



ENVIRONMENTAL
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State Wetland Protection

Status, Trends, & Model Approaches

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Environmental Law Institute*

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Appendix: State Profiles

Arkansas

I. Overview

Wetlands cover nearly ten percent of Arkansas' land surface. Most of the state's wetlands are associated with the Mississippi River Delta and its major tributaries, but a wide variety of other wetland types exist throughout the state, each possessing important and unique characteristics and resources.¹ Arkansas contained approximately 9.8 million acres of wetlands before the western expansion and extensive agricultural development. By the mid 1980's, wetland acreage had dropped to 2.8 million acres for the state. The majority of this loss occurred in the Delta Region, where approximately 875,000 acres of the original 8 million acres of forested wetlands remain.²

The state's wetland regulatory efforts rely on §401 water quality certification. Although the adoption of a more comprehensive regulatory program is not considered feasible, the state does have an extremely proactive non-regulatory effort. The Multi-Agency Wetland Planning Team (MAWPT) is a consortium of Arkansas state agencies that work together on restoration and planning for wetlands conservation. State focus rests on promoting wetland health, assembling wetland inventories, and developing analysis and information management tools. The group is guided by the *Arkansas Wetlands Strategy*, a comprehensive planning document that outlines objectives and strategies for state wetland initiatives.³

II. Regulatory Programs

Wetland definitions and delineation

Arkansas includes wetlands in its definition of waters of the state. Under the Arkansas Water and Air Pollution Control Act, "waters of the state" include:

all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state.⁴

Arkansas delineates wetlands in accordance with the criteria outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.⁵

The regulatory definition of waters and wetlands differs from that utilized by the MAWPT in the state's non-regulatory initiatives. The MAWPT website states that:

¹ Arkansas Multi-Agency Wetland Planning Team, *Wetlands in Arkansas*, at <http://www.mawpt.org/wetlands/> (last visited July 10, 2007).

² T. E. DAHL, *WETLAND LOSSES IN THE UNITED STATES, 1780'S TO 1980'S* (U.S. Department of the Interior, Fish and Wildlife Service eds., 1990).

³ Personal Communication with Elizabeth O. Murray, Ark. Game and Fish Comm'n (Feb. 27, 2004).

⁴ ARK. CODE ANN. § 8-4-102(10).

⁵ U.S. ARMY CORPS OF ENGINEERS, *WETLANDS RESEARCH PROGRAM TECHNICAL REPORT Y-87-1, CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (1987)*, available at <http://www.mvn.usace.army.mil/ops/regulatory/wlman87.pdf>.

[w]etlands are areas where the periodic or permanent presence of water controls the characteristics of the environment and associated plants and animals. They include marshes, swamps, and similar areas found in flats, in depressions in the landscape, on slopes where groundwater emerges to the land surface, and between dry land and open water along the edges of streams, rivers, lakes, and coastlines.”⁶

However, the MAWPT’s State Wetland Strategy also asserts that, “[a]n absolute answer to ‘What is a wetland?’ is not needed to move forward with wetland conservation planning.”⁷

Wetland-related statutes and regulations

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

*Arkansas Wetland Mitigation Bank Act.*⁸ The Arkansas Wetland Mitigation Bank Program was established in 1995 to promote wetland protection, improve cooperative efforts in the restoration and management of wetlands, and encourage a predictable, efficient regulatory framework for environmentally acceptable mitigation.⁹ Under the program, the state acquires degraded wetlands, restores wetland functions, and then sells credits to §404 permittees required to provide compensatory mitigation for approved wetland projects. The Arkansas Wetlands Mitigation Bank is administered by the Arkansas Natural Resources Commission (ANRC). State law also established a Wetlands Technical Advisory Committee that is comprised of the directors of several state agencies and two public members. The Committee acts as a consultant to the ANRC in the administration of the program.¹⁰

ANRC plans to establish a bank in each of the state’s four ecoregions. One bank has been established in southeastern Arkansas and the state’s other three ecoregions are currently being surveyed for bank sites. By law, the ANRC can partner with any entity, but the program is restricted to purchasing land at its appraised value. In the long term, banks will be deeded to other state agencies.¹¹ The ANRC follows federal guidance for mitigation banking and has established an *Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program* with the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), and Arkansas Department of Environmental Quality (ADEQ).¹²

*Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act.*¹³ The Arkansas state legislature enacted the Arkansas Private Wetland and Riparian Zone Creation and

⁶ Arkansas Multi-Agency Wetland Planning Team, *supra* note 1.

⁷ ARK. MULTI-AGENCY WETLAND PLANNING TEAM, ARKANSAS WETLAND STRATEGY, *available at* http://homepage.mac.com/arkansas_mawpt/Public/Strategy.pdf (last visited July 10, 2007).

⁸ ARK. CODE ANN. § 15-22-1001 to -1012.

