

EXECUTIVE SUMMARY

Background

Maryland has implemented a successful regulatory program for tidal wetlands since 1972 and for nontidal wetlands since 1991. A “no net loss” of wetlands has been achieved through these regulatory programs and through their required compensatory mitigation. Having achieved these goals, Maryland is expanding its efforts in other aspects of wetland management. Maryland has already begun developing goals for wetland restoration and wetland preservation. Since the late 1990’s, numerous State and multi-agency goals and programs were initiated to aid in wetland restoration and preservation:

- a) Clean Water Action Plan - Maryland has completed its Clean Water Action Plan and unified watershed assessment. Priority watersheds for restoration have been identified. The next step is to develop restoration strategies for the watersheds. Restoration of wetlands is expected to be included in the strategies.
- b) Governor’s Wetland Restoration Goal - In 1997, Governor Glendening established a voluntary goal of restoring 60,000 acres of wetlands in Maryland. A steering committee has been formed to provide recommendations on how to achieve the goal.
- c) Chesapeake Bay Program Directive 97-2 - Requires that signatory States such as Maryland establish a quantifiable wetland restoration and preservation goal. Maryland’s goal, derived from the 60,000 acre Statewide goal, is to restore 50,000 acres in the Chesapeake Bay watershed.
- d) Coastal Bays Comprehensive Conservation Management Plan - This plan calls for protection of wetlands and restoration of 10,000 acres of wetlands.
- e) Chesapeake Bay Agreement 2000 - The Agreement has a goal of restoring 25,000 acres of wetland acreage and function by 2010. In 2005, the progress toward the goal was evaluated and a revised goal was established to count progress toward wetland creation, restoration and enhancement separately. As of 2004, an additional 7,000 acres of wetlands were created and restored in the Chesapeake Bay watershed since 1998 and over 40,000 acres of wetlands were enhanced. Maryland’s goal for 2010 is to create or restore a total of 15,000 acres of wetlands, and enhance 35,000 more acres. The new goal also requires more strategic targeting to restore wetlands in the most beneficial locations. The Agreement also has a goal for watershed plans to address restoration, conservation, and protection of stream corridors, riparian buffers, and wetlands in 2/3 of the Bay’s watersheds. Another commitment is for the wetland plan component to be

implemented in 25% of the watersheds to preserve key wetlands and their functions.

- f) Maryland Wetland Conservation Plan - This Plan was completed in 2003 by a Workgroup composed of representatives from federal, State, and local governments, private business, and nonprofit environmental advocate organizations. From the outset, the Plan's aim was to achieve consensus among all represented parties on specific goals, objectives, and tasks that were needed to improve the conservation and management of Maryland's wetland resources. The Workgroup accomplished this aim while accommodating the potential for competing resource needs, social and economic concerns, and the interconnectedness of wetlands with other natural resources. The Conservation Plan was written to be a dynamic document that will be revised over time to accommodate advances in technology and assessment methods, and changes in federal, State and local natural resource policies. A key goal and tasks were to identify priority areas for wetland restoration and preservation.

This report completes various needed tasks necessary to achieve the most beneficial wetland restoration and preservation. Results include the identification of suitable wetland restoration sites and key existing wetlands for preservation and includes review of local government stakeholders. As a result of the project, sites which have the best potential for providing desired wetland functions (primarily water quality and biodiversity) are identified. In addition, certain key wetlands are identified and described with current and future threats and management recommendations.

Intended Users

This document is intended for the use by State, local, and federal agencies in environmental, watershed and comprehensive planning and restoration projects. Entities that are attempting to meet Total Maximum Daily Load (TMDL) requirements, or avoid future need for TMDLs, will be referred to this document as a reference for managing wetlands as part of a natural infrastructure for water quality management as protected areas and locating restored or created wetlands as a Best Management Practice. The regulated community will also benefit from identification of preferred restoration locations during searches for suitable wetland /stream compensatory mitigation projects. Community and private watershed groups will also find the information useful for background information, problem identification, and goal setting to protect and restore local watersheds.

Format of Document

The document was prepared using numerous existing paper reports and reference materials and new analysis. Recommendations for restoration and preservation were taken from these reports and from discussions and recommendations of local governments. A new analysis was conducted using Geographic Information System

analysis of digital data layers to identify priority areas. Wetland restoration sites were identified separately for water quality and biodiversity benefits. Wetland preservation sites were also identified using standard protocols and data layers. The protocol was modified depending upon availability of additional data layers or at the request of local government agency personnel.

