

EXECUTIVE SUMMARY

Background

Maryland's Coastal Bays consist of five small watersheds that drain into the Atlantic Ocean, without draining first into the Chesapeake Bay. The Coastal Bays contain habitat for threatened and endangered species, migratory birds, and fin and shellfish resources important for commercial and recreational use. Some relatively large forest and wetland areas still remain. However, agriculture is currently contributing large amount of nutrients to the ecosystem and the region is under intense development pressure, primarily in the northern region. Major environmental problems that have been identified include: degraded water quality, chemical contamination, habitat loss, changes in living resources, and unsustainable growth and development. In order to address these issues, the Maryland Coastal Bays Program adopted a plan: *Today's Treasures for Tomorrow: A Comprehensive Conservation and Management Plan for Maryland's Coastal Bays* (CCMP) in 1999.

The CCMP notes that approximately 1,500 acres of tidal wetlands and 25,000 acres of non-tidal wetlands have been lost since the 1930's. Bulkheads installed for stabilization led to some loss of tidal wetlands. These wetland losses also resulted in habitat loss and reduction in nutrient and sediment filtration.

The Coastal Bays Management Conference was formed to recommend strategies to protect and enhance the Coastal Bays. The Management Conference included representatives from all levels of government, business, and private interests. The CCMP listed several specific goals and challenges for which the Department of the Environment (MDE) and other partner agencies are responsible.

Challenge: Conservation of wetland resources (FW3.1 in CCMP)

“Protect existing and new wetlands and increase the amount of wetlands by 10,000 acres in order to improve water quality, replace lost function of wetlands, and improve habitat for living resources.” An action to achieve this solution is to target wetland restoration and creation to where historic losses have occurred and encourage creation of wetlands for water quality improvement and wildlife habitat.

Challenge: Facilitate Wetlands Mitigation (FW 3.3 in CCMP)

The Coastal Bays watershed exceeds other watersheds in non-tidal wetland losses since the State regulatory program began in 1991. While losses of non-tidal wetlands through 2002 were relatively low (70.8 acres) compared to historic losses, there is still a net loss of wetlands due to lack of mitigation projects. By the end of 2002, there was a net loss of nearly 14 acres. This is due to the many small projects being authorized, usually single family houses in older subdivisions. The State has been unsuccessful to date in obtaining mitigation areas of an adequate size to compensate for future losses over the next decade. This is largely due to the shortage of State employees needed to locate restoration sites and oversee mitigation projects, as well as the high cost of land and logistics of site acquisition. The CCMP recommends a private/public mitigation program to create suitable mitigation sites.

The purpose of this report is to prepare background information and recommendations to meet these challenges of wetland protection, restoration and mitigation. While future losses of wetlands are expected from regulated activities, there are numerous wetlands remaining and many potential restoration sites. Growth pressure, increased land cost, and agricultural land preservation goals are factors which may limit the availability and opportunity to secure sites for restoration, protection, or mitigation. In order to best meet the challenge of wetland protection, restoration, and mitigation, it is necessary to identify the priority areas that will best meet these goals while supporting other management needs. This plan may be used to direct interested parties to areas that may provide sites for potentially high-functioning restored wetlands or especially valuable wetlands in need of protection. The priority sites are also evaluated as a targeted approach to mitigation by the State and permittees.

MDE has combined some of the past Coastal Bays targeting efforts, general and specific targeting recommendations from other documents, and our own priorities to develop the wetland targeting plan for the region. We hope to locate areas that may provide the highest amount of wetland function. This plan attempts to find general areas for wetland restoration and preservation based mainly on available desktop data and past studies. This plan may be used to direct interested parties to areas that may provide sites for potentially high-functioning restored wetlands or especially valuable wetlands in need of protection.

Methods

Various sources of restoration information, protection goals, and new analysis have been consolidated using GIS and office information to prepare a set of comprehensive recommendations. Key GIS information included soils, Green Infrastructure, water quality, Rural Legacy, ecologically important areas, Stream Corridor Assessment and zoning. The targeting approach reflected the recognized need for water quality and habitat improvement. We sought areas on which wetlands could easily be re-established without harm to other resources, and that would provide the greatest functional benefit in comparison with other locations. Management recommendations from existing sources such as the Coastal Bays Management Plan, Worcester County Comprehensive Plan, Isle of Wight/Newport/Sinepuxent Watershed Restoration Action Strategies, and Coastal Bays Sensitive Resources Report, were also considered in this targeting project to meet the goals of stakeholders for condition of the Coastal Bays watershed. Results of past functional assessments, such as the State Highway Administration study for the Rte. 113 corridor, and a U.S. Fish and Wildlife Service report of a GIS-based functional assessment, were also considered.

New analysis was conducted by MDE to identify the highest priority sites for restoration, using existing recommendations as well as previously unconsidered factors. The analysis confirmed that wetland establishment is possible in nearly every part of the watershed, though the amount of work needed to create the proper condition varies. In addition, all parts of the watershed would benefit from wetlands providing water quality improvement, so locating sites based on poor water quality was less a factor than anticipated. Stream benthic scores were also generally poor or very poor and were less of a discriminating factor in prioritizing sites. However, Isle of Wight, Newport, and Assawoman Bays generally had worse water quality than Chincoteague and Sinepuxent Bays, and more priority wetland restoration areas are identified in these three northern bays. Certain factors were also used to eliminate potential sites. No new wetlands were recommended in wellhead protection areas, in which the wetland construction might reduce the natural infiltration capability of soils to remove pollutants before reaching drinking water sources. Areas of prime farmland were also eliminated from consideration. Preference was given to soils with naturally high organic matter content, since this is linked to greater ability to remove and/or alter nutrients or pollutants. Forested areas were not considered a top priority, however, MDE recognizes that many remaining forested wetlands have been altered by drainage, and thus may be good candidates for enhancement. Presence within the Green Infrastructure was also given weight in setting priorities. The analysis also considered logistical factors

in prioritizing wetland sites. Sites on large parcels with development restrictions, zoned resource conservation, agriculture, or estate, were considered the most likely to have landowners willing/able to consider a moderate-sized restoration on their property.