⁹ *Id.*

¹⁰ *Id.* § 15-22-1003.

¹¹ Personal Communication with Ken Brazil & Kenneth Colbert, Ark. Natural Res. Comm’n (Feb. 25, 2004).

¹² Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program (1998) (on file with author).

¹³ ARK. CODE ANN. § 26-51-1501.

Restoration Incentive Act in 1995.¹⁴ The Act creates the Wetland and Riparian Zones Tax Credit Program, which is also administered by the ANRC. The program is designed to target private landowners because most land suitable for wetland restoration, creation, or enhancement is privately owned. The program provides tax credits for the restoration or creation of wetlands and riparian zones. Mitigation or other regulatory actions are not eligible for the program. In a given year, tax credits may not exceed \$5,000 or the amount of individual or corporate income tax owed; however, unused credits may be carried over for up to nine years. Thus, a single project may yield up to \$50,000 in credits over a period of ten years.¹⁵ The state can forgive up to \$500,000 per year, and the Private Lands Restoration Committee (PLRC) will approve all meriting applications until the limit is reached.¹⁶ Although participation in the program has grown steadily, to date, the program has not exceeded more than about \$130,000 in any given year.¹⁷

Eligible restoration or creation projects must conform to specific design criteria and are subject to review by a professional engineer.¹⁸ General standards have been established for all projects, such as those for minimizing soil erosion and water degradation during construction, utilization of best management practices, and complying with all applicable federal, state and local laws. Additionally, criteria for restoration, creation, and enhancement of wetlands or riparian areas have been established.¹⁹ The PLRC typically provides technical support on restoration projects, though they are not required to do so by law.²⁰ Projects must be completed within three years and maintained for at least ten years thereafter.²¹

§401 certification program

The §401 program is administered by ADEQ with oversight by EPA. ADEQ staff issue approximately 150 to 175 certifications per year on average, although these numbers have gradually increased in recent years due to the increasing applicability of Nationwide Permits. Most certifications are unconditionally certified, with less than one percent of certifications waived and approximately three to five percent conditionally certified. Approval decisions are based on a combination of qualitative assessment and best professional judgment by ADEQ staff. In making determinations, criteria such as location of the project, water quality, type of water body, designated uses, hydrology, and the proposed activity are considered.²²

¹⁴ *Id.*

¹⁵ Tax credits are not transferable and can be applied at anytime. A fee of three percent of the total approved tax credit (or a minimum of \$100) is required to enroll in the program. See Arkansas Soil and Water Conservation Commission, *Wetland and Riparian Zones Tax Credit Program*, at <http://www.aswcc.arkansas.gov/WetlandTaxCredit.html> (last visited July 11, 2007).

¹⁶ Personal communication with Kenneth Colbert, Ark. Natural Res. Comm'n (May 21, 2007).

¹⁷ Brazil & Colbert, *supra* note 11.

¹⁸ Colbert, *supra* note 16.

¹⁹ *Id.*

²⁰ *Id.*

²¹ If a landowner fails to complete a project within the three-year period for reasons beyond their control, they may obtain a one-year extension. Otherwise, all credits must be repaid and the project will no longer be authorized for tax credit purposes. Participating landowners must maintain records and submit reports on maintenance. Once a restoration project is complete, ANRC staff inspect and certify the project. Personal Communication with Ken Brazil, Ark. Natural Res. Comm'n (Apr. 26, 2004).

²² Personal Communication with Steve Drown, Ark. Dep't of Environ. Quality (Feb. 26, 2004).

Organization of state agencies

The ADEQ administers the §401 program for Arkansas, while the ANRC heads both the Arkansas Wetland Mitigation Bank Program and the Wetland and Riparian Zones Tax Credit Program. However, numerous other state agencies are involved with wetlands issues through the MAWPT, including the Arkansas Game and Fish Commission (AGFC), Arkansas Natural Heritage Commission (ANHC), Arkansas Forestry Commission (AFC), and University of Arkansas Cooperative Extension Service (UACES).

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

Arkansas Natural Resources Commission. The ANRC administers the Wetlands Mitigation Bank Act and the Arkansas Wetland Tax Credit program, among other wetland-related activities. The agency coordinates with the MAWPT on the banking and tax credit programs, although they are not required to do so under state law.²³ The ANRC operates out of one central office in Little Rock, but provides funding to and coordinates with conservation districts throughout the state. Approximately two to four FTEs work on wetland-related activities, including outreach and technical support, restoration program development and research, and administration of the mitigation banking and tax credit programs. ANRC staff work on a diversity of projects for different areas of the state. Funding for ANRC programs and activities come from a variety of sources. The banking program is funded by a revolving loan program.²⁴ The state contributes funds for salaries and bears lost taxes from the issued credits. Federal grants and application fees also support administration of the program.²⁵ The ANRC is also a participating member of the MAWPT.²⁶

