

Delaware State Wetland Program Summary



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Section A. Quick View

Description of State's Wetlands

Salt and brackish marshes cover Delaware's coast from the upper margins of Delaware Bay, south to the inland bays. Wetlands comprise approximately 30% of the State's land surface. The state also has a declining number of freshwater tidal marshes, as well as scrub-shrub wetlands (which occur as isolated wet thickets) and wet flatwood swamp forests (one of the most important, but least well-recognized wetland type in Delaware) and seasonal freshwater wetlands.

State Definition of Wetlands

"State-regulated" wetlands protected by law are defined as "those lands lying at or below two feet above local mean high water which support or are capable of supporting" certain plant species that are listed in the law and regulations. The location of these State-regulated wetlands can be found on a set of official State Wetland Maps that were adopted as part of the Regulations.

For the purposes of the (Tidal) Wetlands Act, Delaware defines "wetlands" as "those lands above the mean low water elevation including any bank, marsh, swamp, meadow, flat or other low land subject to tidal action in the State along the Delaware Bay and Delaware River, Indian River Bay, Rehoboth Bay, Little and Big Assawoman Bays, the coastal inland waterways, or along any inlet, estuary or tributary waterway or any portion thereof, including those areas which are now or in this century have been connected to tidal waters, whose surface is at or below an elevation of 2 feet above local mean high water, and upon which may grow or is capable of growing [any but not necessarily all of a series of wetland plants]"

"Wetlands" also include: "those lands not currently used for agricultural purposes containing 400 acres or more of contiguous non-tidal swamp, bog, muck or marsh exclusive of narrow stream valleys where fresh water stands most, if not all, of the time due to high water table, which contribute significantly to ground water recharge, and which would require intensive artificial drainage using equipment such as pumping stations, drain fields or ditches for the production of agricultural crops."

Historic Wetland Loss/Gain*

Original Wetland Acreage	Remaining Wetland Acreage	Acreage Lost	% Lost
479,785	223,000	256,785	54%

Source: US Fish and Wildlife (Dahl, 1989)

Note: A new state wetland mapping study has been conducted since the Dahl study data cited above. Please contact the state for a copy of the study.

Primary State Wetlands Webpage

State of Delaware Wetlands Page

<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Portal.aspx>

Wetlands and Subaqueous Lands Permitting Webpage

<http://www.dnrec.delaware.gov/wr/Information/Permits/Pages/WetlandsandSubaqueousLandsPermittingInfo.aspx>

State Wetland Program Plan

Delaware Wetland Monitoring Strategy

http://water.epa.gov/type/wetlands/upload/delaware_wpp.pdf

No Net Loss/Net Gain Goal

No specific goal is stated in any existing statutes although working policy is applicable. However, Governor Markel has stated a “no net loss” goal for the state.

State Resources for Wetland Work

State Name	Core element #1: Regulation	Core Element #2: Monitoring and Assessment	Core Element #3: Wetland Water Quality Standards	Core Element #4: Voluntary Wetland Restoration
Agency	DNREC	DNREC	DNREC	Fish and Wildlife
Source(s)	General funds appropriation	Unknown	Unknown	Unknown
Amount	Unknown	Unknown	Unknown	Unknown
Staffing	9.5 FTE (9 FT and 1 PT) + seasonal	Unknown	Unknown	Unknown

State Permitting Fees

State Permitting Fee	State Name
Yes/No	YES
Amount (range)	\$450
Agency	DNREC

Innovative Features

None.

Models and Templates

None.

Section B. Regulation

How are Wetlands Regulated in Delaware?

Delaware regulates all of its tidal wetlands as well as those non-tidal wetlands that include 400 or more contiguous acres. Delaware requires §401 certification for all activities that require a federally issued permit, such as a §404 permit, to ensure that projects will not violate Delaware's surface water quality standards (WQS). There is no direct state regulation currently provided for non-tidal wetlands. In addition to protections offered under §401/404 of the CWA, Delaware protects tidal wetlands under the Wetlands Act and submerged lands and tidelands under the Subaqueous Land Act.

