Section III Goals and Objectives

Introduction

Section III is the "heart" of Maryland's State Wetland Conservation Plan. This section sets out to address the current and potential problems with wetlands conservation and management in Maryland, in light of the existing wetlands resources and regulations (covered in Sections II and Appendix II). Section III lists five goals; desired outcomes of the Plan that are focused on a general topic, issue, or agenda. Each of these goals contains a varying number of objectives, which are more specific statements, focusing on ways of achieving the goal. Finally, each objective is divided into issues; major points concerning the objective that should be addressed, recommendations; ideas on how to meet the needs of the stated issues, and tasks; specific and concrete actions which should be taken to fulfill the recommendations. A priority list of tasks that should be given preference due to their use, urgency, and feasibility, is included in Appendix I.

Goals

Goal I: Develop a Wetland Baseline

Goal II: Assess current and potential wetland threats and trends

Goal III: Increase the Efficiency and Effectiveness of Wetlands Regulation and Management in Maryland

Goal IV: Identify Wetlands for Priority Protection and Restoration

Goal V: Increase participation in wetlands preservation, restoration, enhancement and stewardship

GOAL 1: Develop a wetland baseline

A wetland baseline provides the foundation upon which all other goals and objectives of the Maryland Wetland Conservation Plan will be based. A current inventory of wetlands provides a valuable tool for regulatory, management and planning efforts to reduce impacts and avoid disturbance of wetlands, and to ensure the protection of these valuable resources for the future.

Objectives

A. *Establish a current inventory of wetlands*
The wetland baseline is essential to: 1) achieving the goal of "no net loss" of wetlands statewide, 2) evaluating the effectiveness of existing and future wetland preservation and conservation regulations, programs, and policies, and 3) measuring and predicting the future condition and function of wetlands. The wetland baseline will integrate the most current technical and analytical resources available. These resources will be provided by various federal, State, local and voluntary agencies and programs.

B. *Identify gaps in data, technology and other information for the wetland baseline*
This objective will define the additional tools and tasks necessary to develop an accurate and comprehensive wetland baseline, sources of funding, and a schedule for development and implementation. This would include recommendations for further development and updating of the wetland baseline.

C. *Assess status of determining wetland functions*
Several new assessment tools are being developed that may be useful in addressing this issue, such as indices of biologic integrity (IBI) and satellite imagery.

D. *Establish a consistent methodology and schedule for evaluation and updating of the wetland baseline*

Objective 1A Establish a current inventory of wetlands

Several wetland inventories are available for the State, including NWI, DNR Wetlands, and the Maryland Office of Planning wetland data. There are substantial differences in the accuracy of these inventories and their limitations. Various State agencies use one or more of these inventories in resource assessment projects.

Issues

1) Selection of a wetland baseline, for assessment purposes, is often guided by the objectives of an individual project, and therefore will vary depending upon the nature and scope of the project.
2) The DNR wetlands data consists of individual quarter quadrangle GIS files, making organization and extraction of data cumbersome.
3) New inventories and updates to existing inventories are developed by various federal, State and local agencies but are not widely available.

Recommendations

1) Develop guidance for appropriate uses of the different wetland baselines. This might be accomplished by an Ad-Hoc workgroup, and by input from other technical advisory committees.
2) DNR (DOQQ) wetlands data should be used as the primary wetlands (GIS) data layer for the State. NWI wetlands data can be used as the primary wetlands (GIS) data layer for areas not covered by the DNR wetlands data. Currently, DNR is compiling a combined DNR wetlands and NWI wetlands GIS data layer.
3) The DNR data for wetlands should be compiled by watershed and county to facilitate its use by others.
4) Promote the dissemination and use of current wetland baseline information by federal, state, and local agencies, volunteer organizations, and the public.

Tasks

1) Organize an Ad-Hoc workgroup to develop guidance for appropriate use of baseline information. The workgroup could also develop a plan to disseminate baseline information to others.
2) Develop guidance for appropriate uses of the different wetland baselines.
3) Promote use of the combined DNR wetlands and NWI wetlands GIS data layer as the primary wetlands (GIS) coverage for the State.
4) Promote the dissemination and use of current wetland baseline information by federal, state, and local agencies, volunteer organizations, and the public.
5) Provide a stable funding source to update or develop a new baseline inventory periodically. If funds are not available for Statewide re-mapping, use satellite imagery or other cost effective remote sensing to detect areas of change (gains and losses) in selected parts of the State to obtain status and trend information every five years.
6) Improve existing wetland data (NWI, DNR wetlands) with additional ground truthing.

Objective 1B Identify gaps in data, technology and other information for the wetland baseline

Gaps in the data, technology and reference components of the wetland baseline are identified as limitations, as described in Section II. The following is a summary of issues based on these limitations for each component of the wetland baseline.

Issues

1) Many of the earlier inventories were based on subjective classifications of wetland types and size preventing comparison of data and acreage estimates from these reports. Also, most reports did not contain maps of the wetland areas inventoried.
2) The standardized wetland classification system utilized in Maryland today is not comparable to the earlier classification systems. Therefore, accurate estimates of trends in wetland conversion and loss over the last 100 years are not possible.
3) Current estimates of historic wetland acreage are based upon digitized hydric soil data. The use of hydric soil data is believed to yield an over-estimation of historic wetland acreage at a particular time, given that hydric soils remain after a wetland no longer exists due to the natural processes of conversion and succession.
4) The National Wetlands Inventory (NWI) is largely based on photo interpretation of wetlands. Some wetlands (such as palustrine forested wetlands) are difficult to delineate accurately due to homogeneous topography and the presence of transitional boundaries of different wetland types. Nontidal Wetlands Guidance Maps, used by the Wetlands and Waterways Program at MDE for permit application review, use NWI data and thus have similar limitations in their use and application.
5) The Watershed-Based Wetland Functional Assessment (FWS) for the Nanticoke River and Coastal Bays watershed has several limitations that restrict the scale of its application and the accuracy of wetland identification: a) does not represent a complete reinventory of the selected watersheds, b) seasonal variability in vegetative cover makes wetland identification difficult, c) limited availability of landuse/cover and hydric soils data, and d) not a comprehensive assessment of wetland function and the influence of adjacent upland areas.
6) The Tidal Wetlands Maps, used by the Wetlands and Waterways Program at MDE for regulatory guidance, contain inaccuracies in identification of tidal wetland boundaries. Due to natural processes, such as sea level rise and succession, tidal wetland boundaries are most often verified by the Tidal Wetlands Division staff on a parcel-by-parcel basis during the permit application review process. (See Section III, Objective 3I for further discussion and recommendations.)
7) Use of the following GIS-based products are limited primarily by lack of coverage for specific areas of the State due to lack of funding for completion and completion scheduled for 2-3 years from present: a) DNR wetland maps, b) MGS/DNR shoreline change maps, c) County floodplain maps, and d) digital County soil survey maps..

Recommendations

1) DNR should seek funding to complete interpretation of DNR wetlands (from DOQQ's) statewide.
2) The Ad-Hoc workgroup (recommended in Objective 1A-1) would track and report progress toward completion, as well as uses, of GIS-based products and other research and technical tools that would supplement the current wetland baseline.

Tasks

1) DNR will seek funding to complete interpretation of DNR wetlands (from DOQQ's) statewide.
2) The Ad-Hoc workgroup (recommended in Objective 1A-1) would track and report progress toward completion, as well as uses, of GIS-based products and other research and technical tools that would supplement the current wetland baseline.

Objective 1C Assess status of determining wetland functions

Refer to Section II (Baseline) for descriptions of the wetland functional assessment methods most commonly used in Maryland.

Issues

1) Comprehensive wetland functional assessments are completed primarily by the Maryland State Highway Administration (MDSHA). Most other State agencies complete wetland functional assessments on a limited basis for project specific evaluations.
2) Wetland functional assessments could be a valuable tool in assessing cumulative wetland impacts (including indirect or secondary impacts), assessing functional replacement requirements for mitigation, selecting mitigation sites, and prioritizing wetlands for preservation and restoration.
3) Models for the HGM approach have not been prepared for wetlands throughout the State. The approach can be very time consuming to use. Additional funding, research, and personnel time would be necessary to complete the HGM models for statewide use.
4) Regional or watershed assessments can be costly and time consuming, and require experienced and trained staff.
5) Assessment methods using indices of biological integrity are under development. The methods may have promise as a means of assessing wetland condition. Funding and staff shortages may limit development and application of this approach. EPA is requiring States to begin implementation of a program to assess wetland condition by 2012, though no guidance has been prepared to date.

Recommendations

1) Guidance and training on acceptable wetland functional assessment methods, adapted or developed for use in Maryland, should be prepared and provided to potential users.
2) Agencies should attempt to find ways to reduce the cost of conducting watershed assessments.
3) Functional assessment models for HGM approach should be completed statewide.
4) Funding and staff support should be provided to complete and test IBIs for wetlands.
5) EPA should provide additional guidance on what will be required for a program to monitor wetland conditions.
6) Consistent approaches to wetland assessment should be used allow for valid comparisons of results.

Tasks

1) Produce a report summarizing the limitations and applications of wetland functional assessment methods used in Maryland, including examples of their use by federal, State, local and other agencies.
2) Incorporate wetland functional assessment methodologies in wetland mitigation, and prioritization of wetlands for preservation and restoration.
3) Include in the functional assessment report (referenced in Task #1) new methodologies being developed for other states, and incorporation of rapid bio-assessment protocols, including IBIs, and the FWS functional assessment study for the Nanticoke and Coastal Bays watersheds to complement standard functional assessment methods.

Objective 1D Establish a consistent methodology and schedule for evaluation and updating of the wetland baseline

Issues

1) Updating the various wetland baseline inventories is costly and time consuming, and no funding has been designated for updating in the future.
2) Different wetland baseline inventories use different projections (scale and spatial coordinate systems) to display data. In Maryland, the standard projection is MD State Plane 83 meters. However, MD State Plane 27 feet is also used. The use of these two different projects can introduce errors in the spatial registration of data, when converting from one projection to another Advances in software may soon eliminate this issue.

Recommendations

1) The Ad-Hoc workgroup will evaluate wetland baseline inventories.
2) The Ad-Hoc workgroup will evaluate the most current information available.
3) Agencies will ensure that staff are adequately trained in the use of GIS software.

GOAL 2: Assess current and potential wetland threats and trends

Over time and space, natural processes and human activities pose a serious threat to wetlands. Evaluation of the effects of these threats will yield valuable information about the long-term trends of wetland loss and changes in wetland condition and function.

Objectives

A. Document and evaluate wetland threats and trends
Wetland threats and trends are documented and evaluated on different scales and by various State and federal agencies and programs.

B. Assess the effects of indirect activities on wetlands
The scope of this objective may define a wide variety of factors that influence wetland hydrology, vegetation and soils. Therefore, specific definitions (and other parameters) for cumulative and indirect impacts will need to be developed in order to assess these effects.

C. Track wetland losses and gains to achieve the goal of "no net loss"
State programmatic wetland losses and gains are documented.

Objective 2A Document and evaluate wetland threats and trends

Wetland threats and trends have been documented by historic wetland inventories, and other natural resource surveys, conducted in Maryland from the early 1900's to the present. However, recent inventories have stressed the need for regional assessments of threats and trends due to the variability of factors, such as physiography and anthropogenic factors that effect wetlands. Current inventories rely not only on wetland acreage estimates, but apply technical tools, such as GIS and satellite imagery, to update estimates of wetland acreage and evaluate changes in wetland condition over time.

The State Wetland Conservation Plan Workgroup identified several main threats affecting wetlands in Maryland. These threats include sea level rise, coastal erosion, exotic and invasive species, and land development. These threats are discussed in greater detail in the Wetlands Baseline, (Section II of this document).

Issues

1) Wetland losses and conversions (from one wetland type to another), resulting from certain natural processes, are not included in most status and trends reports.
2) Tracking and reporting of natural losses and conversions would require substantial funding, staff, and resources, and coordination among various federal, State and local agencies, and the academic community.
3) Funding for periodic updating of wetland threats and trends has not been allocated or made available. A commitment in the Chesapeake Bay Agreement calls for an inventory of wetlands at 5-year intervals. This commitment is not currently funded.
4) Further research and development of technical tools are needed to define the spatial and temporal variability and impacts of sea level rise.
5) Counties in low-lying areas – such as Worcester, Somerset, Dorchester, Talbot and Wicomico – will be more severely impacted than other counties along the coast.
6) Currently, funding and staff have not been allocated to address the issue of sea level rise.
7) Preliminary research suggests that modified approaches to control *Phragmites* might be recommended in severely impacted coastal marsh systems. These approaches would recognize the benefits provided by Phragmites for water quality improvement and shoreline stabilization. The systems where a modified management approach would be appropriate may be identified based on specific criteria, that assesses wetland functions and values, restoration potential and management options.
8) Preliminary findings indicate that cumulative sediment deposition is reduced on non-vegetated marsh surfaces, and without vegetation to stabilize the marsh the sediments will continue to erode.
9) In areas where nutria are excluded, only partial marsh revegetation occurs. This suggests that marsh accretion and restoration would be needed to elevate the marsh surface to establish vegetative growth.
10) Population growth and range expansion of mute swans has increased the number of swan-related problems for people and native wildlife. Concentrations of mute swans have over-grazed bay grasses, eliminating habitats for crabs, fish, and other native wildlife and wetland dependent species.
11) The Atlantic Flyway Council (USFWS) has recently adopted a policy to control mute swans in the Atlantic Flyway and is urging State and Federal partnerships to institute effective

management programs in order to control existing population levels while preventing establishment of new problem areas.
12) Recommendations for managing the mute swan are already being developed by the Mute Swan Task Force.
13) The general public's perception of mute swans is primarily aesthetic and most people are unaware of the problems related to their presence in existing habitats.