Arkansas Game and Fish Commission. In addition to hosting the MAWPT Coordination Office, AGFC conducts other wetland-related activities, including monitoring wetland-dependent wildlife habitat and assisting private landowners with application to the USDA's Wetland Reserve Program and Conservation Reserve Program, among other habitat-related federal programs. The AGFC also oversees Wildlife Management Areas (WMA) in the state, many of which are wetlands, and operates a wetlands educational center where lectures and other outreach events may be conducted in the field.²⁷

Two FTEs work on coordination with federal programs, while one FTE works on MAWPT activities. Each WMA has its own manager. The agency also employs one wetland biologist specifically to conduct research, though other fisheries and waterfowl biologists likely work on wetland research as well. Agency staff and activities are funded through general state

²³ Brazil, *supra* note 21.

²⁴ A sum of \$300,000 was available to set up the first property, and up to \$1 million can be allocated in revolving funds.

²⁵ Brazil & Colbert, *supra* note 11.

²⁶ Personal Communication with Elizabeth O. Murray, Coordinator, Ark. Multi-Agency Wetland Planning Team (May 15, 2007).

²⁷ Murray, *supra* note 3.

appropriations and federal grants (mostly from the FWS), as well as collections from a state conservation tax, hunting and fishing license fees, enforcement penalties, and license plates.²⁸

Arkansas Natural Heritage Commission. The ANHC is a member of the MAWPT, but the agency's primary role is to operate the state's nature preserve system. The agency has acquired a total of 60 natural areas through purchase or donation. A fairly significant portion of these protected areas are wetlands, including some unique and rare wetland types. In recent years, the ANHC has acquired larger and more diverse natural areas, sometimes in need of restoration work. ANHC staff develop and implement restoration plans for these areas. They also provide input to other agencies such as the NRCS and the FWS on regional baseline conditions or other restoration activities. ANHC also participates in the state's environmental review process, reviewing project impacts (including §404 projects) on natural areas around the state. ANHC field staff are distributed throughout the state; five part-time land stewards oversee management tasks for the state's natural areas. There are also three full-time land stewards based in Little Rock. Staff activities include outreach and technical assistance, restoration and monitoring, and research and inventory of the state's natural areas. Because wetlands are an integral part of many of ANHC activities, it is difficult to estimate the wetlands-related portion of the agency's approximately \$3 million annual budget. Funding comes from general state appropriations, fees for data services, federal grants for land acquisition and staff needs, and conservation and real estate transfer taxes.²⁹

Arkansas Forestry Commission. The AFC's mission is to "promote forest resource health, conservation, and stewardship" for the 18.8 million acres of forest in Arkansas, which includes some 2.8 million acres of bottomland forest. Arkansas Forestry Commission employs 33 County Foresters, 1 BMP Coordinator and 1 BMP Specialist.³⁰ The AFC has no wetland regulatory authority, but does participate in various wetland-related agency activities in addition to the MAWPT. Agency staff work with private landowners and provide free technical assistance on restoration projects. The agency also raises hardwood seedlings for restoration projects. The AFC also coordinates with the NRCS on restoration programs such as the Conservation Reserve Program, the Environmental Quality Incentives Program, and various Farm Bill activities. Finally, the AFC conducts tours and workshops for landowners and loggers on topics such as best management practices and managing forested wetlands.³¹

The AFC has nine district offices and 60 county offices and employs 32 county foresters that work to some extent on the promotion of restoration and management of wetland and riparian areas on private lands. An estimated \$2 million, approximately 10 percent of the overall agency budget, is spent promoting health, conservation, and stewardship of forested wetlands. The agency's budget is supported by general and special state revenue, federal grants, and technical assistance funds.³²

²⁸ *Id.*

²⁹ Personal Communication with Tom Foti, Ark. Natural Heritage Comm'n (Mar. 10, 2004).

³⁰ Personal communication with Larry Nance, Deputy State Forester Ark. Forestry Comm'n (June 1, 2007).

³¹ Personal Communication with Larry Nance, Ark. Forestry Comm'n (Mar. 11, 2004).

³² *Id.*

Multi-Agency Wetland Planning Team. The Arkansas Multi-Agency Wetland Planning Team (MAWPT) originally formed as the result of a 1992 governor's directive to Arkansas agencies to submit one unified grant proposal for the EPA's Wetlands Program Development Grant (WPDG). The directive, aimed at minimizing in-state competition for federal grants, led to an enduring partnership among state agencies.³³ The MAWPT includes six state agencies: Arkansas Natural Heritage Commission, Arkansas Game and Fish Commission, Arkansas Department of Environmental Quality, Arkansas Natural Resources Commission, Arkansas Forestry Commission, and University of Arkansas Cooperative Extension Service.³⁴ The agencies work in partnership to determine what paths to take towards wetland conservation efforts in the state.³⁵ The Team develops planning tools by state wetland managers.³⁶ These are described in detail below.

