

Introduction

Recent research and mapping efforts in Delaware have demonstrated the need for improved wetland protection and management in the state. The Environmental Law Institute (ELI) was recently asked to assist the Delaware Department of Natural Resources and Environmental Control (DNREC) with the Secretary's request to develop a well-thought-through, implementable strategic plan to improve wetland protection in the state.

ELI designed the project to proceed in two phases. In Phase I, ELI conducted interviews and arranged a department-wide meeting to help DNREC develop a common vision for wetland protection that makes use of all available DNREC resources. During Phase II, ELI will work with DNREC to assist the SB78 Wetland Advisory Committee in achieving their goals of developing "wetland protection priorities for the State of Delaware" and recommending to the General Assembly "a comprehensive approach for improving non-tidal wetland conservation, restoration, and education within the state."

This report summarizes the findings of the Phase I interviews and research. It is intended to be an internal look at the priorities and capacity of the Department and how these relate to wetland protection. The report will serve as a basis for department-wide discussions regarding improving wetland protection in the state.

Methods

This report is based on a series of interviews conducted with DNREC division directors, section administrators, and technical staff and a review of previously published reports related to wetland protection in the state, including ELI's 2010 "Delaware Wetland Program Review," the state's recent mapping efforts, the "Delaware Wetlands: Status and Changes from 1992 to 2007" report, the report "Economic Valuation of Wetland Ecosystem Services in Delaware" by Industrial Economics, the report "Preparing for Tomorrow's High Tide: Sea Level Rise Vulnerability Assessment for the State of Delaware," the State of Delaware Coastal and Estuarine Land Conservation Program Plan, and DNREC's wetland health assessments by watershed and the Chesapeake Watershed Improvement Plan. We also reviewed a number of other DNREC plans, programs, and proposed policies and examined various Division websites.

We conducted interviews with 24 directors, administrators, and staff from across the Department (see Appendix 1). Several of the interviews were conducted with multiple representatives from the identified divisions or sections. In-person interviews were conducted in Dover on February 6 and 7, 2013. Phone interviews were conducted in February and March, 2013.

Participants were asked to describe the priorities and capacities of their division or section, communication and collaboration within the Department and with the public, challenges facing wetland protection in the state, and recommendations for improving wetland protection. This report discusses the Department's activities and internal and external communication and outlines a strategy for improving protection of wetlands in Delaware. We have identified and described model approaches from other states when they may provide valuable examples for the development of programs in Delaware.

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Interview Results and Assessment

The report is structured in four parts. We begin by discussing the priorities and activities of the relevant divisions and sections within DNREC and how wetland protection fits in with these priorities and activities. We then discuss communication and collaboration within the Department and communication and outreach with the public, including the various outreach media and messages used to reach the Department's target audiences and constituencies. We then provide a summary of the challenges facing the Department in terms of wetland protection. Finally, we provide a review of the interviewee's recommendations for a multi-faceted strategy for improving wetland protection.

Department Structure

Overview

The mission of the Delaware Department of Natural Resources and Environmental Control (DNREC) is to "ensure the wise management, conservation, and enhancement of the State's natural resources, protect public health and the environment, provide quality outdoor recreation, improve the quality of life and educate the public on historic, cultural, and natural resource use, requirements and issues."¹

DNREC's vision is "a Delaware that offers a healthy environment where people embrace a commitment to the protection, enhancement and enjoyment of the environment in their daily lives; where Delawareans' stewardship of natural resources ensures the sustainability of these resources for the appreciation and enjoyment of future generations; and where people recognize that a healthy environment and a strong economy support one another."²

Following reorganization in 2010, the agency is now divided into two major offices: the Office of Environmental Protection and the Office of Natural Resources, both of which fall under the guidance of the Office of the Secretary. Overall, the Department includes ten major divisions and programs: Division of Energy and Climate, Delaware Coastal Programs, Office of Community Services, Financial Assistance Branch, Division of Air Quality, Division of Waste and Hazardous Substances, Division of Water, Division of Fish and Wildlife, Division of Parks and Recreation, and Division of Watershed Stewardship. The Division of Air Quality, the Division of Waste and Hazardous Substances, and the Division of Water fall under the purvey of the Office of Environmental Protection, while the Division of Fish and Wildlife, the Division of Parks and Recreation, and the Division of Watershed Stewardship fall under the Office of Natural Resources.

¹DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, VISION, MISSION, VALUES, ORGANIZATIONAL PRACTICES, *available at* <http://www.dnrec.delaware.gov/Info/Documents/Department%20Vision%20Mission%20Values%2010-09.pdf>

²DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, VISION, MISSION, VALUES, ORGANIZATIONAL PRACTICES, *available at* <http://www.dnrec.delaware.gov/Info/Documents/Department%20Vision%20Mission%20Values%2010-09.pdf>

All of the divisions and programs are discussed in this report except for the Office of Community Services. All of the divisions discussed engage in activities that affect wetlands to some degree (see Table 1). Below we discuss division missions, activities, capacity, and wetland-related activities in more detail.

Table 1: DNREC Wetland Activities

Conservation and Protection		
Program	Description	Funding
<p>Delaware Coastal Programs</p> <p>Delaware National Estuarine Research Reserve (DNERR)</p>	<p>The DNERR is 6,206 acres in size and consists of two Reserve components: the Blackbird Creek Reserve and the St. Jones Reserve. These components include both brackish and freshwater estuaries, and represent the diverse estuarine ecosystems found throughout the Mid-Atlantic States to promote stewardship of our nation’s coasts and estuaries through innovative research, education and training using a place-based system of protected areas. Acquisition funding is available for priority areas identified in the Management Plan.</p>	
<p>Delaware Coastal Programs</p> <p>Coastal and Estuarine Land Conservation Program (CELCP)</p>	<p>The Delaware Coastal Programs administers the CELCP program in Delaware. CELCP is a land acquisition program funded by the National Oceanic and Atmospheric Administration (NOAA) that provides support to state and local governments to purchase coastal and estuarine lands that are important for their ecological, conservation, recreational, historical or aesthetic values and are under threat of conversion.</p>	NOAA grants
<p>Delaware Coastal Programs</p> <p>Sea Level Rise Adaptation Plan</p>	<p>Wetlands will be a key component of any sea level rise (SLR) adaptation plan. Under the highest SLR scenario (5 feet), 99 percent of wetlands may be lost if wetlands are not able to accrete sufficient sediment or migrate inland. Delaware Coastal Programs has developed a draft list of capacity building options; many of the options concern preparing wetlands for sea level rise (e.g., retreat plans and identifying areas for migration).</p>	
<p>Delaware Coastal Programs</p> <p>Coastal Management Assistance Grants</p>	<p>Delaware Coastal Programs provides planning and research grant funding for projects and activities that improve local and regional capacity to incorporate coastal management issues in local planning. Planning grants are available for projects that improve the state’s resilience to sea level rise and coastal storms. Research grants are available for projects related to wetland migration, social and economic costs of adaptation strategies, secondary and cumulative impacts of adaptation strategies, and legal frameworks for adaptation.</p>	
<p>Financial Assistance Branch</p> <p>Land Conservation Loan Program</p>	<p>This program funds conservation easements and fee simple land purchases with Water Pollution Control Revolving Fund (WPCRF) municipal loans.</p>	Water Pollution Control Revolving Fund (funded by the Environmental Protection Agency with a 20% match by the state)

Division of Air Quality Transportation and Development Planning	The Division is not involved with wetlands at the moment but sees an overlap in priorities when it comes to transportation planning. A strong wetland program would help control sprawl which would in turn help with air quality issues. Conversely, improved transportation and development planning would help both wetland protection and air quality.	
Division of Fish and Wildlife, Wildlife Section Management	The Division's Wildlife Section manages approximately 61,000 acres of wildlife areas, including wetlands.	
Division of Fish and Wildlife, Wildlife Section Private Lands Assistance Program: Delaware <i>Phragmites</i> Control Cost-share Program, and the Delaware Landowner Incentive Program	The Private Lands Assistance Program helps private landowners improve and protect their lands for wildlife, including wetlands. The Delaware <i>Phragmites</i> Control Cost-share Program in particular targets undeveloped wetlands, including tidal or non-tidal freshwater or brackish marshes, ponds or impoundments that have been degraded by the invasive <i>Phragmites</i> . ³ The Delaware Landowner Incentive Program (LIP) helped landowners enhance and/or restore habitat to benefit species-at-risk, including wetland habitats. However, the LIP program was cut from the federal budget and the state no longer receives new funding from U.S. Fish and Wildlife Service. The Delaware LIP currently administers 26 active habitat agreements that were established with landowners in years past.	
Division of Fish and Wildlife, Mosquito Control Section Private Lands Water Management	The Mosquito Control Section helps private landowners control mosquitoes through water management.	
Division of Fish and Wildlife, Mosquito Control Section Marsh Burns	The Mosquito Control Section conducts <i>Phragmites</i> control marsh burns.	
Division of Fish and Wildlife Delaware Bayshore Initiative	One of the three priorities of the Delaware Bayshore Initiative is to "connect wildlife areas by acquisition or easement of unprotected lands; restore native habitat; and protect resources." The Initiative presents the opportunity to do habitat and wetland restoration work and to coordinate priorities.	State funds (\$500,000 through bond bills in the legislature); competitive federal grants

³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE PHRAGMITES CONTROL COST-SHARE PROGRAM, available at <http://www.dnrec.delaware.gov/fw/dplap/services/Pages/DelawarePhragmitesControl.aspx>

<p>Division of Parks and Recreation, Planning Preservation and Development Section, Land Preservation Office</p> <p>Open Space Program</p>	<p>Guided by an Open Space Council, the Open Space Program administers funds to acquire properties, including wetlands, to add to existing state parks, fish and wildlife areas, state forests, coastal resource sites, and nature preserves.</p>	<p>Realty transfer tax</p>
<p>Division of Parks and Recreation, Planning Preservation and Development Section, Land Preservation Office</p> <p>Natural Areas Program</p>	<p>The purpose of the Natural Areas Program is to preserve land in the state based on ecology, geology, and archaeology. The Program targets lands on the natural areas registry. The Program is also responsible for looking at development plans to see if they include lands on the natural areas registry.</p>	
<p>Division of Parks and Recreation, Planning Preservation and Development Section</p> <p>Delaware Conservation Trust Fund</p>	<p>The Division works with communities to acquire land, mainly by providing matching grants through the Delaware Conservation Trust Fund, a state grant fund. The Division provides matching grants to communities for land acquisition and development of parks. Communities interested in acquiring wetlands for protection are eligible.</p>	<p>State funds, Real Estate Transfer Tax</p> <p>Note: Trust-generated interest provides funds for the yearly grant program.⁴</p>
<p>Division of Parks and Recreation</p> <p>Wetlands Ownership and Restoration, State Parks System</p>	<p>The Division owns wetland properties through the state parks system and is engaged in wetlands restoration on these properties.</p>	
<p>Division of Watershed Stewardship</p> <p>Shoreline and Waterway Management Section</p>	<p>This section is responsible for improving the state's ability to endure coastal storms through various flood management and mitigation activities.</p>	
<p>DNREC in collaboration with the Conservation Fund</p> <p>Conservation Opportunity Areas</p>	<p>DNREC is collaborating with the Conservation Fund to develop Conservation Opportunity Areas (COAs). COAs are based on updated science and identify core and corridor habitat areas, including core wetland areas for conservation. Given the successful challenge to the State Resource Areas map, COAs may be used to help direct Open Space funding. COAs may also be used as an outreach tool for engaging with local government protection and land use decisions.</p>	

⁴ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DEL. LAND & WATER CONSERVATION TRUST FUND, *available at* <http://www.dnrec.delaware.gov/parks/Services/Documents/grants/fact-sheet.pdf>

Restoration		
Program	Description	Funding
Delaware Coastal Programs Delaware National Estuarine Research Reserve (DNERR)	The DNERR has restoration projects and demonstration projects including riparian buffers, non-native invasive species management, freshwater non-tidal forested wetlands, and tidal wetlands.	
Division of Fish and Wildlife, Wildlife Section Wetland Restoration	The Wildlife Section has restoration projects in shallow, emergent freshwater wetlands; poorly drained, marginal farmlands; and forested wetlands.	
Division of Fish and Wildlife, Mosquito Control Section Wetland Restoration and Enhancement	In addition to mosquito control management, the Mosquito Control Section is involved in wetlands restoration programs, including the Northern Delaware Wetland Rehabilitation Program.	
Division of Fish and Wildlife, Wildlife Section Invasive Species Control	The Wildlife Section works on invasive species control in tidal and freshwater wetlands.	
Division of Fish and Wildlife Delaware Bayshore Initiative	One of the three priorities of the Delaware Bayshore Initiative is to “connect wildlife areas by acquisition or easement of unprotected lands; restore native habitat; and protect resources.” The Initiative presents the opportunity to do habitat and wetland restoration work and to coordinate priorities.	State funds (\$500,000 through bond bills in the legislature); competitive federal grants
Division of Watershed Stewardship, District Operations Section Ecological Restoration and Protection Team	The Ecological Restoration and Protection Team restores and protects streams, drainage ditches, wetlands, and riparian corridors. The Team’s wetland restoration activities take place in marginal agricultural fields, school yards, and a variety of other settings.	
Division of Watershed Stewardship Drainage and Stormwater Program	The Drainage and Stormwater Program looks for opportunities, where possible, to incorporate wetland restoration and water quality improvement in drainage projects. The Program is currently responsible for over 45 wetland and stream restoration projects, for a total of approximately 180 acres of restoration. ⁵	
Division of Waste and Hazardous Substances; Division of Watershed Stewardship WATER	WATER is a program where the Division of Waste and Hazardous Substances and the Division of Watershed Stewardship look at state watersheds and try to determine how the Divisions can remove waste from the watersheds.	

⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, WETLAND AND CHANNEL RESTORATION, *available at* <http://www.dnrec.delaware.gov/swc/drainage/pages/taxditchrestoration.aspx>

Science		
<p>Delaware Coastal Programs</p> <p>Delaware National Estuarine Research Reserve (DNERR)</p>	<p>Staff at DNERR conducts collaborative wetlands research and long-term monitoring.</p>	
<p>Delaware Coastal Programs</p> <p>Sea Level Rise Adaptation Plan</p>	<p>Wetlands will be a key component of any sea level rise (SLR) adaptation plan. Under the highest SLR scenario (5 feet), 99 percent of wetlands may be lost if wetlands are not able to accrete sufficient sediment or migrate inland. Delaware Coastal Programs has developed a draft list of capacity building options; many of the options concern preparing wetlands for sea level rise (e.g., retreat plans and identifying areas for migration).</p>	
<p>Delaware Coastal Programs</p> <p>Coastal Management Assistance Grants</p>	<p>Delaware Coastal Programs provides planning and research grant funding for projects and activities that improve local and regional capacity to incorporate coastal management issues in local planning. Planning grants are available for projects that improve the state's resilience to sea level rise and coastal storms. Research grants are available for projects related to wetland migration, social and economic costs of adaptation strategies, secondary and cumulative impacts of adaptation strategies, and legal frameworks for adaptation.</p>	
<p>Division of Energy and Climate</p> <p>Climate Section</p>	<p>The Climate Section is looking at wetlands for their Climate Impact Assessment. One chapter of the document focuses on water resources, including wetlands.</p>	<p>Regional Greenhouse Gas Initiative (RGGI) funding</p>
<p>Division of Fish and Wildlife, Wildlife Section</p> <p>Natural Heritage and Endangered Species Program (NHESP)</p>	<p>The NHESP conducts research, including research related to wetlands.</p>	
<p>Division of Watershed Stewardship, Watershed Assessment Section</p> <p>Wetland Monitoring Assessment Program</p>	<p>The Program develops wetland assessment methods, assesses the current health of wetlands by watershed, performs research on wetlands (including functions, the impact of stressors, and ecosystem services), provides recommendations, and evaluates the performance of wetlands restoration and compensatory mitigation plans.⁶ The majority of the Program's work is done on a watershed-by-watershed basis.</p>	

⁶ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE WETLAND MONITORING AND ASSESSMENT PROGRAM, available at <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Wetland-Monitoring-and-Assessment.aspx>

Education and Outreach		
Program	Description	Funding
Office of the Secretary Public Affairs	Public Affairs handles all media relations, responds to public requests for information, manages DNREC's website, coordinates volunteer activities, and provides outreach for events.	
Delaware Coastal Programs (DCP) Delaware National Estuarine Research Reserve (DNERR): Outreach and the Coastal Training Program	DCP staff has conducted extensive outreach related to sea level rise impacts to state resources including tidal and non-tidal wetland impacts. DNERR also runs numerous education and training programs. The DNERR's Coastal Training Program (CTP) provides training and technical assistance to coastal resource decision makers on wetland-related issues. The CTP's work on wetlands ranges from providing current scientific information and access to technologies to skill-building opportunities through programs like workshops, trainings, seminars, and technology demonstrations on issues ranging from sea level rise, climate change, habitat protection and restoration, to coastal resource planning. Past CTP workshops and technical assistance offerings have covered wetland restoration techniques, sea level rise impacts on wetlands, living shorelines, wetland health, and Prime Hook National Wildlife Refuge's wetland restoration planning. Decision makers who participate in the Delaware Coastal Training Program's wetland programming include local government officials, state legislators, homeowners' associations, coastal resource managers and educators, academia, and non-profit organizations.	
Division of Fish and Wildlife Aquatic Resources Education (ARE) program, including the Aquatic Resources Education Center (AREC) and the DuPont Nature Center (DNC)	Through the federally funded Aquatic Resources Education (ARE) program, the Division runs numerous education and training programs, including the Adopt-a-Wetland program. ⁷ Two centers fall under the ARE program: the Aquatic Resources Education Center (AREC) ⁸ and the DuPont Nature Center (DNC). Both centers offer a variety of wetland education programs and experiences on the marshlands bordering Delaware Bay, including Leader-Led overnights programs at the Mallard Lodge facility, Eco-Explorers (salt march ecology) field trip programs, and Wetland Activities for Delaware Educators (WADE) hands-on learning kits for classrooms.	Sport Fish and Restoration Program, U.S. Fish and Wildlife Service
Division of Water Wetlands and Subaqueous Lands	The Section meets with landowners to review permits and receives a lot of calls regarding wetland activities and regulations.	

⁷ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ADOPT-A-WETLAND HOME, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/AdoptaWetland.aspx>

⁸ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, AQUATIC RESOURCES EDUCATION CENTER, *available at* <http://www.dnrec.delaware.gov/fw/Education/Pages/Aquatic-Resources-Education-Center.aspx>

Section		
Division of Watershed Stewardship	The Division of Watershed Stewardship maintains Delaware Wetlands Facebook, Twitter and Pinterest sites.	
Division of Watershed Stewardship Wetland Monitoring and Assessment Program	The Wetland Monitoring and Assessment Program has a staff dedicated to designing and implementing outreach programs, sharing the Program's results, targeting specific audiences, and spreading the message of the worth of wetlands.	
Regulatory and Permits		
Program	Description	Funding
Delaware Coastal Programs Coastal Zone Federal Consistency Certification program	Delaware Coastal Programs administers the Coastal Zone Management Act federal consistency regulations, which ensure actions, permits, and funding from federal agencies is consistent with state policies such as tidal wetland and habitat protections.	
Division of Energy and Climate Sustainable Planning Section	The Sustainable Planning Section reviews land use and development projects, including projects that will impact wetlands. Recently, the Section has been trying to become more involved with local government comprehensive plans.	General Fund
Division of Water, Wetlands and Subaqueous Lands Section Permitting	The Wetlands and Subaqueous Lands Section (WSL) is responsible for all state wetland permitting programs and §401 certification. The Section also provides tidal maps of wetlands and resource management planning.	
Division of Water, Wetlands and Subaqueous Lands Section Mitigation	WSL sometimes requires mitigation for Delaware Department of Transportation (DelDOT) work. Most of the time, this is done in cooperation with the Division of Fish and Wildlife. WSL sometimes requires mitigation for dredging activities. Mitigation funds go towards tidal restoration by the Division of Fish and Wildlife.	
Division of Waste and Hazardous Substances State Superfund Program	The Division takes into account any wetland restoration goals when developing superfund projects and currently manages cleanup sites that are in wetlands.	
Division of Waste and Hazardous Substances Cleanup Activities	The Division will sometimes have cleanup activities in marshes and wetlands. If so, the Division will work with the relevant wetlands staff.	
Division of Waste and Hazardous Substances Transporting, storing, and managing solid and hazardous waste	The Division works with wetlands staff whenever transport, storage, or management of solid and hazardous waste has the potential to impact a wetland, for example if a landfill is located near a wetland.	

<p>Division of Waste and Hazardous Substances</p> <p>Staff training sessions</p>	<p>Staff attend training sessions on wetland identification.</p>	
<p>Division of Waste and Hazardous Substances</p> <p>Staff Natural Resource Damage Assessment (NRDA) Biologist</p>	<p>The Division's NRDA biologist has a good handle on wetlands and trains other staff on NRDA matters.</p>	
<p>Division of Fish and Wildlife</p> <p>Enforcement Section</p>	<p>The Enforcement Section oversees all enforcement for the Division, including enforcement in wetlands.</p>	

Office of the Secretary

Mission

A mission statement for the Office of the Secretary could not be found online; however, the website describes the duties of the Office as follows: “The Office of the Secretary provides overall direction, management and policy, as well as central administrative functions including human resources, financial management, information and systems management, business and permitting assistance and public information and education.”⁹

Activities

The Office of the Secretary provides overall direction, management, and policy for the entire Department. The Regulatory Advisory Service, Pollution Prevention Program, Small Business Assistance Program, Coastal Zone Act Program, Public Affairs Section, and Human Resource functions fall directly within the Office of the Secretary.¹⁰ In addition, Delaware Coastal Programs, the Division of Energy and Climate, the Financial Assistance Branch, and the Office of Community Services all fall directly under the Office of the Secretary.

The **Regulatory Advisory Service** helps identify the environmental regulations that might apply to a project.¹¹ The **Pollution Prevention Program** helps businesses and industrial facilities identify and implement waste reduction opportunities.¹² The **Small Business Assistance Program** is a free, non-regulatory program that helps small businesses with environmental permitting and compliance issues. The **Coastal Zone Act Program**¹³ “regulates existing heavy industrial activities along with new and existing manufacturing activities in Delaware’s Coastal Zone through a Status Decision and Permit process.”¹⁴ **Public Affairs** handles all media relations, responds to public requests for information, manages DNREC’s website, coordinates volunteer activities, provides outreach for events, and publishes DNREC’s quarterly magazine, *Outdoor Delaware*.¹⁵ The **Human Resources Section** provides applicant services (recruitment and position management) and coordinates benefit services for DNREC staff.

Wetland Activities

Within the Office of the Secretary, the following wetland-related activities take place:

⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF THE SECRETARY, available at <http://www.dnrec.delaware.gov/Admin/Pages/ots.aspx>

¹⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF THE SECRETARY, available at <http://www.dnrec.delaware.gov/Admin/Pages/ots.aspx>

¹¹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF THE SECRETARY, available at <http://www.dnrec.delaware.gov/Admin/Pages/ots.aspx>

¹² DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE’S POLLUTION PREVENTION (P2) PROGRAM, available at <http://www.dnrec.delaware.gov/p2/Pages/default.aspx>

¹³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, COASTAL ZONE ACT PROGRAM, available at <http://www.dnrec.delaware.gov/Admin/CZA/Pages/default.aspx>

¹⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF THE SECRETARY, available at <http://www.dnrec.delaware.gov/Admin/Pages/ots.aspx>

¹⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF THE SECRETARY, available at <http://www.dnrec.delaware.gov/Admin/Pages/ots.aspx>

- The Regulatory Advisory Service identifies regulations that might apply to a specific project, including wetland-related regulations.
- Public Affairs is responsible for media relations and outreach, including wetland-related outreach.

