Wetlands provide critical fish and wildlife habitat, water quality protection, flood control, groundwater recharge and recreation benefits. They have been declining in many states, however, because pollutant discharges and development activities often are unmanaged, which can cause wetlands to be drained or filled. This policy brief suggests state policy options that have the greatest potential to restore, enhance and create wetlands. It focuses on legislative approaches—both regulatory and incentive-based measures—but also recognizes that legislation may not be necessary to adopt and implement the options.

The primary audience is legislators and legislative staff in the Mississippi River Basin, a region comprised of 10 states stretching from Minnesota to Louisiana. Within the basin, the focus is on policymakers in Arkansas, Kentucky, Mississippi, Missouri and Tennessee, states to whom NCSL is offering technical assistance as they consider policy options. Where it exists, legislation in these five states is highlighted to illustrate the options presented and make them as relevant as possible to states within the region. Other examples of policy innovations have been taken from two states in the upper basin, Minnesota and Wisconsin.

After describing what wetlands are and the benefits they provide, the brief suggests policy options in six areas:

1. Mitigation;
2. Water quality standards;
3. Clean Water Act Section 401 state certification process;
4. State permits;
5. Local government planning and management; and

In each area, state legislation may be considered to enable or support program development and implementation.

**What Are Wetlands?**

Wetlands typically refer to swamps, marshes and bogs. They are described in a similar way in most states’ statutes and regulations. The Tennessee Department of Environment and Conservation defines 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 (Tenn. Comp. R. & Regs. 1200-4-7-.03).”

**Wetland Benefits**

Wetlands provide many environmental and economic benefits. As enumerated in the Arkansas statutes, these include:

1. Flood impact mitigation by slowing storm water runoff;
2. Water quality enhancement by removing sediment, nitrogen, phosphorus, and other pollutants from surface water;
3. Habitats for fish and wildlife, including waterfowl and rare or endangered species;
4. Groundwater recharge…that will assist in ensuring that groundwater is available for the future;
5. Recreational uses for hunting, fishing, hiking…that not only add to the quality of life, but also have a significant economic impact on the state; and

Mitigation Approaches

When it is impossible or impractical to avoid or minimize an adverse impact on a wetland caused by a discharge—typically dredging or filling a wetland—the most effective policy option is compensatory mitigation. Mitigation may take one of three forms.

- **Mitigation Banks.** In this market-based approach, the applicant for a discharge permit purchases credits from a mitigation bank. The “bank” itself usually is another wetland that has been restored, enhanced or created by a state or local government agency or nonprofit conservation organization, or land capable of being converted to a wetland through revegetation or changes in hydrology. It is set aside and assigned a number of “credits” by the Army Corps of Engineers (a federal agency that issues dredge or fill permits under Section 404 of the Clean Water Act) or a state agency based on its value—the wetland functions it provides (e.g., fish and wildlife habitat, water quality protection, floodwater retention). The permitting agency then approves the number of credits necessary to be purchased from the bank to offset the impacts on the wetland where the discharge will occur.

- **In-Lieu Fee.** Instead of purchasing wetland credits from a bank, a permit applicant may make a payment to a government agency or nonprofit conservation organization that will restore, enhance or create wetlands elsewhere. The amount of the in-lieu fee is calculated by the permitting agency based on the mitigation activities required to offset the project’s impact. The government agency or nonprofit conservation organization that receives the fees must work out an agreement with the permitting agency before it can accept payments.