MAWPT monies flow through the ANRC, although AGFC is often the lead agency on grants. Both serve as points of contact on funding. Each member agency has at least one MAWPT representative, though some may have more than others depending on the projects that the team is undertaking at a given time. EPA's WPDG is the main funding source for MAWPT activities and is matched by the state. The total budget for MAWPT activities typically ranges between \$100,000 and \$300,000 annually.³⁷ The state is also responsible for staff time and in-kind services, as well as the staffing and support of a MAWPT facilitator.³⁸ Various other federal and state agencies contribute financial and technical assistance on a somewhat regular basis, but they are not member agencies.³⁹

The MAWPT is developing a Wetland Conservation Plan for the state in order to promote voluntary, incentive-based, locally led conservation planning. The Plan has two main components: the *Arkansas Wetland Strategy* and Wetland Planning Area (WPA) Reports. The *Arkansas Wetland Strategy*, which lists policy, watershed, and statewide objectives,⁴⁰ combines

³³ Elizabeth O. Murray & Ken Brazil, *For Arkansas, Protection Begins with Multi-Agency Planning*, 25:3 NATIONAL WETLANDS NEWSLETTER, at 1 (2003).

³⁴ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Multi-Agency Wetland Planning Team*, at <http://www.mawpt.org/> (last visited July 11, 2007).

³⁵ Murray, *supra* note 3.

³⁶ Personal communication with Elizabeth O. Murray, MAWPT Coordinator, (May 25, 2007).

³⁷ *Id.*

³⁸ Brazil & Colbert, *supra* note 11.

³⁹ Murray, *supra* note 3.

⁴⁰ Policy objectives of the state wetland strategy include the achievement of no net loss and long-term net gain of wetland functions and values in each of the five planning regions. Watershed objectives include characterization of the composition, function, and landscape patterns of wetlands in Arkansas and analysis and identification of priority wetland protection and restoration sites based on the characteristics, distribution, and function of the state's existing wetlands. Finally, the strategy also outlines statewide objectives, including: development of a better understanding of wetland hydrology, composition, structure, functions, and values, as well as techniques for management and restoration through research; an increase in the quantity and quality of wetlands on public lands through coordinated acquisition and improved stewardship; an increase in the level of public and landowner knowledge and benefits from wetland conservation on private lands through education and incentives for wetland protection, restoration, stewardship, and enhancement; support of the creation of urban riparian/wetland greenbelts for education and urban wildlife habitats; an increase in wetland information delivery to local government, the public and schools; the development of administrative and organizational structure for private and public mitigation activities; and development of state capacity for tracking wetland activities and long-term monitoring of wetland restoration and protection efforts. ARKANSAS MULTI-AGENCY WETLAND PLANNING TEAM, ARKANSAS WETLAND CONSERVATION

wetland inventory information and state strategy recommendations to: address wetland issues and concerns (i.e., mitigation, BMPs, public outreach, education); identify priority areas for restoration, protection, and enhancement; and evaluate existing state agency resources, responsibilities, and wetland programs. WPA Reports identify and prioritize emphasis areas within the watershed in order to focus voluntary wetland preservation, restoration, and enhancement efforts.⁴¹ The strategy promotes voluntary, incentive-based, locally-led conservation planning.⁴²

Under the MAWPT, many new initiatives have been launched, including a state wetland inventory, wetland prioritization model based on geographic information systems (GIS), wetland classification and characterization database, wetland planning database, and functional assessment models based on the hydrogeomorphic (HGM) approach.⁴³ These tools help state agencies to make better planning and management decisions about wetlands.⁴⁴

The MAWPT, as directed by the Governor's Wetland & Water Resources Task Force, first developed the *Arkansas Wetland Strategy* that identified short and long-term wetland conservation objectives. For the next fifteen years, the MAWPT sequentially developed projects that implemented the state strategy.⁴⁵ The *Arkansas Wetland Strategy* promotes further development of wetland science and knowledge base, and encourages voluntary, incentive-based conservation initiatives and consistent planning efforts.

Nationwide permits

ADEQ staff review and provide both comment and regional conditions for nationwide permits (NWP) as they are released every five years.⁴⁶ For the 2002 NWPs, § 401 water quality certification was issued for all nationwide permits (NWP) requiring authorization under §404 of the CWA. However, any activity impact to extraordinary resource waters, ecologically sensitive waters, and natural and scenic waters requires an individual water quality certification.⁴⁷ ADEQ also imposed four regional conditions:

- For NWP#7 (Outfall Structures and Maintenance) and NWP#12 (Utility Activities), intake structures must be constructed with screening in order to prevent the entry of fish;

PLAN – STATE WETLAND STRATEGY, available at http://homepage.mac.com/arkansas_mawpt/Public/Strategy.pdf (last visited July 11, 2007).

