pdf (last visit March 21, 2007).

[73] Virginia Department of Environmental Quality, *Template Mitigation Banking Instrument*, *available at* http:// www.deq.virginia.gov/wetlands/pdf/finalMBItemplateMay2004.pdf (last visited March 21, 2007).

of wetland or stream acreage and function.[74] The Virginia Aquatic Resources Trust Fund, a cooperative partnership between The Nature Conservancy (TNC) and the Corps, is authorized by the VA DEQ as an acceptable form of compensatory mitigation for impacts to state waters, including wetlands, permitted under the VWP individual and general permits.[75] VA DEQ, TNC and the Corps have monthly meetings to review current and potential Trust Fund projects and to address any concerns conveyed by a state or federal agency.[76] In addition, the Elizabeth River Restoration Trust (ERRT) was established under a 2003 memorandum of understanding signed by the VA DEQ, Corps, and The Elizabeth River Project.[77] The ERRT focuses on compensating for impacts within the Elizabeth River watershed. VA DEQ reviews the agreement on an annual basis to evaluate effectiveness of completed and proposed projects at offsetting impacts.

VA DEQ has also developed a Stream Impact and Compensation Assessment Manual (SICAM) for the rapid assessment of stream compensation requirements for permitted impacts. SICAM includes methods for assigning a quality value to the stream to be impacted, assessing the type or severity of impact, and determining the types and amount of compensation that will satisfy the compensation requirement.[78]

Compliance and Enforcement

Virginia's State Water Control Law and Tidal Wetlands Act provide enforcement provisions for violations to permit terms and conditions.[79]

Regional VA DEQ staff are responsible for the majority of the nontidal wetlands compliance and enforcement activities in the Commonwealth.[80] In addition to working closely with the regional staff and the Corps on individual mitigation sites, the central office of the VA DEQ also conducts annual site inspections for all mitigation banks to ensure compliance with the banking instrument.[81] Prior to any enforcement action, a site inspection is conducted. Minor wetlands infractions may be resolved on site by means of a Request for Corrective Action or Warning Letter issued by the VA DEQ, or a Letter of Agreement signed by the VA DEQ and the violator. For more serious violations, a Notice of Violation is issued within a few days of inspection, and a consent order is negotiated between VWP staff and the violator. The goal of the consent order is to have a compliance plan in place as soon as possible, including sufficient restoration and mitigation and a monetary penalty. The number of consent orders issued annually varies by region. In rare instances, when no agree-

[74] 9 Va. Admin. code § 25-210-115 E.

[75] Letter from Dennis Treacy, State Water Control Board to Mr. J Robert Hume, Chief, Regulatory Branch, U.S. Army Corps of Engineers – Norfolk District (December 19, 2001), *available at* http:// www.deq.virginia.gov/wetlands/pdf/apprestfund.pdf.

[76] Davis, *supra* note 59.

[77] Memorandum of Understanding between The Elizabeth River Project, the Commonwealth of Virginia, and the U.S. Army Corps of Engineers – Norfolk District regarding the parameters for establishing a trust fund for mitigation of impacts, Elizabeth River Watershed, *available at* http:// www.deq.virginia.gov/wetlands/pdf/eliztrustMOU.pdf (last visited March 21, 2007).

[78] Stream Impact and Compensation Assessment Manual, *available at* http://www.deq.state.va.us/wetlands/mitigate.html (last visited March 21, 2007).

[79] Va. Code Ann. §§ 62.1-44.23, 62.1-44.34:20; 9 Va. Admin. Code § 25-210-240, 28.2-1317-1320.

[80] Personal communication with Mike Dowd, Virginia Department of Environmental Quality, Enforcement (August 8, 2006).

[81] Harold and Winn, *supra* note 21.

[82] Dowd, *supra* note 80. *See* Virginia Department of Environmental Quality, *Final Orders,* at http://www.deq.virginia.gov/enforcement/finalorders.html (last visited March 21, 2007).

ment can be reached between VA DEQ and the violator, the case may be referred to an administrative hearing or to the attorney general for civil prosecution.[82]

VMRC and the local Wetlands Boards have the authority to: investigate noncompliance; issue "stop work" orders, notices to comply, or restoration orders; and assess civil charges for violations in tidal wetlands.[83] Boards handle violations on a regular basis; the VMRC rarely conducts a formal review of Wetland Board decisions.[84] Penalties may include civil charges, not to exceed $10,000 for each violation, in addition to the cost of any restoration ordered by the VMRC or Wetlands Board. Wetland violations may also be prosecuted criminally.[85]

Tracking Systems

VA DEQ maintains a database that tracks permit applications, issuances and enforcement, and types, amounts, and locations of impacts and compensation. The agency also tracks annual monitoring reports and credit sales for mitigation bank sites separately. As of December 2006, VA DEQ is updating the permit tracking system to include several subcomponents of mitigation.[86] All nontidal wetland data are available to resource managers, academics, students, politicians, and the general public through a data query program available on the VA DEQ website.[87] VIMS also has an on-line GIS-based tracking system for nontidal and tidal wetland permits and mitigation.[88] The VIMS tidal database tracks every wetland permit application, total impacts, and amount of mitigation required.[89]

VA DCR tracks statewide voluntary wetland restoration accomplishments in accordance with the Chesapeake 2000 agreement.[90] Data come from private organizations such as TNC and Ducks Unlimited, as well as federal agencies such as the FWS.[91]

III. Water Quality Standards

Virginia has not developed water quality standards specific to wetlands, but standards do apply to all "waters of the state," which explicitly include wetlands. Water quality standards are narrative, chemical, and biological in nature.[92] All state waters, including wetlands, are designated for the following uses: recreation, aquat-

[83] Va. Code Ann. § 28.2-1320.
[84] Watkinson, *supra* note 4.
[85] Va. Code Ann. § 28.2-1318
[86] Harold and Winn, *supra* note 21.
[87] Virginia Department of Environmental Quality, *A Guide to the Data Query Program*, *at* http://www.deq.virginia.gov/wetlands/query.html (last visited March 21, 2007).
[88] Virginia Institute of Marine Science, *Wetlands Program*, *at* http://ccrm.vims.edu/wetlands.html (last visited March 21, 2007).
[89] Watkinson, *supra* note 4.
[90] Block, *supra* note 34.
[91] *Id.*
[92] 9 Va. Admin. Code § 25-260-20 thru 155.