- **On-Site Mitigation.** An alternative to these market-based mechanisms is requiring the permit applicant to conduct wetland restoration activities to offset the discharge impact on the wetland. The activities may occur onsite by restoring wetland functions in the same area, on adjacent land, or at another site where comparable wetland values can be replicated. If the activities are conducted within the same watershed, there is a greater probability that the mitigation will reduce the impacts in the affected wetland. Under this approach, the permit applicant is responsible for ensuring that mitigation activities are completed.¹

While each of these mitigation options can reduce the effects of a discharge or development activity on a wetland, regulatory agencies often prefer wetland banks or in-lieu payments to restoration activities by the permit applicant. The reason is certainty. Mitigation banks offer demonstrated results because wetlands in the bank have already been—or are in the process of being—restored, enhanced or created. In-lieu payments are made to government agencies or nonprofit conservation organizations that have experience in restoring, enhancing or creating wetlands. In both cases, there is high probability of success, and the mitigation ratio set by the regulatory agency usually is greater than 1:1 (acre or credit of restored wetland to damaged wetland). Activities undertaken by the permit applicant are ongoing (time limits for completion and additional years of monitoring and maintenance are required), with no guarantee that the wetland functions being replaced will be sustained over the long-term.²

Mitigation Policies

- **Arkansas.** The Arkansas wetlands mitigation banking program was established through legislation enacted in 1995 (Ark. Code Ann. §15-22-1001 et seq.). The act authorizes the Arkansas Natural Resources Commission to set a price for credits in mitigation banks controlled by the state and to acquire from willing sellers lands that are suitable for use in mitigation banks because of the potential to restore or enhance their
wetland values. Money received from the sale of bank credits is deposited in the Arkansas Water Development Fund to acquire lands suitable for use in mitigation banks and to pay for the costs to restore, enhance or create wetlands.

Mitigation credits can be purchased by those holding Section 404 permits who are required to provide compensatory mitigation as a permit condition. The bank from which credits are purchased must be approved by the agency issuing the permit (the Army Corps of Engineers or a state agency), and the bank’s service area—the land on which mitigation will occur—must be located in the same region as the wetland affected by the permitted discharge. The number of credits assigned to a bank is based on the potential of mitigation activities to restore or enhance wetland functions by reestablishing wetland hydrology and vegetation. The price of mitigation credits in state-controlled banks is set by the Arkansas Natural Resources Commission, but the price in privately run banks is negotiated between the bank owner and the person purchasing the credits.³

- **Kentucky.** Kentucky has adopted legislation that authorizes the Department of Fish and Wildlife Resources to establish and manage wetland mitigation banks “to restore, create, or enhance wetlands and streams as compensatory mitigation where a state agency or other party is required to provide compensatory mitigation, and where the use of banked mitigation is approved by the agency requiring mitigation (Ky. Rev. Stat. §150.255(2)).” The banks may be established before any requests to purchase credits are submitted. Mitigation is required at a 2:1 ratio of restored-to-damaged wetlands.

Legislation also created a Kentucky Wetland and Stream Mitigation Fund (Ky. Rev. Stat. §150.255(3)). Revenue in the fund comes from in-lieu fees and is used to restore, create, enhance or preserve wetlands and streams in the same watershed or region where the discharge or development is located. The Department of Fish and Wildlife Resources identifies projects and undertakes, or contracts with other state agencies or nonprofit conservation organizations to undertake, the mitigation activities. If the best available site for restoration is on private land, the department must develop a partnership with a landowner who is willing to donate a conservation easement or sell the land to the state or a nonprofit conservation organization to preserve its wetland status.⁴ Department staff notes that the in-lieu fee program “is very well received by permit applicants; they cut a check and their hands are clean.”⁵

- **Tennessee.** The Department of Environment and Conservation has adopted rules that require a permit applicant (see Aquatic Resource Alteration Permit discussion below) to employ mitigation strategies if the proposed discharge would result in an “appreciable permanent loss of value of wetlands (Tenn. Comp. R. & Regs., Dept. Env. & Cons., 1200-4-7-.04).” The rules prioritize preferred mitigation options and set the following ratios of acreage replacement—2:1 for restoration; 4:1 for enhancement and creation; and 10:1 for preservation. The rules allow for mitigation banking if on-site restoration is not practicable. Seven public and privately operated mitigation banks currently operate in the state.⁶
**Water Quality Standards**

Setting water quality standards for wetlands provides a framework within which other policy tools, including the Clean Water Act Section 401 certification process (described below), operate to protect wetlands from degradation. Although all states have water quality standards to protect traditional surface waters (e.g., streams and lakes), only 14 states—including Iowa, Minnesota and Wisconsin in the Mississippi River Basin—have adopted specific standards for wetlands. Water quality standards designate uses for water bodies (e.g., water supply, fish and wildlife habitat, recreation, agriculture), then establish criteria to protect those uses (e.g., permissible numeric concentrations of a pollutant in the water or more general narrative standards that describe values to be protected). Discharges into the water that result in the standard being exceeded are not permitted (unless offset by mitigation activities).