Capacity

The total number of DNREC employees was not mentioned in the interviews; however, interviewees did state that DNREC has a low turnover rate. In addition, one interviewee mentioned that DNREC staff include 150 conservation district employees. Overall, only 20% of DNREC's funding is general funded; the remaining 80% comes from fees and other avenues.

Division of Energy and Climate

Mission

The mission of the Division of Energy and Climate is “to serve the people of Delaware by reducing the adverse impacts of energy use on Delaware’s environment, health, and economy. The Division educates, leads by example, and builds partnerships to increase energy efficiency and renewable energy, promote sustainable growth, and prepare for a changing climate.”¹⁶

Activities

The Division of Energy and Climate includes the Energy Policy Group, the Sustainable Planning Section, and the Climate Section. The **Energy Policy Group** is responsible for Delaware’s energy policy and for “recommending legislative or other initiatives to the Secretary of the Department of Natural Resources and Environmental Control that will enable or assist Delaware in obtaining federal funds to support energy conservation programs and initiatives.”¹⁷

The **Sustainable Planning Section (SPS)** is the Department’s lead on land use planning.¹⁸ SPS coordinates DNREC’s response to land use and development projects and local government comprehensive plans through the Preliminary Land Use Service (PLUS).¹⁹ As part of the PLUS process, the Section collects comments on proposed projects and plans from DNREC divisions on a monthly basis. When conflicts arise in the comments, SPS works with the Divisions to resolve the inconsistencies. The DNREC Planners Technical Advisory Committee holds monthly meetings to talk about proposed projects. PLUS holds a public meeting for every project at the Office of State Planning Coordination during which the developer or a project representative hears concerns about the project.

¹⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF ENERGY AND CLIMATE: ABOUT US, *available at* <http://www.dnrec.delaware.gov/energy/Pages/AboutUs.aspx>

¹⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF ENERGY AND CLIMATE: POLICIES AND LEGISLATION, *available at* http://www.dnrec.delaware.gov/energy/information/Pages/Legislation_F.aspx

¹⁸ There is not an updated website for the Sustainable Planning Section.

¹⁹ The Preliminary Land Use Service process provides an opportunity for state agency review of major land use change proposals, including county comprehensive plans and rezonings, conditional uses, site plan reviews and/or subdivisions, within environmentally sensitive areas, as identified within any local jurisdiction's comprehensive plan. DEL. CODE ANN. tit. 29 §9203 - 9206

Recently, the SPS has been focused on taking a more proactive role in working with local governments to develop comprehensive plans. Ideally, the Section would like to be involved in land use planning from the beginning. One interviewee suggested that some kind of incentive program, for example a recognition program similar to Sustainable Maryland or Sustainable New Jersey, would encourage communities to work with the Department to develop sustainable plans. SPS is currently looking for grants for planning and ordinance development and is trying to identify towns that do not have technical experts on staff.

The Division's **Climate Section** focuses on two main climate priorities: mitigation policy, and climate impacts and adaptation. On the mitigation side, the Section primarily works on the Regional Greenhouse Gas Initiative (RGGI) and voluntary transportation issues (all non-regulatory), including voluntary reductions in greenhouse gas emissions from the transportation sector. On the impacts and adaptation side, the Section is conducting a climate impact assessment. The Climate Impact Assessment is a separate but complimentary effort to the Delaware Coastal Program's Sea Level Rise Vulnerability Assessment. The Climate Section is examining a number of impacts, including temperature, precipitation, and sea level rise, and is looking at observed data and future climate and impact projections for Delaware. The Section is working with a steering committee to review the Climate Impact Assessment, which is intended to be a neutral, factual, science document and does not include policy recommendations. The target audience for the assessment is practitioners, including colleagues in DNREC, colleagues across state and local government, community groups, and various industries (e.g., water and agriculture).

Wetland Activities

The Sustainable Planning Section reviews land use and development projects, including projects that will impact wetlands, and coordinates DNREC's response to these projects. As such they round up and review comments from a variety of regulatory and non-regulatory programs, many of which touch on wetlands in some regard:

- Watershed Assessment Section, Division of Watershed Stewardship (non-regulatory): Provides TMDL information as well as wetlands (SWMP) and soils information for projects;
- Wetlands and Subaqueous Lands Section, Division of Water (regulatory): Comments on whether jurisdictional wetlands may be or are known to be present on the site;
- Natural Heritage and Endangered Species, Division of Fish and Wildlife (non-regulatory): Comments on habitats that may be associated with a particular wetland complex;
- Stormwater and Sedimentation Control, Division of Watershed Stewardship (regulatory): Approves the design of and permits stormwater management on development sites;
- Ground Water Protection Branch, Division of Water (regulatory): Administers the state's Source Water Protection law and provides delineations of excellent groundwater recharge and wellhead protection areas; and
- Ground Water Discharges Section, Division of Water (regulatory): Regulates and permits onsite wastewater disposal systems.

The last three groups—Stormwater and Sedimentation Control, Ground Water Protection Branch, and Ground Water Discharges Section—are included because, as statutory or regulatory programs,

they could help to ensure wetland impacts on sites are avoided through permit conditions and other means.

On the climate side, one chapter of the Climate Section's Climate Impact Assessment focuses on water resources, including wetlands.

Capacity

None mentioned for the Division as a whole. The Climate Section has three staff. Funding for the Climate Section comes from proceeds from the RGGI. The Sustainable Planning Section has two or three staff. Funding for the Sustainable Planning Section comes from the General Fund.

Delaware Coastal Programs

Mission

The mission of Delaware Coastal Programs is "to preserve, protect, develop and enhance the resources of Delaware's coastal zone through effective administration of the Delaware Coastal Management Program and the Delaware National Estuarine Research Reserve."²⁰

Activities

Delaware Coastal Programs (DCP) is responsible for implementing the provisions of the federal Coastal Zone Management Act. DCP's programs and activities include the Delaware Coastal Management Program,²¹ the Delaware National Estuarine Research Reserve,²² and the Coastal and Estuarine Land Conservation Program.²³

Through the **Delaware Coastal Management Program**, DCP aims to protect, develop, and where possible, enhance the coastal resources of the state.²⁴ In support of this objective, the Program "manages coastal resources through innovative research projects, education and grant programs, and policy development; administers the Coastal Zone Federal Consistency Certification program; provides special area management planning; provides assistance to state and local governments for local land use planning; offers other special on-the-ground projects related to Delaware's coastal resources; and offers technical assistance to communities interested in restoring open space as natural habitat."²⁵

²⁰ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE COASTAL PROGRAMS SECTION, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/CoastalPrograms.aspx>

²¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE COASTAL MANAGEMENT PROGRAM, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/CoastalMgt.aspx>

²² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE NATIONAL ESTUARINE RESEARCH RESERVE, *available at* <http://www.dnrec.delaware.gov/coastal/DNERR/Pages/DelawareNationalEstuarineResearchReserve.aspx>

²³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, COASTAL AND ESTUARINE LAND CONSERVATION PROGRAM (CELCP), *available at* <http://www.dnrec.delaware.gov/swc/Pages/CELCP.aspx>

²⁴ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE COASTAL MANAGEMENT PROGRAM, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/CoastalMgt.aspx>

²⁵ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE COASTAL MANAGEMENT PROGRAM, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/CoastalMgt.aspx>

DCP provides Coastal Management Assistance Grants for projects and activities that improve local and regional capacity to incorporate coastal management issues in local planning.²⁶ Planning grants are available for projects that improve the state's resilience to sea level rise and coastal storms. Research grants are available for projects related to wetland migration, social and economic costs of adaptation strategies, secondary and cumulative impacts of adaptation strategies, and legal frameworks for adaptation.

DCP is also responsible for **sea level rise adaptation planning**²⁷ in the state. DCP staff completed a sea level rise vulnerability assessment²⁸ and developed a sea level rise mapping tool.²⁹ The Program is currently developing a Statewide Adaptation Plan for Sea Level Rise with support from a Sea Level Advisory Committee, made up of a representative of each State of Delaware cabinet-level department, representatives of municipal government, NGO representatives, and representatives from the public, among others. The Adaptation Plan is currently in draft form and includes approximately 60 sea level rise adaptation recommendations, including recommendations concerning wetlands (e.g., updating the state's tidal wetlands regulatory map to reflect changes that are occurring due to sea level rise).³⁰ DCP held three public engagement sessions to allow the public to provide comments on how to improve Delaware's capacity to adapt to rising seas.³¹ When complete, the report will be distributed to the public.

The **Delaware National Estuarine Research Reserve** (DNERR) supports coastal communities through science. It is a leader with regard to management driven estuarine science: science that is conducted by in-house researchers as well as in collaboration with scientists in the region who are attracted by the long term monitoring information and infrastructure that the Reserve provides to support their work.

The Reserve draws upon research conducted at DNERR and elsewhere to promote informed coastal management. The Reserve's education programs promote the wise use of Delaware's coastal and estuarine resources. The Education programs include the Community Public Education and Outreach, Coastal Training, and K-16 Estuarine Education programs.

²⁶ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, COASTAL MANAGEMENT ASSISTANCE GRANTS, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/CoastalProgramRFP.aspx>

²⁷ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, SEA LEVEL RISE ADAPTATION, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/SeaLevelRiseAdaptation.aspx>

²⁸ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, VULNERABILITY ASSESSMENT, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/SLR/DelawareSLRVulnerabilityAssessment.aspx>

²⁹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, SEA LEVEL RISE INUNDATION MAPS, *available at* <http://www.dnrec.delaware.gov/Pages/SLRMaps.aspx>

³⁰ The Plan includes 8 options related to natural resources, including several related to wetlands. DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, OPTIONS FOR PREPARING: WETLANDS & IMPOUNDMENTS, BEACHES & DUNES, HABITATS OF CONCERN, PROTECTED LANDS, *available at* <http://www.dnrec.delaware.gov/coastal/Documents/SLR%20Advisory%20Committee/AdaptEngage/7aNROptions1.pdf>

³¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, SEA LEVEL RISE ADAPTATION COMMITTEE ADAPTATION ENGAGEMENT SESSIONS, *available at* <http://www.dnrec.delaware.gov/coastal/Pages/SLRAC-AdaptationEngagementSessions.aspx>

The DNERR's Stewardship Program utilizes adaptive management techniques to preserve and restore the natural resources within the Reserve as a place for research and education that promote a better understanding of Delaware's estuarine and coastal areas. Natural resource management on the Reserve is guided by the results of research conducted at the Reserve and elsewhere and is shared throughout the region through education and training.

The **Coastal and Estuarine Land Conservation Program** is a land acquisition program funded by the National Oceanic and Atmospheric Administration (NOAA). Through the Coastal and Estuarine Land Conservation Program, DCP "provides grants to eligible state agencies and local governments to acquire property or conservation easements from willing sellers within a state's coastal zone or coastal watershed boundary."³²

Wetland Activities

DCP is involved in a range of wetland activities through its main programs—the Delaware Coastal Management Program, the Delaware National Estuarine Research Reserve, and the Coastal and Estuarine Land Conservation Program—including research, education, and acquisition:

- The Delaware Coastal Management Program within DCP administers the Coastal Zone Federal Consistency Certification program. Federal Consistency requires that projects conducted directly by a Federal agency, projects authorized by a Federal permit, and some projects implemented with Federal funds be consistent with Delaware's Coastal Zone Management policies. Numerous policies pertain to tidal wetlands regulations.
- The Coastal Management Assistance Grants provide funding for projects that improve knowledge and understanding of wetland migration and barriers to wetland migration.
- The Delaware National Estuarine Research Reserve conducts collaborative wetlands research and long-term monitoring activities. It also provides applied research grants.
- The Delaware National Estuarine Research Reserve's Coastal Training Program (CTP) provides training and technical assistance to coastal resource decision makers on wetland related issues. The DNERR runs numerous education and training programs.
- DCP manages two land acquisitions grant programs for wetlands acquisition: the Coastal and Estuarine Land Conservation Program and the Procurement Acquisition and Construction grants for the National Estuarine Research Reserve System.

DCP's sea level rise planning efforts have identified vulnerable resources, including wetlands, and DCP is working with the advisory committee to finalize a statewide adaptation plan.

Capacity

DCP is made up of 20 staff members, including scientists, policy staff, educators, trainers, and property managers. The Program's main source of funding is yearly cooperative agreements with NOAA; this funding is supplemented with other grants. In addition, salaries for two of the Program

³² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, COASTAL AND ESTUARINE LAND CONSERVATION PROGRAM (CELCP), available at <http://www.dnrec.delaware.gov/swc/Pages/CELCP.aspx>

staff are funded by general state funds. The Coastal and Estuarine Land Conservation Program is funded entirely by NOAA.³³

Financial Assistance Branch

Mission

A mission statement for the Financial Assistance Branch could not be found online; however, the website describes the duties of the Branch as follows: “The Financial Assistance Branch administers the Clean Water State Revolving Fund, making funding available to municipalities, private organizations, nonprofit organizations and private individuals. The Financial Assistance Branch provides planning, engineering and financial assistance in the form of low-interest loans, as well as grants to eligible applicants that request assistance to promote water quality projects, including all types of nonpoint source, watershed protection, restoration, and estuary management projects, as well as more traditional municipal wastewater treatment projects.”³⁴

Activities

The Financial Assistance Branch (FAB) focuses on funding for projects that involve water quality improvement, municipal water, best practices for agriculture (e.g., poultry runoff), and septic systems among others. In support of this, the Branch manages the Clean Water State Revolving Fund (also known as the Delaware Water Pollution Control Revolving Fund (WPCRF)) under the Clean Water Act. The revolving loan fund is funded by the Environmental Protection Agency (EPA) with a 20% match by the state. The Branch’s loan programs use various innovative systems, including a Land Conservation Loan Program.

Overall, FAB is divided into four main funding programs: Cleanwater Infrastructure Project Funding, Non-Point Source Program Funding, Estuary Program Funding, and Grants Funding. The **Cleanwater Infrastructure Project Funding** program is divided into three sections: Publicly Owned Wastewater Projects, the Land Conservation Loan Program, and the Green Program Reserve. The Publicly Owned Wastewater Projects program provides loans for wastewater facility construction through the WPCRF.³⁵ Each year, the program develops a Project Priority List and, based on the list, provides loans for projects at below market interest rates.³⁶ The Land Conservation Loan Program funds “conservation easements and fee simple land purchases with [WPCRF] municipal loans.”³⁷ On an annual basis, “municipalities that have wastewater projects on the fundable portion of the WPCRF Project Priority List can enter into sponsorship agreements with

³³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, COASTAL AND ESTUARINE LAND CONSERVATION PROGRAM (CELCP), available at <http://www.dnrec.delaware.gov/swc/Pages/CELCP.aspx>

³⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, FINANCIAL ASSISTANCE BRANCH, available at <http://www.dnrec.delaware.gov/fab/Pages/default.aspx>

³⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, PUBLICLY OWNED WASTEWATER PROJECTS, available at <http://www.dnrec.delaware.gov/fab/Pages/Publicly-Owned-Wastewater-Projects.aspx>

³⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, PUBLICLY OWNED WASTEWATER PROJECTS, available at <http://www.dnrec.delaware.gov/fab/Pages/Publicly-Owned-Wastewater-Projects.aspx>

³⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, LAND CONSERVATION LOAN PROGRAM, available at <http://www.dnrec.delaware.gov/fab/Pages/Land-Conservation-Loan-Program.aspx>

implementing partners—Delaware Department of Agriculture (DDA) Forestland Conservation Program, Agricultural Lands Preservation Program, and DNREC’s Open Space and Conservation Easement Programs—to conserve forestland, open space, and wetlands.”³⁸ Land conservation easements and fee simple land purchases that are funded must have “demonstrated water quality improvement benefits and be managed in perpetuity.”³⁹ The Green Program Reserve provides funding for green infrastructure and stormwater infrastructure projects through the WPCRF.⁴⁰ Each year, the Green Program Reserve develops a Project Priority List and, based on the list, issues loans for projects at below market interest rates.

Non-Point Source Program Funding includes the Septic Rehabilitation Loan Program,⁴¹ the Leaking Storage Tank Remediation Loan Program,⁴² the Poultry Loan Program,⁴³ and the Dairy Loan Program.⁴⁴ The **Estuary Program Funding** section makes up to \$5 million from the WPCRF available to “private individuals, companies (profit and non-profit), and other entities to fund privately owned water quality improvement projects that are within Delaware’s ‘estuary zones’, and that are consistent with Delaware’s Comprehensive Conservation and Management Plans (CCMPs) prepared pursuant to Section 320 [of the Clean Water Act].”⁴⁵ **Grants Funding** includes Wastewater Matching Planning Grants,⁴⁶ Community Water Quality Grants,⁴⁷ and Surface Water Matching Planning Grants.⁴⁸

FAB reports to a 12-member, governor-appointed Clean Water Advisory Council (CWAC). The CWAC holds monthly meetings where new types of financing are proposed. Municipal staff and other divisions within DNREC are invited to these monthly meetings.

Wetland Activities

The Financial Assistance Branch can fund wetlands acquisition projects, including conservation easements and fee simple land purchases, through its Land Conservation Loan Program. The

³⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, LAND CONSERVATION LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Land-Conservation-Loan-Program.aspx>

³⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, LAND CONSERVATION LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Land-Conservation-Loan-Program.aspx>

⁴⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, GREEN PROJECT RESERVE, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Green-Project-Reserve.aspx>

⁴¹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SEPTIC REHABILITATION LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Septic-Rehabilitation-Loan-Program.aspx>

⁴² DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, LEAKING STORAGE TANK REMEDIATION LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Leaking-Storage-Tank-Remediation-Loan-Program.aspx>

⁴³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, POULTRY LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Poultry-Loan-Program.aspx>

⁴⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DAIRY LOAN PROGRAM, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Dairy-Loan-Program.aspx>

⁴⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, FUNDING FOR ESTUARY PROGRAMS, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Estuary-Program-Funding.aspx>

⁴⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, WASTEWATER MATCHING PLANNING GRANTS, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Wastewater-Matching-Planning-Grants.aspx>

⁴⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, COMMUNITY WATER QUALITY IMPROVEMENT GRANTS, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Community-Water-Quality-Grants.aspx>

⁴⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SURFACE WATER MATCHING PLANNING GRANTS, *available at* <http://www.dnrec.delaware.gov/fab/Pages/Surface-Water-Matching-Planning-Grants.aspx>

Branch has seized on an opportunity to work with the city of Wilmington to leverage a revolving fund loan to fund a 22-acre wetland restoration project. By adjusting the interest rate structure of the \$36 million loan, the Branch was able to provide the city with an additional \$4 million in loan capital for the restoration project. As part of the project, the Division of Parks and Recreation is working with the city to develop a conservation management plan. The Division of Parks and Recreation will also manage the plan's implementation and monitor the area; the Division receives \$10,000 from the loan to do this. DNREC will then hold the easement in perpetuity. The Branch sees this project as a model for future projects.

Capacity

The Financial Assistance Branch is made up of twelve staff members, including loan officers, financial and administrative staff, and four engineers who are responsible for project and loan management. The Branch manages \$500 million on an annualized basis. The Branch also manages the revolving loan fund which has a portfolio of over \$300 million; around \$5 million of this fund is used each year.

Office of Environmental Protection

Division of Air Quality

Mission

The mission of the Division of Air Quality is “to continuously optimize Delaware’s air quality by working with citizens and business to protect public health, welfare, and the environment.”⁴⁹

Activities

The Division of Air Quality manages all statewide air quality matters, including plans for attainment, maintenance, permits for construction, and enforcement action. In addition, part of the climate change programs falls within the Division including the Regional Greenhouse Gas Initiative (RGGI) for which the Division monitors the auctions, develops model rules, and is responsible for enforcement and auditing within the state.

The Division is divided into four major sections: Director’s Office, Air Surveillance, Engineering and Compliance, and Planning. Overall, the Division has broad authority for stationary sources but limited authority for mobile sources.

Wetland Activities

Although the Division is not directly involved with wetlands at the moment, there is an overlap in priorities when it comes to transportation and development planning. A strong wetland program would help control sprawl which would in turn help with air quality issues. Conversely, improved transportation and development planning would help improve both wetland protection and air quality.

⁴⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, AIR QUALITY MANAGEMENT’S VISION, MISSION, AND OBJECTIVES, available at <http://www.dnrec.delaware.gov/whs/awm/AQM/Pages/AQMVisionMissionObjectives.aspx>

Capacity

None mentioned during the interviews.

Division of Waste and Hazardous Substances

Mission

The mission of the Division of Waste and Hazardous Substances is “to protect the environment and health and safety of the people in Delaware. The Division does this by ensuring compliance with and enforcing Delaware’s waste and hazardous substances management laws; by promoting waste reduction and recycling; by remediating contaminated sites; and by conducting emergency planning, prevention, and response.”⁵⁰

Activities

The Division of Waste and Hazardous Substances is responsible for transporting, storing, and managing solid and hazardous waste (e.g., landfills and truckers); underground and aboveground storage tanks; boiler safety inspection; the state superfund program (the Division is the administrative arm of the state’s Natural Resources Damage Assessment [NRDA] program); emergency planning, community right-to-know, and emergency responders; and accidental release prevention. The Division is divided into five major sections: the Director’s Office, the Emergency Prevention and Response Section, the Site Investigation and Restoration Section, the Solid and Hazardous Waste Management Section, and the Tank Management Section.⁵¹

The **Director’s Office** administers and directs the operations of the Division, develops and implements policies and procedures for the Division, and coordinates Division outreach. The Director’s Office also carries out “cost recovery procedures to recoup state monies used in the cleanup of environmental violations and emergency incidents.”⁵²

The **Emergency Prevention and Response Section** responds statewide, 24 hours/day to oil spills, hazardous material incidents, and possible terrorist threats. The Section is divided into three main areas: the Accidental Release Prevention Program, the Emergency Planning and Community Right-to-Know Group, and the Emergency Response Group.⁵³ The Accidental Release Prevention Program is a compliance assistance program that helps facilities with hazardous substances ensure they have the proper control plans and operations in place to prevent disasters. The Emergency

⁵⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WASTE AND HAZARDOUS SUBSTANCES, available at <http://www.dnrec.delaware.gov/whs/awm/Pages/aboutagency.aspx>

⁵¹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SECTIONS AND PROGRAMS, available at <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

⁵² DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES, OCTOBER 2012: DIRECTOR’S OFFICE, available at <http://www.dnrec.delaware.gov/whs/awm/Documents/Waste%20and%20Hazardous%20Substances%20Director%27s%20Office.pdf>

⁵³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES, OCTOBER 2012: EMERGENCY PREVENTION AND RESPONSE SECTION, available at <http://www.dnrec.delaware.gov/whs/awm/Documents/Emergency%20Prevention%20and%20Response%20Section.pdf>

Planning and Community Right-to-Know Group oversees the “reporting of production, storage, and uses of hazardous chemicals and releases of these chemicals to all media.”⁵⁴ The Emergency Response Group plans, trains, coordinates, and responds to hazardous materials emergencies with local, county, state, and federal government agencies. The majority of the emergencies the group responds to involve traffic accidents; the largest emergencies usually involve unregulated home heating oil tank leaks.