⁴¹ Murray & Brazil, *supra* note 11.

⁴² Elizabeth O. Murray, Arkansas Watershed Advisory Group Newsletter, *Wetland Planning in Arkansas*, (2007) (on file with author).

⁴³ The MAWPT is currently developing HGM Regional Guidebooks for all five wetland planning regions in the state, which will make Arkansas the first state in the nation with HGM Functional Assessment models for all the major forested wetland types in the state. The tool will be used for multiple purposes, including planning and eventually §404 permitting if the methodology is adopted by the U.S. Army Corps of Engineers. Personal Communication with Elizabeth O. Murray, Ark. Game and Fish Comm'n (Sept. 1, 2004).

⁴⁴ Murray & Brazil, *supra* note 11.

⁴⁵ ARK. MULTI-AGENCY WETLAND PLANNING TEAM, *supra* note 7.

⁴⁶ Drown, *supra* note 22.

⁴⁷ Arkansas Pollution Control and Ecology Commission (APCEC), Reg. No. 2.

- For any activities in fens, bogs, groundwater seeps, dune depressional wetlands, or the Cache River and its adjacent wetlands, the permittee must provide the appropriate written notification to the applicable District;
- Mining activities require an individual Department of the Army permit or authorization by a regional general permit (and not authorized under NWP#44 – Mining Activities);
- For NWP#3 (Maintenance), NWP#12 (Utility Activities), NWP#14 (Linear Transportation Projects), NWP#39 (Residential, Commercial, and Institutional Developments), NWP#40 (Agricultural Activities), NWP#41 (Reshaping Existing Drainage Ditches), NWP#42 (Recreational Facilities), and NWP#43 (Stormwater Management Facilities), as well as a particular set of waters identified by the ADEQ, the permittee must provide the appropriate written notification to the applicable District in order to allow for review of effects federally listed threatened and endangered species and their environments.⁴⁸

Arkansas’ action on the 2007 NWP’s could not be reviewed within the reporting period.

Mitigation

In addition to the Arkansas mitigation banking program (described above), the state also participates on the Mitigation Banking Review Team (MBRT) with the U.S. Army Corps of Engineers (Vicksburg, Little Rock, and Memphis Districts), EPA, FWS, NRCS, and ADEQ, as established in the *Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program*.⁴⁹

Compliance and enforcement

Enforcement actions related to §401 water quality certification are issued by the ADEQ. Under Arkansas law, criminal prosecution and penalties and civil penalties may apply for violations to the state’s water quality standards. Civil penalties may not exceed \$10,000 per day; criminal penalties may not exceed \$25,000, and violators may be imprisoned for up to one year.⁵⁰ Each day of a violation constitutes a separate offense.⁵¹ The law also outlines a fine of up to \$50,000 and five years imprisonment for violation to the rule and then leaving the state.⁵² Finally, a fine up to \$250,000 and imprisonment for up to 20 years may be invoked for knowingly or recklessly causing pollution that places another person in “imminent danger of death or serious bodily injury.”⁵³ However, enforcement actions on §401 are extremely rare in Arkansas and almost never occur.

⁴⁸ U.S. ARMY CORPS OF ENGINEERS, ARKANSAS NATIONWIDE PERMIT REGIONAL CONDITIONS (2002), *available at* <http://www.mvm.usace.army.mil/regulatory/Permit/NWP.AR.Reg.Cond.2002.pdf>.

⁴⁹ *Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program* (1998) (on file with author).

⁵⁰ ARK. CODE ANN. § 8-4-103(a)(1)(B)(i); Ark. Dept. of Pollution Control and Ecology, Reg. No. 7 - Civil Penalties.

⁵¹ ARK. CODE ANN. § 8-4-103(a)(1)(B)(ii).

⁵² *Id.* § 8-4-103(a)(2)(B)(ii)(a).

⁵³ *Id.* § 8-4-103(a)(3)(B)(i).

Tracking systems

The Arkansas Wetland Resource Information Management System (AWRIMS) website presents information on wetland projects, research, regulations, programs, and other related wetland conservation activities, making impact and restoration data available online to interested parties, such as state and federal agency regulators, landowners, or environmental groups.⁵⁴ The system provides maps and geographic information systems (GIS) capability to non-GIS users over the Internet. In addition, program information can be queried for regulatory and non-regulatory data, including impact, restoration, mitigation, individual wetland planning areas, eco-regions and watersheds, congressional districts, counties, §404 permits, acreages, and conservation programs.⁵⁵ Users will be able to utilize the “*quick view graphics tool*” to display program information in graphical and tabular format. Queries completed for an individual wetland planning area, ecoregion, congressional district, county, or for the entire state will display impact and restoration sites (i.e., 404 permits, WRP, CRP), as well as conservation easements. The site will be maintained through partnerships of conservation agencies and the Center for Advanced Spatial Technologies at the University of Arkansas at Fayetteville. Once fully developed, the site will be one-stop shopping for program managers and local leaders who are involved in wetland conservation efforts.⁵⁶ MAWPT grants provided initial funding for the project, and eventually, a partnership of agencies will maintain the database.⁵⁷

