Maryland Wetland Program Plan 2026-2030

Submitted by the
Wetlands and Waterways Protection Program
Maryland Department of the Environment

Funded by the U.S. Environmental Protection Agency State Wetland Program Development Grant CD-96329401-1

Maryland Department of the Environment

Maryland Department of Natural Resources

Critical Area Commission
Chesapeake and Atlantic Coastal Bays

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2026 – 2030

Submitted by:

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Maryland Department of the Environment

1800 Washington Blvd.

Baltimore, MD 21230

Prepared in coordination with:

Maryland Department of Natural Resources

Critical Area Commission for Chesapeake and Atlantic Coastal Bays

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Introduction

The State of Maryland has implemented regulatory programs in tidal wetlands since 1972 and in nontidal wetlands since 1991. The State also has regulatory programs for water use and construction in waterways and floodplains. This Wetland Program Plan (WPP) articulates Maryland's goals, objectives, and key tasks to be accomplished over the next several years in the implementation of a balanced and effective Wetland Program in the State of Maryland. This WPP updates the Maryland Wetland Conservation Plan of 2003 and the Wetland Monitoring Strategy of 2010. The WPP encompasses wetland regulation; wetland restoration and protection; monitoring and assessment; and wetland water quality standards.

Maryland's 9,837 square miles of land area lie in five distinct physiographic provinces, making it one of the most geologically and hydrologically diverse states in the northeastern United States. The five physiographic provinces, from east to west, include: the Coastal Plain, the Piedmont, the Blue Ridge, the Valley and Ridge and the Appalachian Plateau.

The topography of Maryland is highly variable; the land surface elevation increases gradually from the Atlantic Ocean across the Coastal Plain, and then increases rapidly over the Piedmont Province and the ridges of the Appalachian Plateau, culminating in the highlands of the Allegheny Plateau in Garrett County. The boundary between the Piedmont and Coastal Plain Provinces is commonly known as the "Fall Line", because of the dense concentration of falls throughout the area, and is characterized by rapid changes in geologic, topographic and hydrologic features.

Estimates of wetland acreage in Maryland have varied over the years due to changes in how wetlands were identified for the mapping effort and accuracy of source data. Thus trend comparisons are challenging due to both inconsistent methods and changes in how wetlands were defined for the inventory. There are an estimated 757,000 acres of mapped vegetated wetlands, based on calculations from digitized National Wetland Inventory maps and DNR-digital orthophoto quarter quad maps prepared in the 1980s - 1990s.

There is additional mapped information showing losses and gains using more recent data from the National Land Cover Data (NLCD). An estimate of these changes has been calculated statewide using NLCD for wetland change in Maryland from 1996 – 2023. The total estimate in 1996 for woody and emergent wetlands was 871,858 acres.

Wetland Change in Maryland			
Wetland change 1996-2023	**Acres of Vegetated Wetland Loss from Land Use Change**	**Acres of Vegetated Wetland Gains from Land Use Change**	**Net change**
Development	-2,184.4	+295.34	-1,889.06
Agriculture	-1,444	+3,510.72	+2,066.72

Wetland Change in Maryland			
Wetland change 1996-2023	**Acres of Vegetated Wetland Loss from Land Use Change**	**Acres of Vegetated Wetland Gains from Land Use Change**	**Net change**
Barren Land	-231.5	0	-231.5
Forest	0	+528.854	+528.854
Water	-8,254.4	+2743.014	+2,743.014
Total	**-12,114.3**	**+7,077.928**	**-5037.21**

There was a net loss of 5,036 acres, averaging -187 acres/year for a 27-year period. Mapped information reflects both natural and authorized changes and is subject to the limitations of the source data.

Palustrine wetlands comprise most of the wetlands in Maryland, followed by estuarine wetlands. Palustrine wetlands are diverse in type, including forested, shrub, and emergent in both tidal and nontidal wetlands, as well as nontidal bogs, fens, and vernal pools.

Estuarine vegetated wetlands comprise an estimated 240,000 acres. (MDE, 2010).

Wetland restoration, creation, and enhancement is undertaken through multiple public and private efforts. Wetland gains may qualify as best management practices toward nutrient and sediment reductions for the Total Maximum Daily Load (TMDL) for Chesapeake Bay and the overall Chesapeake Bay Agreement commitment toward wetland gains of 85,000 new acres of wetlands and an additional 150,000 acres of wetlands to be enhanced. Due to lack of progress toward achieving these outcomes, revised wetland gain goals to replace the previous goals have been developed with a target date of 2040. The new targets are restoration/creation of 3,000 new acres of tidal wetlands and 3,000 acres of nontidal wetlands. From 1998-2024, there were reported gains of 219,992 acres of wetlands restored, created, or enhanced in Maryland. Detailed information about the types and distribution of Maryland's wetlands may be found in the Maryland Wetland Conservation Plan at: https://mde.maryland.gov/programs/water/WetlandsandWaterways/MDWetlandConservationPlan/Documents/www.mde.state.md.us/assets/document/wetlandswaterways/section_ii_baseline_fnl.pdf

Goal Statement

The goal of the Maryland Wetland Program Plan is to provide a list of multi-agency objectives and conservation actions for wetlands and the efficient and effective development and implementation of the EPA's Core Elements Framework (CEF). The CEF actions comprise those

for regulatory, monitoring and assessment, protection and restoration, and wetland water quality standards.

Lessons Learned and Accomplishments

Maryland has found that the tasks identified in the previous plan are difficult to address without additional funding or personnel resources. Nevertheless, progress has been made and some original tasks in the 2021-2025 plan have been completed. These tasks have been revised (see table below) and reflect the progress from development and completion of needed tools to implementation or the updated needs related to the objective. Completion of some tasks have been the result of EPA State Wetland Program development grants. Other tasks for implementation have been reliant on work by short-term personnel for data management. More consistent additional support in the form of funding or personnel is needed for further progress toward completing many tasks or maintaining the ongoing tasks in a timely and effective manner.

Despite limited resources, Maryland agencies have initiated or completed a number of tasks since the last WPP began in 2021. Many of these are related to digital information management and database expansions. Funds were received and progress made in developing online screening and application submission. An electronic tracking system was created for marsh creation (living shoreline) monitoring report submissions, and a similar toll is under development for stream restoration projects. MDE's database also has new fields for tracking individual water quality certifications and coastal zone consistency determinations.

After years in development, Maryland also released an advance notice of proposed rulemaking to update nontidal wetland mitigation regulations to be more consistent with the 2008 federal mitigation rule and move toward recognition of an in-lieu fee program. (Objective 1.3)

Improvements were also made in tracking success of living shorelines, with some pilot efforts to follow up on created sites. Efforts are underway to create a mapper for both tidal wetland and stream restoration projects and make reports available to the public (Objective 1.4).

Education and outreach has expanded with additional materials and links on MDE's web page and participation in public events to provide information related to wetlands and shoreline stabilization.

There has also been progress to improve conservation of high-quality resources through development of assessments and guidance; and initial stages of developing management recommendations for high quality resources (Task 2.1.1b. mapping (SAV, 2.1.2a). Guidance and requirements for restoration of degraded resources have increased (Task 1.4.2) with expanded checklists of information requirements and guidance.

Other tasks are ongoing and program improvements are continually needed for program development, even as existing processes are used in implementation. New resources, information and tools are continually being identified and these often require additional funding or personnel to accomplish them.

Revisions from 2021-2025 Maryland Wetland Program Plan

Additional information has been added to the background sections for Regulatory, Monitoring and Assessment, and Restoration and Protection sections.

The names of agency representatives involved in development and review of the Maryland Wetland Program Plan have been updated.

The following new tasks have been added:

New Tasks	
1.1.9	Investigate costs of mapping of vernal pools and seek funding for pilot vernal pool mapping project creation of a GIS data layer.
1.2.3	Develop tracking and/or notification system for special conditions.
1.2.5	Develop procedures for improved conservation of vernal pools and train staff.
1.3.4	Seek approval of Maryland Nontidal and Tidal Wetland Compensation Fund Programs as in-lieu fee mitigation options consistent with federal rule.
1.3.5	Investigate additional partnerships to expedite acquisition or permissions to successfully construct mitigation sites using in lieu fee funds.
1.4.2e	Prioritize review within MDE and DNR for restoration projects, particularly for those projects that are funded by the Chesapeake Bay Trust and Whole Watershed Act in order to expedite budget expenditures.
1.4.2f	Develop implementation guidance and procedures for avoiding and minimizing resource tradeoffs.
1.8.6	Scan and digitize historical nontidal, waterway construction, and tidal wetlands authorizations to enhance stakeholder transparency and accessibility, and enhance the analysis and reporting of historical gains and losses.
1.9.2c	Compile and evaluate existing training, and develop new training materials for sustainable training programs for new staff.
1.9.2d	Develop procedures for improved field identification of vernal pools and train staff.
1.11.3	Expand the capability of the regulatory program to operate remotely by securing funding to create and maintain a centralized, up-to-date database of licensed marine contractors.
2.1.1i	Scan older paper files of mitigation records and add them to the database system.
2.1.1j	Seek funding and develop an assessment for predicting the quality of vernal pools.
2.1.1k	Implement monitoring requirements and analysis for both nontidal and tidal wetland, shore erosion control projects, and stream restorations – looking at desired outcomes as well as habitat trade offs and resiliency.
2.1.2e	Develop a long-term strategy and implementation plan to track and issue notifications for living shoreline monitoring requirements.
2.1.2f	Develop and implement a strategy to reduce the use of hardened shoreline structures in favor of living shoreline solutions.

New Tasks	
2.2.3	Develop and implement standards for stream restoration projects to limit unintended consequences and resource tradeoffs.
3.1.4	Collaborate with various agencies and stakeholders to develop management, restoration, and protection measures for vernal pools beyond the State regulatory program.
3.2.4	Update priority areas for restoration and protection with expanded information and add to WRR.
3.2.5	Expand and implement written guidance and recommendations for protection and restoration of priority areas.
3.3.3	Update list with addition of new qualifying areas and removal of areas that no longer meet criteria for designation of Nontidal wetlands of special State concern.
3.4.3	Encourage the development of Best Management Practices for Marsh Migration Corridors in support of shoreline projects.
3.6.4	Embed wetland adaptation considerations into existing infrastructure screening processes to cover Coast Smart developments and work occurring with Land Acquisition and Planning and the Critical Area Commission.
3.8	Develop and promote additional Best Management Practices for maintaining or improving the quality of wetlands and other aquatic resources.
3.8.1	Discourage mowing in tidal wetlands and develop Best Management Practices to guide necessary maintenance activities.
3.8.2	Develop best management practices for unique resources or to address emerging issues related to wetland and aquatic resource restoration and protection.