ic life, wildlife, public water supply, and the production of edible and marketable natural resources.[93] In 1997, Virginia passed the Water Quality Improvement Act, creating the Water Quality Improvement Fund. The Fund provides grants to local governments, soil and water conservation districts, and individuals for point and non-point source pollution reduction and control programs.[94]

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

With funding from the EPA, VA DEQ and VIMS have developed a ten-year, long-term water monitoring and assessment strategy specifically designed for wetlands to support permitting and mitigation decisions, to allow reporting of wetland condition, and to provide information for policy development.[95] The three-level probabilistic monitoring strategy allows both general reporting on the status and trends of the state's wetlands, as well as more detailed analysis of the performance of specific functions in selected wetlands. Level One, which has been completed, involved using existing GIS data to assess the condition of the state's wetlands based on type and surrounding landscape (e.g., proximity to other wetlands, proximity to roads and highways, density of roads and highways, percent land cover). Level Two involves a more detailed analysis of remotely sensed data and a site visit for a statistically selected sub-sample of wetlands. Level Three entails a detailed analysis of wetland performance of certain functions. The monitoring data will be used: as part of Virginia's Clean Water Act Integrated §305(b)/§303(d) report to the EPA; to help evaluate environmental impacts of proposed projects; to evaluate the performance of wetland restoration and mitigation efforts; to determine whether the state is meeting its goal of "no net loss" of wetland acreage and function; and to evaluate cumulative impacts of wetland loss and restoration.[96] In addition, the wetland monitoring and assessment strategy will include an evaluation of the current designated uses for their applicability to wetlands, and a determination of whether additional uses or water quality standards should be developed specifically for wetlands.[97]

Three hydrogeomorphic (HGM) models have been developed for wetland habitats in Virginia, including the Draft Woody Depression Wetland HGM Model for the Coastal Plain of Virginia,[98] the Draft Regional Guidebook for Applying the HGM approach to Wet Hardwood Flats on Mineral Soils in the Coastal Plain of Virginia,[99] and

[93] 9 Va. Admin. Code § 25-260-10(A).
[94] *Id.*
[95] Davis, *supra* note 59.
[96] Virginia Institute of Marine Science, *Nontidal Wetlands Assessment Protocol*, *available at* http://ccrm.vims.edu/nontidal.html (last visited March 21, 2007).
[97] *Id*.
[98] K.J. Havens, D. O'Brien, D. Stanhope, K. Angstadt, T. Rudnicky, D. Schatt, G. Silberhorn, and C. Hershner (2004) Draft Woody Depression Wetland HGM Model for the Coastal Plain of Virginia. Final Report to the U.S. EPA (CD 983598-01), *available at* http://ccrm.vims.edu/hgm/woodydepressionsfinalrpt04.pdf#search=%22Draft%20Woody%20Depression%20Wetland%20HGM%20Model%20for%20the%20Coastal%20Plain%20of%20Virginia%22.
[99] K.J. Havens, C. Coppock, R. Arenson, D. Stanhope, G. Silberhorn (2001) A draft Regional Guidebook for Applying the HGM approach to Wet Hardwood Flats on Mineral Soils in the Coastal Plain of Virginia. *available at* http://ccrm.vims.edu/hydrogeomorphicguidebook.pdf.

the Deciduous Wetland Flats Interim HGM.[100] In addition, VA DEQ is developing a web-based floristic assessment calculator, which will allow users to determine wetland health based on the list of plants gathered during delineation.[101]

Monitoring and Assessment for Streams

A Virginia Stream Condition Index (VA-SCI) was developed by Tetra Tech Inc. with funding from the EPA. The index determines impairments to aquatic life uses in wadeable freshwater streams and rivers west of Virginia's coastal plain. Eight measurements are used to calculate the VA-SCI.[102]

Citizen Monitoring

VA DEQ's Citizen Water Quality Monitoring Program provides technical assistance and grants to support citizen water quality monitoring groups.[103] In collaboration with the Alliance for the Chesapeake Bay, VA DCR, VA DEQ, and the Virginia Izaak Walton League's Save Our Streams Program, the program has created the Virginia Citizen Water Quality Monitoring Program Methods Manual. [104] The manual assists citizens with the development of a monitoring program and provides guidance on the advantages and limitations of the more commonly used methods for water quality monitoring.[105] Citizen monitoring groups may receive state funds if they establish an MOA with the VA DEQ, pursue projects that are consistent with VA DEQ's water quality monitoring program, conduct monitoring in a manner consistent with the Methods Manual, and pursue projects that are part of the water quality control plan.[106] The program focuses on traditional water quality monitoring, although it may be utilized for wetlands once the wetlands monitoring program is fully established.[107]

V. Restoration and Partnerships

Virginia state law requires that voluntary and incentive-based programs be developed for wetland restoration in order to achieve a "net gain" of wetland resources.[108] In response, the state has committed to restore 10,000 acres of wetlands by 2010,[109] including 6,000 acres in the Chesapeake Bay watershed, in accordance with the Chesapeake Bay 2000 agreement.[110] An executive order established the Virginia Wetlands