III. Water Quality Standards

The State of Arkansas has not adopted water quality standards (WQS) specific to wetlands. Surface water quality criteria are narrative, chemical, and biological.⁵⁸ The regulations do not identify designated uses for wetlands, defaulting to open water uses.⁵⁹ The state antidegradation policy also is not specific to wetlands.⁶⁰ A higher level of protection is given to waters designated as “outstanding resource waters.”⁶¹ It should also be noted that, in the absence of wetland-specific WQS, NPDES permit and §401 certification decisions rely on surface water criteria and standards.

IV. Monitoring and Assessment

MAWPT has taken significant steps toward building tools necessary for effective wetland planning and conservation, which has resulted in a variety of wetland planning tools. These include: (1) a landscape-level wetland inventory of the state, (2) a GIS-based wetland restoration prioritization model, (3) a statewide wetland classification and characterization, (4) a wetland

⁵⁴ Arkansas Wetland Resource Information Management System, at <http://awrims.cast.uark.edu/home/> (last visited July 12, 2007)

⁵⁵ *Id.*

⁵⁶ ARK. MULTI-AGENCY WETLAND PLANNING TEAM, *supra* note 40.

⁵⁷ Murray, *supra* note 43.

⁵⁸ APCEC, *supra* note 47.

⁵⁹ Designated uses are laid out in APCEC, *supra* note 47, at § 2.302.

⁶⁰ *Id.* at § 2.201-2.202.

⁶¹ *Id.* at § 2.203.

planning database and map imaging tools, and (5) HGM functional assessment models. These tools enable state agencies to make better planning and management decisions about wetlands.⁶²

MAWPT has conducted an HGM classification of the state's wetlands in order to produce information about landscape and geomorphic position, water sources, and hydrodynamics.⁶³ As part of the classification, wetland types are further characterized by wetland class, subclass, and community type. In addition, the HGM classification facilitates functional assessment and has been proposed as one of the tools used by permittees for alternatives analysis and impact assessment.⁶⁴ Regional HGM guidebooks are being developed in conjunction with the U.S. Army Corps of Engineers for all five wetland planning regions in the state, making Arkansas the first state in the nation with HGM functional assessment models for all the major forested wetland types in the state. As of June 2007, the published guidebooks included the Delta Region, Coastal Plain Region, and Ouachita Mountains/Crowley's Ridge Regions, while the Arkansas River Valley Region was undergoing final edit, and the Ozark Mountains Region was in draft form.⁶⁵ The guidebooks will likely be used for a variety of purposes, including state planning, monitoring, and restoration efforts, state mitigation banks, and other public holdings.⁶⁶

MAWPT has received funding from EPA to develop a rapid assessment procedure that would be consistent with and based upon the HGM guidebooks and the supporting reference data.⁶⁷ MAWPT has also completed two pilot studies on techniques for completing landscape-level monitoring and plans to develop a third.⁶⁸

MAWPT is also developing a GIS map of predicted HGM community types modeled strictly on abiotic characteristics. In the Delta, where the majority of Arkansas' wetlands have been impacted and the greatest potential for restoration occurs, MAWPT has worked with the Corps Waterways Experiment Station and University of Arkansas' Center for Advanced Spatial Technologies to combine the GIS analysis and HGM classification to create landscape-level maps of HGM classes and subclasses on the landscape. MAWPT uses GIS data for abiotic characteristics to create models to predict and map wetland communities in the landscape. These predictions are ground-truthed in areas that remain forested, but the technique also applies to areas that are currently in agricultural production. Many of these areas are priority for restoration, and the map will indicate the appropriate target community for the restoration effort. It also has the capacity to improve the ease of application of the HGM guidebooks and inform AWRIMS tracking efforts. When combined with previous landscape-level GIS projects, these maps will allow MAWPT to determine the appropriate wetland type for various high priority

⁶² ARK. MULTI-AGENCY WETLAND PLANNING TEAM, *supra* note 40.

⁶³ MAWPT, *Classification of Arkansas Wetlands at*<http://www.mawpt.org/wetlands/classification/classes.asp> (last visited July 12, 2007).

⁶⁴ Brazil and Colbert *supra* note 11.