In preparation for the wetland preservation section of this report, MDE contracted with the Maryland Department of Natural Resources (MDNR) to develop management recommendations for designated Nontidal Wetlands of Special State Concern. These are wetlands of exceptional ecological or educational value, listed in state regulation, usually with threatened or endangered species or unique community types. Results of this study are also included in the Sensitive Resources section. Other wetlands that are not currently designated as Nontidal Wetlands of Special State Concern, but that may qualify for the designation, are also listed. Wetland preservation was also considered in conjunction with other preservation targeting efforts, such as the Green Infrastructure Assessment and likelihood of future impacts. In addition to preservation of Nontidal Wetlands of Special State Concern, large remaining areas of wetlands, and connecting corridors, are recommended as high priorities for wetland preservation.

Results

Restoration

In the Maryland Coastal Bays watershed, all potential wetland restoration and preservation projects supported by interested landowners should be considered and evaluated for meeting restoration goals. The criteria listed below were used to target locations where we recommend actively seeking restoration or preservation opportunities. Due to the conditions of this region, with little effort wetlands can be restored in almost any area having hydric soil. Our intent is to predict the areas where restored wetlands would provide the most beneficial functions.

Recommended restoration areas were sorted into two categories: Priority 1 and Priority 2. Priority 1 restoration areas had hydric soils that were very poorly drained and high organic matter content. Other screening criteria were a location within/adjacent to the Green Infrastructure network and zoning classification of resource conservation, agriculture, estate, and private or protected public land. Exclusionary criteria were sites on hydric soils that were prime farmland when drained, forested areas, existing wetlands areas, and wellhead protection areas. Adjacency to unbuffered streams, wetlands or other natural areas, pollution sources, poor water quality or farmed wetlands was also considered.

Priority 2 sites considered some of the same criteria and exclusions. Poorly drained soils were added as selection criteria. Existing drained forested wetlands and out-of-kind water quality improvement projects were also considered. Opportunities for establishing wetlands off line from Public Drainage Association ditches were considered in both Priority 1 and 2.

Preservation

There are also two rankings for priority preservation areas. Most of the Priority 1 preservation sites fall within Newport Bay and Chincoteague Bay. Only one site is within Isle of Wight (West Ocean City Pond) and none are within the Sinepuxent Bay or Assawoman Bay watersheds. All existing designated Nontidal Wetlands of Special State Concern, and potential Nontidal Wetlands of Special State Concern, are recommended as Priority 1 protection areas. Additional Priority 1 sites are all within or adjacent to designated Rural Legacy area or other protected land. Other considerations are as follows: wetlands within MDNR-designated Ecologically Significant Areas (ESA), areas identified as being important in the Aquatic Sensitive Species Report, and areas within or adjacent to Green Infrastructure network. Priority 2 sites were those that met at least some of the Priority 1 criteria, or that were large wetland complexes, headwater wetlands, or restored Priority 1 wetlands.

Mitigation

Mitigation has been difficult to accomplish in the Coastal Bays for several reasons, including lack of staff, logistics, and costs of projects. In order to overcome these challenges, MDE will undertake several tasks, one being to form more partnerships. MDE has had initial discussions with Worcester County and the Corps of Engineers. Sites on larger parcels, such as estate or rural conservation zoning, may allow establishment of a wetland without sacrificing development opportunities and are recommended for targeting. MDE will also support mitigation requirements that are a combination of restoration, enhancement, preservation, or out-of-kind projects.

Appendix A – Background

Appendix A contains background information on the geology, soils, and physical processes, including erosion, that affect wetland formation, characteristics, and function. Ground water resources, aquifers, well locations, and recharge are described since these factors play a role in siting wetlands that will not adversely affect drinking water. Land use is also summarized.

A description of the types of tidal and nontidal wetlands in the watershed, with maps, is included. The extent of wetland acreage varies, depending on the reference or maps used, and several estimates are included here. Common plant species and typical functions, and functional assessment findings are also listed. Hydrology of different wetland types is illustrated. A table is provided showing estimated wetland losses. Designated Nontidal Wetlands of Special State Concern are described.

There are additional sections on extent of resources such as submerged aquatic vegetation, wildlife, rare, threatened and endangered species, fish and shellfish and forests.

Protected land, land noted in protection planning tools, and different protection mechanisms used in the Coastal Bays are described. These include agricultural land preservation programs, Rural Legacy, Green Infrastructure, and Greenways.

Stream assessments and other stream monitoring results from the Stream Corridor Assessments, Nutrient Synoptic Surveys, Maryland Biological Stream Survey, Stream Waders, and other agencies are summarized. Results include biological indicators and chemical measurements for various water quality parameters, including nutrient levels, chlorophyll a, and dissolved oxygen. Findings from mandatory reports, such as the 2002 Maryland Section 305(b) Water Quality Report, 303(d) List of Impaired Surface Waters, and Total Maximum Daily Loads are included and were considered in the restoration targeting. Pollution sources are described.

Appendix B – GIS Methods

Appendix B contains more details on the GIS methods employed in the prioritization results section.

This report also included a comprehensive bibliography.