The following existing tasks or objectives have been revised. Some changes reflect completion of the original task and being replaced with implementation and management, and ongoing improvement. "Ongoing" tasks are continuous, with periodic results and changes, but may not occur every year. Revised tasks are shown below:

Revised Tasks	
1.1.4	Create an automated system for adding mitigation sites and other GIS layers from application review on the updated wetland guidance maps.
1.3.1	Revise mitigation regulations to improve consistency with 2008 federal rule and seek approval of in-lieu fee instrument and develop templates for documents required to adopt and implement mitigation banks.
1.4	Evaluate effectiveness of restoration guidance and practices and improve outreach and education material for improved, consistent design recommendations and considerations.
1.4.1b	Work with coastal engineer to develop additional guidance, tools, sample plans, and recommendations for evaluation of restoration sites, living shoreline sites, and impacts from other proposed activities.
1.4.2e	Prioritize review within MDE and DNR for restoration projects, particularly for those projects that are funded by the Chesapeake Bay Trust and Whole Watershed Act in order to expedite budget expenditures.
1.6.1	Continue to refine the checklist for stream and floodplain restoration projects.
1.6.2	Refine fields in joint application and revise instructions for showing proposed impacts.
1.6.3	Establish criteria for digital submission of application and plan information and improve database and screening system to allow for digital submission and distribution of application information.
1.6.4	Refine and update fillable digital joint permit application forms.
1.8.5	Continue to improve reporting and tracking capability of individual water quality certifications and coastal zone consistency determinations.
1.10.2	Develop MDE in-house expertise for improved ecological interpretation in lieu of DNR review of minor projects.
1.10.5	Continue to develop, in cooperation with the Maryland Environmental Service, U.S. Army Corps of Engineers (USACE), and other resource agencies, an online self-certification and application system that leverages existing programmatic databases, resource screening tools, and GIS web services to receive applications, notices and processing fees, and to automatically notify staff, commenting agencies, and interested parties.
1.10.6a	Continue to enhance on-line application submission and online data system.
1.10.6b	Seek funding to acquire large scale printers to reproduce engineering plans.
1.10.6c	Seek funding to hire personnel or hire a service contract to scan and digitize paper documents and applications from users not using the on-line system.
1.10.6d	Continue to improve the ability of the application system for viewing information and authorizations by the USACE.

1.10.6e	Seek funding to maintain the data system after development for sustained operation of viewing applications and authorizations from MDE and USACE.
Revised Tasks	
1.11.2	Expand the capability of the regulatory program to operate remotely by securing funding to create and maintain a centralized, up-to-date database of licensed marine contractors.
2.1.1a	Improve and standardize rapid functional or condition assessments for regulatory use, with instructions, indicators and training;.
2.1.1d	Revise and test a method to assess condition and enhancement potential for wetland key wildlife habitats designated in the Maryland State Wildlife Action Plan.
2.1.1f	Create, test, and implement unified assessment of stream/wetland complexes for use in permit review.
3.1.	Action Items: Prioritize restoration and conservation projects that connect and/or preserve habitat corridors for plant and animal migration consistent with BioNet and Maryland State Wildlife Action Plan and include on the WRR.
3.3.1	Evaluate sites for potential addition or deletion to designated Nontidal wetlands of special State concern.
3.3.2	MDE and DNR will collaborate on a review of supporting documentation of suggested deletions and additions to the designated list of Nontidal wetlands of special State concern.
3.4	Develop adaptation criteria to guide restoration, preservation and permit review efforts where appropriate for wetland, waterway, and floodplain projects and activities subject to extreme weather events, changing environmental conditions, coastal wetland corridors, inland flooding hotspots, vegetation shifts, etc.
3.6.3	Promote the use of planning tools, such as the Watershed Resources Registry, BioNet, GreenPrint, and others, to avoid and minimize impacts to wetlands and to direct mitigation to areas that already have been identified as having significant natural resources.
4.2.1a	Update regulations to remove requirements for MD Register notice and replace it with web-based notice.

A new section showing task schedules has been added, along with lead and participating agencies.

Goals and Objectives

1. Regulatory

Maryland authority governing wetlands and waterways closely parallels federal controls under the Clean Water Act, but evolved from three separate acts of the Maryland General Assembly. In 1933, the assembly recognized that man-made changes to a stream or other body of water may result in flooding, adverse impacts to fish habitat and migration, and increased erosion. The Waterway Construction Statute was passed to regulate activities in streams and their 100-year floodplains. In 1970, tidal wetlands were given state protection. Then, a commitment to increase the protection of nontidal wetlands contained in the 1987 Chesapeake Bay Agreement resulted in 1989 legislation, which established a state nontidal wetlands program with partial implementation starting in 1989 and full implementation in 1991.

Tidal wetlands are managed to provide reasonable use while furnishing essential resource protection. Licenses, issued by the State's Board of Public Works (based on recommendations from MDE's Water and Science Administration (WSA)), are required for projects that impact State wetlands. The Board of Public Works (BPW) is comprised of the Governor, the Comptroller of the Treasury, and the State Treasurer. Permits are issued directly by WSA for projects in private wetlands and for projects that the BPW has delegated to MDE its authority to issue low impact projects. A permit or license must be obtained before a person fills, dredges, or otherwise alters a tidal wetland. Typical projects include: shoreline protection projects including marsh creation, stone revetments, and bulkheads; piers; dredging; and stormwater discharges.

The Nontidal Wetlands Protection Act seeks to protect nontidal wetlands by regulating and restricting activities that could adversely impact nontidal wetlands or waters of the state. The Act helps to ensure "no net loss" of wetlands acreage and function, by requiring mitigation or compensation for any unavoidable wetland losses. The Act also has provisions for structuring an effective and efficient permitting process (https://mde.maryland.gov/programs/water/WetlandsandWaterways/PermitsandApplications/Pages/nontidal_permits.aspx, or https://onestop.md.gov/licenses/non-tidal-wetlands-waterways-permit-5d15409d54f24d03e9997b8e) for the permitting of activities, such as development projects, in wetlands. Finally, the Act directs MDE to assist local governments in undertaking nontidal wetland management planning, and provide technical assistance; conduct educational programs; and purchase, restore and create nontidal wetlands and adopt standards for planning, regulating, restoring, and creating, and enhancing nontidal wetlands.

From its inception, Maryland's nontidal wetlands protection program was designed to parallel many aspects of Section 404 of the Clean Water Act (CWA). Regulated activities include:

- Removal, excavation, or dredging of soil or materials of any kind;
- Changing existing drainage or flood retention characteristics;
- Disturbance of the water level or water table by drainage, impoundment, or other means;
- Filling, dumping, discharging of material, driving piles, or placing obstructions;
- Grading or removal of material that would alter existing topography; and
- Destruction or removal of plant life.

Three aspects of Maryland law differ from federal regulation: Maryland law provides explicit authority over isolated wetlands; Maryland law goes further than federal nontidal wetlands law by also regulating the alteration of vegetation and hydrology; and, Maryland law goes further than federal nontidal wetlands law by also regulating activities within a minimum 25-foot buffer of nontidal wetlands.

In 2024, MDE completed a legislatively-mandated study to evaluate permitting of restoration projects. Also during 2024 the Whole Watershed Act was adopted to make changes in certain funding and review requirements related to restoration. Additional details are found under Goal and Objective 3, Voluntary Restoration and Protection.

In 2025, MDE released proposed draft changes to mitigation regulations for consistency with the 2008 federal mitigation rule (33 CFR part 332) and update fees to create a viable in-lieu fee mitigation option to meet federal requirements. Proposed draft changes will also remove disincentives to mitigation banking. A formal proposal is anticipated in 2026.

Maryland uses a number of mapping tools and applications to aid in regulatory review.

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

Objective 1.1	**Update and enhance the screening system with additional data layers on wetland extent and other resources of interest.**
Rationale	The screening system is used in initial application processing or pre-application review to identify mapped wetlands on the subject parcel, as well as other regulated 100-year floodplains, and to determine proximity to other features such as sensitive species, navigation channels; and historic and cultural resources. Proximity to certain mapped features is a factor in deciding whether applications need to be circulated to other agencies (e.g., DNR) for input. Updated data layers are needed to improve identification of potential resources of concern and improve the efficiency of coordination between agencies.
Action Items:	
1.1.1	Establish a common, recommended wetland guidance map .
1.1.2	Seek funding to complete enhanced wetland mapping for entire state.
1.1.3	Seek funding to create and subsequently update a living wetland polygon tool.
1.1.4	Create an automated system for adding mitigation sites and other GIS layers from application review on the updated wetland guidance maps.
1.1.5	Make updated wetland guidance maps available to state, federal, and local agencies and the public.
1.1.6	Seek funding to establish criteria for digital submission of application and plain information and improve database and screening system to allow for digital submission and distribution of application information.
1.1.7	Seek funding and improve data layers for streams.
1.1.8	Conduct periodic updates of shoreline inventories.
1.1.9	Investigate costs of mapping of vernal pools and seek funding for pilot vernal pool mapping project and creation of a GIS data layer.

Objective 1.2	Improve regulatory efficiency and wetland conservation.
Rationale	Maryland State agencies constantly strive to implement more efficient and effective regulatory and non-regulatory programs for wetland management.
Action Items:	
1.2.1	Evaluate regulations to identify areas of where requirements result in inefficient permit review and do not advance wetland protection.
1.2.2	Evaluate potential sites for potential addition or deletion from Nontidal Wetlands of Special Concern list.
1.2.3	Develop tracking and/or notification system for special conditions.
1.2.4	Seek funding to expand capability of receiving digital application submissions.
1.2.5	Develop procedures for improved conservation of vernal pools and train staff.

Objective 1.3	Adopt provisions to improve success of compensatory mitigation and implement compensatory mitigation consistent with EPA/USACE federal mitigation rule.
Rationale	In order to implement a State Programmatic General Permit and in-lieu fee program, Maryland's compensatory mitigation requirements must be consistent with federal requirements.
Action Items:	
1.3.1	Adopt provisions to improve success of compensatory mitigation and implement compensatory mitigation consistent with EPA/USACE federal mitigation rule.
1.3.2	Revise mitigation regulations to improve consistency with 2008 federal rule and seek approval of in-lieu fee instruments and develop templates for documents required to adopt and implement mitigation banks.
1.3.3	Investigate measures to remove disincentives to mitigation banking.
1.3.4	Develop new tools or adapt existing tools to better predict replacement of lost wetland functions.
1.3.5	Seek approval of Maryland Nontidal and Tidal Wetland Compensation Fund Programs as in-lieu fee mitigation options consistent with federal rule.
1.3.6	Investigate additional partnerships to expedite acquisition or permissions to successfully construct mitigation sites using in lieu fee funds.

