Chapter 9

Revision Process, Outreach, and Plan Implementation

APPENDICES

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Chapter 9 Appendices

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Appendix 9a. State, Federal, and Local Agencies and Their Initiatives and Programs Related to the State Wildlife Action Plan

Maryland Department of Natural Resources (MD DNR) leads wildlife conservation in Maryland, but this effort is only possible with the support of agencies and organizations from around the state. Such partnerships are essential to support the research, communication, and actions that drive wildlife conservation at local, state, national, and international levels. This appendix lists government agencies and their initiatives and programs that strive to conserve Maryland wildlife and natural resources as part of their mission. Appendix 9a lists the many partners in wildlife conservation that represent non-profit entities in Maryland.

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State Agencies

One important tool for biodiversity conservation that affects multiple state agencies is a state statute modeled after the federal Endangered Species Act. The General Assembly, when creating Maryland's Nongame and Endangered Species Conservation Act* (Act), recognized the importance of plants and animals to human existence. The Act reads:

> (1) It is the policy of the State to conserve species of wildlife for human enjoyment, for scientific purposes, and to insure their perpetuation as viable components of their ecosystems;
>
> (2) Species of wildlife and plants normally occurring within the State which may be found to be threatened or endangered within the State should be accorded the protection necessary to maintain and enhance their numbers.

The Act mandates that the Department of Natural Resources lists species that are in danger of extinction within the State, requires that State agencies use their authority to maintain and enhance nongame wildlife and endangered species populations, and directs the Secretary of the Department to set up programs to conserve these species. Maryland's Act has led to the successful development of programs, policies, and partnerships that conserve rare and endangered species.

* For full text of the Act and guiding regulations please see the Nongame and Endangered Species Conservation Act, Natural Resources Article, Sections 4-2A-01 – 4-2A-08 and 10-2A-01 – 10-2A-09, Annotated Code of Maryland at the website for the Maryland General Assembly.

Maryland Department of Natural Resources (MD DNR)

The mission of the MD Department of Natural Resources (MD DNR) is to preserve, protect, enhance, and restore Maryland's natural resources for the wise use and enjoyment of all citizens. Because of its importance, special management emphasis is given to the Maryland portion of the Chesapeake Bay and its tributaries. Other areas of emphasis include state forests and parks, fish and wildlife, and the recreation of citizens engaged in boating, fishing, hunting, and other outdoor enjoyment of our natural resources.

Agency-wide objectives include:

- Healthy Terrestrial & Aquatic Ecosystems
- Efficient Use of Energy & Resources
- Citizen Stewardship, Outdoor Recreation, & Opportunities to Take Action
- Vibrant Communities & Neighborhoods
- Long-Term Economic Prosperity
- Professional Commitment

MD DNR manages numerous monitoring, research, planning, protection, and restoration programs to accomplish the above objectives. Information about these programs and other MD DNR operations is detailed on the MD DNR website at http://dnr2.maryland.gov. Below is a compilation of some of these programs related to the conservation of wildlife and key wildlife habitats.

Land Resources

MD DNR Wildlife and Heritage Service (WHS)

The mission of the Wildlife and Heritage Service (WHS) is to conserve Maryland's diverse native wildlife, plants, and the natural communities that support them, using scientific expertise and informed public input. The WHS oversees the management of 61 Wildlife Management Areas statewide, totaling over 123,000 acres; sponsors several conservation education programs; manages game species and regulates hunting and trapping activities; and conserves habitat on private land, as well as managing invasive non-native species statewide. The Natural Heritage Program is housed within the Wildlife and Heritage Service unit.

- The Maryland Natural Heritage Program (NHP) is the lead state program responsible for the identification, ranking, protection, and management of nongame, rare, and endangered species and their habitats in Maryland. Data collected by NHP ecologists, contractors and cooperators provide a majority of the scientific foundation for the Threatened and Endangered Species lists mandated by the Maryland Nongame and Endangered Species Act. Natural Heritage Program researchers conduct inventory, monitoring, and research activities for

nongame wildlife, rare species populations, and natural communities, documenting trends in population and habitat health and viability and providing an understanding of natural systems and their conservation needs. Information gathered through this work guides land management decisions, including restoration, and regulations designed to protect and conserve our state biological diversity. Due to the nature of NHP's work, they are the lead program for the development of the State Wildlife Action Plan.

MD DNR Park Service

The Park Service manages over 130,000 acres of MD DNR properties and is committed to the preservation and protection of the lands the state holds in trust for future generations. Land management activities and acquisitions and stewardship and conservation goals help MD DNR protect wetlands, forest corridors, and habitat of threatened species; enhance biological diversity of native plants and animals; and preserve historical and cultural resources while supporting responsible growth. The holdings and activities of the Park Service make natural areas accessible to the public for recreational activities and events, an important service for the benefit of Maryland's citizens.

MD DNR Forest Service

The mission of the Forest Service is to restore, manage, and protect Maryland's trees, forests, and forested ecosystems. The Forest Service manages over 215,000 acres and attempts to retain Maryland's existing forest land base through the promotion and establishment of new forests, which are planned with the goal of supporting native plant and animal populations. The Forest Service also works toward minimizing negative impacts to the State's forest and tree resources from wildlife, harmful insects and disease, land conversion, and other disturbance agents.

MD DNR Maryland Environmental Trust (MET)

MET is a statewide land trust that works with local communities and landowners to preserve open land such as farmland, forest land, and significant natural resources. The primary approach utilized by MET is to work toward securing conservation easements, which are presented as a tool for landowners to protect natural resources and preserve scenic open space. Landowners who hold an easement on a portion of their land limit the right to develop and subdivide the land but still retain ownership of the land. Properties eligible for easements, which must be considered to be in the public interest, typically involve woodlands, wetlands, farmland, scenic areas, historic areas, wild and scenic rivers, and undisturbed natural areas. Wildlife diversity interests, in general, are served when open space is protected in this manner.

MD DNR Land Acquisition and Planning

Land Acquisition and Planning (LAP) ensures that public lands owned by MD DNR are used in ways that are economically and environmentally sustainable. The responsibilities of this program include strategic planning for the public use and protection of statewide natural resources and recreational lands that total over 475,000 acres in the State of Maryland managed by the Department of Natural Resources. Additional responsibilities include support to local jurisdictions for open space and recreational planning, survey and property control of over 3000 miles of boundary lines, assessment of the impacts of different human activities on the environments of MD DNR's lands, and development of recommendations and policies to acquire, develop, and manage the resources on these public lands. The following programs fall under MD DNR Land Acquisition and Planning:

- Program Open Space (POS) is a nationally recognized program providing dedicated funds for Maryland's state and local parks and conservation areas. Almost all of the land purchased by the MD DNR in the last 40 years was funded at least in part through POS. Today more than 6,100 individual county and municipal parks and conservation areas exist because of the program.

- Established in 1997, the Rural Legacy Program provides the focus and funding necessary to protect large, contiguous tracts of land and other strategic areas from sprawl development and to enhance natural resource, agricultural, forestry, and environmental protection through cooperative efforts among state and local governments and land trusts. Protection is provided through the acquisition of easements and fee estates from willing landowners and the supporting activities of Rural Legacy Sponsors and local governments. There is at least one Rural Legacy Area in every Maryland county and the total acreage designated in all Rural Legacy Areas is 920,694 acres.

Aquatic Resources

MD DNR Resource Assessment Service (RAS)

Since 1996, MD DNR's Resource Assessment Service (RAS) has monitored the health of the Chesapeake Bay, Maryland's Coastal Bays, and associated tributaries. In 2015, MD DNR's Maryland Chesapeake Bay Water Quality Monitoring Program was comprised of 32 water quality monitors placed in shallow waters throughout the Chesapeake and Coastal Bays, as well as the Sassafras, Susquehanna, Corsica, Back, Patapsco, Potomac, Bush, Patuxent, and Wicomico Rivers, the C&D Canal, and Harris Creek, a tributary of the Choptank River. The program assesses water quality by evaluating parameters such as nutrient dissolved oxygen levels and water clarity. Some of these monitoring stations are made possible by partnerships with the National Estuarine Research Reserve System. Over one-third of these stations provide real-time data, which is available at MD DNR's Eyes on the Bay website. The following programs fall under MD DNR Resource Assessment Service:

- The Maryland Geological Survey (MGS) investigates the geologic and aquatic resources of Maryland through mineral and environmental geology, water resources investigations, coastal and estuarine geology, and topographic and geophysical mapping. MGS informs the public, private industry, and local, state, and federal government agencies of its findings for use in making decisions about Maryland's environment and natural resources. MGS publishes state and county topographic and geologic maps, reports based on geologic surveys, and other materials intended to further understanding and application of earth science in Maryland.

- The Maryland Biological Stream Survey (MBSS) was designed to take periodic snapshots of Maryland's streams to assess current conditions, trends and ecological threats. These data are also used to identify high quality areas where protection is paramount and degraded areas that do not meet state water quality standards. Since 1994, biologists have collected water samples and biological and habitat data for over 4000 streams. In addition, trained volunteers from the Stream Waders program have collected benthic macroinvertebrate samples from nearly 8,000 additional sites. Combined, this information provides an unparalleled picture of the health, biodiversity, and threats to Maryland streams and rivers.

MD DNR has assisted in the development of Watershed Restoration Action Strategies (WRAS) for many of Maryland's rivers and other waterways. These strategies are developed by local governments with assistance from MD DNR's technical and assessment services. Reports produced by MD DNR that are often helpful in the development of WRAS include the Watershed Characterization Report and Stream Corridor Assessment Report.

MD DNR Fisheries Service

The Fisheries Service is responsible for managing commercial and recreational fishing in Maryland waters. Freshwater, estuarine, and migratory fish and shellfish stocks are managed for sustainable fisheries, to enhance and restore fish or shellfish species in decline, to promote ethical fishing practices, and to ensure public involvement in the fishery management process. The mission of the Fisheries Service is to develop a management framework for the conservation of and equitable use of fishery resources for present and future generations, through management of fisheries in balance with the ecosystem. Fisheries Service monitoring and assessment of status and trends of fisheries resources directly impacts wildlife diversity conservation.

MD DNR Critical Area Commission for Chesapeake Bay and Atlantic Coastal Bays (CAC)

The Critical Area Act, passed in 1984, created a statewide Critical Area Commission (CAC) to oversee the development and implementation of local land use programs directed towards the Critical Area. This Act marked the first time that state and local governments jointly addressed the impacts of land development on habitat and aquatic resources. The Department of Natural Resources is the lead state agency for the Commission. Critical Areas are identified as all land within 1,000 feet of the Mean High Water Line of tidal waters or the landward edge of tidal wetlands and all waters of and lands under the Chesapeake Bay, the Atlantic Coastal Bays and their tidal tributaries.

The Commission developed criteria that were used by local jurisdictions to develop individual Critical Area programs and amend local comprehensive plans, zoning ordinances, and subdivision regulations. The goals were to minimize adverse impacts on water quality that resulted from pollutants discharged from structures or conveyances, or that have run off from surrounding lands. This subsequently conserves fish, wildlife, and plant habitat in those areas. The criteria also establish land use policies for development in the Critical Area which accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in the Critical Area can create adverse environmental impacts.

The programs that have subsequently been adopted by local governments are specific and comprehensive. They are designed to address the unique characteristics and needs of each county and municipality and together they represent a comprehensive land use strategy for preserving and protecting Maryland's most important natural resources within the Chesapeake Bay and Coastal Bays. Today the Commission's primary responsibilities are to review and approve State projects on State-owned land in the Critical Area; state or local agency actions resulting in major development on private lands or lands owned by local jurisdictions; and all changes to a jurisdiction's Critical Area Program, including changes to ordinances, regulations, and maps.