Recommendations
1) Threats and trends data obtained by federal, State and local agencies, and volunteer organizations should be compiled and reported.
2) A more comprehensive approach to tracking all discernable wetland losses and conversions, including those from agricultural activities, should be developed.
3) Funding should be sought to periodically update wetland threats and trends studies.
4) Guidance should be developed on use of threats and trends studies.
5) Coordination of statewide efforts to address sea level rise, including short-term and long-term planning and management recommendations, is needed. This will include current initiatives by DNR, MDE, MGS, Chesapeake Bay Program partners, the Coastal Watershed Resources Advisory Committee, and recommendations from the Shore Erosion Task Force report.
6) Recommendations for future outreach, research, development, staff, and funding needs to address sea level rise are needed. This would include education and outreach to local governments and the public.
7) Report findings from recent and upcoming technical forums on problems and solutions for *Phragmites* management.
8) DNR and USFWS will conduct an outreach effort to increase public awareness as part of natural resource policies to control numbers of mute swans on federal, State, and public lands.
9) The State should develop a comprehensive strategy to address current and future impacts on coastal wetlands, resources and lands. This can be accomplished through a unified approach, focusing on inter-agency cooperation and input from the scientific community and local governments.
10) Threats and trends data should be used to identify areas that should be a priority for re-mapping of wetland areas.

Tasks
1) MDE will coordinate with agencies to develop guidance on the use and application of threats and trends studies for programs involved in wetland regulation and management.
2) An inter-agency advisory committee will begin coordinating the various efforts to address sea level rise, including short-term and long-term planning and management recommendations.
3) The advisory committee will make recommendations for future outreach, research, development, staff, and funding needs to address sea level rise. This would include education and outreach to local governments and the public.
4) Compile the body of current literature, research, data and technical tools on sea level rise in Maryland.
5) Coordinate initiatives and resources among agencies that will develop guidance or have regulatory authority over shore erosion control practices.

6) Develop consistent guidance for shore erosion control practices that consider regional and site specific needs and, where feasible, provide improved water quality, habitat and resource benefits.
7) The Exotic Species Work Group of the Chesapeake Bay Program will develop Baywide management planning for nutria and Phragmites.

Objective 2B Assess the effects of indirect activities on wetlands

Understanding the relationship between landscape and the dynamic nature of wetlands is essential to the assessment of wetland functions and values. Wetlands are constantly adjusting to disturbances occurring within them and within the surrounding landscape. It is important to recognize to what extent various disturbances affect wetlands when assessing potential impacts, and when considering wetland protection options (Clearwater et al., 1998). Section II (Wetlands Baseline) describes indirect activities in greater detail.

Issues
1) There is a need to develop a methodology to assess the effects of indirect impacts on function, water quality, habitat, and ecology of wetland environments.
2) Although many indirect impacts are regulated by State and federal laws and programs, the review of these impacts is often not detailed and systematic.
3) A more systematic evaluation of indirect or secondary impacts, as described in #1 above, may require additional funding and staff resources.
4) The review period for permit applications may be lengthened by applying a more formal impact assessment methodology.

Recommendations
1) Compile information obtained from wetland functional assessments (SHA) and State programmatic database. This information could be displayed on a map, produced in a periodic report, and posted on agency websites.
2) Develop a strategy and criteria to analyze wetland functional assessment data (Recommendation #1) to identify indirect and cumulative impacts.
3) The methodology to assess the effects of indirect impacts might focus on several scales of investigation, such as watershed, tributary, individual wetland or wetland system, or on a single project basis.
4) Coordinate with various federal, State and local agencies, and the academic community to obtain data and other information about indirect impacts; implementation of this will require substantial funding, staff, and resources.
5) Compile current data and research, including GIS data, to begin evaluating cumulative and secondary impacts to wetlands and adjacent areas.

Tasks
1) Include effects of sedimentation and impervious surface on wetland condition as part of the EPA-required monitoring strategy for wetlands.
2) Include consideration of indirect impacts to wetlands in watershed or similar resource management plans with goals to protect, conserve, and restore wetlands.

Objective 2C Track wetland losses and conversions to achieve the goal of "no net loss"

The phrase "no net loss" has been applied widely throughout Maryland in the last few years by State agencies and non-profit organizations in the context of State goals for preserving and maintaining the acreage and function of existing wetlands, and restoring historical wetlands. The phrase originates from State nontidal wetland statute (Environment Article, Section 5-902), which states "The goal of the program shall be to attain no net overall loss in nontidal wetland acreage and function and to strive for a net resource gain in nontidal wetlands over present condition." A similar statement in State tidal statute (Environment Article, Section 16-102) states; "It is the goal of the State to preserve the tidal wetlands of the State and prevent their loss and despoliation…" State tidal regulation (COMAR, Title 26, Subtitle 24, Section .01) contains the goal "to strive for a net resource gain of tidal wetland acreage and function."

Permitted (direct) impacts result from disturbances that occur within wetlands and their buffers. Common direct impacts to wetlands include filling, grading, removal of vegetation, building construction and changes in water levels and drainage patterns. Most disturbances, resulting in direct impacts to wetlands, are authorized by State and Federal wetland regulatory programs. Currently, Maryland reports a net gain statewide of 328.39 acres of nontidal wetlands for the period from 1/1/91 through 12/31/01. Statistics of net change in acreage for tidal wetlands are being compiled.

Tracking and reporting of wetland losses and conversions to achieve the goal of "no net loss" is done primarily by MDE, based on data from the joint database shared by MDE and the Corps. Refer to Appendix II: : Management Framework for a description of data and data collection methods used by MDE to track wetland losses and conversions. Table III -1 summarizes the statistical data, for permitted wetland impacts, reported from the joint MDE and Corps database from 1991 through 2001.

Issues

1) The current database does not provide easy access to, or GIS compatibility with, spatial information for programmatic restoration, creation, mitigation projects, and wetland losses and gains.
2) Development of new reports derived from the State regulatory database (RAMS) is difficult and time consuming due to limited program resources and the nature and compatibility of the databases.
3) Many wetland losses and impacts likely occurred prior to implementation of State and federal regulatory programs.
4) Tracking regulatory and programmatic losses does not imply that all losses are tracked. Although minimal, impacts due to exempt activities are not counted in "no net loss" statistics. These activities include construction which impacts less than 1,000 square feet of nontidal wetlands, tree removal in buffers of less than 30 percent of existing understory, vegetation control, landscape management, soil investigations, percolation tests, survey markers, and maintenance of structures.
5) Minor losses and impacts authorized by the Compliance Program are not tracked.
6) The regulatory programs are often asked to provide information on regulated activities and authorizations. Limited staff resources prevent information and reports from being prepared within short time frames.

Recommendations

1) Identify areas, by watershed, subwatershed, county or other relevant scale, where significant impacts have occurred and may potentially occur from regulated and nonregulated activities.
2) Produce guidance maps for regulatory, management and planning purposes.
3) There should be greater GIS capability developed for wetland gain/loss data.

Tasks

1) MDE should develop the capability to produce new reports in a timely manner. MDE will increase their use of GIS to track wetlands gains and losses, and integrate this effort with other organizations tracking.

2) A comprehensive approach for tracking agricultural activities in wetlands should be developed.

Table III-1. *Summery of impacts, losses and gains for MDE, Wetlands and Waterways Program*

Nontidal Wetlands (1991-2001)

6-Digit Watershed	Watershed	Statewide Acreage	Permanent Impacts	Permittee Mitigation	Program Gains	Other Gains	Net Change
01 12 02	Lower Susquehanna River	238	-4.79	6.03	0	0	3.25
02 13 99	Chesapeake Bay	1.289	0	0	0	0	0
02 13/05	Chester River		-22.71	7.58	12.68	22.96	20.52
02 13 06	Elk River (incl Christiana)	30,503	-7.33	3.65	0	1.30	-2.38
02 13 07	Bush River		-28.75	41.71	2.20	0.76	15.91
02 13 08	Gunpowder River	11,183	-12.09	20.29	7.00	0	15.20
02 13 09	Patapsco River		-45.18	47.65	11.50	.99	14.96
02 13 10	West Chesapeake Bay	8,388	-15.72	16.51	1.55	1.13	3.22
02 13 04	Choptank River	167,315	-13.65	2.75	19.30	36.79	45.20
02 13 11	Patuxent River	27,199	-57.86	74.06	11.75	5.31	33.26
02 13 03	Nanticoke River	36,578	-14.02	20.50	12.00	4.34	22.82
02 13 02	Pocomoke River	36,212	-9.45	6.09	51.30	0.79	48.73
02 13 01	Coastal Area	7,586	-66.20	35.15	19.90	5.90	-5.24
02 14 10	No. Br. Potomac River	1,577	-6.69	7.79	0	7.17	8.27
02 14 05	Upper Potomac River	2,081	-3.27	1.10	1.25	0	-1.16
02 14 03	Middle Potomac River	17,139	-10.91	10.01	56.83	0.28	56.22
02 14 02	Washington Metropolitan	6,734	-54.22	71.42	8.20	2.10	27.50
05 02 03	Youghiogheny River	5,964	-3.25	2.15	0	0.40	-0.70
02 14 01	Lower Potomac River	31,696	-31.08	53.40	0	0.49	22.81
		391,862	**-407.16**	**427.86**	**217.46**	**90.72**	**328.39**

Tidal Wetlands (July 1996 – December 2001)

6-Digit Watershed	Watershed	Statewide Acreage	Permanent Impacts	Permittee Mitigation	Program Gains	Other Gains	Net Change
01 12 02	Lower Susquehanna River	841	---	---	---	N/A	---
02 13 99	Chesapeake Bay	29,712	---	---	--	N/A	---
02 13/05	Chester River		-.75	1.28	6.69		7.23
02 13 06	Elk River (incl Christiana)	20,052	-0.48	0.15	0.64	N/A	.31
02 13 07	Bush River		--	--	--		
02 13 08	Gunpowder River	9,410	-0.015	--	--	N/A	-0.015
02 13 09	Patapsco River		-0.54	1.13	1.74		2.33
02 13 10	West Chesapeake Bay	3,419	-1.8	0.03	10.83	N/A	9.06
02 13 04	Choptank River	36,877	-0.37	1.40	5.18	N/A	6.2
02 13 11	Patuxent River	6,773	-0.14	--	1.94	N/A	1.80
02 13 03	Nanticoke River	83,409	-0.03	0.32	0.84	N/A	1.12
02 13 02	Pocomoke River	53,246	--0.019	--	0.53	N/A	0.51
02 13 01	Coastal Area	17,225	-0.15	0.45	0.20	N/A	0.50
02 14 10	No. Br. Potomac River	---				N/A	
02 14 05	Upper Potomac River	---				N/A	
02 14 03	Middle Potomac River	---				N/A	
02 14 02	Washington Metropolitan	298	--	--	--	N/A	--
05 02 03	Youghiogheny River	---				N/A	
02 14 01	Lower Potomac River	8,438	-0.20	.32	4.82	N/A	4.95
		269,700	**-4.49**	**5.08**	**33.41**		**34.00**

Statewide nontidal wetland acreage by watershed from *Wetlands of Maryland* (Tiner and Burke, 1995).
Statewide tidal wetlands acreage by watershed from *Coastal Wetlands of Maryland* (McCormack and Somes, 1982).
Wetlands impacts, mitigation, gains, losses and net change from MDE, Nontidal and Tidal Wetlands programmatic database.
Permanent Impacts = all impacts approved through issuance of a Letter of Authorization, permit, or license (includes conversions**.**
Permittee Mitigation= all acreage required for authorized impacts based on mitigation replacement ratios.
Programmatic Gains = all voluntary gains in wetland acreage (most through pond construction or expansion).

GOAL 3: Increase the Efficiency and Effectiveness of Wetlands Regulation and Management in Maryland

The objectives in this goal include both regulatory and non-regulatory components, and are geared toward better utilizing currently available strategies and resources, as well as filling in gaps and improving communication and coordination problems among regulators and the regulated community.

Objectives

A. *Identify and assess gaps in wetland and other related regulatory and management programs*
This is an in-depth analysis that covers gaps concerning issues such as; the feasibility for the establishment of appropriate new state regulations, needs within the current State regulatory program, agricultural issues, and the performance of existing regulations. Gaps and issues related to wetland restoration programs are discussed in Objective 4.

B. *Review the MDE and Corps permit process with respect to efficiency and redundancies*
This review includes an "in-house" analysis by MDE and Corps staff of the current regulatory process and standard operating procedures, to locate common problems or needs for improvement.

C. *Identify inconsistencies between local-level development requirements and development restrictions within the State/federal regulatory permit process*
This includes an information-gathering initiative involving contacts at the local level in each county, state and federal permit reviewers, and private developers, to find areas where cooperation could be increased and discrepancies resolved.

D. *Assess the effectiveness of the current processes of wetland mitigation, restoration, and creation, and whether or not they achieve "no net loss" of wetland acreage and functions*
This objective analyzes how well created or restored wetland sites perform, and if they are in fact compensating for the acreage and functions of wetlands that have been lost.

E. *Identify activities for which expedited wetlands, waterways, or floodplain authorizations can be granted*
This objective will examine the potential to streamline the permit process for activities that have minimal resource impacts or positive resource impacts. One of these activities that has been identified is the installation of certain agricultural best management practices (BMP's).

F. *Support training and certification of public and private professionals to ensure accurate delineation of all regulated wetlands*
Under this objective, MDE is pursuing the feasibility of certifying wetlands delineators according to their level of skill and experience.

G. *Establish guidelines for integration of wetlands conservation with Smart Growth during the permit process*
These guidelines incorporate how several regulatory and nonregulatory programs consider the location of a site in a Smart Growth area, and when making permitting or resource conservation/ preservation and planning decisions.

H. *Adopt methodologies for assessing cumulative wetland impacts and benefits on a watershed basis, and a means for integrating such assessments in wetland permitting, conservation, management, and planning*
This objective aids in developing a process for evaluating the effects that multiple projects have on a watershed as a whole. This knowledge may be integrated into wetland permitting and conservation/preservation decisions on the individual project scale.

I. *Evaluate issues and make recommendations concerning updating the 1973 tidal wetland maps for improved regulation and management*
The official tidal wetland maps, composed in 1973, are largely out of date, since conditions have changed along the coast in much of the State since they were made. However, under current regulations, updating the maps would necessitate a costly and time intensive effort. This objective explores alternatives to this method of updating and current use of these maps.

J. *Identify new ways to promote wetland conservation; encourage development and use of innovative ideas and programs*
This is an initiative geared toward better utilizing the wealth of wetlands conservation programs in place, and encouraging innovation in new techniques and strategies for protecting the resource.

K. *Explore options for and barriers to wetland mitigation banking and consolidated mitigation in Maryland*
Due to the complexity and stringent nature of current wetland mitigation banking regulations and the low annual statewide wetland level of impact, mitigation banking remains largely an untapped resource for the state. This objective aims to identify the potential for revising these regulations, or for developing new techniques such as consolidated mitigation, which can help both the regulated community and wetland resources.

