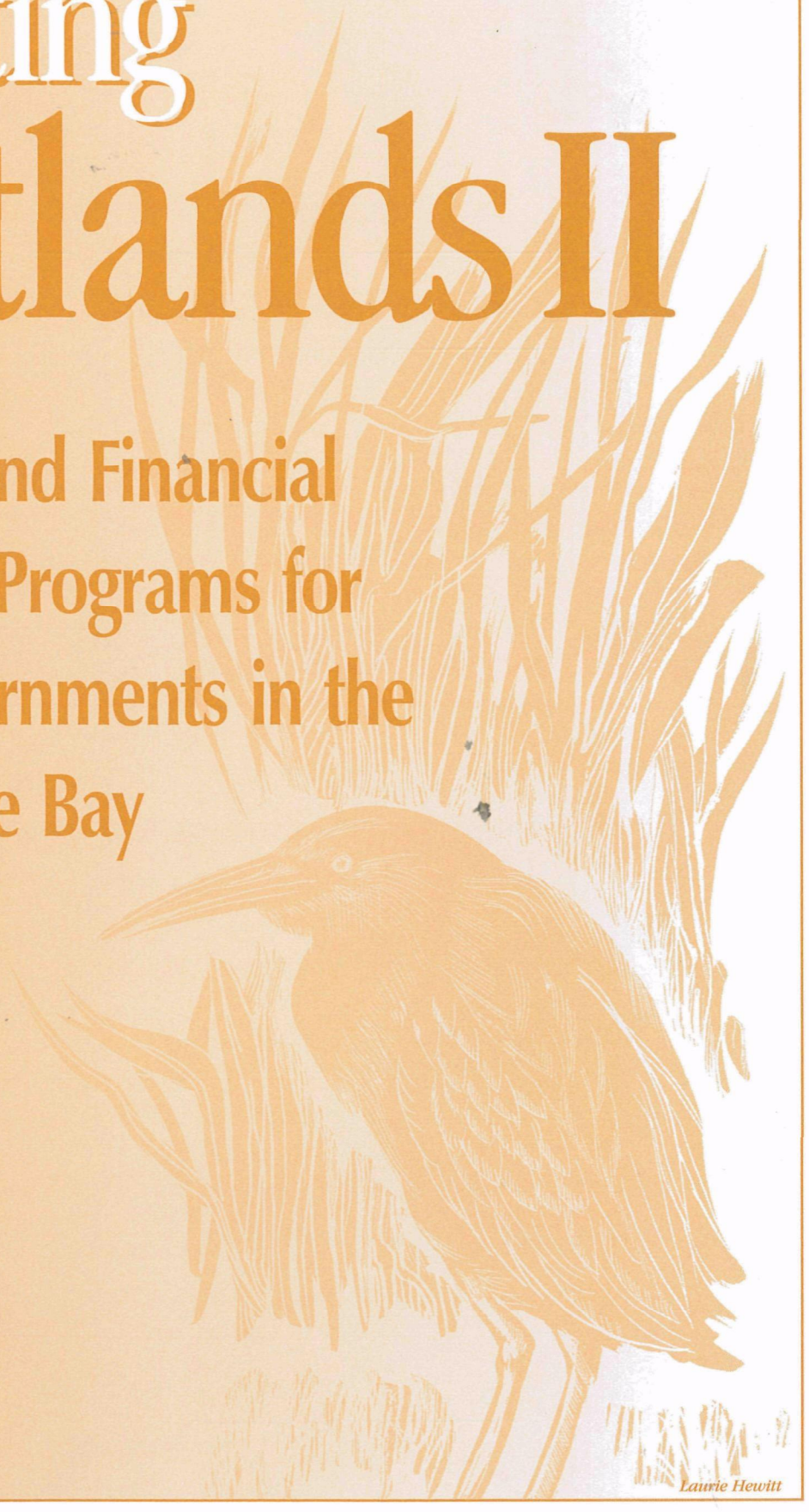
EPA 903-R-98-002 CBP/TRS-195/98

February 1998

Protecting Wetlands II

Technical and Financial Assistance Programs for Local Governments in the Chesapeake Bay Region



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Chesapeake Bay Program

PROTECTING WETLANDS: TECHNICAL AND FINANCIAL ASSISTANCE PROGRAMS FOR LOCAL GOVERNMENTS IN THE CHESAPEAKE BAY REGION

February 1998

Acknowledgments

This handbook was prepared by the Environmental Law Institute® (ELI) with funding from the Chesapeake Bay Program, U.S. Environmental Protection Agency (U.S. EPA) under Assistance Agreement No. CB993349.

Protecting Wetlands: Local Government Guide to Federal and State Wetlands Protection Programs in the Chesapeake Bay Region

ELI Project #951701

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Chapter One:
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Federal Programs

This material supplements *Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region*, published in 1997 by the Chesapeake Bay Program Office of the U.S. Environmental Protection Agency. That guide focused on how local governments could use their own authorities to protect wetlands; this supplement identifies federal and state programs that may assist local protection efforts, or that can be influenced by local governments to support local wetland protection goals.

Federal programs are discussed in Chapter One, followed by state wetland programs in Chapter Two. Chapter Three identifies federal and state technical assistance, cost-share programs, and subsidies available to support private and local government conservation efforts. Some private sources of support are also included. Chapter Four describes sources of wetlands-related data and educational information. The Appendices provide a list of acronyms and detailed contact information for the government and nongovernmental organizations mentioned throughout the publication.

Local governments concerned about the conservation and restoration of wetlands in the Chesapeake Bay can influence federal wetlands regulatory programs and other federal programs that affect wetlands. With many of these federal laws, there are opportunities for public comment and requirements for agencies to hold public hearings before permits are issued or decisions are made. Local governments and private citizens can influence these processes through attending public meetings and submitting comments on proposed decisions.

CLEAN WATER ACT

There is no single federal law that regulates wetlands; rather, a number of laws cover different aspects of wetlands regulation. The primary federal law that regulates activities in wetlands is §404 of the Clean Water Act.

Section 404

Section 404 of the Clean Water Act requires permits for the discharge of dredged or fill material into waters of the United States, including wetlands. The program is jointly administered by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA). The Corps handles review of permit applications, decides when to issue or deny permits, and conducts most enforcement. EPA's responsibilities include

development of the environmental standards for issuing permits (the §404(b)(1) guidelines). The agency has the power to veto permit decisions of the Corps. EPA also has a role in enforcement of permits, although the Corps generally is the lead agency for enforcement. In addition, the U.S. Fish and Wildlife Service, the Natural Resources Conservation Service, and the National Marine Fisheries Service, have advisory roles in the program. The Department of Agriculture's Natural Resources Conservation Service (NRCS) has been delegated the authority to delineate wetlands on farmland.

Federal Agencies with a Role in §404 of the Clean Water Act
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
Natural Resources Conservation Service
U.S. Fish and Wildlife Service
National Marine Fisheries Service

Types of Permits

There are two basic kinds of permits authorized under §404. Individual permits are issued on a project-by-project basis after federal review of specific project proposals. General permits are issued without reference to a particular proposal, but cover a variety of *similar activities* that have "only minimal adverse environmental effects" by treating them alike.[1] General permits impose standard conditions on activities that affect waters coming from wetlands (called "discharges") and streamlined approval of these activities.

Individual Permits

For discharges not authorized by general permits, an individual permit application must be submitted to the district office of the Army Corps that has jurisdiction over the area of the proposed discharge, unless the state has been given this authority. States perform varying roles in the permitting process (see section on Statewide Programmatic General Permits and individual State Wetlands Programs). After a completed application is received, the Corps or the state issues a public notice containing information such as the project location, scope, likely impacts, and applicable laws and regulations. Notice is sent to all interested parties, including adjacent landowners; local, federal, and state agencies; and anyone who requests a notice.

Anyone -- including local governments or private citizens -- interested in receiving notices of permit applications can write to the Corps' District Engineer or the state wetland protection agency and request that it be placed on a mailing list for notification of proposed permits affecting wetlands.

The U.S. Army Corps of Engineers Division that covers Chesapeake Bay is the North Atlantic Division, headquartered in New York City. It has subordinate districts, which include the Baltimore, Philadelphia, Norfolk, and New England Districts. The Baltimore District has been identified as the lead district on Chesapeake Bay, but the Norfolk and Philadelphia Districts participate in Bay-related activities as well.

The Corps cannot issue an individual permit unless it determines that the proposed project complies with the §404(b)(1) guidelines and is not contrary to the public interest. The process includes review of the permit application, public notice and opportunity for comment, and review by state agencies for consistency with state water quality standards (See "Clean Water Act § 401: State Water Quality Certification"). For substantial projects, the Corps may need to prepare an Environmental Impact Statement (EIS), which is made available in draft form for public comment before it is finalized.

There are substantial penalties for failing to obtain a permit when one is required. It is also important to remember that states may have their own permits that are required in addition to the §404 permit.

General Permits

Section 404(e) of the Clean Water Act authorizes the Corps to issue general permits on a nationwide, regional, or state level. General permits promulgated by headquarters for nationwide application are referred to as Nationwide Permits (NWPs). General permits issued on a regional or statewide basis are called general permits.

Both general and nationwide permits were designed to apply to categories of activities that affect discharges coming from wetlands that "are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment."[2] The general permit process is meant to streamline the regulatory process because authorization by general permit eliminates the need for case-specific, project-by-project review.

General permits may contain specific limitations or requirements that must be followed in order to use the authority of the permit. These may include mitigation requirements, requirements that the Corps be notified of an intent to discharge prior to activities affecting wetland discharge (predischarge notification), and provisions that trigger the need for an individual permit in circumstances where the anticipated impact is greater than the minimal impacts for which the general permit was issued.

Nationwide permits are issued by regulation by the U.S. Army Corps of Engineers headquarters. They must be reissued every five years and published in the *Federal Register.* Nationwide Permits allow classes of activities that are similar in nature to be automatically approved and do not require permit applications for projects that fall within the scope of a Nationwide Permit, although certain NWPs do require notification to the Corps. The

Corps is not required to issue notices of permit applications for NWPs, so there are not any opportunities for public notice, hearings or comments to be submitted for nationwide permitted activities. States and local governments can influence the impacts of Nationwide Permits through §401 certification, which gives states the authority to deny or condition Nationwide Permits, and through coastal zone federal consistency provisions (see "Federal Consistency Provision").

Although NWPs are meant to regulate activities that do not have great cumulative environmental impacts, and therefore, do not warrant individual review, several of the nationwide permits have caused considerable controversy. These include NWP 26, which until 1997 allowed discharges of dredged or fill material into headwaters and isolated waters on less than ten acres, and NWP 29, which allows discharges from the construction or expansion of a single-family home (including garage, driveway, storage shed, etc.) if the discharge does not cause the loss of more than ½ acre of nontidal wetlands.

On December 13, 1996, the Army Corps of Engineers published a final notice which reauthorized the current set of nationwide permits for the next five years, and which made changes and additions to prior nationwide permits.[3] Among other changes, Nationwide Permit 26 will be abolished in two years from the date the final notice was published (December, 1998) and in the interim period, acreage limits will be three acres (rather than ten) with a predischarge notification required for discharges from environment-altering activities that affect 1/3 acre or more. The Corps plans to develop "activity-specific replacement permits" for release for public comment by May 1998 to replace NWP 26. The Corps also issued two new NWPs, one for moist soil management (NWP 30) and one for maintenance of existing flood control projects (NWP 31).

Statewide Programmatic General Permits

The Corps districts may also issue Statewide Programmatic General Permits (SPGPs) authorizing state-approved activities. SPGPs are meant to help the Corps avoid duplication with the state regulatory program; the Corps issues a general permit which is based on compliance with an existing state or local program. The SPGP treats compliance with the state permit process as sufficient for federal purposes. In this respect SPGPs have an effect similar to delegating §404 regulatory authority to the states in that they give states regulatory responsibilities otherwise performed by the Corps.

In states with an approved SPGP, the Army Corps in effect agrees in advance to accept state decisions, although it retains its legal authority to issue §404 permits. Typically, the SPGP may allow the states to approve certain activities with little substantive federal review, although major activities will still require a separate federal permit. (For more information on specific Programmatic General Permits in the Chesapeake Bay states, see

sections titled "Pennsylvania State Programmatic General Permits" and "Maryland State Programmatic General Permits" in Chapter Two, pp. 18, 22.)

Local governments interested in an activity that is covered by a SPGP will need to direct their comments primarily to the state regulatory program. However, they also may wish to contact the Corps to determine whether the activity is such that the Corps might consider asserting jurisdiction.

Permit Experience

On a nationwide basis, a substantial number of activities fall within the scope of §404. For example, the Army Corps of Engineers and the Environmental Protection Agency estimated that in Fiscal Year 1994, over 48,000 applications for a §404 permit were received. Eighty-two percent of these applications were covered by general permits and were granted or allowed to automatically proceed, with an average time of 16 days. Fewer than 10 percent of the applications were subject to the more detailed individual permit evaluation, which took an average of 127 days. Only 358, or 0.7 percent, of the permits were denied.[4] The Corps' Baltimore District reports that in its office, 70 percent of all permits are evaluated in 60 days or less, and 85 percent of Individual Permits are evaluated in 120 days or less.

The Corps estimates that, each year, an additional 50,000 activities occur under the authority of general permits that do not require Corps notification. Beyond this, certain other activities fall within exceptions to the section 404 program, such as normal agricultural and silvicultural activities. For example, the Corps reports that "the vast majority of farming, ranching and silvicultural practices are exempt from §404...less than 7 percent of the total Corps workload is related to agricultural activities." Over 85 percent of those agricultural activities that do require a permit are covered by a general permit.[5]

The Corps of Engineers can be a useful source of information for local governments on proposed activities that may impair or destroy wetlands, but there are many activities beyond Corps control. Moreover, developers or land-owners operating under general permits with predischarge notification requirements may receive minimal scrutiny by the Corps during the brief period before the environment-altering activity occurs unless there is an expression of interest by a third party, such as a local government seeking to ensure detailed review by the Corps. It may be quite important for a local government concerned with a potential activity to contact the Corps early in the process, if it anticipates an activity may affect waters coming from a wetland. Indeed, a local government may request that the developer or land-owner provide a copy of any individual §404 application or predischarge notification.

Local governments concerned about the impacts of proposed projects should first contact the Army Corps District Office. EPA's authority to veto individual permits is also

worth noting if a local government is concerned about the environmental impacts of significant projects. Informing EPA's regional office in Philadelphia of a concern over a potential individual permit -- before the Corps has acted on the permit -- may lead to negotiations in which the local government's interest in conserving wetlands will be considered. Indeed, such involvement at an early stage is more likely to result in a desired outcome than waiting until after the Corps has issued the permit and then attempting to persuade EPA to undo the action of another federal agency.

Although local governments are often supportive of local development projects, they sometimes lack sufficient control over the environmental effects, including effects on wetlands, flood control, water quality, and natural habitats. With the assistance of federal agencies, such as the Corps of Engineers and EPA, local governments can help assure that projects are tailored to protect wetlands, that unnecessarily destructive projects are withdrawn or redesigned, and that projects approved by adjacent jurisdictions that have adverse effects on the local jurisdiction can be effectively reviewed and scrutinized to mitigate or eliminate adverse effects.

Clean Water Act §401: State Water Quality Certification

Section 401 of the Clean Water Act gives states and eligible Indian tribes the authority to review and approve, condition, or deny permits or licenses for any federal activity that may violate the state's water quality standards, including federal §404 permitting for activities in wetlands. States base their decisions to grant or deny certification on whether the proposed activity will comply with state water quality standards.

Federal agencies are required to incorporate §401 conditions into a federal permit or license. If states deny certification under §401, federal permitting agencies are prohibited from issuing a permit for the activity. However, if states fail to act on certification within a "reasonable time frame," they waive their right to certification. State water quality certification approval or denial is generally included in a state's comments to the Corps during the permit review process under §404(a). State agencies must notify the public of an application for §401 certification and post the notice for public comment, as they do with §404 permits.

The federal regulatory permit and license programs that may involve a discharge into waters of the United States, and thus require state §401 certification, include §404 permits, Federal Energy Regulatory Commission hydropower licenses, National Pollutant Discharge Elimination System (NPDES) permits where EPA is the issuing authority, Nuclear Regulatory Commission licenses, and others.

In response to state interest in applying §401 certification to protect wetlands, EPA prepared guidance for the states in 1989[6]. A year later, EPA followed this with guidance on developing water quality standards specifically for wetlands[7]. Applying water quality

standards to wetlands can be a very important tool. Some states, especially those that do not have a wetlands regulatory program, rely on §401 certification as their primary mechanism to protect wetlands in the state. (For more information on the use of §401 Certification in the Chesapeake Bay states, see the sections titled "State Water Quality Certification: §401" in Chapter Two, pp. 18, 22, 25.)

It is important to note that §401 certification requirements apply only to *federal* licenses and permits. Thus certification does not apply where a discharger or developer needs only a state or local permit. For example, in the case of Statewide Programmatic General Permits (SPGPs) under §404, the state certification is only required for the original SPGP recognizing the state program. It is not required for the issuance of each permit by the state thereafter. However, water quality can be examined for each permit by the state under state law when it decides to issue permits in a state with a SPGP.

Similarly, nationwide permits, once they have been certified and have become effective in a state, are not subject to subsequent state certification upon each use by a discharger. Therefore, some states deny or condition §401 certification for some §404 NWPs in order to reduce certain problematic losses of wetlands within their borders. In the past, a significant number of states denied certification, or conditioned approval, of Nationwide Permit 26 because they believed that individual review of projects in isolated and headwater wetlands is critical to achieving state clean water and wetlands goals.

Local governments can make use of the §401 certification process in several ways. First, they can seek to influence state's decisions to certify or conditionally certify nationwide permits. If a local jurisdiction fears that it will receive inadequate notice of an activity or believes that there should be a standard mitigation requirement associated with a nationwide permit, it can contact the state water quality agency during the time when a nationwide permit is being considered or reviewed and seek to influence the state's §401 decision. Second, local governments can use the need for a §401 certification to ensure a closer review of individual permit actions. By raising legitimate concerns to the water quality agency early, the local government may be able to persuade the agency to apply conditions or to influence the approach the Army Corps of Engineers takes on a pending permit application.

THE COASTAL ZONE MANAGEMENT ACT (CZMA) OF 1972 AND COASTAL ZONE ACT REAUTHORIZATION AMENDMENTS (CZARA) OF 1990

The Coastal Zone Management Act (CZMA) of 1972 and the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990 were enacted to protect, develop, and restore the natural resources of the coastal zone while balancing the need for "reasonable" growth. The Act directs states to protect wetlands, floodplains, estuaries, beaches, dunes, barrier islands, fish and wildlife, and their habitat.

Opportunities for Local Governments to be Involved in State and Federal Agency Decision-Making

- Local governments can be added to the Corps' interested parties list to receive information on permit applications and hearings.
- Local governments can provide comments on the issuance of individual §404 permits, General Permits and Statewide Programmatic General Permits.
- For local government-sponsored projects which require wetlands permits, local governments can set up pre-application meetings with the Corps and appropriate state agencies to increase the likelihood that projects will be approved.
- Local governments can comment on applications for state wetlands permits.
- Local governments can provide input into the development of transportation plans under the Intermodal Surface Transportation Efficiency Act (ISTEA) and related highway legislation.
- Local governments can comment on state Coastal Zone Management Plans and identify projects that should be reviewed for consistency.
- Local governments can comment on Environmental Assessments (EAs) and Environmental Impact Statements (EISs) required for federal actions.
- Local governments can participate in the development of State Wetlands Conservation Plans.

Maryland's coastal zone includes 66 percent of the states's land. The area extends from the state's three mile jurisdiction in the Atlantic Ocean to the inland boundaries of the counties bordering the Atlantic Ocean, the Chesapeake Bay, and the Potomac River up to the District of Columbia. This area includes 16 counties and the City of Baltimore. Maryland's coastal zone includes the Chesapeake Bay, the Atlantic coast, and the Coastal Bays[8]

Virginia's coastal zone is defined as "Tidewater Virginia," which includes eight planning districts and 84 local governments -- 17 cities, 29 counties, and 38 towns -- that border on tidal waters.[9]

The coastal areas covered by Pennsylvania's program are geographically separated. The first is along the 63-mile Lake Erie coastline and includes major tributaries. The coastal zone extends from between 900 feet inland to over 3 miles inland. The other coastline protected under the program is the 57-mile stretch of coastline along the Delaware Estuary in Bucks, Philadelphia, and Delaware counties. It extends from 1/8 to over 3 1/2 miles inland from the Delaware River.

To be eligible for funding under the Act and the other authorities associated with the program, states must have a Coastal Zone Management Program approved by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management (OCRM). The Coastal Zone Management Programs (CZMPs) developed by the states take into consideration the protection of natural resources; management of development; siting of major facilities, commercial and industrial development; coordination of state and federal actions; and they assure that the public and local government has a say in the coastal decision-making process.

Coastal Zone Management Programs must also ensure implementation of management measures and mechanisms to enforce such measures. Enforcement mechanisms may include permit programs, zoning, enforceable water quality standards, and general environmental laws and prohibitions. States may also incorporate voluntary approaches, like economic incentives, into their programs.

Federal Consistency Provision

The Coastal Zone Management Act also includes a provision to ensure that federal activities affecting a state's land or water use, or natural resources of the state's coastal zone, must be "consistent" with the enforceable policies of the state's federally approved Coastal Zone Management Program. Federal actions include federal permits and licenses, federal development, federal assistance, and outer continental shelf activities.

States with an approved CZMP can disapprove activities authorized by the federal government on a permit-by-permit basis, if the state finds that a project is inconsistent with the policies established by the state's program. States may also disapprove any or all Nationwide Permits issued by the Army Corps of Engineers for inconsistency with the state's program. States with CZMPs may also deny federal development projects if they are inconsistent with the state's program.

The Maryland Department of the Environment has the authority to implement that state's wetlands responsibilities under the federal Coastal Zone Management Act. The Virginia Department of Environmental Quality is the agency responsible for administering that state's Coastal Program. Pennsylvania's Coastal Zone Management Program is administered by the Pennsylvania Department of Environmental Protection (DEP). Maryland, Virginia, and Pennsylvania's CZMPs are referred to as "networked" programs. A state program that is "networked" generally does not issue its own state permits. Instead, networked programs rely on existing state permits to ensure that their coastal policies are met. Therefore, the state's consistency review of a proposed federal activity is based on its compliance with applicable state statutes, regulations, and policies.

Although local governments do not have the authority to initiate a consistency determination, when the federal government submits a plan to the state, the state publishes the plan and solicits comments. Therefore, local governments can influence consistency determination indirectly, by submitting comments.[10]

FEDERAL TRANSPORTATION LAWS

Wetlands can be significantly affected by transportation decisions and investments made with federal agency support and funding. Not only do highways and other forms of infrastructure often follow riparian corridors or cross wetland areas, but they also have

indirect effects on stimulating growth that can itself lead to impairment of wetland areas if care is not taken to identify and protect these areas.