The **Site Investigation and Restoration Section** is responsible for the “identification, evaluation, and remediation of hazardous waste sites, from Brownfields to federal Superfund sites.”⁵⁵ The Section also disseminates grants to various organizations to clean up Brownfields.

The **Solid and Hazardous Waste Management Section** “ensures—through regulation and permitting mechanisms—that waste generated, transported, treated, recycled, reused or disposed in Delaware is managed in an environmentally safe manner.”⁵⁶ The Section also encourages voluntary waste reduction, reuse, and recycling activities.⁵⁷ The Section is divided into three main groups: Waste Generation, Transport and Program Development; Waste Facilities; and Waste Reduction/Reuse/Recycling.⁵⁸

The **Tank Management Section** “administers and assists with the installation, management of abandonment, removal and cleanup of underground and above-ground storage tank systems, to prevent contamination of soils and groundwater supplies.”⁵⁹ The Section also oversees permitting for the installation and operation of vapor recovery equipment,⁶⁰ and operates the Boiler Safety Program which oversees the construction, installation, and repair of all boilers and pressure vessels, inspects boilers and pressure vessels, and provides education on boiler and pressure vessel operation, maintenance, and repair.

Wetland Activities

The Division is involved in a number of wetlands-related activities, including marsh and wetlands cleanup and restoration when they are a necessary component of waste cleanup-related activities.

⁵⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES, OCTOBER 2012: EMERGENCY PREVENTION AND RESPONSE SECTION, *available at* <http://www.dnrec.delaware.gov/whs/awm/Documents/Emergency%20Prevention%20and%20Response%20Section.pdf>

⁵⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SITE INVESTIGATION AND RESTORATION, *available at* <http://www.dnrec.delaware.gov/whs/awm/SIRB/Pages/default.aspx>; DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES: SECTIONS AND PROGRAMS, *available at* <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

⁵⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES: SECTIONS AND PROGRAMS, *available at* <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

⁵⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES: SECTIONS AND PROGRAMS, *available at* <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

⁵⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SOLID AND HAZARDOUS WASTE MANAGEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/whs/awm/SHWMB/Pages/SHWMB.aspx>

⁵⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES: SECTIONS AND PROGRAMS, *available at* <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

⁶⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WASTE AND HAZARDOUS SUBSTANCES: SECTIONS AND PROGRAMS, *available at* <http://www.dnrec.delaware.gov/whs/awm/Pages/Sections.aspx>

The Division directly works with wetlands staff when transport, storage, or management of solid and hazardous waste has the potential to impact a wetland, for example if a landfill is located near a wetland. The Division's staff also takes into account wetland restoration goals when developing superfund projects, and the Division currently manages superfund cleanup sites located in wetlands. In addition, through the WATER program, the Division of Waste and Hazardous Substances and the Division of Watershed Stewardship examine state watersheds and determine how they can remove waste. Division of Waste and Hazardous Substances staff also attend training sessions in wetland identification.

Capacity

The Division is made up of 109 staff members, including all emergency responders and an ombudsman. The Division has several biologists on staff including a NRDA staff member who has a good handle on wetlands and trains other staff members on NRDA matters.

Funding for the Division is a combination of fees (70%), including a tax that funds the Division's superfund group, grants (20%), and general funds (10%). However, Division fees have not increased since 1991 when a stipulation passed that all fee increases require General Assembly approval; boiler safety fees have not increased since 1986.

Division of Water

Mission

A mission statement for the Division of Water could not be found online; however, the website describes the duties of the Division as follows: "The Division of Water manages and protects water resources through various programs by providing technical assistance, laboratory services, regulatory guidance and implementation, educational services; performing applied research; and helping finance water pollution control measures. Staff serves through the protection of water resources for Delaware's visitors and residents."⁶¹

Activities

The Division of Water oversees the following activities: permitting for onsite septic systems (large and small); well permits for drinking water; allocation permits for industrial sources; agriculture irrigation wells; surface water discharge permits; implementation of the Municipal Separate Storm Sewer Systems (MS4) program; aquatic pesticides in the Concentrated Animal Feeding Operations (CAFO) program; industrial stormwater; an environmental laboratory, including testing for water samples, water quality, biology, and contaminants in soil; and permits for wetlands and subaqueous lands. In support of these activities, the Division is divided into six major sections: the Division Management Section, the Environmental Laboratory Section, the Surface Water Discharges Section, the Ground Water Discharges Section, the Water Supply Section, and the Wetlands and Subaqueous Lands Section.

⁶¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

The **Division Management Section** “coordinates division operations and provides centralized information about management, fiscal, personnel, and legal services.”⁶² The Section also provides education and information services, planning assistance and policy development, administers the water utility certification program, and provides a link with other external programs including the Delaware River Basin Commission and the Delaware Emergency Management Agency.

The **Environmental Laboratory Section** “operates a full-service environmental lab that tests and assesses water, air, soil, hazardous materials, and biological samples.”⁶³ The Section performs basic water quality testing for Delaware citizens at no charge and provides quality environmental testing to a variety of customers in a cost-effective manner.⁶⁴ The purpose of the Section is to be a “politically neutral, cost-effective, market-driven organization that provides the highest value and highest quality environmental testing, monitoring, assessment, and information services to benefit both citizens and the natural environment.”⁶⁵

The **Surface Water Discharges Section** regulates point sources of pollution. The Section “issues permits for industrial and municipal wastewater treatment systems (including storm water) and sludge management.”⁶⁶ They also provide technical assistance to wastewater treatment facilities and provide support to the Board of Certification for Wastewater Operations, which licenses wastewater treatment plant operators.⁶⁷

The **Ground Water Discharges Section** oversees all aspects of onsite wastewater treatment and disposal systems. The Section conducts site reviews, field checks, and approves site evaluations “for the installation of septic systems, underground injection wells, spray irrigation wastewater systems, and other systems associated with wastewater treatment.”⁶⁸ The Section also issues waste transporter permits and licenses.⁶⁹ The Section is divided into two branches: the Small Systems Branch (with an office in Dover for Kent and New Castle Counties and an office in Georgetown for Sussex County) and the Large Systems Branch (with an office in Dover serving all three counties).⁷⁰ In addition, the Section is currently overseeing an update for septic systems regulations. During the regulation update process, the Division received some pushback on small systems due to the

⁶² DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF WATER MANAGEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Pages/DivisionManagement.aspx>

⁶³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ENVIRONMENTAL LABORATORY SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/EnvironmentalLaboratory.aspx>

⁶⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ENVIRONMENTAL LABORATORY SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/EnvironmentalLaboratory.aspx>

⁶⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

⁶⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SURFACE WATER DISCHARGES SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/SurfaceWaterDischarges.aspx>

⁶⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, SURFACE WATER DISCHARGES SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/SurfaceWaterDischarges.aspx>

⁶⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

⁶⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, GROUND WATER DISCHARGES SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/GroundWaterDischarges.aspx>

⁷⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, GROUND WATER DISCHARGES SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/GroundWaterDischarges.aspx>

dissemination of inaccurate information by groups opposing the new regulations; the Division is currently combatting the misinformation through targeted meetings. The Section will then go back to a public workshop and a public hearing to finalize the regulations.

The **Water Supply Section** “issues well and water allocation permits and licenses to well contractors/drillers and pump contractors/installers.”⁷¹ The Section also oversees “statewide drought management, ground water quality monitoring, wellhead and source water protection programs, and water withdrawal quantities in coordination with the Delaware River Basin Commission.”⁷² In support of this, the Section administers the following programs, permits, and activities: the Delaware Source Water Assessment and Protection Program, the Water Supply Coordinating Council, Well Construction and Use Permits (including Contractor Licenses and Fees), Well and Water Use Data, Water Allocation Permits, the Ground Water Protection Program (including the Source Water Protection Program and the Well Head Protection Program), and the Water Conservation program.

The **Wetlands and Subaqueous Lands Section** is the primary regulatory authority for Delaware’s wetlands. The section oversees permitting under the Wetlands Act and the Subaqueous Lands Act for activities that affect subaqueous lands, tidal wetlands, and marinas.⁷³ Permitted activities include marina construction and operation, construction of docks and piers, shoreline stabilization projects, dredging, filling, bridge or culvert construction, utility crossings of streams, as well as other projects that could affect wetlands and subaqueous lands.⁷⁴ The Section also provides maps of tidal wetlands and resource management planning.

The Section does not permit many impacts to tidal wetlands and almost all compensation is done onsite. However, the Section does require compensation for some Delaware Department of Transportation (DelDOT) projects. Most of the time, this mitigation is done in cooperation with the Division of Fish and Wildlife. In addition, the Section occasionally requires mitigation for dredging; the mitigation funds are used by the Division of Fish and Wildlife for tidal wetland restoration projects. Ideally, the Section would like to perform this restoration in-house but it lacks the staff to do so.

The Section is also responsible for §401 certification. Applicants may submit a joint application to the Wetlands and Subaqueous Lands Section for impacts regulated under other permitting and certification programs (including §404 of the Clean Water Act). A significant portion of wetland projects in the state involve nationwide permits. The majority of §401 certifications are for DelDOT projects. The Section tends to leave §404 mitigation decisions to the Army Corps of Engineers

⁷¹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

⁷² DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

⁷³ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATER, *available at* <http://www.dnrec.delaware.gov/wr/Pages/AboutAgency.aspx>

⁷⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, WETLANDS AND SUBAQUEOUS LANDS SECTION, *available at* <http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx>

(Corps), and does not independently track any of the compensation projects that the Corps requires.

The amount of time it takes the Section to issue a permit depends on the level of complexity, but it usually takes 30-120 days per permit. Two state programmatic general permits (SPGP) apply in Delaware for navigable waters regulated by the Corps (§10 waters), but there are no SPGPs for activities regulated only under §404. The majority of the individual permits the Section issues are for residential or commercial development activities.

Wetland Activities

The Wetlands and Subaqueous Lands Section is responsible for most of the Division of Water's wetland-related activities. This work is discussed in more detail in the above "Activities" section.

Capacity

The Division of Water is made up of 90 staff members, including nine staff members in the Wetlands and Subaqueous Lands Section.

Office of Natural Resources

Division of Fish and Wildlife

Mission

The Division of Fish and Wildlife (DFW) works "to conserve and manage Delaware's fish and wildlife resources, provide safe and enjoyable fishing, hunting, and boating opportunities to citizens and visitors, and improve the public's understanding and interest in the state's fish and wildlife resources through information and outreach programs. The Division's goal is to manage and provide access to the lands with which DFW is entrusted for public use and enjoyment."⁷⁵

Activities

The Division of Fish and Wildlife is divided into five major programs: Wildlife; Fisheries; Enforcement; Mosquito Control; and Outreach, Grants Management, and Licensing. The Division's priorities include efficient and effective administration of its programs; applied habitat research, management, and restoration; species research, monitoring, and management; enforcement; education and training; and acquisition, facilities development and construction.

The Division's **Wildlife Section** manages approximately 61,000 acres of wildlife areas. Section activities include managing coastal impoundments for multiple uses; restoring shallow, emergent, freshwater wetlands; and administering a private lands initiative that helps landowners improve and protect their lands for wildlife.⁷⁶ The Natural Heritage and Endangered Species Program (NHESP) which "conducts inventories, monitoring and research to guide the preservation,

⁷⁵ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF FISH AND WILDLIFE: ABOUT US, *available at* <http://www.dnrec.delaware.gov/fw/Pages/AboutUs.aspx>

⁷⁶ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE PRIVATE LANDS ASSISTANCE PROGRAM, *available at* <http://www.dnrec.delaware.gov/fw/dplap/Pages/default.aspx>

conservation and management of the state's plant and animal communities"⁷⁷ is also located in the Wildlife Section and is responsible for developing Delaware's Wildlife Action Plan.

The Division's **Fisheries Section** regulates recreational and commercial, tidal and non-tidal fisheries and "works to enhance and protect Delaware's fish and aquatic resources and habitats."⁷⁸

The intent of the **Enforcement Section** is to "protect the public's safety, as well as that of the states' wildlife, finfish, shellfish, non-game and endangered species, including marine mammals, within the state's lands and waters."⁷⁹ The Section oversees enforcement for the Wildlife and Fisheries Sections, including overseeing public safety services in the areas of boating, hunting, fishing, shell fishing, and disaster response. The Section also oversees boat registration; there are currently over 60,000 registered boats. Section staff includes game wardens, marine police, and boat registration staff.

The Division of Fish and Wildlife's **Mosquito Control Section** focuses on "controlling larval and adult mosquito populations and treating mosquito breeding habitats"⁸⁰ through a combination of source reduction (water management) and insecticides. In support of this, the Mosquito Control Section works to restore and enhance wetland habitats. One of the Section's major projects is the Northern Delaware Wetland Rehabilitation Program, a collaborative partnership between the Division of Fish and Wildlife and other natural resource agencies to restore "up to 10,000 acres of degraded urban wetlands along the Christina/Lower Delaware River corridor."⁸¹ The Mosquito Control Section also "works to reduce mosquitoes while improving habitat resources for fish and wildlife" through their Open Marsh Water Management activities and "management of coastal marsh impoundments for tidal exchanges, water levels and microhabitats."⁸² The Section primarily works in the Northern third of the state, and the majority of the Section's water management activities occur on private lands.

The **Outreach, Grants Management, and Licensing Program** oversees recreational licensing for hunting and fishing and all federal aid projects. The Program also administers education and training programs including hunter education, aquatic resource education (ARE), and boating safety education.⁸³

⁷⁷ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM, *available at* <http://www.dnrec.delaware.gov/fw/NHESP/Pages/default.aspx>

⁷⁸ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, FISHERIES SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Fisheries/Pages/Fisheries.aspx>

⁷⁹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ENFORCEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Pages/Enforcement.aspx>

⁸⁰ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, MOSQUITO CONTROL SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Services/Pages/MosquitoSection.aspx>

⁸¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, MOSQUITO CONTROL SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Services/Pages/MosquitoSection.aspx>

⁸² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, MOSQUITO CONTROL SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Services/Pages/MosquitoSection.aspx>

⁸³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF FISH AND WILDLIFE: ABOUT US, *available at* <http://www.dnrec.delaware.gov/fw/Pages/AboutUs.aspx>

The Division of Fish and Wildlife is also the lead on the **Delaware Bayshore Initiative**, a departmental initiative that targets three major areas for improvement along Delaware’s Bayshore coast: 1) conservation and ecological restoration, 2) recreation and connectivity, and 3) engagement and marketing. Through conservation and ecological restoration, the initiative aims to “connect wildlife areas by acquisition or easement of unprotected lands; restore native habitat; and protect resources.”⁸⁴ The recreation and connectivity focus aims to “focus strategic investments to connect wildlife areas to urban centers; maximize enjoyment of the outdoors by providing safe, healthy recreational experiences; and enhance access to wild areas.”⁸⁵ The engagement and marketing focus aims to “engage, educate and inspire the next generation of environmental stewards; partner with local communities and organizations to promote the area regionally, nationally and internationally; and promote local volunteerism.”⁸⁶ The initiative presents an opportunity to do habitat and wetland restoration work and to coordinate priorities across divisions.

Wetland Activities

Division activities involving wetlands include the following:

- Wetlands Restoration, Wildlife Section: The Wildlife Section does a fair amount of work restoring shallow, emergent freshwater wetlands (especially in Kent County). The Section also works in poorly drained, marginal farmlands, and more recently it has been working on forested wetlands.
- Invasive Species Control, Wildlife Section: The Wildlife Section works on invasive species control in tidal and freshwater wetlands.
- Delaware Private Lands Assistance Program (including the Delaware *Phragmites* Control Cost-share Program and the Delaware Landowner Incentive Program), Wildlife Section: This program helps private landowners improve and protect their lands for wildlife, including wetlands. The Delaware *Phragmites* Control Cost-share Program in particular targets undeveloped wetlands, including tidal or non-tidal freshwater or brackish marshes, ponds or impoundments that have been degraded by the invasive plant *Phragmites*.⁸⁷ The Delaware Landowner Incentive Program (LIP) helped landowners enhance and/or restore habitat to benefit species-at-risk, including wetland habitats. However, the LIP program was cut from the federal budget and the state no longer receives new funding from U.S. Fish and Wildlife Service. The Delaware LIP currently administers 26 active habitat agreements that were established with landowners in years past. The agreements are primarily warm season grass and tree plantings and shallow water wetland creation projects. The projects are either five or ten years in duration; depending on when they were initiated, some

⁸⁴ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE BAYSHORE INITIATIVE, *available at* <http://www.dnrec.delaware.gov/Pages/Delaware-Bayshore.aspx>

⁸⁵ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE BAYSHORE INITIATIVE, *available at* <http://www.dnrec.delaware.gov/Pages/Delaware-Bayshore.aspx>

⁸⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE BAYSHORE INITIATIVE, *available at* <http://www.dnrec.delaware.gov/Pages/Delaware-Bayshore.aspx>

⁸⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE PHRAGMITES CONTROL COST-SHARE PROGRAM, *available at* <http://www.dnrec.delaware.gov/fw/dplap/services/Pages/DelawarePhragmitesControl.aspx>

projects will extend to 2022. The Division of Fish and Wildlife is responsible for documenting compliance with agreements and ensuring land rental payments are made in a timely manner.

- Natural Heritage and Endangered Species Program (NHESP), Wildlife Section: The NHESP conducts research, including research related to wetlands. It also developed the Delaware State Wildlife Action Plan which discusses conservation issues and actions related to tidal and non-tidal wetlands.
- Enforcement Section: The Enforcement Section oversees all enforcement for the Division, including enforcement in wetlands.
- Wetland Restoration and Enhancement, Mosquito Control Section: In addition to mosquito control management, the Mosquito Control Section also is involved in wetland restoration programs. The Northern Delaware Wetland Rehabilitation Program is a collaborative partnership between the Division of Fish and Wildlife and other natural resource agencies to restore “up to 10,000 acres of degraded urban wetlands along the Christina/Lower Delaware River corridor.”⁸⁸ The Mosquito Control Section has heavy equipment for wetland restoration and helps private landowners control mosquitoes through water management.
- Delaware Bayshore Initiative: One of the three priorities of the Initiative is to “connect wildlife areas by acquisition or easement of unprotected lands; restore native habitat; and protect resources.” The Initiative presents the opportunity to do habitat and wetland restoration work and to coordinate priorities.
- Education Resources and Conservation Programs: Through the Division’s Aquatic Resources Education (ARE) program, the Division runs numerous education and training programs, including the following: Leader-Led overnight (wetland-focused) environmental education experiences at the Mallard Lodge facility, Eco-Explorers (salt marsh ecology) field trip programs for 5th grade classes, Wetland Activities for Delaware Educators (WADE) hands-on learning kits for upper elementary through middle school classrooms, and the statewide Adopt-a-Wetland Program which engages hundreds of volunteers in stewardship of over 100 wetland sites across the state.⁸⁹

Capacity

The Division has around 135 full-time employees, including technical staff, biologists, game wardens, marine police, and others. This number increases to approximately 175 staff members when seasonal and contractual employees are included. The Mosquito Control Section has two offices in the state with upwards of ten people who work on a project from time to time. The Section also brings in volunteers for various projects.

The Division is funded by a variety of sources including grants, duck stamps and fees, and general funds. Funding for the Delaware Bayshore Initiative in particular comes from the state; the Initiative was awarded \$500,000 through bond bills in the legislature. In addition, the Initiative is part of America’s Great Outdoors which makes the Initiative more competitive for federal grants.

⁸⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, MOSQUITO CONTROL SECTION, *available at* <http://www.dnrec.delaware.gov/fw/Services/Pages/MosquitoSection.aspx>

⁸⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ADOPT-A-WETLAND HOME, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/AdoptaWetland.aspx>

Funding for the Initiative's lead staff member, Karen Bennett, was redirected from funding within DNREC.

Division of Parks and Recreation

Mission

The mission of the Division of Parks and Recreation is "to provide Delaware's residents and visitors with safe and enjoyable recreational opportunities and open spaces, responsible stewardship of the lands and the cultural and natural resources that we have [the Division has] been entrusted to protect and manage and resource-based interpretive and educational services."⁹⁰

Activities

The Division of Parks and Recreation's primary responsibility is to manage the state parks system. The Division maintains 15 state parks, preserves, and greenways totaling more than 20,000 acres. As a full service parks agency, the Division handles every aspect of the state parks system, from statewide outdoor recreation planning (including the Statewide Comprehensive Outdoor Recreation Plan), to providing for the protection of natural areas and managing Delaware's Open Space Program, providing public services in the parks, and working with communities to build park trails. The Division is divided into three major sections: the Administration and Support Office, the Operations and Maintenance Section, and the Planning Preservation and Development Section.

The **Administration and Support Office** is responsible for the Division's accounting, marketing, business services, personnel, communications, and other internal support.⁹¹

The **Operations and Maintenance Section** is responsible for the day-to-day operation and maintenance of all of Delaware's state parks and facilities, including park safety and security. The Section also operates the Division's interpretive centers, offers environmental education programs and information about the natural and cultural resources of the parks, hosts special events, and is responsible for the Division's cultural resources.⁹²

The **Planning Preservation and Development Section** administers the Division's land acquisition and protection programs, including the Division's Office of Nature Preserves, the Land and Water Conservation Trust Fund grants program, the statewide Greenways and Trails Program, and the Coastal Heritage Greenway program.⁹³ In addition, the Section plans, designs, and constructs new

⁹⁰ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF PARKS AND RECREATION: OUR MISSION STATEMENT, available at <http://www.dnrec.delaware.gov/parks/Home/Pages/MissionStatement.aspx>

⁹¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF PARKS AND RECREATION: ABOUT US, available at <http://www.dnrec.delaware.gov/parks/Home/Pages/AboutUs.aspx>

⁹² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF PARKS AND RECREATION: ABOUT US, available at <http://www.dnrec.delaware.gov/parks/Home/Pages/AboutUs.aspx>

⁹³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF PARKS AND RECREATION: ABOUT US, available at <http://www.dnrec.delaware.gov/parks/Home/Pages/AboutUs.aspx>

facilities and develops Delaware's Comprehensive Outdoor Recreation Plan.⁹⁴ The Conservation Trust Fund program provides matching grant assistance to local governments for the acquisition of open space and development of outdoor recreation projects.

The Planning Preservation and Development Section includes the Land Preservation Office,⁹⁵ which coordinates the Open Space Program and administers the funds that allow the Division to add to existing state parks, nature preserves, and coastal parks. The Open Space Program works in coordination with a governor-appointed council, the Open Space Council, which advises the Department on the implementation of the Program and on specific recommendations for purchases. When a specific agency decides to pursue acquisition of a property through the Open Space Program, the agency must first bring their proposal before a working group and the Open Space Council in a closed executive session. Overwhelmingly, the Council tends to approve proposals brought before them.

The Open Space Program was created to oversee the protection of State Resource Areas. The maps designating priorities for the Open Space Program were developed in 1990-1991. An update to the State Resource Area maps was completed in 2006, but the new maps were struck down in court. At least one interviewee suggested that the Program may consider using the Conservation Opportunities Area maps currently under development to guide acquisition.