Objective 3A Identify and assess gaps in the State wetlands regulatory program and other regulatory and nonregulatory programs

Both the SWCP Workgroup and the Wetlands and Waterways Program staff were interviewed with respect to their opinions of gaps in the regulatory program. This evaluation was done using the concept of "allowing agencies/reviewers to do their jobs better" through increased effectiveness. Additionally, recommendations are included from the Coastal Bays Wetland Management Plan. All responses have been summarized and are included below.

Planning Issues & Recommendations
MDE, DNR, MDP and the Corps all participate in various aspects of watershed planning, however their efforts are not fully coordinated. Aspects of this issue are further elaborated under Objective 3D (dealing with restoration), and Objective 4B (dealing with planning issues and local governments).

1) Staffing
   Additional staff could provide more in-depth review for complex projects, monitor mitigation projects more closely, and more quickly address problem sites. Upcoming water quality standards for wetlands may further increase workload for staff.
2) Tidal Wetlands Division
   The Tidal Wetlands Division would benefit from a planning section, which could provide public education and outreach, additional pre-application meetings and guidance on the restoration and creation of wetlands.
3) Training
   There is a lack of comprehensive orientation training for new reviewers. Development of a training package would increase the level of proficiency of new staff. (See also objective 3F on certification of wetland delineators).
4) Staff Equipment/Resources
   There is a lack of up-to-date tools and information that would improve resource management. General staff needs: additional vehicles and communication devices such as cell phones, additional field equipment such as waders, resource identification guides, and field clothing. Field office needs: increased access to email and the Internet. Data needs: GIS data, including existing and improved data layers for soils, topography and floodplains, historic properties, threatened and endangered species, wetlands, nontidal wetlands of special state concern, and bogs
5) Updating of Resource Boundaries/Definitions
   More recent inventories and regulatory maps are needed. Nontidal floodplain limits, tidal wetland limits, and nontidal wetland limits are neither correlated nor identified with the same techniques.
6) Funding
   State funding currently provides for little more than actual permit review activities, and the Program relies almost exclusively on EPA grants for planning and program development. Additional funding may improve the viability of the Program. Current funding sources are not very diverse, which leaves the Program vulnerable to sudden cuts in resources.

Process, Regulation, and General Issues and Recommendations. The following topic areas in the permit process, regulations, and general wetland issues were identified as needing improvements for more effective and efficient wetland management.

7) Water Quality Certification standards.
   Increased guidance for implementing Water Quality Certification standards may improve resource protection.
8) Alternative methods for wetlands mitigation (other than restoration, creation, or enhancement). After no net loss requirements have been met, other forms of mitigation could be beneficial and should be explored. This includes practices such as stormwater retrofit.
9) Agricultural and Forestry Activities
   NRCS and SCD's could benefit from expanded training on the procedures and expectations for reviewing wetlands impacts.
10) Standardization of Authorizations and Other Official Documents
   Increased standardization of documents may improve communication.
11) Compliance and Enforcement
   More compliance and enforcement staff could increase detection and correction of unauthorized activities in wetlands and waterways. Current State laws for wetlands and waterways are inconsistent with compliance and enforcement provisions under other state laws such as for erosion and sediment control. Erosion and sediment control law allows for administrative penalties. MDE recommends that wetland and waterway laws be amended to allow for administrative penalties. An increase in the amount of fines would be an additional disincentive against illegal activities.
12) Regulatory Review
   MDE should evaluate the implementation of current federal and State laws by reviewing authorization and compliance activities, as well as best management practices.
13) Waivers and Extensions
   Waivers and in-stream construction time extensions should have careful consideration before issuance.
14) Tidal and Nontidal Floodplains
   Tidal floodplains are not regulated by the State. Currently unregulated tidal floodplain impacts can have hydrologic impacts on adjacent protected resources, including tidal and nontidal wetlands, and nontidal floodplains.
15) Agency Roles
   MDE and DNR should continue to improve restoration and preservation efforts by clarifying strengths and expertise within agencies and programs; and define roles and responsibilities to further increase efficiency and coordination in wetland management efforts.
16) Additional Review
   The Corps of Engineers should conduct an internal review of internal gaps and deficiencies and incorporate findings into the wetland conservation plan.
17) The sharing of office space between DNR, MDE, and the Chesapeake Bay Program in Annapolis would improve communication between agencies.
18) Remedial Action
   Agencies should attempt to address as many of the gaps and deficiencies as possible.
19) Indirect Impacts
   Regulations and laws generally deal with direct impacts to wetlands from activities taking place in the wetland. Indirect impacts often result from runoff and sediment deposition in wetlands. More stringent enforcement of sediment and erosion control requirements may reduce indirect impacts.

20) Citizens want a faster response to complaints and reports of violations and often find it difficult to locate the appropriate responsible unit. Contact information should be more clear and accessible.

Tasks

1) Acquire additional staff as needed for the Tidal and Nontidal Divisions and the Compliance Program.
2) Establish a protocol/curriculum for training new reviewers.
3) Obtain funding from a variety of sources, for additional resources such as staffing, equipment, and technology needs.
4) Report on the existing and potential problems with current methods for identifying and inventorying resource boundaries.
5) MDE will produce a report on the effectiveness of the regulatory program, with analysis on compliance actions and a regional focus including the coastal bays watersheds.
6) Develop guidance for properly implementing Water Quality Certifications.
7) Develop guidance for when alternative types of mitigation are appropriate.
8) Increase communication and consistency among regions, including standardization of documents.
9) Develop guidance on the appropriate use of waivers and extensions.
10) Report on potential problems that may result from unregulated tidal floodplain impacts.
11) Improve and promote contact information for citizens reporting violations.

Objective 3B Review the MDE and Corps permit process with respect to efficiencies and redundancies.

Both the SWCP Workgroup and the Wetlands and Waterways Program staff were interviewed with respect to their opinions of redundancies and needs for greater efficiency in the regulatory program. This evaluation was done using the concept of "allowing agencies/reviewers to do their jobs better" through increased effectiveness. The responses have been summarized and are included below.

Issues

1) Redundant data entry may slow application processing time, and leave less time available for application review. Additional software/other computer resources could modernize current repetitive processes of data entry and storage, making them both more efficient and useful.
2) Improved communication with agencies such as the Corps, DNR, U.S. Fish and Wildlife Service, NOAA and others could reduce inefficiencies in communication regarding permit and planning issues.
3) Procedures such as the issuance of certain types of letters to applicants and standard practices in application review such as information required from applicants may vary from region to region. This regional inconsistency can create confusion for both applicants and other agencies that deal with regulated activities in multiple regions.
4) Corps reviewers receive projects as much as a week after an MDE reviewer, which adds delays to scheduling field meetings.
5) Current permit processing practices could be improved for efficiency. Permit reviewers often do not obtain a copy of an application until a week or more after it has been received.

6) A more in-depth initial review by the permit service center could save time by informing applicants immediately of standard information items lacking in their application, rather than waiting for the project manager to do so.
7) Project review is not always coordinated to the greatest extent possible between MDE and the Corps. Some reviewers work more independently, and correspond with the other agency mostly in writing. This can be a slow and inefficient process. The two agencies could also improve their attendance at joint meetings.
8) The Corps does not always honor MDE's timelines for responses, which can slow and complicate permit review.
9) Both MDE and the Corps could increase their efficiency in permit review time if they updated their database systems.
10) Pre-application jurisdictional determinations are performed by the Corps. There is often a 6-8 month delay in reviewing requests for jurisdictional determinations. This causes difficulties for landowners and developers involved in early project planning.
11) There have been delays in checking delineations, due in part to revised guidance regarding jurisdiction. In certain areas of the State the MDE reviewers believe that the Corps is slow in checking delineations and should defer to MDE's findings if MDE can visit the site in a timely manner.
12) Other State and federal agencies that are involved with MDE's permit process respond sporadically or outside of timelines.
13) There are several types of public notices (newspaper notice, subscription list, interested party, WQC, Corps notice), which may overlap in time issued, and all require different procedures for processing. This causes a redundancy in time and effort expended.
14) The process for holding a public hearing for a project often cause substantial time and cost delays to the applicant, and use valuable staff time.
15) Informing applicants individually of needs for a permit application is a very inefficient process, although typically this is the method that is used. Additionally, the permit application is not as well-suited to gather information on waterway impacts as it is for wetland impacts.

Recommendations

1) MDE and the Corps should pursue acquisition of new software for permit review data entry, processing, and analysis. The agencies should explore the possibility of integrating GIS capabilities both for permit review and planning activities. The Corps should develop its anticipated new program for data entry and storage to increase ease of use and report preparation.
2) MDE should seek to improve communication with State and federal agencies by sharing space.
3) MDE, DNR, and the Corps should increase use of teleconferencing among project reviewers and with other agencies.
4) MDE should increase regional consistency in their correspondence to and requests of permit applicants.
5) MDE should look into ways of streamlining the initial permit process or increasing the level of the initial project review, in order to decrease the time and effort needed by individual project reviewers.
6) The Corps should increase their efforts to honor MDE permit review timelines.
7) The Corps should develop a more rapid and consistent statewide approach and interpretation pertaining to jurisdictional determinations.

8) The Corps and MDE should develop a means for accommodating jurisdictional discrepancies, which does not result in additional project review work for either agency.
9) MDE should develop educational material for other agencies on how and when to participate in the permit review process.
10) MDE should review its process for public notices, standardize the methodology used for placing a project on notice, and pursue means necessary to alleviate requirements for redundant notices.
11) MDE should explore ways of improving the efficiency of organizing and implementing a public hearing, without decreasing the ability for public input into the permit review process. Options such as posting property, providing better project and public notice information on the Internet, and allowing for interactive additions to the mailing lists for projects should be considered.
12) The subscription list and public notice list should be combined to reach a larger audience.
13) Outreach including printed materials should be developed to inform more people about the public notice and public hearing process. This outreach should include engaging local governments in the process, and increasing local distribution of notices.
14) The MDE website should add a feature to enable people to add themselves to the subscription list.
15) The public notice comment period could be extended to increase citizen participation.
16) MDE should develop educational material for applicants on proper ways to fill out an application, information to submit for a given type of project, and design guidelines that should be implemented/addressed before an application is submitted. MDE and the Corps should tailor the application to better suit waterway construction projects in addition to wetland impacts.

Tasks

1) MDE and the Corps will move to newer technology systems for permit review and data management, including increased use of GIS.
2) MDE, the Corps, DNR and other federal and State agencies will pursue the use of space sharing and teleconferencing among reviewers to increase communication and efficiency in the review process.
3) MDE will increase efficiency in the review process by standardizing correspondence with applicants and the public notice process, and expanding opportunities for direct communication and cooperation among reviewers and agencies.
4) MDE will streamline the initial permit review process to reduce the amount of informational requests to applicants, and to reduce the time needed for non-review application processing.
5) The Corps will increase their consistency in honoring timelines, performing jurisdictional determinations, and guidance on dealing with federal-only regulated resources such as ephemeral streams.
6) MDE will explore ways to improve the efficiency of organizing and implementing a public hearing, including examining the effectiveness of extending the public notice time.
7) MDE will develop educational material for applicants on the methods for properly completing an application, and guidelines that should be addressed before an application is submitted.
8) MDE will increase the efficiency and effectiveness of the public notice and hearing process by increasing the distribution list through website additions and other means, involving local governments, and developing education and outreach materials on the public notice process.

9) MDE will increase public access to project and public hearing information through their website and other means.
10) MDE and the Corps will resolve issues concerning public notice distributions, including maximizing email and website postings.
11) MDE and the Corps will meet with the building industry to explore ways to reduce confusion and overlap between federal and state programs, and provide a more efficient regulatory program.

Objective 3C Identify inconsistencies between local-level development requirements and development restrictions within the regulatory permit process

A listing of all relevant county level wetland and waterway regulations has been compiled (Table III -2). The information in this listing is based upon publications, personal contacts, and Internet resources.

Issues
The main issues identified by the Workgroup relate to how local, State, and federal regulations complement, contradict, or otherwise interact and affect the respective project reviews. Workgroup members have identified some local requirements that sometimes prevent wetland avoidance and minimization. Specifically, potential conflicts that may occur between wetland conservation and local laws concerning:

- Zoning
- Stormwater management
- Road construction
- Reforestation
- Landscaping
- Sidewalks
- Recreational requirements
- Lot sizes
- Lot configurations

The conflicts between local and State/federal requirements may result in additional delays during the wetland permit review, as applicants must demonstrate why proposed wetland impacts cannot be avoided or minimized, and possibly negotiate for waivers from local requirements. A delay for the applicant may also arise after a wetland regulatory agency has required a modified site or structural design. A new local approval may be necessary for this revised design. In addition, the applicant may be faced with a greater mitigation requirement due to higher wetland impacts required to meet local regulations. However, many of these conflicts and delays may be resolved when wetland conservation is considered early in the local development process, especially when the local review process is conducted in consultation with State and federal wetland regulatory agencies.

Coordination on complementary programs, projects, and training has been done on a limited scale. Joint reviews between MDE and the Corps of Engineers in Montgomery, Baltimore, and Worcester Counties have been well received and have often expedited the permit process. Coordinated reviews have also taken place between MDE, the Corps, and Harford, Anne Arundel and Charles Counties.

Coordinating resolutions to potential conflicts should be done both through local departments of planning and zoning, and departments of public works, since these two types of local agencies may have different requirements, goals, and may or may not be fully coordinated.

Another issue which may become more critical is the sometime conflict between traditional comprehensive planning and watershed planning. Watershed planning is increasingly being encouraged by agencies with funding to support environmental and natural resource conservation, restoration and planning. Watershed planning is also the focus of several commitments under the 2000 Chesapeake Bay Agreement, and is promoted for improved management of water and natural resources, focusing on assessment of resources, their conservation, and targeted restoration and protection. Traditional comprehensive planning addresses water and natural resources concerns to varying degrees. In local jurisdictions with planning area boundaries that do not align with watershed boundaries, improved resource conservation may still be achieved through consideration of watershed condition, water and natural resources, and their responses to land management.