In 1991, the Intermodal Surface Transportation Efficiency Act[11] (ISTEA, pronounced "ice tea") provided a greatly expanded role for local government in setting transportation goals and priorities.

Transportation Planning Opportunities[12]

The location and management of highways can lead to the degradation of wetlands or can provide opportunities for conservation and restoration of wetlands, as well as public involvement in planning. Transportation can critically affect land use and impact wetlands both directly and indirectly -- directly, by building roads and highways that intersect wetlands, and indirectly by encouraging development in areas previously inaccessible. In fact, the primary determinant of growth in most of the United States has been its transportation networks.

Transportation planning in the nation has been significantly affected by the ISTEA. ISTEA imposes detailed planning requirements on local and state governments, working primarily through regional planning organizations comprised of local officials. ISTEA has also significantly increased the involvement of local government and private citizens. Public involvement is a central component to ISTEA planning. ISTEA planning is continuous, proactive, inclusive, and is tailored to meet the needs and situations of local communities. ISTEA has a strong local component because, although most state highway construction and reconstruction in states involves the expenditure of federal funds, the process by which funding allocations are decided has many local planning requirements.

Under ISTEA, there are three phases of transportation planning where local governments and private citizens can participate. First, metropolitan and regional planning organizations and states are required to publish plans for public participation. The plan must be reviewed for effectiveness to assure that full and open access is provided to all.

Second, the state and metropolitan planning organizations must develop a 20-year transportation plan that includes both long and short-range strategies and actions for transportation in the region. These Long Range Plans (LRPs) outline a set of goals in a specific region over a 20-year period and define a transportation system that will meet those goals. The LRP must be prepared with public participation, including public hearings. Its content must conform to the federal Clean Air Act and the plan must reflect only state, local, and federal financing which is realistically expected to be available. The LRP must be revised every three to five years. There are multiple points in the process of developing the LRP where the public may participate.

Third, state and metropolitan planning organizations must also prepare three-year Transportation Improvement Programs (TIPs). TIPs contain a prioritized list of the

projects that the planning organization actually expects to be implemented in the next three to five years. It is updated every two years. TIPs must be consistent with the goals, polices, and priorities set out in the LRP.

Metropolitan planning organizations are usually multi-county organizations with professional staffs whose official members include representatives of a number of the included jurisdictions. Thus, local governments have some direct access to the governance of these organizations. In addition, local governments can submit comments, testimony, land use plans, and other pertinent information to the metropolitan planning organizations as they engage in preparation of the plans required under ISTEA. These opportunities can be used to promote the protection of wetlands, the avoidance of unnecessary siting of highways and other infrastructure in wetland areas, and the establishment of clear mitigation priorities and respect for local land use planning goals.

ISTEA planning is an important addition to traditional highway planning. Previously, transportation planning's only concession to protecting natural resources, including wetlands, was the longstanding requirement of §4(f) of the federal Transportation Act.[13] That section denies federal approval for any federally supported transportation project that requires the use of any publicly owned land from a park, recreation area, or wildlife and waterfowl refuge -- unless there is no prudent and feasible alternative and the project includes "all possible planning to minimize harm" to the unit.

Although this earlier provision has helped to prevent highway siting through parks and refuges, ISTEA has extended planning activities to cover a broader array of issues, not simply impacts on publicly owned lands. It requires consideration of state and local land use plans, impacts on air quality and other resources, and understanding of efficiencies and trade-offs in siting highways or funding other modes of transportation. The planning process also provides an opportunity to consider impacts on natural resources and opportunities for restoration and mitigation.

Indeed, the LRP is one of the few opportunities where issues of multi-county regional concern can be addressed and weighed against one another in an open public forum. This is quite important in areas where there is little collaboration among local jurisdictions when adopting land use plans and objectives. Although ISTEA planning is somewhat constrained by its primary focus on allocating transportation funds, it provides a rare opportunity for local governments in the Chesapeake Bay region to adopt regional approaches that could directly focus more on environmental concerns -- including wetlands conservation and improvement of water quality for the benefit of water-dependent species.

Transportation Enhancements and Mitigation

ISTEA authorizes federal funding assistance for traditional highway projects, bridges, maintenance, and research, in addition to other nontransportation-related

programs. The Surface Transportation Program (STP), the largest program in ISTEA, is the most relevant for conserving wetlands. The program allows for broad discretion of state and local governments to fund a wide variety of activities, including mitigation of environmental impacts resulting from highway construction, carpool projects, fringe and corridor parking programs, bicycle transportation, and pedestrian walkways.

At least 10 percent of STP funding *must* be allocated for transportation enhancements and 10 percent for safety. The transportation enhancement money may cover rails-to-trails programs and mitigation of water pollution due to highway runoff. The remaining 80 percent of the ISTEA funding may be used by state and local governments for such activities as mitigation of damage to ecosystems, habitat, and wildlife; wetlands banking; and planning activities.

Money is also available to state and local governments under STP and the National Highway System (NHS) for mitigation banking to offset adverse impacts to wetlands. Generally, when the Corps authorizes activities that cause discharges into a wetland under the Clean Water Act for highway construction, for example, the permittee must make up for the loses of the wetlands by compensatory mitigation, or replacing the wetlands on-site. In instances where on-site mitigation is not possible, or where larger mitigation projects have greater value then several small projects, mitigation banking is often used as an alternative to on-site compensatory mitigation[14].

In mitigation banking, a larger off-site wetland is used to compensate for permitted activities in smaller wetlands. Mitigation banking projects may occur in advance of construction and may include direct contributions to statewide and regional wetlands conservation and mitigation planning efforts. In fact, state departments of transportation were the first bodies to utilize mitigation banking as a method for compensating for wetland losses.

Transportation planning can help determine not only where projects or enhancements are sited or constructed, but also how to mitigate the adverse impacts of transportation infrastructure. Well-planned mitigation can be targeted for maximum benefit to wetland function and values.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370d, passed in 1970, establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. NEPA requires the federal government to use all practicable means to create and maintain conditions under which people and nature can exist in productive harmony. Section 102 of the NEPA requires federal agencies to incorporate appropriate and careful consideration of the environmental

effects of proposed actions and analyses of the potential environmental effects and alternatives of the proposed actions.

Specifically, all federal agencies are to prepare detailed statements assessing the environmental impact of and alternatives to "major federal actions significantly affecting the quality of the human environment."[15] These statements are referred to as Environmental Impact Statements (EISs). Major federal actions include a direct federal action, a federal expenditure, or the issuance of a federal permit. Examples of major federal actions that could require an EIS where wetlands might be affected might include a decision to restore or rehabilitate a naval base; any wetlands-impacting activity that is funded through federal money (such as highway and bridge construction); federal approval of a license to build a hydroelectric plant; or even federal issuance of a §404 wetlands permit for a large private development.

The EIS is issued in draft form and made available for public comment before it is revised and published in final form. All relevant comments must be fully discussed and dealt with in the final EIS. In addition to the public, federal agencies also have opportunities to review EISs and it can often be to a local government's advantage to seek the participation of other federal agencies in the comment process. EPA or U.S. Fish & Wildlife Service comments can often be quite significant in affecting decisions made through the EIS process.

Other activities, where there is federal action, but where the significance of the action is less clear or where the impacts of the action are expected to be insignificant, require the preparation of an "environmental assessment (EA)." The EA, like the EIS, must identify relevant alternatives to the proposed action, any impacts from the proposed action, and opportunities for mitigation. The EA is then issued by the federal agency with either a recommendation to do a full EIS or, most often, a "Finding of No Significant Impact (FONSI)." The EA and FONSI are available for public comment after they have been prepared. Comments are collected, but there is no legal requirement to revise the EA. However, such comments can direct decision-makers toward important issues or suggest that perhaps further studies or a full EIS should be prepared before proceeding with the action under consideration.

When issuing permits under §404 of the Clean Water Act, the Army Corps of Engineers must incorporate NEPA requirements in the permitting procedure. The Corps has its own set of regulations that incorporate NEPA procedures for Corps programs. Limited types of activities may be categorically excluded from undergoing environmental analysis if they meet certain criteria for having no significant environmental impact. Except for those projects that are categorically excluded by regulations, however, federal agencies must prepare an EA and/or an EIS whenever a permit is to be issued for work in wetlands.

For most individual §404 permit applications, an EA is prepared by the Army Corps of Engineers. This involves an assessment of the direct and indirect impacts the proposed

project will have on the environment. The Corps District Commander is then responsible for deciding whether an environmental impact statement is necessary. If an EIS is not necessary, the Corps will prepare a FONSI.

A §404 permit application will require preparation of a full EIS if the Corps determines that the proposed activity is likely to have a significant impact on the human environment, as defined by NEPA. In practice, the Corps requires an EIS for a small percentage of §404 permit applications - during the 1980s, an average of 20 EISs were required for every 15,000 permits processed annually. If an EIS is required, the Corps may require the applicant to pay for the required studies. A notice of intent to prepare an EIS is always published in the *Federal Register.*

Although EAs or EISs are prepared by the Corps in connection with individual §404 permit applications, such assessments are not prepared on a site-specific basis for activities in wetlands that are authorized by a nationwide general permit. Instead, the Corps prepares one, overall environmental assessment at the time the nationwide permits are issued in the *Federal Register.* Therefore, although there are no NEPA opportunities for local governments with regard to nationwide general permits, localities do have an opportunity to submit comments on proposed changes to nationwide permits advertised in the *Federal Register.*

NEPA applies to other federal actions than the consideration of §404 permits, of course. Highway construction, siting of federal facilities, decisions about navigation improvements in public waters or changes in the use of federal lands, among other actions, can trigger the preparation of an EA or EIS. Local governments that are familiar with this process can use it to ensure that all relevant information is gathered and considered before a decision is made. In addition, NEPA's procedural requirements have been zealously enforced by the courts. By participating in or calling for NEPA activity a local government can establish a viable basis for a subsequent challenge to a governmental action that does not sufficiently take into account all measures needed to protect the resource.

ENDANGERED SPECIES ACT (ESA)

The Endangered Species Act requires federal agencies to protect endangered and threatened species and strictly prohibits any person from harassing or harming any federally listed threatened or endangered species. The Fish and Wildlife Service and the National Marine Fisheries Service administer the program in cooperation with other federal agencies. As of June 1997, there are 864 species listed as endangered (336 animals, 528 plants) and 226 species listed as threatened (113 animals, 113 plants) by the Fish and Wildlife Service.[16] Approximately 35 percent of all threatened and endangered animal species are found either exclusively in wetlands or are dependent upon wetlands during part of their life cycle. In

addition, there are many threatened and endangered plant species that are dependent on wetland habitat.[17]

The tremendous natural diversity in wetland areas provide unique habitats for many of the country's rarest species of plants and animals. Although wetlands cover less than 5 percent of the country's lands, they provide habitat for about 45 percent of the nation's federally listed endangered animal and plant species.[18] A few examples of wetland-dependent endangered species are the American crocodile, the Everglade kite, the American wood stork, and the whooping crane.

Section 7 of the Endangered Species Act requires all federal agencies to insure that their actions are not likely to jeopardize the continued existence of any endangered or threatened (listed) species, or cause harm to their habitat. Thus, any proposed activities involving wetlands that are carried out, funded, or regulated by a federal agency are subject to the provisions of the Endangered Species Act. If a federal action may affect threatened or endangered species, the agency involved must seek and obtain a "no jeopardy" opinion from the U.S. Fish & Wildlife Service or National Marine Fisheries Service (NMFS), before it may proceed with the action. Local governments can monitor this process.

Private activities, too, are obliged not to "take" threatened or endangered species. Under the Act, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect." While there is no obligation to consult with the federal species management agencies, it is extremely prudent for project proponents to do so, since the taking of a threatened or endangered species is a strict liability offense. Local governments may need to engage in such consultation for their own activities, or encourage private project proponents to do so, to avoid liability.

Chapter Two

State Programs

Numerous decisions affecting wetlands are made by states under state regulatory and planning programs. This section identifies these programs in the Chesapeake Bay region and discusses ways in which local governments can participate in state decision-making or seek to have their goals taken into account.

STATE WETLANDS PROGRAMS: PERMITTING AND MITIGATION POLICIES

Pennsylvania

Permitting, State Agency Responsibilities, and the Public Process

Pennsylvania's wetlands program is administered by the Division of Waterways, Wetlands and Erosion Control in the Pennsylvania Department of Environmental Protection (DEP). Chapter 105 of the Dam Safety and Encroachments Act of 1978 established the Wetlands Protection Program and gave the Department of Environmental Protection the responsibility for reviewing and issuing permits for activities that occur in wetlands.[19] The central office provides guidance and oversight to insure uniform application of permit requirements and regulations. Six regional offices are responsible for the day-to-day operation of permitting and permit compliance and enforcement. Regional offices are responsible for coordinating with other federal and state agencies to insure that all concerns and comments are addressed in the permit review process.

Notices of all applications for Chapter 105 permits are published in the *Pennsylvania Bulletin*, the official publication of Pennsylvania's state government. To coordinate statewide permit processes (including wetlands permitting) and to support local government protection efforts, such as planning and acquisition, Pennsylvania established Act 14 Notification. Under Pennsylvania law, all individual permit applicants must notify the county and the municipality of their intent to apply for a Chapter 105 permit. Municipalities are encouraged to contact DEP regional offices with information or concerns about proposed projects.

Local governments, citizens, private landowners, and other interested parties can submit comments on permit applications to the appropriate Pennsylvania Department of Environmental Protection Regional Office. The comments can highlight where a proposed activity would violate local regulations. The DEP must review and consider all comments

received by local governments on a proposed project. Local governments can more effectively review the impacts of wetlands permits if they have a planning commission and an environmental advisory committee to review all applications.[20]

The Pennsylvania Department of Environmental Protection has a "Public Participation Center" at its web site that includes a link to the *Pennsylvania Bulletin*, and a one stop center for information about proposed DEP regulations, polices and other proposals open for public comment. The Center also includes information about advisory committee meeting schedules, the status of legislation and regulations, and copies of existing agency documents.

To increase opportunities for public participation in the program and to assure that a broad range of interests are taken into account in its administration, the Pennsylvania Department of Environmental Protection has also established the Wetland Protection Advisory Committee. The Committee is comprised of individuals drawn from corporations, extractive industries, farmers, conservation organizations, state and federal agencies, academia, and private consultants. The Committee was established to advise and guide the DEP in the development of wetlands policies and regulation. Although the committee does not involve itself in individual permitting decisions, local governments may find it worthwhile to raise programmatic issues to the committee's attention to assure greater consideration by the DEP.

State Water Quality Certification: §401

The Pennsylvania Department of Environmental Protection is authorized to grant or deny "water quality certification" under §401 of the Clean Water Act. Pennsylvania requires that applicants notify the state and local governments that will be impacted by the project in their application for certification. Local governments can comment on an application at any time throughout the process. Notices of applications for §401 certification are also published in the *Pennsylvania Bulletin.* Other government agencies or individuals can comment on applications and highlight issues that are important to them.[21]

Pennsylvania State Programmatic General Permit

The Army Corps of Engineers issued a State Programmatic General Permit for the state of Pennsylvania on March 1, 1995. Under the Pennsylvania State Programmatic General Permit (PASPGP-1), the Department of Environmental Protection issues both state and federal authorizations simultaneously. More than 90 percent of all permitting actions are now processed under the streamlined SPGP approach. With the implementation of the SPGP, the Corps suspended the use of many of the nationwide permits which were less effective at providing environmental protection for wetland resources. Therefore, the SPGP has not only streamlined and simplified the process for

permittees, but it has also added a greater degree of protection for Pennsylvania's wetland and other water resources.

Mitigation Policy & Requirements

Pennsylvania requires compensation for unavoidable wetland impacts that occur due to issuance of a Chapter 105 permit. The state's mitigation regulations require permittees to provide wetland replacement at a minimum ratio of 1:1 in acreage, function, and values. All individual permits and general permits which result in a loss of wetlands, will have mitigation and replacement requirements. The state has completed a guidance document, titled *Design Criteria for Wetland Replacement*, that provides information for preparation and implementation of a wetland replacement plan, including replacement criteria, location, design, site construction, and monitoring. The replacement areas must be monitored for a period of not less than five years, with annual reports on success, functions being provided, and discussion of any problems which have been encountered.

In 1996, in cooperation with the National Fish and Wildlife Foundation, the DEP created the Pennsylvania Wetland Replacement Project (PWRP). The Project established a fund to which Chapter 105 permit applicants can make a monetary contribution, in lieu of creating small wetlands. Funds collected in PWRP are used by the DEP to support projects that have a high degree of success by restoring wetlands on a large scale, thereby minimizing construction costs and maximizing environmental benefits. The PWRP provides an alternative to small wetland replacements which are often unsuccessful and offer little environmental benefit. The Program is limited to permit applicants whose projects will impact less than 1/2 acre. Permit applicants are not automatically allowed to make a financial contribution in lieu of replacing wetlands; they must continue to meet the alternative avoidance and minimization criteria, as well as all other requirements under Chapter 105. Municipal governments, watershed organizations, sportsmen's groups, private citizens and others may sponsor wetland creation/restoration projects that can receive funding from the Pennsylvania Wetland Restoration Project.

DEP is required by Act 14 to post proposed projects that would receive funding from the Pennsylvania Wetlands Replacement Project (PWRP) in the *Pennsylvania Bulletin.* Therefore, the bulletin is an excellent source of information for local governments and private citizens on potential wetlands projects in their jurisdiction. DEP also posts information on their web site about the fund and its projects. Local governments or individuals can be a project sponsor or suggest a site for a wetland project. For example, local governments have had wetland projects completed in local parks as a part of an education program.[22]

State Agencies Involved in State Wetland Permitting Programs

Maryland
- Maryland Department of the Environment
  - Division of Nontidal Wetlands and Waterways
  - Division of Tidal Wetlands

Pennsylvania
- Pennsylvania Department of Environmental Protection
  - Division of Waterways, Wetlands and Erosion Control

Virginia
- Virginia Marine Resources Commission
- Virginia Department of Environmental Quality
- Virginia Institute of Marine Science
- Local Wetlands Boards

District of Columbia
- Environmental Health Administration
  - Water Resources Management Division

Maryland

Permitting, State Agency Responsibilities, and the Public Process

The Maryland Department of the Environment (MDE) is responsible for administering the state's regulatory wetlands program. Within the MDE, the Water Management Administration's Wetlands and Waterways Program is divided into the Nontidal Wetlands and Waterways Division and the Tidal Wetlands Division. The MDE's Water Management Administration has its headquarters in Baltimore and has field offices in Frostburg, Salisbury, and Prince Frederick.

Maryland's Wetlands Act of 1970 established the state's regulatory program to control proposed activities in tidal wetlands.[23] MDE's Water Management Administration, Tidal Wetlands Division issues permits for activities in privately-owned tidal wetlands (tidal wetlands that are landward of the mean high water mark). Tidal wetlands that are channel-ward, or below the mean high water mark, are state-owned wetlands. Most permit applications for activities within 1000 feet of tidal waterways require approval from the Chesapeake Bay Critical Area Protection Program and are administered by local governments. The State Board of Public Works (comprised of the Governor, Treasurer, and Comptroller) issues permits for activities in state-owned tidal wetlands.[24]

Maryland's 1989 Nontidal Wetlands Protection Act regulates activities in the state's many nontidal wetlands.[25] The Act parallels many aspects of the federal regulatory program under §404 of the Clean Water, but it also protects 25-foot buffer zones around wetlands -- or 100 feet for nontidal wetlands of Special State Concern[26] -- and regulates the alteration of wetland vegetation and hydrology. Permits for activities in nontidal wetlands are

administered by the MDE, Water Management Administration's Wetlands and Waterways Program.[27]

One of the stated goals of Maryland's Nontidal Wetlands Protection law is to achieve no net loss of the acreage or function of nontidal wetlands. Under the law, county governments may assume delegation of the regulatory program by developing nontidal wetlands protection programs. The law also provides that watershed plans may be prepared by counties and local governments that, if adopted by the MDE, can be used to guide state permitting and decision-making.

Applicants for a Nontidal Wetland Permit must complete a Maryland/Corps Joint Permit Application. When an application is submitted, notices are sent out to people on the Maryland Department of the Environment's subscription list, which contains approximately 900 names. To get on the subscription list, a letter must be sent to the Regulatory Permit Center of MDE. Notices are also sent to federal agencies and other state agencies, including the Maryland Department of Natural Resources (DNR). As a part of the application process, the applicant is responsible for notifying key officials in the jurisdiction where the project is proposed -- the mayor or county head. This notification must be completed before the application is considered complete. MDE then compiles an "interested persons list," which includes the key official and anyone on the mailing list who has indicated an interest in the given project. The people on the interested persons list are kept informed about the developments of the permit application. After the application is complete, a notice is put in the local general circulation newspaper. This notice announces a two-week period for comments and provides information on requesting a hearing on the proposed permit. Local governments or individuals may request a 30-day extension to the comment period. If a hearing is granted, MDE will publish a notice with the logistical details of the meeting.[28] A simplified process exists for projects which affect less than 5,000 square feet of nontidal wetlands.

The Maryland Department of the Environment's Internet home page includes a link to information about permit applications. The Permit Information page lists all of the permit applications, the date they were received by the department and the date that the public comment period ends. The Permit Information page also has a link to the Maryland Department of the Environment's regulatory calendar, which lists recently issued permits and logistical information about public meetings and hearings on permits.[29]

Maryland's Chesapeake Bay Critical Areas Law (Md. Code Ann. §8-1801 et seq.) was enacted in 1984 to minimize adverse water quality impacts and protect Chesapeake Bay. The law seeks to protect water quality, conserve valuable habitat, and accommodate future growth in the least polluting manner by regulating activities and land use planning in what are defined as Critical Areas. The Chesapeake Bay Critical Areas Commission was charged with developing the criteria to guide planning and actions in designated Critical Areas. Local governments are responsible for developing and implementing their own Critical Area

resource protection programs, based on the requirements developed by the Critical Area Commission (see Part I).

Maryland's Department of Natural Resources' (DNR) Watershed Restoration Division identifies, prioritizes, implements, and evaluates watershed management initiatives. These can include wetlands restoration, enhancement and protection activities.

State Water Quality Certification: §401

The Wetlands and Waterways Program within the Maryland Department of the Environment is responsible for administering the state's water quality certification program. This program covers activities in tidal and nontidal wetlands.[30] Water quality certification requirements for Maryland are generally included in the nontidal wetlands permit process and in tidal wetland permit applications. As a result, there is usually not a separate notification process.[31]

Maryland State Programmatic General Permit

The Army Corps of Engineers has issued a state programmatic general permit (SPGP) recognizing Maryland's wetlands permitting process for many activities in tidal and nontidal wetlands as sufficient to satisfy §404 of the Clean Water Act without further action by the Corps. Activities authorized by the Maryland SPGP may include activities that will result in less than five acres of impact, both direct and indirect, to nontidal wetlands, and activities that will result in less than three acres of impact, both direct and indirect, to tidal wetlands.

Mitigation Policy & Requirements

Maryland's Nontidal Wetlands law has specific provisions for mitigation and mitigation banking to achieve the state's no net loss goals. The regulatory program seeks to achieve no net loss in part through two types of compensatory mitigation efforts: permittee mitigation and programmatic mitigation.