The Natural Areas Program is also housed in the Land Preservation Office. The purpose of the voluntary Natural Areas Program, which began in 1981, is to preserve land in the state identified on the natural areas registry based on ecology, geology, and archaeology. Landowners can contact the department about preserving natural areas on their properties as nature preserves. In some cases, the Section will proactively reach out to landowners about the opportunity to preserve their land. A governor-appointed advisory council, the Natural Areas Advisory Council, helped develop the natural areas registry; the maps for this registry were most recently updated in 2006. In addition to guiding preservation of natural areas, the Program reviews all development plans to see if they will impact natural areas and to ensure plans comply with the Program's criteria.

Wetland Activities

The Division of Parks and Recreation engages in a number of wetland-related activities. Division activities related to wetlands are as follows:

- **Ownership and Restoration:** The Division owns wetland properties through the state parks system and is engaged in restoration on these properties.
- **Delaware Conservation Trust Fund, Planning Preservation and Development Section:** The Division works with communities to acquire land, including wetlands, mainly by providing funding through the Delaware Conservation Trust Fund, a state grant fund. The Division provides matching grants to communities for land acquisition and development of parks.

⁹⁴ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DIVISION OF PARKS AND RECREATION: ABOUT US, *available at* <http://www.dnrec.delaware.gov/parks/Home/Pages/AboutUs.aspx>

⁹⁵ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, LANDOWNER PROTECTION OPTIONS, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/LandownerProtectionOptions.aspx>

- Open Space Program, Land Preservation Office, Planning Preservation and Development Section: Wetlands are a consideration in the Open Space Program.
- Natural Areas Program, Land Preservation Office, Planning Preservation and Development Section: The voluntary Natural Areas Program targets lands on the natural areas registry, including wetlands, for preservation as nature preserves. In addition, the Section reviews proposed development plans to identify impacts to natural areas. If natural areas exist, the Program will try to persuade the landowner to minimize the impacts of the development.

Capacity

The Division of Parks and Recreation has approximately 150 full-time state employees, including four people in the Land Preservation Office and 12 staff around the state in the Division's education and interpretation program. When contractual employees, interns, and others are considered, the number of full-time employees increases to around 175 people on a typical day. During the summertime, the staff increases by an additional 500-600 people.

Fees that the Division generates itself (e.g., entrance fees and campground fees) provide approximately two-thirds of the Division's funding; the remaining third comes from general funds. The money for the Division's Open Space Program comes from a realty transfer tax.

Division of Watershed Stewardship

Mission

The Division of Watershed Stewardship⁹⁶ "is mandated to preserve and protect Delaware's soil, water and coastal resources. The Division manages Delaware's shoreline, coastal zone and navigable waterways by regulating coastal and urban land use and construction activities, and by promoting wise agricultural and urban land management practices. The Division also promotes wise water management practices to preserve agricultural interests, protect urban communities and provide for public safety."⁹⁷

Activities

The Division of Watershed Stewardship is divided into four main sections: District Operations, Shoreline and Waterway Management, Watershed Assessment, and Drainage and Stormwater.⁹⁸

The **District Operations Section** "provides technical and financial assistance to Delaware's farmers, landowners, and homeowners to protect and enhance Delaware's soil and water resources." The Section is responsible for the Delaware Nonpoint Source Program, the Debris Pit Program, Ecological Restoration (through the Ecological Restoration and Protection Team), and

⁹⁶ Note: The website still refers to this as the Division of Soil and Water Conservation.

⁹⁷ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATERSHED STEWARDSHIP, available at <http://www.dnrec.delaware.gov/swc/Pages/AboutUs.aspx>

⁹⁸ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ABOUT THE DIVISION OF WATERSHED STEWARDSHIP, available at <http://www.dnrec.delaware.gov/swc/Pages/AboutUs.aspx>

administration and direction of the Conservation Districts' programs.⁹⁹ The Ecological Restoration and Protection Team restores and protects streams, drainage ditches, wetlands, and riparian corridors. The goal of the team is to restore and protect these areas "in a coordinated effort to ensure that the maximum level of environmental results are being derived to enhance water quality, provide stream-bank protection and reduce erosion, and establish wildlife habitat."¹⁰⁰ The team's wetland restoration activities take place in marginal agricultural fields, school yards, and a variety of other settings.

The **Shoreline and Waterway Management Section's** mission is to "maintain and improve Delaware's shoreline and waterways (bays and canals)."¹⁰¹ The Section is involved in three main activities: regulating coastal construction through programs and permits and implementation of dune and beach management practices; protecting and enhancing eroded beaches to ensure continued recreational use; and improving the state's ability to endure coastal storms through various flood management and mitigation activities (including National Flood Insurance Program compliance and assessments).¹⁰²

The **Watershed Assessment Section** "oversees the health of the State's water resources and takes actions to protect and improve water quality for aquatic life and human use."¹⁰³ The Section is responsible for various Clean Water Act requirements, including establishing Water Quality Standards, developing 305(b) Watershed Assessment Reports and 303(d) Lists of Impaired Waters, and establishing Total Maximum Daily Loads. In addition, the Section develops watershed plans and implements restoration projects. The Section is also home to the Wetland Monitoring and Assessment Program, the Delaware Shellfish Program, and the Recreational Water Program.

The Wetland Monitoring and Assessment Program's goal is to "assess the condition, or health, of wetlands and the functions and ecosystem services that wetlands provide."¹⁰⁴ The Program develops wetland assessment methods, assesses the current health of wetlands by watershed, performs research on wetlands (including functions, the impact of stressors, and ecosystem services), provides recommendations, and evaluates the performance of wetland restoration and compensatory mitigation plans.¹⁰⁵ The majority of the Program's work is done on a watershed-by-watershed basis. The Delaware Shellfish Program is charged with protecting shellfish consumers by

⁹⁹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DISTRICT OPERATIONS, *available at* <http://www.dnrec.delaware.gov/swc/district>

¹⁰⁰ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, ECOLOGICAL RESTORATION, *available at* <http://www.dnrec.delaware.gov/swc/district/Pages/Restoration.aspx>

¹⁰¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, SHORELINE AND WATERWAY MANAGEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/swc/Shoreline>

¹⁰² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, SHORELINE AND WATERWAY MANAGEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/swc/Shoreline>

¹⁰³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, WATERSHED ASSESSMENT SECTION, *available at* <http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx>

¹⁰⁴ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, WATERSHED ASSESSMENT SECTION, *available at* <http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx>

¹⁰⁵ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE WETLAND MONITORING AND ASSESSMENT PROGRAM, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Wetland-Monitoring-and-Assessment.aspx>

reducing the risk of human illness from shellfish bacteria and viruses. The Recreational Water Program monitors water quality to protect public health in recreational water areas.

The **Drainage and Stormwater Program's** mission is to "provide management and implementation of regulatory and non-regulatory programs to improve drainage, stormwater, water quality and dam safety."¹⁰⁶ The Program is responsible for the state's Drainage Program, the regulatory Sediment and Stormwater Program, and the state's Dam Safety Program. Within the Drainage Program, there are two main tiers: tax ditches and publicly funded water management/drainage improvement projects. On the tax ditch side, the Drainage Program provides technical assistance to approximately 200 Tax Ditch Organizations in the state and helps the organizations maintain around 2,000 miles of tax ditches. On the water management/drainage improvement side, there are currently around 700 active projects in the state; these projects are funded by bond and legislative money. Most of the projects are smaller, drainage improvement projects that are maintained by the landowner, including bank stabilization, agriculture drainage, swales, and development projects.

Historically, many of these tax ditch and drainage activities resulted in loss or degradation of wetland habitat. There continues to be concern about the effect construction and maintenance of the drainage system and regulatory exemptions for these activities have on the protection of wetland and in-stream habitat in the state. However, the Section has developed best management practices to minimize the impact of drainage activities in Delaware and is increasingly focused on avoidance of wetland habitat in its projects.

In addition, the Drainage and Stormwater Program is involved in the stormwater regulations updates that are taking place under Senate Bill 64. Senate Bill 64, which was signed into law in 2011, established a Floodplain and Drainage Advisory Committee to review best practices and national standards and make recommendations on minimum standards for improved floodplain management and drainage within the state.¹⁰⁷

Wetland Activities

The Division of Watershed Stewardship is primarily involved in wetland-related activities through the Division's Ecological Restoration and Protection Team, the Wetland Monitoring Assessment Program, and the Drainage and Stormwater Program.

The Ecological Restoration and Protection Team restores and protects areas including wetlands. The Team's wetland restoration activities take place in marginal agricultural fields, school yards, and a variety of other settings.

The Wetland Monitoring Assessment Program conducts research, monitoring, and assessment related to all aspects of wetlands. Additional information is included in the activities section above.

¹⁰⁶ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DRAINAGE AND STORMWATER SECTION, *available at* <http://www.dnrec.delaware.gov/swc/Drainage>

¹⁰⁷ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, FLOODPLAIN AND DRAINAGE ADVISORY COMMITTEE (FDAC), *available at* <http://www.dnrec.delaware.gov/swc/Pages/FloodplainandDrainageCodeWorkGroupCommittee.aspx>

The Drainage and Stormwater Program also participates in wetland restoration activities. When possible, the Program looks for opportunities to conduct wetland restoration projects and to incorporate water quality improvement in its projects. The Program is currently responsible for over 45 wetland and stream restoration projects, for a total of approximately 180 acres of restoration.¹⁰⁸ These projects take place in a variety of locations from local schools and the backyards of private landowners to marginal agricultural fields and along tax ditches.¹⁰⁹ As one example of the Drainage and Stormwater Program's activities, one interviewee indicated that the Program is currently working on a project that connects a tax ditch to an adjacent wetland area with a series of notches. In addition, the Drainage and Stormwater Program has wetland scientists on staff, including one scientist who is responsible for all wetland permits for any projects. The Program is also working to incorporate more ecologically friendly maintenance activities.

The Division of Watershed Stewardship is also involved in the Mid-Atlantic Wetland Working Group which meets twice each year.

Capacity

The Division of Watershed Stewardship has 117 staff members, 70 of which are state employees; the remainder include conservation district employees. Around two-thirds of the Division's budget comes from general funding (including for conservation district staff). A few staff members are fee-funded. The remaining third of the Division's budget is funded through grants. Overall, the Division has a \$20 million general fund budget; however, most of this goes towards personnel.

Within the Watershed Assessment Section, there are around 30 employees (and growing), including two soils assessment staff who can do wetland delineations, five staff within the Wetland Monitoring Assessment Program, and four staff within the Chesapeake Bay Watershed program. During the summertime, the number of employees in the Section increases due to seasonal help. Staff within the Wetland Monitoring Assessment Program are grant funded.

The Drainage and Stormwater Program has 30 staff members overall including engineers, scientists, planners, and surveyors; two of the scientists are wetland scientists, including one on the permits side. Salaries for Program staff are funded through bond bill appropriation at the state level, whereas individual drainage improvement projects are funded on a project-by-project basis. The Program does not have any fees.

¹⁰⁸ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, WETLAND AND CHANNEL RESTORATION, *available at* <http://www.dnrec.delaware.gov/swc/drainage/pages/taxditchrestoration.aspx>

¹⁰⁹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, WETLAND AND CHANNEL RESTORATION, *available at* <http://www.dnrec.delaware.gov/swc/drainage/pages/taxditchrestoration.aspx>

Communication and Collaboration across the Department

Formal Communication Structures

Interviewees discussed a number of formal avenues of communication within DNREC, both on a department-wide scale and between specific divisions. On a department-wide scale, major forms of communication include the weekly senior leadership meetings, the weekly governor's report, monthly joint permit processing meetings, and the SIREN intranet. Of these, some seem to be more effective than others. The weekly governor's report seems to be one of the major formal avenues of communication among the staff, whereas the intranet has the potential to increase communication but is not used frequently enough to be an effective form of communication. In addition, a few participants mentioned that the weekly reports that are sent to the Secretary from each division are incredibly helpful to see each week. However, all staff members across DNREC do not have access to the reports.

On a division scale, formal methods of communication within the Office of Environmental Quality and the Office of Natural Resources exist, but most communication between individual divisions takes place on a program-by-program, ad hoc basis. The directors within the Office of Environmental Protection (the Divisions of Air Quality, Water, and Waste and Hazardous Substances) indicated that they meet every other week to discuss common issues between their divisions. In addition, the Environmental Protection divisions hold a joint recognition ceremony each year, in part to encourage staff among the divisions to get to know one another. The three divisions also hold a cross training session every two years and additional cross training as needed (e.g., wetlands recognition training for septic inspectors). Directors within the Office of Natural Resources (Divisions of Fish and Wildlife, Parks and Recreation, and Watershed Stewardship) indicated that they meet each week to discuss mutual priorities.

Formal division-to-division methods of communication discussed in the interviews include weekly meetings between Watershed Assessment and Wetlands and Subaqueous Lands, and communication for the WATER program between Watershed Assessment and the Division of Waste and Hazardous Substances. In addition, the Clean Water Advisory Council holds monthly meetings which division and municipal staff are invited to attend. The Wetlands and Subaqueous Lands Program, Delaware Coastal Programs, the Division of Fish and Wildlife, and other DNREC Programs also hold a monthly joint permit processing meeting with U.S. Fish and Wildlife Service, the Environmental Protection Agency, and the Army Corps to discuss joint permits and other concerns. Overall though, many participants indicated that formal communication between divisions often depends on the program; some programs have monthly or quarterly meetings, and others are on an as needed basis.

Informal Communication Structures

Overall, most communication within DNREC seems to take place on an informal basis. Multiple participants indicated that informal, program-by-program communication across divisions largely depends on the staff members involved; some staff members will make more of an effort to reach out than others. One participant indicated that the lines of communication are much more open in

Delaware than in other states, and a few participants indicated that overall, staff members work well together on projects that require collaboration. However, the majority of participants indicated that communication within divisions, between divisions, up the chain, and down the chain remains an issue; one staff member indicated that this has improved in recent years. This could, in part, be attributed to the fact that there is no formal structure for coordination on projects, and all coordination revolves around individual initiative and, as one interviewee stated, “who you happen to know.” This lack of coordination and communication has resulted in duplication of efforts in the past. One method of improvement recommended is to hold more small group discussions—to increase the number of after work socializations, half-day retreats (focused on specific topics), and annual recognition ceremonies among divisions. In addition, staff said they are encouraged to and will work together; however, many times they become focused on their own projects and lack the time to think about opportunities for collaboration with other divisions.

One of the biggest issues cited during the interviews is the physical separation between the main DNREC office, offsite staff, and field offices. Several participants noted that communication with field office and offsite staff remains an issue, and there is a need to make the field staff feel more connected to DNREC as a whole. This physical separation is particularly an issue with regard to wetlands, as the three major programs that deal with wetlands—Watershed Assessment, Wetlands and Subaqueous Lands, and Delaware Coastal Programs—are all located in three separate divisions, in three separate buildings. Participants noted that both the physical and division-level separation make coordination on wetland issues and priorities difficult. The Department may consider forming an in-house wetland working group to address these coordination issues.

In addition, one view that emerged during the interviews is that communication within the Department works well on a project-by-project basis but not when it comes to the big picture. For wetlands in particular, multiple division directors noted that they lack direction as to the strategies they need to implement in order to help improve wetlands. Interviewees also indicated that they are concerned about the lack of connection among policy decisions.

Outreach and Communication with the Public

Who

The Public Affairs Section in the Office of the Secretary is traditionally responsible for all press events, news releases, and messaging for the Department. However, since the Section covers the entire Department, several interviewees suggested that the Section is spread thin, and there is little time for other department staff to think strategically about the audiences they should target with their information. In addition, several staff mentioned that there is a tendency within the Public Affairs Section to over-edit division messages and as such, the messages are often watered down. Since every message must be approved by the Secretary, there is also a time delay on messages.

The Watershed Assessment Section mentioned that it recently filled a vacant position for a staff member dedicated to wetland-related public outreach. The Division of Watershed Stewardship also mentioned that there are a few marketing specialists on staff and that the Division will occasionally

hire outside marketing and publicity specialists. For example, the Division used Chesapeake Bay Initiative money to hire a marketing specialist to produce a video on water quality monitoring in the Nanticoke. Other divisions also have staff dedicated to wetland-related public outreach including Delaware Coastal Programs, the Division of Fish and Wildlife, and the Division of Parks and Recreation.

On an informal basis, staff indicated that some people within the Department like to talk to and will communicate with the public and others will not.

DNREC Constituencies

A range of constituencies, from all citizens in Delaware to very specific subsets of the population, were identified by various divisions within DNREC (see Table 2). However, several interviewees indicated that the Department does not communicate enough internally regarding their target constituencies. A summary of some of the various constituencies identified is included below.

Table 2: DNREC Constituencies

Division	Identified Constituents
Delaware Coastal Programs	Everyone, from the average citizen in Delaware, to others in DNREC, to the General Assembly, to the Governor’s Office
Division of Fish and Wildlife	Hunters, especially waterfowl hunters, and fishermen; non-consumptive users of the public areas (e.g., photographers and bird watchers); teachers, non-formal educators, school groups, youth groups, and families; businesses, community groups, private landowners, and homeowners associations; various other groups interested in stewarding, monitoring, and learning more about Delaware’s wetlands
Division of Parks and Recreation	Park visitors and landowners (major constituencies); NGOs and volunteers; everyone when it comes to the Mosquito Control Section
Division of Watershed Stewardship, Drainage and Stormwater Program	Landowners with drainage issues (an increasingly suburban constituency)
Division of Watershed Stewardship, Watershed Assessment Section	Landowners; other biologists; decision makers; Delaware’s citizens that are not in touch with the environment

Current Media

Department staff members use a variety of media to distribute information and communicate with the public (see Table 3).

Table 3: Outreach and Communication Media Used by Department Staff.

Division(s)	Medium	Comments
Delaware Coastal Programs (DCP)	“Constant Contact” Email Lists	DCP is increasingly relying on the website to communicate with the public.

Delaware Coastal Programs	Coastal Training Program (workshops, seminars, hands-on skill training, lectures, technology demonstrations)	DCP holds topic-based decision maker workshops and other training activities. For example, DCP has held workshops on wetland restoration techniques, living shorelines, and landowner conservation options.
Delaware Coastal Programs	Sea Level Rise Presentations	DCP held public meetings regarding sea level rise. Public comments included the importance of protecting wetlands. DCP has given countless presentations to communities and interested groups on sea level rise impacts.
Delaware Coastal Programs	Curriculum-based Education	DCP has a K-16 Estuary Education program that is focused on curriculum-based education.
Delaware Coastal Programs	Community/Public Education Programs and Outreach	DCP offers community/public education programs and outreach.
Delaware Coastal Programs	Social Media	The DNERR has an active Facebook page, Twitter account, YouTube videos and a blog.
Financial Assistance Branch (FAB)	Workshops	FAB holds workshops twice per year (July and December) in each county to explain the various financing options available.
Division of Air Quality (AQ)	Air Quality Partnership	AQ is involved in the Air Quality Partnership, a group of agencies that meet to promote clean air issues, particularly those related to ozone, clean air particles, and clean air alerts. The Partnership includes an advocacy component that picks a target group for outreach each year in order to counter pushback on programs. For 2013 the target group is children.
Division of Air Quality	No Child Left Inside	AQ is part of No Child Left Inside initiative.

Division of Waste and Hazardous Substances (W&HS)	Brownfields Advisory Committee	W&HS has a Brownfields Advisory Committee, which is mainly made up of consultants and lawyers. The Committee meets once a month to once a quarter, including every time W&HS wants to amend regulations or implement a new policy. The meetings are open to the public. Because the Committee discusses regulation and policy changes with the public at these meetings, W&HS rarely receives comments during public hearings.
Division of Waste and Hazardous Substances	Ombudsman	W&HS has an ombudsman in their Division.
Division of Waste and Hazardous Substances	On-the-ground Communication	W&HS staff members will hand out fliers, walk door to door, and answer questions from the public when the Division begins work at a new site. In addition, W&HS staff members will reach out to the public when there is an issue with groundwater wells.
Division of Waste and Hazardous Substances, Division of Air Quality, Division of Water	e-Newsletter ¹¹⁰	Divisions within the Office of Environmental Protection distribute an e-Newsletter every other week. The newsletter includes information regarding permit applications, preliminary plans, and upcoming meetings. Members of the public must sign up in order to receive the newsletter.
Division of Waste and Hazardous Substances, Division of Air Quality, Division of Water	“Environmental Protection Matters,” Newsletter ¹¹¹	Once a quarter, the Divisions within the Office of Environmental Protection produce a more formal, color newsletter. The newsletter is written in house and approximately 2000 people have signed up to receive it.
Division of Fish and Wildlife (F&W)	Facebook Page	F&W has a Facebook page. The page has over 900 ‘likes.’
Division of Fish and Wildlife	Project Signs	F&W will put up signs for various projects that explain the purpose of the project and identify the funder.

¹¹⁰ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF ENVIRONMENTAL PROTECTION E-NEWS UPDATE & QUARTERLY NEWSLETTER, available at <http://www.dnrec.delaware.gov/whs/awm/Info/E-News/Pages/E-News.aspx>

¹¹¹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, OFFICE OF ENVIRONMENTAL PROTECTION E-NEWS UPDATE & QUARTERLY NEWSLETTER, available at <http://www.dnrec.delaware.gov/whs/awm/Info/E-News/Pages/E-News.aspx>

Division of Fish and Wildlife	Press Releases	F&W issues many press releases.
Division of Fish and Wildlife	Tables at Outside Events	Staff from F&W will man a table at various events, including Agriculture Day, Coast Day, and the State Fair. The purpose of the table is to reach out to the public and demonstrate what the Division does behind the scenes.
Division of Fish and Wildlife	Adopt-a-Wetland Program	The Adopt-a-Wetland Program engages hundreds of volunteers in stewardship of over 100 wetland sites across the state.
Division of Fish and Wildlife	Wetland Activity Kits for the Classroom	Through the Division's Wetland Activities for Delaware Educators (WADE) program, five sets of custom-developed, hands-on learning kits are in circulation to upper elementary and middle school teachers for use in teaching their students about the values, variety and character of Delaware's wetlands. Developed by Delaware high school students with mentorship from DNREC wetland educators and scientists, each kit offers eight fully-contained activity boxes, which can be set up in minutes for an instant and intensive immersion in wetlands education. An Educators Guidebook featuring lesson plans, learning assessments, extension activities and resources, and correlations to Delaware curriculum standards and performance indicators is also provided.
Division of Fish and Wildlife	Wetland Field Activity Kits	Through its Leader-Led overnight and weekend field programs at the Mallard lodge, ARE offers visiting groups access to a variety of loan field equipment and activity kits for exploration and education on the marshlands, vernal pools and other wetland habitats around the center.