[100] Deciduous Wetland Flats Interim Hydrogeomorphic Model *at* http://www.pwrc.usgs.gov/wlistates/secoast.htm#Deciduous%20Wetland%20Flats%20Interim%20Hydrogeomorphic%20Model (last visited March 21, 2007).
[101] Davis, *supra* 59.
[102] Virginia Department of Environmental Quality, *A Stream Condition Index for Virginia Non-Coastal Streams*, *available at* http://www.deq.virginia.gov/watermonitoring/pdf/vastrmcon.pdf#search=%22Virginia%20Stream%20Condition%20Index%22 (last visited March 21, 2007).
[103] Va. Code Ann. § 62.1-44.19:11.
[104] Virginia Department of Environmental Quality, *Virginia Citizen Water Quality Monitoring Program Methods Manual*, a*vailable at* http://www.deq.virginia.gov/cmonitor/pdf/cmonman.pdf (last visited March 21, 2007).
[105] *Id.*
[106] Va. Code Ann. § 62.1-44.19:11.
[107] Davis, *supra* note 59.
[108] Va. Code Ann.§ 62.1 1-44. 15:5.
[109] Virginia Department of Environmental Quality and the Alliance for Chesapeake Bay, *Restoring Virginia's Wetlands: A Citizens Toolkits*, (2005) *available at* http://www.deq.virginia.gov/wetlands/pdf/restoringvawetlandstoolkit.pdf.
[110] Chesapeake Bay Program, Chesapeake 2000 Agreement, *available at* http://www.chesapeakebay.net/agreement.htm.

Restoration Coordinating Committee to increase state agency coordination on wetlands restoration and mandates that all state agencies holding public land: identify areas suitable for wetland restoration, establishment, or preservation; restore wetlands where appropriate; and develop measurable indicators for wetland conservation, restoration, and establishment.[111]

VA DGIF works with willing landowners to find appropriate federal or state programs for wetland restoration. A technical assistance group of biologists works with landowners to provide assistance with volunteer wetlands restoration. VA DGIF also collaborates with the NRCS wetland enhancement and restoration programs and is working with the Atlantic Coast Joint Venture.[112]

The VA DCR collaborates with NRCS on the Conservation Reserve Enhancement Program (CREP) program and manages some of the state matching funds for the program.[113] For example, the state's Water Quality Improvement Fund offers a landowner bonus payment of $200 per acre of wetland restored to encourage landowners to enroll wetlands in the CREP program.[114] The VA DCR also assists the Division of Legislative Services with the Chesapeake Bay Restoration Fund, which is funded by the sale of Friend of the Chesapeake license plates. The Chesapeake Bay Restoration Fund supports restoration and education projects that affect water bodies located within the Chesapeake Bay watershed.[115]

Finally, VA DEQ offers information to landowners and the general public on volunteer wetlands restoration projects. For example, in collaboration with the Alliance for the Chesapeake Bay, VA DEQ released Restoring Virginia's Wetlands: A Citizens Tookit.[116] The toolkit provides citizens with information on wetland functions and values, the status of Virginia's wetlands, wetland monitoring basics, regulatory protection programs, options for the use and management of wetlands, and technical and financial resources for protection, enhancement, and restoration projects. The VA DEQ and the Alliance for the Chesapeake Bay have also prepared Tools for Targeting Sites for Voluntary Wetland Activities[117] and Technical and Financial Resources for Voluntary Wetland Restoration Projects,[118] both available on the VA DEQ's website.

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[111] Commonwealth of Virginia, Office of the Governor (Oct. 20, 2000), *Executive Order 72 (00), Establishing the Virginia Wetlands Restoration Coordinating Committee*, *available at* http://www.dpb.virginia.gov/eo/eo72(00).pdf#search=%22Executive%20Order%2072(00)%20Virginia%22 (establishing the Virginia Wetlands Restoration Coordinating Committee and the requirement that state land holders identify areas for wetland restoration).

[112] Norris, *supra* note 33; see Virginia Department of Game and Inland Fisheries, *Habitat Partners at* http://www.dgif.virginia.gov/wildlife/habitat_partners/index.html and Atlantic Coast Joint Venture *at* http://www.acjv.org/.

[113] Block, *supra* note 34.

[114] Virginia Department of Conservation and Recreation, *Wetland Restoration Bonus, at* http://165.176.249.158/WetLands/BayProcedures.cfm (last visited March 21, 2007).

[115] Virginia Department of Conservation and Recreation, *Chesapeake Bay Restoration Fund, at* http://www.dcr.virginia.gov/soil_&_water/bayfund.shtml (last visited March 21, 2007).

[116] Virginia Department of Environmental Quality and the Alliance for Chesapeake Bay, *supra* note 109.

[117] Virginia Department of Environmental Quality and the Alliance for Chesapeake Bay. *Tools for Targeting Sites for Voluntary Wetland Activities*, (Sept. 2004) a*vailable at* http://www.deq.virginia.gov/wetlands/pdf/toolsvoluntaryrestoration.pdf.

[118] Virginia Department of Environmental Quality and the Alliance for Chesapeake Bay. *Technical and Financial Resources for Voluntary Wetland Restoration Projects*. *available at* http:// www.deq.virginia.gov/wetlands/pdf/resourcesvolrestorationsept04.PDF (last visited March 21, 2007).

VI. Education and Outreach

Several state agencies conduct education and outreach activities. VA DGIF conducts 2-3 field classes and 1-2 wetlands workshops per year. The department also conducts outreach with landowners through site visits and project reviews.[119] The VMRC has provided informational symposiums on administrative issues to local Wetlands Boards and has worked with VIMS on wetlands education workshops.[120] In addition to educational materials provided to landowners and other private citizens, VA DEQ also operates Virginia Naturally, a statewide environmental education program that includes educational brochures and programs on wetlands.[121] The VA DEQ also organizes Project WET (Water Education for Teachers) trainings and trains about 1,000 teachers each year. Project WET is an environmental teaching module that emphasizes water-related issues for elementary teachers.[122]

VII. Coordination with State and Federal Agencies

Virginia state agencies regularly coordinate both with each other and with federal agencies on wetland-related issues. VA DEQ has established formal agreements and/or collaborative partnerships with the Corps' Norfolk District, EPA, FWS, VMRC, VA DGIF, VIMS, and Alliance for the Chesapeake Bay, among others, on issues of wetlands regulation, mitigation, monitoring and restoration. In addition, VA DGIF and VA DCR collaborate with the NRCS and others on wetland restoration programs, including CREP. Virginia is also involved in several formal state and regional partnerships related to wetland restoration.