Permittee mitigation -- the replacement of destroyed wetlands with restored or created wetlands of equal or greater value -- is required for unavoidable impacts to nontidal wetlands over 5,000 square feet. Programmatic mitigation is performed by the state for nontidal wetland losses generally less than 5,000 square feet.

If it is not practical for an applicant to conduct mitigation because of the size of the wetland impacted or because it is not technically feasible, the landowner may pay into the Nontidal Wetlands Compensation Fund. The Fund, managed by the Department of the Environment, is dedicated to the creation, restoration, and enhancement of nontidal

wetlands. MDE carries out projects on both public and private land. MDE informally reaches out to local governments in areas where wetlands projects impacts will take place.[32]

Maryland's tidal wetland mitigation requirements are similar to those for nontidal wetlands. Project applicants must first avoid and then minimize the loss of tidal wetlands, but if alteration of tidal wetlands cannot be avoided, mitigation is required. Applicants must replace the values and functions associated with the wetlands to be impacted. Mitigation for these losses are considered in the following order of preference: restoration; in-kind creation; out-of-kind creation; enhancement of existing tidal wetlands; and monetary compensation to the Wetlands Compensation Fund. The ratios that are required for mitigation depend on the type of tidal wetlands that would be lost. For example, open water tidal wetlands require a 1:1 replacement ratio; a 2:1 ratio is required for emergent tidal wetlands, scrub-shrub tidal wetlands, and forested tidal wetlands; and a 3:1 ratio is required for tidal wetlands habitat for rare, threatened, or endangered species.[33] Mitigation banking is also allowed in Maryland.

MDE's Water Management Administration and Maryland's Conservation Districts are also involved in cooperative wetlands mitigation projects with private landowners.

Virginia

Permitting, State Agency Responsibilities, and the Public Process

Several state laws address the use or development of wetlands within the Bay Watershed in Virginia. These include laws specific to tidal wetlands, nontidal wetlands, the Chesapeake Bay Preservation Act, and a permitting program specific to the state.

The use and development of vegetated and nonvegetated tidal wetlands throughout Virginia is managed by Virginia's Marine Resources Commission (VMRC) and Local Wetlands Boards. Chapter 13 of Title 28.2 of the Code of Virginia, originally adopted in 1972, provides for this authority. The law authorizes tidewater localities to administer the state tidal wetlands permitting program if they adopt a Wetlands Zoning Ordinance and appoint a Wetlands Board. If the ordinance is not adopted by a locality, the Commission retains jurisdiction for the program. In all cases, however, the Commission reviews each local decision. The Commission is ultimately responsible for preserving and preventing despoliation and destruction of wetlands, while accommodating necessary economic development in a manner consistent with wetlands preservation. Of the 46 eligible jurisdictions in the state, approximately 35 have assumed responsibility for administering this program.

To assist localities with administration of the program, the Commission and the Virginia Institute of Marine Science (VIMS) developed Wetlands Guidelines, which were last updated in 1993. VIMS also maintains and updates an inventory of vegetated wetlands with in each jurisdiction of Tidewater Virginia.

Applicants seeking a permit to develop in tidal wetlands in Virginia must submit an application to the Commission. Through a Joint Permit review process, the application is forwarded by the Commission to the local wetlands board for action, as well as to other

state agencies for comment and review. Public hearings -- before the local wetlands board or the Commission -- are held for all applications requiring a wetland permit.[34]

For each proposed tidal wetland project, VIMS provides an assessment of the project's impact through a Shoreline Permit Application Report. The same application is also provided to the U.S. Army Corps of Engineers for review under the requirements of federal law.[35]

The Commission publishes a public notice of all permit applications in the local paper of the area where the project is proposed. These notices inform local governments and individuals about public hearings and where individuals and local governments can submit comments on the permit. The Commission also maintains a web page that includes a link to a "Public Information" section.[36] This section provides information on public notices, hearings or meetings sponsored by the Commission, Commission agencies, and other information. The Virginia Department of Environmental Quality maintains a "Public Connection" site that can be located on their home page. The site includes information on public involvement in state initiatives; a public calendar with dates and times for public hearings and meetings; public notices with details on hearing topics and comment periods; regulations, permits and other programs that are open for pubic comment; and other proposals that are under development.[37]

Nontidal wetlands in Virginia are managed through the Virginia Water Protection (VWP) permit program. Application for a VWP permit is automatic when an application is submitted to the U.S. Army Corps of Engineers (either directly or through the Joint Permit program).

Under the Virginia Submerged Lands Act, the Commission also regulates submerged lands. Activities impacting the state-owned bottoms of bays, rivers, and creeks require a permit from the Commission, unless they are exempt from the permitting program.

Virginia's Chesapeake Bay Preservation Act (CBPA) of 1988 established a nine-member citizen board called the Chesapeake Bay Local Assistance Board (CBLAD), within the Secretary of Natural Resources, to promulgate regulations to improve water quality in the Chesapeake Bay and its tributaries. Board members represent different geographic areas within Tidewater Virginia and a wide diversity of interests. Regulations promulgated by the Board recognize local government responsibility for land use decisions and establish a framework for compliance without dictating precisely how local programs must be implemented. The Act delegates protection of some nontidal wetlands to local regulation. The Act requires that riparian nontidal wetlands be included within a Resource Protection Area (RPA) designated by each locality within the Virginia coastal zone. Local regulations, adopted pursuant to the CBPA, restrict activities within the RPA, usually as part of local zoning and sediment/erosion control ordinances. Information about each of the Tidewater localities and their particular Bay Act Programs, are available through CBLAD's web site.[38]

State Water Quality Certification: §401

The Virginia Department of Environmental Quality (DEQ) issues permits for activities in nontidal wetlands. This is a program built upon the 401 certification process. A

Virginia Water Protection permit (VWP)[39] is required for dredge, fill, or discharge activities, or alteration of interstate waters, including wetlands, for which an Army Corps individual permit is required, or for which Virginia has conditioned the use of a Corps Nationwide Permit. For example, DEQ has placed special conditions on Nationwide (NWP) Permit 26. If an applicant is interested in filling over one acre of surface waters, which normally falls under NWP 26 and does not need an individual Corps permit, Virginia requires that the applicant get an individual VWP permit from the DEQ. Authority for the VWP permits stems from the §401 certification program under the Clean Water Act and the Virginia Water Protection Permit Law passed in 1989. Therefore, issuance of a VWP permit fulfills the requirements of the §401 process.

To apply for a VWP permit, applicants must contact the Commission to obtain a Joint Permit Application. The Commission sends copies of each application to the DEQ, the local wetlands board when applicable, and the U.S. Army Corps of Engineers. DEQ may consult with other state and federal agencies, and meets frequently with the Commission and the Corps of Engineers to discuss the applications. DEQ publishes notices about nontidal wetlands permits applications in general circulation local newspapers in the area where a project is proposed. The agency also notifies local governments when an application is submitted and if an individual permit is required. Local governments may submit comments to DEQ in response to published notifications.[40]

Mitigation Policy & Requirements

The Commission adopted a wetlands mitigation and compensation policy that requires compensatory mitigation on a limited basis to replace unavoidable tidal wetlands losses. The policy established general criteria that first require the mitigation of wetlands impacts through avoidance and minimization consistent with the Commission wetlands guidelines, and then establishes specific criteria that should be met for projects to be approved. Generally, impacts of over 1,000 square feet require compensation with a minimum 1:1 exchange ratio. The guidelines specify the specific elements to be included in the required compensation plan.

DEQ does not have a stated mitigation policy or guidelines similar to that of the Commission. Mitigation decisions are made on a case by case basis by DEQ.

District of Columbia

Permitting, State Agency Responsibilities, and the Public Process

The Water Resources Management Division of the District of Columbia's Environmental Health Administration administers the District's wetland permitting program. The District's Water Pollution Control Act of 1984 regulates the discharge of pollutants into the waters of the District, including wetlands. The Act allows dredging and filling activities on "underwater lands" as long as the activities do not interfere with fish migration or destroy aquatic habitat.[41] The District of Columbia does not directly issue

permits -- the applications are forwarded to the U.S. Army Corps of Engineers in Baltimore -- but they do certify that proposed permits will meet the District's water quality standards.

In 1994, the District passed Submerged Aquatic Vegetation Regulations that prohibit the removal or disturbance of submerged aquatic vegetation in the District's tidal waters (below the elevation of mean high tide) without first submitting a plan and having it approved. The District may send applications to other state or federal agencies for their review.[42]

The District of Columbia does not publish public notices about §404 permit applications. Instead, notices are sent out to individuals and organizations on a mailing list maintained by the U.S. Army Corps of Engineers, Baltimore District.[43]

Mitigation Policy & Requirements

The District of Columbia currently makes mitigation decisions according to the guidelines and requirements outlined in the Distict's Wetlands Conservation Plan.

Summary: State Regulatory Programs

Local governments can be important players in the regulatory process. Not only can they exercise direct delegated authority in some instances -- as under the Virginia Wetlands Act or the Maryland Nontidal Wetlands Act -- but they can seek to have state agencies tailor permit decisions or mitigation requirements to local objectives by submitting comments when the state agency publishes permit application information.

Reviewing a State Wetlands Permit or §404 Permit

When reviewing a state wetlands permit or a §404 permit, local governments and individuals can evaluate the proposed project by asking the following questions:

- Does the project need to be near water (is it water-dependent, such as a marina)? If not, is there a more suitable uplands site?
- If the project is not water-dependent, has an alternative site been considered?
- If the project is water-dependent, were efforts made to minimize the impacts to wetlands?
- If the project was approved, was the applicant responsible for mitigating the impacts to the wetland?
- Does the proposed activity comply with other environmental regulations (local, state, and federal)?
- Will existing water uses (swimming, fishing, drinking waters, etc.) be protected?
- Will toxic effluent standards be met?
- Will the proposed project impact endangered or threatened species?
- Is the affected wetland in a special protection watershed or a critical area of the Chesapeake Bay basin?
- What is the compliance history of the person or company seeking the permit? Does the applicant have a history of violations of wetlands or other environmental regulations or laws?

Modified from: National Audubon Society. September 1993. *Saving Wetlands: An Audubon Citizens' Guide for Action in the Mid-Atlantic Region.* National Audubon Society Mid-Atlantic Regional Office: Camp Hill, PA. p. 4-11 -- 4-12.

STATE WETLANDS PLANS

States engage in wetland planning using a number of authorities and approaches. Local governments interested in wetlands protection, conservation, and development activities that are sensitive to wetlands values and functions can play a role in the planning process.

State Wetlands Conservation Plans

The U.S. EPA provides State Wetlands Development Grants to states for development of State Wetlands Conservation Plans. The Plans are meant to outline a comprehensive strategy to coordinate the many programs affecting wetlands in the state; improve government and private sector effectiveness by identifying gaps in wetland protection programs; and coordinate acquisition strategies, mapping and inventories, functional evaluations, fiscal incentives and disincentives, public education, and landowner assistance programs. Coordination of each state's wetlands program activities, such as mapping and inventories, functional evaluations, regulation, fiscal incentives and disincentives, public education, acquisition, and landowner assistance, will serve to improve wetlands protection at the state level.

States may apply to EPA for a State Wetlands Development Grant for assistance in developing such a plan. EPA has established the goal of assisting states, on a voluntary basis, to develop state wetlands conservation plans by the year 2000. Approximately 40 states and tribes have received funding for development and implementation of state wetlands conservation plans. As of 1997, neither Virginia nor Pennsylvania had applied for funding to develop a State Wetlands Conservation Plan. In 1997, Maryland received funding from the U.S. Environmental Protection Agency to prepare a plan. Pennsylvania relies on its Wetland Protection Action Plan, adopted in 1988, that the state feels is more comprehensive than the components required in a State Wetlands Conservation Plan. The District of Columbia has a Wetlands Conservation Plan that helps guide its mitigation and permitting program.

State Wetlands Conservation plans are unique to each state, but in order to receive EPA funding support they must include the following components: 1) statement of need, goals, and objectives; 2) inventory and assessment of wetlands resources; 3) evaluation of existing and needed protection mechanisms; 4) strategy development and implementation plans; 5) plan approval; and 6) a mechanism for monitoring progress.[44] Local governments can encourage states to engage in statewide wetlands planning and can also participate in the planning process.

Statewide Comprehensive Outdoor Recreation Plans (SCORPs)

The federal Land and Water Conservation Fund (LWCF) Act, authorized in 1965, is designed to promote and conserve outdoor recreational resources by providing funding to the states for planning, acquisition, and development of outdoor facilities and by providing

funds for federal acquisition of land and interests in land. The LWCF Act authorizes the appropriation of up to $900 million per year for federal acquisition and grants to states, although actual appropriations have been only a fraction of this amount. In 1997, the Land and Water Conservation Fund allocated almost $2 million for acquisition in the Chesapeake Bay states: $496,700 to Maryland, $552,200 to Virginia, and $903,800 for Pennsylvania. The prime source of funds is the federal Outer Continental Shelf oil and gas leasing royalty revenues. For state grant programs, the funds are allocated by the NPS based on the states' Comprehensive Outdoor Recreation Plans and on such criteria as population, need, and targeted obligational rates.

LWCF requires each state to have a Statewide Comprehensive Outdoor Recreation Plan (SCORP) approved every five years. SCORPs are meant to guide outdoor recreation land acquisition, facility development, programming, and management in each state. States are required to have a SCORP approved by the U.S. Department of the Interior's National Park Service in order to participate in the LWCF cost-share funding program. During the SCORP development process, there are many opportunities for public involvement. Most states have prepared six or more such plans since 1965. An average of $100 million per year has been allocated over the life of the program. However, there have been no grant appropriations since Fiscal Year 1995. As a result, the National Park Service has not been requiring states to submit SCORPs over the past several years.[45]

In 1986, the Emergency Wetlands Resource Act required states to include in their Statewide Comprehensive Outdoor Recreation Plans a wetlands priority program. For many states, SCORPs were the only planning programs that included wetlands protection. Thus, SCORPs were very important in the development of wetland plans. However, they also tended to be somewhat limited because their focus is centered around recreational goals.

The National Park Service is no longer requiring states to submit SCORPS because there is no longer any money available through the LWCF for their development. Thus, when a state's plan expires they need only to write a letter to the Park Service. Some states such as Maryland and Virginia have continued to update their SCORPS, mainly for use as a state planning tool.[46]

Maryland's most recent SCORP was approved in 1994 and will expire at the end of 1998. The report contains general information on resource protection but does not specifically discuss wetlands. The Maryland State Office of Planning is responsible for writing the state's SCORP and has begun to prepare the 1998 update.[47] Virginia released their "Virginia Outdoors Plan" in April 1997. The Plan, which also serves as their SCORP, includes a chapter on wetlands that fulfills the SCORP's wetlands requirement.[48] In 1986, Pennsylvania's SCORP was approved. Because it did not include the required wetland priority program, the state submitted a 100-page addendum in 1988. Pennsylvania's most recent SCORP was approved in July 1992 and expires in December 1997. It updates the 1988 addendum by including a small section describing any changes.[49]

STATE NONPOINT SOURCE PROGRAMS

Clean Water Act § 319: Nonpoint Source Management Program

Nonpoint source water pollution is runoff and other discharges of pollutants from activities on land rather than discharges from specific conveyances (such as pipes, culverts, or drains). Typical sources of nonpoint source pollution include agriculture, forestry, mining, and suburban, urban and highway runoff. Point source water pollution is regulated by permit, but nonpoint source water pollution is generally not regulated. Nonpoint source pollution, however, significantly affects wetlands and wetland conservation.

The U.S. Environmental Protection Agency (EPA) administers §319 of the Clean Water Act, the Nonpoint Source Management Program. The Program authorizes the U.S. EPA to provide grants to states, territories, and tribes for implementation of approved nonpoint source pollution management programs. In order to be eligible for §319 grants, states must first develop and gain EPA approval of a nonpoint source pollution assessment report. In the report, states must identify waters impacted or threatened by nonpoint source pollution and the categories of nonpoint source pollution that are causing water quality problems. Second, states must develop and gain approval from EPA for a nonpoint source pollution management program. The program becomes the framework for controlling nonpoint source pollution.

In addition, in 1987, the Chesapeake Bay Program partners set a goal to reduce the nutrients nitrogen and phosphorus entering the Bay by 40% by the year 2000. The Chesapeake Bay Program partners include the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency (EPA), which represents the federal government; and participating citizen advisory groups. In the *1992 Amendments* to the *Chesapeake Bay Agreement*, partners agreed to maintain the 40% goal beyond the year 2000 and to attack nutrients at their source--upstream in the tributaries.

By 1995, EPA had awarded over $370 million to states, territories, and tribes under the Program. Approximately 25 percent has been used for general assistance, including outreach and technical assistance activities. Almost 40 percent of the grants awarded have funded projects to control nonpoint source pollution from agricultural lands. Projects to manage wetlands and control nonpoint source pollution from forestry, habitat degradation, and stream channel alterations have also received significant funds.[50]

EPA Nonpoint Source Funding in the Bay Region

EPA nonpoint source pollution grant money has been used across the Chesapeake Bay region to help improve water quality in the watershed. In Maryland, EPA grant money was used to fund the state's Targeted Watershed Project. This project established pilot projects in four small watersheds. Section 319 provided approximately $265,000 from 1991 through 1994 to monitor best management controls. Almost $125,000 of the grant has been used to improve water quality in the German Branch tributary to the Chesapeake Bay.

The German Branch basin in Queen Anne's County is a 12,000-acre agricultural subbasin of the Choptank River. The Queen Anne Soil Conservation District worked with farmers in the watershed to reduce excessive nutrient and sediment loads to the German Branch. The Queen Anne Soil Conservation District and County Cooperative Extension Service has also been providing technical information and education to farmers on the benefits of nutrient and conservation planning.

In Pennsylvania, the Erie County Conservation District used a §319 grant to reduce the input of phosphorus into Lake Erie. Phosphorous reduction was accomplished by working with farmers to implement Best Management Practices.

The Virginia Department of Conservation and Recreation's (DCR) Division of Soil and Water Conservation administers the state's §319 program. DCR coordinates the Nonpoint Source Advisory Committee, which is comprised of representatives from all state and federal agencies having responsibility for nonpoint source pollution control. DCR, in coordination with the Advisory Committee, allocates funding for watershed projects, demonstration and education programs, nonpoint source pollution control program development, and technical and program staff.[51] Many §319 funded activities have occurred within the Bay basin in Virginia, particularly within the Shenandoah Valley area which is a high priority for nonpoint source control activities.

There are many opportunities for states to develop programs that can piggy-back onto the EPA §319 grant program. For example, Pennsylvania's Department of Environmental Protection administers the Pennsylvania Chesapeake Bay Education Mini-Project Program. This program offers small grants related to §319. At least one local government has received funding through the program to develop an education project for a school.[52]

Coastal Zone Management Act: Coastal Nonpoint Source Program

The Coastal Zone Management Act Reauthorization Amendments (CZARA) of 1990 include the Coastal Nonpoint Source Program which is administered by the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency. Section 6217 of CZARA was designed to address more specifically the impacts of nonpoint source pollution on coastal water quality. The program requires coastal states with an approved coastal zone management plan to develop and implement management measures for nonpoint pollution control. Programs approved in these Coastal Nonpoint Source Management Plans include protection and restoration of wetlands and riparian areas and the use of vegetated treatment systems such as filter strips and constructed wetlands.

In Virginia, the (Section 6217) Coastal Nonpoint Source Pollution Control Program is administered by the Department of Conservation and Recreation. In Maryland, the Program is administered by the Coastal Zone Management Division of the Maryland Department of Natural Resources. The Bureau of Land and Water Conservation administers the Program in Pennsylvania. With public input, Virginia, Maryland and Pennsylvania completed and submitted their Coastal Nonpoint Source Management Plans

to EPA and NOAA for their approval. All of the states' plans have been submitted, conditionally approved, and are awaiting final approval.

After the state Coastal Nonpoint Source Pollution Control Programs are approved, they are implemented through changes to the state's nonpoint source program and through changes to the state coastal zone management plan. Controls over nonpoint source water pollution in the coastal zone are often carried out by local governments as well as states. Many of the management measures that must be implemented are conducted by local governments, such as land use planning and zoning, erosion control implementation, and development of buffer zones, among others. Local governments can also call upon states to use their authorities in accordance with state plans. This can be particularly important where one or more of a local jurisdiction's wetland areas is suffering from nonpoint source pollution originating in another jurisdiction.

National Flood Insurance Program (NFIP)

The Federal Emergency Management Agency's (FEMA) Federal Insurance Administration runs the National Flood Insurance Program (NFIP) which makes government flood insurance available to residents of communities adopting and enforcing floodplain management ordinances that represent sound land use practices. More than 18,000 communities participate nationwide. FEMA has published a community status book which lists all of the communities participating in the flood insurance program. The status book is available through FEMA's web site.

When a community chooses to join the NFIP, it must require permits for all construction or other development in these areas. The governors of each state designate an agency in their state government to coordinate that state's NFIP activities. These agencies then assist communities with developing, adopting, and implementing floodplain management measures. States have the option of requiring more stringent measures than those of the NFIP.

For flood insurance to be made available to communities, the community must require permits for development in flood hazard areas and to ensure that proper materials and methods are used in new construction. In an effort to reduce potential flood losses, FEMA has created additional incentives for states and communities to enforce floodplain management requirements.

Riparian wetlands (those found along river corridors) are often degraded and destroyed by development in flood plains, by natural disasters, and by attempts to reduce the impacts of natural disasters. For example, many thousands of acres of valuable riparian and wetland habitat have been lost through the construction of flood control projects, such as dams and levees. Some measures to mitigate the impact of floods can achieve multiple objectives, such as preventing damages to buildings or facilities while protecting critical habitat, providing opportunities for recreation, providing flood storage, or enhancing other natural resources. Examples of these mitigation actions are the acquisition and relocation of flood prone buildings and the preservation of steep slopes subject to mudslides or landslides.

To facilitate local administration of NFIP, the community assistance programs in every state help local communities administer NFIP by developing and implementing adequate floodplain protection ordinances. Local governments can develop flood control policies that seek to avoid permitting development in flood plains and structural flood control projects that can protect riparian wetlands from being destroyed and degraded. There are many opportunities for local governments, through both federal and state legislation, to develop strict guidelines for permit applicants seeking to build in floodplains and riparian wetlands.

The Pennsylvania state legislature passed the Pennsylvania Floodplain Management Act on October 4, 1978. The act requires all flood prone municipalities to participate in the National Flood Insurance Program. To participate, municipalities must enact local floodplain management regulations which, at a minimum, must comply with federal requirements and the state floodplain management requirements. The Act states that no person may engage in any activity in the 100-year floodplain unless first obtaining a permit from the Department of Environmental Protection. Associated wetland impacts for the proposed activity must also be analyzed.