Division of Fish and Wildlife	Environmental Education Facilities	The Division owns and operates two multi-purpose environmental education centers on the marshlands bordering Delaware Bay: the Aquatic Resources Education Center (upstate in the Woodland Beach Wildlife area near Smyrna), and the DuPont Nature Center (downstate at the confluence of the Mispillion River and Cedar Creek near Slaughter beach). Site amenities include a 940-foot salt marsh boardwalk, an outdoor classroom/pavilion, two youth fishing ponds, a constructed wetland wastewater treatment system, decks for viewing wildlife, and trails connecting the various outdoor areas.
Division of Fish and Wildlife	Wetland Monitoring and Assessment Kits	Through funding provided by U.S. Fish and Wildlife Service and EPA grants, and distributed via the Division-coordinated Adopt-a-Wetland program, six user-friendly, custom-designed, and loaded with resources kits for monitoring Delaware wetlands were developed and cloned multiple times by ARE staff. The Division has kits for monitoring water quality, macroinvertebrates, reptiles and amphibians, and invasive/native plants, and for wetland wildlife watching and tracking. An additional wetland assessment toolkit (adapted from the Delaware rapid assessment protocol) is also available. Training workshops in the use of these materials are offered for wetland adopters at regular intervals.
Division of Fish and Wildlife	Assorted Wetland Education Print Materials	Examples of materials available include ARE-staff developed wetland education curricula and lesson plans; a two-part wetland restoration guidebook for Delaware landowners; a "Working for Wetlands" Adopter's Guidebook and annual newsletter; brochures on the Adopt-a-Wetland program and "Habitat at Risk: Valuable Seasonal Wetlands of Delaware"; and Adopt-a-Wetland site signs (over 100 around the state).

Division of Fish and Wildlife	Electronic Media	The Division offers video programs on “The Wealth & Worth of Delaware Wetlands” and “Working for Delaware Wetlands”; a Delaware wetlands PowerPoint presentation that is used in the 7th grade watershed curriculum statewide; and webpages and social media communications profiling the Adopt-a-Wetland program and other AREC/DNC focused programs and events.
Division of Parks and Recreation (P&R)	Marketing	Since P&R is heavily fee dependent, the Division does a lot of marketing targeting park visitors in order to increase park attendance. Once visitors are at a park, P&R tries to expose them to the value of wetlands.
Division of Parks and Recreation	Brochures	P&R produces and distributes brochures to landowners outlining ways they can preserve their land (through easements and other avenues).
Division of Parks and Recreation	Outreach with Landowners	Landowners are one of P&R’s two major constituencies; however, landowners are usually only a wetlands constituency when it comes to easements. Occasionally, a landowner will call P&R and indicate that they want to put an easement on their land; sometimes it comes about through conversations with the Division.
Division of Parks and Recreation	Communication with Neighbors	P&R has regional staff members who are encouraged to make contact with their neighbors.
Division of Parks and Recreation	Natural Areas Program	P&R is involved in some public outreach through the Natural Areas Program. In addition, when the Natural Areas Program Council meets, there is a time for public comment. That said, the public has only commented once.

Division of Parks and Recreation	Open Space Program (OSP)	DNREC will directly approach landowners through the OSP if there is a piece of property the Department wants to acquire. In addition, the OSP gets many calls from the public. The OSP has always received fairly strong support from the public; a coalition of over 300 organizations around the state supported the legislation.
Division of Watershed Stewardship (WS)	Facebook Page	WS has a Facebook page, titled "Delaware Watersheds." The page has around 30 'likes.'
Division of Watershed Stewardship	Twitter	WS has a twitter handle.
Division of Watershed Stewardship, Watershed Assessment Section (WA), Wetlands Monitoring and Assessment Program	Social Media	The Wetlands Monitoring and Assessment Program has a Wetlands Facebook page with 213 'likes,' a Twitter handle, and a Pinterest page. However, staff mentioned that social media is banned on DNREC computers which makes social media outreach difficult.
Division of Watershed Stewardship, Watershed Assessment Section (WA)	Conferences and Workshops	WA will present at various conferences and workshops.
Division of Watershed Stewardship, Watershed Assessment Section	Communication with Counties	WA is starting to increase communication with Delaware counties regarding specific issues.
Division of Watershed Stewardship, Watershed Assessment Section	Two-pagers	WA takes the longer reports it produces and turns them into two-page summaries for the public.
Division of Watershed Stewardship, Watershed Assessment Section	Outreach to Interested Community Organizations	In addition to the general public, WA also targets specific groups, such as the Sierra Club, Delaware realtors associations, and League of Women Voters.
Division of Watershed Stewardship, Watershed Assessment Section, Wetlands Monitoring and Assessment Program	Videos	The Wetlands Monitoring and Assessment Program produces wetland 101 videos.
Division of Watershed Stewardship, Watershed Assessment Section, Wetland Monitoring and Assessment Program	Wetlands Website	The wetlands website includes information on wetlands, such as wetland benefits, restoration and protection, monitoring and assessment, laws and regulations, and opportunities for the public to get involved.

Multiple Groups	Listservs	Several groups within DNREC have listservs, for example the Tank Management Section within W&HS. ¹¹²
DNREC	Public Notice Listserv and Webpage	DNREC has a public notice listserv and webpage. ¹¹³
DNREC	Press Releases	The Public Affairs office issues press releases on behalf of the Department and individual divisions.
DNREC	<i>Outdoor Delaware Magazine</i>	The Public Affairs office publishes <i>Outdoor Delaware</i> , the Department's conservation magazine, on a quarterly basis. <i>Outdoor Delaware</i> occasionally includes wetland-related articles.
DNREC	Website	All divisions utilize the website. More information about the website is included below.

Website

The main method of communication for the Department is through DNREC's website. Many of the division and program staff stated that they rely on the website. However, interviewees repeatedly mentioned that the website is not very useful, that it is difficult to navigate, and that it is not helpful in terms of getting information out to DNREC's constituencies and the public, especially when it comes to DNREC's science. In fact, the Division of Parks and Recreation said that due to these issues, the Division simply found its own funding and created its own website.

Interviewees raised several specific issues regarding the website including the following:

- 1) The website's search feature does not work well;
- 2) Some programs are still listed in the wrong division and some titles are outdated after DNREC's reorganization;
- 3) The state format does not lend itself well to education and public outreach;
- 4) The website process is somewhat inflexible in terms of getting approval to post information on the website, and there is only one person to approve all web content for posting;
- 5) DNREC and the divisions do not have a specific person who helps with and is responsible for the website;
- 6) The website does not include a list of people from DNREC that the public can contact.

With regard to wetlands in particular, the Department does have a webpage specifically devoted to wetlands.¹¹⁴ The DNREC wetlands webpage includes information for landowners, educators,

¹¹² DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, TANK MANAGEMENT SECTION, *available at* <http://www.dnrec.delaware.gov/tanks/Pages/default.aspx>

¹¹³ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, PUBLIC NOTICES, *available at* <http://www.dnrec.delaware.gov/Lists/Public%20Notices/AllItems.aspx>

volunteers, biologists, and decision makers on wetlands and their benefits, restoration and protection, monitoring and assessment, laws and regulations, and opportunities for the public to get involved. For example, landowners can learn about wetlands on their property, restoration and protection options, and success stories from other landowners. Visitors to the site can also link to YouTube videos on wetlands, download articles, and learn more about the types of wetlands found in Delaware.

Despite this wealth of information, interviewees commented that if a Delaware citizen visits DNREC's website wondering why wetlands are important, they cannot find any information. Since the website is arranged by program, it makes it difficult to find basic information. In fact, Delaware Coastal Programs mentioned a survey that was conducted that asked people where they receive their information about natural resources in Delaware; less than 1% of respondents indicated that the DNREC website is their preferred source of information.

Target Audiences

Several target audiences were identified throughout the interviews. Overall, staff stressed that Department messages need to be relevant to the average person who does not know the science behind wetlands. Several people mentioned that DNREC has not done a sufficient job making wetlands relevant to the average person in the past. The Department needs to think through how wetlands affect the average person (including the “mom with two kids, the senior citizen who moved to Delaware because of the lower taxes, and the small business owner”), and why these individuals—especially those who do not own land—should care about wetland protection.

Other target audiences identified include Delaware's hunters, fishermen, birders, photographers, and tourism-dependent communities. Several interviewees mentioned that these constituencies are underutilized bases that have not been mobilized for wetland protection in the past. DNREC needs to determine effective ways to reach these groups. In addition, interviewees mentioned that the Department should try to increase awareness of successes among state legislators; legislators rarely hear about DNREC's successes.

Interviewees also stated that DNREC needs to be thoughtful about traditional opponents. How can the Department make these opponents allies? What is the cost? Does it involve payment for ecosystem services? If it does involve payment for ecosystem services, how does the Department quantify the value of wetlands and get landowners to participate in and support a payment for ecosystem services program? In particular, how should the Department justify the strict regulations on the tidal side, and payment when it comes to isolated wetlands? One interviewee noted that if a tax credit became available, over time the Department could build a constituency that protects the tax credit.

¹¹⁴ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, FOR LANDOWNERS...HOW YOU CAN HELP DELAWARE'S WETLANDS AND WATERSHEDS, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/LandownerHome.aspx>

Messaging

Overall, interviewees indicated that DNREC lacks effective messaging when it comes to wetland protection. However, several recurring messages and avenues arose during the interviews.

One message identified is the relationship between wetlands and stormwater and flood protection. Interviewees frequently suggested that the Department should highlight the fact that wetlands are a tool that can help protect Delaware citizens from floods, climate change, and other issues. In support of this, the Department should develop case studies that can be used during public outreach.

Several participants also mentioned the need for increased use of social media across the Department. For example, the Division of Fish and Wildlife is beginning to build their social media capacity. The Division has a social media policy, and each section within the Division has a few social media liaisons whose job it is to talk to section staff, update the social media pages, and develop press releases. Overall, Fish and Wildlife alone is responsible for approximately 35-50% of the Department's press releases. The Division also receives media follow-up based on their press releases.

A few interviewees suggested that the Department should focus on programming with children and adolescents and that, rather than handing children a flyer that they may or may not look at, the Department should develop outreach programs that allow children to develop an experiential relationship with wetlands. One interviewee noted that helping individuals develop a personal connection to wetlands is the most powerful tool the Department has. In support of this, an interviewee suggested that the public Adopt-a-Wetland effort should be expanded beyond school groups to increase community connections to wetlands.

However, in response to these suggestions, a reviewer noted that this type of outreach already occurs. Over the past 15 years of wetland-focused field trips, DNREC's ARE program has provided a high-quality wetland experience for over 40,000 Delaware school children. Through ARE's Leader-Led overnight and weekend experiences, as well as numerous summer camp programs for underserved children, tens of thousands more children have been immersed in wetlands. Although approximately one-third of the Adopt-a-Wetland program's 117 wetland adoption groups are schools, the program has been making a concerted effort to engage an equally large number of families, homeowners associations, and community groups in stewardship of Delaware's wetlands.

This disconnect between interviewees perception of DNREC's efforts and the activities DNREC is already engaged in reinforces the lack of departmental communication highlighted in this assessment. Instead of developing new programs, one reviewer noted that the Department should reorganize, support, and nurture the many great programs DNREC already has, especially on the education front.

Departmental Challenges to Effective Wetland Protection in Delaware

In 2010, ELL's review and interviews surfaced a number of challenges to the protection and conservation of the state's wetland resources. The challenges ranged from the lack of protection for non-tidal wetlands to a need to improve relationships with landowners and increase engagement with local governments on wetland protection issues. Specifically, we identified the following challenges:

- Lack of comprehensive non-tidal freshwater wetland protection;
- Gaps in the state tidal wetland maps that leave some tidal wetlands unprotected;
- Environmental impacts from the construction and maintenance of the state's drainage system and Subaqueous Lands Act exemptions;
- Insufficient enforcement of existing regulations;
- Lack of comprehensive information on the environmental impacts of approved permits and certifications;
- Lack of updated guidance on wetland mitigation;
- Insufficient data tracking of wetland permits and certifications;
- Lack of effective coordination with local land use decision makers;
- Lack of adequate funding for state wetland programs, including enforcement;
- Lack of consistency in Delaware's wetland protection statutes and regulations regarding the protection of species and habitat;
- Lack of effective coordination with local landowners;
- The effects of climate change and sea level rise on wetland protection.

Many of these challenges were again raised in our 2013 interviews. The lack of a comprehensive non-tidal freshwater wetland protection program is still the primary challenge facing wetland protection in the state. Interviewees also suggested that the need to update the tidal wetlands map, the lack of regulatory teeth associated with the PLUS process, a lack of enforcement opportunities at the state and federal level, insufficient tracking of data on impacts and project outcomes, lengthy permitting processes, and a lack of funding remain important challenges.

Interviewees also raised a number of Departmental challenges. As discussed above, we heard a number of challenges related to communication and collaboration within the Department and communication and outreach with the public. This section will focus on the Department's internal challenges, including a lack of consensus on internal priorities, internal conflicts and lack of effective communication within the Department, and insufficient funding and capacity.

Lack of Consensus on Internal Wetland Protection Priorities

Although several sections and programs have developed wetland protection or restoration priorities based on specific program requirements (see Table 4), DNREC has not articulated clear, department-wide wetland protection priorities, come to consensus on a methodology for identifying priorities, or developed a comprehensive strategy for achieving protection priorities.

This lack of consensus applies to the identification of both conservation and regulatory priorities, which may or may not overlap.

Interviewees suggested the multiple, and sometimes conflicting, priority setting and mapping efforts by various divisions and sections have made it difficult to identify common, department-wide priorities and develop a statewide strategy for wetland protection. For example, wetlands of significance to some programs do not necessarily overlap with the types of wetlands the state is losing according to the 2011 status and changes report.¹¹⁵ In addition, the significant effort to map state resource areas—open space lands that are valued for their natural, cultural, and geological significance—was invalidated in court on a procedural issue. Interviewees suggested that a lack of effective communication within the Department; lack of a comprehensive database, or other structure, for sharing information on priorities, plans, and project outcomes across the Department; insufficient mapping capacity; and a lack of sufficient funding and capacity to obtain more current data and aerial photography also impede the ability of the Department to come to consensus on priorities.

Table 4: DNREC Wetland Restoration and Protection Program Priorities

Division	Program	Priority
Delaware Coastal Program	Coastal and Estuarine Land Conservation Program (CELP)	The program prioritizes coastal and estuarine lands considered important for their ecological, conservation, recreational, historical or aesthetic values. The CELP plan identifies primary and secondary acquisition areas.
	Sea Level Rise Adaptation Plan	Wetlands will be a key component of the Sea Level Rise Adaptation Plan, and implementation may target areas for wetland migration.
	Delaware National Estuarine Research Reserve (DNERR) Management Plan ¹¹⁶	DNERR’s Management Plan includes acquisition priorities and restoration priorities within the Reserve.
Division of Fish and Wildlife	Wetlands Restoration, Wildlife Section	The Section works primarily in shallow, emergent freshwater wetlands; poorly drained, marginal farmlands; and forested wetlands.

¹¹⁵ Tiner, R.W., M.A. Biddle, A.D. Jacobs, A.B. Rogerson and K.G. McGuckin. 2011. Delaware Wetlands: Status and Changes from 1992 to 2007. Cooperative National Wetlands Inventory Publication. U.S. Fish and Wildlife Service, Northeast Region, Hadley, MA and the Delaware Department of Natural Resources and Environmental Control, Dover, DE. 35 pp. Available at <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/Delaware%20Wetlands%20Status%20and%20Changes%20from%201992%20to%202007%20FINAL.pdf>

¹¹⁶ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE NATIONAL ESTUARINE RESEARCH RESERVE MANAGEMENT PLAN, available at <http://www.dnrec.delaware.gov/coastal/DNERR/Documents/Formatted%20DNERR%20Mgmt%20Plan%20DRAFT.pdf>

	Delaware <i>Phragmites</i> Control Cost-share Program, Delaware Private Lands Assistance Program, Wildlife Section	The program targets undeveloped wetlands, including tidal or non-tidal freshwater or brackish marshes, ponds or impoundments that have been degraded by the invasive <i>Phragmites</i> . ¹¹⁷
	Wetland Restoration and Enhancement, Mosquito Control Section	As part of the Northern Delaware Wetland Rehabilitation Program the Section is working to restore “up to 10,000 acres of degraded urban wetlands along the Christina/Lower Delaware River corridor.” ¹¹⁸
	Delaware Bayshore Initiative	One of the three priorities of the Initiative is to “connect wildlife areas by acquisition or easement of unprotected lands; restore native habitat; and protect resources.”
	State Wildlife Action Plan	The State Wildlife Action plan lists conservation issues and actions for a range of wetland types.
Division of Parks and Recreation	Natural Areas Program	The Program targets lands on the natural areas registry.
	Open Space Program	The Open Space Program was created to oversee the protection of designated State Resource Areas. The Program also oversees the permanent protection of parks, fish and wildlife areas, forests, nature preserves, and cultural sites. Acquisition is guided by the Open Space Council. Proposed acquisitions are rated on the basis of natural, cultural, recreational, and locational attributes and consider land use plans and purchase options. The Open Space Program is considering use of the Conservation Opportunity Areas map to guide acquisition and restoration.
Division of Watershed Stewardship	Ecological Restoration and Protection Team, District Operations Section	The goal of the team is to restore and protect areas that “enhance water quality, provide stream-bank protection and reduce erosion, and establish wildlife habitat.” ¹¹⁹ The team’s wetland restoration activities generally take place in marginal agricultural fields, school yards, and a variety of other settings.
DNREC Watershed Assessment	Delaware’s Phase II Chesapeake Watershed	The plan identifies conservation and restoration priorities including headwater forests, large forest tracts, channelized streams, corridor and riparian buffers, and

¹¹⁷ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE PHRAGMITES CONTROL COST-SHARE PROGRAM, available at <http://www.dnrec.delaware.gov/fw/dplap/services/Pages/DelawarePhragmitesControl.aspx>

¹¹⁸ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, MOSQUITO CONTROL SECTION, available at <http://www.dnrec.delaware.gov/fw/Services/Pages/MosquitoSection.aspx>

¹¹⁹ DEL. DEP’T OF NATURAL RES. AND ENVTL. CONTROL, ECOLOGICAL RESTORATION, available at <http://www.dnrec.delaware.gov/swc/district/Pages/Restoration.aspx>

Section, Drainage Program, and Division of Fish Wildlife in collaboration with representatives from the Delaware Department of Agriculture Forestry Program, DelDOT, and U.S. Fish and Wildlife Service	Implementation Plan ¹²⁰	tidal wetland buffers.
DNREC in collaboration with the Conservation Fund	Conservation Opportunity Areas	DNREC is collaborating with the Conservation Fund to develop Conservation Opportunity Areas (COAs). COAs are based on updated science and identify core and corridor areas, including core wetland areas for conservation. COAs may be used to help direct Open Space funding and as an outreach tool for engaging with local government protection and land use decision makers.

Need for Improvements in Departmental Communication

As discussed above, Department staff members have developed a number of formal and informal structures for internal communication and collaboration. Interviewees suggested that there is effective communication among the staff on a project-by-project basis. However, most interviewees agreed that communication within and between divisions and sections could be improved in order for the Department to be more strategic in its use of limited resources to protect wetlands.

Internal Conflicts

Several interviewees suggested that conflicting missions within the Department may impede the development of department-wide priorities and ultimately hinder the effective protection of wetlands. For example, the mission of the Drainage and Stormwater Section can stand in direct conflict with the mission of the Watershed Assessment Section, even though they are both located in the Division of Watershed Stewardship. One interviewee suggested that not all of the Drainage and Stormwater Section staff members are on the same page with respect to the importance of wetlands, but overall the Section is increasingly prioritizing the avoidance of impacts to wetlands in

¹²⁰ Delaware’s Chesapeake Interagency Workgroup. March 30, 2012. Delaware’s Phase II Chesapeake Bay Watershed Implementation Plan, *available at* http://www.dnrec.delaware.gov/swc/wa/Documents/ChesapeakePhaseIIWIP/Final_Phase2_CBWIP_03302012A.pdf

its projects and looking for ways to incorporate wetland restoration and effective best management practices in its work.

Lack of Strong Relationships with Federal, State, and Local Agencies

Several interviewees suggested that the Department's relationships with the U.S. Army Corps of Engineers (Corps) and the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) are important to the effective protection of wetlands in the state. The Wetlands and Subaqueous Lands Section has a good relationship with the Corps, but a lack of capacity at the Corps has led to weak enforcement of permit violations and illegal filling. Interviewees also expressed frustration with the lack of data sharing between the Department and the Corps. The lack of a strong relationship with NRCS has resulted in missed opportunities to better leverage the Farm Bill incentive programs (e.g., Wetlands Reserve Program and Environmental Quality Incentives Program) in the state.

Interviewees also suggested that the Department has not always been able to find common ground or capitalize on improving relationships with other state agencies whose priorities sometimes can be contrary to wetland protection (e.g., the Delaware Department of Transportation plans and projects can often lead to wetland impacts and often require compensation for these impacts). One participant suggested that the Department has not effectively communicated the importance of wetland protection or identified opportunities for state agencies to collaborate on projects that accomplish multiple goals.

At the local level, there is a lack of local capacity and a need for more technical support from the Department to aid communities with the development of local regulations that build on some of the strong environmental ordinances that already exist. However, the Department has hot and cold relationships with the counties. Further, one interviewee suggested that local communities may not have confidence in their ability to defend protection policies against legal challenges.

Lack of Strategic Outreach to the Conservation Community and the Public

Several interviewees suggested that the state lacks a strong environmental community that focuses on wetlands, and the Department has not developed a collaborative relationship with the groups that do exist. In fact, at least one interviewee indicated that the Department's relationship with the conservation community is sometimes more adversarial than collaborative. This leaves the Department, in the minds of some interviewees, alone to regulate wetland impacts, conserve and manage wetland properties, and communicate the importance of wetlands to the public.

As described above, the Department has not developed a coordinated and effective message to reach the public about the importance of wetland protection. Interviewees suggested that the groups that opposed past efforts still exist and will likely mobilize to oppose future attempts to pass new legislation. To be effective, the Department's message will have to counter a lack of understanding among citizens about what wetlands are and why they are important, perceived negative health and safety issues associated with wetlands (e.g., mosquitos and associated diseases), anxieties among the agricultural community about the economic impacts of having wetlands identified on farmland, a lack of willingness among the public to allocate tax dollars to support the protection of wetlands, and, perhaps most importantly, a continuing strong property

rights sentiment. Several interviewees suggested that the Department often finds itself fighting misinformation from special interest groups rather than proactively engaging the public about the importance of wetlands. In addition, the continuing anti-regulatory environment could hamper efforts to pass legislation if the Department does not work with these groups proactively.

Funding and Capacity

As discussed above, DNREC's divisions and sections are funded by a mix of sources, including appropriations, grants, and fees. However, many fees have not increased in over 20 years (or more), and state funding and federal grants may not be reliable over the long term. Limited funding means staff are stretched to accomplish existing priorities, with some positions going unfilled and a continuing lack of expertise in some areas (e.g., the Department has only one economist). Although the development of Department-wide strategic priorities may reveal opportunities for the Department to leverage existing capacity to achieve its protection goals with existing funding, a new permitting or acquisition program will likely require new resources (or reallocation of existing resources). For example, if the Department ramps up its acquisition program, there may not be enough capacity (both financial and staff) within the Department to manage these properties. The Division of Parks and Recreation, for example, has already started to acquire undeveloped lands as buffers and it is proving very difficult from a financial perspective. In addition, the Delaware National Estuarine Research Reserve has one full-time staff member focused on management of the Reserve's 6,206 acres. If DNERR acquired all of the lands deemed a priority, the Program would not have the staff or the funding to manage the land.