Local jurisdictions with environmental buffer preservation programs as part of the regulatory review process have found that many potential conflicts between wetland conservation and local land use planning/development regulations may be avoided. Sensitive areas may be preserved to a large extent if buffers are required between resources and development features, with possible exceptions for roads and utilities. Conflicts still may occur with certain kinds of infrastructure such as roads whose potential locations may be restricted due to past decisions or existing connecting points. Indirect impacts may arise from intensely developed areas when these areas, due to their high amounts of impervious surface, restrict the natural water flow to sensitive areas. At least one local jurisdictions also reports conflicts with decisions regarding wetlands/waters that have been altered in the past. There appears to be uncertainty at the local level as to whether it is appropriate, as part of the proposed land development to further alter the wetland to continue its function for human use (for example, the conversion of a farm pond to a stormwater management pond), to avoid additional impacts, or restore the area to a more natural function.

Recommendations

1) The Corps and MDE should meet with local governments and identify areas of conflict, opportunities for improved coordination, and complementary and contradictory federal/state/local programs and requirements.
2) MDE will continue to encourage local governments to include avoidance and minimization of wetland impacts, as well as wetland creation, as part of implementation of the "2000 Maryland Stormwater Design Manual."
3) Encourage local jurisdictions to undertake watershed planning or incorporate additional consideration of water and natural resources concerns into the local planning and review process.

Tasks

1) MDE will conduct a local government questionnaire (Figure IV-1) to survey county government contacts representing their respective departments of planning and zoning, and public works. The questionnaire will address a variety of issues relating to how local and state level regulations complement, contradict, or otherwise interact, affecting local and State

level project review. Results of the questionnaire will be used to assist the Corps and MDE in identifying areas where improved cooperation and coordination may occur.

2) MDE will seek innovative ideas for solutions to conflicts in wetlands management through input from local professional organizations, including the building industry.
3) MDE and the Corps will contact and meet with interested local governments to develop procedures for improved coordination and conflict resolution.
4) MDE will prepare additional guidance on incorporating wetland conservation with stormwater management requirements.

Table III-2 **County-level Wetland and Waterway Regulations**

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
Allegany	25 or 50 foot buffer depending on drainage area; 100 foot setback if stream on FIRM or floodway map	-	New structures prohibited unless there is no alternative, must be elevated above flood protection elevation	Building restricted to slopes < 25%	N/A	-	Permit Department	Allegany Co. Zoning Ordinance
Anne Arundel	Stream buffers vary by stream use and steepness of slope. Buffers range from 25 ft. to the greater of 125 ft. or 25 ft beyond top of slope -	25 foot buffer on all non-tidal wetlands. No new lots may be platted in wetlands. Additional bog protection in progress Top of slope adjacent to wetland boundary	No new structures, substantial improvement of a structure, manufactured buildings or bulk storage in 100 yr. floodplain	Critical area – variance needed to disturb slopes > 15%, outside critical area, 25 foot buffer required for slopes >	no grading over 5,000 ft2, or within 100 feet of tidal waters, limited tree removal Within critical area – 3 classes that restrict impervious cover and density of development, & forest clearing and 100 ft. buffer on wetlands and waters	Restricted development in coastal 100 yr. floodplain	Department of Planning and Code Enforcement	Anne Arundel County Code Division V: Land Use, Development, Environmental Protection
Baltimore	75 ft. buffers around use 1 streams, 100 ft buffers around use 3 or 4 streams	Minimum 25 ft buffer around wetlands	Minimum 25 ft buffer around riverine floodplains, restrictions for development in tidal floodplains	Stream and wetland buffers adjusted to accommodate steep slopes/erodible soils	Same as outside critical area, also min 100 ft. stream buffer. Critical area buffer may expand to 300 feet in forests.	35 foot principle building setback from buffer edge	Department of Environmental Protection and Resource Mgmt.	Baltimore County Code
Baltimore City	50 feet when not a floodplain/ wetland	25 ft buffer, 100 ft for wetlands of special State concern	No new development in a floodplain where alternatives exist, restrictions including elevation of buildings required for any new building in floodplain	Yes, in Critical Area	Yes	-	Department of Planning	Critical Area Ordinance, Floodplain ordinance, Sensitive Areas Plan
Calvert	50 ft buffer	50 ft of undisturbed vegetation around non-Critical Area wetlands, restrictions on filling or developing wetlands for uses other than road crossing and stormwater mgmt.	No new development in a floodplain where alternatives exist, restrictions including elevation of buildings required for any new building in floodplain	No building on slopes >25% in subdivisions. Stream buffers expand for steep slopes.	County tries to maintain 100% forest cover in Critical Area. County collects fees for deforestation, funds aforestation projects	Mandatory cluster development	Department of Planning and Zoning	Calvert County Zoning Ordinance

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
Carroll	Water resources protection easement within 100 ft. of stream	No dredging, filling, or construction in wetland -	No construction or alteration of floodplain. Exemptions for agriculture, ponds, culverts, bridges, street, utilities, or drainage facility-	Restrictions on steep slope 25% grade or higher	N/A	Requirements for subdivisions in specified environmental resource areas	Department of Planning	Code of Carroll County- Construction Codes
Caroline	100 ft buffer around perennial streams, 25 ft around intermittent streams	Requires identification of wetlands on subdivision plat	Structures must be 1 ft. above flood elevation; no new construction in floodplain in lots approved after 1980	Stream buffer expanded for steep slopes of 15% grade or higher-	Yes	-	Department of Planning and Codes Administration	Caroline County Code of Public Laws
Cecil	110 ft buffer around perennial streams; 25 ft intermittent stream buffer	25 foot buffer -	Building and utility elevation	Expansion of perennial stream buffer to max 160 ft	110 ft buffer on tidal wetlands, 25 foot buffer nontidal	No new subdivision building within a floodplain	Planning, Zoning, Parks & Recreation	Cecil County Zoning Ordinance
Charles	Resource Protection Zone (RPZ) includes stream buffer widths of 50 feet for intermittent streams and streams of orders one and two; 100 ft for streams of order three and higher, which are outside the Critical Area	RPZ includes non-tidal wetlands w/in 25 ft of floodplain	RPZ includes limits of 100 yr. floodplain	For slopes > 15% that adjoin the RPZor are within 25 ft. of the RPZ, the buffer expands 50 ft. for streams of order one and two, or 100 ft. for streams of order three and four, or to top of slope, whichever is less.	100 ft. Critical Area Buffer on tidal waterways, tidal wetlands and tributary streams; nontidal wetlands associated with stream are buffered according to RPZ requirements.	Specific land uses and development restricted within the RPZ; the RPZ may be extended based on surroundings	Office of Planning and Growth Management	Charles County Zoning Ordinance and Subdivision Regulations; Flood Plain Management Ordinance
Dorchester	100 ft. buffer for streams in Critical Area	25 ft. buffer for nontidal wetlands,; 100 ft. buffer for tidal wetlands-	-	Expanded buffer for slopes > 15%-	Standard Critical Area requirements	-	Planning and Zoning Department	Dorchester County Code, Zoning Regulations
Frederick	50 ft buffer for perennial and intermittent	25 foot buffer	No structures within 100yr floodplain, 25 ft buffer	No lots allowed on 25% slope or greater	N/A	-	Planning Department, Division of Development Review	Comprehensive Plan, Zoning Ordinance & Subdivision Regulations

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
Garrett	50 ft buffer on streams in non-growth areas and 25 foot buffer on streams in growth areas	-	local flood management ordinance, no new subdivisions in floodplains	Slopes over 30% protected	N/A	-	Planning and Zoning Department, County Engineering Office	Sensitive Areas Ordinance & Floodplain Management Ordinance
Harford	150 ft buffer around streams draining 400+ acres, streams draining <400 acres requires 75 foot buffer	75 ft buffer around nontidal wetlands;	Buffer 50 ft beyond 100 yr. floodplain	Natural Resources District prohibits development on area >40,000 and slope> 25% outside Critical Area	Prohibited on slopes >15% in Critical Area if in Limited Developed Area or Resource Conservation Areas designations; 100 foot Buffer restrictions expanded for adjacent tributaries and wetlands	-	Department of Planning and Zoning	Sect. 267-41 County Zoning Code
Howard	Residential zoning – no grading within 50 ft of intermittent stream, within 75 feet of a perennial stream; Nonresidential zoning – no grading within 50 ft of a perennial stream	Any zoning – no grading or removal of vegetation within 25 ft of a wetland	No new construction in floodplain district	No disturbance areas greater than 20,000 sq. feet with a slope 25% or higher.	N/A	Protected areas in residential zones must be located in open space, with some exceptions	Department of Planning and Zoning	Howard County Code, Title 3: Buildings, Title 15: Natural Resources, and Title 16: Planning, Zoning, Subdivisions
Kent	100 ft buffer	25 foot buffer	Limited development and fill in floodplains	Development allowed provided that minimum of 30% of lot or parcel with principal structure is < 10%	Yes	-	Department of Planning and Zoning	Kent County Zoning Ordinance

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
Montgomery	Variable buffers with 100 ft minimum on either side of stream	25 ft buffer around nontidal wetlands, may be expanded to 150 feet based on steep slopes, highly erodible soils, state use class and order of adjacent stream, wetlands of special state concern, location in a county defined Special Protection Area. 100 ft buffer around nontidal wetlands of special State or County concern, avoidance, minimization, and compensation for wetland impacts	100-year floodplain is part of environmental buffer, buildings/structures should be located at least 25 ft from floodplain-	100 ft buffer around steep/highly erodible slopes adjacent to wetlands	N/A	Environmental guidelines adopted by county planning board and applied to land development projects that are reviewd by Planning Board. Certain parts of high-quality watersheds are designated as Special Protection Areas; land development projects subject to more rigorous review and larger environmental buffers for purposes of water resource protection.	Department of Permitting Services, M-NCPPC Dept. of Park and Planning, Mont. Co. Dept. of Environmental Protection for Special Protection Areas; Mont Co. Department of Permitting Services in other areeas,	Montgomery County General Plan, Mont Co. Code Article V, Water Quality Review in Special Protection Areas, Ann. Code of Maryland Article 66B, Zoning and Planning.
Prince George's	Buffer zones of 50 ft around perennial streams; may be expanded	Wetlands buffer of 25 ft	Development restrictions in and near 100 year floodplain	Stream and wetland buffers may be expanded for steep/erodible slopes	Increased buffers on streams and wetlands	Impacts minimization provision	Department of Environmental Resources	Prince George's County Code
Queen Anne's	Resource Protection Area (RPA) has restrictions for development, includes 100% of rivers, 100% of streams and buffer zones (80% in ag. land)	RPA includes 100% of wetlands	RPA includes 100% of floodplains	Protection of steep slopes at grades 15% or higher	Limited forest clearing, minimum forest cover of 15%, shore buffer protected to minimum of 100 ft. (with certain exemptions)	RPA includes 60% of woodland acres (50% in agricultural land) Limited disturbance allowed for areas with threatened/ endangered species, time of year restrictions for certain habitat areas	Department of Planning and Zoning	Queen anne's County code, Title 14 Environmental Protection
Somerset	100 feet in Critical area, smaller buffer around other streams-	100 foot buffer around tidal wetlands-	Floodplain ordinance, structures must be above flood elevation-	Yes-	Standard requirements	Comprehensive plan -	Dept. of Planning and Zoning	Zoning ordinance

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
St. Mary's	50 ft. buffer for intermittent stream outside Critical Area; 100 ft. buffer on all other streams-	100 ft. buffer on tidal wetlands; 25 ft. buffer on nontidal wetlands; 100 ft. buffer for nontidal wetlands of special State concern; mitigation required	50 ft. buffer in tidal or nontidal floodplains, or coastal high hazard areas. –Additions to existing structures allowed. Buffer may be reduced to 25 ft. with water quality plan and BMPs.	100 ft. buffer around steep slopes > 15%; exemptios if slope is isolated and outside Critical Area or not within 50 ft. of stream buffer	Standard requirements	-	Dept. of Planning and Zoning	St. Mary's Comprehensive Zoning Ordinance
Talbot	100 ft buffer around perennial streams, 50 ft buffer around intermittent streams	25 ft buffer around nontidal wetlands	Development discouraged in 100 yr floodplain when alternative site exists	Protection for contiguous slopes of >15%, 100 ft stream buffer expanded 4 ft for each slope %.	100 ft buffer around all streams	-	Planning and Zoning Department	Floodplain Management Ordinance, County Building Code; Comprehensive Plan Natural Resource Conservation and Sensitive Areas Protection; County Zoning Ordinance
Washington	Minimum 25 feet from center of stream, or same as mapped floodplain.	Wetlands are considered a sensitive area-	No houses allowed in floodway; other construction allowed if elevated 1 foot above 100-year flood elevation; review by Board of Appeals for fill > 600 cubic yards. Exemption for historic houses	Protection for slopes 25% or more or greater than 15% when soil erodiblity factor is .35 or greater	N/A	Has some special planning areas	Dept. of Planning Dept. of Permits and Inspections-Planning and Community Development	Subdivision requirements and zoning ordinance
Wicomico	50 ft buffer around all perennial and intermittent streams	-	Development in 100 yr. Floodplain prohibited when alternative site on parcel exists	Yes-	25 foot buffer around wetlands in the Critical Area; 100 foot buffer for tidal wetlands in Critical Area	-	Department of Planning, Zoning, and Community Development	Floodplain Ordinance, Zoning Code

County	Streams	Wetlands	Floodplains	Steep slopes/ Erodible soil	Critical Area	Other	Lead Agencies	Authority
Worcester	50 foot buffer around perennial and intermittent streams; 200 foot buffer for sewage sludge application or injectton	nontidal wetlands and buffers are among priority areas for forest retention under Forest Conservation Act; prohibits filling building bulkheads or excavation beyond designated "fill and bulkhead line; 50 foot setback and buffer from tidal wetlands in coastal bays	Floodplain is priority forest retention area under Forest Conservation Act;		25 foot buffer around wetlands in the Critical Area; 100 foot buffer for tidal wetlands in Critical Area	Comprehensice conservation plan for Maryland's Coastal Bays	Department of Development Review and Permitting	Natural Resources Article; Zoning and Subdivision Control Article

Maryland's counties vary in their types and intensities of wetlands regulations. Some resources are regulated heavily in some counties, and not at all in others. Additionally, different local agencies and different laws govern the same types of impacts from county to county. The result of this variation is an array of different requirements governing resource impacts throughout the State. This table depicts this variation, and provides clarity for the types of resources protected by county laws, levels of protection, and governing authorities, on a county-by-county basis.