The Maryland Department of the Environment's Technical and Regulatory Services Administration (TARSA) is the state's NFIP coordination office. Working under contract with FEMA, TARSA provides technical assistance and oversight to Maryland communities who participate in NFIP. In Maryland, participation in NFIP is voluntary, but virtually all of the state's flood prone municipalities -- 115 local communities -- participate in the program.[53] Any activities that take place within the 100-year flood plain require a Nontidal Wetlands and Waterways Permit (Construction Permit for Activities within the 100-year Floodplain) from the Maryland Department of Environment's Water Management Administration, Wetlands and Waterways Division.[54]

The Virginia Department of Conservation and Recreation's (DCR) Division of Soil and Water Conservation provides educational information and technical assistance to private landowners and local governments on floodplain planning. DCR works with local governments and their zoning and building officials to ensure that their floodplain ordinances are properly implemented. Floodplain management staff members serve as liaisons between localities and FEMA and the National Flood Insurance Program. In Virginia, 258 of the state's flood prone municipalities participate in NFIP and 22 do not.[55]

Virginia's Department of Conservation and Recreation also administers a Flood Prevention Protection Fund. The fund was established to provide local governments with a 50 percent match for flood prevention or protection projects. Localities are eligible for either grants or loans to conduct floodplain studies and mapping, structural protection and buy-outs, and relocation.

Virginia's Flood Damage Reduction Act[56] establishes working definitions for many floodplain management terms and delegates the coordination of the national Flood Insurance Program to the Department of Conservation and Recreation. DCR published the *Floodplain Management Plan of the Commonwealth of Virginia* in 1991.[57]

Chapter Three

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State and Federal Technical Assistance, Cost-share Programs & Subsidies to Landowners

State and federal government agencies offer a broad range of assistance to landowners. Local governments that are aware of these programs can use them in their own planning efforts, can assist landowners in taking advantage of these programs, and can combine local government actions with federal and state assistance to private landowners to accomplish watershed and wetlands conservation objectives.

DEPARTMENT OF AGRICULTURE FARM PROGRAMS[58]

Because many wetlands are still extant in rural areas, and because agricultural activities can affect wetlands and water quality, it is important for local governments to have a clear understanding of the programs that are available to promote wetlands conservation or protection on agricultural lands. The conservation provisions of the Federal Agriculture Improvement and Reform Act (FAIRA), or the 1996 Farm Bill, contained many new programs and revised several existing conservation programs. The new and revised conservation programs are geared toward providing economic incentives, cost-share, and technical assistance to landowners to encourage them to participate in land stewardship and wetlands protection in a manner that can be tailored to suit their own needs.

The Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA), two agencies within the U.S. Department of Agriculture (USDA), are responsible for administering the conservation programs. NRCS is the designated lead agency for the Environmental Quality Incentives Program (EQIP), the Wetlands Reserve Program (WRP), the Wildlife Habitat Incentives Program (WHIP), and the Farmland Protection Program. The Farm Services Agency is the lead agency for the Conservation Reserve Program (CRP) and the Flood Risk Reduction Program. The two agencies work jointly on the Conservation Farm Option.

In addition to the implementation agencies, the U.S. Department of Agriculture supports substantial technical assistance programs through its Cooperative State Research, Education, & Extension Service (Extension Service), which is affiliated with land grant institutions in every state and territory. Over 3,000 county offices make up the Extension Service. Subject matter specialists/scientists in each state Cooperative Extension Service develop and deliver materials in four major areas: Agriculture, Natural Resources and Rural Development, Home Economics and Human Nutrition, and 4-H Youth Development. The majority of Extension Service information related to wetlands flows through the Natural Resources and Rural Development and Agriculture programs. Other major programs and initiatives throughout the Service contribute to wetlands protection and management. Many Extension Service programs are developed and offered in cooperation

with other federal and state agencies and operate with the assistance of hundreds of thousands of volunteers.

At the state level, NRCS performs "conservation needs assessments" and establishes policies, priorities, priority areas, eligible practices, and program performance indicators. NRCS state conservationists meet with FSA, FSA state committees, state conservation agencies, state conservation associations, and other members of the state technical committee, to identify priority areas for programs such as the Environmental Quality Incentives Program, Conservation Reserve Program, Wildlife Habitat Incentives Program and the state §319 program. The intention is that conservation needs assessment will help foster locally led conservation. NRCS strongly encourages conservation districts to take the lead on the assessments, but participation is voluntary. If the districts do not want to conduct the assessment, the state NRCS is responsible.

Tributary strategies address nonpoint source pollution at the source in the Bay watershed. Strategies developed by the state conservation districts will serve as the basis for conservation needs assessments at the local level. Many of Pennsylvania's conservation districts have made significant progress in conservation needs assessment. In Maryland, the conservation districts are fully engaged in conducting conservation need assessments. Virginia's local working groups are currently focused on developing these strategies.

In 1990, the Food, Agriculture, Conservation, and Trade Act required the U.S. Department of Agriculture to establish state technical committees in each state to assist in the technical considerations and to develop technical guidelines necessary to implement the conservation provisions of the Farm Bill. In each state, the state conservationist is responsible for establishing and chairing the state technical committee. Representation on the Committee also includes the Farm Service Agency, the U.S. Forest Service, the Extension Service, the U.S. Fish and Wildlife Service, state departments and agencies including fish and wildlife, forestry, water resources, agriculture, and the state association of soil and water conservation districts. In the 1996 Farm Bill, the role of the state technical committees was expanded. The committees have been broadened to include special interests concerned with farm issues, such as agricultural producers, nonprofit organizations with conservation expertise and "persons knowledgeable about conservation techniques", and agribusiness. The state technical committees offer advice on establishing criteria and priorities at the state level, develop technical standards for conservation programs, and provide recommendations on such issues as wetlands protection, restoration and mitigation requirements and wetlands and conservation compliance exemptions and appeals.

For the most part, local district conservationists administer the on-the-ground implementation of the Farm Bill programs through partnerships with locally led conservation teams.[59]

Wetlands Reserve Program (WRP)

WRP is a voluntary incentive program to restore and protect wetlands on private agricultural property. It is an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal agricultural land. The benefits to

participating landowners include receipt of financial compensation; enhancement of wetlands values that benefit the landowner and society; reduction of problems associated with farming potentially difficult areas; and the opportunity to practice conservation stewardship and provide recreational opportunities. The benefits provided by wetlands include fish and wildlife habitat; improving water quality by filtering sediments and chemicals; reducing flooding; recharging groundwater; protecting biological diversity; and furnishing educational, scientific, recreational, and aesthetic benefits.

Landowners who are interested in participating in WRP may sell a conservation easement or enter into a cost-share restoration agreement with USDA to restore and protect wetlands. Participants voluntarily limit future use of the land, yet retain private ownership. Landowners who enroll their lands must work with NRCS to develop a plan for the restoration and maintenance of the wetland. WRP offers landowners three enrollment options: permanent easements, 30-year easements, and restoration cost-share agreements of a minimum of 10 years. With permanent easements, landowners essentially sell a permanent easement on their land to the USDA, who will pay 100 percent of the costs of restoring the wetlands. With 30-year easements, landowners enter into 30-year conservation easements and are eligible to receive easement payments that are 75 percent of what would be paid for a permanent easement. USDA will also pay 75 percent of the restoration costs. Restoration cost-share agreements are an agreement with USDA for a minimum of 10 years, to re-establish degraded or lost wetland habitat. USDA pays 75 percent of the cost of the restoration activity.

Lands eligible for WRP include prior converted croplands; farmed wetlands; wetlands farmed under natural condition; farmed wetland pasture; farmland that has become a wetland as a result of flooding; rangeland, pasture, or production forestland where the hydrology has been significantly degraded and can be restored; riparian areas which link protected wetlands; lands adjacent to protected wetlands that contribute significantly to wetland functions and values; and previously restored wetlands, including Conservation Reserve Program land that is deemed eligible. Landowners must have owned the land for at least 1 year prior to enrolling the land in a conservation easement.

Participation in the Wetlands Reserve Program allows landowners to continue to control access to their land. Landowners can lease the land for hunting, fishing, and other undeveloped recreational activities and may engage in other activities, if approved by USDA, including, cutting hay, grazing livestock, and harvesting wood products.

Local governments can get involved directly with the WRP by enrolling land that they own in the program. For example, in Sullivan County, Pennsylvania, flooded land that was purchased using WRP funding will become state or local land. Officials in the area are considering enrolling 2-3 acres of the property in WRP.

Currently, conservation district employees, USDA/NRCS employees, and groups like Pheasants Forever and Trout Unlimited lead education and outreach on WRP. Yet, there are many opportunities for local governments to educate landowners about the value of wetlands and the benefits of converting marginal land. They could also inform citizens of the tax benefits of taking marginal land out of production. In addition to general education, local governments can use soil surveys to identify areas with hydric soils and

encourage farmers in these areas to take advantage of the program. Soil surveys and accompanying maps are available to local governments through their county conservation district. Finally, local governments -- like many private conservation groups are currently doing -- can augment USDA's WRP funds to further encourage participation.[60]

Flood Risk Reduction

The 1996 Farm Bill established this program to offer voluntary contracts to landowners. The contracts provide one lump sum payment to producers who farm land with high flood potential to take their land out of production. The payment equals 95 percent of what a farmer would have received over seven years from their market transition payments, in order to offset the estimated amount of money the federal government would have spent supporting farmers who farm frequently flooded land. In return, the producer agrees to comply with applicable wetlands and highly erodible land requirements and to forego commodity loans, crop insurance, conservation program payments, and disaster payments.

Emergency Watershed Protection Program

The Emergency Watershed Protection (EWP) program was established by the 1996 Farm Bill. It was designed to reduce threats to life and property in the wake of natural disasters. It provides technical and cost sharing assistance to landowners who have been affected by floods. Assistance includes both removing and establishing vegetative cover; gully control; installing streambank protection devices; removing debris and sediment; and stabilizing levees, channels, and gullies. In subsequent storms, EWP projects protect homes, businesses, highways, and public facilities from further damage. Under EWP, the Department of Agriculture may purchase floodplain easements to reduce the risk of future damage caused by floods.

Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program was established by the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers to address significant natural resource needs and objectives. Nationally, it provides technical, financial, and educational assistance to livestock-related natural resource problems and to more general conservation priorities.[61]

EQIP is available primarily in priority areas where there are significant natural resource needs and objectives. These priority areas are determined by local work groups, involving local conservation districts, USDA's Natural Resources Conservation Service and Farm Service Agency, FSA county committees, Cooperative Extension Service, local governments, and others interested in natural resource conservation. These groups conduct a conservation needs assessment, identify local priorities, determine ranking criteria, and then send their recommendations for priority areas and program policy to NRCS for

approval in consultation with FSA. The conservation needs assessment is used by NRCS to establish conservation priority areas where significant water, soil, and related natural resource problems exist. The NRCS state conservationist then sets priorities, with the advice of the state Technical Committee, that are integrated into regional and national strategic plans. These strategic plans become the basis for funding allocations.

EQIP funds are allocated to priority areas where there are serious and critical environmental needs and concerns. High priority is given to areas where state or local governments offer financial or technical assistance and where agricultural improvements will help meet water quality and other environmental objectives. As a result, local governments have the opportunity to greatly influence how the EQIP funds are allocated.

Under EQIP, landowners enter into 5- to 10- year contracts with the Natural Resources Conservation Service. The program provides incentive payments and cost sharing for up to 75 percent of the costs of conservation practices such as filter strips, manure management systems, pest management, and erosion control.

Land eligible for EQIP contracts must be agricultural land that poses a serious problem to soil, water, or related resources. Landowners must carry out conservation activities in agreement with a conservation plan developed with the local district conservationist. Total cost-share and incentive payments are limited to $10,000 annually and to $50,000 over the life of the contract.

Conservation Reserve Program (CRP)

CRP offers landowners annual payments for 10 years in return for placing environmentally sensitive cropland into an easement and implementing a conservation plan for the easement. Program goals include reducing soil erosion, reducing sedimentation, improving water quality, and providing fish and wildlife habitat. Operators must implement a conservation plan approved by the local conservation district that converts sensitive lands to a less intensive use, primarily through planting filter strips, riparian buffers, shelter belts, living snow fences, field windbreaks, grassed waterways, salt tolerant vegetation, and shallow water for wildlife. CRP participants also get 50 percent cost-share for the required structural work and establishment of permanent cover. Any cropland where a wetland (shallow water area for wildlife) can be restored or constructed, including cropped wetlands, is eligible. To be eligible, landowners must have planted land in an agricultural commodity in any of 2 of the last 5 crop years and be determined eligible by the Natural Resources Conservation Service.

To be eligible for CRP, land must meet certain specifications relating to the erodibility of the property. CRP is also available in areas that have been identified as "priority areas" by the NRCS. Chesapeake Bay has been identified as a priority area for CRP funding. This means that landowners in the Chesapeake Bay can participate in CRP even if their land does not meet highly erodible standards.

Local governments are also eligible to participate in CRP. Currently, the county extension service and conservation districts conduct the majority of the education and

outreach for CRP Local governments can help by educating residents about the program's benefits through public service announcements, newsletters or other means.

Wildlife Habitat Incentives Program (WHIP)

The Wildlife Habitat Incentives Program was established by the 1996 Farm Bill to help landowners improve wildlife habitat on their lands.[62] The voluntary program provides cost-sharing for developing habitat for upland wildlife, wetlands wildlife, endangered species, and fisheries.

Participants work with the Natural Resources Conservation Service to prepare a wildlife habitat development plan in consultation with the local conservation district. The plan describes the landowner's goals for improving wildlife habitat, includes a list of practices and schedule for installing them, and details the steps necessary to maintain the habitat for the life of the agreement.

Landowners must enter into cost-share requirements for a minimum of 10 years. USDA provides technical assistance and pays up to 75 percent of the cost of installing the wildlife habitat practices. The cost-share payments may be used to establish, maintain, or replace wildlife habitat practices. State wildlife agencies or private organizations may also provide expertise or additional funding to help complete a project. Land is not eligible for WHIP if it is currently enrolled in the Conservation Reserve Program, Wetlands Reserve Program, or other similar programs.

WHIP funds are based on state wildlife habitat priorities which may include: wildlife habitat areas (like the Environmental Quality Incentives Program); targeted species and their habitats; specific practices; and cooperative agreements with other federal, state, or local agencies, conservation districts, or private conservation groups. Since state priorities are developed in consultation with the state Technical Committees, local governments and concerned citizens have an excellent opportunity to contribute to prioritizing how and where funds are spent.

Farm Credit Program

Administered by the Farm Service Agency, the Farm Credit Program grants small loans to small or family-sized farms (but not local governments). In return for the loan, the landowner must agree to conservation requirements. If farmers are unable to pay the debt on the loan, they have the option of entering into a conservation contract with FSA, whereby they enroll environmentally sensitive portions of their property, such as wetlands or streambanks, in a conservation easement. The amount of debt write-off that farmers receive depends on factors such as the amount of land included or the length of the conservation contract. Local governments can get involved in the program by educating farmers about the option.

Sources of State, Federal, and Locally-Based Technical Assistance, Cost-Share, and Subsidies

Federal Sources

- U.S. Department of Agriculture
  - Natural Resources Conservation Service
  - Farm Service Agency
  - Cooperative State Research, Education, & Extension Service
  - Forest Service
- U.S. Fish and Wildlife Service

State Sources

- Maryland Department of Natural Resources
  - Forest Service
  - Division of Wildlife
  - Division of Watershed Restoration
  - Program Open Space
- Maryland Department of Environment
  - Water Management Administration
- Pennsylvania Department of Environmental Protection
  - Division of Waterways, Wetlands and Erosion Control
- Pennsylvania Department of Conservation & Natural Resources
  - Bureau of Forestry
  - Bureau of Recreation and Conservation
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Institute of Marine Science
- Virginia's Chesapeake Bay Local Assistance Board
- District of Columbia
  - Water Resources Management Division

Locally-Based State and Federal Sources

- District Conservationists (NRCS)
- Conservation Districts
  - Maryland Conservation Districts
  - Pennsylvania Conservation Districts
  - Virginia Soil and Water Conservation Districts
- Farm Service Agency
- State Extension Agents
- County Foresters
  - Maryland Project Foresters
  - Pennsylvania Service Foresters
  - Virginia County or Area Foresters

FEDERAL AND STATE FORESTRY PROGRAMS

A significant number of assistance programs are targeted toward forests and forestry. Because forests often include significant wetlands systems, and because well-managed forests can contribute to water quality and the protection of downstream and adjacent wetlands, local governments should be aware of these programs.

U.S. Forest Service Stewardship Programs

The two forestry assistance programs of the USDA Forest Service are administered by state forestry agencies within the Chesapeake Bay states.

Forest Stewardship Program

The Forest Stewardship Program (FSP) is aimed at encouraging long-term stewardship of non-industrial private forest land by assisting owners to actively manage their forest for multiple resource benefits. The program provides technical planning and management assistance to landowners to help them enhance and protect the timber, fish and wildlife habitat, water quality, wetlands, and recreational and aesthetic values on their property. The state forestry agency works with landowners in the program to develop a multiple resource management plan, called a Landowner Forest Stewardship Plan, for the property. The Stewardship Plan guides management activities and helps the landowner identify cost-share opportunities. The plans are geared towards multiple resource management and are tailored to the economic needs of the landowner.

Stewardship Incentive Program

The Stewardship Incentive Program (SIP) can provide an incentive to landowners to implement the Landowner Forest Stewardship Plans developed under the Forest Stewardship Program. SIP is administered by the state Forestry Departments and the U.S. Department of Agriculture's Farm Service Agency. The overall goal of SIP is to enhance forest management on private lands through a long-term commitment to stewardship, and one of the objectives is to protect and restore forest wetlands.

The Stewardship Incentive Program is available to landowners participating in the FSP who have approved Landowner Forest Stewardship Plans. An eligible landowner may be a private individual, group, association, corporation, Indian tribe, or other legal private entity, who owns 1,000 acres or less of qualified land.

To receive SIP funding, landowners are required to maintain and protect SIP funded practices for 10 years. The federal guidelines for the SIP define nine major categories for funding. States may determine which of those categories they will fund, and within each of those categories, states can determine what technical activities are eligible for funding. Each state may determine what percent cost-share is allowed for each approved activity up to the 75 percent cost-share cap. The SIP practices that are available at the state level include:

1. Stewardship Plan Development
2. Reforestation and Afforestation
3. Forest and Agroforest Improvement
4. Windbreak and Hedgerow Establishment
5. Soil and Water Protection and Improvement
6. Riparian and Wetland Protection and Improvement
7. Fisheries Habitat Enhancement
8. Wildlife Habitat Enhancement
9. Recreation Enhancement

Although local governments are not eligible for cost share assistance under the Stewardship Incentive Program, they can receive technical and planning assistance through the Forest Stewardship Program.

U.S. Department of Agriculture: Forestry Incentives Program

The Forestry Incentives Program (FIP), a program administered by the U.S. Department of Agriculture's Natural Resources Conservation Service, provides financial assistance to private landowners for tree planting and timber stand improvement. The purpose of the program is to increase the Nation's supply of timber production from private, nonindustrial forest lands, including forested wetlands. Because many landowners do not have the funds to make long-term investments in forestland improvement, FIP offers to share the expense with eligible landowners. FIP provides an excellent opportunity for private landowners with forested wetlands on their property to receive cost-share assistance for planting trees and developing a forest management plan for their property.

Landowners apply to participate in the program at the county NRCS office. The NRCS office then asks the state forestry agency to examine the property, help develop a forest management plan for the property, and certify the need for the proposed activity. Consideration is given to enhancing other related forest resources as well as cost effective timber production. The state forestry service provides technical advice throughout the process and will help locate experts to perform the work. The state forestry agency must then certify that the project has been completed successfully before the payment is made.

Cost-sharing payments are limited to a maximum of $10,000 per landowner. Cost-share payments are used to develop forestry practices such as seedbed preparation; planting; weed control; and plant establishment.

State Forestry Programs

Each state has a state forester within the forestry agency of the state's department of natural resources. There are also state foresters (called Service or County Foresters) at the county level who implement SIP and other federal cost-share programs, as well as state technical and cost-share programs. Many of these programs have potential to protect wetlands and water quality, particularly riparian areas. States are required to establish forest stewardship advisory committees to prioritize how SIP funds are expended and what activities are eligible for funding.

Local governments should be aware of these forestry programs and the local state forestry agency representatives who are responsible for their areas. These professionals can provide significant assistance and can help local governments plan for conservation and wetlands-related activities in forested areas or areas targeted for reforestation.

Virginia

The Virginia Department of Forestry (VDOF) is responsible for the protection of 15 million acres of forest land from forest fire, insects and disease. VDOF manages 14 state forests and other state lands totalling about 50,000 acres for timber, recreation, water, research, wildlife and biodiversity. VDOF provides professional forestry advice and technical management assistance for nonindustrial, private forest landowners through a variety of programs. The 300,000 forest landowners in Virginia control 77 percent of the forestland necessary to support the forest industry which makes a significant contribution to the state's economy.

Virginia has a stewardship coordinating committee comprised of stakeholders, including private landowners, state agencies, forestry industry, and consultants, who prioritize how SIP money is spent. For example, in Virginia, the Department of Forestry has signed a cooperative agreement with the Department of Game and Inland Fisheries to use SIP money to manage quail.

The Chesapeake Executive Council of the Chesapeake Bay Program signed the Riparian Forest Buffer Directive in October 1994, which recognizes that a healthy Bay is dependent on healthy streams and rivers and that forests are vitally important to both. The Virginia Department of Forestry uses the Directive to guide its conservation goals.

In addition to the technical assistance programs administered in part by the Division (FSP, SIP, FIP), several other programs are forestry-related and have some bearing on wetlands protection. Virginia's Chesapeake Bay Preservation Act exempts silvicultural and agricultural activities from the Act's requirements, *only* if they adhere to the water quality protection procedures prescribed by the Department of Forestry in its "Best Management Practices Handbook for Forestry Operations."[63] Best management practices, or BMPs, can be designed to protect wetlands and minimize the impacts of development and forestry practices on adjacent wetlands. Local governments generally partner with the Department of Forestry to coordinate enforcement of BMPs.

In 1993, the Virginia state legislature passed the Silviculture Water Quality Law which gives the Department of Forestry the authority to stop harvesting activities if sediment is entering waterways, including wetlands. The Department can then recommend corrective action, and can initiate civil penalties up to $5,000 per day for violations. This regulatory authority provides an important backup to incentive and technical assistance programs.

Pennsylvania

The mission of the Pennsylvania Bureau of Forestry is to ensure the long-term health, viability and productivity of the Commonwealth's forests and to conserve native wild plants. The Division of State Forest Management is responsible for managing and administering the 2.1 million acres of state-owned forest land. For the purposes of administering Bureau programs, the Commonwealth is divided into 20 forest districts. Operations in each forest district are supervised by a district forester. The district staff

promotes proper forest stewardship through assistance to private landowners and through educational programs.

The Pennsylvania Bureau of Forestry, in conjunction with the state Forest Stewardship Committee, prioritizes how SIP funding is allocated. The highest priorities in the state are the regeneration of forests and riparian buffer planting. Those projects that have priority for funding tend to receive a higher cost-share percentage. Because of the high costs of wetland restoration projects, Pennsylvania tends to cost-share wetland restoration projects at a lower rate than forest regeneration and riparian buffer planting.