MD DNR Chesapeake and Coastal Service (CCS)

Maryland's Chesapeake and Coastal Service (CCS) was established to carry out the Coastal Zone Management Act, which was passed by Congress in 1972 in an attempt to protect and restore the U.S.'s coastal areas. CCS is a partnership among local, regional, and state agencies, which work together to ensure proper management of Maryland's coastal zone. CCS collaborates with many private organizations, such as local land trusts and economic development groups. The program strives to achieve a balance between development and protection in the coastal zone, which includes the Chesapeake Bay, Coastal Bays, and Atlantic Ocean, as well as, the towns, cities, and counties that contain and help govern the coastline. It encompasses two-thirds of the state's land area and is home to 68% of Maryland's residents. Through partnerships and funding to local governments, state agencies, non-profit organizations, and universities, the Chesapeake and Coastal Service addresses a variety of coastal issues including provision of public access, nonpoint source pollution reduction, coastal hazards mitigation, habitat and living resources protection, and growth management.

- Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund, overseen by MD DNR's Chesapeake and Coastal Services Program, funds nonpoint nutrient and sediment reduction projects and restoration projects that improve the health of the Chesapeake Bay and Coastal Bays. The Trust Fund collects proposals for cost-effective and efficient projects and leverages funds and resources from local, state, and federal programs to aid selected projects. The Trust Fund made $16 million available for project grants in fiscal year 2016. Projects currently or previously funded through this program include MDA's Manure to Energy Projects, stormwater remediation and infrastructure projects, nutrient and sediment reductions on state lands, Conservation Reserve Enhancement Program initiatives, agricultural technical assistance, and projects supporting local watershed implantation plans.

Maryland Department of the Environment (MDE)

The Maryland Department of the Environment's (MDE) mission is to protect and restore the quality of Maryland's air, water, and land resources, while fostering smart growth, economic development, safe communities, and quality environmental education, for the benefit of the environment, public health, and future generations. The Department accomplishes its mission by assessing, preventing, and controlling sources of pollution to foster an excellent quality of life for all Marylanders.

The Department's primary services include permitting/licensing and inspections for air and radiological health, water management, and land management and different regulatory facilities, financial assistance, environmental clean-up oversight, technical assistance for compliance and pollution prevention, public education and outreach, and environmental emergency response. Following is a brief review of MDE programs that influence SWAP objectives.

General Programs

MDE Pollution Prevention and Sustainability - Pollution Prevention (P2) offers a proactive approach to environmental management. As defined by the Pollution Prevention Act of 1990, P2 is the reduction or elimination of pollution at the source rather than through control or treatment technologies at the end of the pipe or stack. This office supports local businesses and citizens in pollution reduction goals with technical assistance and informational resources.

MDE Water Programs

The Department of the Environment (MDE) implements a diversity of regulatory and planning programs to reduce the input of pollutants to surface and ground waters of the State. Reduction of nutrients from both point and non-point sources is the focus of the permit requirements, along with control of bacterial pollution from sewage treatment plants and toxic materials from any source.

Nonpoint Source Management Program – This program provides financial, technical and outreach assistance to control nonpoint source pollution. To help build local capacity for watershed planning and implementation of nonpoint source pollution controls, the program provides grants to state and local governments and institutions of higher learning to implement nonpoint source pollution control projects and programs.

Evolving since its original inception in 1987, Maryland's Nonpoint Source Management Program is operated in an integrated fashion with Maryland DNR's Coastal Zone Program. The Management Plan, the product of a 2013 EPA mandate that states must update their Nonpoint Source Management Programs at least every five years, is a comprehensive guide to the State's nonpoint source problems, pollution control programs, and future steps for nonpoint source pollution control and prevention. In 2015, the EPA approved a revised Management Plan that identified a number of priorities as long-term, statewide nonpoint source goals, including watershed programs and initiatives, and educational and financial assistance programs.

The backbone of the Management Plan is the application of management measures, i.e., economically achievable activities to control the addition of NPS pollution to coastal waters. There are 56 management measures that the State is required to implement on all applicable land uses within the coastal boundary. Each management measure has associated enforceable policies and mechanisms to insure implementation. The following programs provide specific requirements that the administrations must follow to ensure that management measures are conducted: Stormwater Management Program; Sediment and Erosion Control Program, Nontidal Wetlands and Waterways Programs, Tidal Wetlands Program, and Chesapeake Bay Critical Areas Program.

Sediment, Stormwater, and Dam Safety Program - The Sediment and Stormwater section within this program concentrates on controlling runoff increases and mitigating water quality degradation associated with new development. It provides detailed guidance on how to prevent sediment and

stormwater runoff and/or nonpoint source pollution. The Dam Safety section provides an overview of how the State ensures that all dams in Maryland are designed, constructed, operated and maintained safely to prevent dam failures and the consequences of failures.

Maximum Daily Load Program - Total Maximum Daily Loads (TMDLs), a requirement of the Clean Water Act (CWA) Section 303(d), are a tool for implementing state water quality standards. They are based on the relationship between pollution sources and in-stream water quality conditions. A TMDL establishes the maximum amount of an impairing substance or stressor that a waterbody can assimilate and still meet Water Quality Standards (WQSs) and allocates that load among pollution contributors. A TMDL addressing a single pollutant or stressor for each waterbody is the sum of the allowed pollutant loads for point sources, non-point sources, projected growth, and a margin of safety, as follows: TMDL = Point Sources + Nonpoint Sources + Projected Growth + Margin of Safety. Load allocations are determined through data monitoring and watershed modeling.

A TMDL represents an upper limit, or "cap", on pollutant loads to a waterbody, and, as a result, there must be mechanisms to ensure that the cap is not exceeded. These mechanisms include state and local permitting and regulatory authority, and voluntary efforts under the Chesapeake Bay Agreement that are supported by technical and financial assistance; Maryland has one of the most comprehensive, multi-level, community-based estuary restoration programs in the country. Many of Maryland's existing efforts to protect and restore water quality were designed to help the State meet its TMDL goals. Stakeholders and researchers recognized water quality problems, set an achievable goal, and then identified specific controls for point and nonpoint pollution sources intended to achieve the goal. MDE's three-stage Watershed Implementation Plan, approved by the U.S. Environmental Protection Agency, details specific reduction targets for Maryland's portion of the Chesapeake Bay and those waters that flow into the Bay, with a focus on reducing the largest polluters through nutrient offsetting, improving technology, and reducing run-off.

Wastewater Permits - The Wastewater Permits program works to protect Maryland's waters by controlling wastewater discharges. The program regulates wastewater discharges to surface and groundwater. Surface water discharges are regulated through combined state and federal permits under the National Pollutant Discharge Elimination System (NPDES). Groundwater discharges are regulated through state issued groundwater permits.

Water Supply Program - MDE protects drinking water by implementing various programs that protect groundwater and surface water from contaminants, establishing criteria for well construction, inspecting facilities that treat and provide public drinking water, and assuring compliance with all safe drinking water standards. With an increasing demand for water in Maryland, MDE is working to help meet water conservation goals by encouraging water utilities to take steps to reduce water consumption and educating Maryland citizens about the importance of water conservation. The Water Quality Financing Administration revolving loan fund assists in the financing of capital infrastructure costs for wastewater and drinking water projects.

Wetlands and Waterways - MDE's Wetlands and Waterways Program seeks to conserve valuable aquatic systems, providing for the environmental, economic and resource needs of Maryland. Tidal and Nontidal Wetlands and Waterways Divisions regulate activities in wetlands and wetland buffer

regions to mitigate negative effects of human activity in and near these areas. The program also restores and enhances nontidal wetlands and streams, provides technical assistance with wetland conservation projects, and assists in the development of watershed management plans.

Environmental Health and Standards Program - MDE's fish and shellfish programs under the Environmental Health and Standards Program put a strong emphasis on monitoring the quality of shellfish harvesting waters, and testing edible fish tissue to certify that fish are safe for human consumption.

MDE Land and Air Programs

Although the majority of MDE programs focus on improving water quality in Maryland, several programs are also directed at the protection of Maryland's land and air resources.

Land Programs

Mining in Maryland - This section provides information on mining in Maryland from regulatory permitting to abandoned mine reclamation. It provides data on water quality and historical perspectives on mining in Maryland.

Oil Control Program – MDE's Oil Control Program regulates oil-related activities in Maryland. These activities include aboveground and underground oil storage facilities, oil contamination in soil treatment facilities, and oil transportation. MDE also oversees clean-up and restoration activities in the case of an oil spill in Maryland.

Land Restoration Program – This program focuses on cleaning up hazardous waste sites in Maryland, with expert engineers, geologists, toxicologists, and technical support personnel on staff. Generally, restoration efforts involve controlling uncontrolled discharges, addressing groundwater and surface water discharges, and ensuring that contaminated soil does not pose a risk to water sources and public health.

Solid Waste Management – MDE's Solid Waste Program is responsible for assuring that Maryland's solid waste is handled properly. Poor waste disposal practices for domestic, commercial, and industrial solid waste can pose serious threats to groundwater, surface water, and drinking supply, and can be dangerous to wildife and air quality.

Air Programs

Noise Pollution Control - Noise has become an increasingly contentious "quality of life" issue as the State's population increases and urban sprawl progresses. The Noise Program operates on a complaint driven basis addressing specific requests from individual citizens as well as governmental entities.

Air Monitoring Program – Using air monitoring stations located throughout Maryland, MDE's Ambient Air Monitoring Program measures ground-level air toxin concentrations and performs quality control and analysis of pollutant concentrations in the air. The program website issues daily air quality forecasts. The program collaborates with local universities to conduct research on atmospheric pollution, the results of which support air quality planning and regulations development.

Air Quality Planning – MDE's Air Quality Planning Program regulates emissions reductions for ground-level ozone, particulate matter, lead, carbon monoxide, nitrogen dioxide, and sulfur dioxide. These six "criteria" air pollutants are recognized in the Clean Air Act as the most common air pollutants, and the U.S. Environmental Protection Agency has set standards for these pollutants. The Air Quality Planning Program also implements federal, regional, local, and state greenhouse gas emissions reductions programs.

Maryland Department of Agriculture (MDA)

The mission of the Maryland Department of Agriculture (MDA) is to provide leadership and support to agriculture and the citizens of Maryland by conducting regulatory, service, and educational activities that assure consumer confidence, protect the environment, and promote agriculture. As shown below, the Office of Resource Conservation within MDA is performing conservation work that augments wildlife diversity.

Office of Resource Conservation

The Maryland Department of Agriculture's Office of Resource Conservation (RC) works closely with Maryland farmers and soil conservation districts to plan and implement conservation practices and programs that balance crop and livestock production with the need to protect natural resources. RC provides a range of educational, financial, technical assistance and regulatory programs to support Maryland agriculture and protect natural resources for future generations. The Office works with a number of local, state, and federal agencies, while implementing policies established by the State Soil Conservation Committee. Four key areas, Program Planning and Development, Conservation Grants, the Nutrient Management Program, and Conservation Operations comprise the Office of Resource Conservation.

Office of Plant Industries and Pest Management

MDA's Office of Plant Industries and Pest Management works with Maryland landowners, forest and nursery industries, and other government agencies to limit and manage the impacts of non-native invasive species and pesticides, among other factors, on the State's environmental, human, and economic health. This Office implements policies and programs within six main areas: Pesticide Regulation, Forest Pest Management, Plant Protection and Weed Management, Mosquito Control, Turf and Seed, and State Chemist.

Maryland Department of Planning (MDP)

The Maryland Department of Planning (MDP) promotes growth that fosters vibrant, livable communities, preserves and protects the environment, and makes efficient use of State resources. MDP provides data, trend analysis, research assistance, and policy development and implementation support for local governments, other state agencies, communities, businesses, and organizations. The Department provides technical assistance, local program review and planning design services for Maryland's counties and municipalities. MDP also monitors and forecasts changes in development and land use throughout the state, as well as creating and producing research tools and resources to assist in planning for Maryland's future. Information on demographic, socio-economic, political, cultural, geographic and land-use trends is collected, analyzed, and distributed in multiple formats. With computer mapping and geographic information systems, MDP supports map display and analysis of census data, satellite imagery, aerial photography, land-use and parcel data to enhance and assist growth management and land-use planning across the State.