The nature and function of wetlands often make it difficult to adopt water quality standards in the same manner as for other water bodies. Because wetlands interface with dry land and streams, and may themselves be dry for part of the year, they often are treated as land and are subject to state and local land use policies instead of water policies. Two important wetland functions—water quality protection and flood control—actually result in wetland degradation because wetlands perform important roles in protecting other waters by absorbing and filtering pollutants and retaining sediment—they act as “buffers.” This dual role suggests that, if a state were to consider adopting specific water quality standards for wetlands, “differences in threat to wetlands and other waters need to be taken into account.” Activities that may harm wetlands include not only pollutant discharges, but also dredging, draining and filling wetlands.

Wisconsin’s water quality standards for wetlands illustrate one approach. They are “narrative” standards (statements describing types of activities that are allowed or prohibited and a sequential process for making such determinations), as opposed to “numerical” standards (permissible numeric concentrations of a pollutant in water). Narrative standards are used due to the variability in functions found in each wetland that the standards are designed to protect, such as “storm and flood water storage, hydrologic and filtration functions, and habitat values for aquatic organisms and wildlife.”

Wisconsin’s standards provide criteria to be used to protect these functional values. They state: “Liquids, fill or other solids or gas may not be present in amounts which may cause significant adverse impacts to wetlands…Hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be protected to prevent significant adverse impacts (Wis. Adm. Code, Dept. Nat. Res., Chap. NR 103.03(2)).”

In determining whether a proposed activity is permitted, the Wisconsin Department of Natural Resources uses a series of decision-making check points. It first determines whether the proposed activity is “water dependent” (i.e., to fulfill its primary purpose, the activity must be situated in a wetland). If it is wetland dependent, a permit will be granted if the following conditions are met:

1. No practicable alternative exists which would avoid adverse impacts to wetlands;
2. All practicable measures to minimize adverse impacts to the functional values of the affected wetlands have been taken;
3. The activity will not result in significant adverse impacts to wetland functional values, significant adverse impacts to water quality or other significant adverse environmental consequences (Wis. Adm. Code, Dept. Nat. Res., Chap. NR 103.08(4)).

In summary, the water quality standards will not be met, and approval will be denied, “if the project is not water dependent and there is a practicable alternative to the proposed project.”

How effectively have Wisconsin’s standards protected wetlands? The Wisconsin Department of Natural Resources notes that, before the standards were adopted in 1991, the state was losing “approximately 1,400 acres of wetlands per year to state and federal permitted activities in Wisconsin…since the adoption of NR 103 [the wetland standards], we are losing less than 100 acres per year of wetlands.” The department concludes that NR 103 “allows projects to move forward where there is no practicable alternative, such as expansion of existing facilities where it
cannot be reasonably accomplished elsewhere. The application of the rule has resulted in early planning and redesign of many projects through the cooperative efforts of our staff and project applicants.\textsuperscript{12}

**Section 401 State Certification**

Under Section 401 of the Clean Water Act, states can take action to certify, condition or deny a federal permit for an activity that may result in a pollutant discharge to waters of the state, including wetlands. The major federal permit affecting wetlands is found in Section 404 of the act, which regulates the discharge of dredged or fill material. A permit is required from the Army Corps of Engineers for such discharges; Section 404 triggers the state authority contained in Section 401. In most states, this is the primary policy used to protect wetlands. It only occurs, however, in conjunction with federal review of a permit application.