Sites identified in paper references may not appear on maps. It is therefore recommended that users refer to both maps and the reference document to obtain the most comprehensive information and recommendations.

The document is arranged by County and water segment (8-digit watershed) within each County. Each section may be read and used in its entirety or used as a discrete reference for each watershed segment. Some text is repeated throughout the County and watershed descriptions to serve as a complete resource for each individual section.

The document follows a standard format:

References

Background

This section describes the County's size, geography, land use, population, physiographic region, drinking water sources, and major drainage basins.

Streams

This section includes a general description of streams, information from Tributary Strategy reports, and water quality sampling.

Wetlands

This section describes wetland acreage in the County by wetland type, plant communities, and general wetland functions.

Sensitive Resources

These are the resources described by Counties for the sensitive area element in local plans (e.g floodplains) and source water assessments. Management recommendations from other plans are also included.

Other Relevant Programs

This section includes Green Infrastructure and Greenway elements, Rural Legacy proposals, Priority Funding Areas, and Protected (public) lands.

Watershed Information

This section includes information on each 8-digit watershed segment. Information is provided on land use, wetland acreage, regulated nontidal wetland gains/losses, water Use classes, water quality sampling (Maryland Biological Stream Surveys, 305(b) and 303(d) reports, and TMDL report summaries. Watershed and small regional plan summaries and recommendation are also included as appropriate.

The section concludes with a description of key resources such as Nontidal Wetlands of Special State Concern and their management recommendations, existing restoration or preservation sites, currently protected public land, recommendations of priority areas from other plans, and specific restoration and preservation recommendations.

INTRODUCTION AND GENERAL CONSIDERATIONS

Loss of Wetland Acreage and Function

Wetland functions and values may be lost or altered by such direct impacts in wetlands as draining, filling, grading, excavating, flooding, or destruction or removal of vegetation. The activities are generally regulated in Maryland. Activities adjacent, or draining to, wetlands may also cause adverse impacts and degrade wetland function. Surface runoff that carries excess nutrients, sediment or other pollutants may enter wetlands at levels beyond their ability to retain or transform these substances. Erosion may also occur. These impacts may cause a change in the plant communities that support certain species of wildlife. Wildlife is also adversely affected by fragmentation that interrupts contiguous habitat and may leave certain species without migratory corridors. Invasive species may also enter wetlands due to adjacent disturbances. An increase in impervious surface in the watershed may prevent infiltration of precipitation that provides groundwater recharge to the wetland.

Recommendations for Restoration, Preservation, and Mitigation

This project consisted of two major components: an examination of previously published or other available paper references, and maps produced from a Geographic Information System (GIS) analysis modeling effort of electronic data layers. Both components should be used to obtain the most comprehensive assessment of background information, environmental goals, and targeting recommendations, as neither component alone contains all of the information found in the other component. Paper references did not often contain site-specific information that could be incorporated into the GIS model within the time frame of the report. Likewise, the GIS map model allowed for new and tailored analysis not included in some older paper reports.

Users of this document are urged to read the entire section on restoration/preservation for their watersheds of interest. Text will include summaries of stream corridors assessments or watershed restoration plans, Nontidal Wetlands of Special State Concern, and reference communities for tidal wetlands, if applicable. The original detailed plans should be reviewed for more refined targeting and field investigations. Activities that support the described restoration and preservation goals, or that would improve impaired waters,

even if not detailed in this report, may also be considered as important voluntary conservation efforts or potential compensatory wetland mitigation.

Both general and wetland/stream-specific recommendations for restoration and preservation may be included. The description of WSSC may have specific management measures for preservation and enhancement of the site, if known and applicable.

Wetland Restoration

In this document, “restoration” refers to establishment of wetlands where they do not currently exist. In most cases, the preference is to restore wetlands where they existed previously so that the re-established wetland will be a natural feature of the landscape. In some areas, little opportunity may exist for restoration due to natural conditions, public infrastructure, or developed land. Recommendations for wetland creation, particularly for water quality, may also be listed. Enhancement of existing wetlands to improve wetland function is considered in this document as a form of preservation.