Wetland Protection Strategy

In our 2010 report, we identified a number of changes that could improve wetland protection in the state (see Box 1). Interviewees suggested that many of these previous recommendations are still relevant (see Appendix 2 for a list of this year's recommendations). The interviewees agreed that the state's tidal wetlands program has been a success, but that the regulatory map may need to be updated to ensure it reflects current conditions. On the other hand, the state continues to lose freshwater wetlands, and new non-tidal freshwater regulations will likely be needed as part of an overall strategy to improve protection in the state. We focus this section on the recommendations we heard for a strategic approach the Department could take to act on these previous recommendations.

Box 1: 2010 ELI Recommendations

Improved wetlands protection through existing regulations or program activities

1. Improve enforcement under existing authorities by developing compliance and enforcement protocols and training state and local authorities to recognize and report violations.
2. Support §401 decision-making by improving data on existing impacts, including flood risk, and updating permit applications.

3. Minimize the impacts from the construction and maintenance of drainage projects by expanding the use of best management practices and examining opportunities to balance drainage needs and resource protection through stormwater utilities or sediment and stormwater management plans.
4. Address the effects of land use decisions on wetland protection by improving coordination with local governments and fully pursuing opportunities to comment on local land use decisions.
5. Emphasize the state's commitment to the protection of wetlands by adopting a statewide no net loss of wetlands acres and functions policy.
6. Ensure that lost aquatic resource functions are successfully offset by updating mitigation (avoid, minimize, compensate) policies and evaluating the ecological success of compensation sites in the state.
7. Ensure that all wetland impacts are compensated and help fund priority wetland restoration projects by developing a state in-lieu fee program.
8. Improve regulatory decision-making and enforcement of violations by updating data tracking systems.
9. Improve regulatory and mitigation decisions by tying identification of priority wetland sites to the regulatory program.

Opportunities for improved protection through additional regulations or programs, or changes to existing programs

1. Strengthen non-tidal freshwater wetland protection by adopting new wetland protections for all non-tidal wetlands, including isolated wetlands that are not currently regulated under federal law.
2. Reissue Executive Order 56 to reaffirm the importance of freshwater wetlands and the state's commitment to avoiding and minimizing impacts to these resources.
3. Develop a programmatic general permit for areas covered by the Wetlands and Subaqueous Lands Acts and future non-tidal wetland protection authority to help streamline permitting and improve the state's ability to efficiently and effectively review individual and cumulative impacts.
4. Improve enforcement under existing programs by adding administrative penalties to the Wetland and Subaqueous Acts.
5. Update tidal wetlands maps to fill any gaps in jurisdiction and better regulate tidal wetlands given changes that could have occurred to the coastline since the current map was created.

Improving the protection of wetlands in Delaware will likely require a multi-faceted strategy that includes the development of legislation and regulations, incentive programs, conservation strategies, and a strategic outreach program. The Department's strategy must be clear about how the next steps will be financed and who will be responsible for implementing activities, and it must define measurable outcomes.

Develop Department-Wide Wetland Protection Priorities

As indicated above, several interviewees suggested that the Department needs to come to consensus on an inclusive set of wetland protection priorities to ensure that limited resources (both financial and staff) are strategically allocated to protection and restoration projects that most efficiently and effectively achieve the Department's long-term vision and to wetland regulatory priorities that most effectively curtail the loss of freshwater wetlands. Identified priorities will also help the Department guide and leverage the capacity, funding, and tools (e.g., local ordinances and comprehensive plans) of partners in local and state government and non-profit organizations. In addition, identified priorities will help guide other nontraditional investments such as restoration project funding through the strategic use of the Clean Water State Revolving Fund. Conservation and regulatory priorities may not completely overlap; regulatory priorities may in fact be a subset of conservation priorities. However, a thoughtful and inclusive process is needed to develop a system of agreed-upon and validated selection criteria and a process for identifying priorities.

This prioritization process may start by examining the Department's existing schemes for prioritizing wetlands and other lands for protection and restoration, including the Open Space Program priorities, Conservation Opportunity Areas, and Conservation Issues and Actions identified in the State Wildlife Action Plan (see Table 4). For example, the state has invested in the Conservation Opportunity Areas (COAs) effort, which aims to identify core areas and corridors for conservation based on the most up-to-date science. The State Wildlife Action Plan also identifies conservation issues and actions for a variety of wetland types.

Further, in 2008, the state developed a comprehensive wetland conservation strategy. A non-regulatory planning document, the strategy was designed to coordinate the state's efforts and outlines goals and strategies for improving wetland protection in the state.¹²¹ The six goals include: 1) update wetland inventory maps and improve access to wetland related data, 2) increase monitoring efficiency and effort to provide insight into wetland function and health, 3) integrate wetland restoration, creation, enhancement, and protection efforts to ensure efficient use of resources, 4) coordinate information and resources sharing among wetland protection programs, professionals, and agencies, 5) enhance education and outreach efforts to broaden wetland stewardship among all wetland stakeholders, and 6) work with partners to provide support and enhancement for existing regulatory programs and to provide protection of wetlands that are not covered by state and federal regulations. The strategy lays out action items that will help the state reach each of the identified goals.

Several other states have developed similar prioritization schemes, often tied to both regulatory and conservation purposes. For example, the Maryland Watershed Resources Registry identifies three aquatic resource types as priority areas for restoration and conservation: wetlands, riparian buffers, and stormwater infrastructure. The goal of this prioritization process is to facilitate the

¹²¹ DEL. DEP'T OF NATURAL RES. AND ENVTL. CONTROL, DELAWARE WETLANDS CONSERVATION STRATEGY, *available at* <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/Delaware%20Wetlands%20Conservation%20Strategy%2008.29.08.pdf>

identification of multiple aquatic resource restoration and conservation opportunities across various federal, state, and local regulatory and non-regulatory programs.¹²²

Determine Regulatory Priorities and a Structure for a Program

In our 2010 report we suggested a number of possible structures for non-tidal freshwater wetland protection, including passing amendments to the Environmental Control statute and regulations, building a program on existing §401 certification that specifically covers freshwater wetlands that no longer meet federal jurisdictional standards, enacting a comprehensive wetland statute, or assuming the §404 program (see Appendix 3). We also indicated that the state is likely to be most successful if it requires that a state programmatic general permit (SPGP) and joint permit processing be a necessary part of the implementation of any new law or regulation. The SPGP and joint permit processing will help improve enforcement and streamline the permitting process, which is likely to be important to garner the support of the regulated community.

As indicated above, the state needs to come to consensus on regulatory priorities as a key step in the development of a legislative proposal. Twenty-five states, including all of the Mid-Atlantic States, have adopted some type of protection for freshwater wetlands. These regulatory programs vary in the types of wetlands protected (see Appendix 4). Eight states have established permitting programs broadly covering most freshwater wetlands in the state. Eight states have established permitting programs that protect many freshwater wetlands, but include defined exceptions from protection based on wetland type, size, or class. Six states have specific permitting programs for isolated waters no longer covered under the CWA after the Supreme Court decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC).¹²³ Two states afford protection for vulnerable wetlands entirely on a case-by-case basis. One state imposes regulations for state-run or state-funded projects in wetlands.

In our interviews, we heard a number of suggestions for the types of wetlands that should be protected under a new freshwater wetlands protection statute. Specifically, we heard that a freshwater law should aim to:

- protect only the very wet wetlands (i.e., those that are easily identified as wetlands),
- protect only the best quality wetlands (e.g., Category 1 wetlands),
- protect only mapped wetlands (as the tidal wetlands law does),
- protect only isolated wetlands, or
- vary protection standards and mitigation requirements based on a tiered classification system as in the 1990s legislation.

¹²² ELI is currently finalizing a new resource - *A Handbook for Prioritizing Wetland and Stream Restoration and Protection Using Landscape Analysis Tools*. This handbook was designed to provide states, tribes, and local governments with valuable information to guide the development, establishment, and refinement of geospatial tools for identifying restoration and protection prioritization priorities. The handbook may serve as a resource to support the Department's efforts to prioritize wetland preservation and restoration projects using a landscape approach. The handbook is expected to be completed by summer 2013.

¹²³ *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159, 162 (2001).

Several interviewees suggested that the Department should examine past legislative efforts (e.g., state resource areas and previous efforts for freshwater legislation) to identify lessons that can be applied to future efforts. The Department may also consider reaching out to other states (e.g., Maryland, Virginia, and North Carolina) that regulate freshwater wetlands to learn from their experience.

Several participants suggested that Delaware Senate Bill (SB) 64 may serve as an effective structure for initial wetland legislation.¹²⁴ SB 64 established a Floodplain and Drainage Advisory Committee comprised of diverse stakeholders, including legislators, federal agency representatives, state agency staff, local decision makers, agricultural interests, and public interests (e.g., representative of the home builders and realtors). The committee was charged with reviewing best practices and national standards and recommending minimum standards for improved floodplain management and drainage within the state. The Department submitted its final report to the General Assembly on March 15, 2013. The Department may consider supporting similar legislation for improving wetland protection. The legislation could establish a wetland protection committee charged with developing regulatory priorities and the structure for a regulatory program. With support from the Department, the Delaware legislature passed SB78 in July 2013. SB78 “establishes a Wetlands Advisory Committee to develop comprehensive recommendations for conserving and restoring non-tidal wetlands in Delaware, including evaluating national best practices and standards, evaluating incentive-based programs, and reviewing state and federal wetland permitting processes to identify opportunities to improve efficiency and eliminate redundancy.”¹²⁵

Several interviewees suggested that in order to be successful in any legislative effort the Department will have to engage the regulated community and other affected stakeholders early in the process. Interviewees also suggested that any new statute will have to provide developers and landowners with regulatory certainty, include streamlined permit processing for some projects, include other incentives to preserve property, and have a strong mitigation component.

Develop a Toolbox of Landowner Incentives

Interviewees indicated that the public may expect to be compensated for loss of development rights on properties with state-regulated wetlands. Several interviewees suggested that the Department should examine the opportunities for developing a ‘payment for ecosystem services’ type incentive program as a way to address these expectations and build partnerships with landowners to conserve wetlands and garner support for a regulatory program. Payment for ecosystem services (PES) are payments to individuals or communities for undertaking actions on their land to conserve or increase the production of ecosystem services such as water purification, flood mitigation, or carbon sequestration. PES programs range from public payments for conservation (e.g., Conservation Reserve Program and the Wetlands Reserve Program), to voluntary transactions (e.g., purchase of conservation easements by conservation organizations and voluntary carbon

¹²⁴ Senate Bill 64 *available at*

<http://www.dnrec.delaware.gov/swc/Shoreline/Documents/Floodplain%20and%20Drainage%20Code%20WG/SB%2064%20aab%20SA2%20and%20HA1%20signed%208-17-11.pdf>

¹²⁵ Delaware Senate Bill 78, 147th General Assembly, July 1, 2013.

credits),¹²⁶ to compliance-driven programs (e.g., wetland mitigation banking and water quality trading).

Several interviewees indicated that a comprehensive program of incentives or payments for ecosystem services will be a necessary part of a strategic wetland protection program. A number of possible tools could be included in an incentive toolbox, including the following:

- tax incentives, such as tax credits for preserving or restoring wetlands;
- direct acquisition funding, such as the strategic use of land protection funding;
- loan incentives, such as a strategic use of the state revolving fund, which is currently being used to fund a \$4 million wetland restoration project in Wilmington;
- state rental or technical assistance programs, such as the Department of Agriculture's Agricultural Lands and Forestland Preservation Programs;
- federal rental or technical assistance programs, such as the Wetlands Reserve Program (WRP);
- federal grant programs, such as Community Development Block Grants;¹²⁷
- strategic direction of enforcement or natural resource damage payments;¹²⁸
- expanded use of wetland mitigation banking; and
- regulatory incentives, such as repealing portions of the Delaware Land Protection Act as an incentive to landowners bitter about the battle over state resource areas.

A number of states have developed incentive programs for wetland protection and restoration; including tax incentives, payments for land, direct funding, and technical assistance (see Appendix 5). For example, the Arkansas Wetland and Riparian Zones Tax Credit Program was started in 1995 as part of the Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act and is administered by the Arkansas Natural Resources Commission (ANRC).¹²⁹ The program targets private landowners and gives tax credits (against the Arkansas Income Tax) for restoration or creation of wetlands and/or riparian zones. Arkansas can forgive up to \$500,000 per year, approved by the Private Lands Restoration Committee (PLRC), though tax credits per individual

¹²⁶ Other than the purchase of conservation organizations and voluntary carbon credits there are few examples of private PES programs in the US. The best example may be the Bonneville Environmental Foundation's Water Restoration Certificate Program. The program pays landowners for not using their water rights and instead restoring water to rivers and streams. See <http://www.b-e-f.org/learn/articles/#howdoesawrcwork>.

¹²⁷ Community Development Block Grant Entitlement Communities Grants funding may be an opportunity to fund wetland preservation or restoration projects. Dover, Wilmington, and New Castle counties are entitlement communities. CDBG funds can be used for acquisition of real property, construction of public facilities and improvements (including water and sewer facilities), and public services (within certain limits). However, the community has to demonstrate that "70% of the CDBG funds received, over a one, two or three year period specified by the grantee, will be used for activities that benefit low- and moderate-income persons, and that the grantee will affirmatively further fair housing."

¹²⁸ The natural resource damages provisions of the federal Superfund law (Comprehensive Environmental Response, Compensation, and Liability Act) and the oil pollution provisions of the Clean Water Act and the Oil Pollution Act are meant to restore damaged ecosystems and resources after the fact. There are detailed regulations covering the assessment and implementation of natural resource damage payments, and trustees are designated to assure that recovered funds are spent as necessary to restore the public natural resources.

¹²⁹ ELI Study of State Wetland Programs, available at http://www.eli.org/Program_Areas/state_wetlands.cfm

can't exceed \$5,000 per year or exceed the amount of individual or corporate income tax an individual owes. Unused credits may, however, be carried over for nine years, resulting in a total of \$50,000 worth of credits per individual. As of 2007, the program had not exceeded \$130,000 per year total, allowing room for increased participation.¹³⁰ The projects must meet certain specifications, as defined in the rules and regulations. A professional engineer must also review structural aspects of the project before an application can be filed. The projects must be completed within three years and maintained for ten years beyond that. Technical support can be provided by the state.¹³¹

Another example is California's Permanent Wetland Easement Program, run by the Department of Fish and Wildlife and the Wildlife Conservation Board (WCB). The Program pays willing landowners 50-70% of the property's market value for farming and development rights in perpetuity. Landowners keep trespassing, recreational, hunting, and other rights but must follow a wetland management plan and meet with state biologists bi-annually.¹³² The Program is funded mainly through the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002. This act provided \$300 million for projects including those related to habitat protection, such as conservation easements.¹³³ Funding also comes from partner contributions, which in 2012 more than doubled the available funding to the WCB. In 2012, with the help of willing landowners, over 33,000 acres were put into easements for \$24 million.¹³⁴

Several interviewees suggested that the Department should also consider expanding the use of mitigation banking; however it is not clear that there is currently enough demand for bank credits. Federal compensatory mitigation regulations require that all mitigation decisions be made using a watershed approach. If the Department does encourage an expansion of mitigation banking, the state should work with bankers to locate banks in state-identified priority areas. Other interviewees suggested that the state consider developing a statewide in-lieu fee (ILF) mitigation program. ILF programs are often most valuable for providing compensation for small impacts, and thus may be appropriate for Delaware. Federal regulations require that approved ILF program instruments include a compensation planning framework "that will be used to select, secure, and implement aquatic resource restoration, establishment, enhancement, and/or preservation activities. The compensation planning framework must support a watershed approach to

¹³⁰ Arkansas Natural Resources Commission. 2012.

[http://www.anrc.arkansas.gov/water%20resources%20management/wetland and riparian zones tax credit program.html](http://www.anrc.arkansas.gov/water%20resources%20management/wetland%20and%20riparian%20zones%20tax%20credit%20program.html)

¹³¹ ELI Study of State Wetland Programs, available at http://www.eli.org/Program_Areas/state_wetlands.cfm

¹³² California Department of Fish and Wildlife. Private Lands Incentive Programs. Available at <http://www.dfg.ca.gov/lands/wetland/private.html#easement>

¹³³ California Wildlife Conservation Board. Proposition 40 Funds. <http://www.wcb.ca.gov/Funding/Prop40>

¹³⁴ California Wildlife Conservation Board. 2012 Annual Report. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=60663&inline=1>

compensatory mitigation.”¹³⁵ The development of the compensation planning framework could complement the Department’s efforts to identify wetland conservation and restoration priorities.

Some of the best opportunities for leveraging incentive payments may come from public payment, rental, and technical assistance programs administered by other state and federal agencies. Interviewees suggested that the state should work more strategically with NRCS to increase participation in the Farm Bill conservation programs (e.g., WRP, Conservation Reserve Enhancement Program [CREP], Environmental Quality Incentives Program [EQIP]) and work with the Delaware Department of Agriculture to identify opportunities where preservation of land under the Farmland or Forestland Preservation Programs could also help to protect wetland habitats. The use of non-traditional incentives, such as Community Development Block Grants or natural resource damage payments, also warrants further investigation.

Conservation and Restoration

Several interviewees suggested that in addition to developing inclusive wetland protection priorities, the state should develop a protection strategy that outlines goals, mechanisms, measurable outcomes, staff, and financing. Our interviews surfaced a number of immediate items that need to be addressed in the strategy, including developing acquisition criteria (e.g., determining how much non-wetland land the state is willing to purchase to acquire a priority wetland), outlining ownership options (e.g., who is going to own the land and what legal site protection mechanisms will be used), determining funding for acquisition and management, and developing a landowner outreach strategy (e.g., for engaging willing landowners to sell/ease land). Restoration will be a key part of the conservation strategy in both tidal and non-tidal areas, and may be an especially important strategy for addressing the impacts expected with sea level rise. The state may also consider developing streamlined permitting processes for restoration projects.

Develop a Coordinated Outreach Campaign

A coordinated outreach and marketing strategy is a necessary component of an overall strategy for protecting wetlands in the state. As interviewees suggested, the campaign should include the development of effective wetland protection messages and engagement of a coalition of conservation organizations, stakeholders, and other interested groups and individuals to help reach the Department’s target audiences. Specific outreach strategies are discussed in more detail below.

- **Develop messages that resonate with target audiences**

The Department needs to find common messages that will resonate with a range of constituencies, from politically conservative citizens to outdoor recreation groups and environmental advocates. As we indicated above in the section on Outreach and Communication with the Public, highlighting the benefits of the ecosystem services that wetlands provide, specifically coastal storm and flood protection benefits, may be an effective message. Interviewees also stressed the importance of reaching out to children. The Department could build on the tools already available on the Delaware wetlands website. The

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http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf

website includes YouTube videos, information on the ecology and benefits of a range of tidal and non-tidal wetland types, a landowner's guide for wetland restoration, volunteer opportunities for the public, and other tools. The Department could also make effective use of its public outreach efforts via Facebook and Twitter.

Case studies (with real numbers and real analysis) of communities that have experienced reduced flooding due to wetland protection efforts or, conversely, case studies of communities that have experienced increased flooding due to wetland loss could help reinforce this public health and safety message. Interview participants suggested a number of possible case study communities in Delaware, including FEMA hazard mitigation buyouts in Glenville in 2003,¹³⁶ a new development plan for the National Vulcanized Fibre property that contemplates historic flooding problems,¹³⁷ tax ditch restoration in the Nanticoke watershed, and residential flooding in Sussex county.

- **Engage the conservation community to improve public and landowner outreach**

Several interviewees suggested that the Department should engage the state's environmental organizations to identify the constituencies and capacities that could be leveraged through partnership. We heard that the state's conservation organizations could help the Department develop and implement an outreach strategy to build support for protection of the state's wetlands and may also prove valuable partners as the state seeks to implement its conservation strategy. For example, several interviewees suggested that conservation groups may provide needed capacity in terms of landowner outreach and property acquisition and management.

- **Reach out to non-traditional partners**

Several interviewees suggested that the Department should also reach out to non-traditional partners, including the Farm Bureau, Department of Agriculture, and DelDOT, to find ways to reach mutual objectives while protecting wetlands. As mentioned above, there may be opportunities to leverage existing programs, such as the Agricultural Land Preservation Program, to reach wetland protection goals. In addition, there may be opportunities to work with these groups to minimize impacts to wetlands that may result from their projects and programs.

- **Improve coordination with local governments**

As we suggested in the 2010 report, the Department should seek to improve coordination with local governments and provide local decision makers with information on the importance of wetlands and technical assistance to help them develop and adopt ordinances and plans that help improve wetland protection. The Sustainable Planning Section indicated that it would like to reach out to local governments to provide technical support for ordinance and comprehensive plan development, including promoting the use of the Conservation Opportunity Areas map as the natural resource layer in a community's comprehensive plan. A

¹³⁶ See <http://nhma.info/uploads/bestpractices/2011%20-%20Best%20Practices%20-%20Acquisitions%20Buyouts.pdf>.

¹³⁷ See <http://www.dnrec.delaware.gov/parks/Information/Documents/AVMP%20Docs/MasterPlan20110413.pdf>.

comprehensive assessment of all of the municipal codes and how they pertain to wetlands may be useful in this effort. With this information the Department could start working one-on-one with municipal governments to assess their codes, explain why wetland protection is important, and work with communities to write new ordinances and plans.

Improve Coordination in the Department

As mentioned above, DNREC could improve communication and collaboration on wetlands issues by creating an in-house wetland workgroup that includes representatives from the appropriate sections and programs from across the Department. Interviewees also suggested that the Department could improve coordination through the development of a comprehensive clearinghouse of information for everything related to wetlands, including data on permits and certification and also ongoing projects, project outcomes, and monitoring data. Delaware Coastal Programs has developed a monitoring and enforcement database for federal consistency that may serve as an example. However, it took two years to develop and cost close to \$50,000. A wetlands clearinghouse could include an interactive spatial database of ongoing efforts, which would include existing protected areas, ongoing projects, priorities for protection and restoration from across the Department, and the Conservation Opportunity Areas, among other inputs. This would help to speed up the transfer of information across the different programs in the Department and may serve as an effective tool for public outreach. The Department has collected administrative processing information and basic project locations for permits and §401 certifications and tracked enforcement actions and environmental monitoring across all state environmental programs in the Delaware Environmental Navigator. However, it is not clear that the Department is currently making use of this database.

Summary

This report provides an internal look at the priorities and capacity of the Department and is based on a series of interviews with division directors, section administrators, and technical staff from across DNREC. It is intended to stimulate discussions about the current status of wetland protection in the state and the Department's vision for what protection should look like in the future. In support of this objective, we provided a summary of wetland-related activities and priorities identified by DNREC staff and, where appropriate, examples of programs from other states to help DNREC identify long-term goals for wetland protection and the near term actions the Department should take to achieve these goals.