Important: *This table is not to be used for regulatory purposes, to determine regulatory authority, or for other legal work. The information in this table was compiled through phone interviews, and Internet and other research, and is presented for informational purposes only.*

Figure III-1

MD State Wetland Conservation Plan
Questionnaire for Local Government Representatives

This short questionnaire has been created to gather information on ways to increase the efficiency and effectiveness of the permit process. The main focus of this questionnaire is to identify inconsistencies among regulations, in order to improve cooperation between State and local regulation. Answers to these questions will be carefully considered, and may help shape the wetlands and waterway review process in your area.

Jurisdiction _____ Position_____

1) Please describe and give examples of inconsistencies or conflicts between local regulations and the State wetlands permit process.

Example – a county may require a minimum road width and the construction of sidewalks with new residential development. the State wetland reviewer asks the developer to locate the entrance elsewhere, to avoid wetland impacts.

Please address specifically the conflicts occurring between wetland conservation and:

- Zoning
- Storm water management
- Road construction
- Reforestation
- Landscaping
- Sidewalks
- Recreational requirements
- Lot sizes
- Lot configurations
- Other requirements

2) Describe and give examples of methodologies that you feel would help alleviate problems or inconsistencies between State and local regulations.

Example – in Baltimore County, State and County representatives meet once a month for joint pre-application meetings on large or complex projects.

3) What other wetland, waterway, or floodplain issues do you know of that should be addressed or addressed more in depth than at present, that could involve cooperation between the State and a local activities?

Example – are there any restoration, preservation, or protection efforts related to wetlands, waters, or other natural resource areas conducted by the State that could be better integrated with your county's master plan?

4) What flexibility do you/your organization have for waiving requirements or granting variances for development requirements such as setbacks, road widths, etc.?

5) What aspects of project review do you share with other local agencies, how is that work coordinated?
6) In general, what are your organization/jurisdiction's greatest concerns, interests, and obstacles concerning wetland conservation, regulation, protection, and management?

7) What provisions are in place in your jurisdiction for identifying wetlands and/or other key natural resource features for protection?

8) What incentives do you think would be most effective in encouraging the development of local watershed plans, including watershed plans that incorporate wetland conservation?
Example – additional funding or technical assistance might encourage your jurisdiction to complete a watershed plan.

9) Does your organization have any special provisions or considerations for activities in Smart Growth areas related to conservation, and do you have a Smart Growth Coordinator?

10) Who would be the best contact person for your department to answer questions on your process, regulations, and to discuss coordination?

11) Do you have any brochures or other guidance (including Internet resources) on your project review process?

12) There are voluntary efforts in place for wetland restoration and preservation. Would the county be interested in working with the State to identify priority areas for restoration or protection? If so, which program should be contacted? Please list any efforts, if any, already underway to accomplish this in your county.

13) What regulatory restrictions does your county place on activities in or around: floodplains, wetlands, the Critical Area, streams, or other related resources?

14) In what county ordinance or code are the regulations for these restricted activities located?

Objective 3D Assess the effectiveness of the current processes of wetland mitigation, restoration, and creation, and whether or not they achieve "no net loss" of wetland acreage and function

Mitigation reflects a sequential process designed to minimize and compensate impacts associated with a proposed action. The initial step in the process is to avoid impacts, followed by minimizing those impacts that cannot be avoided. The final step in the sequence is to compensate for those impacts. For the purposes of this section, it is assumed avoidance and minimization have been achieved to the maximum extent practicable, and that only the requirement of compensation remains to be satisfied. Mitigation described herein generally refers to nontidal wetlands, unless otherwise noted.

Compensatory mitigation is generally done in accordance with the Interagency Mitigation Task Force (IMTF) guidance. The guidance includes sections on mitigation ratios, site selection, plan information, standards for planting, evaluating soils and hydrology, monitoring, and sampling protocols. Mitigation standards and procedures are described in the Section III Management Framework. Federal and State agencies re-formed the interagency team and began meeting in May 2001 to revise and update the guidance.

Issues

1) There is not currently an effective approach for assessing functional replacement and success of mitigation sites. More technical information for improving construction techniques and assessments is needed.
2) Rates for the Nontidal Wetland Compensation Fund do not reflect construction costs and have not been updated since 1991.
3) Funds or incentives for wetland preservation are limited. Key wetlands may be lost or degraded through direct or indirect activities. Preservation of key wetlands and surrounding uplands has occasionally been accepted as a form of mitigation. Preservation may be an increasingly important mitigation option. However, preservation does not compensate for lost wetland acreage.
4) Mitigation project review and monitoring has become increasingly difficult because of staff limitations and shortcomings of databases for tracking progress.
5) Mitigation on private land may sometimes be more expensive at replacing wetland acreage and function than mitigation on public land.
6) Wetland enhancement is generally less preferred as a mitigation option since there is not a replacement of wetland acreage. However, there may be a greater gain in overall wetland functions if enhancement was encouraged as a mitigation option, particularly as part of a restoration element of a watershed plan.
7) Workloads of mitigation reviewers continue to increase, as mitigation projects must be managed from Phase I conceptual plan review through construction and the monitoring period.
8) There are insufficient staff resources to conduct detailed wetland assessments.
9) Limited availability of public land has slowed completion of mitigation sites in the Coastal Bays.
10) Based on results from Pennsylvania, there may be a higher failure rate for smaller mitigated wetlands than for larger wetlands in Maryland.

11) The failure to replace small wetlands such as vernal pools may have resulted in a substantial loss of habitat.
12) Vegetated buffers are important for helping protect wetland function and but may not always be established around mitigation sites.

Recommendations

1) MDE should conduct a case-by-case review of mitigation files and prepare a report on effectiveness of its mitigation program. The report should include reasons for failure. The report should be made available to the work group and public for comment.
2) An independent entity may also conduct a review of the effectiveness of the mitigation projects using public information available from MDE and the Corps.
3) Updated IMTF guidance should be available to the Conservation Plan Workgroup and the general public for comment.
4) Findings of the National Academy of Sciences (NAS) report on mitigation should be evaluated and incorporated into the mitigation program.
5) The IMTF should investigate options for measuring functional success and improving success of mitigation projects. Revised guidance should include techniques for increasing microtopography in mitigation sites, and should use hydrogeomorphic (HGM) assessment to the maximum extent possible.
6) MDE and the Corps should improve their databases for tracking and reporting on mitigation projects.
7) Regulatory agencies should investigate locations within a watershed, including both public and private lands, on which wetland mitigation will replace acreage, desired functions, and be consistent with watershed plans. Applicants should be encouraged to conduct mitigation on potential suitable areas identified through a managed watershed approach.
8) MDE should work with other partners in locating and constructing mitigation sites in the Coastal Bays watershed and complete tasks in the Comprehensive Conservation Management Plan for the Coastal Bays.
9) Existing mitigation and creation programs in the Coastal Bays, (as part of government and nonprofit organizations), should be analyzed for opportunities for increase cooperation and program improvement, to ensure no net loss of wetlands in this watershed.
10) MDE should complete and expand its registry database of suitable mitigation sites, including coordinating this effort with MDA.
11) MDE should seek additional resources for improving implementation of its mitigation program.
12) MDE should update the fee structure for the Nontidal Wetland Compensation Fund.
13) Agencies should improve technology and oversight for mitigating small wetland losses.
14) Vegetated buffers should be established around mitigation sites.

Tasks

1) MDE will make appropriate public information available to interested entities independent review of the regulatory mitigation programs..
2) The NAS mitigation report findings will be evaluated to assist in improving wetland mitigation.
3) A report on the effectiveness of mitigation projects will be prepared by MDE. The review should include: an evaluation of techniques for projects that have successfully complied with

performance standards; reasons for failures to meet performance standards; staff follow up; reports and record keeping; and other factors.

4) Improved protocols for assessing wetland function and improving construction techniques including increased use of reference wetlands where feasible will be developed through the IMTF. Special attention will be given to improving the success of small mitigation projects. Validity of performance standards will also be evaluated, along with use of as-built plans and reference sites for monitoring.
5) MDE and other agencies involved with watershed planning and restoration will work cooperatively to develop or adapt tools and guidance on the most beneficial locations for mitigation sites to support appropriate ecological function.. The DNR GreenPrint database will be included among the potential tools. Mitigation sites in the watershed or other regional plans will include a variety of mitigation options, including suitable creation, restoration, preservation or enhancement areas. The Corps' Section 22 (Water Resources Planning Assistance to States) will be investigated as a potential funding mechanism for this effort.
6) MDE will conduct more education and outreach to promote its registry of approved mitigation sites.
7) MDE will re-evaluate costs of mitigation projects and revise the compensation fund fee structure as appropriate.
8) MDE will attempt to obtain additional staff to work on mitigation projects.
9) Mitigation and creation programs within the Coastal Bays Watershed will be analyzed for areas of improvement, to ensure no net loss of wetland resources.
10) Agencies with authority over wetland mitigation will require vegetated buffers around mitigation sites where feasible.

Objective 3E Identify specific agricultural activities for which expedited wetlands, waterways, or floodplain authorizations can be granted

Issues

Best Management Practices (BMP's) on agricultural land are funded in part by the Maryland Agricultural Water Quality Cost-Share Program. Some of the 29 eligible BMP's designed to reduce soil, nutrients and animal wastes entering state waterways include: filter strips, stream fencing, Critical Area plantings riparian buffers, and sediment basins. The program is administered by the Maryland Department of Agriculture.

Currently, local soil conservation district offices handle permit applications on behalf of farmers, for installing agricultural BMP's. This is a time-consuming activity for the district offices, and the issue has been raised that a general permit for certain agricultural BMP's would be more appropriate, especially in light of the fact that they are installed to improve water quality.

Issues

1) Other activities, including nonagricultural activities that could potentially benefit from an expedited permit, are currently evaluated through the Maryland State Programmatic General Permit process.

Recommendations

1) The main issue identified for further review by this objective is the streamlining of the permit application process for agricultural Best Management Practices (BMP's).
2) Explore options on how to authorize, without a lengthy process, any additional activities that are identified as minor and suitable for expedited review, as Category I activities of an existing MDSPGP.

Tasks

1) The Department of the Environment will work with NRCS and MDA to investigate the appropriateness and feasibility of creation of a general permit for certain agricultural BMP's having minor impacts to wetlands and waterways.

Objective 3F Support training and certification of public and private professionals to ensure accurate delineation of all regulated wetlands

While there are persons working in Maryland who have received provisional certification, no people are considered to be officially certified delineators in Maryland. There are no standard procedures in place that give expedited review to applications with delineations performed by provisionally certified delineators. For additional information about the history of certification of wetland delineators, please consult the Management Framework.

Issues

1) The Work Group recommended establishment of a certification program for delineators. The recommendation arose from concerns that wetland delineations and verifications were not being done consistently, and delineations that were previously approved were overturned. However, if a certification program were in place, a delineation performed or verified by a certified person might still be overturned.
2) A report in 1993 estimated that the equivalent of 3 full-time staff and $220,000 was needed to implement a delineator certification program, based on a joint federal/State prototype. However, Congress did not appropriate funds to implement a national program. The Corps of Engineers has indicated that it will not resume the certification program. However, the State cannot administer the program without additional resources.
3) Additional training and certification for consultants on how to submit complete and accurate information would be useful. The regulated community would have more assurance that delineators have a minimum demonstrated level of competence.
4) Regulatory agencies anticipate using certification of delineators as a means of reducing the number of field visits made by staff. Staff may elect not to visit a site on which the delineation was performed by a certified person.

Recommendations

1) The State and Corps should seek resources necessary to develop a certification program to improve the quality of wetland delineations.
2) Agencies should use and require current technology when evaluating accuracy of wetland delineations.

3) Re-certifications should be required every five years, along with continuing education as appropriate.
4) Certifications should be mandatory for public agency staff reviewing delineations and optional for private persons.
5) Any certification program should include the identification and delineation of all waters (including perennial, intermittent, and ephemeral streams) in addition to wetlands, which are State and federally regulated.

Tasks

1) MDE will evaluate advantages and disadvantages of various options for developing a certification program. Options will include a formal certification program, a Departmental certification, and different testing protocols. Options for partnerships with other agencies and institutions will also be considered.
2) Wetland programs in other states will be surveyed for possible model approaches for certification of delineators. Existing State qualification programs for other natural resource programs, such as implementation of the Forest Conservation Act and Society of Wetland Scientists certification will also be evaluated as possible models for a certified wetland delineator program.
3) MDE and/or the Corps will seek additional resources, if needed, to implement a certification program for wetland delineators. If MDE and/or the Corps cannot fully administer a certification program, the Agencies should form partnerships with other entities and institutions that can provide additional training and testing.

Objective 3G Establish guidelines for integration of wetlands conservation with Maryland's Smart Growth initiatives and local zoning decisions during the permit process

Smart Growth is an initiative geared toward encouraging growth or redevelopment in locally designated areas where infrastructure currently exists or is planned. The primary intent of Smart Growth is to target development and prevent sprawl. More detailed information on the Smart Growth initiative can be found in the Management Framework or by contacting the Maryland Department of Planning.

There are diverse opinions for how integration of wetlands management in Priority Funding Areas (PFA's) should be accomplished. At one end of the spectrum is the viewpoint that authorizations should be more readily issued in a PFA, as an incentive to develop in these areas. At the other end of the spectrum is the view that all wetlands in PFA's should receive added protection, since these areas will be heavily impacted in general, potentially increasing the importance of remaining natural areas (including their ability to filter pollutants and improve water quality). The SWCP Workgroup has stated that efforts should be taken through the wetlands permit process to increase incentives for development in PFA's, in comparison to areas outside of PFA's. The Workgroup also agreed that these efforts should not reduce the level of protection of wetlands resources in these areas.

The development community has identified the following hindrances to development in PFA's:

1) The amount of time and expense needed to identify wetland resources on a project site

2) Time and effort in negotiations to determine suitable resources uses.
3) Time and effort spent in locating suitable mitigation options.

Additionally, the lack of comprehensive pre-identification of wetlands and wetland restoration/mitigation sites in PFA's hinders the incorporation of wetlands conservation early in the planning stages of the development process.

There are also potential problems concerning wetlands management and local zoning decisions. Local zoning decisions may not consider natural resources such as wetlands in the planning process. Landowners or developers are also often unaware of the regulations governing use of wetlands. Thus, landowners may plan to use a parcel according to its zoned use, only to find later that regulatory requirements may constrain that intended use, and permits may be difficult to obtain. The identification of wetlands (their type/function) and wetland restoration and mitigation sites in the PFA can also assist in avoiding this problem in targeted growth areas. The earlier the natural resource components of a project are addressed, the less time and money a project should take. With planning, developers may also be made aware of the advantages of maintaining wetlands on-site or even how to incorporate them into landscaping.