Objective 1.4	Evaluate effectiveness of restoration guidance and practices and improve outreach and education material for improved, consistent design recommendations and considerations.
Rationale	Maryland has established law and regulations designating "living shorelines" as the default preferred option for shoreline stabilization. Since implementation, there has been no comprehensive follow up to determine the success of living shoreline projects and if existing regulations and/or guidance should be revised.

	Many stream/wetland restoration projects will be proposed in Maryland to meet requirements of the Chesapeake Bay Watershed Implementation Plans and Whole Watershed Act to meet TMDL requirements for nutrients and sediments. Additional guidance is needed to better ensure that projects provide a net resource benefit.
Action Items:	
1.4.1	Seek grant to conduct field study of shoreline stabilization sites; update guidance, conduct training.
1.4.1a	Conduct field and geospatial studies of non-structural shoreline stabilization (living shoreline) sites, including long-term stability, resilience to changing environmental conditions and other stressors, and ecological function related to natural vegetated tidal wetlands.
1.4.1b	Work with coastal engineer to develop additional guidance, tools, sample plans, and recommendations for evaluation of restoration sites, living shoreline sites, and impacts from other proposed activities.
1.4.1c	Attend marine trade shows to conduct outreach on available services, guidance, requirements, and to promote living shoreline designs that reflect existing natural marsh and shoreline composition.
1.4.1d	Update living shoreline construction guidance to promote construction methods that minimize disruption of upland buffers when establishing living shorelines.
1.4.1e	Work with other resource agencies to streamline the review of living shoreline projects in tidal waters.
1.4.1f	Conduct outreach and training sessions on new guidance to marine contractors, consultants, property owners, and other stakeholders.
1.4.2a	Evaluate effectiveness of restoration guidance and practices and improve outreach and education material for improved, consistent design recommendations and considerations.
1.4.2b	Improve the effectiveness and efficiency of the review process for restoration projects in coordination with other resource agencies.
1.4.2c	Continue to improve coordination of multiple permit requirements. Develop a coordinated interagency approach on stream and wetland restoration protocols that inform and streamline design, expedite permit review, funding and construction and result in functional uplift for wetland and associated stream resources, including adjacent riparian areas.
1.4.2d	Develop guidance to applicants for documenting functional uplift from restoration actions at the project site.
1.4.2e	Assist in developing criteria and guidance for qualifying conditions for application of wetland practices receiving credit for nutrient and sediment reduction for the Chesapeake Bay TMDL.
1.4.2f	Prioritize review within MDE and DNR for restoration projects, particularly for those projects that are funded by the Chesapeake Bay Trust and Whole Watershed Act in order to expedite budget expenditures.
1.4.2g	Develop implementation guidance and procedures for avoiding and minimizing resource tradeoffs.

Objective 1.5	Implement new Best Management Practice (BMP) requirements for temporary impacts and expand outreach to promote use
Rationale	The BMPs have been identified as part of State Wetland Program Development Grant BG 97302704-0, completed in 2013. This project evaluated projects with temporary wetland impacts, primarily for utility line installation of temporary access roads, to determine if the wetland was successfully restored. As a result of the project, new draft BMPs were developed.
Action Items:	
1.5.1	Implement new BMP requirements for temporary impacts and expand outreach to promote use
1.5.2	Expand training for restoration of temporary impacts to local jurisdictions, major utilities, and other stakeholders.
1.5.3	Begin maintaining digital records of individual impact sites.

Objective 1.6	Work with USACE to revise long form application and information requirements to reduce requests for additional information.
Rationale	Requests for additional information frequently delay application review, project modification, and authorization. Revisions to the form and updated instructions to more clearly describe required information would result in a more efficient review process. In addition, a section for specialized information unique to review of restoration projects would expedite review of beneficial restoration projects.
Action Items:	
1.6.1	Work with USACE to revise long form application and information requirements to reduce requests for additional information.
1.6.2	Continue to refine checklist for stream and floodplain restoration projects.
1.6.3	Refine fields in joint application and revise instructions for showing proposed impacts.
1.6.4	Establish criteria for digital submission of application and plan information and improve database and screening system to allow for digital submission and distribution of application information.
1.6.5	Refine and update fillable digital joint permit application forms.

Objective 1.7	Determine need for additional guidance and standards for identified project types or practices of concern.
Rationale	New or unforeseen issues often arise which result in the need for additional investigations and new guidance and standards for efficient and consistent regulatory review.
Action Items:	
1.7.1	Determine need for additional guidance and standards for identified project types or practices of concern.

1.7.2	Prepare new guidance and standards for wetland type conversion, ponds in forested wetlands; stormwater management activities in wetlands, and waterways; and forestry practices.
1.7.3	Create new guidance and review criteria for considering changing environmental conditions and increased precipitation in regulatory review.

Objective 1.8	**Improve reporting capability and accuracy for authorized losses and gains.**
Rationale	MDE uses data systems that currently fail to meet demands for complicated data review; processing deadlines; and linking to GIS systems. Improvements to the data management systems are necessary to provide critical information for evaluating MDE program performance.
Action Items:	
1.8.1	Improve reporting capability and accuracy for authorized losses and gains.
1.8.2	Seek funding to integrate GIS wetland and waterway gain/loss and enterprise permit database.
1.8.3	Correct errors in report programming.
1.8.4	Update standard operating procedures for data entry and characterization of permanent, temporary, and conversion activities in wetlands.
1.8.4	Develop prospectus for future implementation of geospatial analysis of wetland losses and gains using available remote sensing data.
1.8.5	Continue to improve reporting and tracking capability of individual water quality certifications and coastal zone consistency determinations.
1.8.6	Scan and digitize historical nontidal, waterway construction, and tidal wetlands authorizations to enhance stakeholder transparency and accessibility, and enhance the analysis and reporting of historical gains and losses.

Objective 1.9	**Continue to provide and receive training in wetland identification and expand training efforts in priority topics; and receive training in special topics to increase expertise.**
Rationale	Maryland agencies constantly strive to acquire and use the most recent available information to improve program implementation, service to stakeholders, and wetland conservation.
Action Items:	
1.9.1	Provide training on new joint application.
1.9.2a	Seek funding to conduct and receive training on special technical topics for assessment and construction of wetlands; Stream assessment and review of restoration/mitigation projects.
1.9.2b	Seek funding to conduct and receive training on special technical topics for technical advances and policy development on mitigation, wetland assessments, site evaluation, remediation, coastal resiliency and soils.
1.9.2c	Compile and evaluate existing training, and develop new training materials for sustainable training program for new staff.
1.9.2d	Develop procedures for improved field identification of vernal pools and train staff.

Objective 1.10	**Streamline environmental review coordination between MDE, DNR, and other pertinent agencies.**
Rationale	MDE uses environmental GIS data as a screening tool to identify which permit applications should be sent to DNR for additional review and comment related to high value living resource and habitat concerns. Many of these data layers describe ecologically sensitive areas identified by DNR. As additional field surveys and resource assessments are conducted by DNR staff, these data layers become outdated and require updating and distribution to partner agencies.
Action Items:	
1.10.1	Streamline environmental review coordination between MDE, DNR, and other pertinent agencies.
1.10.2	Update DNR data layers for ecologically sensitive areas to aid MDE in screening applications and determining which applications are sent to DNR for review.
1.10.3	Develop MDE in-house expertise for improved ecological interpretation in lieu of DNR review of minor projects.
1.10.4	Identify areas or project types which continue to require DNR expertise in providing recommendation in application review.
1.10.5	Adjust screening criteria to improve the selection of projects requiring interagency coordinated review.
1.10.5a	Prioritize DNR review by project type and location.
1.10.5b	Determine area of influence and affected resource for a given permit point.
1.10.5c	Refine Use III/IV maps for application screening by identifying stream reaches that have known occurrences of sensitive living resources, such as trout streams,

	aquatic species of Greatest Conservation Need, coldwater benthic communities and other unique aquatic living resource attributes.
1.10.5d	Develop field criteria for MDE reviewers to use in order to forward projects to DNR for living resource and habitat focused reviews.
1.10.5e	Develop a list of trout/coldwater conservation BMPs to inform permit conditions for MDE to apply during application review in place if no individual DNR permit review.
1.10.5f	Migrate interagency pre-application screening, permit application and permit review from hardcopy to a digital e-collaboration framework that utilizes geospatial information and on-line review and commenting for more efficient and effective regulatory review.
1.10.5g	Conduct cross-training sessions with facilitator among SHA/MDE/DNR/MDA/CAC at regular intervals to ensure interagency staff are aware of new research, existing planning and review tools, regulations and policies.
1.10.5h	DNR to provide training to MDE reviewers on use and interpretation of biological resources such as the Natural Areas Inventory.
1.10.5i	Conduct training in key wildlife habitats: identification, assessment, BMPs, and opportunities and techniques for enhancement.
1.10.6	Continue to develop, in cooperation with the Maryland Environmental Service, USACE, and other resource agencies, an online self-certification and application system that leverages existing programmatic databases, resource screening tools, and GIS web services to receive applications, notices and processing fees, and to automatically notify staff, commenting agencies, and interested parties.
1.10.7a	Continue to enhance on-line application submission and online data system.
1.10.8	Seek funding to acquire large scale printers to reproduce engineering plans.
1.10.9	Seek funding to hire personnel or hire a service contract to scan and digitize paper documents and applications from users not using the on-line system.
1.10.10	Continue to improve the ability of application system for viewing information and authorizations by the USACE.

Objective 1.11	**Expand capability of the regulatory program to operate remotely outside of traditional office setting.**
Rationale	The restrictions on meeting in office and field during restrictions due to coronavirus highlight the need for new procedures to continue to implement the regulatory program.
Action Items:	
1.11.1	Acquire tools and supplies for staff to use while teleworking.
1.11.2	Expand the capability of the regulatory program to operate remotely by securing funding to create and maintain a centralized, up-to-date database of licensed marine contractors.

2. Monitoring and Assessment

MDE was awarded an EPA State Wetland Program Development Grant to develop the wetland monitoring strategy, completed in 2010. Action items in this section include some recommendations named in the final strategy as well as updated actions.