Office of Smart Growth

The Office of Smart Growth works directly with local governments, businesses, and organizations to coordinate the implementation of proven planning strategies. The office helps developers and local officials produce well-planned projects and to educate and inform the public on land-use issues. Smart Growth has four straightforward goals: 1) support existing communities by targeting resources to support development in areas where infrastructure exists, 2) save our most valuable natural resources before they are forever lost, 3) save taxpayers from the high cost of building infrastructure to serve development that has spread far from our traditional population centers, and 4) provide Marylanders with a high quality of life, whether they choose to live in a rural community, suburb, small town, or city. The State has over 80 programs that help assist Smart Growth, including MD DNR's Rural Legacy Program.

Comprehensive Planning and Zoning

Comprehensive Planning and Zoning are some of the most basic tools of land use planning. Comprehensive Plans, also known as Master Plans, capture how people want their communities to function and grow. In Maryland, local jurisdictions are required to review and, if necessary, to update their Comprehensive Plans every six years and MDP offers technical assistance for these updates. Zoning is the primary tool jurisdictions use to help implement the comprehensive plan. Zoning regulations, which are always accompanied by a map, typically govern the type of land uses permitted

and how they can be configured on the land. Most jurisdictions also have subdivision or development regulations that provide further guidance for the development of land. MDP works with local jurisdictions to revise their zoning codes and subdivision regulations.

Maryland Department of Transportation (MDOT)

As part of the Maryland Department of Transportation (MDOT), the State Highway Administration (SHA) is one of the most visible arms of state government. Today, SHA is responsible for more than 18,000 lane miles of interstate, primary, and secondary roads and more than 2,500 bridges. SHA's preliminary planning process ensures that proposed projects are compatible to local conditions, including environmental qualifications. SHA has updated its Guidelines to better address the preparation and review of Secondary Cumulative Effects Analysis.

MDOT aims to achieve its mission through responsible stewardship of the Chesapeake Bay and all Maryland waters through the implementation of proactive water quality programs and the integration of water quality considerations into all applicable aspects of strategic planning and business decision-making. In addition to specific Water Quality Requirements, MDOT also must adhere to policies, programmatic initiatives, and directives that are not implemented by specific legislative or other requirements.

Maryland law regulates many operational aspects of agencies under MDOT's purview, including the Maryland Transportation Authority, the State Highway Administration, the Motor Vehicle Administration, the Transit Administration, the Aviation Administration, and the Port Administration. Regulated aspects include storage tanks, stormwater pollution prevention, spill prevention, wastewater management, air emissions, hazardous and toxic materials, solid waste management, water supply, noise, and coastal zone management. Following are two major guiding policies which seek to manage threats to SGCN and their habitats.

Planning and Natural Resource Management Policy - MDOT attempts to integrate water quality concerns into the facility development planning process. When developing projects, impacts on water quality, including erosion and siltation of streams, realignment or relocation of a waterway, filling or draining of wetlands, and changes in quality or quantity of runoff from increases in impervious surface or removal of forests are considered. In planning redevelopment projects, MDOT plans for the possibility that aforestation, reforestation, reduction in impervious surface, water quality treatment, water quantity control or some form of mitigation will be required. As local governments develop watershed management plans, MDOT participates in the planning process to ensure coordination with the plan.

Water Pollution Prevention and Stormwater Management Policy - MDOT seeks reductions from stormwater pollutant sources by promoting aggressive pollution prevention activities and innovative management technologies. Pollution prevention and stormwater management practices have been integrated into standard operating procedures with the goal of eliminating the discharge of nutrients, toxics and hazardous substances to surface

or ground waters. MDOT continues to investigate and share new technologies and products to improve the reduction and control of contaminants and to recycle waste products to the extent feasible.

Maryland Environmental Service (MES)

Maryland Environmental Service (MES) is an independent state agency that provides services to government and public sector entities. As an independent agency, operating funds are not provided by direct appropriations. Projects include engineering, monitoring, and inspection services for water and wastewater treatment, solid waste management, water quality monitoring, dredged material management, hazardous materials clean-up, stormwater services, and renewable energy. MES collaborates with other state and non-governmental entities to provide education and outreach to local citizens, including educational involvement in northern diamond-backed terrapin head-starting programs and tours of Maryland's dredging restoration and environmental remediation sites.

University of Maryland Center for Environmental Science (UMCES)

The University of Maryland Center for Environmental Science (UMCES) is one of 12 constituent institutions of the University of Maryland. The Center's programs are carried out at three laboratories located across the state: the Appalachian Laboratory in western Maryland, the Chesapeake Biological Laboratory in southern Maryland, and the Horn Point Laboratory on the Delmarva Peninsula. UMCES is also responsible for the administration of the Maryland Sea Grant program. The Center's research and science application activities emphasize the Chesapeake Bay and its watershed.

Appalachian Laboratory (AL) – Located in Frostburg, AL was founded in 1962 to focus on the ecology of Western Maryland. Its faculty conducts research in aquatic ecology, landscape and watershed ecology, conservation biology and restoration ecology, and behavioral and evolutionary ecology, and studies both freshwater and terrestrial ecosystems of Maryland and other national and global locations. AL is a member of the Association of Ecosystem Research Centers. Appalachian Laboratory is the headquarters and administrative lead of the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW CESU), a partnership among 28 university/research institutions and 9 federal agencies whose members strive to understand and protect the natural and cultural resources of the region. The CW CESU is part of the CESU national network of 17 similar partnerships. The primary objective of the network is to foster stewardship of the environment through collaborative research, technical assistance and education that support integrated ecosystem management. Environmental education is an important part of the mission of the Appalachian Laboratory, aimed at motivating future generations to be environmentally literate and to understand the importance of an ecologically healthy environment. Through this effort, AL educates teachers, students, and other members of the western Maryland community how to be wise stewards of our valuable natural resources.

Chesapeake Biological Laboratory (CBL) - CBL is a marine research facility founded in 1925 that is located at the mouth of the Patuxent River, within easy reach of the diverse aquatic and terrestrial habitats of one of the world's largest estuarine ecosystems. CBL is a charter member of the National Association of Marine Laboratories and it houses the UMCES research fleet. First founded to study declining water quality in the Bay, areas of research emphasis at CBL today include aquatic environmental toxicology, environmental chemistry, ecosystem studies, and fisheries science.

Horn Point Laboratory (HPL) – HPL, founded in 1972, is located on the banks of the Choptank River, a tributary of the Chesapeake Bay on Maryland's Eastern Shore. The Laboratory is interdisciplinary with faculty engaged in research on the biology, chemistry, physics, and ecology of organisms and ecosystems from wetlands and estuarine waters of the Chesapeake Bay to the continental shelf and open waters of the world's oceans. Areas of scientific expertise include oceanography, plankton dynamics, marine macrophyte and wetland ecology, systems ecology, nutrient dynamics and eutrophication, physiological ecology of benthic invertebrates, benthic-pelagic interactions, and aquaculture. HPL is a member of the Southern Association of Marine Laboratories (SAML) and the National Association of Marine Laboratories (NAML).

Maryland Sea Grant - Supports innovative marine research, education, and outreach with a special focus on the Chesapeake Bay. With funding from the National Oceanic and Atmospheric Administration and the State of Maryland, Sea Grant-supported research targets practical problems, with the aim of promoting wise decision-making. Maryland Sea Grant is administered by the University of Maryland Center for Environmental Science and is hosted by the College Park campus. By serving as a gateway to relevant and reliable scientific information, Sea Grant helps assure that individuals can make informed choices about their use and stewardship of marine resources. A national network of 33 Sea Grant Colleges and institutional programs shares research, outreach, and education to solve problems and explore new uses for the world's marine, Great Lakes, and coastal resources.

University of Maryland Extension (UME)

University of Maryland Extension (UME) is a statewide education network that offers non-formal education programs and technical assistance to Maryland citizens. Based on a partnership between the U.S. Department of Agriculture, land-grant universities, and local universities in Maryland, UME has extension offices in every Maryland county and in Baltimore City, from which extension faculty and staff provide a variety of programs and services. UME's Environment and Natural Resources section has programming for topics such as agricultural law, agricultural nutrient management, watershed protection and restoration, and forestry. UME offers training and educational programs for forestry and agricultural professionals and the public, grant writing assistance, and informative materials.

The Chesapeake Bay Trust

Although not a state agency, the Chesapeake Bay Trust (Trust) was established in 1985 as a non-profit grant-making organization by the Maryland General Assembly. The Trust is authorized to receive funding from a special Maryland license plate and donations to a dedicated fund available through Maryland state income tax forms. The goal of the Trust is to improve the

Chesapeake Bay and its tributaries through community outreach, environmental education, and watershed restoration projects. The Trust has awarded $70 million in grants since its inception, and focuses its grants on community led activities. A variety of grants are offered through the Trust's grant site.

Federal Programs

U.S. Fish and Wildlife Service (USFWS)

The U.S. Fish and Wildlife Service (USFWS), within the U.S. Department of the Interior, is the principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife, plants and their habitats for the continuing benefit of the American people. The agency enforces federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid Program which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies. In addition, regional partnerships for fish and wildlife conservation, such as Joint Ventures and Landscape Conservation Cooperatives, are supported by USFWS.

- **USFWS Chesapeake Bay Field Office**

The mission of the Chesapeake Bay Field Office (CBFO) is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. Chesapeake Bay Field Office biologists work to protect endangered and threatened species, migratory birds, freshwater and anadromous fish, and wildlife habitats in the District of Columbia, Delaware, Maryland and Virginia. CBFO staff work with various other private and public partners to preserve and protect living resources of the Chesapeake Bay and Delaware Bay ecosystems.

- **USFWS Maryland Fishery Resources Office**

Maryland Fishery Resources Office coordinates fish tagging programs in cooperation with federal and state agencies along the eastern seaboard. The Cooperative Tagging Program has provided critical information for striped bass restoration, and will likely be as important to sturgeon, shad, and horseshoe crab conservation. Information from these tagging programs can be used to monitor the status of stocks, restore fish populations, and set seasons on harvest.

- **National Wildlife Refuge System**

The Chesapeake Marshlands National Wildlife Refuge Complex comprises the Blackwater National Wildlife Refuge (NWR), Eastern Neck NWR, and the Chesapeake Island Refuges, consisting of Martin NWR and Susquehanna NWR, Barren Island, Watts Island, Garrett Island, Bishops Head, and Spring Island. A planning team consisting of representatives from all divisions within the USFWS developed a Comprehensive Conservation Plan (CCP) and Environmental Analysis (EA) for the Complex, with input and assistance from numerous partner

agencies. A separate CCP/EA was developed for Eastern Neck NWR. These CCPs provide management guidance for achieving the highest and best contribution to wildlife resources for which the Service is responsible on the Refuge Complex.

Established in 1936 by executive order of President Franklin D. Roosevelt, the Patuxent Research Refuge is the nation's only National Wildlife Refuge established to support wildlife research. This property houses the facilities for the USGS's Patuxent Wildlife Research Center as well as the National Wildlife Visitor Center. This Center is the largest science and environmental education center in the Department of the Interior. Designed to accommodate one million visitors per year, this unique facility seeks to impart to young and old alike an increased knowledge of and appreciation for the earth's vital resources. It highlights the work of professional scientists who strive to improve the condition of wildlife and their habitats.

U.S. National Park Service (NPS)

Within the U.S. Department of the Interior, the National Park Service (NPS) preserves the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with state, national, and international partners to extend the benefits of natural and cultural resource conservation and outdoor recreation. The NPS owns and manages a wide variety of properties across Maryland. Its 28 holdings within the state include National Scenic Trails, National Seashore, National Historic Sites, and National Battlefields.