The Virginia Wetlands Restoration Coordinating Committee was established to assist the state's wetland restoration and conservation goals by increasing state agency coordination and aiding the voluntary conservation, establishment, and restoration of wetlands in the Commonwealth. The Coordinating Committee includes representatives from VA DGIF, VA DEQ, VA DCR, VIMS, and several other state and federal agencies.[123] VA DEQ also serves as the lead agency for CZM, helping agencies and localities to develop coastal policies and administering program's annual grant program.[124] Virginia's CZM, established as part of the national coastal zone management program, is a network of state agencies and local governments that administers the laws, regulations and policies that protect Virginia's coastal resources.[125]

[119] Norris, *supra* note 33.

[120] Watkinson, *supra* note 4.

[121] Virginia Department of Environmental Quality, *Virginia Naturally*, *at* http://www.vanaturally.com/homepage.html (last visited March 21, 2007).

[122] Virginia Department of Environmental Quality, *Project WET at* http://www.deq.virginia.gov/education/wet.html (last visited March 21, 2007).

[123] Executive Order, *supra* note 111.

[124] Virginia Department of Environmental Quality, *Virginia Coastal Zone Management Program*, *at* http://www.deq.virginia.gov/coastal/ (last visited March 21, 2007).

[125] Executive Order 21 (2006) *Continuation of the Virginia Coastal Zone Management Program*, *available at* http://www.governor.virginia.gov/Initiatives/ExecutiveOrders/pdf/EO_21.pdf#search=%22Virginia%E2%80%99s%20Coastal%20Zone%20Management%20Program%22 (establishing the CZM; renewed each year by the governor of Virginia).

VA DCR and VA DEQ oversee Chesapeake Bay Program efforts in Virginia.[126] The Chesapeake Bay Program is a regional partnership created to direct and conduct the restoration of the Chesapeake Bay and includes representatives from Virginia, Pennsylvania, Maryland, Washington, D.C., the Chesapeake Bay Commission, and the U.S. EPA. The program works to build and adopt policies that support Chesapeake Bay restoration. Over the next decade, the Chesapeake Bay Program's restoration activities will be guided by the "Chesapeake 2000" Agreement, adopted by the Bay Program partners in June 2000. Goals of the agreement include: a no-net loss of existing wetlands acreage and function, a net resource gain by restoring 25,000 acres of tidal and non-tidal wetlands by 2010, information and assistance for local governments and community groups, implementation of the wetland plan component in 25 percent of the land area of each state's bay watershed, and an evaluation of the potential impact of climate change on the Chesapeake Bay watershed.[127]

VIII. Acronyms and Abbreviations

Bay Act – Chesapeake Bay Preservation Act

Corps – U.S. Army Corps of Engineers

CREP – Conservation Reserve Enhancement Program

CZM – Coastal Zone Management Program

EPA – U.S. Environmental Protection Agency

ERRT – Elizabeth River Restoration Trust

FTE – Full Time Equivalent

FWS – U.S. Fish and Wildlife Service

HGM – Hydrogeomorphic Model

JPA – Joint Permit Application

LOP – Letter of Permission

MBRT – Mitigation Banking Review Team NWP – Nationwide Permit

MOA – Memorandum of Agreement

NRCS – Natural Resources Conservation Service

RP – Regional Permit

[126] Chesapeake Bay Program *at* http://www.chesapeakebay.net/ (last visited March 21, 2007).

[127] Personal communication with John Kennedy, Virginia Department of Environmental Quality, Chesapeake Bay Program (Email August 8, 2006).

RPA – Resource Protection Area

SICAM – Stream Impact and Compensation Assessment Manual

TNC – The Nature Conservancy

VA DCR – Virginia Department of Conservation and Recreation

VA DEQ – Virginia Department of Environmental Quality

VA DGIF – Virginia Department of Game and Inland Fisheries

VA SCI – Virgnia Stream Condition Index

VIMS – Virginia Institute of Marine Science

VMRC – Virginia Marine Resources Commission

VWP – Virginia Water Protection Permit Program

WET – Water Education for Teachers

Wyoming

I. Overview

Wetlands make up 1.25 million acres of the semi-arid state of Wyoming, approximately two percent of the state's surface area.[1] Wyoming has lost 38 percent, or 750,000 acres, of its historic wetlands.[2] The greatest impacts to the state's wetlands have resulted from agriculture. In fact, Wyoming State Parks and Historic Sites estimates that 54 percent of all wetland loss between the mid-1970s and mid-1980s resulted from agriculture. Other major contributors to wetland loss include flood control, development, rerouting of streams, grazing, contamination from chemicals and oil/gas exploration, and irrigation system conversion. The state also has many man-made wetlands, some of which were created unintentionally through leakage from inefficient irrigation systems or by other means.[3]

Wetland protection by the State of Wyoming through regulatory means began in 1988 with the establishment of a Memorandum of Understanding (MOU) between the Wyoming Department of Transportation (WDT) and the Wyoming Game and Fish Department (WGFD) on wetland banking for highway projects. The Wyoming Wetlands Task Force was established in 1989 and the Wyoming Wetlands Act (WWA) was passed in 1991. The WWA, the Clean Water Act (CWA) §401/404 permitting process, land use planning by the U.S. Department of Agriculture (USDA) Forest Service and Bureau of Land Management, cooperative agreements among agencies, conservation easements, and land purchases are the primary ways Wyoming protects its remaining wetlands.[4]

II. Regulatory Programs

Wetland Definitions and Delineation

Wyoming explicitly includes wetlands in its definition of waters of the state. "Waters of the state" are defined as "all surface and groundwater, including waters associated with wetlands, within Wyoming."[5] The Wyoming Water Quality Rules and Regulations defines wetlands as "those areas in Wyoming having all of the following characteristics: (A) Hydrophytic vegetation; (B) Hydric soils; and (C) Wetland hydrology."[6] The regulations further define these characteristics as follows:

[1] U.S. Geological Survey, *Loss of Wetlands in the Southwestern United States (2003)*, *at* http://geochange.er.usgs.gov/sw/impacts/hydrology/wetlands/ (last visited Mar. 20, 2007).