A detailed description of wetland assessments and monitoring may be found on MDE's web page at:

https://mde.maryland.gov/programs/water/WetlandsandWaterways/Pages/Stream-Wetland_NewGuidance.aspx

Current Assessment and Monitoring Efforts

Wetland functional assessments are performed by several federal and State agencies, private consulting firms, and non-profit organizations (watershed groups, land trusts, etc.). Functional assessments are conducted to determine the functions provided by an individual wetland, a specific wetland type, or a comparison of several wetlands. These assessments are often done for the purposes of evaluating existing or restored wetlands, or wetlands proposed for impact. These assessments are also used in developing restoration, conservation, or preservation goals for resource regulation and management, watershed planning, and local planning.

MDE has completed informal wetland functional assessments during the permit application review process. These assessments help to evaluate functions that are to be lost, and consist of subjective evaluations based on a reviewer's best professional judgment (BPJ). The assessment parameters include hydrology source, biological factors, habitat, recreational/educational use, water quality, and hydrologic functions. Various sources of information may be used to determine local hydrology, vegetation, soils, drainage basin area, adjacent land use and land cover, and topography. Information sources may include GIS-based information, soil surveys, guidance maps, and information provided by local agencies and landowners. Information collected on impacted wetlands is entered in a reporting form that is completed by the project reviewer when an authorization is issued. Numerous multi-agency efforts are underway to adapt existing methods for wetlands and streams for regulatory purposes, as well as to provide guidance for stream restoration projects with adjacent wetlands. MDE and DNR were partners with the USACE-led effort to develop the Maryland Wetland Assessment Method (MDWAM), a hydrogeomorphic (HGM) condition assessment, to be used for regulatory purposes for some projects and calculate the amount of wetland mitigation needed to offset wetland losses.

MDE expects to shift to using MDWAM plus performance standards in the future to evaluate mitigation success.

In 2016 and 2018, MDE received grants from EPA to develop an assessment and guidance tailored for stream restoration projects which affect adjacent wetlands. The procedures are based on the key wildlife habitats for nontidal stream/wetland complexes described in the Maryland State Wildlife Action Plan. The work was completed in 2021-22 and 2024 and revisions are being considered.

In 2011, 2016, and 2021 MDE participated in the National Wetland Condition Assessment (NWCA), which is part of the federal National Aquatic Resources Survey. This project provides periodic, consistent data on the condition of the Nation's waters, including wetlands. MDE contracted with the Virginia Institute of Marine Science and Pennsylvania State University to organize and conduct the work. MDE elected not to lead the State NWCA effort for the 2026 assessment due to staff constraints, but may participate among field personnel if time allows.

MDE also attempts to complete abbreviated functional assessments on programmatic mitigation sites, and requires functional assessments on permittee-responsible mitigation sites. Success is measured against the assessment and performance standards. MDE expects to shift to MDWAM results plus performance standards in the future. Records of mitigation assessments are in a variety of formats: 1) paper format, and are in the process of being digitized, with a deadline TBD; 2) digital formats that are uploaded to MDE's Enterprise database system. A Public Information Act request would have to be made by the public to access the records, however, they are available upon request to other agencies.

For projects requiring permittee-responsible mitigation, applicants must demonstrate prior to issuance of an authorization that proposed mitigation measures or sites will replace or surpass the functions lost from the proposed impacts. Additionally, applicants must submit yearly monitoring reports for permittee-responsible mitigation sites, which give an indication of the functional performance of the site. Functional assessments required for mitigation sites are not comprehensive, but rather concentrate on some basic indicators of wetland function including depth of/to water, water source, and type and density of vegetation.

Mitigation sites may be required to reach certain threshold measurements of wetland functional indicators, such as the number of woody plants per acre. MDE has used a scoring system combining simple metrics for vegetation, soils, and hydrology, plus some indicators of wetland function in the past, but may require use of the more formal Maryland Wetland Assessment Method for mitigation sites, including banks. The Maryland State Highway Administration (MD SHA) conducts formal wetland functional assessments as part of the planning process for most highway projects and to determine wetland mitigation requirements. An assessment is a standard submittal when the delineated wetland is > than .5 acres. The *Highway Methodology Workbook Supplement. Wetland Functions and Values (1999)* is the most commonly used assessment method but is expected to be replaced with MDWAM over time.

MDE's review of results from mitigation site assessments has led to draft proposed changes to mitigation regulations. MDE tries to learn from these projects how any designs or techniques resulted in a successful or unsuccessful project.

More recent evaluations are found in documents used in preparing Maryland's Wetland Monitoring Strategy, funded by BG 973027-03 (2009) and available at:

https://mde.maryland.gov/programs/water/wetlandsandwaterways/aboutwetlands/pages/monitoring.aspx

Numerous multi-agency efforts are underway to adapt existing methods for wetlands and streams for regulatory purposes, as well as to provide guidance for stream restoration projects with adjacent wetlands.

In 2020-2025, MDE began working with Chesapeake Conservation and Climate Corps (CCCC) members to evaluate success of living shoreline projects, particularly for habitat. Tasks over this time period included follow up of marsh creation and mitigation sites and creation of a tracking and notification system for the required monitoring reports.

In 2024-2025, MDE again worked with a CCCC member to conduct a rapid assessment at selected points along stream restoration projects to evaluate whether or not wetlands authorized for temporary impacts were successfully, or on a trajectory, to be rectified. A tracking system for monitoring reports for stream restoration projects was also developed.

MDE also oversaw a project where summer interns conducted simple assessments of integrity of stream restoration projects.

Goal: Develop, update, or recognize tools and methods which will provide critical baseline information on wetland extent, condition, and function to improve wetland management decisions.

Objective 2.1	**Develop capacity and tools to improve assessment of wetland condition, function, vulnerability to stressors and ecosystem service benefits in order to better inform regulatory and non-regulatory programs for restoration and preservation.**
Rationale	Maryland agencies implement a wide range of programs for wetland management, including regulatory programs for review of activities which may result in wetland loss, restoration programs in degraded resources, and preservation programs to protect vital resources. Tools are needed to better predict outcomes of management actions.
2.1.1 Action Items – Seek grants or other funding to:	
2.1.1a	Improve and standardize rapid functional or condition assessments for regulatory use, with instructions, indicators and training.
2.1.1b	Work with USDA and USGS to test approaches of evaluating wetland hydrology, connectivity, and headwater stream identification using LiDAR and DEMs.
2.1.1c	Improve integration of GIS-based regulatory permit data with MDE enterprise data system for improved status and trend reporting and spatial analysis of wetland impacts and mitigation.
2.1.1d	Revise and test a method to assess condition and enhancement potential for wetland key wildlife habitats designated in the Maryland State Wildlife Action Plan.
2.1.1e	Improve assessments for hydrology needs to establish or re-establish wetlands.
2.1.1f	Create, test, and implement unified assessment of stream/wetland complexes for use in permit review.
2.1.1g	Apply and refine metrics to economically quantify wetland ecosystem service benefits to be used for evaluating return on investment for voluntary restoration and conservation efforts.
2.1.1h	Improve metrics and performance standards for wetland mitigation sites.

2.1.1i	Scan older paper files of mitigation records and add to data system.
2.1.1j	Seek funding and develop an assessment for predicting the quality of vernal pools.
2.1.1k	Implement monitoring requirements and analysis for both nontidal and tidal wetland, shore erosion control projects, and stream restorations – looking at desired outcomes as well as habitat trade offs and resiliency.
2.1.2 Action Items – Improve integrated management of submerged aquatic vegetation (SAV) and tidal marsh and seek funding to:	
2.1.2a	Develop or acquire maps showing early season submerged aquatic vegetation for use in regulatory and management programs.
2.1.2b	Evaluate the long-term effects of living shoreline projects on submerged aquatic vegetation.
2.1.2c	Evaluate impact on home values from the construction of living shorelines and hardened shorelines.
2.1.2d	Evaluate the impact of docks, piers, and other over-water structures on the various communities of submerged aquatic vegetation in Chesapeake Bay (i.e., freshwater, mesohaline, and polyhaline SAV communities).
2.1.2e	Develop a long-term strategy and implementation plan to track and issue notifications for living shoreline monitoring requirements.
2.1.2f	Develop and implement a strategy to reduce the use of hardened shoreline structures in favor of living shoreline solutions.

Objective 2.2	**Improve success of stream restoration projects.**
Rationale	Stream restoration is closely associated with restoration and enhancement of adjacent wetlands. Information and guidance is needed to improve the success of restoration while limiting unintended consequences and resource tradeoffs.
Action Items:	
2.2.1	Evaluate and track stream restoration successes and document methods with highest success.
2.2.2	Evaluate crediting assigned as it relates to MS-4 and WIP credits.
2.2.3	Develop and implement standards for stream restoration projects to limit unintended consequences and resource tradeoffs.

3. Voluntary Restoration and Protection

Maryland faces challenging goals for wetland restoration and protection in partnership with Virginia, Pennsylvania, West Virginia, Delaware and New York through the Chesapeake Bay Watershed Agreement. The Bay States are working together to create or reestablish 85,000 acres of tidal and non-tidal wetlands, enhance the function of 150,000 acres of degraded wetlands and conserve 225,000 acres of wetlands by the year 2025. The goal is under revision and planned for finalization at the end of 2025. The new commitment will augment decades of focused effort, regulatory and non-regulatory program development and financial investment by Maryland to restore and protect its wetland resources. Due to lack of progress toward achieving these outcomes, revised wetland gain goals to replace the previous goals have been developed with a target date of 2040. The new targets are restoration/creation of 3,000 new acres of tidal wetlands and 3,000 acres of nontidal wetlands.