Landowners may apply for cost-share assistance from the Bureau of Forestry for between 35 percent and 65 percent of the costs associated with for SIP approved activities. The Bureau relies on the U.S. Fish and Wildlife Service (FWS) to provide technical assistance in designing and implementing wetland restoration projects.

Under Pennsylvania SIP Practice 6, "Riparian and Wetland Protection and Improvement", the state offers cost-shares for the following projects:

- Riparian forest buffers: planting buffers; fencing; tree shelters
- Streambank and shoreline protection: regrading streambanks; planting seedlings, rooted or unrooted cuttings, live stakes, live posts, or fascines (bundles of cuttings); livestock access ramps
- Restoring wetlands that have been degraded: planting within an existing wetland

Under SIP Practice 8, "Wildlife Habitat Enhancement," landowners may receive cost-share for establishing a vernal pool.

In Pennsylvania, two forest industries will also offset the costs of purchasing seedlings for private landowners. Seedlings are purchased from the Bureau of Forestry's tree nurseries, and the private companies reimburse landowners. Glatfelter Pulp Wood Company will provide cost-shares to landowners in 16 counties in south-central Pennsylvania, and Westvaco will provide cost-share in 10 counties in Southwest Pennsylvania.

Maryland

The mission of the Maryland Department of Natural Resources' Forest Service is to conserve and enhance the quality, quantity, productivity and biological diversity of the forest and tree resources of Maryland. The Service also provides leadership and technical and financial support to inform, involve and empower citizens, local governments and private organizations to take action necessary to accomplish these goals.

Maryland has a SIP Committee to prioritize how SIP funds are distributed. The Committee determines which of the SIP categories of activities are of highest priority; the county foresters prioritize the applications they receive; and the Committee fits those applications into the prioritized system they have developed.

The Maryland SIP Committee has determined that SIP 1, "Management Plan Development", SIP 2, "Reforestation and Afforestation", SIP 6, "Riparian and Wetland

Protection and Improvement", and SIP 8, "Wildlife Habitat Enhancement", are the highest priorities for receiving cost-share payments.

Under the Riparian and Wetland Protection and Improvement category, most of the applications for SIP cost-share funding are for the establishment of riparian buffers. This is an intentional attempt on the Service's behalf to meet the goals set forth by the Chesapeake Executive Council in the 1996 Adoption Statement on Riparian Forest Buffers. The majority of SIP applications in Maryland are for Wildlife Enhancement activities. Under this category, the Service primarily funds applicants to establish nesting structures and plant wildlife shrubs.

Maryland Woodland Incentives Program

In addition to administering SIP, Maryland's Project Foresters run the state's cost-share program, the Woodland Incentives Program (WIP). WIP provides technical assistance and up to 50 percent cost-share payments to private, nonindustrial woodland owners for the management of their woodlands, including forested wetlands. WIP goals include the enhancement of the environmental, aesthetic, and wildlife benefits provided by private woodlands. The program covers such activities as tree planting, conducting timber stand improvements, and reforestation of open land or cutover woodlands. Approximately 95 percent of all participants in the program live in the loblolly pine section of Maryland on the lower Eastern Shore.

Maryland Buffer Incentives Program

Maryland Project Foresters also administer the Buffer Incentive Program (BIP). This state funded program was established to encourage the planting and maintenance of forested buffers around the Chesapeake Bay and its tributaries as a means of reducing nutrient loading to the bay. BIP provides technical and financial assistance, and is a grant program, not a cost-share program. Under the Buffer Incentive Program, landowners who meet certain eligibility requirements may receive $300 per acre for every acre of buffer they establish. The minimum buffer acreage eligible is 1 acre, and the maximum is 50 acres. The buffers must be maintained for 10 years and must be at least 50 feet wide. Project Foresters also work with landowners enrolled in the program to prepare the buffer plan and to plant the trees.

Maryland Nonstructural Shore Erosion Control Act

The Maryland Forest Service and county soil conservation district offices also administer the state's Nonstructural Shore Erosion Control Act. Under the program, Project Foresters provide technical and cost-share assistance to property owners and local governments on shoreline and bank erosion problems. The Service uses both structural and nonstructural shoreline stabilization techniques that use bioengineering to solve shore erosion problems through the creation of protective vegetative buffers. Cost-share

payments may cover up to 50 percent of the design and project construction costs for approved activities. Both private and public landowners with property adjacent to any body of water in Maryland are eligible for grants under the program.

STATE WETLANDS PROGRAMS: TECHNICAL ASSISTANCE & COST-SHARES

Pennsylvania

Technical Assistance and Cost-Share

The Pennsylvania Department of Environmental Protection (DEP), Chapter 105 Program, has developed partnerships with 43 of the 67 County Conservation Districts within the Commonwealth to provide services at the local level. In accordance with individual delegation agreements, districts provide information and written materials to the general public and industry. Districts also have the authority to acknowledge registration of the use of general permits. Many also conduct on-site investigations of complaints in an effort to encourage voluntary compliance or refer the investigation to a regional DEP office.

Through the use of the Wetland Replacement Project, the DEP provides funding for wetland restoration on private or public land. The DEP also provides environmental engineering design assistance for projects. The funds collected support projects sponsored by private and public agencies that result in the restoration of wetlands, riparian corridors, and other aquatic systems. Municipal governments, watershed organizations, sportsmen's groups, private landowners, and others may sponsor projects and receive funding from the Pennsylvania Wetland Replacement Fund.[64]

The Pennsylvania DEP published the *Local Government Handbook* in 1997, which is designed to help local officials and residents obtain information on environmental issues in their communities. It contains information on grants, technical assistance, and points of contact in DEP's central, regional, and district offices. It also lists the DEP local government outreach staff that act as liaisons between local and state government.

Greenways

Several state agencies organized Pennsylvania's first Governor's conference on Greenways and Trails in April 1997. With the assistance of several nonprofit organizations, Pennsylvania intends to use the results generated from this Conference and develop a Greenway Plan.

Key Pennsylvania funding sources for greenway planning an development include ISTEA, National Trails Program, and the Keystone Community, Rails-to-Trails, and Rivers Conservation Grant Programs. The Department of Conservation and Natural Resources' Bureau of Recreation and Conservation administers grants to local governments for land acquisition and development of greenways projects through the Keystone Fund.

Maryland

Technical Assistance and Cost-Share

General assistance and technical information is available to local governments and citizens at the field offices and headquarters of the Maryland Department of the Environment's (MDE) Water Management Administration. The Administration will also provide assistance on watershed planning and wetland management, will oversee wetland mitigation projects, and often engages in cooperative projects with private landowners.

Maryland's Nonstructural Shore Erosion Control Act[65] is administered by the Maryland Department of Natural Resources' (DNR) Forest Service and county soil conservation district offices. The program enables DNR to provide technical assistance to property owners and local governments experiencing specific shoreline and bank erosion problems. The program, which used some structural shoreline stabilization techniques, now uses many nonstructural shoreline stabilization techniques including marsh grass plantings.

DNR's Watershed Restoration Division and MDE's Water Management Administration provide technical assistance to local governments, watershed associations, and private landowners on how to protect, restore, enhance and create wetlands for the benefit of wildlife and water quality. The agencies also provide training on how to conduct watershed/stream assessments and how to minimize the impacts of existing and future developments on water quality and wildlife habitat. Cost-share opportunities are sometimes available for specific activities in designated watersheds.

Wild Acres

Maryland's Wild Acres Program, administered by the Department of Natural Resources' Wildlife Division, is designed to provide private landowners with information and technical assistance on creating or enhancing wildlife habitat in backyards, parks, nursing homes, farms, and other areas. The program includes enhancing wetland habitat for wildlife.

Wildlife Habitat Improvement Program

Maryland's Wildlife Habitat Improvement Program seeks to enhance waterfowl habitat on private farmland by paying farmers to leave certain crops unharvested in the field to provide food for wildlife. The program can also fund wildlife enhancement projects on public lands. The program receives approximately $160,000 annually and can provide certain types of farm equipment for use on habitat projects.

Maryland Greenways Program

The Greenways Program is administered by the Maryland Department of Natural Resources' Chesapeake and Coastal Watershed Service.

In 1990, Maryland launched an effort to establish a statewide network of greenways. Over 900 miles of protected greenway corridors have been established. The existing network is comprised primarily of stream valley corridors and recreational trails. These corridors are identified in the Maryland Greenways Atlas. The publication is available from the Maryland Greenways Commission.

One of the goals of the Maryland Greenways Commission's workplan is to identify corridors with multiple ecological benefits and target land conservation in those areas. Targeted corridors will be those that provide several ecological functions, such as wetland protection, habitat preservation, forest connectivity, or stream buffers. Priority greenways will be identified through DNR's integrated Natural Resource Assessment. The first draft of the assessment is expected to be completed by the end of 1997.

Greenways also play a role in the state's Rural Legacy Program and the Heritage Area's Program. Greenway corridors will also continue to be identified in local comprehensive plans in the state, which now have a greater focus on the protection of sensitive areas, including wetlands, steep slopes, and waterways.

Rural Legacy Program

Maryland's Rural Legacy Program was enacted in 1997 as part of the Governor's overall "Smart Growth" initiative to protect Maryland's best remaining landscapes and natural areas from sprawl development. The Program is funded through a combination of state-issued general obligation bonds and Program Open Space funds. It is designed to benefit local stakeholders by providing public agencies and land trusts with incentives to develop innovative strategies to protect rural lands. The Rural Legacy Program provides funds to local governments and local land trusts to purchase property, conservation easements, and development rights, in designated Rural Legacy Areas.

The goals of the Rural Legacy Program are to establish "greenbelts" of forests and farms around rural communities; preserve critical habitat; support natural resource-based economies; and protect riparian forests, wetlands, and other buffer zones of the Bay and its tributaries. It was designed to create partnerships among all levels of government and land trusts, as well as complement and bolster existing programs. A minimum of $71.3 million in grants is designated for the Rural Legacy Program's first five years. The Maryland Program Open Space and the Maryland Agricultural Land Preservation Foundation provide interested individuals, organizations, and local governments with additional information on the Program.

Virginia

Technical Assistance and Cost-Share

The Virginia Institute of Marine Science's (VIMS) wetlands program provides site-specific technical assistance and advice on individual problems in Virginia's coastal plain. VIMS conducts applied research on wetlands in support of the regulatory program and

provides technical expertise to the regulatory agencies involved in the permitting process in Virginia (the Commission, DEQ, and the Local Wetlands Boards).

The Chesapeake Bay Local Assistance Board (CBLAD) provides technical and financial assistance to the 84 local governments in Tidewater Virginia that are required under the Chesapeake Bay Preservation Act to adopt and implement local programs to enhance water quality. CBLAD provides assistance to these local governments in the development and implementation of local zoning, subdivision, and other land use ordinances, as well as local comprehensive plans that improve and protect water quality. CBLAD's financial assistance program is a competitive grants program for Tidewater local governments, Planning Development Commissions (Virginia's regional planning bodies), and soil and water conservation districts, for the development and implementation of local Bay Act programs.

As part of the nontidal wetland management programs in Virginia, the Virginia Department of Game and Inland Fisheries administers a Wetland Technical Assistance Program. This voluntary program targets farm owners, sportsman's clubs, and corporate landowners with prior converted wetlands on their property, and offers them technical expertise on restoring wetlands for wildlife.

District of Columbia

Technical Assistance and Cost-Share

The District of Columbia does not currently have any cost-share programs available to local landowners. Technical information is available through the District's Water Resources Management Division on a case-by-case basis.

U.S. FISH AND WILDLIFE SERVICE

Partners for Wildlife

Partners for Wildlife is a voluntary partnership program, administered by the U.S. Fish and Wildlife Service, that provides financial and technical assistance to private landowners interested in wetlands restoration. Partners for Wildlife often works with local governments and, in many cases, their projects are conducted on public land. Local governments often offer funds to help complete projects on public or private land.

Partners for Wildlife gives priority to projects restoring degraded or former wetlands and associated nearby natural habitats. The program is designed to make a tangible contribution to attaining a net gain in the nation's wetland acreage and wetland-dependant wildlife species through on-the-ground implementation of wetland restoration projects. The program works through voluntary partnerships to directly involve private landowners in proactive stewardship of wetlands and associated habitat. Partners for Wildlife emphasizes projects that restore formerly degraded wetlands and other habitats to conditions -- as close as is feasible -- to natural conditions.

Participants receive direct assistance with planning their wetland restoration projects from FWS, the Natural Resources Conservation Service, their state wildlife agency, or another cooperating group. The FWS then contracts or otherwise arranges for the actual construction work or pays the landowners for the services. To receive the financial assistance, the landowner must sign a cooperative agreement to maintain the restored wetland for at least ten years. Since Partners for Wildlife was established in 1987, the program has restored over 360,000 acres of wetlands, 128,000 acres of prairie grassland, 930 miles of riparian habitat, and 90 miles of in-stream aquatic habitat nationwide.[66] Besides restoring wetlands, many of the participating landowners undertake active management to aid wildlife. Landowners may enjoy a variety of benefits from restoring their wetlands, such as recreational opportunities, sale of hunting rights, increased wildlife, improved water quality, timber production, and enhanced scenery. Landowners interested in participating in the program should contact a FWS state Private Lands Coordinator.

Examples of wetland restoration projects include:

- managing water levels in ponds and wetlands to improve wildlife habitat;
- delaying hay harvesting to provide nesting habitat for ducks and other ground-nesting wildlife;
- managing the timing and intensity of grazing to provide vegetation for wildlife during critical periods;
- maintaining nest structures and nesting islands for waterfowl and other wildlife; and
- reducing pesticide use near wetlands.

Through the U.S. Fish and Wildlife Service's Partners for Wildlife program, federal and state agencies and private organizations have worked together to pool financial and staffing resources to support private landowners interested in restoring wetlands, riparian areas, and upland on their property in the Chesapeake Bay. These collective efforts have restored over 2,100 acres of wetlands, 25 miles of riparian corridor, and 400 acres of upland habitat in the Chesapeake Bay watershed in Virginia, Maryland, Pennsylvania, and Delaware.

Partners in Flight

In 1990, the National Fish and Wildlife Foundation and its partners sponsored an international workshop to address the problem of dwindling populations of North American migratory land birds. Although waterfowl and other wetland-associated species are protected by the North American Waterfowl Management Plan, no program existed to prevent hundreds of species of neotropical migratory land birds from being neglected. The workshop gave birth to the international Neotropical Migratory Bird Conservation Initiative, or "Partners in Flight - Aves de las Americas" (PIF). The goal of PIF is to maintain stable populations and enhance or restore declining populations of wild land birds, both migratory and resident.

Partners in Flight is a consortium of hundreds of private organizations, natural resource agencies, private businesses, industry associations, private landowners, foundations, universities, and individual citizens dedicated to maintaining healthy bird populations in the

United States and throughout the Western Hemisphere. PIF is dedicated to keeping populations of common and less common birds from diminishing and developing partnerships to avoid collision between wildlife conservation and economic development. Through those partnerships, PIF has been able to raise awareness of the value of migratory birds and the need for their protection.

In the first five years of its implementation, Partners in Flight made monumental strides in drawing the attention of a diversity of groups to the need for more effective measures to protect migratory birds before they become endangered. Partners in Flight has initiated more than 1,000 different projects, from restoration of damaged sites to region-wide monitoring projects to inclusion of migratory bird conservation in school curricula throughout the nation. The result has been the widespread recognition of the effectiveness of public-private partnerships in achieving wildlife conservation goals. PIF attributes its success to the voluntary and cooperative aspect of the partnerships. The U.S. Fish & Wildlife Service's Office of Migratory Bird Management (MBMO) serves as the technical advisor to PIF. The Service develops the administrative and technical foundations of the program, scientific expertise on effective bird conservation, and disseminates information to the public. Service outreach specialists and biologists regularly hold special workshops and educational programs on migratory birds for teachers and families from local communities.

There are many opportunities for local governments, individuals, businesses, and conservation groups to become active in Partners in Flight. One Partners in Flight project in Prince George's County, Maryland, is a partnership between the Prince George's County Planning Department, the Montgomery County Department of Environmental Protection, and the U.S. Geological Survey's Patuxent Wildlife Research Center. The groups are developing guidelines and plans to preserve and enhance habitat for breeding forest birds in Prince George's County. After models are developed that predict the occurrence of bird species in forests, the information will be used in combination with local zoning and forest conservation requirements to develop a forest conservation plan for Prince George's County. The resulting conservation plan will maintain and enhance breeding habitat for area-sensitive forest birds, while allowing for additional development as human populations increase.[67]

North American Waterfowl Management Plan (NAWMP)

NAWMP is an international agreement among the United States, Canada, and Mexico. It creates a framework for protecting, restoring, creating, and enhancing critical wetland and upland areas that function as waterfowl habitat. NAWMP is designed to initiate a long-term solution to land use problems by involving the coordinated action of federal, state, provincial, and local governments, businesses, conservation organizations, and individual citizens. NAWMP's goals are to protect 11.1 million acres of wetlands and associated uplands, restore or enhance 14.6 million acres, and restore waterfowl populations to levels seen in the 1970s. Specific population goals have been set for 32 species of ducks, geese, and swans. The plan set a goal of 62 million breeding waterfowl, enough for a fall flight in excess of 100 million birds, by the year 2000.

The objectives of NAWMP are achieved through partnerships, or joint ventures, of state and federal agencies, local governments, non-profit organizations, and the private sector. The U.S. Fish and Wildlife Service coordinates joint ventures that pool resources together to achieve the plan's goals. Private landowners that live near joint ventures who have wetlands that are significant to waterfowl on their property may receive technical and financial assistance through the cooperative programs undertaken in their geographic area.

Projects of the NAWMP

The plan has identified 34 areas in Canada and the United States of particular importance to North America's waterfowl populations. Eleven public-private joint ventures have been established for some of the most critical habitats and species. Two species-oriented joint ventures, focusing on the Black Duck and the Arctic Goose, are exploring the migration, habitat requirements, and population trends of these threatened species. The nine remaining joint ventures focus on protecting habitat, either by purchasing the land outright, leasing it, or securing conservation easements. NAWMP also uses economic incentives to encourage private landowners, especially farmers to use conservation practices that benefit wildlife.

North American Wetland Conservation Act (NAWCA)

The North American Wetlands Conservation Act was enacted in 1989, in support of the North American Waterfowl Management Plan, to encourage voluntary, public-private partnerships to conserve North American wetland ecosystems. It establishes an infrastructure and provides a source of funding to accomplish that end. The Act created a grant program to help support partners' conservation activities. The Act provides funding for wetlands conservation projects involving acquisition, restoration, and enhancement. Funding is approved by the Migratory Bird Conservation Commission (MBCC) based on recommendations from the North American Wetlands Conservation Council. The Council is coordinated by the U.S. Fish and Wildlife Service and can provide assistance to landowners to develop proposals for submission to the Council and MBCC. NAWCA grants require a minimum one-to-one grant match from any nonfederal source, such as a state, local government, nonprofit group, or private landowners. The office that oversees this program is the North American Waterfowl and Wetlands Office, which is located in Arlington, Virginia.

NAWCA in the Chesapeake Bay

NAWCA funded The North Landing River area in southern Virginia. The project area is inhabited by four rare natural communities and more than 30 rare plant and animal species, and was identified by the NAWCA's Atlantic Coast Joint Venture as a top priority protection site in Virginia. Located near the rapidly expanding coastal communities of Chesapeake and Virginia Beach, it was in danger of development. The North River

Acquisition Project (funded by two North American Wetlands Conservation Fund grants and funds from partner contributions) made possible the conservation of over 9,000 acres of wildlife habitat.[68]

In Maryland, NAWCA funded two projects that will benefit waterfowl populations enormously. The Blackwater National Wildlife Refuge in Maryland was made possible by a conservation partnership formed under the North American Wetlands Conservation Fund. Funding made possible the acquisition and protection of 2,297 acres of threatened habitat adjacent to the Blackwater National Wildlife Refuge. The refuge, some of the Chesapeake Bay's most productive estuarine habitats for a wide variety of threatened plant and animal species, now includes some of the best examples of tidal saltwater wetlands, tidal freshwater wetlands, nontidal wetlands and upland islands in Maryland.[69]

Another project under consideration is the proposed Savanna Lake project. This project would protect 4,323 acres of sensitive wetland habitat in the Blackwater-Nanticoke, MD area through fee acquisition and land donation. With funds from the North American Wetlands Conservation Fund and other contributing partners, a diverse ecosystem including at least 18 different wetland systems (tidal and nontidal) will become part of the Fishing Bay Wildlife Management Area -- a part of the Savanna Lake Natural Heritage Area.[70]

PRIVATE SOURCES OF TECHNICAL ASSISTANCE AND COST-SHARE

Ducks Unlimited

Ducks Unlimited (DU) is an international wetlands conservation group founded in 1937 to restore, enhance, and protect wetlands and their associated uplands. With a membership of more than half a million people, it is now the largest private sector wetlands and waterfowl conservation organization in the world. DU is active around the world, but focuses primarily on the U.S., Canada, and Mexico. DU conducts a variety of different programs, including restoration of drained wetlands, water control enhancements, acquisitions, conservation land transfers, purchase of water rights, and a public education project. DU also pursues partnerships with public and private organizations.

Private Lands Program

DU's Private Lands Program began as an effort to protect wetlands on private lands. This program is designed to develop innovative, low cost mechanisms to protect private wetlands. Private Lands Program staff introduce these ideas to private landowners in the form of demonstration projects, workshops and seminars. The program has five major components:

- Technical assistance programs
- Demonstrations
- Information and education programs
- Landowner workshops
- Habitat development projects

THE ROLE OF LOCAL CONSERVATION PLANNING

District Conservationists (NRCS)

Employees of NRCS, District Conservationists administer WRP and the other conservation provisions of the Farm Bill. District Conservationists have access to other NRCS technical experts at the NRCS area and state offices, such as engineers and soil scientists. The District Conservationist and the Conservation District Manager share the same office.

Conservation District Manager

A district employee, the Conservation District Manager is funded by the local and state government and often shares an office with the NRCS District Conservationist. The Districts often have different names from state to state. In Pennsylvania they are called Conservation Districts and are run by Conservation District Managers. In Virginia, they are Soil and Water Conservation Districts, and are run by District Conservationists, or Conservation Specialists when there is not a District Conservationists in each district. In Maryland they are called Conservation Districts.

Maryland's Conservation Districts are responsible for approving soil conservation and water quality plans. The plans are required when a new agricultural activity causes a loss of wetlands (under the Nontidal Wetlands Act). The Districts cooperate with the Water Management Administration in reviewing the plans.

Conservation District managers are usually represented by a state-level association. Maryland Soil Conservation District Managers have the Maryland Association of Soil Conservation Districts (MASCD); Pennsylvania Conservation District Managers are represented by the Pennsylvania Association of Conservation Districts. Virginia District Conservationists are represented by two organizations: the Virginia Association of Soil & Water Conservation Districts and the Conservation District Employees Association, which focuses on training and communication. There is also a national organization called the National Association of Conservation Districts.