U.S. Geological Survey (USGS)

Also housed within the U.S. Department of the Interior, the USGS serves the nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect quality of life. As the nation's largest water, earth, and biological science and civilian mapping agency, the USGS collects, monitors, and analyzes geological data, providing scientific understanding about natural resource conditions, issues, and problems. The diversity of scientific expertise enables the implementation of large-scale, multi-disciplinary investigations and the provision of impartial scientific information to resource managers, planners, and other interested parties.

- **Chesapeake Science Program**
  The USGS Chesapeake Science Program depends on the coordination of multiple USGS Programs that have a scientific interest in the Bay restoration. Over forty USGS scientists located in offices throughout the Bay watershed and at the CBP, are involved in scientific studies and information dissemination. Where possible, the USGS is planning and executing integrated efforts among USGS National Programs to enhance interdisciplinary approaches to technical issues. Many USGS programs come together to support the Chesapeake Science Program,

which was given greater responsibility, along with the USFWS and NPS, under the 2009 Executive Order for Chesapeake Bay Protection and Restoration.

Under this executive order, the USGS is collaborating with NOAA in two critical areas to support Bay restoration and protection: strengthening science and responding to climate change. To fulfill these responsibilities, the USGS is working to promote science-based adaptive management, forecast impacts of climate change, assess and explain water quality conditions, and document the status of species and their habitats, such as fish die-off and poor watershed health. The USGS will focus on documenting the factors affecting the health of fish and water birds and their habitats: Submerged Aquatic Vegetation, Wetlands, Stream Corridors, Invasive Species, Fish Health, and Water Birds.

As the Chesapeake Bay Program develops plans to restore vital habitats and living resources like submerged aquatic vegetation and fisheries habitat, land-use change is recognized as the primary factor causing water quality and habitat degradation in the Bay and its watershed. The USGS is producing sought-after land-cover, land-use, and watershed data needed to understand these impacts to water quality and living resources. Efforts are focused on documenting the sediment, nutrient, and toxic sources associated with urban, suburban, and agricultural lands.

National Oceanic and Atmospheric Administration (NOAA)

Situated within the U.S. Department of Commerce, the National Oceanic and Atmospheric Administration's (NOAA) mission is to understand and predict changes in the Earth's environment and to conserve and manage coastal and marine resources to meet the United States' economic, social, and environmental needs. The following programs are players in MD DNR projects, research, and conservation activities.

Habitat Conservation Program - Works to improve the quality and increase the quantity of coastal habitat restoration. In addition to planning, funding, and implementing on-the-ground restoration projects, the Habitat Program advances the science underlying coastal habitat restoration and develops improved technology with which to achieve successful restoration. The Community-based Restoration Program is a financial and technical assistance program that promotes strong partnerships at the national, regional, and local level to restore fisheries habitat with the help of volunteer support, and other in-kind services. This program is administered by NOAA Habitat Conservation Program. In 2015, for example, the Community-based Restoration Program funded a $3.8 million dam removal project on Maryland's Patapsco River in an effort to improve spawning habitat for anadromous fish species.

Damage Assessment, Remediation, and Restoration Program (DARRP) - Conducts natural resource damage assessments and restoration of coastal and marine resources injured as a result of oil spills, releases of hazardous materials, and ship groundings. Founded in the wake of the 1992 Exxon-Valdez oil spill, DARRP strives to hold parties accountable for damage to the ecosystem. Recovered funds are used for restoration projects and to

compensate the public.

Assessment and Restoration Division - Implements the Secretary of Commerce's natural resource trusteeship by protecting and restoring coastal habitats and resources affected by hazardous materials releases. This division is part of the Office of Response and Restoration within the NOAA Ocean Service.

Estuary Restoration Act (ERA) - This Act formed a federal interagency council to make restoring our nation's estuaries a top priority. NOAA is assigned primary data coordination responsibilities under the ERA, including the establishment of monitoring protocols for restoration projects and the development and maintenance of a national inventory of restoration projects (National Estuary Restoration Inventory). NOAA is also working to assess habitat trends and fill gaps in restoration planning in key coastal areas. On behalf of the Estuary Restoration Act, NOAA has partnered with Maryland state agencies and NGOs on projects such as marshland and shellfish bed restorations at Blackwater National Wildlife Refuge, Chincoteague Bay, and the Chester, Magothy, and Miles rivers. NOAA also assisted the Chesapeake Bay Foundation and partners in implementing the Citizen Oyster Gardening Program.

Oyster Recovery Partnership - A component of the NOAA Chesapeake Bay Office, this partnership provides a focus for NOAA's multiple capabilities and activities in Chesapeake Bay along with the multi-state/Federal partnership that comprises the Chesapeake Bay Program.

Hydropower Program - Implements provisions of the Federal Power Act to prescribe fishways and other protection, mitigation, and enhancement measures at hydropower projects licensed by the Federal Energy Regulatory Commission. NOAA participated in the interagency workgroup for the relicensing of the Conowingo Dam in the Susquehanna River.

The Marine Geology & Geophysics Division of the NOAA National Geophysical Data Center and the collocated World Data Center for Marine Geology & Geophysics, in Boulder, Colo., compiles and maintains extensive bathymetric, marine sediment and trackline geophysical databases in both coastal and open ocean areas.

Estuarine Reserve Research - The NOAA National Estuarine Research Reserve System protects and studies estuarine areas through a network of 28 reserves. The Chesapeake Bay Reserve is made up of three geographically separate sites that reflect the diversity of Bay habitats in Maryland: Jug Bay, Otter Point Creek, and Monie Bay are managed by MD DNR with guidance from NOAA and other partners.

National Centers for Coastal Ocean Science - The National Centers for Coastal Ocean Science (NCCOS) conducts and supports research, monitoring, assessment and technical assistance to people managing coastal ecosystems and society's use of them. Formed within the NOAA Ocean Service in March 1999, NCCOS puts all of NOAA's coastal research centers in one group. Each center has specific capabilities and research expertise in important ocean and coastal issues: Center for Sponsored Coastal Ocean Research, Center for Coastal Monitoring and Assessment, Center for Coastal Fisheries and Habitat Research.

Office of Habitat Conservation - The Office of Habitat Conservation is located in the National Oceanic and Atmospheric Administration (NOAA) Headquarters complex in Silver Spring, Maryland. The Office interacts with the NOAA Fisheries Regional Offices to manage, conserve, and enhance habitats for fishery resources, protected species, and other living marine resources.

National Marine Fisheries Service (NOAA Fisheries Service) is dedicated to protecting and preserving the nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. Marine fisheries, which extends from Maryland waters to 200 miles from U.S. shores, provides an important source of food, as well as thousands of jobs and a traditional way of life for many coastal communities. In partnership with USFWS, NOAA Fisheries develops conservation strategies for aquatic species of concern, such as shortnose sturgeon and sea turtles.

Marine Mammals — NOAA Fisheries works to protect marine mammals under its jurisdiction, including many SGCN such as bottlenose dolphin, blue whale, sperm whale, and humpback whale.

Sea Turtle Protection and Conservation - All six species of sea turtles (five of which are SGCN) in the U.S. are protected under the Endangered Species Act of 1973. One of the most important ways NOAA Fisheries acts to protect sea turtles is by developing and requiring the use of Turtle Excluder Devices or TEDs while fishing, especially while harvesting shrimp or crabs.

Essential Fish Habitat — The conservation of essential fish habitat for federally managed fish species is an important component of building and maintaining sustainable fisheries. The NOAA Essential Fish Habitat Program produces the Essential Fish Habitat Mapper, a tool for visualizing the important habitats and life stages of fish species in the world's oceans. This mapping tool also displays updated nautical charts and conservation information for species of concern.

U.S. Environmental Protection Agency (EPA)

The mission of the United States Environmental Protection Agency (EPA) is to protect human health and the environment. One of the numerous programs coordinated by EPA is the National Aquatic Resource Surveys (NARS), which are statistical surveys designed to assess the status of and changes in quality of coastal waters, lakes, reservoirs, rivers, streams, and wetlands in the U.S. Each survey employs multiple standardized indicators, such as acidification, dissolved oxygen, human disturbance, and macroinvertebrate population abundance and variety, to assess health of aquatic resources. The standardized procedures allow results from different geographical locations and years to be compared for analysis purposes. These data can be applied by scientists, policy-makers, and citizens to address issues in the quality of the nation's coastal waters, lakes and reservoirs, rivers and streams, and wetlands.

U.S. Department of Agriculture (USDA)

Among the varied responsibilities of the U.S. Department of Agriculture (USDA) are the stewardship of our nation's 193 million acres of national forests and rangelands, as well as working with private landowners to encourage voluntary efforts to protect soil, water, and wildlife on the 70 percent of America's lands that are in private hands.

Natural Resources Conservation Service (NRCS)

The Natural Resources Conservation Service (NRCS) coordinates numerous natural resources conservation programs to help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty. As an example, the Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Through WHIP, USDA's Natural Resources Conservation Service provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from 5 to 10 years from the date the agreement is signed.

U.S. Department of Defense (US DoD)

U.S. Army Corps of Engineers (ACOE)

The U.S. Army Corps of Engineers (ACOE) (Baltimore and Pittsburgh Districts for Maryland) has many projects and programs that are helping to meet the Bay's restoration goals. The ACOE carries out environmental and natural resource management programs at its projects, managing thousands of square miles as forest and wildlife habitat, monitoring water quality at its dams, operating fish hatcheries in cooperation with State wildlife agencies, and in some cases restoring the environment at projects sites from the past. ACOE's Civil Works Program enables the ACOE, with support from non-federal sponsors, to plan, design, and construct projects related to ecosystem restoration, navigation and flood protection. Working toward a national goal of "no net loss of wetlands," the Civil Works program is undertaking projects to restore existing wetlands, or to create new ones. Since passage of the National Environmental Policy Act of 1969, environmental protection has been an important component of the civil works planning process. Legislation passed in 1990 established environmental protection as one of the primary missions of water resources projects, along with navigation and flood control.

- Poplar Island Environmental Restoration Site - Poplar Island, in Talbot County, MD, is a national model for habitat restoration and the beneficial use of dredged material. The U.S. ACOE, Baltimore District has teamed with the Maryland Port Administration and other federal and state agencies to restore Poplar Island. Six different habitat types are being created as part of the Poplar Island Environmental Restoration

Project, including upland habitat, salt marshes, tidal flats, nesting islands, rocky shorelines, and shallow water habitats. Not only will these habitats support a diverse assemblage of plants and animals, but some of the habitat types to be created include those that are most sorely needed in the Bay, including nesting habitat for birds, tidal wetlands for fish and other wetlands wildlife, and protected habitat necessary for submerged aquatic vegetation recovery. Poplar Island is being restored using approximately 68 million cubic yards of dredged material from the Baltimore Harbor and nearby channels.

- Mid-Chesapeake Bay Island Ecosystem Restoration Project – The Baltimore District, in partnership with Maryland Department of Transportation, is working on preconstruction design of a dredged material restoration project that will restore and expand James Island and Barren Island in Dorchester County. In addition to providing a necessary deposition site for material dredged from Baltimore Harbor, the project will add hundreds of acres of terrestrial and wetland habitat to the two selected Chesapeake Bay Islands, which are threatened by erosion and sea-level rise. Remote island habitat is important for many native Chesapeake Bay species, such as submerged aquatic vegetation and shellfish, as well as migratory birds.

The U.S. ACOE manages almost 12 million acres of the nation's land and water resources. The ACOE Environmental Stewardship Program protects and restores environments surrounding civil works projects. This program mandates compliance measures to ensure that projects meet federal, state, and local environmental requirements, and pollution prevention is an important facet of the program's work. Through International and Interagency Services Programs, the Corps assists many non-Department of Defense federal, state, and local government agencies to supplement their technical resources. The ACOE Regulatory Program regulates the discharge of dredged or fill material into all waters of the Unites States, as well as construction activities and dredging within traditionally navigable waters.