The resources available to achieve the State's goals are limited. It is the State's responsibility to make the best use of these limited resources by

- Developing and incorporating new information, science and practices to improve the outcome of restoration and protection efforts,
- Removing the barriers that impede achieving the best possible outcomes,
- Identifying new approaches and new partnerships,
- Providing education and training to improve the technical capacity of practitioners in the public and private sectors,
- Nurturing a wetland stewardship ethic among all citizens in the State through outreach and education, and
- Understanding and acting upon the multitude of drivers that affect land use change and infrastructure development which ultimately impacts the extent and health of the State's wetland resources

There are numerous prioritization and targeting documents available for use in Maryland, including the:

- Watershed Resources Registry
    - https://watershedresourcesregistry.org/states/maryland.html,
- Priority Areas for Wetland Restoration, Preservation, and Mitigation
    - https://mde.maryland.gov/programs/Water/WetlandsandWaterways/AboutWetlands/Pages/priordownloads.aspx
- BioNet and Natural Areas Inventory
    - https://data.imap.maryland.gov/datasets/ef9a46a5798a452b824ad33dcb9d2572_0
- Maryland State Wildlife Action Plan
    - https://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_overview.aspx
- GreenPrint
    - https://dnr.maryland.gov/land/Pages/Green-Infrastructure-Mapping.aspx
- Chesapeake and Atlantic Coastal BaysTrustFund/SPARROW (Spatially References Regression on Watershed attributes) v4 Targeting Priorities
    - https://dnr.maryland.gov/ccs/Pages/funding/trust-fund.aspx

    - https://www.usgs.gov/mission-areas/water-resources/science/sparrow-modeling-estimating-nutrient-sediment-and-dissolved?qt-science_center_objects=0#qt-science_center_objects
- Statewide Coastal Resiliency Assessment
    - *https://dnr.maryland.gov/ccs/coastalatlas/pages/coastalresiliencyassessment.aspx*
- Priority Areas for Wetland Restoration, Preservation, and Mitigation in Maryland's Coastal Bays
    - *https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Pages/prioritizingareas.aspx#coastal%20bays*

Wetland restoration, creation, and enhancement is undertaken by multiple State, federal, and local agencies in collaboration with willing landowners. Some of these gains qualify as best management practices contributing toward nutrient and sediment reductions toward the TMDL for Chesapeake Bay, as well as the overall Chesapeake Bay Agreement commitment toward wetland gains. From 1998-2024, there were reported gains of 219,992 acres of wetlands restored, created, or enhanced in Maryland.The Maryland Department of Natural Resources (DNR) has developed a new conservation tool to identify opportunities for the beneficial use of clean dredged sediments. Beneficial Use – Identifying Locations for Dredge (BUILD) is a mapping tool that supports the state's Chesapeake Bay restoration efforts, protects infrastructure and investment, and enhances coastal resiliency. BUILD will assist governmental and non-governmental entities to synchronize the use of dredged material from navigation channels with projects that reduce flooding and storm risk impacts. Planners and engineers can save on costs that would otherwise be incurred to transport dredged material to an upland placement site or to bring fill material to a restoration site. BUILD provides access to various dredging and restoration datasets, including navigational channel depth surveys, potential restoration sites, upcoming navigational improvement projects and the state's Wetlands and waterways permit layer. More information is available at https://dnr.maryland.gov/ccs/Pages/beneficial-use.aspx

DNR launched an innovative mapper in May 2018 (https://www.arcgis.com/apps/mapviewer/index.html?webmap=a85c33993ef64fe581b1bcf3b00975ca) to evaluate the conservation benefits and ecosystem "value" of every parcel of land across the state. The Parcel Evaluation Tool was designed to identify and prioritize the conservation and protection of ecologically important, sensitive, and valuable land and watershed resources in Maryland for use by MDE, land conservation organizations and trusts, local and state planners, and individual property owners. The do-it-yourself tool incorporates MDE's latest mapping technologies and scoring formulas to determine areas of high-ecological and natural resources value. Users can create a Conservation Benefits and Ecosystem Service Assessment Report Card, which analyzes and rates individual parcels on a number of factors, including coastal resiliency, connectivity, habitat and more.

In 2022, legislation was passed directing MDE, with other agency and stakeholder partners, to conduct a comprehensive study, analysis, and evaluation of ecological restoration permitting in Maryland. The study was completed in 2024 with the following key recommendations:

- Define ecological restoration in Maryland
- Refine the permit application and decision process

- Establish a regular evaluation of regulations
- Identify continued education needs for MDE and DNR staff
- Develop a holistic review of permits
- Recommend changes to statutes and regulations
- Identify any resource needs

Many recommendations are implemented through the 2024 the Maryland Whole Watershed Act. The Act was adopted to make changes in funding selections and change the permitting process for restoration projects, with implementation beginning on July 1, 2025. Additional application information and post-construction requirements and public notice provisions were added. MDE developed a checklist of required information to be provided with applications.

In 2025, a definition of "ecological restoration" was adopted:

> "ecological restoration" means an activity undertaken with the goal of recovering, re-establishing, or enhancing a degraded, damaged, or destroyed ecosystem through:
>
> (1) improvements to physical, chemical, or biological characteristics or processes;
>
> (2) returning natural or historical functions or services; or
>
> (3) protecting or improving resiliency.

MDE received funding and will complete an online mapper where persons can review information and reports related to stream restoration projects.

In 2024, legislation was passed directing MDE to confer with DNR and other stakeholders to clarify the criteria for vernal pools which should have protective status. Some vernal pools are nontidal wetlands and designated as having significant plant or wildlife value, and are subject to increased protection provisions. MDE focused the task of the 2024 directive on defining a vernal pool that may or may not also meet the regulatory definition of a nontidal wetland. MDE and DNR chose a definition for vernal pool after coordination with stakeholders. The definition includes the criteria and list of important indicator animal species, which rely on a vernal pool for survival in Maryland but does not replace the regulatory definition for vernal pools which are nontidal wetlands.

Goal: Ensure restoration and preservation efforts provide the greatest water quality, native habitat and associated ecosystem service benefits possible for the financial resources expended, today and in the future, through science-guided practices and priorities, ongoing stewardship and effective partnerships.

Objective 3.1	**Update priority areas and management recommendations based on new relevant information; ensure regulatory measures support sound restoration and protection priorities which comply with regulatory standards.**
Rationale	Maryland has numerous prioritization and targeting documents, described above. These elements form part of the comprehensive planning framework in MDE's prospectus to operate an in-lieu fee program consistent with the 2008 federal mitigation rule. Periodic updates reflecting new information and priorities are necessary in planning restoration, preservation, and mitigation projects.
Action Items:	
3.1.1	Prioritize restoration and conservation projects that connect and/or preserve habitat corridors for plant and animal migration consistent with BioNet and Maryland State Wildlife Action Plan and include on the WRR.
3.1.2	Collaborate on development and distribution of guidance for restoration projects
3.1.3	Develop recommendations for enhancement of key wildlife habitats that support priority Maryland State Wildlife Action Plan conservation actions.
3.1.4	Collaborate with various agencies and stakeholders to develop management, restoration, and protection measures for vernal pools beyond the State regulatory program.

Objective 3.2	**Develop a coordinated interagency approach on stream and wetland restoration protocols that inform and streamline design, permit review, funding and construction and result in functional uplift for wetland and associated stream resources.**
Rationale	A coordinated approach on stream and wetland restoration protocols will improve consistency in criteria in project selection, funding, design guidance, and the permit process to achieve more effective restoration and an efficient restoration process.
Action Items:	
3.2.1	Determine approaches to expedite permit review of restoration projects.
3.2.2	Promote floodplain reconnection projects for water quality and habitat connectivity benefits, while maintaining or expanding existing riparian or wetland vegetation.
3.2.3	Seek funding to develop guidance for balancing living shoreline projects with submerged aquatic vegetation restoration and protection.
3.2.4	Update priority areas for restoration and protection with expanded information and add to WRR.
3.2.5	Expand written guidance and recommendations for protection and restoration of priority areas.

Objective 3.3	**Evaluate sites for potential addition or deletion to designated Nontidal wetlands of special State concern.**
Rationale	No comprehensive effort to update the list of designated Nontidal wetlands of special State concern has been completed since originally developed in 1989. Changes to the list are overdue for identifying additions and deletions for improved conservation of these areas.
Action Items:	
3.3.1	Evaluate sites for potential addition or deletion to designated Nontidal wetlands of special State concern.
3.3.2	MDE and DNR will collaborate on a review of supporting documentation of suggested deletions and additions to the designated list of Nontidal wetlands of special State concern.
3.3.3	Update list with addition of new qualifying areas and removal of areas that no longer meet criteria for designation of Nontidal wetlands of special State concern.

Objective 3.4	**Develop adaptation criteria to guide restoration, preservation and permit review efforts where appropriate for wetland, waterway, and floodplain projects and activities subject to extreme weather events, changing environmental conditions, coastal wetland corridors, inland flooding hotspots, vegetation shifts, etc.**
Rationale	Natural functions of wetlands and floodplains in reducing natural hazards from changing environmental conditions and more frequent extreme weather events can be further explored and utilized. Vulnerability of activities in these regulated areas also needs additional consideration.
Action Items:	
3.4.1	Develop criteria for extreme events, increasing storm surges, and adaptation for use in review of wetland or waterway permits. This may include modifications to standard structural components as well as modifications to typical species lists for living shorelines.
3.4.2	Develop science-based criteria to evaluate the adequacy of resilient practices used by State agencies to address coastal hazards, extreme weather events, including evaluating efforts at minimizing impacts to wetland corridors.
3.4.3	Encourage the development of Best Management Practices for Marsh Migration Corridors in support of shoreline projects.

Objective 3.5	**Continue to achieve and record gains associated with wetland restoration, creation, and enhancement projects.**
Rationale	Wetland acreage and functional gains are goals for various programs and requirements, including Watershed Implementation plans for TMDLs, Chesapeake Bay Agreement wetland gains, State "no net loss" and net gain in acreage and function. Accurate records are needed to track progress of wetland gains.
Action Item:	
3.5.1	Continue to check records on wetland restoration, creation, and enhancement for accuracy.

Objective 3.6	**Conserve high value wetlands and associated landscape connectivity through protection opportunities provided by land conservation programs and infrastructure, land use, energy and transportation planning and development.**
Rationale	Maryland agencies support conservation of high value wetlands and partnership efforts, and must rely on and promote use of most appropriate tools for setting priority management actions.
Action Items:	
3.6.1	Support and participate in the Greater Baltimore Wilderness Coalition
3.6.2	Prioritize conservation decisions to increase habitat connectivity to protect wildlife corridors (gene pool) and, in coastal areas, wetland migration corridors.
3.6.3	Promote the use of planning tools, such as the Watershed Resources Registry, BioNet, GreenPrint, and others, to avoid and minimize impacts to wetlands and to direct mitigation to areas that already have been identified as having significant natural resources.
3.6.4	Embed wetland adaptation considerations into existing infrastructure screening processes to cover Coast Smart developments and work occurring with Land Acquisition and Planning and the Critical Area Commission.

Objective 3.7	**Tailor preservation and restoration management goals specific to individual wetland sites.**
Rationale	Wetland conservation actions are often site specific, taking into account landscape, geology, soils, hydrology, and plant communities. Sites of known high resource value are best managed after individual evaluation of their conditions, followed by specific management recommendations to maintain or increase the wetland's high resource value.
Action Item:	
3.7.1	Seek funding to prepare new or updated management recommendations for Nontidal wetlands of special State concern and other wetlands on State lands, incorporating recommendations for high priority wetlands included in the Maryland Natural Areas Inventory.