Farm Service Agency (FSA)

The Farm Service Agency has an office at the district level that administers the Conservation Reserve Program and other commodity programs of the Farm Bill. The FSA usually has a suite or set of offices in the same building as the District Conservationist and Conservation District Manager.

State Extension Agent

Extension Agents are university-affiliated individuals who are with the educational arm of the USDA. They are funded by federal USDA funds, state funds, and local funds. Many have faculty appointments at the university affiliates. They are knowledgeable about the farm bill and provide technical expertise and access to university facilities. In Pennsylvania, the Pennsylvania State University is the university affiliate. Virginia has two university affiliates: Virginia Polytechnical Institute & State University (Virginia Tech) and Virginia State University. Maryland's Extension Service University affiliate is the University of Maryland.

County Foresters

State Foresters are employees of state forestry agencies who work at the county level. They are responsible for assisting nonindustrial, private forest landowners in forest management and managing state forest lands. The State Foresters also administering the Forest Stewardship Program (FSP), the Stewardship Incentive Program (SIP), and other state-specific programs. They can provide technical assistance and guidance in developing management plans for privately-owned forest land. County foresters in the Bay states help the NRCS administer the Forestry Incentives Program by providing technical assistance.

The Pennsylvania Bureau of Forestry has 20 districts in the Commonwealth. The Service Foresters in those districts provide assistance to private non-industrial landowners. In Maryland, the Department of Natural Resources' Forest Service's employees at the county level are called Project Foresters. In addition to implementing SIP, Maryland's Project Foresters run the state's Woodland Incentive Program and the Buffer Incentive Program. The employees of Virginia's Department of Forestry at the local level are called County or Area Foresters.

MARSH Program

Ducks Unlimited also administers the MARSH Program, or the Matching Aid to Restore States Habitat Program. MARSH was initiated in 1985 to provide matching funds to public agencies and private conservation groups for projects that significantly benefit waterfowl and lead to the permanent protection or restoration of habitat in a North American Waterfowl Management Plan (NAWMP) Joint Venture Area.

Private landowners can receive up to 50 percent cost-share assistance through MARSH for approved waterfowl and habitat restoration projects. MARSH project proposals should be developed and submitted to the regional flyway MARSH coordinator of Ducks Unlimited by the agency or conservation group developing the habitat project. Projects that seek to achieve the objectives of the NAWMP receive priority for MARSH funding.

Statewide Land Trusts

There are over 1,100 land trusts in the United States that are responsible for protecting over 4 million acres. Many of these land trusts were established with wetlands conservation as the guiding goal.[71] A national organization, The Nature Conservancy (TNC) also has a particular focus on protecting the nation's dwindling natural resources, including wetlands. TNC's mission is to preserve the plants and animals that represent the diversity of life on earth, by protecting the lands and waters they need to survive. TNC is a private, national conservation organization with state chapters that work with private landowners, corporations, governments, and other conservation organizations, to build partnerships to preserve habitats vital to the most threatened species.

Pennsylvania

In Pennsylvania, the Pennsylvania chapter of The Nature Conservancy (TNC) provides technical assistance for large-scale conservation activities in the eastern portion of the state. Working with private landowners, business, governments, and other conservation groups, The Nature Conservancy forges partnerships to preserve habitats vital to Pennsylvania's most vulnerable species and ecosystems. TNC has over 32,000 members in Pennsylvania and has protected more than 40,000 acres since 1951. Unaffiliated with The Nature Conservancy, the Western Pennsylvania Conservancy operates mainly in the western portion of the state. The Western Pennsylvania Conservancy has protected thousands of acres of valuable wildlife habitat. It currently owns or manages 23,900 acres. When funding becomes available and land is purchased, many of these acres are transferred to state agencies such as the Bureau of Forestry or the Pennsylvania Game Commission.

In Pennsylvania, TNC and the Western Pennsylvania Conservancy have established a Natural Areas Registry, which is designed to honor and recognize the owners of outstanding natural areas for their commitment to the survival of the state's natural heritage. The Pennsylvania Registry encourages the preservation of important habitat, and is a

nonbinding, nonregulatory program. The Program has won protection for over 95,000 acres of privately owned land in the state. To qualify for registration, a property must contain habitat for plants or animals that show declining populations in the state; plant communities characteristic of the native vegetation of the state; and/or outstanding natural features, such as virgin forests or wetlands.

Virginia

The Virginia TNC has helped protect 206,000 acres of natural areas in Virginia. Much of this land was protected as the result of cooperative agreements and projects with other organizations and state and local governments. The Virginia TNC currently owns and manages 30 major preserves totalling over 15,000 acres.

TNC also has an Eastern Shore chapter, which protects over 45,000 acres known as the Virginia Coast Reserve.

Maryland

The Nature Conservancy of Maryland and the District of Columbia was founded in 1977. It currently owns and manages 30 nature preserves encompassing more than 10,000 acres. It has also assisted federal, state and local governments and private organizations with acquiring land in 46 different sites, totalling over 25,000 acres. In total, the Maryland TNC has helpted to protect over 41,000 acres of natural lands throughout the state.

The Maryland TNC has also established a long-term, ecosystem-wide conservation program known as Chesapeake Rivers. The program's goal is to preserve Maryland's four most biologically significant waterways: Sideling Hill Creek, the Nanticoke River, Nassawango Creek and Nanjemoy Creek.

Chesapeake Bay Foundation[72]

The Chesapeake Bay Foundation (CBF) is a nonprofit organization founded in 1966 in response to the degradation of the Bay's resources and the simultaneous human population growth in the six-state Bay area. CBF works to educate residents in the Bay and build broad-based cooperation and coalitions. It has developed a middle school environmental curriculum, called *Catch of the Bay*, which covers such issues as fisheries restoration efforts, wetlands and underwater Bay grass restoration, and stream and oyster reef restoration. CBF also has a number of outdoor education programs to increase environmental literacy, including a series of field trips for adults. CBF's *Bay Watcher* program gives CBF members an opportunity to make a difference in protecting the Bay through activities in four areas: outdoor projects, advocacy, educational outreach, and office work. One of CBF's goals is to increase the amount of wetlands in the Bay watershed by 125,000 acres by 2005.

Chesapeake Wildlife Heritage

Chesapeake Wildlife Heritage (CWH), is a private, nonprofit wildlife conservation organization established in 1980 to create, restore, and protect wildlife habitat that has been lost or altered within the Chesapeake Bay drainage area.

CWH delivers local habitat restoration and sustainable agriculture programs which create shallow marshes in farm fields and control what runs off those fields into the Chesapeake Bay. CWH biologists design and implement habitat plans that improve the environmental health of the land. The site-management programs are based on sound research and established land-use methods which include construction and management of wetlands, construction and placement of nesting structures, management of marshes and woodlands, advice on sustainable farming, and building hedgerows and buffer strips. CWH also works with landowners to procure funding from a variety of sources for restoration efforts.

Youth Corps in the Chesapeake Bay

Youth corps are programs that provide full-time, paid training, education, and community service opportunities for youth and young adults ages 16-25. The programs are funded by state and local appropriations; earned income from sponsored work agreements with federal, state, and local agencies; federal job training, community development, environmental protection, and national service funds; and private donations. The National Association of Service & Conservation Corps (NASCC) in Washington, D.C., is the national membership organization for the 120 state and local youth service and conservation corps programs in 37 states. There are at least eight youth corps operating in the Chesapeake Bay region.

Youth corps in the Chesapeake Bay region carry out short- and long-term projects for local governments, cities, counties, and states, and nonprofit organizations under trained adult supervision. For example, under its "Stream Restoration Training Program," NASCC is conducting a series of regional workshops in 1997-98 to train Youth Corps staff and partners in the design, tools, techniques, and applications of nonstructural restoration of urban streams. Chesapeake Bay Youth Corps are an excellent source of technical assistance and labor for local governments interested in conducting natural resource restoration projects on public lands, such as county and city parks.

Chapter Four:

Federal and State Research and Educational Information

FEDERAL AGENCY RESEARCH AND INFORMATION

U.S. Environmental Protection Agency

Office of Research and Development

EPA conducts wetlands-related research to improve the scientific basis for wetland decision-making and policy formulation. The wetlands research program is under the direction of the Office of Research and Development, EPA Headquarters, Washington, D.C. The wetlands research program manager is located at the Corvallis Laboratory, Corvallis, Oregon, and research is primarily conducted at Corvallis and Duluth, Minnesota laboratories.

Chesapeake Bay Program[73]

The Chesapeake Bay Program is a unique regional partnership leading and directing protection and restoration of the Chesapeake Bay since 1983. The Chesapeake Bay Program partners include the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency (EPA), which represents the federal government; and participating citizen advisory groups.

In the *1987 Chesapeake Bay Agreement*, the Chesapeake Bay Program partners set a goal to reduce the input of nutrients -- nitrogen and phosphorous -- entering the Bay by 40 percent by the year 2000. In the *1992 Amendments* to the *Chesapeake Bay Agreement*, the partners agreed to maintain the 40 percent goal beyond the year 2000 and to attack nutrients at the source -- upstream in the tributaries that feed into the Bay. The Chesapeake Executive Council, comprised of the governors of Maryland, Pennsylvania, and Virginia; the mayor of the District of Columbia; the EPA administrator; and the chair of the Chesapeake Bay Commission, guided the restoration effort in 1993 with five directives addressing key ares of the restoration. These directives included tributaries, toxics, underwater Bay grasses, fish passages, and agricultural nonpoint source pollution. In 1994, the partners outlined new initiatives for habitat restoration of aquatic, riparian, and upland environments; nutrient reduction in the Bay's tributaries; and toxics reductions, with an emphasis on pollution prevention.

The 1995 *Local Government Partnership Initiative* engages the watershed's 1,650 local governments in the Bay restoration effort. The Chesapeake Executive Council followed

this in 1996 by adopting the *Local Government Participation Action Plan* and the *Priorities for Action for Land, Growth and Stewardship in the Chesapeake Bay Region*, which addresses land use management, development, stream corridor protection, and infrastructure improvements. The 1996 Adoption Statement on Riparian Forest Buffers furthers the Bay Program's commitment to improve water quality and enhance habitat with the goal of increasing riparian buffers on 2,010 miles of streams and shorelines in the watershed by the year 2010.

EPA, through the Chesapeake Bay Program Office, provides leadership, administrative, technical, financial, and informational support to a network of regional committees, subcommittees, and work groups that runs the Bay Program.

The Chesapeake Bay Program involves all levels of government, the private sector, scientists, landowners, and citizens. In the Bay region, these interests are coupled with three governors, 40 members of Congress, hundreds of state legislators and local elected officials, 20 federal agencies, 4 interstate agencies, and many citizen groups that play a role in the restoration effort. The formal Bay Program has established more than 50 subcommittees and work groups to ensure that all of the interests are represented and that the goals of the Program are ultimately achieved. The Living Resources Subcommittee is the group with the primary responsibility for wetlands and riparian areas. Within the Subcommittee, the Wetlands Workgroup guides the Program's wetlands-related activities.

In 1988, the Program adopted the *Chesapeake Bay Wetlands Policy*, which established an immediate goal of no net loss of wetlands, and a long-term goal of a net resource gain for tidal and nontidal wetlands. The *Wetlands Protection and Restoration Goals Directive*, adopted in 1997, commits the Program to the development of strategies to achieve the protection and restoration of the wetlands resource and the establishment of a quantifiable wetland restoration and preservation goal. In addition, the Bay Program is currently developing the Wetlands Initiative, designed to provide local governments and watershed associations with a framework for identifying functions associated with wetland types. The framework will provide communities with a tool that allows for for the consideration of wetlands and their functions in the planning process.

The importance of local government participation has always been a focal point of the Bay Program. In 1995, a *Local Government Partnership Initiative* was developed to more actively engage local governments in the efforts to protect and restore the Chesapeake Bay. This Initiative has two main objectives: 1) to establish a stronger working relationship and improve coordination with local governments to broaden the Bay Program's understanding of local perspectives concerning the watershed's protection and restoration; and 2) to identify local government needs and the technical, programmatic, and financial resources available to them.

In October 1996, the *Local Government Participation Action Plan* was released. The plan establishes a strategy to broaden the role of local governments in the Chesapeake Bay Program, provide local governments with additional assistance, and help coordinate local groups with achieving their water quality and wildlife goals.

Wetlands Information Hotline
Wetlands Division, Office of Wetlands, Oceans and Watersheds

The U.S. EPA runs a toll-free hotline to provide private land owners, local governments, educators, state agencies, attorneys and consultants with up-to-date information on wetland laws, regulations, internal agency documents affecting the administration of wetlands protection, and educational material. The Hotline is an excellent source of information and will provide contacts and references for further information. It will also provide educational literature and agency publications free of charge. The Hotline can be reached at (800) 832-7828.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers conducts wetlands research to improve existing wetlands, reduce wetlands loss and impacts, and provide better environmental accountability in water resource projects. The Corps' wetlands-related research is primarily conducted at its Waterways Experiment Station in Vicksburg, Mississippi. In 1991, the Corps established the Wetlands Research and Technology Center (WRTC) in at the Waterways Experiment Station in Vicksburg. The WRTC was established to consolidate administrative, technical, and research skills.

The Corps' Institute for Water Resources (IWR) is part of the Water Resources Support Center at Ft. Belvoir, Virginia. IWR was created in 1969 to analyze and anticipate changing water resources management conditions and to develop improved planning methodologies to address economic, social, institutional and environmental needs in water resources planning and policy. IWR publishes reports, technical papers, bulletins, newsletters, and hold conferences, seminars, and training courses. Recent wetlands-related publications include IWR's National Wetlands Mitigation Banking Study. The studies include *Wetland Mitigation Banking, Commercial Wetlands Mitigation Credit Markets: Theory and Practice*, and *An Examination of Wetlands Programs: Opportunities for Compensatory Mitigation.*[74]

U.S. Department of Agriculture

The U.S. Department of Agriculture (USDA) has a number of research departments that work on wetlands issues. The Economic Research Service conducts research related to the many wetlands-related programs USDA administers. In addition, the USDA conducts wetlands research through its Agricultural Research Service and the Cooperative State Research, Education, and Extension Service. Many of the land grant colleges and universities across the U.S. are conducting active wetlands research programs.

Wetlands Science Institute

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) established the Wetlands Science Institute, which is housed and served by the

Patuxent Wildlife Research Center in Laurel, Maryland, to develop, adapt, and disseminate the science and technology needed to protect and restore wetlands. The Institute works with NRCS to develop, interpret, and apply wetland science by developing applied scientific techniques for wetland conservation needs; providing technical consultation to NRCS and others to resolve problem areas in the field; developing and disseminating NRCS technical guidance documents; serving as NRCS technical liaison with government and university research and technology centers to ensure the coordination and cooperative development and dissemination of emerging wetland science information; and serving as resident technical experts and develop specialized training in wetland science.

Cooperative State Research, Education, & Extension Service (Extension Service)

The Extension Service is affiliated with land grant institutions in every state and territory, with over 3,000 county offices. The Service serves as the educational arm of USDA and provides research-based educational information on all Farm Bill programs.

National Resources Inventory (NRI)

The National Resources Inventory (NRI) is an inventory of land cover and use, soil erosion, prime farmland, wetlands, and other natural resource characteristics on nonfederal rural land in the United States. The NRI provides a record of the nation's conservation accomplishments and future program needs.

Inventories are conducted at 5-year intervals by the USDA's NRCS to determine the conditions and trends in the use of soil, water, and related resources nationwide and statewide. NRI data includes some 800,000 sample sites on nonfederal land. At each sample point, information is available for three years: 1982, 1987, and 1992. From this time series, changes and trends in land use and resource characteristics over time can be estimated and analyzed. Data on wetlands includes the classification of wetlands and deep-water habitats in the U.S. for 1982 and 1992. Data elements added in 1992 include: information on streams greater than 1/8 mile wide and water bodies by kind and size greater than 40 acres; Conservation Reserve Program land under contract and the type of earth cover; wildlife habitat diversity; and Food Security Act (FSA) wetland classification.

The purpose of the NRI is to provide information that can be used to effectively formulate policy and develop natural resource conservation programs at the national or state level. The data are used in national, state, and local planning, university research, and private sector analysis. The data help shape major environmental and land-use decisions and help form the basis for farm, conservation, and natural resource legislation at the state and national levels. USDA uses NRI data in its Soil and Water Resources Conservation Act analyses to assess current and future impacts of agricultural conservation programs and to help direct its national conservation program. NRI data can be used by local governments in making land use and conservation decisions.

The NRI database is available to the public on four CD-ROMs (ISO 9660 format) at $50 per disk. Each disk contains data for a collection of states that form a contiguous

region. Disk # 4 includes information for the Northeast, including Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. Data may also be downloaded on a state-by-state basis. NRCS has also developed NRI Data Analysis Software that helps users query and generate reports and maps. It is easy to use, graphical, and Windows-oriented. Users make selections from menus to create reports and maps. Prior knowledge of the database management system, the computer operating system, or the geographic information system is not needed to create these products. NRI data and Data Analysis Software may be ordered from NRCS's National Cartography and Geospatial Center in Texas, or directly from the NRI web page on the Internet. For more information about data collection methods and results for specific states or regions, contact your USDA Natural Resources Conservation Service state office.

U.S. Fish & Wildlife Service

National Wetlands Inventory (NWI)[75]

The Fish and Wildlife Service's National Wetlands Inventory (NWI) is the leading federal program with responsibility for mapping the nation's wetlands. The NWI provides information on the status, conditions, and trends of nonfederally owned wetlands.

The National Wetlands Inventory plans, directs, coordinates, and monitors the gathering, analysis, dissemination, and evaluation of information relating to the location, quantity, and ecological importance of United States wetlands. NWI data is available on the Internet, or can be obtained as hard copies. NWI maps can be used by wetlands regulators, the public, and environmental consultants for preliminary site assessments. NWI maps can also be used for watershed planning, environmental impact assessment reports, preliminary site evaluation for development and transportation, potential wetlands restoration site identification, wildlife surveys, and land appraisals. In fact, several states use NWI maps to help assess property taxes.

Federal wetland delineation manuals suggest using the maps as a reference, but NWI maps cannot replace field delineations. The maps include nonregulated wetlands and were never intended to show the limits of regulated wetlands. NWI mapping procedures were designed to identify all types of wetlands without regard to their jurisdictional status.

The NWI data available on the Internet is in vector format, not images. Geographic Information System (GIS) software is need to process the data into a viewable form. Additional information on how to do this is available at NWI's web page. The data files for a specific quad are stored in a directory named by the 1:250,000 scale map unit in which the quad is located. For example, the Chesapeake Channel quad, which covers the Williamsburg, Virginia area, is 1:24,000 map. The U.S. Geological Survey's (USGS) web site includes information on the FWS map name, USGS map name, photo scale, photo date, emulsion, base map, base date, NWI type, map reference code, geounit, NWI status, and information on whether it is digitized or not.

General Educational Information

The U.S. Fish and Wildlife Service's Publications Unit has a wide variety of brochures, posters, and other information free of charge. The Service's "Educator's" Internet page includes a list of publications, guides, and general information geared toward educators in search of additional information on wetlands.

U.S. Geological Survey

U.S. Geological Survey's Chesapeake Bay Ecosystem Program

U.S. Geological Survey's (USGS) Chesapeake Bay Ecosystem Program is one of several study areas within the USGS Ecosystem Program. The Ecosystem Program was established to enable the USGS to enhance its scientific assistance to resource managers who require an improved scientific information base to resolve or prevent complex resource conflicts or environmental problems in specific ecosystem sites. Through three to five-year efforts in each ecosystem site, USGS intensifies its provision of scientific information tailored to the specific management needs of that ecosystem. The information is designed to have a direct, significant, and immediate impact on management and policy decisions. It addresses regional or subregional issues that involve environmental resources such as water, minerals, and land. The sites may have as their focus such issues as water quality or water supply, environmental effects of mineral or energy use or extraction, or effects of alterations in land use or land cover.

The Chesapeake Bay was added in 1996. The program is multidisciplinary and brings together scientists from appropriate disciplines to apply their diverse expertise to common problems. Activities under the Chesapeake Bay Ecosystem Program have been grouped into the broad categories of cartographic and other data resources; nutrient and sediment inputs from major surface water drainage areas; nutrients in groundwater discharge; relationships between hydrology, geology, and living resources; and ecosystem evolution.

The USGS Chesapeake Bay region web site has links and information on topics including water, wetlands, land use, population and urban development, atmospheric deposition, geology, mapping, biology, streamflow, water quality, sediment and ground water. For example, in the mapping section, there is an historical perspective on urbanization in the Baltimore-Washington region; a section on the Opequon Creek Watershed that flows into the Potomac; and monthly water conditions in the Chesapeake Bay region. The site includes a USGS bibliography with bibliographies on reports addressing biology, water, and mapping. In the wetlands section there are abstracts of papers including "Assessing the relative habitat value of restored vs. natural coastal tidal marshes to migratory birds in the Chesapeake Bay." In addition, there are fact sheets on basic geologic and water resource information for each of the Bay states.

USGS Biological Resources Division

The USGS Biological Resources Division (BRD), formerly the National Biological Service (NBS), was established to work with other federal agencies to provide the scientific understanding and technologies needed to support the sound management and conservation of our nation's biological resources. NBS consolidated the biological research, inventory and monitoring, and information transfer programs of seven Department of Interior bureaus: Fish and Wildlife Service, National Park Service, Bureau of Land Management, Minerals Management Service, U.S. Geological Survey, Bureau of Reclamation, and Office of Surface Mining. The Division's Southern Science Center, located in Lafayette, Louisiana, provides national leadership in research development related to protecting, restoring, and managing wetlands and other national resources.

The Patuxent Wildlife Research Center, located in Laurel, Maryland, is a Biological Resources Division dedicated to studying an enormous array of issues related to the Chesapeake Bay. In addition, the U.S. Fish and Wildlife Service's Patuxent Research Refuge, the nation's first and only research refuge managed for wildlife research, habitat diversity, and compatible public education and recreation, has an excellent visitor's center available to the public with interactive displays and information for all ages on the resources in the Bay.

Some of the areas currently under study at Patuxent Wildlife Research Center specific to the Bay include: evaluation of created forested wetlands in relation to migratory bird conservation; role of sediment ingestion in the exposure of Chesapeake Bay wildlife to environmental contaminants; assessing restored depressional wetlands in the mid-Atlantic states; assessing the relative habitat value of restored vs. natural coastal tidal marshes to migratory birds in Chesapeake Bay; Anacostia wetlands studies; applying a bioassessment and monitoring framework for public lands and trust resources along the Atlantic coast; field validation study of a constructed wetland system for wastewater treatment in the Patuxent River watershed; and assessing reconstructed depressional wetlands in the mid-Atlantic states.

STATE TECHNICAL AND INFORMATION RESOURCES

Natural Heritage Programs

State Natural Heritage programs serve as a centralized repository of data to identify each state's most significant natural areas through an intensive statewide inventory. The department that manages the program maintains site-specific information on documented occurrences of rare plant and animal species, unique or exemplary natural communities, and conservation sites that support state natural heritage resources.