A federal permit cannot be issued until the state has acted or has waived its authority to do so. States may base their decisions to certify, condition or deny a federal permit on whether the proposed activity will comply with state water quality standards. The existence of water quality standards—whether they are wetland-specific or an extension of standards applied to traditional surface waters of the state—is critical to states’ ability to use the Section 401 certification process as an effective wetlands protection tool.\textsuperscript{13} Conditions attached to certification may include monitoring and reporting requirements to ensure protection of wetlands over time, or compensatory mitigation to reduce or offset unavoidable impacts to wetlands.

Among the Lower Mississippi River Basin states, Tennessee has the strongest Section 401 certification program. Reasons for this include how the state uses water quality standards—which are not wetland-specific but are extended to wetlands under its broad definition of “waters of the state” to which standards apply—and its antidegradation policy as “backstops” for the certification process. The antidegradation policy “requires applicants to submit an evaluation of alternatives and a social and economic justification for any proposal that would result in degradation of water quality including any significant loss of habitat.”\textsuperscript{14} The combination of water quality standards and antidegradation policy comes into play when the state uses the Section 401 certification process because certification “must assure that an activity complies with state water quality standards, and since the antidegradation statement is a part of the state’s water quality standards, Tennessee applies its antidegradation policy to all §401 certifications.”\textsuperscript{15}

Although Tennessee has not denied certification of many federal permits—it uses the Section 401 certification process more to place conditions on permits to protect wetlands than to reject them outright—it may do so when:

- The application violates state water quality standards.
- There are viable alternatives with less impact on wetlands.
- The project does not comply with the state’s antidegradation policy.
- It is not socially or economically necessary to achieve the applicant’s objectives.\textsuperscript{16}

**State Permits**

Although every state regulates pollutant discharges into traditional surface waters through a permit system, few require a state permit for discharges into wetlands. The Section 401 certification process takes the place of a state permit in most states, but that process is used only in tandem with a federal Section 404 permit review. For states
considering a permit program, Minnesota and Tennessee offer examples of how it might be done.

- **Minnesota.** Minnesota requires a state “public waters” work permit from the Department of Natural Resources (MNDNR) for activities that “change or diminish the course, current or cross section of a public water… by any means, including filling, excavating or placing of materials in or on the beds of public waters (Minn. Stat. §103G.245).” The statutory definition of “public waters” includes “public water wetlands,” which are wetlands greater than 10 acres in size in unincorporated areas, and 2.5 acres in incorporated areas (Minn. Stat. §103G.005). Activities in public water wetlands have accounted for about 10 percent of the public waters work permits issued by the department in recent years, but “because the MNDNR works with the applicant to ensure that resource concerns are addressed early in the application process, only three percent of permit applications are denied.”

- **Tennessee.** Tennessee uses a permit program in conjunction with the Section 401 certification process and mitigation banking to protect wetlands. Activities that physically alter “waters of the state”—wetlands are covered under that definition—require an Aquatic Resource Alteration Permit (ARAP) from the Department of Environment and Conservation (Tenn. Code Ann. §69-3-103(42), 69-3-108(b)(1)). The ARAP is used for activities that flood, excavate, drain or fill a wetland that are not regulated by the Army Corps of Engineers under Section 404 of the Clean Water Act. The ARAP and Section 401 certification process are virtually the same; if an applicant receives approval under either process, the other is automatically conferred. The state permit can provide additional protection to wetlands, however, because it does not depend on federal permit review. Mitigation may be required as a condition for permit approval because “permit applicants must establish that impacts to aquatic resources are unavoidable, that efforts have been made to minimize impacts by modifying development plans, and that compensation for unavoidable impacts will be provided.”

Local Government Planning and Management

As noted in the discussion of water quality standards, wetlands share some characteristics of other lands that are subject to local regulation. Local governments are entrusted by states with primary land use planning, zoning and growth management responsibilities. They may develop land use planning and management policies—sometimes subject to review and approval by a state agency—and are largely responsible for their implementation. The same responsibilities for managing wetlands may be conveyed to local governments.