Objective 3.8	**Develop and promote additional Best Management Practices for maintaining or improving the quality of wetlands and other aquatic resources.**
Rationale	Wetland conservation actions are needed for both regulatory and non-regulatory actions. Practices that can be undertaken to improve existing wetlands and aquatic resources, often by landowners, will help ensure that wetland and aquatic resources functions and processes are sustainable.
Action Items:	
3.8.1	Discourage mowing in tidal wetlands and develop Best Management Practices to guide necessary maintenance activities.
3.8.2	Develop best management practices for unique resources or to address emerging issues related to wetland and aquatic resource restoration and protection.

4. Wetland Water Quality Standards

As "waters of the United States," wetlands must be managed to protect, restore, and maintain the chemical, physical, and biological integrity of the Nation's waters. States must now implement a monitoring program to report on how their waters meet the chemical, physical, and biological integrity parameters. This is accomplished by the formal adoption of State water quality standards and structuring the monitoring program to measure water parameters against the established standards.

Water quality standards consist of three parts: 1) designated uses of the waters of the State; 2) narrative/numeric criteria to protect the designated uses; and 3) an antidegradation policy. Wetlands in Maryland are waters of the State, and are subject to the same water quality requirements as other waters. However, wetlands differ from traditional waters in that wetlands contain features more indicative of uplands. Existing water quality standards are often not appropriate given the unique characteristics of wetlands. For example, applying the pH numeric water quality criteria of 6.5 – 8.5 to a wetland bog that naturally maintains a more acidic condition is not appropriate. In developing its wetland monitoring strategy, MDE collected information from 11 other States that have, at a minimum, formally adopted designated uses for wetlands. MDE prepared conceptual draft water quality standards that are specific to wetlands as a grant deliverable under EPA Performance Partnership Grant BG 973027-3 in 2010.

The goals of establishing water quality standards for wetlands are stated in the conceptual draft to:

1. Maintain the defining characteristics of wetlands; and
2. Where practicable, protect and enhance the chemical, physical, and biological conditions of wetlands and the ability of wetlands to provide various wetland, "ecosystem," or watershed functions.

Goal: Determine whether or not adoption of wetland water quality standards would enhance wetland protection and management.

Objective 4.1	**Identify measures and information needed to determine whether or not wetland water quality standards would advance wetland protection and management.**
Rationale	Substantial additional data would be needed if MDE were to develop water quality standards specific to wetlands.
Action Items:	
4.1.1	Seek funding to develop and test protocol for identifying existing functions and ecosystem services of wetlands that could aid in identifying potential designated uses and associated components of water quality standards in the context of the Clean Water Act.
4.1.2	MDE and DNR will seek funding to investigate integrated monitoring of wetlands with monitoring of other waters, such as the Maryland Biological Stream Survey.
4.1.3	MDE and DNR will seek funding to prepare a list of potential long-term, fixed station study sites on public land or lands accessible for long-term research

Objective 4.2	**Revise procedures for review activities requiring water quality certification to comply with federal requirements and ensure that water quality standards are met.**
Rationale	Federal procedures and requirements for water quality certifications have changed. New State procedures are required to meet federal requirements.
Action Items:	
4.2.1a	Update regulations to remove the requirement for MD Register notice and replace it with web-based notice.
4.2.1b	Update list of information needed to review projects for compliance with water quality standards.
4.2.2	Conduct training for staff on water quality standards and review processes.
4.2.3	Update database for tracking of individual water quality certifications.

Wetland Program Plan Implementation

- Convene interagency meetings to track progress, refine goals/objectives/tasks and solidify interagency working relationships. Meetings will be held as needed to expeditiously complete action items.

- Develop an interagency plan and set of priorities for seeking funds from EPA and other funding agencies to support completion of tasks and meet goals and objectives.

- Coordinate to record progress and tasks for reporting to EPA and other stakeholders.

- Complete tasks according to the schedule below when needed resources are available. See Schedule.

Schedule Note: "Ongoing" tasks are continuous, with periodic results and changes, but may not occur every year.

Action Item #	Action Item	Lead Agency	Supporting Agencies	2026	2027	2028	2029	2030	Notes
1.1 Update and enhance screening system with additional data layers on wetland extent and other resources of interest.									
1.1.1	Establish a common, recommended wetland guidance map.	MDE, DNR	TBD						Schedule TBD
1.1.2	Seek funding to complete enhanced wetland mapping for entire state.	MDE	TBD						Schedule TBD
1.1.3	Seek funding to create and subsequently update a living wetland polygon tool	MDE	TBD						Schedule TBD
1.1.4	Create an automated system for adding mitigation sites and other GIS layers from application review on the updated wetland guidance maps.	MDE		X	X	X	X	X	Ongoing as new sites are added
1.1.5	Make updated wetland guidance maps available to state, federal, and local agencies and the public.	MDE	TBD						Schedule TBD
1.1.6	Seek funding to establish criteria for digital submission of application and plain information	MDE		X					Original task completed. Ongoing

Action Item #	Action Item	Lead Agency	Supporting Agencies	2026	2027	2028	2029	2030	Notes
	and improve database and screening system to allow for digital submission and distribution of application information.								improvements are in progress.
1.1.7	Seek funding and improve data layers for streams.	MDE, DNR		X					Part of 2024 grant
1.1.8	Conduct periodic updates of shoreline inventories.	MDE, DNR	TBD						Initial inventory completed, future efforts expected
1.1.9	Investigate costs of mapping of vernal pools and seek funding for pilot vernal pool mapping project creation of a GIS data layer.		TBD						Schedule TBD
1.2 Improve regulatory efficiency and wetland conservation									
1.2.1	Evaluate regulations to identify areas of where requirements result in inefficient permit review and do not advance wetland protection.	MDE		X					
1.2.2	Evaluate potential sites for potential addition or deletion from Nontidal Wetlands of Special Concern.	MDE, DNR							Schedule TBD

Action Item #	Action Item	Lead Agency	Supporting Agencies	2026	2027	2028	2029	2030	Notes
1.2.3	Develop tracking and/or notification system for special conditions.	MDE		X					
1.2.4	Seek funding to expand capability of receiving digital application submissions.	MDE							Schedule TBD
1.2.5	Develop procedures for improved conservation of vernal pools and train staff.	MDE, DNR	TBD						Schedule TBD
1.3 Adopt provision to improve success of compensatory mitigation and implement compensatory mitigation consistent with EPA/USACE federal mitigation rule									
1.3.1	Revise mitigation regulations to improve consistency with 2008 federal rule and seek approval of in-lieu fee instruments and develop templates for documents required to adopt and implement mitigation banks.	MDE		X					
1.3.2	Investigate measures to remove disincentives to mitigation banking.	MDE		X					
1.3.3	Develop new tools or adapt existing tools to better predict replacement of lost wetland functions	Lead agency for stream mitigation: IRT		X					

Action Item #	Action Item	Lead Agency	Supporting Agencies	2026	2027	2028	2029	2030	Notes
		Regulatory Wetland Assessment: USACE. Other participation by MDE, DNR, EPA, NRCS							
1.3.4	Seek approval of Maryland Nontidal and Tidal Wetland Compensation Fund Programs as in-lieu fee mitigation options consistent with federal rule.	MDE	USACE, USFWS, EPA	X					
1.3.5	Investigate additional partnerships to expedite acquisition or permissions to successfully construct mitigation sites using in lieu fee funds.	MDE	MDE, USFWS, EPA						Partnership with Chesapeake Bay Trust in place to manage bids for projects.
1.4 Evaluate effectiveness of restoration guidance and practices and improve outreach and education material for improved, consistent design recommendations and considerations.									
1.4.1	Seek grant to conduct field study of shoreline stabilization sites; update guidance, conduct training.	MDE		X	X				Stabilization mapper completed Statewide, new grant will update guidance
1.4.1a	Conduct field and geospatial studies of non-structural	MDE		X	X				Ongoing efforts

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	shoreline stabilization (living shoreline) sites, including long-term stability, resilience to changing environmental conditions and other stressors, and ecological function related to natural vegetated tidal wetlands.								
1.4.1b	Work with coastal engineer to develop additional guidance, tools, sample plans, and recommendations for evaluation of restoration sites, living shoreline sites, and impacts from other proposed activities.	MDE		X	X				Original task was to acquire services of coastal engineer, this has been completed and new guidance is in progress
1.4.1c	Attend marine trade shows to conduct outreach on available services, guidance, requirements, and to promote living shoreline designs that reflect existing natural marsh and shoreline composition.	MDE		X	X	X	X	X	Participation completed in several trade shows; this is now ongoing effort
1.4.1d	Update living shoreline construction guidance to promote construction methods that minimize disruption of upland buffers when establishing living shorelines.	MDE		X	X	X			In progress

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1.4.1e	Work with other resource agencies to streamline the review of living shoreline projects in tidal waters.	MDE		X	X				Living shoreline mapper completed; new checklists completed; further revisions expected in ongoing effort.
1.4.2a	Improve the effectiveness and efficiency of the review process for restoration projects in coordination with other resource agencies.	MDE, DNR, CAC		X	X				
1.4.2b	Continue to improve coordination of multiple permit requirements. Develop a coordinated interagency approach on stream and wetland restoration protocols that inform and streamline design, expedite permit review, funding and construction and result in functional uplift for wetland and associated stream resources, including adjacent riparian areas.	MDE		X	X				Ongoing
1.4.2c	Develop guidance to applicants for documenting functional uplift from restoration actions at the project site.	USACE, MDE		X					Ongoing

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1.4.2d	Assist in developing criteria and guidance for qualifying conditions for application of wetland practices receiving credit for nutrient and sediment reduction for the Chesapeake Bay TMDL.	Chesapeake Bay Program							Schedule TBD
1.4.2e	Prioritize review within MDE and DNR for restoration projects, particularly for those projects that are funded by the Chesapeake Bay Trust or Whole Watershed Act in order to expedite budget expenditures.	MDE, DNR		X	X	X	X	X	
1.4.2f	Develop implementation guidance and procedures for avoiding and minimizing resource tradeoffs.	MDE	CAC, DNR						Schedule TBD
1.5 Implement new BMP requirements for temporary impacts and expand outreach to promote use									
1.5.1	Expand training for restoration of temporary impacts to local jurisdictions, major utilities, and other stakeholders.	MDE, CAC, USACE		X	X	X	X	X	Ongoing training sessions w/MDE, CAC, CBLP for contractors, local government reps on MDE/USACE requirements and CAC requirements for