Chesapeake Bay Program and Model - The U.S ACOE is a strategic partner in the Chesapeake Bay Program regional partnership (see page 24). One important contribution the U.S. ACOE has made to the Chesapeake Bay Program is the Chesapeake Bay Environmental Model Package (CBEMP), developed by the Engineer Research and Development Center (ERDC) of the Corps and supported by the U.S. Environmental Protection Agency. The model is being used to help determine nutrient and solids load reductions necessary to restore the Bay. ERDC is initiating innovative model developments to investigate the impact of a ten-fold increase in oyster population and is in the initial stages of adding a sediment transport component to the Bay model.

U. S. Service Branches (Army, Navy, Air Force, Marines, National Guard, Coast Guard)

The Environmental Management System of the U.S. Department of Defense (DoD) calls for systematic integration of environmental management into all missions, activities, and functions that are carried out by the various service branches. Examples of this approach in practice would be the completion and implementation of Integrated Natural Resource Management Plans (INRMP's) for base facilities in Maryland, as well as commitments by Maryland's National Guard to combat invasive species on training facilities leased from the state. The Environmental Management Systems website linked above offers a wealth of information and resources about the DoD's environmental management practices.

Local Agencies and Programs

Planning and Zoning

There are Planning and Zoning organizations within each of Maryland's 23 counties, as well as Baltimore City. Coordination at the local level also includes contact with county staff related to environmental protection and resource management. Maryland has more than 150 municipalities and coordination at this level is frequently accomplished through the county agencies or via the Maryland Department of Planning. Local agencies coordinate with various state agencies in the development of their Comprehensive Plans, Land Preservation and Recreation Plans, and other planning activities. When these local land use programs are planned for Maryland's Critical Areas, the development and implementation of these plans is overseen by the statewide Critical Area Commission. The criteria instated by county jurisdictions in accordance with the Critical Area Commission's oversight aims to minimize adverse impacts on water quality that result from various changes in land use, such as discharged pollutants and runoff.

Maryland-National Capital Park and Planning Commission (M-NCPPC)

The Maryland-National Capital Park and Planning Commission (M-NCPPC) is a bi-county agency empowered by the State of Maryland in 1927 to acquire, develop, maintain and administer a regional system of parks within Montgomery and Prince George's Counties, and to prepare and administer a general plan for the physical development of the two counties. In addition, M-NCPPC gained responsibility for the public recreation program in Prince George's County in 1970. M-NCPPC administers a park system of more than 52,000 acres. It is composed of stream valley parks, large regional parks, neighborhood parks and park-school recreation areas.

Other Local Programs

Maryland county parks and recreation departments offer recreational programming as well as sites for recreational and educational activities, including maintained parks, trails, museums, and beaches. Some counties manage public lands, and some support county-run nature centers, which aim to educate citizens about wildlife and Maryland's natural areas. Parks and recreation staff include park planners, naturalists, recreation specialists, park police, and other staff who provide important recreational and educational services to Maryland's communities. Most counties also have programs related to environmental protection or environmental health, especially for those activities and functions directly linked to human health.

Multiagency Programs

Northeast Climate Science Center (NE CSC)

The Northeast Climate Science Center (NE CSC) is part of a network of eight regional Climate Science Centers that work to provide scientific information and tools that can be used by managers and other parties to monitor

and adapt to climate change. National coordination of these centers is provided by the U.S. Geological Survey, which oversees the National Climate Change and Wildlife Center. The NE CSC is hosted by the University of Massachusetts, Amherst, and works with an array of other educational and research institutes, non-governmental organizations, and other federal, state, and local partners to address climate science needs across the region.

Chesapeake Bay Program (CBP)

The Chesapeake Bay Program (CBP) is a unique regional partnership that has led and directed the restoration of the Chesapeake Bay since 1983. Principle CBP partners include the states of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency, representing the federal government; and participating citizen advisory groups. Other partner groups include federal agencies, academic institutions, and non-governmental partners.

Since its inception in 1983, the CBP's highest priority has been the restoration of the Bay's living resources- its fish, shellfish, Bay grasses, and other aquatic life and wildlife. Improvements include fisheries and habitat restoration, recovery of Bay grasses, nutrient and toxic reductions, and significant advances in estuarine science. The 2014 Chesapeake Bay Agreement reinvigorated the mission of the Chesapeake Bay Program by bringing together representatives from across the Chesapeake Bay watershed in support of ten main goals. Some major CBP initiatives are summarized below.

- The Chesapeake Bay Small Watershed Grants Program – This program awards grants of $20,000 to $200,000 to organizations and local governments working on community-based restoration projects. In addition to funding restoration activities in the Chesapeake Bay watershed region, the Small Watershed Grants Program promotes community-based stewardship efforts. The program also aims to promote a greater understanding of the Chesapeake Bay and the connection between the health of the Bay and local watersheds, and to strengthen links between local partners and communities and the Chesapeake Bay Program. Many grants are combined with the contributions of other partners, making possible projects that can make a measurable contribution to communities. Since its inception in 2000, the Small Watershed Grants Program has provided over $27 million to support over 600 projects throughout the Bay watershed. When coupled with matching funds leveraged by recipients, the Small Watershed Grants Program has given or allowed for the provision of more than $115 million supporting community restoration projects.

- Innovative Nutrient and Sediment Reduction Grants Program – This program awards grants to support sustainable and cost-effective projects aiming to reduce nutrient and sediment loads reaching the Chesapeake Bay. Innovative approaches to pollution reduction that have won this grant in the past include demonstrations of innovative technologies and best management practices, market-based strategies to reduce pollution, and projects targeting small watersheds.

- **CBP Advisory Committees** – As a major federal-state partnership program with ties to local communities and institutions within the Chesapeake Bay watershed, CBP set up three advisory committees to guide CBP programs and actions. The Citizens Advisory Committee, Local Government Advisory Committee, and Scientific and Technical Advisory Committee advise CBP on behalf of their respective constituencies, providing an effective interface between the various institutions that work together on Chesapeake Bay issues.

- **CBP Goal Implementation Teams** – Six CBP implementation teams coordinate project organization and action in order to achieve overarching goals set in place by the Chesapeake Bay Agreement. Learn more about these implementation teams and CBF's work at chesapeakebay.net.

Maryland Coastal Bays Program (MCBP)

The Maryland Coastal Bays Program (MCBP) is one of 28 National Estuary Programs, which was established in 1987 by amendments to the Clean Water Act (CWA Section 320) to identify, restore, and protect nationally significant estuaries. The U.S. EPA administers the National Estuary Program, but program decisions and activities are carried out by committees of local government officials, private citizens, and representatives from other federal agencies, academic institutions, industry, and estuary user-groups.

The Maryland Coastal Bays include the Isle of Wight, Assawoman, Sinepuxent, Newport, and Chincoteague Bays as well as other smaller bays and estuaries within the watershed. The MCBP began as a planning effort that assessed the Coastal Bays' conditions and trends. The Chesapeake Bay is protected under its own federally mandated program, separate but related to the National Estuary Program. In fact, the approach and methods of the National Estuary Program were developed from the foundation laid by earlier efforts to protect the Chesapeake Bay.

The MCBP is a partnership among the towns of Ocean City and Berlin, National Park Service, Worcester County, U.S. Environmental Protection Agency (EPA), and the Maryland Departments of Natural Resources, Agriculture, and Planning, who came together to produce the first ever management plan for the Coastal Bays. This led to the development of a Comprehensive Conservation and Management Plan (CCMP) that addresses environmental restoration and protection and has evolved into an integrated effort to implement restoration and protection efforts. The CCMP identifies major problems in the coastal bays and action plans to address the problems. A policy committee of high level EPA, state, and local officials and citizen representatives establishes policies and priorities for the protection of the coastal bays and serves as an advocate for the implementation of the CCMP by federal, state, and local governments; citizens; environmental organizations; businesses; agricultural interests; and scientists. A recent revision to the CCMP reassesses the state of Maryland's Coastal Bays and generates new goals and plans for the restoration and management of the Bays.

Created by representatives from the development, farming, golf, tourism, and fishing industries, the plan includes best management practices needed to preserve the economic and ecological prosperity of the Coastal Bays in the next century. With help from local, state, and federal planners and scientists, the strategies in this plan include reachable scientific goals and the most effective means for implemention. The MCBP actively guides scientific research, connects landowners with conservation programs, performs public outreach and education alongside its partners, and gathers and releases information about the state of the Coastal Bays. The program releases a "state of the Bays" report card annually.

Multi-Resolution Land Characteristics (MRLC)

The Multi-Resolution Land Characteristics (MRLC) Consortium is a group of federal agencies who first joined together in 1993 (MRLC 1992) to purchase Landsat 5 imagery for the conterminous U.S. and to develop a national land cover dataset. Today, the consortium includes 10 federal agency partners, who have worked together to produce the National Land Cover Database (NLCD). The consortium's objective is to provide a comprehensive information center on land use in the U.S. All data products are free to use, and are updated every five years, with the most recent update completed in 2011.

Government Agency and Organization Programs and Plans for Wildlife Conservation

The following tables provide an overview of many of the international, national, and state governmental programs and plans that are important in conserving wildlife diversity in Maryland. Many of these programs and plans were not mentioned in the SWAP Chapters and are listed below to provide information about the variety of governmental agencies and resources that play a role in conserving Maryland's wildlife. Table 1 lists government-run programs, and Table 2 lists conservation plans coordinated, written, and/or implemented by agencies and organizations. Each listing includes a link to the agency website that provides additional information, or to the listed conservation plan.

Table 1 Government Agency and Organization Programs for Wildlife Conservation

Agency/ Organization	Program Title	Description/ Purpose	Geographic level	Website
Farm Service Agency (FSA), U.S. Dept. of Agriculture (USDA)	Conservation Reserve Program (CRP)	Voluntary program for farmers and ranchers to assist in compliance with environmental laws and regulations, establish vegetative cover on highly erodible cropland, improve water quality, establish wildlife habitat, and enhance wetlands and forests.	National	http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index
Natural Resources Conservation Service (NRCS), USDA	Agricultural Management Assistance (AMA)	Voluntary program that provides cost-share assistance to farms for watershed management or irrigation structures, tree planting for windbreaks or water quality improvement, soil erosion control measures, integrated pest management or conversion to organic farming	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ama/

Agency/ Organization	Program Title	Description/ Purpose	Geographic level	Website
	Environmental Quality Incentive Program (EQIP)	Voluntary program that provides cost sharing for agricultural improvements that will help meet water quality and other environmental objectives.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/
	Farm and Ranch Lands Protection Program (FRPP)	Voluntary program that provides matching funds to state, tribal, or local governments, and non-governmental organizations to purchase development rights to maintain existing farms.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/farmranch/
Natural Resources Conservation Service (NRCS), USDA	Farmland Protection Program	Voluntary program that provides matching funds to states, communities, tribes and nonprofit organizations for the purchase of conservation easements to protect productive farmland.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/detail/sd/technical/?cid=nrcs141p2_036529
	Regional Conservation Partnership Program (RCPP)	Program created by 2014 Farm Bill brings together farmers, nonprofit organizations, and state and federal agencies to provide financial and technical assistance for farmers to install conservation measures.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/
	Resource Conservation and Development (RC&D) Program	Localized program that assists state, tribal and local governments and NGOs in rural areas in conservation planning and management, sustainable development and quality of life improvements.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/detail/la/people/partners/?cid=nrcs141p2_015725
	Soil and Water Conservation Assistance (SWCA)	Voluntary program to provide cost-share incentives to farms and ranches for soil and water conservation measures, related natural resource conservation, and compliance with environmental laws and regulations.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/rca/
	Watershed Protection and Flood Prevention Program	Voluntary program that assists landowners and local organizations to develop and implement watershed plans, conduct river basin studies, flood hazard analyses, floodplain management practices, and water and land conservation measures.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/