Issues

1) No standard guidance from the State is available on how Smart Growth goals should be integrated with wetlands management to promote development and redevelopment in the PFA's while maximizing wetlands conservation. The Corps of Engineers has authority under the MDSPGP-2 and Nationwide permit to limit an alternative site analysis to within a PFA.
2) Landowners and developers are not always aware of the regulatory constraints placed on their lands due to the presence of natural resources.
3) Wetlands and potential mitigation sites in PFA's are typically not identified and incorporated into the planning and zoning process.
4) There are underutilized opportunities for incorporating wetlands management into Smart Growth areas, such as special area management plans (SAMP's), and watershed planning for the Chesapeake 2000 Bay Agreement.
5) There are conflicting opinions on the utility of SAMPs to expedite permit reviews. Some opinions are that Special Area Management Plans or similar tools have not always led to expedited reviews as intended. Other opinions are that the MDSPGP-2 includes adequate provisions for expediting permit reviews.

Recommendations

1) State, federal, and local agencies should work with the environmental and development community to explore ways of facilitating development in Priority Funding Areas, particularly as it relates to wetlands and waterway regulations. This effort will not aim to decrease conservation of wetlands in these areas, but rather to facilitate development of tools such as planning and pre-identification of resources.
2) State agencies should work to incorporate wetlands conservation into Smart Growth planning processes and initiatives.

3) Greater emphasis should be placed on local government and land owner/developer awareness of wetland resource conservation requirements, and ways of integrating conservation into site planning.
4) Federal, State, and local government agencies should work together to integrate Smart Growth, development of SAMP's, and watershed planning for the Chesapeake Bay Agreement, for wetlands conservation goals.
5) The State Programmatic General Permit, Corps of Engineers, and State wetland reviews should ensure that expedited processing of activities consistent with SAMPs does occur..

Tasks

1) MDE, MDP, and DNR will work with the environmental and development community to explore ways of facilitating development in PFA's. MDE will explore ways of facilitating development in PFA's particularly as it relates to wetlands and waterway regulations. All agency efforts will focus on techniques such as planning and pre-identification of resources, and will not seek to lessen protection of wetland resources..
2) MDE and the Corps will explore the possibility of establishing priorities for the order in which permit applications are reviewed, according to whether a proposed project is located within a PFA or not.
3) MDE and DNR will work with other State and federal agencies and local governments to develop disincentives for development outside PFA's.
4) MDE and the Corps will work with representatives from local government, the environmental community and the development community to develop guidelines for incorporating Smart Growth objectives into the SAMP process.
5) MDE and DNR will work with the Chesapeake Bay Program to incorporate Smart Growth objectives into the Chesapeake Bay 2000 Agreement watershed planning commitments.
6) MDE will work with MDP and local government representatives to develop guidance for local departments of planning and zoning to incorporate State wetland goals when making planning and zoning decisions.
7) MDE and the Corps will work with local governments to pre-identify and delineate through jurisdictional determinations, existing wetlands in PFA's.
8) MDE and DNR will work with local governments to pre-identify suitable wetland restoration sites for projects occurring within PFA's. MDE and the Corps will also work with local governments to identify the sites within PFA's that are suitable for compensatory mitigation. These processes should be done in concert with SAMP, CB2K watershed planning activities, and local zoning and resource management projects.
9) MDE and the Corps will work to establish wetland mitigation sites to offset wetland losses in PFA's resulting from projects that do not require permittee mitigation.
10) MDE and the Corps will work with MDP, the building industry, and local governments to develop site design guidelines, which will be made available to developers in PFA's. The design guidelines will inform developers of the potential impacts of wetlands and waterways regulations on proposed developments. It will also explain what development strategies and design features would decrease the review time needed for their project and the time and cost needed to make plan revisions, while increasing wetlands conservation.

Objective 3H Adopt methodologies for assessing cumulative wetland impacts and benefits on a watershed basis, and a means for integrating such assessments in wetland permitting, conservation, management, and planning

Despite a federal definition and requirements for considering cumulative impacts, there are no uniform review standards to assist permit reviewers or applicants in evaluating cumulative impacts. This has led to confusion and inconsistency among reviews, though there is some guidance available for evaluating cumulative impacts in *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality, 1997). In 1998, MDE produced the document: *Comprehensive Nontidal Wetland Watershed Management Plan: A Guide for Local Governments* that includes a chapter on how to evaluate cumulative impacts (Clearwater et. al. 1998).

Cumulative impacts have been considered in the following manner:

1) Evaluating an impact beyond a single parcel or action. Many actions may appear insignificant when viewed alone, but may result in major acreage and function losses if the same action were repeated many times along a wetland complex.
2) Considering the implications of whether or not authorization of a proposed activity will set a precedent. While the activity in an isolated case may not have substantial adverse impacts, conducting many similar activities may result in extensive wetland acreage losses and degraded functional capacity. An example could be construction of numerous but individually authorized single-family homes and associated structures and yards.
3) Considering whether or not a project triggers other actions. The best examples of this situation are infrastructure projects such as roads and utilities. Limited construction of roads and utilities slows development by maintaining physical and building constraints on sites in the subject area. Some sites will not support onsite septic systems, and others may require too much travel time to other areas to be appealing to many new landowners. The addition of infrastructure removes the constraints, so that the subject area is expected to undergo a building "boom." For these reasons, proponents of projects such as new sewer lines are often asked to document what other impacts may occur as a result of the sewer line.
4) Considering indirect impacts. As discussed previously, indirect impacts encompass an area beyond the specific activity (grading, filling, building structures, etc.) but become part of a combined impact. For example, a water quality impoundment in a stream may provide adequate treatment at the point where runoff enters the facility. However, streams, slopes, and other wetlands may be degraded at points upstream and downstream of the facility. Fish passage would also likely be lost.
5) Considering the past history and condition of an area may also be part of a cumulative impact analysis. The development of an area, especially areas with high percentages of impervious surface can generally be expected to degrade adjacent natural resources. Older areas often lack stormwater management, and over years the continued discharge of polluted runoff reduces diversity of aquatic life and results in other low water quality indicators. The area, degraded as it is, may still represent the only resource of its kind and/or the project may represent an opportunity to address past environmental problems by requiring additional treatment measures.

Issues

1) There is no existing standard, and limited specific guidance, on which to base cumulative impact reviews.
2) State and federal standards must be consistent to avoid conflicting decisions and guidance to applicants.
3) Adequate staff levels will be necessary to implement additional comprehensive review standards.
4) The cumulative effects of permitted impacts and other regulated activities on wetlands are not formally assessed by MDE's wetland regulatory Program. Although statistical data concerning numbers of acres impacted is reported, the spatial distribution and cumulative effects of authorized activities are not well documented or analyzed due to the nature of the current database program and staff requirements. These cumulative effects include the spatial distribution of impacts, degree of segmentation of contiguous wetlands, loss of area along the wetland perimeter, quantitative loss of function, and ecological changes.

Recommendations

1) MDE and the Corps should work together to establish standard and improved guidance on reviewing cumulative impacts.
2) There should be a central location e.g. agency Web site showing where currently proposed and past activities in wetlands and waterways are located. Location of activities should be shown in relation to other resource management goals and resource condition.

Tasks

1) MDE and the Corps of Engineers shall review current policies, methods, and precedents for evaluating cumulative impacts and summarize findings in a report.
2) MDE and the Corps shall attempt to set standard review practices for evaluating cumulative impacts under different scenarios, including permit reviews and watershed planning and report on the findings of this effort.
3) MDE and the Corps will develop GIS-based methodologies for tracking all regulated/reported wetland impacts to be able to see through mapping, if small impacts are having a cumulative and unacceptable impact on wetland resources.
4) Federal and State agencies should compile and increase sharing of watershed information to establish trends of cumulative impacts.
5) MDE and the Corps shall seek resources needed to establish a comprehensive database on impacts, wetland and water quality condition, and other resource management goals.

Objective 3I Evaluate issues and make recommendations concerning updating the 1973 tidal wetland maps for improved regulation and management

Maryland's tidal wetland maps have not been formally updated since 1972. The State (MDE, Tidal Wetlands Division) makes formal amendments to the maps on a parcel-by-parcel basis for areas that are found to be in error. The public often initiates amendments to the tidal wetland maps. A potential map inaccuracy may be recognized when a property owner pursues development or re-development of a parcel where they believe wetlands have been improperly

delineated. The property owner must document the potential inaccuracy and submit this documentation to the State, along with a justification for their request. The State (MDE, Tidal Wetlands Division) then determines whether an amendment to the tidal wetland boundary is appropriate. If an amendment is approved by the State, the original map is amended, and a new map is produced and filed in County land records. These procedures can be referenced in State statute (Environment Article, Title 16. Wetland and Riparian Rights, Subtitle 3. Private Wetlands, S16-303. Modification of Wetlands Maps).

Issues

1) Since completion of the maps in 1972, the upland boundary of tidal wetlands has moved as a result of various influences, including shoreline erosion and accretion, and sea level rise.
2) Over time, the maps have become less accurate for their purpose of identifying the presence of tidal wetlands on parcels of property. These inconsistencies have reduced the predictive function of the maps for current and potential landowners, developers, and local planning agencies.
3) Wetlands not identified on the tidal wetland maps fall under the jurisdiction of the Nontidal Wetlands Protection Act, regardless of tidal influence. This confusion of jurisdiction can lengthen the permit review and authorization process.
4) For individual parcels, changes to the tidal wetland boundary require field delineation of wetlands by the Tidal Wetlands Division, landowner notification, and a public notice and hearing. Changes to the tidal wetland maps require notification of all landowners whose properties contain tidal wetlands. The process for modifying tidal wetland maps (described in statute, Environment Article 16-304) is time consuming and extremely costly because a title search is required and each landowner identified must be notified by registered mail.
5) Map inconsistencies have potential implications for other State laws and programs that rely on the accuracy and use of the Tidal Wetland Maps for protection of wetlands and other resources.
6) Alternatives for the existing maps include: a) retaining the maps in their current state; b) periodically updating the maps, and c) eliminating the maps and change statute to require regulatory delineation of tidal wetlands on a parcel-by-parcel basis.

Recommendations

1) MDE should resolve the inaccuracies associated with the tidal wetland maps.

Tasks

1) MDE will investigate various options for resolving the problem of inaccurate tidal wetland maps. Costs, benefits, and disadvantages of various options will be considered and described in a report.

Objective 3J Identify new ways to promote wetland conservation; encourage development and use of innovative ideas and programs

There is a need to re-examine current practices for promoting wetlands conservation, to see if there are opportunities to increase participation in existing programs, help organizations and programs to learn and benefit from each other, and to create new education and conservation opportunities where gaps exist.

Issues
1) There are many different wetlands conservation programs and initiatives throughout the State, and no central catalogue of what and where each of them covers.
2) Current conservation programs functioning independently could benefit from increased interaction.
3) Schools, other organizations, and individuals desiring small-scale restoration projects or other wetlands conservation activities can have a difficult time in locating funding, expertise, and appropriate authorization to conduct restoration activities.
4) Soil conservation districts (SCD's) could benefit from increased resources pertaining to wetlands conservation.

Recommendations
1) A central "clearinghouse" of information on wetlands organizations, programs, initiatives, etc. should be developed and made available to the public.
2) Resource information should be provided to individuals, schools, and other organizations desiring to perform small-scale wetland restorations or other wetland conservation activities on their property.
3) Resource information should be provided to SCD's on wetlands conservation practices and tools available.

Tasks
1) MDE will complete the *Wetlands Programs and Laws Database*, to reflect organizations participating in wetlands conservation activities. (The database is currently available on MDE's website).
2) MDE will create an on-line "forum" on their website, and an email listserv, where organizations, wetlands professionals, and the general public can post questions, answer questions, and share ideas on wetlands conservation.
3) MDE and DNR will work with partners to develop resource materials to aid individuals, schools, and other organizations to carry out small-scale restoration projects, or other wetlands conservation activities.
4) MDE and DNR will work with partners to develop resource materials to aid SCD's in maximizing wetlands conservation in their district.

Objective 3K Explore options for and barriers to wetland mitigation banking and consolidated mitigation in Maryland

Mitigation banking involves the creation, restoration, and enhancement of nontidal wetlands to compensate for future wetland impacts from multiple projects. Mitigation banks are established in anticipation of future needs for mitigation projects within a watershed. Banking is a controversial approach to mitigation and the approach has both supporters and opponents. The controversy is reflected in the nontidal wetlands laws and regulations, with some provisions seeming to encourage banking, while other language makes banking less desirable. Mitigation banking, like other forms of mitigation, does not eliminate the requirement for an applicant to avoid and minimize wetland impacts.

From an environmental viewpoint, some perceived advantages of mitigation banking include:

- The likelihood of success of one large project vs. many small projects is increased. More attention may be given to construction of the mitigation site according to approved plans when mitigation is done as a business venture in its own right.
- Conducting the mitigation project before existing wetlands are impacted can reduce or eliminate the lag time between losses of functions and replacement of those losses.
- Grouping several mitigation projects at one site results in a larger wetland than would have been created otherwise. Larger wetlands have potentially more water quality and wildlife habitat benefits than a higher number of smaller wetlands, all other factors being equal. Larger sites are easier to manage and monitor.
- Bonding and monitoring are required for a longer period of time.
- Higher ratios may help offset mitigation failures.
- May be more effective as a mitigation approach for compensation of small impacts.

From an administrative standpoint, some perceived advantages include:

- More time can be devoted to follow up and monitoring due to the smaller number of sites.
- Less time is required to review individual projects.
- Numerous permittees may transfer responsibility for the mitigation to a single entity.