Action Item #	Action Item	Lead Agency	Supporting Agencies	2026	2027	2028	2029	2030	Notes
									adjacent upland Buffers.
1.5.2	Begin maintaining digital records of individual impact sites.	MDE							Ongoing
1.6 Work with USACE to revise long form application and information requirements to reduce requests for additional information									
1.6.1	Continue to refine the checklist for stream and floodplain restoration projects.	MDE, USACE		X	X	X	X	X	Ongoing
1.6.2	Refine fields in joint application and revise instructions for showing proposed impacts.	MDE, USACE							Schedule TBD
1.6.3	Establish criteria for digital submission of application and plan information and improve database and screening system to allow for digital submission and distribution of application information.	MDE		X	X	X	X	X	In Progress
1.6.4	Refine and update fillable digital joint permit application forms.	MDE, USACE							Schedule TBD
1.7 Determine need for additional guidance and standards for identified project types or practices of concern									
1.7.1	Prepare new guidance and standards for wetland type conversion, ponds in forested	MDE, depending on							Schedule TBD

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	wetlands; stormwater management activities in wetlands, and waterways; and forestry practices.	topic DNR, CAC,TBD							
1.7.2	Create new guidance and review criteria for considering changing environmental conditions and increased precipitation in regulatory review.	MDE, DNR		X	X	X			On the design side DNR requires designs to consider the latest UMCES projections for changing environmental conditions
1.8 Improve reporting capability and accuracy for authorized losses and gains									
1.8.1	Seek funding to integrate GIS wetland and waterway gain/loss and enterprise permit database.	MDE		X					Nearly complete for mapping restoration projects
1.8.2	Correct errors in report programming.	MDE		X	X	X	X	X	
1.8.3	Update standard operating procedures for data entry and characterization of permanent, temporary, and conversion activities in wetlands.	MDE							Schedule TBD
1.8.4	Develop prospectus for future implementation of geospatial analysis of wetland losses and	MDE							Schedule TBD

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	gains using available remote sensing data.								
1.8.5	Continue to improve reporting and tracking capability of individual water quality certifications and coastal zone consistency determinations	MDE		X					Initial tracking system completed; ongoing effort
1.8.6	Scan and digitize historical nontidal, waterway construction, and tidal wetlands authorizations to enhance stakeholder transparency and accessibility, and enhance the analysis and reporting of historical gains and losses.	MDE		X	X	X	X	X	Ongoing effort
1.9 Continue to provide and receive training in wetland identification and expand training efforts in priority topics; and receive training in special topics to increase expertise.									
1.9.1	Provide training on new joint application.	MDE, USACE							Schedule TBD
1.9.2a	Seek funding to conduct and receive training on special technical topics for assessment and construction of wetlands; Stream assessment and review of restoration/mitigation projects;	MDE, USACE, DNR, MDA, USEPA, USFWS,NRCS		X	X	X	X	X	Ongoing effort

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1.9.2b	Seek funding to conduct and receive training on special technical topics for Technical advances and policy development on mitigation, wetland assessments, site evaluation, remediation, and soils.	MDE, USACE, DNR Other Agencies: MDA, USEPA, USFWS,NRCS		X	X				Ongoing effort: Funding received and triage and review to be developed
1.9.2c	Compile and evaluate existing training, and develop new training materials for sustainable training program for new staff.	MDE							Schedule TBD
1.9.2d	Develop procedures for improved field identification of vernal pools and train staff.								Schedule TBD
1.10 Streamline environmental review coordination between MDE, DNR, and other pertinent agencies									
1.10.1	Update DNR data layers for ecologically sensitive areas to aid MDE in screening applications and determining which applications are sent to DNR for review.	MDE, DNR		X	X	X			The previous related task task was to seek funding; grant awarded. In progress
1.10.2	Develop MDE in-house expertise for improved ecological interpretation in lieu of DNR review of minor projects.	MDE, DNR		X	X	X			The previous related task was to seek funding; grant awarded. In progress

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1.10.3	Identify areas or project types which continue to require DNR expertise in providing recommendation in application review.	MDE, DNR		X	X	X			
1.10.4	Adjust screening criteria to improve the selection of projects requiring interagency coordinated review.	MDE, DNR. Other: CAC		X	X				Ongoing effort, annual updates by DNR; work underway to develop management recommendations for high quality resources.
1.10.4a	Prioritize DNR review by project type and location	DNR		X					
1.10.4b	Determine area of influence and affected resource for a given permit point.	MDE, DNR. Other: CAC							Schedule TBD
1.10.4c	Refine Use III/IV maps for application screening by identifying stream reaches that have known occurrences of sensitive living resources, such as trout streams, aquatic species of Greatest Conservation Need, coldwater benthic communities	DNR		X	X	X			In progress

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	and other unique aquatic living resource attributes.								
1.10.4d	Develop field criteria for MDE reviewers to use in order to forward projects to DNR for living resource and habitat focused reviews.	MDE, DNR		X	X	X			In progress
1.10.4e	Develop a list of trout/coldwater conservation BMPs to inform permit conditions for MDE to apply during application review in place if no individual DNR permit review.	DNR		X	X	X			In progress
1.10.4f	Migrate interagency pre-application screening, permit application and permit review from hardcopy to a digital e-collaboration framework that utilizes geospatial information and on-line review and commenting for more efficient and effective regulatory review.	MDE, MES		X	X				In progress
1.10.4g	Conduct cross-training sessions with facilitator among SHA/MDE/DNR/MDA/CAC at regular intervals to ensure	MDE		X	X	X	X	X	Ongoing as needed

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	interagency staff are aware of new research, existing planning and review tools, regulations and policies.								
1.10.4h	DNR to provide training to MDE reviewers on use and interpretation of biological resources such as the Natural Areas Inventory.	DNR, MDS Other: CAC							Schedule TBD
1.10.4i	Conduct training in key wildlife habitats: identification, assessment, BMPs, and opportunities and techniques for enhancement.	MDE, DNR							Initial training completed, additional training anticipated.
1.10.5	Continue to develop, in cooperation with the Maryland Environmental Service, USACE, and other resource agencies, an online self-certification and application system that leverages existing programmatic databases, resource screening tools, and GIS web services to receive applications, notices and processing fees, and to automatically notify staff,	MDE Other: USACE, DNR, SHA		X					Previous task to seek funding completed and grant awarded. Ongoing effort.

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	commenting agencies, and interested parties.								
1.10.6	Seek funding to:								
1.10.6a	Continue to enhance on-line application submission and online data system.	MDE		X					
1.10.6b	Seek funding to acquire large scale printers to reproduce engineering plans.	MDE							Schedule TBD
1.10.6c	Seek funding to hire personnel or hire a service contract to scan and digitize paper documents and applications from users not using the on-line system.	MDE							Schedule TBD
1.10.6d	Continue to improve ability of application system for viewing information and authorizations by the USACE.	MDE, USACE		X	X				Ongoing
1.11 Expand capability of regulatory program to operate remotely outside of traditional office setting									
1.11.1	Acquire tools and supplies for staff to use while teleworking.	MDE		X					
1.11.2	Expand the capability of the regulatory program to operate remotely by securing funding to	MDE							Schedule TBD

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	create and maintain a centralized, up-to-date database of licensed marine contractors.								
2.1 Develop capacity and tools to improve assessment of wetland condition, function, vulnerability to stressors and ecosystem service benefits in order to better inform regulatory and non-regulatory programs for restoration and preservation.									
2.1.1	Seek funding to develop or adapt assessment methods for wetland functional and condition. Assessments; restoration needs; unified stream/wetland assessment.	MDE, USACE, DNR, EPA, USFWS	TBD						MDWAM, FBRSA completed, MDE use TBD.
2.1.1a	Improve and standardize rapid functional assessment for regulatory use, with instructions, indicators and training.	MDE, USACE, DNR, EPA, USFWS		X					
2.1.1b	Work with USDA and USGS to test approaches of evaluating wetland hydrology, connectivity, and headwater stream identification using LiDAR and DEMs.	MDE, NRCS, USGS							Schedule TBD
2.1.1c	Improve integration of GIS-based regulatory permit data with MDE enterprise TEMPO data system for improved status and trend reporting and spatial	MDE		X					

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	analysis of wetland impacts and mitigation.								
2.1.1d	Revise and test a method to assess condition and enhancement potential for wetland key wildlife habitats designated in the Maryland State Wildlife Action Plan.	MDE, DNR							Methods completed during last term; refinements planned (Schedule TBD)
2.1.1e	Improve assessments for hydrology needs to establish or re-establish wetlands.	MDE, USACE, DNR, EPA, USFWS							Schedule TBD
2.1.1f	Create, test, and implement unified assessment of stream/wetland complexes for use in permit review.	MDE, USACE, DNR, EPA, NRCS							Multi-agency efforts underway; First version completed for MDE Ecological Integrity Assessment for restoration projects; edits underway.; MDWAM being tested (Schedule TBD)
2.1.1g	Apply and refine metrics to economically quantify wetland ecosystem service benefits to be used for evaluating return on	DNR		X					Original report completed in 2019; blue carbon task under report completed in

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	investment for voluntary restoration and conservation efforts.								2023. Ecosystem co-benefits are now part of DNR Trust Fund review for funding restoration projects.
2.1.1h	Improve metrics and performance standards for wetland mitigation sites.	IRT		X	X	X	X	X	Updates made as needed; ongoing
2.1.1i	Scan older paper files of mitigation records and add them to the data system.	MDE		X	X	X	X	X	Ongoing
2.1.1j	Seek funding and develop an assessment for predicting quality of vernal pools.	MDE	DNR						Schedule TBD
2.1.1k	Implement monitoring requirements and analysis for both nontidal and tidal wetland, shore erosion control projects, and stream restorations – looking at desired outcomes as well as habitat trade offs and resiliency.	MDE		X	X	X	X	X	Ongoing
2.1.2 Improve integrated management of submerged aquatic vegetation (SAV) and tidal marsh; seek funding to:									

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2.1.2a	Develop or acquire maps showing early season submerged aquatic vegetation for use in regulatory and management programs.	VIMS, DNR, MDE		X	X	X	X	X	The CBP SAV Workgroup (via DNR, Brooke Landry) is working with ODU to acquire year-round satellite imagery of SAV in Chesapeake Bay and autodelineate SAV beds. Once developed, this will provide on spring-emergent SAV, specifically Zannichellia palustris (Horned pondweed). Some information on Zannichellia distribution is also collected through the CB SAV Watchers program, which is coordinated and implemented through DNR as well.
2.1.2b	Evaluate the long-term effects of living shoreline projects on submerged aquatic vegetation.	DNR, MDE	UMCES	X	X	X	X	X	Some pilot efforts completed; additional work anticipated. DNR/USGS Water Science Center