Agency/ Organization	Program Title	Description/ Purpose	Geographic level	Website
	Watershed Surveys and Planning	Voluntary program that assists states, communities, tribes and others to survey and plan watershed protection, sediment and erosion control, water quality, flood prevention, fish and wildlife enhancement, wetland restoration and creation, and other water needs projects.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wsp/
	Wetlands Reserve Program (WRP)	Voluntary conservation program that protects, enhances and restores wetlands and their wildlife resources on private lands.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands/
	Wildlife Habitat Incentives Program (WHIP)	Voluntary program that assists landowners to create high quality aquatic, riparian, wetland and upland habitat areas that support wildlife populations of local, state, national or tribal significance.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip/
U.S. Forest Service, USDA	Forest Inventory and Analysis Program	Tracks the status, distribution and health of forestland throughout the country.	National	http://www.fia.fs.fed.us/
	National Resources Inventory (NRI) Program	Monitors the status and trends of non-federal land use throughout the country.	National	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/nri/
	Stewardship Incentives Program (SIP)	Voluntary program that encourages private forest landowners to maintain productive and healthy forests.	National	http://www.fs.fed.us/cooperativeforestry/library/fsp_standards&guidelines.pdf
NOAA	Maryland Coastal and Estuarine Land Conservation Program (CELCP)	Provides matching funds to state and local governments to purchase or obtain easements for coastal lands that are important for conservation ecologically or for other values.	National	http://coast.noaa.gov/czm/landconservation/?redirect=301ocm
MD DNR	Program Open Space - Localside	Provides assistance to local subdivisions for the planning, acquisition, and development of recreation land or open space areas.	State	http://www.dnr.state.md.us/land/pos/
MD DNR	Rural Legacy Program	Provides funding to preserve large, contiguous tracts of land to enhance environmental protection while supporting a sustainable land base for natural resource based industries.		http://www.dnr.state.md.us/land/ruralllegacy/

Agency/ Organization	Program Title	Description/ Purpose	Geographic level	Website
	Chesapeake and Atlantic Coastal Bays Trust Fund	Funds nonpoint nutrient and sediment reduction projects and restoration projects that improve the health of the Chesapeake Bay and Coastal Bays, leverages funds and resources from local, state, and federal programs to aid selected projects.		http://dnr2.maryland.gov/ccs/Pages/funding/trust-fund.aspx

Table 2 Government Agency and Organization Plans for Wildlife Conservation

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
Appalachian Mountains Joint Venture (AMJV)	BCR 28 Priority Species	The AMJV focuses its resources on select bird species which are in greatest need of conservation action due to limited ranges, small or declining population sizes, or degrading habitat.	Regional	http://amjv.org/index.php/conservation/category/species
Atlantic Coast Joint Venture (ACJV)	New England/Mid-Atlantic Coast Bird Conservation Region (BCR 30) Implementation Plan	Draws information from continental and regional bird conservation initiatives to develop common regional goals for bird conservation.	Regional	http://www.acjv.org/BCR_30/BCR30_June_23_2008_final.pdf
	BCR 29 Priority Species and Implementation Plan	The Implementation Plan identifies conservation priorities and sets goals for conservation actions.	Regional	http://acjv.org/documents/piedmont-2014.pdf
	Waterfowl Implementation Plan	Presents habitat conservation goals and population indices for the ACJV, provides current status assessments for waterfowl and their habitats in the joint venture, and updates focus area narratives and maps for each state.	Regional	http://acjv.org/planning/waterfowl-implementation-plan/
Atlantic States Marine Fisheries Commission	Atlantic Fisheries Management Plans	Promotes conservation of Atlantic coastal fishery resources (American eel, Atlantic menhaden, Atlantic striped bass, Atlantic sturgeon, red drum, horseshoe crab, shad and river herring, tautog).	Regional	http://www.asmfc.org/fisheries-management/program-overview
Black Duck Joint Venture	Conservation Action Plan for the American Black Duck	Defines threats to the American black duck and presents priority conservation and management actions that will be important to stabilize the species.	International-North America	http://blackduck.cmi.vt.edu/Communications/ABDU%20FSP%20Edition%201_Final.pdf

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
Chesapeake Fisheries Ecosystem Plan Technical Advisory Board	Fisheries Ecosystem Plan for the Chesapeake Bay	Describes the structure and function of the Chesapeake Bay ecosystem, including habitats and species interactions, and serves as a document to support ecosystem-based approaches in individual fishery management plans.	Regional	http://www.dnr.state.md.us/irc/docs/00009489.pdf
International Union for Conservation of Nature (IUCN)	Red List for Endangered Species	Globally recognized comprehensive, objective approach for evaluating the conservation status of plant and animal species.	International	http://www.iucnredlist.org/
Maryland Coastal Bays Program	Our Path Forward: The Comprehensive Conservation and Management Plan for Maryland's Coastal Bays	Assesses current state of Maryland's Coastal Bays and advises actions to protect and restore the valuable Bays.	Regional	http://www.mdcoastalbays.org/pdf/ccmp.pdf
MD DNR Fisheries Service	Brook Trout Management Plan	Outlines management objectives to restore and maintain brook trout fishery in Maryland.	State	http://www.dnr.state.md.us/fisheries/pdfs/MDBrookTrout006.pdf
MD DNR, WHS	Rare, Threatened, and Endangered Animals of Maryland	Lists the animals listed as threatened or endangered federally and/or by the state of Maryland, as well as species considered rare or in need of conservation.	State	http://dnr2.maryland.gov/wildlife/Documents/rte_Animal_List.pdf
	Conservation plan for Sea Turtles, Marine Mammals, and the Shortnose Sturgeon in Maryland	Extensively reviews Maryland's sea turtle and marine mammal species and the shortnose sturgeon and lists conservation objectives and actions.	State	http://www.dnr.state.md.us/irc/docs/00005834.pdf
	Puritan Tiger Beetle Habitat Conservation Program	Provides methods by which to mitigate the impact of a "take" by acquiring or restoring habitat for permanent protection of this species.	State	http://www.dnr.maryland.gov/wildlife/Plants_Wildlife/pdfs/PTB_HCP_October_2011.pdf
Mid-Atlantic/New England/Maritimes Regional Working Group (MANEM)	Waterbird Conservation Plan for the Mid-Atlantic/New England/Maritimes Region	Over 200 partners comprising the MANEM working group compiled and interpreted information on important bird habitats, identified priority actions, and developed conservation strategies for many important species.	Regional	http://www.waterbirdconservation.org/pdfs/regional/manem_the_plan.pdf
NatureServe	Conservation Planning Program	Provides scientific assistance and technical support for an array of conservation planning needs.	International – North America	http://www.natureserve.org/conservation-tools/conservation-planning-services

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
NOAA Fisheries	Recovery Plan for the Shortnose Sturgeon	Focuses on recovery objectives for the shortnose sturgeon, with the long-term goal of removing the sturgeon from the federal Endangered Species List.	Regional	http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf
	Recovery Plan for the Fin Whale	Details recovery plan for the fin whale, including priority actions to reduce mortality, minimize illegal whaling activities, disallow overfishing of prey, and reduce ocean noise pollution.	National	http://www.nmfs.noaa.gov/pr/pdfs/recovery/finwhale.pdf
	Recovery Plan for the Humpback Whale	Reviews natural history of humpback whale, summarizes threats to whale, and sets in place actions to maintain humpback habitat, reduce mortality rate, and further research.	National	http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_humpback.pdf
	Recovery Plan for Northern Right Whale	Highlights major threats to northern right whales and lists actions to counter these threats, especially that of human caused right whale mortality.	National	http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_right_northatlantic.pdf
NOAA Fisheries and USFWS	Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle	Identifies recovery units for the northwest Atlantic loggerhead population and sets recovery goals for each unit based on identified threats.	Regional	http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_loggerhead_atlantic.pdf
	Recovery Plan for U.S. Population of Atlantic Green Sea Turtle	Identifies threats to Atlantic population of the green sea turtle and discusses actions to restore species to its range, with focus on nesting areas.	Regional	http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_green_atlantic.pdf
	Recovery Plan for the Hawksbill Turtle in the U.S., Caribbean, and Gulf of Mexico	Identifies most important conservation areas for the hawksbill sea turtle and determines actions necessary to restore this species in its Atlantic range.	International-North America	http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_hawksbill_atlantic.pdf
	Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle	In light of recent successes in conserving the Kemp's Ridley sea turtle, reviews and suggests implementations for conservation efforts.	Bi-national	http://www.nmfs.noaa.gov/pr/pdfs/recovery/kempsridley_revision2.pdf
	Recovery Plan for Leatherback Turtles in the U.S. Caribbean, Atlantic, and Gulf of Mexico	Describes distribution and physical characteristics of the leatherback turtle in its U.S. Atlantic Range and lists threats and conservation actions to support increase in population numbers.	International-North America	http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_leatherback_atlantic.pdf

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
North Atlantic Shorebird Working Group & Manomet Center for Conservation Science	U.S. Shorebird Conservation Plan	Provides an overview of shorebird status in the U.S., opportunities for conservation, and specific programs that are important to shorebird success.	National	http://www.shorebirdplan.org/plan-and-council/
Northeast Association of Fish and Wildlife Agencies (NEAFWA)	Monitoring the Conservation of Fish and Wildlife in the Northeast	Developed a multi-state monitoring framework to assess state and conservation status of wildlife in the northeast region.	Regional	http://rcngrants.org/sites/default/files/final_reports/NE%20Monitoring%20and%20Performance%20Reporting%20Framework.pdf
Northeast Partners in Amphibian and Reptile Conservation	Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern	Assesses regional herpetofauna species of greatest conservation concern.	Regional	http://www.northeastparc.org/products/pdfs/NEPARC_NEspeciesofresponsibility.pdf
Partners in Amphibian and Reptile Conservation	Priority Amphibian and Reptile Conservation Areas	Identifies valuable habitat for priority amphibians and reptiles based on designations of species rarity and richness, local and regional implementation responsibility and landscape integrity.	National	http://www.parcplace.org/parcplace/resources/parcas-priority-amphibian-and-reptile-conservation-areas.html
	Habitat Management Guidelines for Amphibians and Reptiles of the Southeastern United States	Provides regional information on the habitat associations and requirements of amphibians and reptiles, threats to these habitats, and recommendations for managing lands in compatibility with amphibians and reptiles.	Regional	http://www.separc.org/
Partners in Flight	North American Landbird Conservation Plan	Identifies those breeding landbird species most at risk in the U.S. and Canada and provides a synthesis of objectives and priorities that should guide conservation actions.	International – North America	http://www.partnersinflight.org/cont_plan/
	Bird Conservation Plan for the Mid-Atlantic Coastal Plain	Identifies priority bird populations and habitats in the Mid-Atlantic Coastal Plain region and highlights conservation actions for these areas.	Regional	http://www.partnersinflight.org/bcps/pl_44sum.htm
	Bird Conservation Plan for the Mid-Atlantic Piedmont	Identifies priority bird populations and habitats in the Mid-Atlantic Piedmont region and highlights conservation actions for these areas.	Regional	http://www.partnersinflight.org/bcps/pl_10sum.htm