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Within the Delaware Department of Natural Resources and Environmental Control numerous divisions conduct wetland-related activities, including the Division of Water Resources (DWR), Division of Fish and Wildlife (DFW), and Division of Soil and Water Conservation (DSWC). The DDNREC's Division of Water Resources (DWR), Wetlands and Subaqueous Lands Section operates the state's wetland regulatory and protection programs. The Division of Soil and Water Conservation's Coastal Management Program (CMP) issues consistency determinations for all federal actions, federal licenses or permits, and projects proposed in the coastal area.

- ***Wetlands Act of 1973.*** Tidal wetlands are regulated at the state level under the Wetlands Act of 1973 (7 Del. Code Chapter 66. Sec. 6601-6620). The Act regulates "lands subject to tidal action which are above the mean low water elevation and at or below an elevation of 2 feet above the local mean high water which are capable of growing certain listed species including any bank, marsh, swamp, meadow, flat or other low land. Also included are nontidal wetlands consisting of 400 acres or more of contiguous swamp, bog or marsh (exclusive of narrow stream valleys and lands currently used for agricultural purposes) where freshwater stands most, if not all of the time, which contribute significantly to groundwater recharge and which would require extensive artificial drainage. These areas are delineated on jurisdictional maps. The Act requires permits from the Delaware Department of Natural Resources and Environmental Control (DNREC). Permits for the (Tidal) Wetlands Act have been classified with type 1 and type 2 permits based on proposed activity type. Jurisdictional tidal wetlands are indicated on regulatory maps. Changes to Delaware's Wetlands Act are under consideration presently, to cover the loss of regulation at the federal level of isolated non-tidal wetlands. If a court rules that a tidal wetland permit denial is a taking without

compensation, DNREC is empowered to initiate condemnation proceedings in lieu of the court issuance of the permit.

- Subaqueous Lands Act:** Lands under tidal and non-tidal waterways (streams, rivers, lakes, bays) are regulated pursuant to the Subaqueous Lands Act. Submerged lands include lands lying below the line of the mean low tide in the beds of all tidal waters within the boundaries of the state, together with the beds of rivers, streams, lakes, bays, and inlets. Tidelands include lands lying between the line of mean high water and the line of mean low water.
<http://www.dnrec.state.de.us/water2000/Sections/Wetlands/regulations/SubaqueousRegs19921.pdf>. Application form for Wetlands and Subaqueous lands:
<http://www.dnrec.state.de.us/water2000/Sections/Wetlands/Originals/basic.htm>
- Coastal Zone Act.** The Coastal Zone Act prohibits new heavy industry uses anywhere in Delaware’s Coastal Zone, as well as offshore bulk product transfer facilities in the Zone outside the Port of Wilmington. For the purposes of the State Coastal Zone Act, the Coastal Zone is an approximately four-mile wide strip along Delaware’s coastline. The Act also establishes the Coastal Zone Act permit program for industrial development other than that of heavy industry in the coastal zone of Delaware.
- Beach Preservation Act** (Del. Code Ann., tit. 7 Chapter 68 sec. 6801-6812). Some wetland areas are mapped.

Wetland Delineation

Delineation Guidance	Yes	No	Detail
Use State’s Own Method <i>(Delaware bases wetland delineation on state maps)</i>	X		Delaware wetland delineations are based on a series of regulatory wetlands boundary maps that have been adopted by the state pursuant to the State Wetlands Act. The state is not allowed to delineate wetlands, but the state’s maps are used by the Corps in Delaware.
Use Corps’ 87 Manual and Regional Supplement	X		Used by the Corps in conjunction with state maps
Other (Please describe)		X	

Description: Delaware is one of three states that use wetland maps for delineation purposes (DE, NY and VT). Jurisdictional wetland delineation under the Wetlands Act is based on a series of regulatory wetlands boundary maps that have been adopted by the state pursuant to the statute. The maps, created from aerial photographs, depict the extent of wetlands that are regulated by the state. These maps have “regulatory status.” Wetland areas jurisdiction under the state water quality regulations (and CWA §401) are delineated according to state regulations and the U.S. Army Corps of Engineers’ 1987 *Wetlands Delineation Manual*.