Virginia's Natural Heritage Program is housed within the Virginia Department of Conservation and Recreation. Maryland's heritage data is housed within the Heritage and Biodiversity Conservation Programs of the Maryland Department of Natural Resources.

Pennsylvania's Natural Heritage Program is managed by the Pennsylvania Department of Conservation and Natural Resources' Bureau of Forestry.

Sources of Federal and State Research and Educational Information

Federal Sources

U.S. Environmental Protection Agency
- Office of Research and Development
- Chesapeake Bay Program Office
- Wetlands Information Hotline

U.S. Army Corps of Engineers
- Wetlands Research and Technology Center
- Institute for Water Resources

U.S. Department of Agriculture
- Wetlands Science Institute
- Cooperative State Research, Education, and Extension Service
- Natural Resources Inventory
- Natural Resources Conservation Foundation

U.S. Fish and Wildlife Service
- National Wetlands Inventory

U.S. Geological Survey
- Chesapeake Bay Ecosystem Program
- Biological Resources Division

State Sources

Maryland
- Maryland Department of Natural Resources
  - Heritage and Biodiversity Conservation Programs (Natural Heritage Program)
- Maryland Department of the Environment

Pennsylvania
- Pennsylvania Department of Conservation and Natural Resources
  - Bureau of Forestry (Natural Heritage Program)
- Pennsylvania Center for Environmental Education
- Pennsylvania Department of Environmental Protection

Virginia
- Virginia Department of Conservation and Recreation
  - Natural Heritage Program
- Virginia Institute of Marine Science
  - Center for Coastal Inventory
- Chesapeake Bay Local Assistance Department

District of Columbia
- Water Resources Management Division, Fisheries Management Branch
  - Aquatic Resources Education Program

Other State Informational Resources

Pennsylvania

Educational Information

In February 1997, the Pennsylvania Center for Environmental Education was launched. The Center was created by an executive order of the governor and will help assess environmental education needs and coordinate the development of lifelong learning programs. The Center will work with and coordinate the education programs and needs of the state agencies that manage and regulate natural resources.

Wetlands Data: Registry

The Pennsylvania Department of Environmental Protection (DEP) created a wetland registry program to promote voluntary wetland restoration. The program encourages land owners to register land where they would like wetlands to be restored or created on their property, with the help of the DEP. DEP hopes to link voluntary land owners with public and private agencies interested in restoring wetlands. In the first six months of operation almost 2,000 acres were registered within 47 counties of the state.

Maryland

Educational Information

Fact sheets, brochures, and other publications are available through the Maryland Department of Natural Resources (DNR) and Maryland Department of the Environment (MDE). The publication *Wetlands of Maryland* is available through MDE.

Wetlands Data: Mapping & Registry

The DNR is currently establishing a habitat enhancement site registry to be distributed throughout the state. The registry focuses on wetlands, streams, and riparian areas where restoration or enhancement activities can be implemented (including buffer plantings, stream stabilization, wetland restoration, etc.). Nontidal wetlands guidance maps are available to the public from MDE, DNR, all soil conservation districts, and the planning and zoning offices in each county. State tidal wetland maps are available from the Maryland Geological Survey.

Virginia

Educational Information

The Virginia Institute of Marine Science (VIMS) provides a variety of educational programs and publications; periodic wetlands seminars and workshops; technical reports on wetlands science, policy and management and a wetlands newsletter, which comes out three times a year.

Virginia's Marine Resources Commission (VMRC) has developed wetlands guidelines, subaqueous guidelines, and shoreline development BMPs that are available to the public. The Chesapeake Bay Local Assistance Department (CBLAD) has published a guidance manual, a brochure, and other materials about the Chesapeake Bay Preservation Act. CBLAD also works with a variety of other agencies and organizations to provide training necessary for effective local Bay Act program implementation. CBLAD also provides technical training directly, or coordinates with other organizations, such as soil and water conservation districts, VIMS, or U.S. Department of Agriculture Conservation Districts, to help train local governments on how to effectively implement their regulatory programs.

Wetlands Data: Mapping & Registry

The Virginia Institute of Marine Science's (VIMS) Center for Coastal Inventory can provide landowners and local governments with tidal wetlands inventory maps which are locality specific (1:24,000). The maps characterize all wetlands that are 1/4 acre or larger by size and vegetative community. VIMS also publishes shoreline reports which document shoreline erosion rates, natural features, land use, and ownership patterns.

District of Columbia

Educational Information

The District of Columbia's Water Resources Management Division operates an Aquatic Resources Education Program (AREP) through its Fisheries Management Branch. The AREP currently services the District's public school system. The In-School program provides wetland educational presentations, activities, and literature to educators and students. Specific wetland areas of the Anacostia and Potomac Rivers are detailed as well as the importance of current and planned wetland restoration activities in the District.

Wetlands Data: Mapping & Registry

The District of Columbia has developed a GIS map of wetlands in the District. The maps are currently used to determine where wetlands exist when development projects are proposed. Eventually the maps will be made available to the public.

WETLANDS EDUCATIONAL PROGRAMS

There are many educational programs and an enormous amount of educational information available for school teachers, private landowners, and parents to educate both adults and children about the values of wetlands. Three nationwide programs in particular that focus on wetlands, forested wetlands, and wildlife associated to wetlands are discussed below. Educational information is also available to anyone, free of charge, from the U.S. Environmental Protection Agency Wetlands Information Hotline and the Alliance for the Chesapeake Bay. The Alliance is a coalition of citizens' organizations, businesses and governmental groups concerned about the health of the bay. The Alliance can provide wetlands educational materials, field trips, and information on water quality monitoring of the bay.

Education and outreach materials are available to the public through federal and state agency programs, but nonprofit environmental and conservation groups and consulting firms can also be an excellent source of information on wetlands. For example, Environmental Concern publishes a curriculum guide for teachers of grades K through 12 called *Wow! The Wonders of Wetlands*. The curriculum includes 40 classrooms and field lessons for students. The program is aimed at teaching children to make environmentally responsible decisions about wetlands, water quality, and land use.

In the Chesapeake Bay region, each state has an education department, or an environmental education specialist within one of the state resource agencies, that can provide landowners, teachers, local governments, and citizens with a list of environmental education information they have available. For example, the Pennsylvania Department of Environmental Protection has a detailed Reference Material List available on environmental education information. The Department can also provide the publication *Instructor's Guide to Water Education Activities*, a guide prepared by the Water Conservation/Technical Assistance staff to enhance student perception of the importance of water resources and wetlands. The guide contains lesson concepts and associated activities for students in grades K-9. Maryland's Chesapeake Conservation Education program, within the Department of Natural Resources, can provide factsheets and other information on wetlands. The program will direct you to the appropriate person within other state agencies to answer information requests.

Project Learning Tree

The Western Regional Environmental Education Council (WREEC) and the American Forest Institute developed Project Learning Tree (PLT). PLT is an award-winning, inter-disciplinary environmental education program that uses the forest as a "window on the world" to increase students' understanding of our complex environment and related issues. Project Learning Tree is available in all three of the Bay states and the District of Columbia.

Project WILD

WREEC also developed Project WILD which became available in 1983. Through a national network of state coordinators and facilitators, Project WILD has provided workshops and materials (Project WILD K-12 Activity Guide and Project WILD Aquatic Education Activity Guide) focusing on hands-on, activity-based, environmental education on wildlife to over 550,000 educators. The program emphasizes wildlife because of its intrinsic and ecological values, as well as its importance as a basis for teaching how ecosystems function. In the face of competing needs and pressures affecting the quality and sustainability of life on earth, Project WILD addresses the need for human beings to develop as responsible citizens of our planet. In 1987, the Project WILD Aquatic Education Activity Guide officially became available. By 1991, all 50 states sponsored Project WILD along with six national and five international sponsors.

Project WET

WREEC and The Watercourse (formerly Western Watercourse) developed Project WET (Water Education for Teachers) to facilitate and promote the awareness, appreciation, knowledge, and stewardship of water resources through the development and dissemination of classroom teaching aids and through the establishment of state and internationally sponsored Project WET programs. Project WET is active in all 50 states and the District of Columbia. The *Project WET Curriculum and Activity Guide*, a collection of broad-based water resource activities, is available to classroom teachers, resource managers, park rangers, museum educators and others who attend training workshops provided by Project WET Coordinators. The Watercourse also publishes a quarterly newsletter, *WETnet Newsletter.*

Each state has a group of facilitators that conduct educator workshops for teachers for Project Learning Tree, Project WILD, and Project WET. Manuals and activities guides are provided at the workshops.

Appendix I:

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Acronyms

Acronyms

BIP:	Buffer Incentive Program
BMP:	Best Management Practices
BRD:	Biological Resources Division
CBF:	Chesapeake Bay Foundation
CBLAD:	Chesapeake Bay Local Assistance Department
Corps:	U.S. Army Corps of Engineers
CRP:	Conservation Reserve Program
CWH:	Chesapeake Wildlife Heritage
CZARA:	Coastal Zone Act Reauthorization Amendments
CZMA:	Coastal Zone Management Act
CZMP:	Coastal Zone Management Program
DCR:	Virginia Department of Conservation and Recreation
DEP:	Pennsylvania Department of Environmental Protection
DEQ:	Virginia Department of Environmental Quality
DNR:	Maryland Department of Natural Resources
DU:	Ducks Unlimited
EA:	Environmental Assessment
EIS:	Environmental Impact Statement
EPA:	U.S. Environmental Protection Agency
EQIP:	Environmental Quality Incentives Program
ESA:	Endangered Species Act
EWP:	Emergency Watershed Protection
FAIRA:	Federal Agriculture Improvement and Reform Act
FEMA:	Federal Emergency Management Agency
FIP:	Forestry Incentives Program
FONSI:	Finding of No Significant Impact
FSA:	Farm Service Agency
FSP:	Forest Stewardship Program
FWS:	U.S. Fish and Wildlife Service
GIS:	Geographic Information System
ISTEA:	Intermodal Surface Transportation Efficiency Act
IWR:	Institute for Water Resources
LRP:	Long Range Plan
LWCF:	Land and Water Conservation Fund
MARSH:	Matching Aid to Restore States Habitat Program
MASCD:	Maryland Association of Soil Conservation Districts
MBCC:	Migratory Bird Conservation Commission
MBMO:	Office Migratory Bird Management
MDE:	Maryland Department of the Environment
NAWCA:	North American Wetland Conservation Act
NAWMP:	North American Waterfowl Management Plan
NEPA:	National Environmental Policy Act
NFIP:	National Flood Insurance Program
NHS:	National Highway System
NOAA:	National Oceanic and Atmospheric Administration
NRCS:	Natural Resources Conservation Service
NMFS:	National Marine Fisheries Service

NRI:	National Resources Inventory
NWI:	National Wetlands Inventory
NWP:	Nationwide Permit
OCRM:	Office of Ocean and Coastal Resource Management
PA SPGP:	Pennsylvania State Programmatic General Permit
PIF:	Partners in Flight
PLT:	Project Learning Tree
SCORP:	Statewide Comprehensive Outdoor Recreation Plan
SIP:	Stewardship Incentive Program
SPGP:	Statewide Programmatic General Permit
STP:	Surface Transportation Program
TARSA:	Technical and Regulatory Services Administration
TIPs:	Transportation Improvement Programs
TNC:	The Nature Conservancy
USDA:	U.S. Department of Agriculture
USGS:	U.S. Geological Survey
VDOF:	Virginia Department of Forestry
VIMS:	Virginia Institute of Marine Science
VWP:	Virginia Water Protection permit
WET:	Water Education for Teachers
WHIP:	Wildlife Habitat Incentives Program
WIP:	Woodland Incentives Program
WREEC:	Western Regional Environmental Education Council
WRP:	Wetlands Reserve Program
WRTC:	Wetlands Research and Technology Center

Appendix II

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Contacts

State and District Contacts

District of Columbia

D.C. Department of Recreation and Parks
3149 16th Street, NW
Washington, DC 20010
PH: (202) 673-7692

Environmental Health Administration
Water Resources Management Division
2100 Martin L. King Avenue, SE
Washington D.C. 20020
PH: (202) 645-6601 X3040

Maryland

Conservation District Manager
Maryland Association of Soil Conservation Districts
53 Slama Road
Edgewater, MD 21037
PH: (410) 956-5771

Extension Service
Associate Director for Extension
University of Maryland
College of Agriculture & Natural Resources
1200 Symons Hall
College Park, MD 20742
PH: (301) 405-2906

Farm Service Agency
Maryland State Farm Service Agency Office
Rivers Center
8335 Guilford Road, Suite E
Columbia, MD 21046
PH: (410) 381-4550
http://wwwaix.fsa.usda.gov/states/md.htm

Maryland Agricultural Land Preservation Foundation
Maryland Department of Agriculture
40 Harry S. Truman Parkway
Annapolis, MD 21401
PH: (410) 841-5860

Maryland Department of the Environment
Technical and Regulatory Services Administration
2500 Broening Highway
Baltimore, MD 21224
PH: (410) 631-3902

Water Management Administration
2500 Broening Highway
Baltimore, MD 21224
PH: (410) 631-3574
http://www.mde.state.md.us

Water Management Administration
Nontidal Wetlands and Waterways Division
2500 Broening Highway
Baltimore, MD 21224
PH: (410) 631-8094

Water Management Administration
NonTidal Wetlands and Waterways Division
(Nonpoint Source Pollution)
2500 Broening Highway
Baltimore, MD 21224
PH: (410) 631-3000

Water Management Administration
Tidal Wetlands Division
2500 Broening Highway
Baltimore, MD 21224
PH: (410) 631-8075

Maryland Department of Natural Resources
Chesapeake and Coastal Watershed Service
Tawes State Office Building, E-2
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 260-8810

Coastal Zone Management Division
Tawes State Office Building, E-2
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 260-8735

Education Department
(Chesapeake Conservation Education)
Tawes State Office Building, B-2
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 974-8474

Forest Service
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 974-3776
http://www.gacc.com/dnr/forests

Heritage and Biodiversity Conservation Programs
(Natural Heritage Program)
Tawes State Office Building, E-1
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 974-3195
http://www.heritage.tnc.org/nhp/us/md

Maryland Greenways Commission
Tawes State Office Building, E-2
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 260-8780

Program Open Space
Tawes State Office Building, E-4
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 974-3581

Water Resources Administration
(Permit Service Center)
Tawes State Office Building, D-2
580 Taylor Avenue
Annapolis, MD 21401
To request a joint Corps/Maryland permit application, call: 1-800-876-0200. Completed Maryland applications should be returned the above address.

Watershed Restoration Division
Tawes State Office Building, E-2
580 Taylor Avenue
Annapolis, MD 21401
PH: (410) 260-8810
http://www.gacc.com/dnr

Wild Acres Program
State Office Building
580 Taylor Avenue, E-1
Annapolis, VA 21401
PH: (410) 974-3195
http://www.gacc.omm/dnr/

Maryland Geological Survey
2300 St. Paul Street
Baltimore, MD 21218
PH: (410) 554-5505

Maryland Office of Planning
301 West Preston Street
Room 1101
Baltimore, MD 21201
PH: (410) 225-4500
http://www.mop.md.gov

Maryland State Board of Public Works
Wetlands Administration
Louis L. Goldstein Treasury Building, Room 209
Annapolis, MD 21401
PH: (410) 974-2664

State Conservationist
USDA-National Resources Conservation Service (NRCS)
339 Busch's Frontage Road, Suite 301
Annapolis, MD 21401
PH: (410) 757-0861

Transportation
Environmental Programs
Maryland Department of Transportation
707 North Calvert Street
Baltimore, MD 21202
PH: (410) 545-8610

Pennsylvania

Coastal Zone Management
Bureau of Land and Water Conservation
P.O. Box 8555
Harrisburg, PA 17105-8555
PH: (717) 787-2529

Conservation District Manager
Pennsylvania Association of Conservation Districts
225 Pine Street
Harrisburg, PA 17101
PH: (717) 236-1006

Education Department
Pennsylvania Department of Education
333 Market Street, 8th Floor
Harrisburg, PA 17126
PH: (717) 783-6994

Extension Service
Penn State University
111B Ferguson
University Park, PA 16802
PH: (814) 863-8442

Farm Service Agency
Pennsylvania State Farm Service Agency Office
Suite 320
One Credit Union Place
Harrisburg, PA 17110-2994
PH: (717) 782-4547
http://wwwaix.fsa.usda.gov/states/pa.htm

Pennsylvania Center for Environmental Education
Internet Web Site
http://www.pcee.state.pa.us

Pennsylvania Department of Conservation & Natural Resources
Bureau of Forestry
P.O. Box 8552
Harrisburg, PA 17105-8552
PH: (717) 787-2703

Bureau of Forestry
(Natural Heritage Program)
P.O. Box 8552
Harrisburg, PA 17105-8552
PH: (717) 783-0388

Bureau of Recreation and Conservation
(Keystone Recreation, Park, and Conservation Fund)
Room 555, Forum Building
Harrisburg, PA 17120
PH: (717) 787-7672

Pennsylvania Department of Environmental Protection
Division of Watershed Support
(Nonpoint Source Pollution)
P.O. Box 8555
Harrisburg, PA 17105
PH: (717) 787-5259

Division of Waterways, Wetlands and Erosion Control (Central Office)
P.O. Box 8554
Harrisburg, PA 17101-8554
PH: (717) 787-6827
http://www.dep.state.pa.us

Permit applications for Pennsylvania can be requested from and returned to the appropriate Regional office of the Pennsylvania Department of Environmental Protection.

Local Government Outreach Staff
Pennsylvania Department of Environmental Protection
Director of Local Government Relations
16th Floor - Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
PH: (717) 787-9580

Pennsylvania Department of Environmental Protection Regional Offices:
Northcentral Regional Office
(Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union counties)
Pennsylvania Department of Environmental Protection
208 W. Third Street, Suite 101
Williamsport, PA 17701
General: (717) 327-3636
Wetlands: (717) 327-3669
Local Gov't Liaison: (717) 327-3763

Northeast Regional Office
(Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming counties)
Pennsylvania Department of Environmental Protection
2 Public Square
Wilkes-Barre, PA 18711-0790
General: (717) 826-2511
Wetlands: (717) 826-2553
Local Gov't Liaison: (717) 826-2511

Northwest Regional Office
(Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venago and Warren counties)
Pennsylvania Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335-3481
General: (814) 332-6945
Wetlands: (814) 332-6942
Local Gov't Liaison: (814) 332-616

Southcentral Regional Office
(Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntington, Juniata, Lancaster, Lebanon, Mifflin, Perry and York counties)
Pennsylvania Department of Environmental Protection
One Ararat Blvd.
Harrisburg, PA 17110
General: (717) 540-5012
Wetlands: (717) 657-4590
Local Gov't Liaison: (717) 332-6816

Southeast Regional Office
(Bucks, Chester, Delaware, Montgomery and Philadelphia counties)
Pennsylvania Department of Environmental Protection
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428
General: (610) 832-6012
Wetlands: (610) 832-6131
Local Gov't Liaison: (610) 832-6023

Southwest Regional Office
(Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland counties)
Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222-4745
General: (410) 422-4000
Wetlands: (412) 442-4000
Local Gov't Liaison: (412) 422-4028

State Conservationist
USDA-National Resources Conservation Service
1 Credit Union Place, Suite 340
Harrisburg, PA 17110-2993
PH: (717) 782-2202

Transportation
Commonwealth of Pennsylvania
Department of Transportation
Transportation and Safety Building
Harrisburg, PA 17120
PH: (717) 787-0485

Virginia

Chesapeake Bay Local Assistance Department, see *Virginia Chesapeake Bay Local Assistance Department*

Conservation District Manager
Virginia Association of Soil & Water Conservation Districts
7293 Hanover Green Drive Suite B-101
Mechanicsville, VA 23111
PH: (804) 559-0324

Virginia Association of Conservation District Employees
P.O. Box 6097
Virginia Beach, VA 23456
PH: (757) 427-4775

Education Department
Virginia Department of Environmental Quality
629 East Main Street, Suite 900
Richmond, VA 23219
PH: (804) 698-4442

Extension Service
Director of Extension
Virginia State University
Box 9081
Petersburg, VA 23806
PH: (804) 524-5961

Director of Extension
Virginia Polytechnical Institute & State University
Box 0402
Blacksburg, VA 24061-0402
PH: (540) 231-9892
http://www.ext.vt.edu

Farm Service Agency
Virginia State Farm Service Agency Office
1606 Santa Rosa Road
Culpepper Building, Suite 138
Richmond, VA 23229
PH: (804) 287-1500
http://wwwaix.fsa.usda.gov/states/va.htm

State Conservationist
USDA-National Resources Conservation Service
1606 Santa Rosa Road, Suite 209
Richmond, VA 23229
PH: (804) 287-1691

Transportation
Aquatic Ecology Program Manager
Water Quality Division
Virginia Department of Transportation
1401 E. Broad Street
Richmond, VA 23219
PH: (804) 786-4304

Virginia Chesapeake Bay Local Assistance Department
805 East Broad Street, Suite 701
Richmond, VA 23219-1924
PH: (804) 225-3440 or (800) CHESBAY
http://www.state.va.us/cblad/homepg.htm

Virginia Department of Conservation and Recreation
Internet Web Site
http://www.state.va.us/~dcr/dcr_home.htm

Division of Natural Heritage
(Natural Heritage Program)
1500 East Main Street, Suite 312
Richmond, VA 23219
PH: (804) 786-7951
http://www.state.va.us/~dcr/vaher.html

Division of Soil and Water Conservation
203 Government Street, Suite 206
Richmond, VA 23219
PH: (804) 371-7487

Division of Soil and Water Conservation
(Coastal Nonpoint Source Pollution Control Program)
203 Governor Street, Suite 206
Richmond, VA 23219
PH: (804) 786-7119

Planning and Recreation
203 Governor Street, Suite 326
Richmond, VA 23219
PH: (804) 786-9042

Virginia Department of Environmental Quality
Coastal Zone Management
Coastal Program Manager
P.O. Box 10009
Richmond, VA 23240
PH: (804) 698-4323

Water Division
P.O. Box 1009
Richmond, VA 23240
PH: (804) 698-4000
http://www.deq.state.va.us

Virginia Department of Forestry
P.O. Box 3758
Charlottesville, VA 22903-0758
PH: (804) 977-1375
http://www.state.va.us/~dof/dof.htm

Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
PH: (804) 367-1000
http://www.state.va.us/~dgif/index.htm

Virginia Institute of Marine Science
The College of William and Mary
P.O. Box 1346
Gloucester Point, VA 23062
PH: (804) 642-7000
http://www.vims.edu

Virginia Marine Resources Commission
Habitat Management Division
P.O. Box 756
2600 Washington Avenue
Newport News, VA 23607-0756
PH: (757) 247-2200
http://www.state.va.us/mrc/homepage.htm

Virginia Secretary of Natural Resources
P.O. Box 1475
Richmond, VA 23212
PH: (804) 786-0044
http://www.state.va.us/~snr/index.htm

Federal Contacts

Army Corps of Engineers, U.S.
Internet
http://www.usace.army.mil
Chesapeake Bay:
http://www.nab.usace.army.mil/environmental/cbay.htm