Appendix 1: Delaware Wetland Protection Vision and Strategic Plan Interview Participants

Name	Title	Division
Collin O'Mara	Secretary	DNREC
David Small	Deputy Secretary	DNREC
Tricia Arndt	Environmental Scientist, Coastal Programs	Delaware Coastal Programs
Karen Bennett	Bayshore Initiative Coordinator	Fish and Wildlife
Mark Biddle	Environmental Scientist, Watershed Assessment Section	Watershed Stewardship
Eileen Butler		Parks and Recreation
Brooks Cahall	Drainage and Stormwater Program Manager	Watershed Stewardship
Marjorie Crofts	Director	Waste and Hazardous Substances
Sarah Cooksey	Coastal Programs Administrator	Delaware Coastal Programs
Terry Deputy	Administrator Financial Assistance Branch	Water
Virgil Holmes	Wetlands and Subaqueous Lands Section Program Manager	Water
Wayne Lehman	Regional Wildlife Manager, Wildlife Section	Fish and Wildlife
Susan Love	Planner	Delaware Coastal Programs
Robert Meadows	Mosquito Control Section	Fish and Wildlife

Ali Mirzakhali	Director	Air Quality
Neelam Patel	Climate and Energy Coordinator	Energy and Climate
Frank Piorko	Director	Watershed Stewardship
Alison Rogerson	Watershed Assessment Section	Watershed Stewardship
Chazz Salkin	Director	Parks and Recreation
Dave Saveikis	Director	Fish and Wildlife
John Schneider	Watershed Assessment Section Administrator	Watershed Stewardship
Kathy Stiller	Director	Water
Ron Vickers	Realty Specialist	Parks and Recreation
Lee Ann Walling	Policy Advisor	Energy and Climate

Appendix 2: Recommendations for Improving Wetland Protection in Delaware.

Interview participants identified a number of recommendations for improving wetland protection in Delaware. The recommendations ranged from ways to improve capacity and collaboration within the Department, to suggestions for innovative funding mechanisms, to opportunities for improving communication and outreach.

Capacity

The following capacity-related recommendations arose during the interviews:

- Restore DNREC capacity to pre-budget and staff cut levels.
- Increase capacity for landowner outreach and land ownership and management.

Conservation

The following conservation-related recommendations arose during the interviews:

- Consider increasing the use of perpetual easements to preserve wetlands.
- Create an overlay map of wetlands and floodplains to identify priority wetlands for conservation and case studies for outreach.
- Prepare for sea level rise.

Funding

The following funding recommendations arose during the interviews:

- Investigate ways to link up land conservation funds and wetlands priorities.
- Investigate the strategic use of the revolving loan program to support wetland protection.
- Be more strategic about how the Department allocates funding for wetlands. Redirecting the spending through a central portal could maximize the benefits.

Funding/Incentives

The following funding/incentives recommendations arose during the interviews:

- Identify creative ways to incentivize wetlands protection, including identify and acquiring (through fee title or easement) high priority areas.
- Explore options for a payment for ecosystem services incentive program for landowners.
- Consider using the annual \$10 million in open space funds to help fund incentives for wetland protection.
- Strategize with the Natural Resources Conservation Service (NRCS) regarding the more effective use of the Farm Bill incentive programs.
- Identify options for using natural resources damage payments to fund wetland restoration and protection.

- Develop a guide of land protection incentive tools to help guide landowner choices and identify options for the landowner.

Legislation

The following legislation recommendation was mentioned during the interviews: Advocate for legislation similar to SB 64 that would require the Department to develop regulations.

Local Government Outreach

The following local government outreach recommendations came up during the interviews:

- Increase the impact of the Department on local land use planning.
- Conduct a comprehensive assessment of all of the municipal codes and how they pertain to wetlands. Work one-on-one with municipal governments to assess their codes, explain why wetlands protection is important, and help staff to rewrite codes to help protect wetlands.
- Identify options for including sunset clauses in “approved” infrastructure/building plans so that plans better reflect current conditions.

Outreach/Communication

The following outreach/communication recommendations were discussed during the interviews:

- Build in time for staff to think about and prioritize outreach.
- Develop a public wetlands outreach campaign and strategic communications plan that highlights the importance of wetlands to communities and includes common messages that would resonate with a range of audiences. Flood protection and stormwater management may be effective messages.
- Proactively reach out to homeowners and realtor groups to find common ground.
- Reach out to other groups that have a connection to wetlands (friends of the Parks, hunters, fishermen, etc.) that may not be traditional partners.
- Make an effort to build a better relationship and trust with the Farm Bureau.
- Find opportunities to increase awareness of wetland protection and restoration successes. Legislators rarely hear when things are good.
- Concentrate on increasing awareness of wetlands among children and consider adopting a program like the No Child Left Inside Initiative. Think about innovative ways to engage youth, including through new technologies such as social media and the use of touch screen devices in the field.
- Develop case studies on the flood protection benefits of wetlands restoration and protection. The Department should find functional examples where wetlands helped mitigate flood damage.
- Develop an interactive, web-based wetlands mapping tool that the public can use.
- Expand the public “adopt a wetland” beyond school groups to increase community connection to wetlands.
- Explore opportunity to partner with NGOs and other organizations (e.g., The Nature Conservancy, Ducks Unlimited, Kent County Conservancy) to conduct landowner outreach.

Regulatory

The following regulatory recommendations were raised during the interviews:

- Think about using the option of repealing the state resource areas' law as an incentive to the regulated community.
- Leverage 401 certification to review more wetland permits, however this would require additional staff.
- Conduct legal analysis to identify opportunities to include flexibility in the tidal wetlands regulation and the permit process for restoration.
- Improve enforcement and add administrative penalties to wetland permits.
- Consider developing an in-lieu fee mitigation program.
- Develop a process to update the tidal wetlands maps more often.
- Take full delegation of the Clean Water Act Section 404 program from the Corps.

Regulatory/Setting Priorities

The following recommendation was mentioned during the interviews concerning regulations/priority setting:

- Regulate only the very wet wetlands that the Department can map and see; others would require delineations like that required by the Corps.

Structure

The following structure recommendations were raised during the interviews:

- Establish a wetlands working group with staff from Watershed Assessment, Wetlands and Subaqueous Lands, other division/sections, other state agencies, and environmental groups.
- Increase communication, coordination, and interaction between the science and the policy/regulatory staff.
- Create a single place on the website where staff can access data (e.g., data on accretion rates of marshes, water quality data, etc.), information, and reports.
- Think more programmatically. For example, if the Department has done 10 projects that reconnect the hydrology between tax ditches and adjacent wetlands to decrease flooding, the Department should build a program out of it.
- Move the Sustainable Planning Section back to the Office of the Secretary.

Structure/Priorities

The following structure/priorities recommendations were brought up during the interviews:

- Use Conservation Opportunity Areas (COAs) to guide Department activities and encourage use of the COA map in local comprehensive plans and local protection ordinances and acquisition programs. Create a Google map with a zoom in/out feature that includes all of the COAs.
- Develop a conservation strategy that outlines acquisition protocols.
- Make GIS layers available throughout state government.

- The Drainage and Stormwater Program needs to increase awareness among the staff about water quality and wetlands issues.

Appendix 3: Example Structures for Non-tidal Freshwater Wetland Regulation.

There are several options for improving non-tidal wetland protection in Delaware. The following list is adapted from ELI's 2010 Delaware Wetland Program Review.¹³⁸

- **Adopt amendments to the state's Environmental Control Statute.** The state legislature could adopt amendments to the Environmental Control statute and regulations to explicitly require permits for discharges (fill) to wetlands and provide funding for administration of the program. Specific changes may include an amendment to the definition of pollutants to explicitly include discharges into wetlands and amendments to the goals of the Act to include the goal of protecting wetlands or ensuring no net loss of wetland acres and functions.¹³⁹ This is the approach Virginia used when it amended its Virginia Water Protection Permit program to cover filling of non-tidal wetlands.
- **Build on existing §401 certification authority.** The state could build a program on its existing §401 certification that specifically covers freshwater wetlands that no longer meet federal jurisdictional standards, as Wisconsin did in 2001. The Wisconsin state legislature enacted the 2001 Wisconsin Act 6¹⁴⁰ in response to uncertainty regarding federal jurisdiction over "isolated" wetlands after the SWANCC Supreme Court decision.¹⁴¹ The law amends the state water quality control statute to require water quality certification for "nonfederal wetlands," which include wetlands that are "determined not to be subject to [federal] regulation...due to the decision in [SWANCC]" and/or wetlands that are "determined to be a nonnavigable, intrastate, and isolated wetland under the decision in [SWANCC]..."¹⁴² The Act and its corresponding statutes and regulations outline certification requirements, delineation procedures, exemptions, enforcement provisions, conditions under which water quality certifications may apply, and other various requirements.¹⁴³ Wisconsin rules also establish water quality standards for wetlands as well as procedures and criteria for state water quality certification application, processing, and review.¹⁴⁴ Thus, the state did not construct a whole freshwater wetlands program, but continued to rely on §401 for federal wetlands and the equivalent process for those wetlands where the Corps lacked jurisdiction. These §401 related options, however, limit the states policy options because decision-making must continue to be based on federal wetland regulations and

¹³⁸ Delaware Wetland Program Review. 2010. Environmental Law Institute. Available at <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/ELI%20Delaware%20Wetland%20Review.pdf>

¹³⁹ Jon Kusler, 2001, Model State Wetland Statute to Close the Gap Created by SWANCC available at <http://www.aswm.org/swp/model-leg.pdf>

¹⁴⁰ S.B. 1, 2001 Gen. Assem., Spec. Sess. (Wis. 2001).

¹⁴¹ *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* 531 U.S. 159 (2001);

¹⁴² S.B. 1, 2001 Gen. Assem., Spec. Sess. (Wis. 2001).

¹⁴³ *Id.*

¹⁴⁴ WIS. ADMIN. CODE §§ NR 103 and NR 299.

state water quality standards. The state's authority for enforcement may also be limited and there is no specific source of federal funding for this option.¹⁴⁵ Further, applicants may still need to obtain both state and federal permits for a single project having §404 and §401 jurisdictions.

- **Enact a more comprehensive wetland statute.** The state legislature could enact a more comprehensive wetland statute such as Maryland's Non-tidal Wetlands Protection Act. The state legislature would also have to provide funding for administration of the new permitting program. A new permitting program will also likely require an increase in staff. The Association of State Wetland Managers has developed a model comprehensive wetland statute that could be tailored to a state's needs and preferences.¹⁴⁶ The model statute includes provisions for implementation of the wetland program, mapping and delineation, permitting, appeals, penalties and enforcement, local regulation, and mitigation. A comprehensive wetland statute could help to reduce duplication with the §404 program and streamline the permitting process for applicants if the statute adopts the same wetland definition used in the §404 program and authorizes the state to develop joint permit processing procedures with the Corps and a state programmatic general permit (SPGP). The state could also develop a general permit program, analogous to the NWP program, under a non-tidal wetlands law to address minimal impacts to non-tidal freshwater wetlands. Virginia, for example, has adopted state general permits for certain activities that result in minimal impacts.
- **Assume the §404 Program.** A comprehensive statute could also allow the state to pursue assumption of the §404 program from the Corps, as New Jersey has done. However, the state is not provided federal funding to implement the complex federal §404 regulations.¹⁴⁷
- **Develop a programmatic general permit for areas covered by non-tidal wetland protection authority:** The state could develop a programmatic general permit for the areas and activities covered by a non-tidal wetlands law. Programmatic general permits generally cover projects with minimal impacts and are designed to simplify the regulatory process by close advance coordination with the Corps, provide at least equivalent environmental protection for aquatic resources, promote more effective and efficient use of agency resources, and could allow the state to make decisions that better reflect state law and develop state specific policies and procedures. A state programmatic general permit could streamline the permitting process, eliminate duplication of effort, increase clarity for the applicant, and improve compliance. Programmatic general permits can improve the state's ability to efficiently and effectively review individual and cumulative impacts that would otherwise be covered under NWPs and could help the state to improve enforcement in

¹⁴⁵ Association of State Wetlands Managers, 2002, Issue Paper: Increasing the Role of the States in Administration of Clean Water Act Wetland Programs, *available at*

¹⁴⁶ Jon Kusler, 2001, Model State Wetland Statute to Close the Gap Created by SWANCC *available at* <http://www.aswm.org/swp/model-leg.pdf>

¹⁴⁷ *Id.*

these areas. Virginia and Pennsylvania have adopted programmatic general permits that pertain to specific activities and/or specific geographic areas. State programmatic general permits, however, can only cover activities that have minimal adverse impacts and must be reauthorized every five years. There is also no source of federal funding for administration of the state programmatic general permit.¹⁴⁸

¹⁴⁸ Association of State Wetlands Managers, 2002, Issue Paper: Increasing the Role of the States in Administration of Clean Water Act Wetland Programs

Appendix 4: State Freshwater Wetland Protection Programs

Twenty-five states have the authority to regulate dredge and fill activities in some (or all) non-tidal waters of the states. These programs cover a range of wetland types. Eight of the 25 states have established permitting programs broadly covering most freshwater wetlands in the state. Eight additional states have established permitting programs that protect many freshwater wetlands, but include defined exceptions for protection based on wetland types, size, or class. Six states have established permitting programs specifically for isolated waters, or those no longer covered under the CWA after SWANCC. Further, two states offer some protection for vulnerable wetlands on a case-by-case basis; while one state imposes regulations for state-run or state-funded projects in wetlands. Table 1 was developed for ELI’s 2011 report America’s Vulnerable Waters: Assessing the Nation’s Portfolio of Vulnerable Aquatic Resources since *Rapanos v. United States*.¹⁴⁹ It describes the waters covered under state programs under various circumstances.

Table 1: State wetland protection programs		
Permitting Program Broadly Covering Most Freshwater Wetlands in the State		
The permitting programs in these states broadly cover freshwater wetlands with no explicit exceptions for wetland type, class, or size. Many of these states define wetlands using a definition that is similar to the federal definition.		
State	Authority	Waters Covered
Connecticut	Inland Wetlands and Watercourses Act <i>Conn. Gen. Stat. § 22a-38(15) and (16)</i>	Wetlands and Watercourses Notes: Wetland definition is based on soil type as designated by the National Cooperative Soils Survey; watercourses include marshes, swamps, bogs and all other bodies of water, including vernal and intermittent waters (Conn. Gen. Stat. § 22a-36).
Minnesota	Wetland Conservation Act <i>Minn. Stat. Ann. §103G.222</i>	Wetlands Notes: Wetland definition similar to federal definition. (Minn. Stat. Ann. ch. 103G.005).
	Public Waters Permitting Program <i>Minn. Stat. Ann. ch. 103G.211, 221</i>	Public Waters of the state, including Public Waters Wetlands Notes: Public waters wetlands includes types 3, 4, and 5 wetlands as defined by the U.S. Fish and Wildlife Service that are ten or more acres in size in unincorporated areas or 2 ½ or more acres in incorporated areas. (Minn. Stat. Ann. ch. 103G.005).

¹⁴⁹ Womble, P., Kihlslinger, R.L., McElfish, J.M., & Tuthill, K. Environmental Law Institute 2011. America’s Vulnerable Waters: Assessing the Nation’s Portfolio of Vulnerable Aquatic Resources since *Rapanos v. United States*. Washington, DC: Environmental Law Institute

New Jersey	Freshwater Wetlands Protection Act <i>N.J. Stat. Ann. tit. 13:9, ch. 9B</i>	Freshwater wetlands and their buffers Notes: Freshwater wetland definition similar to federal definition (N.J. Stat. Ann. § 13:9B). The Pinelands Protection Act (N.J. Stat. Ann. §§ 13:18A-1), Hackensack Meadowlands Reclamation and Development Act (N.J. Stat. Ann § 13:17-9), and Highlands Water Protection and Planning Act (N.J. Stat. Ann. §§ 13:20-1) provide additional protection for freshwater wetlands.
Oregon	Removal-Fill Law <i>Or. Rev. Stat. § 196.810</i>	Waters of the state, explicitly includes wetlands. Notes: A permit is needed to remove or fill fifty cubic yards or more of material in any waters of the state. Wetland definition similar to federal definition (Or. Rev. Stat. § 196-800(17)).
Pennsylvania	Dam Safety and Encroachments Act <i>32 Pa. Cons. Stat. § 693.3</i>	Watercourses, streams, or bodies of water and their floodways wholly or partly within or forming part of the boundary of the state. Bodies of water include any natural lake, pond, reservoir, swamp, marsh, or wetland. Notes: Uses federal wetland definition (25 Pa. Code § 93.1).
Rhode Island	Freshwater Wetlands Act <i>R.I. Gen. Law §§ 2-1-18 to 2-1-25</i>	Freshwater wetlands as mapped, and their buffers Notes: Wetlands include marshes, swamps, bogs, ponds, rivers, river and stream floodplains and banks, areas subject to flooding or storm flowage, emergent and submergent plant communities in any bodies of fresh water including rivers and streams (R.I. Gen. Laws § 2-1-20).
Virginia	State Water Control Law and Nontidal Wetlands Act <i>Va. Code Ann. § 62.1-44.5</i>	State waters and non-tidal wetlands Notes: Covers both waters that are regulated under the CWA and activities in non-tidal wetlands that are not subject to regulation under the CWA. Federal wetland definition (VA. Code Ann. § 62.1-44.3).
Washington	State Water Pollution Control Act <i>Rev. Code Wash. § 90.48</i>	Waters of the state. Definition of waters of the state explicitly includes wetlands. Notes: If the Corps determines that a wetland is isolated and not subject to federal jurisdiction, landowners must still seek state approval for proposed wetland impacts. Wetland definition similar to federal definition (Wash. Admin. Code § 173-201A-020).
	Growth Management Act <i>Rev. Code Wash. § 36.70A.172</i>	Critical Areas for conservation purposes. Notes: Wetlands are included among those areas that can be designated as “critical areas” that local governments must identify and protect. Wetland definition similar to federal definition (Rev. Code Wash. ch. 36.70A.030).

Permitting Program, but with defined exceptions based on wetland type, size, or class

These states have established permitting programs to protect freshwater wetlands in the state. However, these programs each have explicit exceptions for certain freshwater wetlands based on wetland type, size, or class.

State	Authority	Waters Covered
Florida	Florida Environmental Reorganization Act of 1993 <i>Fla. Stat. Ann. § 373, Part IV, ch. 93-213, sec. 19</i>	Tidal and freshwater wetlands and other surface waters Notes: Federal Wetland definition, but longleaf or slash pine flatwoods with an understory dominated by saw palmetto are generally not protected (Fla. Stat. Ann. § 373.019(25)).
Maine	Natural Resources Protection Act <i>Me. Rev. Stat. Ann. tit. 38, § 480-C(1)</i>	Coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, community public water system primary production areas, great ponds or rivers, streams or brooks as defined. Notes: Freshwater wetland definition similar to federal definition (Me. Rev. Stat. Ann. tit. 38, § 480-B(4)). Maine Natural Resources Protection Act only regulates vernal pools that are deemed significant wildlife habitat (Me. Rev. Stat. Ann. tit. 38, §§ 480-B(9-A), 480-B(10) 480-Z(7-A), 480-BB; 06-096 Code Me. R. §§ 310, 335).
Maryland	Non-tidal Wetlands Protection Act <i>Md. Code Ann., [Envir.] § 5-901 to 911.</i>	All non-tidal wetlands. Notes: Federal Wetland Definition (MD. Code Ann., Envir. § 5-901(h)(1)). However, isolated wetlands of less than 1 acre and cumulative impacts of less than 5,000 square feet are exempt from permit and mitigation requirements, but require a letter of exemption (Md. Code Ann., [Envir.] § 5-906).
Massachusetts	Wetlands Protection Act <i>Mass. Gen. Laws ch. 131, § 40</i>	Freshwater and coastal wetlands bordering on the ocean or on a creek, river, stream, or pond or other water body or any land under said waters or any land subject to tidal action, coastal storm flowage, or flooding. Notes: May not protect those freshwater and coastal wetlands not bordering on the ocean, a creek, river stream, or pond, or other water body. Bordering is not defined. Wetland definition includes meadows, marshes, swamps, bogs, areas with groundwater, flowing or standing surface water or ice provide a significant part of the supporting substrate for a plant community for at least five months of the year (Mass. Gen. Laws ch. 131, § 40).
Michigan	Goemaere-Anderson Wetlands Protection Act <i>Mich. Comp. Laws §§ 324.303</i>	Wetlands. Wetlands are jurisdictional under state law if: contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream; not contiguous, and more than five acres in size; or not contiguous, and five acres or less in size if the state determines that protection of the area is essential to the preservation of the natural resources of the state from pollution, impairment, or destruction. Notes: Wetland definition is similar to federal definition, but limits protection as described above (Mich. Comp. Laws §§ 324.30301).

<p>New Hampshire</p>	<p>Fill and Dredge in Wetlands Act <i>N.H. Rev. Stat. Ann. § 482</i></p>	<p>Bank, flat, marsh, or swamp in or adjacent to any waters of the state (the definition of waters of the state includes wetlands and waters of the U.S. as defined under the CWA).</p> <p>Notes: The law applies wherever fresh water flows or stands and in all areas above tidal waters ..., it shall apply (in addition to great ponds or lakes of 10 acres or more in natural area as provided for in RSA 482-A:16-20 and RSA 482-A:21-25) to those portions of great ponds or lakes created by the raising of the water level of the same, whether by public or private structure, and to all surface waters of the state as defined in RSA 485-A:2 which contain fresh water, including the portion of any bank or shore which borders such surface waters, and to any swamp or bog subject to periodical flooding by fresh water including the surrounding shore (N.H. Rev. Stat. Ann. § 482-A:4).</p>
<p>New York</p>	<p>Freshwater Wetlands Act <i>N.Y. Envtl. Conserv. Law §§ 24-0101</i></p>	<p>Wetlands outside the Adirondack Park greater than 12.4 acres in size and those less than 12.4 acres if they are deemed of “unusual local importance,” including a 100 foot buffer. Within the Adirondack Park boundaries, wetlands greater than one acre in size or located adjacent to a body of water, including a permanent stream, with which there is free interchange of water at the surface.</p> <p>Notes: Jurisdiction over wetlands that are less than 12.4 acres in size and not of “unusual local importance” is up to the discretion of local governments. Definitions vary for wetlands outside and within the Adirondack Park. Wetlands are defined as lands and submerged lands commonly called marshes, swamps, sloughs, bogs, and flats supporting aquatic or semi-aquatic vegetation (with further provisions for what constitutes wetland vegetation).</p>
	<p>Water Resources Law <i>N.Y. Envtl. Conserv. Law § 15-0505</i></p>	<p>Navigable waters of the state, includes marshes, estuaries, tidal marshes and wetlands that are adjacent to and contiguous at any point to any of the navigable waters of the state and that are inundated at a mean high water level or tide.</p> <p>Notes: Wetland definition included in the Freshwater Wetlands Act (N.Y. Envtl. Conserv. Law §§ 24-0101).</p>
<p>Vermont</p>	<p>Vermont Wetland Rules <i>10 V.S.A. § 902</i></p>	<p>A significant wetland or buffer zone of a significant wetland.</p> <p>Notes: A significant wetland is any Class I and Class II wetland that merits protection, either along or in conjunction with other wetlands, based on an evaluation of the extent to which it serves one or more of the functions and values pursuant to 10 V.S.A. § 6025(d)(5)(A)-(K) and section 5 of Vermont’s wetland rules (Vt. Code R 12 004 056). Class I wetland means a wetland that is identified on the Vermont significant wetlands inventory maps as a Class I wetland, or the Panel determines merit the highest level of protection. Class II wetland means a wetland other than a Class I or Class III wetland that is a wetland identified on the Vermont significant wetlands inventory maps, or the Secretary determines merits protection, ..., either taken alone or in conjunction with other wetlands. Class III wetlands are wetlands that are neither Class I nor Class II wetlands. Federal wetland definition (10 V.S.A. § 902).</p>

Appendix 5: State Incentive Programs

A number of states have developed incentive programs for wetland protection and restoration, including tax incentives, direct funding, cost-share, and technical assistance programs (see Table 1). The excerpts below are drawn from ELI's 2008 report *State Wetland Protection: Status, Trends & Model Approaches, A 50-state study by the Environmental Law Institute*.¹⁵⁰ In addition to the state examples included here, many states also participate in federal cost-share and technical assistance programs (e.g., Wetlands Reserve Program and Partners for Wildlife Program). The following summary is not an exhaustive list of the many programs available across the country, but the programs described below may serve as inspiration or models for the development of incentive programs in Delaware.