[2] Association of State Wetland Managers, *State Wetland Programs: Wyoming (undated)*, *at* http://www.aswm.org/swp/wyoming9.htm (last visited Aug. 2, 2006).

[3] Wyoming State Parks and Historic Sites. *2003 Wyoming State Comprehensive Outdoor Recreation Plan (2003)*, *at* http://wyoparks.state.wy.us/SCORP.htm (last visited Mar. 20, 2007).

[4] *Id.*

[5] Wyo. Stat. Ann. § 35 (11-103 (c)(vi))

[6] Ch. 1 of Wyoming Water Quality Rules and Regulations § 2(a)(xiii)

(A) "Hydrophytic vegetation means a community of plants where, under normal circumstances more than 50 percent of the composition of the dominant species from all strata are obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC) species; or a frequency analysis of all species within the community yields a prevalence index value of less than 3.0 (where OBL = 1.0, FACW = 2.0, FAC = 3.0, FACU (facultative upland) =4.0, and UPL (upland species) = 5.0)."[7]

(B) "Hydric soils means a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part."[8]

(C) "Wetland hydrology means the presence of water on or near the land surface at a frequency and duration to cause the formation of hydric soils and support a prevalence of vegetation typically adapted to saturated and/or inundated conditions."[9]

Wetlands fall under a general water classification scheme that assigns waters to one of four categories of varying quality. Wetlands adjacent to classified waters are classified as that water. Thus, isolated wetlands are classified in the same way as other open isolated water bodies.[10]

Wetlands are generally classified as Class 1, "Outstanding Waters," (the most strictly regulated category)[11] or Class 3 waters. Waters in this class by definition generally have wetland characteristics.[12]

Wetland-related Statutes and Regulations

Wetland protection in Wyoming is primarily provided by under the state's water quality laws and regulations and the Wetlands Protection Act. The Wyoming Department of Environmental Quality (WDEQ) administers both of these programs.

Wyoming Wetlands Act.[13] The Wyoming Wetlands Act is a notification program for draining wetlands over five acres. It applies to any "naturally occurring or man-made wetland, or any series thereof, which has an area

[7] Ch. 1 of Wyoming Water Quality Rules and Regulations § 2(b)(xxiii)
[8] Ch. 1 of Wyoming Water Quality Rules and Regulations § 2(b)(xxii)
[9] Ch. 1 of Wyoming Water Quality Rules and Regulations § 2(b)(li)
[10] Personal Communication with Bill DiRienzo, Wyoming Department of Environmental Quality (Jan. 30, 2006).
[11] "Class 1 waters are those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed. Nonpoint sources of pollution shall be controlled through implementation of appropriate best management practices. Pursuant to Section 7 of these regulations, the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. In designating Class 1 waters, the Environmental Quality Council shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people." Ch. 1 of Wyoming Water Quality Rules and Regulations § 4(a)
[12] Class 3 waters are defined as "intermittent, ephemeral or isolated waters and because of natural habitat conditions, do not support nor have the potential to support fish populations or spawning, or certain perennial waters which lack the natural water quality to support fish (e.g., geothermal areas). Class 3 waters provide support for invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. Uses designated on Class 3 waters include aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value. Generally, waters suitable for this classification have wetland characteristics, and such characteristics will be a primary indicator used in identifying Class 3 waters." Ch. 1 of Wyoming Water Quality Rules and Regulations § 4(c).
[13] Wyo. Stat. Ann. § 35 (11-308 et seq)

comprising five acres or more."[14] The act requires that a party wishing to drain a wetland submit the appropriate paperwork to WDEQ. There is no application or approval process. The Act also established a mitigation banking program. If a party fails to comply with the notification requirement, he or she may not take advantage of the banking program.[15]

§401 Certification. Any actions that require a federal permit, license, or approval that results in a discharge into waters of the state, including §404 individual dredge and fill permits and nationwide permits, require state water quality certification. Section 401 certification is the primary form of state-level wetland regulation.[16] WDEQ makes approximately 50 certifications per year.[17] WDEQ does not typically waive certification, with the occasional exception for Nationwide Permits that may not be applicable. In general, WDEQ approves all certifications, but usually attaches conditions. Denial is rare.[18]

Section 401 certification decisions are based on a qualitative assessment of projects. WDEQ relies heavily on information submitted by the Corps. Projects proposed on Class 1 wetlands, the most protected waters, undergo a careful review that may include site visits. Projects on all other classes of wetlands are usually approved. WDEQ uses a similar system of stream classification to guide its stream permitting process, although site visits are rare. WDEQ usually conducts site visits if there is public concern about a proposed project.[19]

Organization of State Activities

Wyoming Department of Environmental Quality. WDEQ Watershed Management Section administers both the Water Quality Protection Program and the Wetlands Protection Act. WDEQ maintains regional offices in Sheridan, Lander, and Casper, as well as a headquarter office in Cheyenne. They also have three monitoring crews, each composed of two people, located around the state. At the WDEQ central office, two staff dedicate part of their time to wetlands, including administration of the §401 certification program the Wyoming Wetlands Act, and the banking program.[20] Their combined work equals approximately one-half of a full-time equivalent (FTE).[21]

WDEQ spends approximately $45,000 per year for the one-half FTE in the main office. The budget for the water quality monitoring program is separate. These funds come from general state allocations. A U.S. Environmental Protection Agency (EPA) 604(b) grant also supports §401 certification activities.[22]

Other Agencies. WGFD and the Wyoming Division of State Parks and Historic Sites have developed a Statewide Comprehensive Outdoor Recreation Plan (SCORP) that includes a chapter on state wetlands acquisition prior-