Local Government Support in the Chesapeake Bay
Baltimore District
U.S. Army Corps of Engineers
Chesapeake Bay Liaison
P.O. Box 1715
Baltimore, MD 21203-1715
PH: (410) 962-2910

Regulatory Issues in the Chesapeake Bay
Baltimore District
U.S. Army Corps of Engineers
Chesapeake Bay Liaison
P.O. Box 1715
Baltimore, MD 21203-1715
PH: (410) 962-3671

Norfolk District
U.S. Army Corps of Engineers
803 Front Street
Norfolk, VA 23510-1096
PH: (757) 441-7652

Institute For Water Resources
Water Resources Support Center
U.S. Army Corps of Engineers
Casey Building
7701 Telegraph Road
Alexandria, VA 22315-3868
PH: (703) 428-8252

Environmental Protection Agency, U.S.
Internet Web Site
http://www.epa.gov/ow

Headquarters
U.S. Environmental Protection Agency
Wetlands Division (4502F)
401 M Street, NW
Washington, D.C. 20460
PH: (202) 260-2090

Chesapeake Bay Program Office
U.S. Environmental Protection Agency
Chesapeake Bay Program Office
410 Severn Avenue, Suite 109
Annapolis, MD 21403
PH: (410) 267-5700
FAX: (410) 267-5777

Region III Office
U.S. Environmental Protection Agency
Region III Office
841 Chestnut Building
Philadelphia, PA 19107
PH: (215) 566-5000
FAX: (215) 566-5103

U.S. Environmental Protection Agency Wetlands Information Hotline
1 (800) 832-7828

Federal Emergency Management Agency
Internet Web Site
http://www.fema.gov
Community Status Book
http://www.fema.gov/csb

Fish and Wildlife Service, U.S.
State Private Lands Coordinators

Maryland and Delaware
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401
PH: 410-573-4500
FAX: 410-269-0832

Pennsylvania
U.S. Fish and Wildlife Service
315 South Allan Street, Suite 322
State College, PA 16801
PH: 814-234-4090
FAX: 814-234-0748

Virginia
U.S. Fish and Wildlife Service
Mid-County Center, U.S. Rte 17, POB 480
White Marsh, VA 23183
PH: 804-693-6694
FAX: 804-693-9032

U.S. Fish and Wildlife Service
Ecological Services
P.O. Box 480
White Marsh, VA 23183
PH: (804) 693-6694

West Virginia
U.S. Fish and Wildlife Service
Route 250 South, POB 1278
Elkins Shopping Plaza
Elkins, WV 26241
PH: 304-636-6586
FAX: 304-636-7824

Educator's Internet Web Site
http://www.nwi.fws.gov/edu.html

U.S. Fish & Wildlife Internet Web Site
http://www.fws.gov

Publications Unit
U.S. Fish and Wildlife Service
Publications Unit
Mail Stop: 130 Webb Building
4401 North Fairfax Drive
Arlington, VA 22203
PH: (703) 358-1711

North American Waterfowl and Wetlands Office
U.S. Department of Interior
U.S. Fish and Wildlife Service
North American Waterfowl and Wetlands Office
4401 North Fairfax Drive
Arlington, VA 22203
PH: (703) 358-1784

North American Waterfowl Management Plan
North American Waterfowl Management Plan
Atlantic Coast Joint Venture Coordinator
U.S. Fish and Wildlife Service, Region 5
300 Westgate Center Drive
Hadley, MA 01035
PH: (413) 253-8200

Office of Migratory Bird Management
U.S. Fish and Wildlife Service
Office of Migratory Bird Management
4401 N. Fairfax Drive, Room 634
Arlington, VA 22203
PH: (703) 358-1714

Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Dr.
Annapolis, MD 21401
PH: (410) 573-4500

Patuxent Research Refuge
Visitor Contact Station
230 Bald Eagle Drive
Laurel, MD 20724-3000
PH: (410) 674-3304

National Wetlands Inventory Internet Web Site
http://www.nwi.fws.gov

National Oceanic and Atmospheric Administration
Federal Consistency Coordinator
Office of Ocean and Coastal Resource Management
1305 East-West Highway, 11th Floor, N/ORM3
Silver Spring, MD 20910
PH: (301) 713-3098
(for additional information on federal consistency)
http://wave.nos.noaa.gov/ocrm

Natural Resources Conservation Service (NRCS)
NRCS Internet Web Site
http://www.ncg.nrcs.usda.gov

Natural Resources Inventory (NRI)
To obtain the NRI data base, spatial data sets, and Data Analysis Software, contact:

USDA-Natural Resources Conservation Service
National Cartography and Geospatial Center
Fort Worth Federal Center
Building 23, Room 60
P.O. Box 6567
Fort Worth, TX 76115-0567
PH: (800) 672-5559
PH: (817) 334-5292

NRI Internet Web Site
http://www.ncg.nrcs.usda.gov/nri.html

U.S. Army Corps of Engineers, see *Army Corps of Engineers, U.S.*

U.S. Department of Agriculture, Cooperative Research, Education & Extension Service, see *State and District Contacts, Extension Service*

U.S. Department of Agriculture, Farm Service Agency, see *State and District Contacts, Farm Service Agency*

U.S. Department of Agriculture, Natural Resource Conservation Service, see *Natural Resource Conservation Service*

U.S. Environmental Protection Agency, see *Environmental Protection Agency, U.S.*

U.S. Fish and Wildlife Service, see *Fish and Wildlife Service, U.S.*

U.S. Geological Survey
USGS Internet Web Site
http://www.usgs.gov

USGS Chesapeake Bay Region Internet Web Site
http://chesapeake.usgs.gov/chesbay

Biological Resources Internet Web Site
http://www.nbs.gov

U.S. Geologic Survey
Geological Research
12201 Sunrise Valley Drive
Reston, VA 20192
PH: (703) 648-4000

To order maps:
PH: (800) USA-MAPS

Patuxent Wildlife Research Center
Patuxent Wildlife Research Center
12100 Beech Forest Road, Suite 4039
Laurel, Maryland 20708-4039
PH: 301-497-5500
http://www.pwrc.nbs.gov

Wetlands Information Hotline, see *U.S. Environmental Protection Agency Wetlands Information Hotline*

Youth Corps
National Association of Service & Conservation Corps
666 Eleventh Street, NW
Washington, D.C. 20001-4542
PH: (202) 737-6272
http://www.nascc.org

Youth Corps in the Chesapeake Bay Watershed
Baltimore Civic Works
PH: (410) 366-8533

Earth Conservation Corps
PH: (202) 554-1960

Maryland Conservation Corps
PH: (410) 260-8166

Montgomery County (MD) Conservation Corps
PH: (301) 929-5554

Pennsylvania Conservation Corps
PH: (717) 772-4071

Service to Alexandria (VA)
PH: (703) 836-2858

Silver Spring (MD) Urban Corps
PH: (301) 565-5864

STEP Inc. Youth Corps (Williamsport, PA)
PH: (717) 326-0587

Nongovernment Organizations

Alliance for the Chesapeake Bay
Internet Web Site
http://web.gmu.edu/bios/bay/acb/index.htm

Maryland Office
6600 York Road., Suite 100
Baltimore, MD 21212
PH: (410) 377-6270

Pennsylvania Office
225 Pine Street
Harrisburg, PA 17101
PH: (717) 236-8825

Virginia Office
P.O. Box 1981
Richmond, VA 23216
PH: (800) 662-CRIS

Chesapeake Bay Foundation
Internet Web Site
http://savethebay.cbf.org

Headquarters
162 Prince George Street
Annapolis, MD 21401
PH: (410) 268-8816

Maryland Office
164 Conduit Street
Annapolis, MD 21401
PH: (410) 268-8833

Richmond, Virginia Office
1001 East Main Street
Heritage Building
Richmond, VA 23219
PH: (804) 780-1392

Norfolk, Virginia Office
100 West Plume Center
Norfolk, VA 23510
PH: (757) 622-1964

Pennsylvania Office
214 State Street
Harrisburg, PA 17101
PH: (717) 234-5550

Chesapeake Wildlife Heritage, Inc.
P.O. Box 1745
Easton, MD 21601
PH: (410) 822-5100

Ducks Unlimited
Ducks Unlimited
North Atlantic MARSH Coordinator
219 County Road
Bedford, NH 03102
PH: (603) 626-7706

The Nature Conservancy
Maryland and District of Columbia
The Nature Conservancy
Maryland Field Office (and D.C.)
Chevy Chase Metro Building
2 Wisconsin Circle, Suite 300
Chevy Chase, MD 20815
PH: (301) 656-8673

Pennsylvania
The Nature Conservancy
Pennsylvania Field Office
1211 Chestnut Street, 12th Floor
Philadelphia, PA 19107-4122
PH: (215) 963-1400

Virginia
The Nature Conservancy, Virginia Chapter
1110 Rose Hill Dr., Suite 200
Charlottesville, VA 22903
PH: (804) 295-6106

The Nature Conservancy
Virginia Coast Reserve
P.O. Box 158
Nassawadox, VA 23413
PH: (757) 442-3049

The Western Pennsylvania Conservancy
316 Fourth Avenue
Pittsburgh, PA 15222
PH: (412) 288-2777

Western Regional Environmental Education Council, see *Special Projects, Project Learning Tree*

Special Projects

Project Learning Tree
National
American Forest Foundation
1111 19th Street, NW, Suite 780
Washington, D.C. 20036
PH: (202) 463-2462

Western Regional Environmental Education Council
4014 Chatham Lane
Houston, TX 77027
PH: (713) 520-1936

District of Columbia
D.C. Environmental Regulation Administration
2100 Martin Luther King, Jr. Avenue, SE
Washington, D.C. 20020
PH: (202) 645-6059 X3060

Maryland
Information Education Specialist
Maryland Department of Natural Resources
Forest Service
6095 Sixty Foot Road
Parsonsburg, MD 21849
PH: (410) 543-1950

Pennsylvania
Pennsylvania Department of Education
333 Market Street, 8th Floor
Harrisburg, PA 17126
PH: (717) 783-6994

Bureau of Forestry
Pennsylvania Department of
Conservation & Natural Resources
P.O. Box 8552
Harrisburg, PA 17105-8552
PH: (717) 787-2853

Virginia
Virginia Department of Forestry
P.O. Box 3758
Charlottesville, VA 22903-0758
PH: (804) 977-1375 X3323

Virginia Polytechnical Institute
324 Cheatham Hall
Blacksburg, VA 24061-0324
PH: (540) 231-7670

Project WET
National
National Project Water Education for Teachers
Culbertson Hall
Montana State University
Bozeman, MT 59717-0057
PH: (406) 994-5392

Maryland
Maryland Department of Natural Resources
Chesapeake Conservation Education
Tawes State Office Building, B-2
Annapolis, MD 21401
PH: (410) 974-8474

Pennsylvania
Pennsylvania Department of Education
333 Market Street, 8th Floor
Harrisburg, PA 17126
PH: (717) 783-6994

Virginia
Virginia Department of Environmental Quality
629 East Main Street, Suite 900
Richmond, VA 23219
PH: (804) 698-4442

Project WILD
District of Columbia
Project WILD Coordinator
D.C. Environmental Regulation Administration
2100 Martin Luther King, Jr. Ave, SE
Washington, DC 20020
PH: (202) 645-6059 x3060

Maryland
Project WILD Coordinator
Maryland Department of Natural Resources
Fish, Heritage, and Wildlife Administration
Tawes State Office Building
580 Taylor Avenue Annapolis, MD 21401
PH: (410) 974-3195

Pennsylvania
Aquatic WILD Coordinator
Pennsylvania Fish and Boat Commission
PO Box 67000
Harrisburg, PA 17106-7000
PH: (717) 657-4010

Pennsylvania Project WILD Coordinator
Pennsylvania Game Commission
Division of Information and Education
2001 Elmerton Ave
Harrisburg, PA 17110-9797
PH: (717) 783-4872

Virginia
Project WILD Coordinator
Virginia Department of Game and Inland
Fisheries
4010 West Broad
PO Box 11104
Richmond, VA 23230
PH: (804) 367-9369

Endnotes

1. 33 U.S.C. §1344(e)(1).

2. 33 U.S.C. §1344(e)(1)

3. *Federal Register*. Vol. 61, No. 241. Friday, December 13, 1996. 65874-65922.

4. U.S. Army Corps of Engineers. July 1995. *Section 404 of the Clean Water Act and Wetlands: Special Statistical Report*. U.S. Army Corps of Engineers, Regulatory Branch: Washington, D.C.

5. U. S. Army Corps of Engineers, Regulatory Branch. July 1995. *Section 404 of the Clean Water Act and Wetlands: Special Statistical Report*. Government Printing Office: 1995-387-341-814/47651.

6. U.S. Environmental Protection Agency, Office of Water. April 1989. *Wetlands and 401 Certification: Opportunities and Guidelines for States and Eligible Indian Tribes*.

7. U.S. Environmental Protection Agency, Office of Water. July 1990. *Water Quality Standards for Wetlands: National Guidance*.

8. U.S. Department of Commerce. 1978. Final Environmental Impact Statement: Proposed Coastal Management Program for the State of Maryland. U.S. Department of Commerce: Washington, D.C.

9. Virginia's Bay Act (Va. Code 10.1-2100 et seq.)
Rick Hill, VA Dept of Conservation and Recreation. Personal communication.

10. David Kaiser, Consistency Coordinator, NOAA. Personal communication.

11. Pub. L. 102-240, 105 Stat. 1914 (1991).

12. Braum, Phil, et al. October 1994. *ISTEA Planner's Workbook*. Surface Transportation Policy Project: Washington, D.C.

13. 49 U.S.§303 C.(c).

14. Environmental Law Institute. 1993. *Wetlands Mitigation Banking*. Environmental Law Institute: Washington, D.C.

15. §42 U.S.C. 4332 (2) (c).

16. U.S. Fish and Wildlife Service. July/August 1997. *Endangered Species Bulletin*. "Box Score: Listings and Recovery Plans as of June 30, 1997." U.S. Department of the Interior, Washington, D.C. Vol. XXII No. 4: 28.

17. Kusler, Jon and Teresa Opheim. 1996. *Our National Wetlands Heritage: A Protection Guide*. Second Edition. The Environmental Law Institute: Washington, D.C.

18. Boylan, Karen Day and Donald R. MacLean. November/December 1997. "Linking Species Loss with Wetlands Loss." *National Wetlands Newsletter*. Vol. 19, No. 6. Environmental Law Institute: Washington, D.C.

19. Title 25, Chapter 105.

20. National Audubon Society. September 1993. *Saving Wetlands: An Audubon Citizens' Guide for Action in the Mid-Atlantic Region.* National Audubon Society Mid-Atlantic Regional Office: Camp Hill, PA. p. 4-11 -- 4-12.

21. Environmental Law Institute. May 1990. *Wetlands Protection: A Handbook for Local Officials.* Environmental Planning Information Series Report #7. Pennsylvania Department of Environmental Resources: p 18.

22. Kelly Hefner, Pennsylvania Department of Environmental Protection. Personal communication.

23. Environment Article Title 16; COMAR 08.05.05.

24. A toll-free number is available to applicants to track the status of permit applications: (800) 876-0200.

25. Environment Article Title 5, Subtitle 5-901, et seq., Annotated Code of Maryland; COMAR 08.05.04.

26. COMAR 08.05.04.

27. A toll-free number is available to applicants to track the status of permit applications: (800) 876-0200.

28. Terry Clark, Maryland Department of the Environment. Personal communication.

29. http://www.mde.state.md.us

30. National Audubon Society. September 1993. *Saving Wetlands: An Audubon Citizens' Guide for Action in the Mid-Atlantic Region.* National Audubon Society Mid-Atlantic Regional Office: Camp Hill, PA. p. 4-33.

31. Terry Clark, Maryland Department of the Environment. Personal communication.

32. Terry Clark, Maryland Department of the Environment. Personal communication.

33. Title 26: Department of The Environment. Subtitle 24: Tidal Wetlands. Chapter 05: Mitigation.

34. Courtney Gardener, Virginia Marine Resources Commission. Personal communication.

35. Tony Watkinson, Virginia Marine Resources Commission. Personal communication.

36. http://www.state.va.us/mrc/homepage.htm

37. http://www.deq.state.va.us

38. http://www.state.va.us/cblad/local.htm

39. Legal authority: Federal Clean Water Act, Section 401; Virginia Code Section 62.1-44.2 et. seq.; Virginia Code Section 62.1-44.15:5; and Virginia Administrative Code 9 VAC 25-210-10 et. seq.

40. Joe Hassel, Virginia Department of Environmental Quality. Personal communication.

41. D.C. Law 5-188. D.C. Code Section 6-923 (1988). Mayor's Order 85-152.

42. Chapter 14 DCMR, Title 21.

43. Rebecca Hicks, U.S. Army Corps of Engineers, Baltimore District. Personal communication.

44. Terrene Institute. February 1993. *Why Develop a State Wetlands Conservation Plan.* Available from U.S. Environmental Protection Agency Wetlands Information Hotline; (800) 832-7828.

45. http://www.nps.gov/cfweb1/lwcf

46. Mary Vaver, National Park Service. Personal communication.

47. Larry Fokelson, Maryland Planning Office. Personal communication.

48. John Davy, Virginia Department of Conservation and Recreation. Personal communication.

49. SCORP available from: Vanyla Tierney, Dept of Conservation of Natural Resources, Bureau of Recreation and Conservation 555 Forum Bldg, Harrisburg PA 17120 (717) 783-2654.

50. U. S. Environmental Protection Agency. March 1996. *Nonpoint Pointers: Pointer No. 1 Pointer No.11.* Office of Waters: EPA-841-F-96-004A/004K.

51. http://www.state.va.us/~dcr/sw/ss319.htm

52. Pennsylvania Bay Education Office. Personal communication.

53. John Joyce. Maryland Department of the Environment, Technical and Regulatory Services Administration. Personal communication.

54. Environment Article Title 5, Subtitle 501 through 514; COMAR 08.05.04
A toll-free number is available for tracking the status of permit applications: (800) 876-0200.

55. http://www.state.va.us/~dcr/sw/floodpln.htm

56. Title 10.1, Chapter 6, Article 1, Sections 10.1-600 to 10.1-603.

57. Flood protection Fact Sheet: Number 7, 8 & 9. November 1992. Department of Conservation and Recreation, Division of Soil and Water Conservation, Bureau of Flood Protection.

58. For additional information on these program, contact the Natural Resources Conservation Service, NRCS, FSA, the Cooperative Extension Service, or your local conservation district. Your local USDA Service Center is listed in the telephone book under U.S. Department of Agriculture. Information is also available at NRCS's World Wide Web site (http://www.nrcs.usda.gov).

59. For additional information on the listed USDA programs, contact your local conservation district, your NRCS State Conservationist, or the Natural Resources Conservation Service, Division of Watersheds and Wetlands at 202/690-0848. To get the name and number of your NRCS State Conservationist or District Conservationist contact the U.S. Environmental Protection Agency Wetlands Information Hotline at 800/832-7828.

60. Barry Frantz, Pennsylvania Conservation Districts; Barry Issacs U.S. Department of Agriculture, Natural Resources Conservation Service, Pennsylvania.

61. This information is based on the proposed rule for the Environmental Quality Incentives Program (EQIP) published in the Federal Register, October 11, 1996.

62. This information is based on the proposed rule and proposed program policies for the Wildlife Habitat Incentives Program (WHIP) published in the Federal Register, December 13, 1996.

63. Chesapeake Bay Local Assistance Department. January 1993. *Silvicultural Operations in Chesapeake Bay Preservation Areas.* Information Bulletin: 11.

64. Kelly Hefner. Pennsylvania Department of Environmental Protection. Personal communication.

65. Md. Nat. Resources Article: Title 8-1001.

66. U.S. Fish and Wildlife Service. July 1997. Branch of Habitat Restoration.

67. "Land-use Planning to Retain Breeding Forest Birds in a Fragmented Landscape." Project description. U.S. Fish and Wildlife Service, Office of Migratory Bird Management. For more information on the project, contact the Patuxent Wildlife Research Center; (301) 497-5642.

68. "Project Flash: North Landing River Acquisition Project, Virginia." North American Wetlands Conservation Council: Arlington, VA.

69. "Blackwater National Wildlife Refuge, Maryland." July 1994. North American Wetlands Conservation Council: Arlington, VA.

70. "North American Wetlands Conservation Act Proposal: Executive Summary –Savanna lake, Maryland." North American Wetlands Conservation Council: Arlington, VA.

71. Land Trust Alliance web page: http://www.lta.org

72. Chesapeake Bay Foundation. *Chesapeake Bay Foundation: Leadership for the Chesapeake.*; *CBF Baywatchers: Citizens Working to Save The Bay*; *The Catch of the Bay: Curriculum Module*; and *Chesapeake Bay Foundation Field Trips*. Brochures.

73. Eugster, J. Glenn. Nov/Dec 1996. *Good Science, Good Advocacy*. National Wetlands Newsletter. Environmental Law Institute: Washington, D.C.

74. The National Wetlands Mitigation Banking Study reports are available by contacting IWR Publications at (703) 355-3042.

75. Tiner, R.W. March/April 1997. *NWI Maps: What They Tell Us*. National Wetlands Newsletter. Environmental Law Institute: Washington, D.C.

Chesapeake Bay Program

The Chesapeake Bay Program is a unique regional partnership leading and directing restoration of Chesapeake Bay since 1983. The Chesapeake Bay Program partners include the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency (EPA), which represents the federal government; and participating citizen advisory groups.

Since its inception, the Chesapeake Bay Program's highest priority has been the restoration of the Bay's living resources--its finfish, shellfish, Bay grasses, and other aquatic life and wildlife. Because water quality improvements are essential to living resource restoration, the *1987 Chesapeake Bay Agreement* set a goal to reduce the nutrients nitrogen and phosphorus entering the Bay by 40% by the year 2000. In the *1992 Amendments* to the *Chesapeake Bay Agreement*, partners agreed to maintain the 40% goal beyond the year 2000 and to attack nutrients at their source--upstream in the tributaries. The Chesapeake Executive Council, made up of the governors of Maryland, Pennsylvania, and Virginia; the mayor of Washington, D.C.; the EPA administrator; and the chair of the Chesapeake Bay Commission continues to guide the restoration with directives and policies that address habitat restoration, toxic pollution prevention, and point source and agricultural nonpoint source nutrient pollution reductions. Bay Program initiatives encourage the watershed's 1,650 local governments to address land use management, growth and development, stream corridor protection, and infrastructure improvements.

Nutrient pollution reductions are achieved through voluntary agricultural management practices, urban nutrient management strategies, and nitrogen-reducing technologies for wastewater treatment plants. Habitat restoration efforts focus on reestablishment of Bay grasses, protection and planting of riparian forest buffers, opening of fish passages, creation and restoration of aquatic reefs, and Baywide management of fish stocks. Toxic contaminants are declining in many parts of the Bay with establishment of Regional Action Plans and implementation of a voluntary industrial pollution prevention program. Improvements include fisheries and habitat restoration, recovery of bay grasses, nutrient and toxics reductions, and significant advances in estuarine science.