These examples are based on a 2008 report, and as such the information for each state may not be up to date.

Group 1

The following state programs offer landowners incentives to preserve or restore wetland habitats. Some of these states also provide technical assistance to landowners or wetland preservation or restoration projects.

Arkansas

The Arkansas Wetland and Riparian Zones Tax Credit Program, was created in 1995 as part of the Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act and is administered by the Arkansas Natural Resources Commission.¹ The program targets private landowners and gives tax credits (against the Arkansas Income Tax) for restoration or creation of wetlands and/or riparian zones. Arkansas can forgive up to \$500,000 per year, approved by the Private Lands Restoration Committee, though tax credits per individual cannot exceed \$5,000 per year or exceed the amount of individual or corporate income tax an individual owes. Unused credits may, however, be carried over for nine years, resulting in a total \$50,000 worth of credits per individual. The program has yet to exceed \$130,000 per year total; allowing room for increased participation.² The projects must meet certain specifications, as defined in the rules and regulations. A professional engineer must also review structural aspects of the project before an application can be filed. The projects must be completed within three years and maintained for ten years beyond that. Technical support can be provided by the state.

The Arkansas Game and Fish Commission also provides technical assistance to landowners from Private Lands Biologists through the Arkansas Acres For Wildlife Program. The program aims to protect wildlife while also promoting good farming and livestock production. Landowners must continue to manage the land to the program's specifications and according to the established

¹⁵⁰ Environmental Law Institute. 2008. *State Wetland Protection: Status, Trends & Model Approaches, A 50-state study by the Environmental Law Institute*, Environmental Law Institute, Washington, DC. Available at http://www.elistore.org/Data/products/d18_06.pdf

conservation plan for a year and must re-enroll every year to maintain membership in the program. Landowners may also compete for specialized native warm season grass/forb seed packets (awarded based on criteria in a standardized ranking process).³

California

The California Department of Fish and Game (CDFG) offers \$20 per acre of waterfowl habitat protected every year as part of the California Waterfowl Habitat Program. Funded by the Fish and Wildlife Service and the California State Wetland Fund, the CDFG also provided incentive payments through the Landowner Incentive Program for implementation of habitat conservation plans for threatened and endangered species on restored wetlands, riparian lands, and native grasslands.¹

California state agencies provide a number of grants for wetland restoration. The California Department of Parks and Recreation administers the Federal Land and Water Conservation Fund and Habitat Conservation Fund Grant Programs.¹ The Habitat Conservation Fund Program provides \$2 million per year for projects, and includes wetlands as one of six funding categories. Grant applicants can apply for funds to either acquire wetlands property or to enhance or restore properties, and must meet a one to one non-state match requirement. The Coastal Conservancy provides grants for wetland acquisition and restoration, and conducts restoration and provides technical and planning guidance as well.

California's Permanent Wetland Easement Program, run by the Department of Fish and Wildlife and the Wildlife Conservation Board (WCB), pays willing landowners 50-70% of the property's market value for farming and development rights in perpetuity. Landowners keep trespassing, recreational, hunting, and other rights but must follow a wetland management plan and meet with state biologists bi-annually.⁴ The Program is funded mainly through Proposition 40 funds that the WCB received as a result of the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002. This act provided \$300 million for projects including those related to habitat protection, such as conservation easements.⁵ Funding also comes from partner contributions, which in 2012 more than doubled the available funding to the WCB. In 2012, with the help of willing landowners, over 33,000 acres were put into easements for \$24 million.⁶ The WCB also administers the Inland Wetland Conservation Program; a cost-sharing program that awards grants to non-profit organizations, state and local governments, Resource Conservation Districts, and Special Districts for projects that will restore and enhance lands or that will place wetlands into easements.

Colorado

Colorado conserved 210,000 acres of wetlands between 1997 and 2004 through its Wetlands Program, which uses incentive-based mechanisms and partnerships among many groups including landowners.¹ The Wetlands Program operates at the state and local levels through committees made up of volunteers including local, state, and federal natural resource professionals, citizens, nongovernmental organization representatives, university professors, landowners, and land trust representatives. Committees identify projects, assist landowners, and contribute to education and outreach. The Colorado Department of Natural Resources' Division of Wildlife's (CDOW) Colorado Wetland Partnership Program has a budget of approximately \$1.5 million supported by state

lottery proceeds and CDOW license fees, such as waterfowl stamps, which is used to fund voluntary wetland restoration projects. Projects are selected based on wetland priority level (specific types or areas of wetlands are prioritized) and project ranking, which is determined by experts.¹

Connecticut

Connecticut administers the Landowner Incentive Program (LIP), which offers financial assistance and technical advice to landowners who manage their land to support at-risk fish, wildlife, and plant species.¹ The LIP Program provides funding for up to 75% of the project costs. The remaining 25% must come directly from the landowner or through in-kind services such as participation in educational outreach, brush mowing, monitoring, or herbiciding to control invasive plants.⁷ Using a biological ranking system, the Connecticut Department of Environmental Protection decides which projects will receive assistance from the projects submitted by interested landowners.¹

Hawaii

The Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife administers several partnership programs that incentivize landowners to acquire or restore and manage wetlands.¹ Hawaii's Landowner Incentive Program provides financial and technical assistance to landowners for projects that protect at risk species. The Watershed Partnership Program provides funding for landowners to protect forested watersheds. The Forest Stewardship Program and the Forest Land Enhancement Program provide technical and financial assistance to encourage sustainable forest management through a 75/25 cost-share program of up to \$10,000 per year. The Hawaii Forest Legacy Program provides easements and funds for private lands dedicated to conservation.⁸

Illinois

The Illinois Farmland Assessment Act of 1977 provides property tax relief to landowners and farmers for non-intensive uses of their land. The wetlands in question must be a minimum size of ten acres and may also be enrolled in federal or other conservation programs.¹

Resources are also made available to landowners for restoring wetlands. The Illinois Department of Natural Resources helps landowners through the Private Land Wildlife Habitat Program by providing assistance with materials that would typically be unavailable to them such as plans, field equipment, and labor.

Indiana

The Indiana Department of Natural Resources Lake and River Enhancement Program provides funding and assistance to landowners for projects that reduce non-point sediment and nutrient pollution of surface waters, including the construction and maintenance of wetlands.¹ The program includes cost-share funding to help landowners pay for sediment and nutrient reducing practices on their land. Funding is also provided for investigations into issues affecting lakes or streams.⁹ The Division of Forestry conducts a similar program for the stewardship of forested wetlands and the Division of Reclamation helps landowners develop wetlands over reclaimed mine lands. The Division of Nature Preserves also provides funding and assistance through the Lake Michigan Coastal Program for managing areas containing rare wetland types and species.¹

Other state wetland incentive programs include the Appalachian Clean Streams Initiative, the Classified Wildlife Habitat Act, and the Indiana Classified Forest Program. These programs target specific land areas or specific landowners, encourage partnership with public agencies, and are partially or fully funded by the state. These programs are part of the state's *Hoosier Wetlands Conservation Initiative*.¹

Kansas

In Kansas, cost-share funding for landowners is allocated by the State Conservation Commission and provided through conservation districts in the Riparian and Wetlands Program. The goal of the program is to assist landowners with the implementation of best practices on their land to protect and improve water quality.¹

Kentucky

Kentucky Partners for Wetland Wildlife provides water control structures to landowners for free and will fund up to 50% of levee construction costs. The Kentucky Department of Fish and Wildlife Resources provides technical advice from biologists to landowners who are interested in restoring their property. They also help landowners find appropriate federal funding for their projects.¹

Massachusetts

The Wetlands Restoration Program (WRP) in Massachusetts provides technical assistance, resources and coordination for partners who restore wetlands, though much of the restoration occurs on public rather than private land.¹ The WRP works with the Massachusetts Corporate Wetland Restoration Partnership to match cash and in-kind contributions with wetland restoration projects. They also receive support for project planning and implementation from federal partners including the U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Army Corps of Engineers, NOAA National Marine Fisheries Service and Restoration Center, EPA, Natural Resources Conservation Service, and National Park Service.

Minnesota

Landowners with wetlands in the Minnesota Board of Water and Soil Resources (MNBWSR) Wetlands Preservation Program or wetlands in their natural condition that are of little value except for wildlife or water conservation can apply for property tax exemption as a Wetland Protection Area.¹ Counties are responsible for assessing the value of the wetlands, and landowners with wetlands in wetlands preserve areas must submit an application for tax exemption.

MNBWSR also administers the Permanent Wetland Preservation Program (PWP), which allows certain types of at-risk land to be entered into a permanent easement. The MNBWSR provides funding to landowners to acquire the land. The program also funds technical and administrative services. Since 1992, the program has led to the protection of 11,459 acres of wetlands.¹

The MNBWSR also directs the Reinvest in Minnesota (RIM) Critical Habitat Match (CHMP) and Reserve Conservation Easement Programs (RCEP). The CHMP provides funding to acquire and enhance lands, including wetlands. The RCEP is similar to the Permanent Wetland Preservation

Program, but uses cost-share and technical assistance to establish and maintain a conservation plan for a landowner's agricultural lands and drained wetlands.¹ The conservation areas are inspected annually for the first five years and then every three years. A total of 179 million dollars, appropriated by the state legislature, has gone into the program since it began in 1986. In addition, according to Minnesota's Agricultural Production Exemption, any seeds, trees, fertilizers or herbicides purchased for RIM or PWP lands are exempt from sales tax.¹⁰

MNBWSR also has partnered with the USDA Farm Services Agency (FSA) to combine its RIM program with its Conservation Reserve Program to form the federal/state Conservation Reserve Enhancement Program. Farmers are provided with funding from MNBWSR to put their environmentally sensitive lands, which can include wetlands, into conservation easements and to develop conservation practices and the FSA provides 15 years of payments on the property.

Mississippi

Mississippi offers a cost-share program for landowners, called the Landowner Incentive Program, which is administered by the Mississippi Department of Wildlife, Fisheries, and Parks with help from Wildlife Mississippi, a non-profit organization. They work to put land into conservation easements and also work to put agriculture or harvested lands back into bottomlands.¹

The Mississippi Department of Marine Resources (MDMR) conducts restoration projects through the Coastal Preserves Program, whose goal is to acquire land from landowners within the 20 Coastal Preserves. MDMR also provides information to landowners on topics such as invasive species, and it conducts prescribed burnings, herbicide application, or other activities for private landowners.¹

Montana

The Montana Wetlands Legacy Partnership provides technical and financial assistance to landowners by serving as a contact point between the landowners and public and private governments and conservation agencies.¹ Partners include ranchers, farmers, other landowners, and over 40 conservation-related organizations. Funding comes from a range of sources such as corporate sponsors; Federal, State and Tribal Wetlands Programs; and public and private sponsors.¹¹

Nebraska

The Nebraska Game and Parks Commission (NGPC) assists landowners through the WILD Nebraska program, which works to protect and restore wildlife habitats on private lands. Millions of dollars have been invested through the program, leading to the restoration of over 80,000 acres of privately owned wetlands.¹ The WILD Nebraska program encourages private landowners to conserve their land through a cost-share program. Through habitat restoration materials, per acre payments for land, and technical assistance, landowners can receive up to 100% of the cost of conservation. Contracts between the landowner and NGPC are usually five or ten years long.¹²

New Mexico

For private landowners in New Mexico, the New Mexico Environmental Department Surface Water Quality Bureau's Watershed Protection Section and the Wetlands Program provide competitive funding for restoration efforts.¹

New York

In New York, landowners often collaborate and share funding with other agencies and organizations. For example, in the Northern Montezuma Focus Area thousands of wetland acres are being restored through conservation program partnerships and funding.¹ New York State Department of Environmental Conservation's Bureau of Wildlife administers the initiative under the auspices of the North American Waterfowl Management Plan. Much of the outreach and technical assistance to landowners in New York comes from local governments and NGOs.¹

North Carolina

North Carolina's Division of Soil and Water Conservation administers the Agricultural Cost Share Program, which encourages farmers to implement best management practices by providing up to 75% of implementation costs that help to reduce sources of agricultural nonpoint source pollution.¹

Technical assistance and small cost-share programs are also available to farmers through the North Carolina Partners program. This program's goal is to enhance, restore, or develop habitat (including wetlands) for waterfowl and migratory birds.¹

North Dakota

Until funding was cut in 2006, the North Dakota Department of Agriculture administered The Waterbanks Program, which provided financial incentives to landowners to preserve wetlands. For a period of five to ten years, the Program would lease owned wetlands from private landowners and disallow draining, burning, filling or any agricultural activity from taking place.¹

Ohio

The Ohio Department of Natural Resources (ODNR) has a private lands program where one of their Division of Wildlife land biologists helps match landowners with the most relevant restoration program for them. ODNR also provides funding to Ducks Unlimited to provide additional technical assistance for landowners in Northwestern Ohio.

ODNR also has a cost-share program that assists landowners with restoration by supplementing other USDA programs. If the landowner's restored wetlands are maintained for at least twenty years, Ohio will cover the 100% of the costs the restoration (up to \$1,500 per acre). If they are maintained for ten years, the Department will cover up to \$750 per acre. The state's annual budget for these projects is \$75,000; wetland focus areas are prioritized for funding.¹

Oregon

The Oregon Watershed Enhancement Board (OWEB) administers the state's watershed enhancement program, which focuses on the protection and restoration of naturally functioning habitats.¹ Acquisition of property is prioritized based on critical habitats for species and operates

through grants provided by OWEB. When OWEB acquires a property interest, it does not hold title but instead receives a conservation easement over each parcel of land. Restoration activities on private land are mainly carried out through watershed councils, soil and water conservation districts and other local organizations.¹

Pennsylvania

In Pennsylvania, the Growing Greener Fund, an investment of state funds, has contributed millions of dollars towards restoration. In addition, many landowners have participated in the Pennsylvania Wetland Replacement Project, which has helped the state to achieve a no net loss of wetland acreage.¹

South Carolina

The South Carolina Conservation Credit Exchange allows landowners to donate conservation easements to land trusts and receive tax credits to use against South Carolina taxes for themselves, for sale, or to give away.¹ Credits may not exceed \$250/acre and are equal to 25% of the deduction attributable to the donation. The Conservation Credit Exchange was created under the South Carolina Conservation Incentives Act (Act 283), which passed in 2001 to encourage land preservation.¹³

South Dakota

The South Dakota Department of Game Fish and Park's (SDGFP) Wetland/Grassland Habitat Program provides technical and financial assistance to landowners for wetland creation, restoration and enhancement.¹ This program helps restore wetlands while providing landowners with increased water capacity and improved foraging conditions for livestock. The program shares up to 100% of the cost to remove tile or plugging of drainage ditches, and habitat biologists help plan the construction of the restoration project.¹

Through South Dakota's Non-cropped Wetland Restoration Initiative, SDGFP will provide 100% of the cost-share to restore hydrology on non-cropped wetlands that are used for livestock. This program includes a one-time payment of \$150 per surface acre of wetland restored. For wetland creation and enhancement, SDGFP will provide two-thirds of the cost of construction of embankment ponds, with the goal of allowing livestock and waterfowl to coexist. Two-thirds of the cost of creating riparian pasture will also be provided.¹⁴

Virginia

Administered by the Virginia Department of Conservation and Recreation and the National Resources Conservation Service, Virginia's Conservation Reserve Enhancement Program provides a number of incentive and payment opportunities to landowners interested in restoring their wetlands.¹ For example, cost-share programs with local soil and water conservation district offices provide landowners with 25% reimbursement for conservation practice costs to restore buffer or wetlands. There is also a 25% state income tax credit for out of pocket restoration expenses. In addition, the state will pay an additional \$1,000 per acre for the recordation of a permanent open space easement on the property.¹⁵

Wisconsin

Funded by waterfowl stamps, the Bureau of Wildlife Management in Wisconsin provides between \$300,000 and \$400,000 annually for wetlands restoration on public and private land. Funds are allocated based on wildlife priority criteria.¹

Wyoming

Wyoming provides funding, technical, and informational assistance to private landowners through several programs. The Habitat Grant Program and the Wildlife and Natural Resource Trust account offer funding to landowners, governments, or other conservation organizations for wetlands construction projects. The Wyoming Game and Fish Department also provides informational and technical assistance through its habitat extension biologists who conduct an initial site visit, provide bulletins on the restoration process, and help with project design, construction, and sometimes management after the project is completed.¹

Group 2

This group consists of states provides technical assistance to landowners for restoration.

Alabama

With help from the USDA Natural Resources Conservation Service, the Alabama Department of Conservation and Natural Resources assists landowners in deciding best management practices for their wetlands.¹

Florida

The Surface Water Improvement and Management Program combines programs from a range of government agencies with the private sector to share funding, in-kind contributions, or both, toward preserving Florida's wetlands.¹

Georgia

The Wildlife Resources Division in Georgia contributes to wetland restoration through the Bobwhite Quail Initiative.¹ In the past, the program provided technical assistance to landowners as well as competitive economic incentives for better habitat management practices. Unfortunately, the landowner economic incentive piece of this Initiative was suspended in 2011 due to declining revenues from vehicle tags and matching grants. However, the Initiative still exists as a voluntary and experimental program and occurs in collaboration with the University of Georgia, Georgia Soil and Water Conservation Service and Farm Service Agency, and Quail Unlimited.¹⁶

Idaho

The Idaho Department of Fish and Game provides technical support to landowners for restoration or mitigation. Regional or district offices coordinate with partners involved in restoration to provide volunteer support as well.¹

Iowa

Though Iowa has limited funds for cost-sharing with private landowners, the Iowa Department of Natural Resources Wildlife Bureau Private Lands Program provides technical assistance to landowners interested in wildlife habitat and wetland conservation. Staff biologists help landowners assess their land's potential for restoration and help them find sources of federal funding for restoration.¹

Maryland

Maryland Department of the Environment (MDE) and the Maryland Department of Natural Resources (MDNR) provide informational assistance to Maryland landowners who wish to take part in restoration projects. MDE can help landowners find funding for their project, while the MDNR will assist with the actual restoration or conservation project.¹

Michigan

The Michigan Department of Environmental Quality provides some restoration program guides for private landowners.¹

Missouri

Regional wetland teams through the Missouri Department of Conservation can give technical assistance on restoration.¹

Oklahoma

The Oklahoma Conservation Commission provides technical assistance and other incentives to landowners implementing management practices that conserve, enhance, and restore wetlands on private property on a case-by-case basis.¹

Texas

The state of Texas has a few different landowner incentive programs.¹ The Texas Wetlands Conservation Plan encourages private landowners to conserve wetlands through financial, technical and educational incentives. The Texas Parks and Wildlife Department (TPWD) provides technical support and outreach materials for landowners interested in conserving their land. With grants from the EPA, the TPWD has also created an online registry that connects landowners with people or organizations that want to restore wetlands.¹⁷

Utah

The Utah Department of Natural Resources provides some technical assistance to groups conducting restoration, including landowners.¹

Vermont

The Vermont Department of Environmental Conservation wetland staff provide technical assistance and expertise on restoration efforts. The Department provides information on topics such as monitoring and identifying priority areas for restoration.¹

Table 1: State Incentive Programs for Wetland Restoration or Preservation

State	Tax Incentives	Easements	Funding for Protection or Restoration	Technical Assistance	Program Examples
Alabama				X	Alabama Department of Conservation and Natural Resources
Arkansas	X			X	Arkansas Wetland and Riparian Zones Tax Credit Program; Arkansas Acres for Wildlife Program
California		X	X	X	California Waterfowl Habitat Program; Landowner Incentive Program; Federal Land and Water Conservation Fund; Habitat Conservation Fund; California Permanent Wetland Easement Program; Inland Wetland Conservation Program
Colorado			X	X	Colorado Wetland Partnership Program
Connecticut			X	X	Landowner Incentive Program
Florida				X	Surface Water Improvement and Management Program; Florida Wetland Restoration Information Center
Georgia				X	Bobwhite Quail Initiative
Hawaii		X	X	X	Landowner Incentive Program; Watershed Partnership Program; Forest Stewardship Program; Forest Land Enhancement Program; Hawaii Forest Legacy Program
Idaho				X	Idaho Department of Fish and Game
Illinois	X			X	Illinois Farmland Assessment Act of 1977; Private Land Wildlife Habitat Program
Indiana			X	X	Indiana Department of Natural Resources Lake and River Enhancement Program; Lake Michigan Coastal Program; Appalachian Clean Streams Initiative; the Classified Wildlife Habitat Act; the Indiana Classified Forest Program
Iowa				X	The Iowa Department of Natural Resources Wildlife Bureau Private Lands Program
Kansas			X		Riparian and Wetlands Program
Kentucky			X	X	Kentucky Partners for Wetland Wildlife

Maryland				X	Maryland Department of the Environment; the Maryland Department of Natural Resources
Massachusetts			X	X	Wetlands Restoration Program
Michigan				X	Michigan Department of Environmental Quality
Minnesota	X	X	X	X	Wetland Protection Area Tax Exemption; Permanent Wetland Preservation Program; Reinvest in Minnesota Critical Habitat Match and Reserve Conservation Easement Program; Conservation Reserve Enhancement Program
Mississippi		X	X	X	Landowner Incentive Program; Coastal Preserves Program
Missouri				X	Missouri Department of Conservation Regional Wetlands Team
Montana			X	X	Montana Wetlands Legacy Partnership
Nebraska			X	X	WILD Nebraska
New Mexico			X		New Mexico Environmental Department Surface Water Quality Bureau's Watershed Protection Section
New York			X		Northern Montezuma Focus Area Program
North Carolina			X	X	Agricultural Cost Share Program; North Carolina Partners
North Dakota		X	X		The Waterbanks Program
Ohio			X	X	Ohio Department of Natural Resources private lands program
Oklahoma				X	Oklahoma Conservation Commission
Oregon			X		Oregon Watershed Enhancement Board
Pennsylvania			X		Pennsylvania Wetland Replacement Project; Growing Greener Fund
South Carolina	X				South Carolina Conservation Credit Exchange
South Dakota			X	X	Wetland/Grassland Habitat Program; Non-cropped Wetland Restoration Initiative

Texas				X	Texas Parks and Wildlife Department ; Texas Wetland
Utah				X	Utah Department of Natural Resources
Vermont				X	Vermont Department of Environmental Conservation
Virginia	X	X	X	X	Conservation Reserve Enhancement Program
Wisconsin			X	X	Bureau of Wildlife Management in Wisconsin
Wyoming			X	X	Habitat Grant Program; Wildlife and Natural Resource Trust

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