Evaluation Methodology

The State of Delaware is locked into state regulatory maps. Boundaries on a map can be changed by the state to reflect field indicators. The state believes the maps to be quite accurate (at least “in the ballpark”). Updates are complicated by issues of “takings” and face both political obstacles and public opposition.

Exempted Activities

Because of the use of regulatory maps, the state looks at regulated/non-regulated instead of exemptions. The state’s exemptions are more than the federal exemptions, and quite different. Exemptions to the Tidal Lands Act include certain mosquito control, construction of navigational aids, duck blinds, foot bridges, wildlife nesting structures, grazing, haying, hunting, fish and trapping.

Special Provisions for Agriculture and Forestry

These provisions are a little narrower than federal provisions. Areas currently used for agriculture are excluded from regulation.

Penalties and Enforcement (Revisions from the state to this section are expected)

The Corps manages most enforcement actions for the state. All statutes contain civil and criminal penalty sections. The Superior Court and Justice of Peace Courts have jurisdiction of offenses. The majority of violations (approximately 85%) are resolved through voluntary compliance and very few penalties or prosecutions are necessary. The program is increasingly performing more inspections (including over flights) to detect violations. Delaware law outlines enforcement actions for violations to the state’s water quality standards. As a first step, the state may seek voluntary compliance by way of order, warning, notice or other educational means. If the complaint is not resolved through voluntary means, the state may impose a civil or administrative penalty; issue a temporary restraining order, injunction or other appropriate remedy; seek criminal penalties; issue a cease and desist order; or seal any source required to have a permit. Under the Wetlands Act, the state may issue a cease and desist order, impose civil penalties, and/or hold violators liable for the cost of restoration.

Permit Tracking

DNREC manages a searchable state tracking system, called the *Delaware Environmental Navigator*, which contains information collected on permits, §401 certifications, enforcement actions, and environmental monitoring. Data is available for viewing both as a map and as text. Routine aerial and ground surveillance is also conducted.

State General Permit (statewide vs. regional coverage)

Permit Coverage	Yes	No	Detail (Type of Permit)
Regional General Permit		X	
Statewide General Permit		X	

Description: Delaware has no SPGPs for activities regulated under §404. However, the state does have two state-level program general permits (SPGP) for subaqueous waters: 1) SPGP #18 permits a range of activities, including docks and shoreline stabilization, inside substantially developed artificial lagoons and 2) SPGP #20 regulates bulkheading, docks and piers.

Assumption of 404 Powers

Assumption Status	Yes	No	Detail
Assumed		X	
Working Toward Assumption	X		
Explored Assumption	X		.

Detail: The state is working towards assumption. Attempts to enact a freshwater wetlands bill were unsuccessful in the early 1990s and 2013. The state may only have jurisdiction over certain types of wetlands as “special resources.”

Joint permitting

There is no joint permitting between the state and the Corps. However, there is coordination. Monthly meetings are conducted with U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, and National Marine Fisheries Service. Also quarterly enforcement meetings.

Special Area Management Plans and Advanced Identification Plans

The state does not have any SAMPs or ADIDs. However, the state does have the Virginia Natural Area Preserves Program, which protects some of the most significant natural areas in the Commonwealth. A site becomes a component of the preserve system once it is dedicated as a natural area preserve by the Director of the Department of Conservation & Recreation. Natural area dedication works in much the same way as a conservation easement by placing legally binding restrictions on future activities on a property. If a permit application falls into an SNA, then special parameters may be added to the permit. For more information about SNAs, go to:

http://www.dcr.virginia.gov/natural_heritage/natural_area_preserves/

Buffer Protections

Buffers for wetlands and waters are imposed by three county planning and zoning offices. The focus of this work is pollution, not wetland protection.