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
	Bird Conservation Plan for the Mid-Atlantic Ridge and Valley	Identifies priority bird populations and habitats in the Mid-Atlantic Ridge and Valley region and highlights conservation actions for these areas.	Regional	http://www.partnersinflight.org/bcps/pl_12sum.htm
Sea Duck Joint Venture	Sea Duck Joint Venture Implementation Plan	Summarizes accomplishments of the Sea Duck Joint Venture, identifies remaining high priority information gaps, and lays out priority implementation actions.	International-North America	http://seaduckjv.org/wp-content/uploads/2014/08/SDJV-Implementation-Plan-2015-2017_final.pdf
The Nature Conservancy	Chesapeake Bay Lowlands Ecoregional Plan	Identifies major conservation actions for the Chesapeake Bay lowlands region, which includes Maryland's Coastal Plain physiographic provinces.	Regional	https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/Documents/CBYplan-070130.pdf
	Lower New England – Northern Piedmont Ecoregional Plan	Identifies major conservation actions for the Lower New England – Northern Piedmont Ecoregion, which includes parts of Maryland's western physiographic provinces.	Regional	https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/Documents/ED_terrestrial_ERAs_LNE_fullreport.pdf
	The Conservation Status of Key Habitats and Species of Greatest Conservation Need in the Eastern Region	Implemented the NEAFWA monitoring framework to provide comprehensive assessment of the northeastern region's wildlife and natural areas.	Regional	http://rcngrants.org/sites/default/files/final_reports/Conservation-Status-of-Fish-Wildlife-and-Natural-Habitats.pdf
USFWS	Migratory Bird Program, Focal Species Strategy	Provides strategic conservation actions required to return selected bird species to healthy and sustainable levels.	National	http://www.fws.gov/migratorybirds/currentbirdissues/management/focalspecies.html
	Birds of Conservation Concern	Assesses all U.S. bird species for conservation concern and target birds for most urgent conservation efforts.	National	http://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf
	North American Waterfowl Management Plan	Partnership between North American nations aims to track threats to waterfowl and restore wetland habitat.	International – North America	http://www.fws.gov//birds/management/bird-management-plans/north-american-waterfowl-management-plan.php
	Endangered Species Listing	Listing of species protected by federal law in the U.S.	National	http://www.fws.gov/endangered/species/us-species.html
	Nongame Birds of Management Concern	Identifies migratory nongame birds that are considered to be of concern due to population declines.	National	http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/speccon/NGBirdMgmtConcern.html

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
	Indiana Bat Draft Recovery Plan	Identifies needs of endangered Indiana bat (myotis), sets up recovery strategy with an immediate goal of attaining federal re-listing of Indiana myotis as threatened and long-term goal of removing the bat from the Endangered Species List.	National	http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf
	The Maryland Darter Recovery Plan	Reviews limited distribution of the very rare Maryland darter, last seen 1988.	State	http://ecos.fws.gov/docs/recovery_plan/851017.pdf
	Delmarva Fox Squirrel Recovery Plan	Although the Delmarva fox squirrel has made an impressive recovery since this plan was released, the information about the squirrel's biological characteristics and distribution and threats that affect the squirrel is useful.	Regional	http://www.fws.gov/chesapeakebay/endsppweb/DFS/images/930608.pdf
	Dwarf Wedge Mussel Recovery Plan	Includes descriptions of habitat type needed by the dwarf wedge mussel and necessary actions to restore the mussel to its former range.	Regional	http://www.fws.gov/northeast/fisheries/pdf/dwarfwedgemusselrecoveryplan1993.pdf
	Hay's Spring Amphipod: 5-Year Summary and Review	Provides updated information for Hay's spring amphipod, including analysis of threats facing amphipod's Rock Creek Park habitat.	State	http://www.fws.gov/northeast/EcologicalServices/pdf/endangered/hayspringamphipod_5yearreview_2013.pdf
	Northeastern Beach Tiger Beetle Recovery Plan	Details factors limiting the northeastern beach tiger beetle populations on the Atlantic coast and lists actions needed to recover the beetle.	Regional	http://pbadupws.nrc.gov/docs/ML0719/ML071970332.pdf
	Puritan Tiger Beetle Recovery Plan	Reviews the threats facing the Puritan tiger beetle and lists necessary actions to achieve the plan's goal of de-listing the Puritan tiger beetle.	Regional	http://www.fws.gov/chesapeakebay/endsppweb/beetle/PDFs/1993RecoveryPlan.pdf
USFWS and Manomet Center for Conservation Science	Atlantic Flyway Shorebird Business Strategy	Focusing on focal species and geographies, presents the needs, actions, and individuals necessary to recover shorebird species.	International	http://www.acjv.org/temp_ftp/shorebird_bus_strat_phase_1.pdf
USFWS, Appalachian Land Conservation Cooperative	Five-year Work Plan	Identifies key conservation targets for the Appalachian LCC to measure achievement and opportunities for coordinated conservation planning efforts to address environmental issues and climate change.	Regional	http://applcc.org/cooperative/our-plan/5-year-work-plan

Agency/ Organization	Conservation Plan	Description/ Purpose	Geographic level	Website
USFWS, North Atlantic Land Conservation Cooperative (NALCC)	NALCC Conservation Science Strategic Plan	Articulates vision, conservation framework, and initial priorities for the NALCC. Includes necessary conservation actions for the region.	Regional	http://northatlanticlcc.org/groups/north-atlantic-lcc-staff/pubs-from-resources/pdfs/020312_handouts/North_Atlantic_LCC_Science_Strategy_final.docx
Waterbird Conservation for the Americas	North American Waterbird Conservation Plan	Provides continental framework for conservation and management of 210 waterbird species.	International - North America	http://www.waterbirdconservation.org/nawcp.html

Appendix 9b. Stakeholder and Partner Organizations

This appendix lists Maryland's partner and stakeholder groups that were contacted in the development of this State Wildlife Action Plan and that will continue to be contacted with updates during its implementation and revision. These groups received email or phone calls about meeting announcements and requests for information and input on the development of Maryland's State Wildlife Action Plan. Many were invited to attend the workshops held to incorporate their input on Species of Greatest Conservation Need, key wildlife habitats, and threat and conservation action development. They were also frequently notified of web page updates.

Federal, State, and County Agencies
Baltimore Co. Dept. of Environmental Protection and Resource Mgmt.
Calvert County Department of Planning and Zoning
Calvert County Natural Resources Division
Chesapeake Bay Critical Area Commission
Department of Planning and Zoning for Harford County
District Department of the Environment
Howard County Recreation & Parks Department
Maryland Commission on Indian Affairs
Maryland Department of Agriculture
Maryland Department of the Environment
Maryland Department of Natural Resources
Maryland Department of Transportation
Maryland-National Capital Park and Planning Commission
National Oceanic and Atmospheric Administration
National Park Service
National Park Service, Assateague Island National Seashore
Patuxent River Naval Air Station
Smithsonian Environmental Research Center
Smithsonian Migratory Bird Center
Smithsonian National Museum of Natural History, Department of Entomology
Smithsonian National Museum of Natural History, Division of Amphibians and Reptiles
U.S. Department of Agriculture, Animal & Plant Health Inspection Service
U.S. Department of Agriculture, Natural Resources Conservation Service
U.S. Department of Energy
U.S. Environmental Protection Agency
U.S. Fish & Wildlife Service, Blackwater National Wildlife Refuge
U.S. Fish & Wildlife Service, Chesapeake Bay Field Office
U.S. Fish & Wildlife Service, Maryland Fishery Resources Office
U.S. Geological Survey, Breeding Bird Survey
U.S. Geological Survey, Patuxent Wildlife Research Center
U.S. Geological Survey, North American Amphibian Monitoring Program
Virginia Department of Conservation and Recreation, Natural Heritage Program
Intergovernmental Agencies
Interstate Commission on the Potomac River Basin
Academic Institutions
Bowie State University
College of Charleston
Cornell University

Academic Institutions cont.
Delaware State University
Frostburg State University
Garrett College
Georgetown University
Johns Hopkins University
Randolph-Macon College
Salisbury University
St. Mary's College of Maryland
Towson University
University of Maryland, Baltimore County
University of Maryland Center for Environmental Studies
University of Maryland Center for Environmental Studies - Appalachian Laboratory
University of Maryland Center for Environmental Studies - Chesapeake Biological Laboratory
University of Maryland, College Park
University of Maryland, Eastern Shore
University of Connecticut
University of Delaware
Virginia Commonwealth University
Virginia Institute of Marine Science
Washington College
Washington College – Chester River Field Research Station
West Liberty University
Non-Government Organizations
1000 Friends of Maryland
Accokeek Foundation
Adkins Arboretum
American Bird Conservancy
American Chestnut Land Trust
American Forests
Anacostia Riverkeeper
Anacostia Watershed Society
Anne Arundel Bird Club
Appalachian Trail Conservancy Land Trust
Assateague Coastal Trust
Association of Fish and Wildlife Agencies
Audubon Maryland – District of Columbia
Audubon Naturalist Society
Audubon Society of Central Maryland
Beaver Creek Watershed Association
Blue Water Baltimore
Carnegie Museum of Natural History
Center for Watershed Protection
Central Maryland Heritage League
Chesapeake Audubon Society
Chesapeake Bay Foundation
Chesapeake Bay Trust
Chesapeake Wildlife Heritage
Chester River Association

Non-Government Organizations (cont.)
Chester Riverkeeper
Citizens for the Protection of Washington County
Citizens to Conserve and Restore Indian Creek
Conservancy for Charles County
Deer Creek Watershed Association
Defenders of Wildlife
Delaware Nature Society
Ducks Unlimited
Eastern Shore Land Conservancy
Friends of Jug Bay
FrogWatch USA
Howard County Conservancy
Lower Eastern Shore Heritage Council and Land Trust
Magothy River Association
Maryland Biodiversity Project
Maryland Coastal Bays Program
Maryland Conservation Council
Maryland Division Izaak Walton League
Maryland Entomological Society
Maryland Native Plant Society
Maryland Ornithological Society
Mattawoman Watershed Society
Monocacy and Catoctin Watershed Alliance
Nanjemoy Creek Environmental Education Center
Nanticoke Watershed Alliance
National Aquarium in Baltimore
National Audubon Society, Chesapeake Chapter
National Wild Turkey Federation
National Wildlife Federation, Mid-Atlantic Regional Center
Natural History Society of Maryland
NatureServe
New Forest Society
Northeast Midwest Institute
Otter Point Creek Alliance
Oyster Recovery Partnership
Patuxent Tidewater Land Trust
Port Tobacco River Conservancy
Potomac Conservancy
Potomac Riverkeeper
Potomac-Patuxent Chapter Trout Unlimited
Prince Georges Audubon Society
Quail Forever
Queen Anne's Conservation Association
Ruffed Grouse Society
Savage River Watershed Association
Scenic Rivers Land Trust
Severn River Association
Sierra Club – Maryland Chapter

Non-Government Organizations (cont.)
Sierra Club, Montgomery County Group
Sierra Club, Southern Maryland Group
Soldiers Delight Conservation, Inc.
Southern Maryland Audubon Society
Spa Creek Conservancy
St. Mary's River Watershed Project
Susquehannock Wildlife Society, Inc
The Conservancy of Broad Creek, Inc
The Conservation Fund
The Nature Conservancy
The Wildlife Society
Thorpewood Foundation
Trout Unlimited
West Virginia Land Trust
Worcester Environmental Trust
Xerces Society for Invertebrate Conservation
Youghiogheny River Watershed Association
Private Industry
Coastal Resources, Inc.
Delmarva Low Impact Tourism Experiences
Environmental Regulations Consultant, Inc.
KCI Technologies, Inc.
Mid-Atlantic Invertebrate Field Studies
Other Groups
Maryland Bird Conservation Initiative
Maryland LepsOdes

Appendix 9c. Examples of Publicity Generated by Maryland State Wildlife Action Plan

First Portion of Maryland's Wildlife Action Plan Open for Public Comment

December 22, 2015

Department of Natural Resources Seeks Public Input

Red knot birds by Greg Breese

The Department of Natural Resources is seeking public comment on the first portion of Maryland's draft State Wildlife Action Plan. This first section focuses on threatened wildlife species and their habitat.

"The purpose of this document is to outline up-to-date, strategic conservation approaches for wildlife and wildlife habitats across Maryland," Natural Resources Secretary Mark Belton said. "From biologists to hunters to local governments, collaboration among our stakeholders is critical to producing a successful, comprehensive State Wildlife Action Plan that will create and guide conservation management practices."

The U.S. Fish and Wildlife Service requires that each state review and revise their action plan every 10 years. The department is leading this effort for Maryland, working with other federal, state and local organizations to describe recommended projects for wildlife conservation.