Some perceived disadvantages of mitigation banking include:

- Increased ratios when mitigation is accomplished through banking. These requirements in State law and regulation make banking more costly to applicants than for other forms of mitigation.
- Low wetland losses make banking uneconomical except in certain areas.
- The service area desired by mitigation bank operators may be quite large and distant from the area where losses occur. Current regulations limit the size of the service area.
- Failure of a mitigation bank would result in a greater setback to achieving no net loss than would the failure of a single-permit mitigation site.
- Early sale of credits before a bank is established may result in pressure on agencies to accept use of a mitigation bank without considering other options.
- Bonding and monitoring are required for a longer period of time.
- Negotiations between agencies and the bank operator may be very lengthy and complicated.
- There may be an overall loss of wetland function if wetlands are not replaced according to hydrogeomorphic principles or in an appropriate location in the watershed.
- Bank or consolidated mitigation sites may not be in close proximity to a specific impact site.
- A belief by some that there will be less avoidance and minimization if a mitigation bank exists.

Issues

1) Mitigation banking has been very limited in Maryland. This has been attributed to several factors:

a) Higher acreage for using a bank rather than another form of offsite mitigation;
b) Service area for banks is initially small (within eight-digit watershed segment), according to regulation. Applicants must first demonstrate that there are not suitable alternatives within the eight-digit water segment before options for mitigating in a larger water sub basin can be considered.
c) Complicated and lengthy process for agencies to enter into an agreement;
d) There are low wetland losses Statewide;
e) Regulatory requirements that have the perception of preventing wetland banks from being established on mined sites. Wetlands that develop incidental to mining activities may currently be filled as part of a reclamation plan without any other requirements. Wetlands are sometimes not allowed to develop because they may be regulated after the reclamation is completed.

2) The lack of control over sale of credits is perceived as a problem. Credits may currently be sold by mitigation bankers at any time, but proposals to use a mitigation bank are not considered until certain conditions are met. Conditions include a signed banking agreement, bonding, and approval of design plans, and construction of the bank.
3) The lengthy process for reviewing and approving mitigation and/or consolidated banking may delay the construction of beneficial projects.
4) Mitigation banks can be beneficial in certain locations, including areas where future development may otherwise impact the area and limit voluntary wetland restoration, and areas where large restoration efforts are needed. Mitigation banks may also serve as an economic development option in certain areas and reduce land alterations that would result in additional impervious surface.

Recommendations

1) The conflicting language and policies in mitigation banking should be resolved.
2) The Corps of Engineers and MDE should develop consistent requirements for reviewing and approving banks and banking agreements.
3) Banks should be located, designed, and constructed to replace wetland functions according to hydrogeomorphic principles. Application of these principles into mitigation projects would include locating wetlands in the appropriate landscape position (adjacent to rivers, headwaters, slopes, flats, etc.) and watershed to replace functions of lost wetlands.
4) Mitigation banks should be encouraged in circumstances where it is the most beneficial alternative.

Tasks

1) MDE will review regulations to implement a consistent approach to mitigation banking. Regulations will be revised as needed with stakeholder input.
2) Regulatory agencies will develop additional guidance for when mitigation banking is a desirable mitigation option and should be encouraged, especially considering the potential to create/replace wetland functions and reduce impervious surface.

GOAL 4: Identify Wetlands for Priority Protection and Restoration

A standard component for a wetland conservation plan is the identification of priority areas for preservation and restoration. While regulatory programs are essential in protecting wetlands, they are not prohibitive toward activities in wetlands. Activities are often reduced in scope to limit direct impacts in the wetland, but there is little State or federal control over activities adjacent to the wetland or in its watershed that influence the wetland's ability to continue to perform the same functions. Preservation of a wetland's acreage and function depends on surrounding land use management and the willingness of the wetland landowners to conserve the resources on their property.

For the purposes of this plan, "preservation" shall refer to actions that maintain the existing size, functions, and values of a wetland. Actions 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, though some preservation may occur through the regulatory programs. Types of actions necessary to adequately preserve a wetland will likely vary according to the characteristics of the wetland itself, the desired functions and 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 (public or private) and/or through local programs and incentives to ensure that certain wetlands are subject to no activities that reduce the wetland's size or valued functions.

Objectives

A. *Conduct watershed-scale identification and prioritization of key wetlands and potential restoration sites; identify mechanisms for preservation and restoration of key wetlands*
Identification of these sites will help to set priorities for those who have available resources for preserving, restoring, or protecting wetland resources. In doing so, this objective will insure that increased protection of these areas will not hamper existing landowner rights, and that prioritization of key wetlands will not result in the de-prioritization of other wetland sites from their current level of protection

B *Identify and address issues relating to local governments and wetland preservation, conservation, management, and watershed planning*
This will involve local government initiatives, which can have an impact on wetland resources

Objective 4A Conduct watershed-scale identification and prioritization of key wetlands and potential restoration sites; identify mechanisms for preservation and restoration of key wetlands

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 100-foot buffer and are mapped for guidance purposes. WSSC's may be designated due 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 and 1990's. Wetlands are also often contained in Green Infrastructure networks, which are targeted for preservation through the State's Green Print program.

Current preservation efforts include government acquisition programs, such as Program Open Space, GreenPrint, and Rural Legacy, and private acquisition programs such as those administered by the Nature Conservancy and the Conservation Fund. Federal programs such as the Wetlands Reserve Program also have funds for acquiring permanent easements.

Restoration of Key Wetlands

In 1997, Maryland established a voluntary goal of restoring 60,000 acres of wetlands in Maryland. The figure was based on estimated losses of wetlands since the 1940's, when many wetlands were lost due to channelization and suburban growth.

MDE has a grant to identify priority wetland restoration and preservation areas. As a result of the project, sites which have the best potential for performing desired wetland functions will be identified.

Preservation/Protection Issues

1) Protection of priority wetlands could result in lessened protection for other wetlands, if all wetlands are ranked for importance. In addition, increased protection for priority wetlands could have implications concerning landowners' rights to use their land.
2) There is a greater demand for funds that can currently be accommodated by acquisition or incentive programs.
3) Wetland mitigation may be an underutilized tool for preservation.
4) Staff limitations may prevent the most effective promotion of preservation of key wetlands into watershed plans.
5) Landowners and local governments may in some cases view preservation as eliminating ability to develop land.
6) Despite buffer and expanded buffer requirements, buffers are not always regulated to maintain their role in protecting wetland function.

Restoration Issues

7) The agricultural community is concerned that wetland restoration has so far been targeted to agricultural lands. Other land uses should also be targeted.
8) Establishment of wetlands on farmland competes with other best management practices such as riparian buffers, that are perceived as having more benefits.
9) Landowners are concerned that voluntarily created wetlands may be regulated in the future. This is perceived to be a disincentive especially by the agricultural and mining communities. However, wetlands established through cost share programs may be put into production without additional State or federal requirements if the land is converted back to farmland within 5 years after the set aside agreement ends. Wetlands created incidental to mining programs may also be lost as part of a reclamation plan without authorization under the State nontidal wetland program.
10) The time required to obtain authorization for restoration activities on private land can be a deterrent for wetlands restoration.
11) Confusion exists over the regulatory process for establishing wetlands and future regulatory status of voluntarily established wetlands.
12) Few programs exist for funding wetland restoration on non-agricultural land. One program that does provide funding for other land uses is the Wetland Reserve Program, which has insufficient funding to meet demand.
13) Participation in the Conservation Reserve Program (CRP) is limited by its current level of funding.
14) MDE, other State resource agencies and the Corps may be limited in partnering on wetland restoration projects due to a lack of staff.
15) The possibility of attracting endangered species and possible future land restrictions is a deterrent. However, the U.S. Fish and Wildlife Service does have provisions to allow taking of endangered species in voluntarily restored wetlands. Maryland may also consider this issue under its applicable law.
16) Watershed restoration and planning efforts should be linking to other watershed planning efforts such as offsite stormwater management planning.
17) There is no holistic listing or mapping of existing and potential restoration (and mitigation) sites.
18) There will be impacts and alterations to any site on which creation or restoration takes place. In certain instances, the establishment of a wetland may be less beneficial than the existing land use.

Preservation/Protection Recommendations

1) MDE should investigate situations in which wetland preservation may be acceptable as mitigation.
2) Protection of priority wetlands should not result in lessened protection for other wetlands. Also, increased protection for priority wetlands should not alter private landowner rights, except when landowners voluntarily agree to additional restrictions.
3) Federal, State, local and private organizations should work more closely to coordinate targeting of wetland preservation efforts and identify improvements needed for existing programs.
4) Activities in buffers and expanded buffers should be reviewed more stringently to ensure that they continue to function and support adjacent wetlands.

5) Resolve obstacles to State/federal sponsorship, land acquisition, restoration, and investigations that would support wetland restoration and preservation.

Preservation/Protection Tasks

1) State agencies will identify areas of overlap between agencies involved in wetland preservation and preservation planning. Agencies and private entities will work together in defining specific roles and tasks to improve wetland preservation efforts while reducing redundant or conflicting efforts.
2) Determine criteria for identifying areas as key or priority wetlands that merit preservation. Possible criteria are listed below. ***(Note-MDE is not suggesting that all of the following types of wetlands be targeted for preservation. The list is intended to provide examples of wetlands that local jurisdictions, the public, and stakeholders may decide are important in their watershed or planning area. MDE does recommend including nontidal wetlands of special State concern among wetlands targeted for preservation.***

a) Nontidal wetland of special State concern
b) Wetlands with rare, threatened, or endangered species;
c) Wetlands having unusual or unique community types;
d) Wetlands providing important buffers or water quality improvement to water supply sources;
e) Wetlands providing important flood hazard reduction function;
f) Wetlands providing habitat for commercially or recreationally important species;
g) Wetlands already identified as important or priority areas in State or local planning documents or by federal designation;
h) Wetland complexes that remain in urban areas;
i) Wetlands that are part of the Green Infrastructure Assessment; and
j) Other criteria identified by local stakeholders.

3) Identify major tools and programs that directly or indirectly preserve wetlands. Tools may include:

a) Government and private acquisition and easement programs;
b) Local land use and zoning categories, including open space provisions;
c) Landowner-placed restrictions on property;
d) Regulatory programs.

4) Assess strengths and weaknesses of existing preservation programs with assistance and comment from local and private entities engaged in preservation. Make recommendations on program improvements. For federal programs, jurisdictions shall attempt to provide a consolidated recommendation for improvements to existing programs. Investigate incentives for voluntary landowner preservation efforts. Assist local government in obtaining financial and technical assistance in identifying key wetlands and implementing preservation plans.
5) Identify components of wetland preservation that are potentially consistent or inconsistent with other elements of watershed and local land use planning. Components may include stormwater management, clustering, open space, steep slopes and erodible soils, infrastructure expansion and restrictions. Encourage and assist local governments in incorporating compatible wetland preservation elements into standard local planning documents.
6) MDE, DNR, and MDP will coordinate and conduct outreach with local governments, citizens and stakeholders to identify priority wetlands of local interest. MDE, DNR, MDP and other

appropriate agencies will also share in promotion of watershed planning with a component for protection of priority wetlands.

7) MDE and DNR will conduct joint training for local governments and landowners on wetland preservation for State and local land acquisition efforts, particularly for Rural Legacy, Program Open Space, and GreenPrint funding. MDE and DNR will assist local governments in identifying wetlands and key wetland areas on current and proposed acquisitions.
8) Identify and describe specific key wetlands and assess direct and indirect threats. Evaluate other wetlands for designation as nontidal wetlands of special State concern. Assess, complete, and update management recommendations for nontidal wetlands of special State concern. Threats may include proposed or potential future activities in the wetland; fragmentation; and alterations to existing surface or groundwater flow. Descriptions should include size and location of wetland and rationale for designation as a key area, and extent of current protection or preservation measures in place or needed.
9) Begin developing management recommendations for additional key and priority wetlands. Recommendations should be made for the wetland itself and an appropriate surrounding area and part of the watershed with the greatest influence on future wetland condition. Recommendations may be for vegetation management, maintenance of connecting corridors, wildlife management, contributing stormwater management, adjacent zoning, and other similar management approaches. Initial focus will be on nontidal wetlands of special State concern and wetlands in the Green Infrastructure network.
10) Establish mapping and tracking database for progress in meeting the Chesapeake 2000 Bay Agreement preservation goal. Incorporate local information and tracking into standard database.
11) MDE will consider the benefits and disadvantages of expanding the buffer around nontidal wetlands of special State concern.
12) Amend regulations as needed to ensure that activities in buffers are reviewed more stringently.

Restoration Tasks

13) The Departments of Natural Resources and Environment shall work with other State agencies managing land holdings, including correctional facilities, to identify opportunities for wetland restoration.
14) Follow several restoration projects for use as models for implementation.
15) Encourage more partnerships between government, business, agriculture, and non-profit entities to conduct wetland restoration.
16) Conduct outreach to owners of non-agricultural lands, including corporate holdings, to encourage additional wetland restoration. Analyze land use data to determine areas that provide the most significant opportunities for restoration activity.
17) The Departments of Environment and Natural Resources will coordinate in the identification of priority wetland restoration areas. The agencies will also work cooperatively with local governments and stakeholders and integrate wetland restoration with other planning and restoration efforts. Other efforts will include GreenPrint, Rural Legacy, Watershed Restoration Action Strategies, Tributary Strategies, stormwater management, riparian buffers, and water quality improvements. Identification of priority wetland restoration areas will include a focusing on establishing wetlands where there is an ecological benefit would

be obtained; where the wetland would be a natural part of the landscape; and where other land resource benefits would not be adversely impacted.

18) Monitor progress of selected model projects and make progress to streamline and improve process of restoration.
19) Propose policy, regulatory, or legislative changes to increase incentives for new projects by private, public, or corporate landowners.
20) Analyze existing funding programs for wetland restoration and identify gaps. Recommend actions to address those gaps.
21) Encourage the Chesapeake Bay Program partners and National Estuary Program to enhance advocacy on behalf of the region to ensure that Maryland receives a fair share of federal funding for restoration activity.
22) MDE, other State resource agencies, and the Corps should establish a protocol for joint restoration projects, in various circumstances.
23) Promote the Landowner Referral Service in the Coastal Bays and other areas of the State and generate a list and maps of current and potential private restoration (and mitigation) sites.
24) Target wetland restoration and creation in the Coastal Bays in watersheds where losses have historically occurred. Existing site searches such as the U.S. Army Corps of Engineers study of Ocean City and vicinity will be considered in the targeting process.
25) State agencies will assist Worcester County in implementing tasks for wetland restoration and protection as listed in the Comprehensive Coastal Bays Management Plan.
26) State and federal agencies will identify areas of overlap between agencies conducting wetland restoration. Agencies and private entities will work together in defining specific roles and tasks to improve wetland restoration efforts while reducing redundant or conflicting efforts.