Protection/Preservation of Wetlands

It is the intent of this document to identify areas that have been recognized, or that are shown in a GIS model, as being the most critical for performing certain functions. While the document makes recommendations on the wetlands that are considered to have the priority for preservation, users should not interpret this to mean that other wetlands are not worthy of protection or conservation. State laws and regulations continue to mandate that persons proposing activities in wetlands, their buffers, or expanded buffers, avoid, or if avoidance is demonstrated as not practicable, then reduce adverse impacts to wetlands. Compensatory mitigation by the State or permittees is required for wetland losses.

For purposes of this document, “preservation” refers to actions taken that maintain the existing size, functions, and values of a wetland. “Preservation” and “protection” are generally used interchangeably in this document. However, references to land currently being protected mean that the land is under public ownership or easement for the wetland and surrounding area of varying size. “Protected” lands, while in public ownership or under restrictions for conservation, may still need special management practices in the wetland itself, its buffer, or drainage areas to maintain, or “preserve,” the condition, quality, and functions of the priority wetlands. Action may include the restriction of certain activities within or outside of the wetland. In many instances the actions necessary for preservation will be outside of the scope of wetland regulatory programs. Types of actions necessary to adequately preserve a wetland will vary according to the characteristics of the wetland itself, the desired function/values to be preserved, and the nature of the threats to those functions and values. Actions will in many cases be undertaken voluntarily by the landowner using a variety of incentives, and/or through local programs to ensure that certain wetlands are subject to no activities that reduce the wetland’s size or valued functions. However, preservation would not require a change in adjacent land use planning or practices in all cases.

Current preservation efforts include government acquisition programs, such as Program Open Space, Rural Legacy, and private acquisition programs such as those administered

by the Nature Conservancy and the Conservation Fund. Federal programs such as the U.S. Department of Agriculture Wetlands Reserve Program also have funds for acquiring permanent or shorter term easements. Some wetlands are also preserved as conditions of permits in regulatory wetland programs. State, federal, and some private restoration programs also typically contain some protection mechanism of variable term length.

Wetlands on Public or Protected Land

Many priority wetlands are found on public land that is managed for wildlife or other recreational purposes. Management plans for the public land areas that include maintenance of the function and values of wetlands are among the most effective methods for preservation of priority wetlands and their functions. Private organizations dedicated to conservation of natural resources also attempt to maintain important wetland functions on their land holdings. However, adjacent land use practices may still adversely affect the condition of wetlands on public or privately managed conservation land.

Wetland Preservation and Adjacent Land Use

Land use practices may also indirectly help preserve or degrade wetlands. Local requirements and plans for clustering, open space, stormwater management, Critical Area requirements, infrastructure, and zoning requirements may be implemented in a manner that restrict activities that degrade wetlands. If there are some wetlands on a parcel that will be impacted by activities regulated through State or federal wetland programs, these programs may impose special condition to preserve the remaining wetlands on the site. However, waivers or exemptions from protective requirements may result in activities adjacent to wetlands that eliminate buffers, recharge areas, floodplains, and introduce additional impervious surface runoff and invasive species.

This document generally has not conducted a detailed analysis to identify the wetlands most at risk from effects of adjacent land use. However, the GIS-based model does incorporate an existing development vulnerability index. In identifying threats and long-term preservation of priority wetlands, managers and stakeholders should consider the following:

- Is the land managed for long- or short- term conservation goals?
 - Is there a legal protection mechanism in place (other than State, federal, or local regulations)?

If the answer to both of these questions is “yes,” the wetland is at low risk of direct impacts, but may be harmed by offsite activities. Some maintenance activities, such as removal of invasive species, may be necessary.

- Are direct impacts to the wetland proposed, or may be proposed in the near future?

If the answer to this question is “yes,” activities in the wetland would be regulated and attempts to avoid or reduce impacts would be made through the permit process. Stakeholders have the opportunity to become involved through the public review

process in offering comments on proposed impacts to wetlands and to recommend avoidance, minimization, and mitigation measures.

- Is land use in the watershed of the wetland proposed or likely to change in the near future?
- Is the wetland in a designated growth area?

If the answers to these questions are “no,” then the wetland is indirectly preserved and should maintain its existing condition and function. If the answers to the questions are “yes,” then the wetland would likely be degraded to various degrees. Managers should consider giving highest consideration and priority to preservation of the key wetlands at the highest risk.

Certain best management and land management practices may reduce the adverse impacts of adjacent land uses.