[14] Wyo. Stat. Ann. § 35 (11-310 (a))
[15] Personal Communication with Bill DiRienzo, Wyoming Department of Environmental Quality (July 21, 2006).
[16] DiRienzo, *supra* note 10.
[17] Personal Communication with Jeremy Lyon, Wyoming Department of Environmental Quality (February 3, 2006).
[18] DiRienzo, *supra* note 10.
[19] Lyon, *supra* note 17.
[20] DiRienzo, *supra* note 10.
[21] Personal Communication with Beth Pratt, Wyoming Department of Environmental Quality (October 9, 2006).
[22] *Id.*

ities. WGFD has several employees that work part-time on wetlands issues: two waterfowl biologists that deal with waterfowl management, the regulatory process, and general wetland issues; two to three habitat extension biologists that occasionally deal with wetlands;[23] a non-game biologist involved with wetland restoration and creation to create trumpeter swan habitat on public and private lands; and a habitat protection biologist who reviews WDEQ mine plans and who is actively involved in wetland planning and development on mined lands.[24] The department spends approximately $1 million per year directly or indirectly on wetlands, the majority of which goes to personnel costs (such as time spent commenting on projects and maintenance for habitat units).[25] This represents approximately two to three percent of the agency's total annual budget. Most of this money comes from hunting or fishing license fees, and a small portion comes from federal funds such as the aid program under the Pittman-Robertson Wildlife Restoration Act, the Dingell-Johnson Sport Fish Restoration Act, and the Wallop-Breaux Aquatic Resources Trust Fund.[26] The department also receives some outside grants and assistance.[27]

Nationwide Permits

WDEQ has denied and conditioned numerous federal Nationwide Permits (NWPs).[28, 29] WDEQ staff provide ongoing review of NWPs.[30]

Mitigation

The Wyoming Wetlands Act established Wyoming's mitigation banking program. General standards for the program are included in the water quality rules and regulations[31] and in guidelines published by WDEQ.[32] WDEQ considers wetland functions and the "wetland value"[33] of the disturbed wetland when defining adequate mitigation and allows for the option of wetland banking.[34, 35] As described in WDEQ banking guidelines, Wyoming uses the "open banking concept," i.e., anyone who voluntary undertakes wetland creation,

[23] Personal Communication with Steve Tessmann, Wyoming Game and Fish Department (February 15, 2006).

[24] Personal Communication with Steve Tessmann, Wyoming Game and Fish Department (October 16, 2006).

[25] Tessmann, *supra* note 23.

[26] Personal Communication with Steve Tessmann, Wyoming Game and Fish Department (October 9, 2006).

[27] Tessmann, *supra* note 23.

[28] WDEQ has denied certification of NWP 16**:** Return Water From Upland Contained Disposal Areas, NWP 17: Hydropower Projects, NWP 23: Approved Categorical Exclusion, NWP 27: Wetland and Riparian Restoration and Creation Activities, NWP 31: Maintenance of Existing Flood Control Facilities, NWP 40: Farm Buildings, NWP 43: Storm Water Management Facilities, NWP 44: Mining Activities. WDEQ waived certification of Nationwide permits 1, 2, 4, 8, 9, 10, 11, 15, 19, 22, 24, 28, 34, and 35 because it determined that they either not involve discharges or have little or no application in the state. WDEQ approved certification of Nationwide permits 20, 21, and 38. WDEQ imposed further additional conditions on all NWPs.

[29] Letter from Dennis Hemmer, Director, Wyoming Department of Environmental Quality, to Matt Bilodeau, U.S. Army Corps of Engineers, Wyoming Regulatory Office (Mar. 14, 2002), *at* http://deq.state.wy.us/wqd/watershed/Downloads/401/2-1990-doc.pdf (last visited Mar. 20, 2007).

[30] DiRienzo, *supra* note 10.

[31] Ch. 1 of Wyoming Water Quality Rules and Regulations § 12

[32] DiRienzo, *supra* note 15.

[33] "'Wetland value' means those socially significant attributes of wetlands such as uniqueness, heritage, recreation, aesthetics and a variety of economic values." Ch. 1 of Water Quality Rules and Regulations, § 2.

[34] DiRienzo, *supra* note 10.

[35] Ch. 1 of Water Quality Rules and Regulations, § 12

restoration, or an enhancement project can receive state credit. WDEQ records what and how much was built so that someone else can use the project to fulfill mitigation requirements in the future. Credits are tied to the property.[36, 37] However, as of 2006, no mitigation banks have applied for state credit.[38] Thus, no Mitigation Banking Review Teams have been established in Wyoming.[39]

Compliance and Enforcement

Wetland-related enforcement and compliance issues typically fall to the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency (for violations to Clean Water Act §404).

Tracking Systems

The state does track all permits, including §404 permits from the Corps and §401 certifications, in a database.[40]

III. Water Quality Standards

Wyoming water quality standards outline designated uses for waters of the state and the associated water quality criteria. Surface water quality standards consist of three parts: (1) surface water classes and associated uses; (2) numeric and narrative water quality criteria; and (3) antidegradation policy.[41] Wyoming has one limited narrative standard pertaining specifically to wetlands: "Point or non-point pollution shall not cause the destruction, damage or impairment of naturally occurring wetlands except when mitigated through an authorized wetlands mitigation process."[42]

The narrative standard, combined with the isolated water rule in the permitting rules in the Wyoming Water Quality Rules and Regulations, give WDEQ the authority to regulate activities on wetlands that fall outside the jurisdiction of the Corps, namely, isolated waters. The isolated water rule requires parties who intend to fill a naturally occurring isolated wetland over one acre in size to apply for a permit.[43] A state general permit has been established to cover isolated wetlands, and a mitigation requirement is included in this general permit.[44, 45]

[36] DiRienzo, *supra* note 10

[37] Wyoming Department of Environmental Quality, *Wyoming Wetland Bank: Application for Credit (undated)*, (on file with author).

[38] One party did apply for credit, but later withdrew its application. Personal Communication with Beth Pratt, Wyoming Department of Environmental Quality (Oct. 10, 2006).

[39] Pratt, *supra* note 21.

[40] DiRienzo, *supra* note 10.

[41] Ch. 1 of Water Quality Rules and Regulations

[42] Ch. 1 of Wyoming Water Quality Rules and Regulations § 12

[43] Ch. 2 of Wyoming Water Quality Rules and Regulations § 4(m), "Application requirements for isolated wetlands" reads: "A notice of intent submitted for coverage of mitigation for activities that cause the destruction, damage or impairment of naturally occurring isolated wetlands shall contain the information as required in Section 7 (b) of these regulations."