Among other actions that will be undertaken to accomplish this objective, the following two questions have been included in the Local Government Questionnaire (Figure IV.III), which will help to identify local resources and concerns for identifying key wetlands:

Question 7. What provisions are in place in your jurisdiction for identifying wetlands and/or other key natural resource protection features?

Question 8. What incentives do you think would be most effective in encouraging the development of local watershed plans, including watershed plans that incorporate wetland conservation?

Question 12. There are several voluntary efforts in place for wetland restoration and preservation. Would the county be interested in working with the State to pre-identify priority areas? If so, which program should be contacted? Please list any efforts, if any, already underway to accomplish this in your county.

Objective 4B Identify and address issues relating to local governments and wetland preservation, conservation, management, and watershed planning

Currently the full extent which all counties across the State integrate wetlands preservation, conservation, and watershed management into local planning and land management, is unknown. There is both a potential at the local level to increase wetlands *conservation* through planning and management, and a potential to increase wetlands *impacts* through planning and management that does not fully incorporate wetlands conservation.

A workgroup of various State agency representatives is developing a strategy to promote watershed planning to meet some of the commitments under the Chesapeake Bay Agreement. The strategy includes completion of a local government survey to identify watershed planning that is currently underway, approaches to improve services and funding, and support and provide incentives for watershed planning. A list of potential benefits includes:

- More efficient and effective permit process: Watershed planning may identify sensitive resources and direct development away from areas where wetlands and other resources are targeted for protection. The ability of a plan to influence permitting decisions will depend on the type and extent of plan and its integration with the specific regulatory program and requirements.
- Community support for local development strategies: Proposed development patterns are more likely to be supported when balanced by resource protection and restoration concerns.
- Targeting of funds and technical assistance to areas of greatest need and local and community support.
- Potential for saving developers time and money: A watershed plan integrated with regulatory program standards would provide greater certainty to the regulated community and resolve certain permit issues through the plan, rather than by case-by-case permit review.
- A process for addressing citizen concerns for the protection of wetlands, water and other natural resources.

Additional information on the role that each agency plays in developing local watershed management plans can be found in the Management Framework.

Issues

1) Wetland conservation has the potential for improvement at the local level, dependant on current planning and management practices.
2) There is increasing redundancy between the Departments of Natural Resources and Environment, in planning functions. Both agencies conduct wetland and watershed planning, training, and the development of technical tools. This management approach could be improved upon, to increase efficiency of use of staff and funding.
3) Both MDE and DNR are limited in their capability to aid local governments in watershed planning, by current levels of staff and funding.
4) The Corps Section 22 program is currently underutilized as a funding source for planning.

5) The Chesapeake 2000 Bay Agreement calls for the development of local watershed plans in 2/3 of the Bay watershed. This effort could benefit from added coordination with local jurisdictions and various established State efforts.
6) Another issue which may become more critical is the sometime conflict between traditional comprehensive planning and watershed planning. Watershed planning is increasingly being encouraged by agencies with funding to support environmental and natural resource conservation, restoration and planning. Watershed planning is also the focus of several commitments under the 2000 Chesapeake Bay Agreement, and is promoted for improved management of water and natural resources, focusing on assessment of resources, their conservation, and targeted restoration and protection. Traditional comprehensive planning addresses water and natural resources concerns to varying degrees. In local jurisdictions with planning area boundaries that do not align with watershed boundaries, improved resource conservation may still be achieved through consideration of watershed condition and responses to land management.
6) The geography and wetlands of Maryland are very diverse throughout Maryland. The differences in wetland distribution, extent, function and other characteristics will require different management and conservation approaches.

Recommendations

1) Information should be obtained on the extent to which local jurisdictions currently incorporate wetlands conservation and management into planning.
2) Issues should be identified by methods including contacting local governments, pertaining to local planning needs, incentives, tools, interest levels, and roadblocks to development of local watershed plans. This action should be tailored to meet local goals and planning requirements.
3) An effort should be made to increase promotion of watershed planning to local jurisdictions.
4) Agencies should identify appropriate tasks and roles in wetland and watershed planning, to increase efficiency and improve results.
5) Maryland should coordinate its watershed planning and conservation efforts with other States in the Bay Watershed, to the greatest extent practicable.
6) Wetland management should be further tailored to address the needs of local stakeholders and regional physiographic conditions.

Tasks

1) MDE will incorporate the following questions into the local government questionnaire (listed under Objective 3C), which will be used in each county to identify local issues:
   Question 6. In general, what are your organization/jurisdiction's greatest concerns, interests, and obstacles concerning wetland conservation, regulation, protection, and management?
   Question 8. What incentives do you think would be most effective in encouraging the development of local watershed plans? *Example*: additional funding or technical assistance might encourage your jurisdiction to complete a watershed plan.
   Question 9. To what extent does your jurisdiction currently incorporate wetlands conservation into planning efforts?
2) MDE, DNR, MDP, and the Corps will work together to identify the roles that each should play in the development of local watershed plans.

3) MDE, DNR, MDP and the Corps will work with partners to develop guidance for local jurisdictions on how to incorporate wetlands conservation and management into local planning, and land use management including design guidelines and subdivision regulations, both for the Chesapeake 2000 Bay Agreement, and for traditional local planning efforts. Included with this guidance should be tools for identification and conservation of wetlands and water resources. This effort should be coordinated with that of the Sound Land Use Workgroup.
4) MDE will work with MDP to incorporate wetlands conservation into local planning review.
5) MDE and DNR will coordinate their efforts on the above tasks with other States' efforts in the Chesapeake Bay watershed, to the greatest extent practicable.
6) The Department of Natural Resources will coordinate with other agencies in preparing a strategy to meet the Chesapeake Bay Agreement watershed commitments. DNR will also coordinate development of a guidance manual on watershed planning.
7) MDE and other appropriate agencies will begin efforts to further identify and address wetland management issues unique to different parts of Maryland.

GOAL 5: Increase participation in wetlands preservation, restoration, enhancement and stewardship

Objectives

A. Increase ecological and economic incentives for all participants of wetland conservation, preservation, restoration, enhancement, and stewardship

B. Expand public knowledge and appreciation of the ecological and economical functions and values of wetlands through education and research
MDE participates in various programmatic activities, as well as local and State sponsored events that promote public outreach and education. These activities and those of other federal, State and voluntary agencies will be described.

C. *Explore the establishment of provisions to safeguard future property uses for wetlands that have been voluntary created or restored*

Objective 5A Increase ecological and economic incentives for all participants of wetland conservation, preservation, restoration, enhancement, and stewardship

There are a number of established programs which provide incentives to landowners and the general public for wetland conservation, preservation, restoration, enhancement, and stewardship. However, in order to reach the Governor's restoration goal of 60,000 acres and the Chesapeake Bay Program and Coastal Bays wetlands goals, additional incentives will most likely be required to achieve further resource gains.

Issues

1) The CRP program has not received additional funding to increase wetland conservation on agricultural lands. Additionally, other agricultural wetlands conservation programs could benefit from expanded funding sources.
2) Financial incentives for preservation are currently underutilized, including tax reductions for conservation easements.
3) There is a need for additional incentives for volunteer stewardship of wetlands to increase public participation in wetlands conservation.
4) Few economic incentives are available to non-agricultural landowners for wetlands conservation, restoration, or preservation activities
5) Wetlands restoration and conservation efforts could benefit from further integration with existing resource-based programs, including programs concerning land conservation, wildlife restoration, recreation, flood prevention, and regional stormwater management.

Recommendations

1) Additional funding should be pursued for CRP, WRP, and other agricultural programs promoting wetlands conservation.
2) Tax reduction incentives should be expanded and/or be more widely publicized, to increase preservation of wetlands on private land.
3) Volunteer programs should be evaluated for potential participation incentives. This should include recruitment of high school students for wetland stewardship activities, to fulfill community service requirements.
4) Further options should be explored to encourage wetlands conservation on private, non-agricultural land.
5) Environmental conservation and land management activities should be explored for opportunities for wetlands conservation, to increase the ecological incentives for wetlands restoration.

Tasks

1) MDA, along with other agencies and members of the private community, will identify the steps needed to take to increase funding for wetlands conservation activities on agricultural land.
2) DNR will coordinate with the Maryland Environmental Trust, to expand wetlands preservation incentives and public knowledge of these incentives, for wetlands placed in conservation easements.
3) MDE and DNR will work with the Department of Education, the Chesapeake Bay Foundation and other nonprofit organizations to encourage high school student volunteer

participation in wetlands stewardship activities, and ensure the acceptance of these activities for community service requirements. These organizations will also pursue recruitment of other members of the public needing community service hours, to carry out wetlands stewardship activities.
4) CBF, DNR, and MDE will work with private landowners including individuals and businesses to identify incentives needed to encourage wetlands conservation on private land.
5) CBF, DNR, and the FWS will identify potential wetland conservation opportunities, as part of established wildlife and land restoration programs.
6) MDE will work with local governments to identify potential wetlands conservation opportunities as part of regional stormwater management, water supply and flood control efforts.

Objective 5B Expand public knowledge and appreciation of the ecological and economical functions and values of wetlands through education and research

MDE currently provides or assists in education concerning wetlands through a variety of mechanisms and products. These include the Maryland Envirothon competition; part of a nationwide and Canadian competition for high school students on environmental issues, an extensive wetlands and waterways web site, a restoration guidebook for educators, and various technical and research documents directed toward environmental professionals.

Additionally, MDE and DNR have jointly developed a database of environmental and water resources information called "Surf Your Watershed", which is available online from both agencies' web pages. The database presents extensive environmental information on a watershed basis.

The Chesapeake Bay Program as part of the Bay 2000 agreement has committed to providing every student in the Bay watershed with a "meaningful Bay experience." This effort is still underway, and as yet does not require a wetlands component.

Countless other organizations including governmental agencies and nonprofit organizations provide public documents and other products for public education on wetlands functions and values.

More information on these education and research activities is available in the framework section.

Issues
1) Development of state-of-the-art tools for education and completing relevant research pertaining to wetlands functions and values can be costly. Most tools have been developed only due to agencies receiving federal grants for the project, as little money is available for general education and research needs.
2) Increased educational material is needed on wetland functions, values, and conservation opportunities for teachers, the general public, and for environmental interest groups such as the Envirothon.

3) Various organizations have public educational resources, but many of these educational efforts are not coordinated. Therefore, there could be extensive overlap in their coverage, and members of the public may not know all of the educational resources that are currently available to them.
4) The educational component of MDE's website is in need of updates and expansion.

Recommendations

1) Efforts should be made to establish consistent funding sources for wetlands research and education.
2) Public education and wetlands functions and values research should be coordinated, to reduce overlap and improve public access.
3) Educational material on wetlands functions, values, and conservation practices should be targeted and delivered to homeowners associations.
4) Additional educational materials should be developed for the general public and organizations such as the Envirothon, which focus on wetland functions, values, and conservation opportunities.
5) Promote the "wetland experience" by field trips, meaningful outdoor experience.
6) MDE, DNR, and other appropriate agencies will work with private conservation to promote wetland stewardship.
7) Contact the University of Maryland to determine how economic values of wetland functions could aid in wetland protection.
8) Develop working relationships with the academic and research community to participate in watershed management planning, functional wetland assessment, etc. For example, a class project might focus on a particular watershed and conduct a variety of assessments and characterizations.
9) Create Regional Watershed Management Liaisons - This would involve the creation of several positions. Each position would be responsible for several local jurisdictions and would assist these jurisdictions in the development and implementation of watershed management plans. Each liaison would be familiar (in-house training) with the services provided by all state agencies and would be able to integrate these with each of their local jurisdiction's programs. Another duty would be for outreach to community watershed organizations and educational institutions to enhance and promote assessment, planning and implementation.
10) Involve local governments in efforts to identify values of particular wetlands that support local needs.

Tasks

1) MDE and DNR will work with other governmental and nonprofit organizations dealing with wetlands, including local governments, to coordinate efforts on needs, production and distribution of wetlands educational materials. Included in this coordination should be an establishment of a recommended wetlands curriculum, to guide educators at various institutional levels and the Envirothon program in teaching wetlands functions, values, and conservation opportunities. Educational materials will have a regional focus, concentrating on watersheds such as the Coastal Bays.

2) MDE will provide a "wetlands education hub" on its website, which will list known wetlands educational tools and materials, as well as contacts for all organizations providing public educational materials on wetlands.
3) MDE and DNR will augment the educational components including wetlands restoration on the MDE's Wetlands and Waterways Program website and the DNR Bay Streams Web pages, respectively.
4) State agencies shall coordinate on producing a wetlands segment for the public television program "Outdoors Maryland."
5) MDE and DNR will develop targeted power point presentations for secondary students and private landowners.
6) MDE and DNR shall coordinate with colleges to challenge students to participate in wetland restoration, watershed planning and other wetland management issues inside and out of the classroom
7) MDE will work with the environmental community to develop educational material for homeowners associations on the functions, values, and proper management of wetlands on and around residential property.
8) Agencies will coordinate activities and attempt to create watershed liaison positions.

Objective 5C Explore the establishment of provisions to safeguard future property uses for wetlands that have been voluntary created or restored

In order to increase participation in wetland restoration programs, some Plan Workgroup members and members of the Governor's Wetland Restoration Steering Committee have voiced their needs for having certainty as to the legal restrictions that will or could be placed on their land as a result of wetland restoration.

There is a potential disincentive for a landowner who has future but no current land use plans, to voluntarily undertake a restoration project or allow their property to revert to wetlands. The disincentive occurs because once a wetland is restored in this manner, is falls under regulatory authority (excluding the resumption of wetlands restored under an agricultural set aside program) and future changes in land use may not be allowed.

Issues

1) Landowners not participating in agricultural government restoration programs do not have a mechanism to conduct limited-term wetland restorations, without restricting their future land use options.

Recommendations

1) Government agencies should investigate providing a means to protect a landowner's future use of their property, if they voluntarily and purposefully restore wetlands on their property, outside of an established program.
2) Government agencies should provide landowners with more complete information on potential property restrictions due to wetland restorations.

Tasks

1) MDE will explore and report on the pros, cons, and consequences of regulating voluntarily created or restored wetlands. The report will include consideration of the implications of developing a limited-term voluntary wetland restoration agreement, which would allow a landowner to conduct wetland restoration on defined non-wetland areas, with the ability to return the sites to non-wetlands without legal penalties after an agreed upon date.