- Can a sufficient natural vegetated buffer be maintained around the wetland to reduce adverse effects of adjacent land uses?

If the answer to this question is “yes,” then the wetland may maintain most of its functions. If the answer is “no,” then the wetland would be likely to degrade.

Preservation and Protection of Key Wetlands

Some wetlands in Maryland already have been formally designated as having special importance. These include Nontidal Wetlands of Special State Concern, (WSSC's) which are named in regulation. WSSC's have an expanded, regulated 100-foot buffer and are mapped for guidance purposes. WSSC's may be designated due to having habitat or serving as buffers for habitat of threatened or endangered species, species in need of conservation, locally unusual or rare, or by being unique natural areas or containing ecologically unusual natural communities. Descriptions of many nontidal wetlands of special State concern were prepared in the 1980's, 1990's and 2003. Key or priority wetlands are also usually associated with natural/water resource goals. For example, wetlands contained in Green Infrastructure networks may be targeted for preservation through the State conservation acquisition programs. Other wetlands of special interest and importance may be found on public resource land, where their aesthetic, wildlife/diversity, and water quality benefits offer important recreational benefits. In working with local governments, MDE sought to include wetlands that met local stakeholder interests.

Preservation of Wetlands for Water Quality Benefits

The ability of many types of wetlands to retain or transform nutrients offers opportunity to incorporate these areas into plans to manage or offset nutrient loads. Implementation options may vary according to whether managers are attempting to address loads in a watershed with an existing Total Maximum Daily Load (TMDL), trying to avoid the need for a TMDL requirement in the future, or trying to maintain a high quality system. Use of wetlands as natural filters should be considered carefully, as these areas can be

overloaded with nutrients, which may result in a change in wetland vegetation from sensitive species or communities to those that are more pollution tolerant. Thus, managing a wetland complex for both water quality and biodiversity poses special challenges. Attempts to do so would probably require maintenance of large adjacent natural vegetative buffers and other nonpoint source management practices. In this report, models for biodiversity focus on maintaining condition of what are believed to be high quality, relatively undisturbed wetlands.

Additional models and technical tools to better predict nutrient processes and assimilative capacities in wetlands will be under development over the next few years. There are some general considerations that will apply over time when identifying priority wetlands to preserve for water quality benefits:

- Wetlands in headwaters or isolated wetlands may be the most effective in transforming nutrients. As these areas are often small in size, large complexes of them should be protected to provide the most benefit.
- Larger wetlands receiving more inputs would be more effective at providing water quality benefits than smaller wetlands, if wetland and land use characteristics are similar.
- Nutrient-sensitive wetlands (e.g. bogs and fens) should not be targeted to receive additional nutrients.
- Contiguous wetland complexes downstream of areas with high loadings should be maintained.
- Wetlands with fluctuating water levels, organic, or high amounts of clay are among the most effective at transforming or retaining nutrients.
- Wetlands that have been channelized or downcut from increased discharges have lost much of the storage or filtering capability that occurs from regular overbank flooding. Many of these areas are found along streams in Public Drainage Association or urban/suburban areas. Some natural treatment of surface runoff may still occur.
- Additional natural vegetated buffers adjacent to wetlands should be established or maintained.
- Effectiveness and opportunity are both important factors in determining the most important wetlands for providing water quality benefits. A wetland may have the physical characteristics capable of retaining or transforming nutrients, but if land uses in its drainage area are not resulting in substantial inputs to the wetland, then it may not be playing as critical role in the watershed as other wetlands that are receiving the discharges.
- In tidal watersheds with nutrient TMDLs, nutrients often travel downstream, concentrate and settle at the tidal-nontidal interface. Wetlands upstream of the interface may be especially important in preventing more severe increases of nutrient loadings.

Mitigation

Applicants required to perform mitigation, and that are in search of sites, are encouraged to use this document as a reference for locating potential sites for further investigation. Some parts of the State have limited areas remaining for suitable restoration or creation,

Prioritizing Sites for Wetland Restoration, Mitigation, and Preservation in Maryland.
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so that enhancement of existing wetlands, preservation, or out-of-kind mitigation that involves other water /natural resource benefit recommendations may also be considered appropriate compensation for wetland losses. Out-of-kind mitigation projects, such as stream restoration or preservation, may be acceptable if listed in this document. In proposing mitigation projects, applicants should reference the recommendations and goals for the watershed in which the proposed wetland loss is located.