⁶⁵ Personal communication with Bob Singleton, Program Support Manager Water Div. Ark. DEQ (May 17, 2007); the reports are available at: Wetland Laboratory, *Technical Reports, at* <http://el.erdc.usace.army.mil/publications.cfm?Topic=techreport&Code=wetland> (last visited July 12, 2007).

⁶⁶ Murray *supra* note 43.

⁶⁷ Murray, *supra* note 36.

⁶⁸ *Id.*

restoration areas, and inform the placement of mitigation banks. MAWPT plans to also do this mapping in the Coastal Plain when the relevant digital data are developed.⁶⁹

Finally, ADEQ's water quality program relies on surface water assessments, including bioassessments and rapid assessments. These types of assessments are used for developing 303(d) lists and 305(b) reports, as well as for support of the state's NPDES program. Relying on the EPA for guidance, ADEQ is considering the development of an index of biological integrity for rivers and streams.⁷⁰

V. Restoration

The Arkansas Wetland and Riparian Zones Tax Credit Program (described above) is the state's formal restoration program. However, additional initiatives are underway through the MAWPT and the State Wetland Conservation Plan. Following EPA's three-tiered framework for wetland monitoring and assessment,⁷¹ MAWPT is working on a project that will create an inventory and analysis of the state's wetlands and a tool to prioritize lands for restoration. The prioritization tool will be user-friendly and applicable as a landscape assessment GIS tool. Maps are also being developed to show present-day and historical wetlands, as well as HGM classification for the state (also described above). The tools are intended for regulatory use (e.g., siting mitigation banks) and non-regulatory use (e.g., prioritizing lands for restoration).⁷²

ANRC has also funded several types of constructed wetlands for wastewater. While not part of a programmatic effort, ANRC supports economically viable opportunities through a loan and grant program. The Wastewater Advisory Committee, composed of ANRC staff, Arkansas Department of Health staff engineers, and other state agency staff, administers a \$350 million bond program that provides loans and grants to communities for these purposes.⁷³

Various state agencies also coordinate with USDA on the Wetlands Reserve Program and the Conservation Reserve Program, and other restoration-related programs.⁷⁴

Most notably, the MAWPT has initiated an effort to prioritize lands for restoration and protection (referenced above – see *Multi-Agency Wetland Planning Team*).⁷⁵ Through GIS

⁶⁹ *Id.*

⁷⁰ Drown *supra* note 22.

⁷¹ U.S. ENVTL. PROT. AGENCY, ENVTL. PROT. AGENCY FACT SHEET 843-F-02-002(H), WETLAND MONITORING AND ASSESSMENT – A TECHNICAL FRAMEWORK, *available at* <http://www.epa.gov/owow/wetlands/facts/techfram.pdf> (last visited July 12, 2007).

⁷² Brazil and Colbert, *supra* note 11.

⁷³ Brazil, *supra* note 17.

⁷⁴ U.S. Department of Agriculture Natural Resources Conservation Service, NRCS Arkansas State website, *at* <http://www.ar.nrcs.usda.gov/> (last visited July 12, 2007).

⁷⁵ The general methodology for the prioritization includes numerous components: collection of the appropriate watershed-scale geographic data on ecosystem components needed for decision-making; review of maps of ecosystem components (with on-the-ground verification as needed); preparation of component overlay maps to investigate relationships between individual wetland components (with on-the-ground verification as needed); development of general wetland goals and objectives of the project, emphasizing measurable or mappable attributes; implementation of GIS-based procedures to generate maps of protection and restoration priorities; review of maps

analysis, priority areas for restoration and protection are identified on a watershed or regional basis. Ranking depends on characteristics such as fundamental structure and proximity of the land to other topographical features.⁷⁶

The methodology generates raster targeted areas for prioritization at a resolution of 100 square feet.⁷⁷ The areas prioritized for restoration and protection are then identified and discussed in WPA Reports, which are used by natural resource planners in their conservation efforts. For example, the Wetland Reserve Program currently gives extra points to projects that are being planned in wetland priority areas that have been identified through GIS analysis.⁷⁸ The methodology has been applied in more than half of the state's watersheds. Because the Delta region contains the greatest portion of the state's wetlands, efforts began there and have gradually expanded. Fine-tuning and modifications have allowed costs to decrease since the Delta region was completed, and an Arkansas ecoregion can now be analyzed using these methods for roughly \$50,000. Plans for the state include analyses for the remainder of the state's watersheds.⁷⁹ MAWPT also anticipates that these decision support tools will be used in siting Arkansas State mitigation banks.⁸⁰