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									conducted a pilot project on this. UMCES has also conducted a lot of work on LS impacts to SAV.
2.1.2c	Evaluate impact on home values from the construction of living shorelines and hardened shorelines.	EPA		X					Preliminary results with EPA targeting completing the draft report, summer 2025
2.1.2d	Evaluate the impact of docks, piers, and other over-water structures on the various communities of submerged aquatic vegetation in Chesapeake Bay (i.e., freshwater, mesohaline, and polyhaline SAV communities).	DNR, MDE, NOAA							Schedule TBD. This is a NOAA area of interest and studies have been completed on the impacts of docks/piers on seagrasses, but the work does not cover the impacts to the various SAV communities in Chesapeake Bay.
2.1.2e	Develop a long-term strategy and implementation plan to track and issue notifications for living shoreline monitoring requirements.	MDE		X					

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2.1.2f	Develop and implement a strategy to reduce the use of hardened shoreline structures in favor of living shoreline solutions.	MDE	DNR, CAC						Schedule TBD
2.2 Improve success of stream restoration projects									
2.2.1	Evaluate and track stream restoration successes and document methods with highest success.	CBP-STAC, MDE		X					
2.2.2	Evaluate crediting assigned as it relates to MS-4 and WIP credits.	CBP-STAC							Schedule TBD. CBP-STAC report on stream restoration completed.
2.2.3	Develop and implement standards for stream restoration projects to limit unintended consequences and resource tradeoffs.	MDE							Schedule TBD. Whole watershed Act implementation ongoing
3.1 Prioritize restoration and conservation projects that connect and/or preserve habitat corridors for plant and animal migration consistent with BioNet and Maryland State Wildlife Action Plan and include on the WRR.									
3.1.1	Collaborate on development and distribution of guidance for restoration projects.	MDE, DNR		X	X	X			
3.1.2	Develop recommendations for enhancement of key wildlife habitats that support priority	DNR, MDE		X	X	X			

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	Maryland State Wildlife Action Plan conservation actions.								
3.1.3	Collaborate with various agencies and stakeholders to develop management and protection measures for vernal pools beyond the State regulatory program.	MDE, DNR							Schedule TBD
3.2 Develop a coordinated interagency approach on stream and wetland restoration protocols that inform and streamline design, permit review, funding and construction and result in functional uplift for wetland and associated stream resources.									
3.2.1	Determine approaches to expedite permit review of restoration projects.	MDE		X	X	X			
3.2.2	Promote floodplain reconnection projects for water quality and habitat connectivity benefits, while maintaining or expanding existing riparian or wetland vegetation.	MDE, DNR Other: MDA, TBD		X	X	X	X	X	Some work under Whole Watershed Act implementation for stream restoration projects
3.2.3	Seek funding to develop guidance for balancing living shoreline projects with submerged aquatic vegetation restoration and protection.	MDE, DNR, CAC Federal TBD							Schedule TBD
3.2.4	Update priority areas for restoration and protection with	MDE, DNR							Schedule TBD

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	expanded information and add to WRR.								
3.2.5	Expand and implement written guidance and recommendations for protection and restoration of priority areas.	MDE, DNR		X	X	X			
3.3 Evaluate sites for potential addition or deletion to designated Nontidal wetlands of special State concern									
3.3.1	MDE and DNR will collaborate on a review of supporting documentation of suggested deletions and additions to the designated list of Nontidal wetlands of special State concern.	DNR, MDE							Schedule TBD
3.3.2	Update list with addition of new qualifying areas and removal of areas that no longer meet criteria for designation of Nontidal wetlands of special State concern.	DNR, MDE							Schedule TBD
3.4 Develop adaptation criteria to guide restoration, preservation and permit review efforts where appropriate for wetland, waterway, and floodplain projects and activities subject to extreme weather events, changing environmental conditions, coastal wetland corridors, inland flooding hotspots, vegetation shifts, etc.Develop adaptation criteria to guide restoration, preservation and permit review efforts where appropriate for wetland, waterway, and floodplain projects and activities subject to extreme weather events, changing environmental conditions, coastal wetland migration corridors, inland flooding hotspots, climatic vegetation shifts, etc									

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3.4.1	Develop criteria for extreme events, increasing storm surges, and adaptation for use in review of wetland or waterway permits. This may include modifications to standard structural components as well as modifications to typical species lists for living shorelines.	DNR, MDE		X	X	X			CAC conducts meetings every other month that includes MDE, DNR, and local government reps where we discuss specific projects including how they fit in with resilience goals. Ongoing
3.4.2	Develop science-based criteria to evaluate the adequacy of resilient practices used by State agencies to address coastal hazards, extreme weather events, including evaluating efforts at minimizing impacts to wetland migration corridors.	DNR, MDE		X	X	X			
3.4.3	Encourage the development of Best Management Practices for Marsh Migration Corridors in support of shoreline projects.	DNR			X				
3.5 Continue to achieve and record gains associated with wetland restoration, creation, and enhancement projects.									
3.5.1	Continue to check records on wetland restoration, creation, and enhancement for accuracy.	MDE	DNR, MDA, NRCS,	X	X	X	X	X	

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			USFWS, USACE						
3.6 Conserve high value wetlands and associated landscape connectivity through protection opportunities provided by land conservation programs and infrastructure, land use, energy and transportation planning and development.									
3.6.1	Support and participate in the Greater Baltimore Wilderness Coalition.	DNR		X	X	X	X	X	
3.6.2	Prioritize conservation decisions to increase habitat connectivity to protect wildlife corridors (gene pool) and, in coastal areas, wetland migration corridors.	DNR		X	X	X	X	X	Ongoing. DNR's Habitat Connectivity Network predicts wildlife corridors
3.6.3	Promote the use of planning tools, such as the Watershed Resources Registry, BioNet, GreenPrint, and others, to avoid and minimize impacts to wetlands and to direct mitigation to areas that already have been identified as having significant natural resources.	DNR Other: MDE, SHA,MDA, CAC, TBD		X	X	X	X	X	
3.6.4	Embed wetland adaptation considerations into existing infrastructure screening processes to cover Coast Smart developments and work occurring	DNR		X	X	X	X	X	

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	with Land Acquisition and Planning and the Critical Area Commission.								
3.7 Support and participate in the Greater Baltimore Wilderness Coalition which is a coalition of public, private, and nonprofit organizations that envisions a future where accessible interconnected and healthy ecosystems contribute to economic vitality, resilience, and quality of life for all the region's residents and visitors [http://www.baltimorewilderness.org/]									
3.7.1	Seek funding to prepare new or updated management recommendations for Nontidal wetlands of special State concern and other wetlands on State lands, incorporating recommendations for high priority wetlands included in the Maryland Natural Areas Inventory.	DNR		X	X	X	X	X	Grant received, work in progress
3.8 Develop and promote additional Best Management Practices for maintaining or improving the quality of wetlands and other aquatic resources.									
3.8.1	Discourage mowing in tidal wetlands and develop Best Management Practices to guide necessary maintenance activities.	CBP							(Schedule TBD) Background report completed 2025
3.8.2	Develop best management practices for unique resources or to address emerging issues related to wetland and aquatic resource restoration and protection.	MDE, DNR							Schedule TBD

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4.1 Identify measures and information needed to determine whether or not wetland water quality standards would advance wetland protection and management.									
4.1.1	Seek funding to develop and test protocol for identifying existing functions and ecosystem services of wetlands that could aid in identifying potential designated uses and associated components of water quality standards in the context of the Clean Water Act.	MDE							Schedule TBD
4.1.2	MDE and DNR will seek funding to investigate integrated monitoring of wetlands with monitoring of other waters, such as the Maryland Biological Stream Survey.	MDE, DNR							Schedule TBD
4.1.3	MDE and DNR will seek funding to prepare a list of potential long-term, fixed station study sites on public land or lands accessible for long-term research	MDE, DNR							Schedule TBD
4.2 Revise procedures for review activities requiring water quality certification to comply with federal requirements and ensure that water quality standards are met.									
4.2.1a	Update regulations to remove requirements for MD Register	MDE							Schedule TBD

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	notice and replace it with web-based notice.								
4.2.1b	Update list of information needed to review projects for compliance with water quality standards.	MDE		X					
4.2.2	Conduct training for staff on water quality standards and review processes.	MDE		X					
4.2.3	Maintain database for tracking of individual water quality certifications	MDE		X					The original task was to create a database for tracking; this is completed and use is ongoing.

Glossary of Terms

"Conservation" refers to the comprehensive management and use of wetlands to meet various resource needs.

"Nontidal wetlands of special State concern" means areas designated based on the criteria below as having exceptional ecological or educational value of Statewide significance:

1. The following criteria shall be used by the Department to designate Nontidal wetlands of special State concern that:
    a. Provide habitat or ecologically important buffers for the habitat of plant or animal species:
        i. Listed as endangered or threatened by the U.S. Fish and Wildlife Service;
        ii. Listed as endangered or threatened, or species listed as in need of conservation by DNR; or
        iii. Considered to be a candidate for listing by the U.S. Fish and Wildlife Service, or considered to be locally unusual or rare by DNR; or
    b. Are unique natural areas or contain ecologically unusual natural communities.

(2) Nontidal wetlands of special State concern are designated in COMAR 26.23.06.01.

References

Dolbin, Emily. Personnel Communication. November 17, 2025.

Maryland Department of the Environment. 2003. *Maryland Wetland Conservation Plan*. Funded by U.S. Environmental Protection Agency State Wetland Program Development Grant CD 993568-01-6.

Maryland Department of the Environment. 2004. *Priority Areas for Wetland Restoration*, Preservation, and Mitigation in Maryland's Coastal Bays. Funded by U.S. Environmental Protection Agency State Wetland Program Development Grant CD 983378-01-

Maryland Department of the Environment. 2006. *Priority Areas for Wetland Restoration, Preservation, and Mitigation*. Funded by U.S. Environmental Protection Agency State Wetland Program Development Grant CD 983200-01-0.

Maryland Department of the Environment. 2012. *Draft Water Quality Standards for Wetlands*. Funded by: U.S. Environmental Protection Agency State Wetland Program Development Grant and Performance Partnership Grant BG 973027.

Taillie, Dylan. Personal communication. June 17, 2025.

U.S. Army Corps of Engineers New England District. 1999. The Highway Methodology Workbook *Supplement. Wetland Functions and Values A Descriptive Approach.* NAEEP-360-1-30a.