Minnesota complements its state permit program for public water wetlands with a grant of local authority over smaller wetlands—those less than 10 acres in size in unincorporated areas or 2.5 acres in incorporated areas—through the Wetlands Conservation Act. The act prohibits draining or filling a wetland unless it is replaced by restoring or creating a wetland of equal public value pursuant to rules adopted by the Minnesota Board of Water and Soil Resources, or through a comprehensive wetland protection and management plan adopted by a local government (Minn. Stat. §103G.222).

Local governments include city councils, county commissions, and soil and water conservation districts. They are responsible for reviewing wetland replacement plan applications, banking plans that may be required as part of compensatory mitigation, and granting exemption requests under the law (Minn. Stat. §103G.2242). They do not issue permits for approved activities, but instead make “determinations” as to whether the proposed projects comply with their plans before the applicant can move forward.

Financial Incentive-Based Programs

In addition to in-lieu fee programs that are part of compensatory mitigation, states may provide financial incentives for private landowners to restore or preserve wetlands on their property. Several states have experience with granting income tax credits for the donation of conservation easements to land that meets specified natural resource values; the concept can be transferred to wetlands that satisfy functional values. A conservation easement is “a legal
The donor enters into the agreement voluntarily and retains title to the land. The property is assessed at a lower value for property tax purposes, which further benefits the landowner. A nonprofit conservation organization typically oversees the donated land to ensure compliance with the easement. If a landowner is not interested in conveying an easement to his or her property, the state may provide a tax credit for costs incurred by a landowner in restoring or creating a wetland on the property.

Among the Lower Mississippi River Basin states, Arkansas has developed a program that combines elements of both financial-incentive approaches. The Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, passed by the legislature in 1995, created a wetland and riparian zone state income tax credit program (Ark. Code Ann. §26-51-1501 et seq.). Since most wetlands in Arkansas are on privately owned land, the legislation provides a financial incentive to property owners to restore, enhance or create wetlands on their land. The income tax credit is available to landowners who incur costs for activities approved by the Arkansas Natural Resources Commission, such as procurement of professional services to conduct activities, site preparation and establishment of permanent wetland vegetation. The wetland restoration, enhancement or creation project must be completed within three years of obtaining the tax credit and must be maintained for at least 10 years. If the activities are part of a compensatory mitigation requirement, the costs are not eligible for the tax credit.21

The tax credit can defray the applicant’s state income tax liability up to a maximum of $5,000 per year. If eligible costs exceed that amount, they can be carried over for an additional nine years for a total credit of $50,000. The Arkansas Natural Resources Commission must certify the eligibility of the costs to the Department of Finance and Administration. Total credits for all applicants in the state cannot exceed $500,000 in any year.

The Arkansas General Assembly expanded the tax credit program in 2009 to provide a second means of protecting wetlands on privately owned land. Wetland and riparian zone conservation tax credits are available to landowners who donate eligible land to qualified nonprofit conservation organizations (e.g., land trusts) to maintain the property as wetlands. Ownership of the land remains in private hands, but a conservation easement is attached to the land and restricts its use to ensure its continuing operation as a wetland.22 The amount of the tax credit is equal to 50 percent of the donated land’s fair market value, not to exceed $50,000. No more than $5,000 may be claimed in any one year; the unused portion of the tax credit may be carried over for nine years.

**Conclusion**

The approaches presented in this report represent specific options that have been proven effective to restore and protect wetlands. A state legislature or agency may consider them separately, but water quality standards reinforce Section 401 certification; mitigation may be a condition for permit approval. The strongest state programs combine them as part of a comprehensive program.
Notes


2. Ibid.


5. Andy Mowrey, Kentucky Department of Fish and Wildlife Resources, personal communication with author, July 15, 2011.


8. Ibid., 5.


10. Ibid., 5.

11. Ibid., 17.

12. Ibid., 18.


15. Ibid.

16. Ibid.