VI. Public-Private Partnerships

In addition to working with landowners through the Arkansas Wetland and Riparian Zones Tax Credit Program, Arkansas also offers additional outreach to landowners on wetland issues. The MAWPT has developed and maintained a *Landowner's Guide to Voluntary Wetlands Programs in Arkansas*.⁸¹ The state also has worked with corporations such as International Paper on various restoration, land acquisition, and mitigation banking projects.⁸² Finally, MAWPT has worked with state universities on its research initiatives. Most recently, the University of Arkansas at Fayetteville was commissioned to assemble the GIS inventory of the state's wetlands.⁸³ MAWPT has also worked with the University of Arkansas at Monticello to develop *Arkansas Bottomland Hardwood Notes*, an up-to-date resource for professional forest resource managers on the resource ecology, silviculture, and management of Arkansas' bottomland forest.⁸⁴ Finally, AFC's Urban Forestry Division, with assistance from the University of Arkansas Horticultural and Environmental Departments and MAWPT, developed *Natural*

(with on-the-ground verification as needed); synthesis of information into a wetland protection and restoration strategy, based on goals developed for the watershed; and development of a monitoring and evaluation plan for the watershed strategy. See Arkansas Multi-Agency Wetland Planning Team, *The Standard GIS Methodology for Wetland Analysis*, at http://www.mawpt.org/pdfs/Standard_Methodology_of_Analysis.pdf (last visited July 12, 2007).

⁷⁶ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Wetland Conservation Plan: Wetland Planning Area Reports*, at http://www.mawpt.org/plan/area_reports.asp (last visited July 12, 2007).

⁷⁷ Personal Communication with Kenneth Colbert, Ark. Soil and Water Conservation Comm'n (Mar. 1, 2004).

⁷⁸ Arkansas Multi-Agency Wetland Planning Team, *supra* note 76.

⁷⁹ Colbert, *supra* note 77.

⁸⁰ Brazil and Colbert, *supra* note 11.

⁸¹ Arkansas Multi-Agency Wetland Planning Team, *2000-2001 Landowner's Guide to Voluntary Wetland Programs in Arkansas*, available at http://homepage.mac.com/arkansas_mawpt/Public/LandGuide.pdf.

⁸² Murray, *supra* note 3.

⁸³ Colbert, *supra* note 16.

⁸⁴ Personal Communication with Larry Nance, Ark. Soil and Water Conservation Comm'n (Aug. 30, 2004).

*Resource Management in the Urban Forest.*⁸⁵ This guide provides information to community planners on planning and project implementation of green space, riparian forest, streamside management and habitat restoration.

VII. Education and Outreach

The *Arkansas State Wetland Strategy* articulates three statewide objectives on wetland-related outreach and education: increase the level of public and landowner knowledge and benefits from wetland conservation on private lands through education and incentives for wetland protection, restoration, stewardship, and enhancement; support creation of urban riparian/wetland greenbelts for education and urban wildlife habitats; and increase wetland information delivery to local government, the public, and schools.⁸⁶

In response to these goals, the MAWPT has organized and created various wetland-related educational products and events. For example, the team has conducted teacher workshops on wetlands educational techniques. The MAWPT also has created a Wetlands Function Display that can be used at a variety of locations, such as fairs, conferences, or other community events. The display gives a holistic view of the benefits of wetlands in the landscape. Finally, the MAWPT also has funded the creation of a state educational curriculum for K-12 students on wetlands. The curriculum includes various topics such as tree identification, soils, and geomorphology and is designed so that it may be used in field locations, such as the AGFC's wetland education center. The MAWPT website has won awards for education and serves as a clearinghouse for many other publications.⁸⁷ MAWPT representatives have also attended various conferences, given college lectures, and participated in other related events that target citizen groups, local municipalities, and university students.⁸⁸

VIII. Coordination with State and Federal Agencies

The success of the MAWPT exemplifies the intra-state coordination that exists in Arkansas. Since its inception in the 1990s, partnerships amongst the MAWPT agencies have strengthened and endured. While some agencies contribute more than others on specific projects, each agency brings its own perspective and expertise to bear in the state's wetland initiatives. Each MAWPT agency has at least one representative on the team, and the participants meet regularly.⁸⁹

The state also regularly coordinates with federal agencies on wetland-related initiatives and issues. Several MAWPT members also serve on the Wetland Advisory Team that provides comment on federal projects affecting wetlands in the state. Also, as described above, MAWPT is currently working with the Corps on HGM classification and regional guidebooks. Individual agencies, such as the AGFC and the ADEQ, coordinate regularly with the federal agencies on

⁸⁵ *Id.*

⁸⁶ ARK. MULTI-AGENCY WETLAND PLANNING TEAM, *supra* note 7.

⁸⁷ ARK. MULTI-AGENCY WETLAND PLANNING TEAM, *supra* note 40.

⁸⁸ Murray, *supra* note 3.

⁸⁹ Brazil and Colbert, *supra* note 11.

National Environmental Policy Act issues, §404 comment, §401 program implementation, endangered species matters, and other wetland-related issues.⁹⁰

IX. Acronyms and Abbreviations

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

⁹⁰ Murray, *supra* note 3.