Public input is welcome on any part of the first six chapters through the online comment form, by email to mdswap.dnr@maryland.gov, or by mail to: Maryland State Wildlife Action Plan Coordinator, 580 Taylor Ave., E-1, Annapolis, MD 21401.

The complete draft of the Maryland State Wildlife Action Plan will be available for final public comment prior to March 1.

Like 29 Tweet Pin it Share

Figure 1 MD DNR press release about Maryland SWAP progress.

Maryland Proposes 108 More Species for Conservation Work

Posted: Dec 23, 2015 11:20 AM EST
Updated: Dec 23, 2015 11:20 AM EST

HAGERSTOWN, Md. (AP)- The Maryland Department of Natural Resources says climate change, land development and other factors are putting more wildlife at risk.

The agency released the first six chapters of a draft State Wildlife Action Plan on Tuesday. It adds a net 108 creatures to a list of species in greatest need of conservation, bringing the total to 610. New to the list are the American mink, the ruffed grouse and five kinds of bats.

The plan aims to keep declining common species from becoming endangered.

The draft plan is an update of the 2005 Maryland Wildlife Diversity Conservation Plan. It includes an entire chapter on climate change and its impact on Maryland's wildlife and their habitat.

The agency says the entire plan will be available for public comment before March 1.

Figure 2 News article published online by CBS affiliate WBOC following a MD DNR press release concerning SWAP progress.

Red knots (Calidris canutus rufa)

Little brown bat (Myotis lucifugus)

Baltimore checkerspot (Euphydryas phaeton)

Bobcat (Lynx rufus)

Black-banded sunfish (Enneacanthus chaetodon)

A PLAN FOR WILDLIFE

Conservation in the 21st Century

By Ingrid Brofman

Maryland is unique in its location on the ecological landscape: its latitude places it at the southern end of northeastern ecosystems and the northern end of southeastern systems. From the barrier islands, cypress swamps and Delmarva bays of the Eastern Shore to the mountain boreal bogs, caves and limestone woods of the Appalachian Plateau, our state encompasses a tremendous diversity of habitats that support an impressive variety of species.

More than 15,000 animal and plant species call our state home, 1,200 of which are rare and declining. Maryland also harbors some species with extremely limited ranges. For example, the nationally endangered dwarf wedge mussel and Delmarva fox squirrel find refuge within our borders. Also found here are rare underground invertebrates, beach-loving beetles and uncommon plants, such as Kate's Mountain clover, which thrives in rocky areas like shale barren.

A species strategy

Many programs within DNR and among our partners collectively address the need to conserve the full array of our wildlife. Many of the places where these animals thrive are the same as those valued for recreation and other human activities. To better understand the impact of these and other activities, the DNR Wildlife and Heritage Service has gathered information on species in need of conservation.

So, how will this information be used? Enter the State Wildlife Action Plan, a strategy to guide the conservation of the state's wide range of fish, plants and wildlife. This Plan is a revised version of the Wildlife Diversity Conservation Plan, which was completed in 2005.

The goal is fairly straightforward: to assess the health of Maryland's wildlife and their habitats, identify threats to their survival, figure out a protection strategy — and in turn — keep common species common. Although DNR is taking the lead, the Plan will serve as a statewide guidance document, laying out recommendations for projects and actions for wildlife conservation.

While assessing, identifying and strategizing for species seems simple, these steps are actually an enormous task, and one that has been assigned to each of the 50 states, the District of Columbia, and the five U.S. territories. Such plans are a condition to receive financial support from the Department of the Interior, which funds wildlife management at the state level.

Critical conservation

Focused and well-planned efforts can lead to healthy animal populations and a stronger environment. This Plan will govern the next 10 years of our state-level wildlife conservation. It will leverage successes that came from the first plan, such as the Maryland Amphibian and Reptile Atlas project and the creation of the BioNet map.

"In 2005, Maryland developed its first wildlife diversity conservation plan, detailing strategies to conserve dozens of plants and animals in our great state," says Paul Peditto, Wildlife and Heritage Service Director. "Nearly 10 years later, we celebrate removing the Delmarva fox squirrel from the federal endangered species list. The recovery of that iconic Eastern Shore squirrel serves as a highlight reel moment for wildlife diversity conservation here and anchors our commitment to developing the 2015 plan."

Updating the plan

DNR must now take into account new information on climate change and its impact on Maryland's wildlife and their habitats. The Plan may also incorporate new information on mapping resources, conservation threats, and the evaluation of conservation actions listed in the original 2005 plan. A more substantial emphasis on invertebrates and lists of priority plant species of concern will also be included.

With 21st century threats like warming temperatures and rising sea levels that do not have clear-cut solutions, the Plan's success is anchored in a collaborative effort within the state as well, which reflects sound strategies and realistic priorities. Involvement and participation by conservation partners (e.g., non-governmental organizations, academic institutions, other government agencies, etc.) is critical.

"Broad input from DNR staff and our partners is key to a successful revision," says Gwen Brewer, Science Program Manager. "With the help of their expertise, we will be able to identify priority conservation actions that are both feasible and beneficial for a variety of species and habitats."

Another major change: the Plan reflects a collaborative effort by states within the entire northeast region, which ranges from Maine to Virginia.

"A stronger regional effort reflects the fact that wildlife species know no state boundaries," explains Gwen.

Having a voice

Now is the time for interested citizens to get involved in the strategy to protect these resources for current and future generations. Participation from the public is imperative for the plan to be effective. DNR intends to incorporate as many conservation strategies, data and species information from as many partners and citizens as possible.

Stakeholder meetings will be held in late summer or early fall to outline how partners throughout the state will implement the State Wildlife Action Plan. These partners will have the opportunity to discuss ideas for conservation actions that will have an impact on improving species' status and preventing further rare species listings.

The draft revision will be available for input and comments online — documents will be uploaded as they are finalized and the full Plan will be uploaded by August 1, 2015. Draft species lists, key wildlife habitats, and more information are available for review and public comment at: *dnr.maryland.gov/wildlife/Plants_Wildlife/SWAP/index.asp*.

For questions, comments or ideas on how your organization could best contribute to or benefit from the revised Plan, please contact Ingrid Brofman at MDswap.dnr@maryland.gov. ■

dnr.maryland.gov/wildlife

Ingrid Brofman is the State Wildlife Action Planner.

FUNDING FOR WILDLIFE

Much of the funding for wildlife management at the state level comes from an annual appropriation by the U.S. Congress to the federal Department of the Interior. These funds, known as State Wildlife Grants, are administered by the U.S. Fish and Wildlife Service and were first included in the Interior's appropriations budget in 2002. Until the creation and dispersal of this funding, DNR had lacked the means to plan and prioritize comprehensively for all wildlife. These grants allow the state to continue to improve, protect and manage the species of greatest conservation need and their habitats.

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Spring 2015 | 11

Figure 3 Article published in MD DNR magazine The Maryland Natural Resource in Spring 2015 about the 2015 SWAP revision

Appendix 9d. Draft Implementation of State Wildlife Action Plan by Maryland Bird Conservation Initiative

Specific projects were identified to address actions from the SWAP bird conservation partners meeting and proposals were submitted for consideration.

Identified Conservation Action	Specific Project to Address Needs	State Action	Action from MD BCI	Lead Organization(s)	Potential Partners	Target Date	Potential Funding
Information Management: Centralize data and make it available to address threats and conservation actions.	Support nest records, Lights Out, and other data entry into the Eastern Avian Data Center (Avian Knowledge Network)	MD DNR: technical assistance	Oversight and advice as needed	MD BCI	US Fish and Wildlife Service; Audubon MD-DC; Maryland Ornithological Society	Ongoing	MD DNR and in-kind support by bird conservation NGOs
Communication and Publicity: Increase awareness of bird conservation needs and make information easily accessible to the public.	Develop a website with information on species and habitats of greatest conservation need	MD DNR: provide information and links to existing information	Oversight and advice as needed	MD BCI	Bird conservation NGOs, universities	Ongoing	MD DNR and in-kind support by bird conservation NGOs
Education and Outreach: Provide opportunities to learn about birds and their habitats to increase interest in Maryland's birds.	Audubon Watershed Experience:	MD DNR and other relevant state agencies to provide information and technical assistance	Assistance with partner coordination for project support	Audubon Conservation Team for Birds and the Chesapeake Bay (ACT4 Birds)	State and federal agencies; conservation organizations	Ongoing	MD DNR, bird conservation NGOs,County, foundation; Approx.. $300,000 to implement in Caroline, Wicomico, Dorchester, and Talbot counties

Identified Conservation Action	Specific Project to Address Needs	State Action	Action from MD BCI	Lead Organization(s)	Potential Partners	Target Date	Potential Funding
Species protection: Work with partners targeting the conservation of species under threat or requiring study.	Lights Out Baltimore, Lights Out DC (migratory birds)	MD DNR: technical assistance	Oversight and advice as needed	Baltimore Bird Club; City Wildlife (DC)	American Bird Conservancy (Collision List Serve); other local bird clubs	Ongoing	MD DNR; Maryland Ornithological Society (MOS) (in kind)
Future Research and Monitoring: Determine priority needs for information relevant to the conservation of priority species and habitats.	Review of existing programs and identification of gaps.	MD DNR: provide information on existing programs and projects at the state and regional level	Assistance with compilation	MD BCI	MOS; Audubon MD-DC; Institute for Bird Populations; Joint Ventures	Ongoing	MD DNR and in-kind support by bird conservation NGOs
	Support for a Jug Bay Bird Observatory	MD DNR: technical assistance	Oversight and advice as needed by Jug Bay Wetland Sanctuary and Friends of Jug Bay	Jug Bay Wetland Sanctuary and Friends of Jug Bay guided by an Advisory Committee	MD DNR and in-kind support by MOS and other bird conservation NGOs	Ongoing	MD DNR,MOS, Jug Bay Wetland Sanctuary and Friends of Jug Bay and bird conservation NGOs
Institutional Strengthening of Bird Conservation: Promote bird conservation in Maryland through coordination of existing efforts.	Establish and fund an MD BCI Coordinator **position** to manage the MD Bird Conservation Initiative	MD DNR and other relevant state agencies to provide information and technical assistance	MD BCI Steering Committee	MOS in partnership with DNR and bird conservation organizations	Bird and other conservation organizations	Ongoing	Co-funding by MOS and DNR

Identified Conservation Action	Specific Project to Address Needs	State Action	Action from MD BCI	Lead Organization(s)	Potential Partners	Target Date	Potential Funding
Selected species and their habitats: Adopt tailored measures to ensure species and their habitat are monitored and protected to assure conservation for the longer term.	Bald Eagle nest monitoring	MD DNR: reports on progress/status of Bald Eagle populations	Oversight and advice as needed	MD BCI	USFWS; USGS; US Department of Defense; River Keepers; Nature Centers; watermen, local bird clubs	January 2016	MD DNR (various units?)
	Golden-winged Warbler Cooperative Management Area	MD DNR: provides technical guidance and priorities	Oversight and advice as needed	American Bird Conservancy	USDA NRCS; American Bird Conservancy	To be determined	To be determined (estimated cost $50,000)
	Natural Lands Project	MD DNR and in-kind support by bird conservation NGOs	Advice as needed from Steering Committee	Washington College's Center for Environment and Society (CES), the Chester River Association (CRA), and Tall Timbers Research Station & Land Conservancy	Funded by a $700,000 DNR grant	Ongoing	MD DNR and in-kind support by bird conservation NGOs
	Production of Guidelines to Conserve Biodiversity in Agricultural and Rural Landscapes	MD DNR and in-kind support by agricultural organizations and bird and other conservation NGOs	To be produced by MDBCI member with advice from relevant expertise	MD BCI	Farming community; Landowners; State Natural Resources and Agriculture Departments; US Fish and Wildlife; bird conservation NGOs	Underway with deadline in 2017	MD DNR and in-kind support by bird conservation NGOs