[44] Pratt, *supra* note 21.

[45] The state general permit for isolated wetlands is available at: http://deq.state.wy.us/wqd/WYPDES_Permitting/downloads/wetland_permit_signed_5_06.pdf (last visited Oct. 16, 2006).

WDEQ is considering the development of wetland-specific water quality standards as part of its plans to develop a wetland-specific monitoring and assessment program;[46] these would potentially include narrative or numeric standards.[47]

Designated Uses

Wetlands fall under the general water classification scheme, and so the designated uses established for waters of the state apply to wetlands. Wyoming's four categories for waters of varying quality are prescribed specific associated uses.

There are strict restrictions on discharges to Class 1 waters (the most strictly regulated wetlands). When designating Class 1 waters, "the Environmental Quality Council shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people."[48]

The regulations designate Class 3 waters for "Aquatic Life Other than Fish." Designated uses for these waters include aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.[49]

Anti-degradation Standards

Wyoming's anti-degradation policy applies generally to all water classes, including wetlands.[50]

IV. Monitoring and Assessment

Monitoring and Assessment for Wetlands

The WDEQ has developed a five-year water quality monitoring strategy. Wetlands monitoring is one component of this strategy, but as of 2006, the agency does not operate a wetland-specific monitoring program. WDEQ assesses riparian wetlands as part of its stream and lakes monitoring program, which covers most wetlands in the state.[51]

WDEQ is developing a wetland-specific monitoring and assessment program which will be incorporated into a watershed-scale assessment approach that includes all water bodies.[52] The department is currently trying to assess all wetland assets (inventory) by completing the National Wetlands Inventory, for which it has already allocated funds. The inventory is scheduled to be completed by 2009. The process includes complet-

[46] Personal Communication with Jeremy Zumberge, Wyoming Department of Environmental Quality (Feb. 13, 2006).
[47] Pratt, *supra* note 21.
[48] Ch. 1 of Wyoming Water Quality Rules and Regulations § 4(a)
[49] Ch. 1 of Wyoming Water Quality Rules and Regulations § 4(c)
[50] Ch. 1 of Wyoming Water Quality Rules and Regulations § 8
[51] Zumberge, *supra* note 46.
[52] Personal Communication with Jeremy Zumberge, Wyoming Department of Environmental Quality (Sept. 6, 2006).

ing maps for some sections of the state, revising outdated maps for other sections, and digitizing all of the maps to make them usable.[53] WDEQ is also researching what other states are doing at the watershed level and identifying approaches that might work in Wyoming. [54]

Monitoring and Assessment for Streams

The WDEQ stream monitoring program collects and assesses water quality monitoring data to determine if a water body is fully supporting its designated uses.[55] WDEQ has developed a list of objectives for monitoring and assessment that include, but are not limited to, the basic objectives of the CWA, including: determining water quality standards attainment; identifying impaired waters; identifying causes and sources of water quality impairment; supporting the development and implementation of water quality standards and management programs; and supporting the evaluation of program effectiveness. In addition to the these basic CWA objectives, WDEQ has set specific additional objectives, including: (1) collection of monitoring data to support National Pollution Discharge Elimination System (NPDES) permitting and compliance, and (2) evaluation of the effectiveness of watershed plans designed to improve water quality.

V. Restoration

Statewide Wetland Strategy

WGFD is seeking funding for wetland protection in Wyoming, particularly through North American Wetland Conservation Act (NAWCA) joint venture funding. The agency is drafting a plan that focuses on inventorying existing wetlands and identification and prioritization of wetland project areas.[56] The initiative will provide better guidance for identification of future projects and funds, as well as for grant writing.[57]

Restoration Programs

WGFD operates two state restoration programs that may include wetland restoration, enhancement, and preservation projects. When identifying habitat protection opportunities, WGFD looks at wildlife benefits, the amount of acres potentially affected, landowner commitment, landowner willingness to work on a management plan, and requirements of the funding source. [58] All WGFD-sponsored restoration projects must complete a long-term habitat management plan and provide recreational access to the restored project area. [59] This applies to projects on private property and public property. Limited permission for recreational access is a term of the agreement with a landowner. The term of this agreement is generally ten to fifteen years.[60] WGFD assesses projects' success visually after construction is complete.[61]

[53] Pratt, *supra* note 21.

[54] Zumberge, *supra* note 46; Pratt, *supra* note 21.[55] [1] Wyoming Department of Environmental Quality, *Watershed Program (undated), at* http://deq.state.wy.us/wqd/watershed/index.asp (last visited Mar. 20, 2007).

[56] Tessmann, *supra* note 23.

[57] Tessmann, *supra* note 26.

[58] Personal Communication with Ryan Amundson, Wyoming Department of Game and Fish (February 23, 2006).

[59] Personal Communication with Ryan Amundson, Wyoming Department of Game and Fish (October 9, 2006).

[60] Amundson, *supra* note 58.

[61] Tessmann, *supra* note 23.

WGFD funds wetland construction projects through its Habitat Grant Program. Project proposals are assessed on a case-by-case basis. The department can also fund construction projects by applying for moneys from the Wildlife and Natural Resource Trust Account, which reserves a portion of the state's mineral royalties for wildlife habitat improvement. This is a general funding program to which state agencies, conservation organizations, and private landowners may apply, and could be used for wetland projects. The purpose of both these programs is to maintain wildlife habitat.[62]

Coordination with Irrigators. WGFD is seeking to develop a wetland maintenance plan with irrigators in southeast Wyoming. WGFD created several habitat units in that portion of the state and built a number of wetlands in the 1970s and 80s, but has done little construction or enhancement since. The constructed wetlands are dry from drought, and so WGFD is trying to improve water delivery to the area. WGFD is hoping to receive additional funds from the State Water Development Commission (which funds irrigation and reservoir projects) for materials, support from NRCS on engineering design, and help from NAWCA on construction. Additional potential funding sources include the Governor's Habitat Trust Account and energy development trust funds.[63]

Federal Programs. WGFD is also involved in the administration of several federal wetland restoration programs, including the USDA Natural Resources Conservation Service's (NRCS) Wetland Reserves Program and the Federal Private Land-Wetlands Program, run by the U.S. Fish and Wildlife Service (USFWS) and NRCS.[64]

VI. Public-Private Partnerships

In addition to running its Habitat Grant Program to fund wetland restoration or creation, WGFD works with federal, state, and non-profit partners to help private landowners restore, enhance, or create wetlands.[65] WGFD staffs habitat extension biologists and habitat biologists to work with interested landowners on these projects.[66] The biologist typically conducts an initial site visit and assessment of the wetland in order to determine how to restore or enhance it. On this site visit, the biologist distributes a "Habitat Extension Bulletin" which explains the project process and outlines tips for restoration or mitigation projects, project goals, and management techniques and describes how water control structures function.[67] WGFD and its partners then coordinate on project design, oversee construction, and in some cases, assist with post-construction management.[68]

Common partners that WGFD bring in to work with private landowners include NRCS (Wetland Reserve Program and Wildlife Habitat Incentive Program), USFWS (Partners for Fish and Wildlife Program,

[62] Amundson, *supra* note 58.
[63] Tessmann, *supra* note 23.
[64] *Id.*
[65] Amundson, *supra* note 58.
[66] Tessmann, *supra* note 26.
[67] Amundson, *supra* note 58.
[68] Amundson, *supra* note 59.

Cooperative Landowner Wetland Program, and the Private Lands Wetland Program), Intermountain West Joint Venture, Northern Great Plains Joint Venture, and non-profit organizations (Ducks Unlimited and Pheasants Forever).

WGFD also works with the USFWS Habitat Extension Program in its 50-50 cost share program with NRCS. The program provides technical assistance and funds to landowners on habitat issues. In the western section of Wyoming, this often includes wetlands.[69]

WGFD occasionally coordinates with corporations on wetland restoration, enhancement, or creation projects.[70] In recent years, the department has added a coal bed natural gas coordinator and an oil and gas coordinator who work directly with industry. Potential wetland projects involve the oil and gas industry in western and northern Wyoming, where the coal bed methane industry is discharging water onto the ground. WGFD is exploring ways to use this water to create or enhance wildlife habitats where it is ecologically appropriate and when the water quality is suitable. In some cases, wetlands are being created.[71]

VII. Education and Outreach

WDEQ does not have an outreach or education program related to wetlands.[72] WGFD has department publications related to wetlands, including the Wyoming Wildlife Magazine (available by subscription), the Wyoming Wildlife News (which includes two to three articles per year on wetland management or wetland birds), and a habitat extension brochure on wetland management entitled *Habitat Extension Bulletin #8A: Wetland Wildlife Management*. WGFD also contributed to the book *Wetland and Riparian Areas of the Intermountain West: Ecology and Management* (edited by Mark C. Mckinstry, Wayne A. Hubert, Stanley H. Anderson). The department authored the technical chapter on *Management of Created Palustrine Wetlands*.[73]

VIII. Coordination with State and Federal Agencies

WDEQ has a joint permitting agreement with the Corps. The agency attends quarterly meetings with the Corps, USFWS, and WGFD to deal with §404-related permitting issues and to ensure that all agencies are coordinated and up to date.[74]

WDEQ also signed a wetland banking MOU with the U.S. Department of Transportation, Wyoming Department of Transportation, USFWS, U.S. Environmental Protection Agency, and the Corps in 1993 to mit-

[69] Tessmann, *supra* note 23.
[70] Amundson, *supra* note 58.
[71] Tessmann, *supra* note 26.
[72] DiRienzo, *supra* note 10.
[73] Tessman, *supra* note 23.
[74] DiRienzo, *supra* note 10.

igate or correct problems associated with the disturbance of wetlands or other surface waters by highway projects. The group has not coordinated in several years on this effort nor has this MOU been used on a Corps permit action,[75] although the MOU is still in effect.[76]

WGFD coordinates frequently with NRCS and USFWS on wetlands program through its habitat extension biologists' and habitat biologists' work with private landowners on restoration, enhancement, and creation projects (see Public-Private Partnerships). Habitat extension biologists are housed in and provide direct technical assistance to the NRCS office and local conservation districts. WGFD works with NRCS to host local workgroup meetings to discuss wildlife and habitat priorities and coordinate with agricultural program goals.[77] WGFD also coordinates with the Bureau of Land Management, USDA Forest Service, Bureau of Reclamation, and National Park Service on numerous wetland development and enhancement projects on respective jurisdictional lands.[78]

Wyoming does not have a State Wetland Conservation Plan.[79]

IX. Acronyms and Abbreviations

Corps – U.S. Army Corps of Engineers

CWA – Clean Water Act

EPA – U.S. Environmental Protection Agency

FTE – Full-time Equivalent

GP – Wyoming Regional General Permits

MOUs/MOAs – Memorandums of Understanding/Memorandums of Agreement

NAWCA – North American Wetland Conservation Act

NPDES – National Pollution Discharge Elimination System

NRCS – Natural Resources Conservation Service

NWPs - Nationwide Permits

SCORP – Statewide Comprehensive Outdoor Recreation Plan

USDA – United States Department of Agriculture

[75] Personal Communication with Matthew Bilodeau, U.S. Army Corps of Engineers (Sept. 7, 2006).
[76] DiRienzo, *supra* note 10.
[77] Amundson, *supra* note 58.
[78] Tessman, *supra* note 26.
[79] DiRienzo, *supra* note 10.

USFWS – United States Fish and Wildlife Service

WDEQ – Wyoming Department of Environmental Quality

WGFD – Wyoming Game and Fish Department

WQS – Water Quality Standards

WRP – Wetlands Reserve Program

WWA – Wyoming Wetlands Act

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2000 L Street, N.W., Suite 620
Washington, D.C. 20036
Telephone: (202) 939-3800
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