Mitigation Policy

Delaware requires mitigation for wetlands and subaqueous lands permits and water quality certifications. While the corps permits disturbances of 1/10 acre, in Delaware the state only allows this disturbance if it is a necessary infrastructure project (e.g. pipelines, sewer/water line) and require compensation for such disturbances. Delaware’s Regulations Governing the Control of Water Pollution outline guidelines for compensatory mitigation under the water quality certification program. The regulations allow creation and restoration, as well as compensation through the purchase of mitigation bank credits. Preference is stated for advance compensation that is on-site and within the same watershed as the impacted water. Preferred compensation ratios are not to exceed 3:1. Conservation easements, monitoring, functional assessment, maintenance and reporting programs may be required on mitigated wetlands.

Mitigation Database

The state currently does not maintain a mitigation tracking database. Permits are in a tracking database, but mitigation permits are not separate.

Section C. Monitoring and Assessment

Agency Responsible for Wetland Monitoring and Assessment

The Delaware Department of Natural Resources and Environmental Control is the primary agency responsible for monitoring and assessment. DNREC-DWR's Watershed Assessment Section (WAS) manages the state's water quality monitoring program and is working to integrate wetlands and watershed management into program activities. WAS has developed a standardized protocol for nontidal wetlands and is developing a standardized protocol for tidal wetland monitoring that will be used to assess wetland conditions and prioritize restoration and protection on the watershed scale.

Mapping/Inventory

- Tidal wetlands maps have been prepared by the state. The National Wetlands Inventory is complete for Delaware.
- Most recent maps of Delaware are the *Statewide Wetlands Mapping Project* (SWMP) completed in 1992 for all of Delaware. There is now a GIS layer with the SWMP data available on Delaware's Environmental Navigator, go to: <http://www.nav.dnrec.delaware.gov/DEN3/>
- The most recent wetland maps for the State are based on 2007 aerial photography. These maps updated prior NWI and State maps from 1981/2 and 1992, respectfully using existing Soil Surveys, land use data, statewide natural heritage data, and color-infrared photointerpretation.
- The Cowardin classification system and the LLWW system that identifies landscape position, landform, and hydrology modifiers was used to label each wetland polygon in addition to special state modifiers including exceptional ecological community types.
- Delaware has an estimated 125,000 acres of tidal wetlands and 225,000 acres of freshwater non-tidal wetlands (new, more accurate mapping has increased former totals from NWI).
- Updated wetlands mapping is planned to take place at 10-year intervals.

State Wetland Mapping Public Portal

- The state has a Wetland Subaqueous Lands Department map overlay available at: <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Wetlands-Maps.aspx>
- Delaware also provides The Environmental Navigator at: Delaware's Environmental Navigator, go to: <http://www.nav.dnrec.delaware.gov/DEN3/>

Wetland Classification and Assessment

Wetland Classification: Delaware uses an HGM-based system for classifying wetlands in Delaware that was developed for the mid-Atlantic by Brooks et al. This method provides a description of the subclasses including example communities, hydrology, NWI classification, and major sources of variation. The

different wetland types can be differentiated using the wetland maps that have been improved with the HGM modifiers.

Wetland Assessment: Delaware employs three different assessment approaches for wetlands.

- 1) Delaware Rapid Assessment Procedure (DERAP) is a rapid assessment method for determining the condition of a wetland based on a short site visit (http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/DERAP_Field_Protocol_v6%20Aug2010.pdf). The DERAP was developed to meet the needs of users that require a rapid assessment of the general condition of a wetland that is based on current site conditions. The DERAP uses a 2-page checklist of stressors and other site features to produce an overall score of wetland condition.
- 2) The *Delaware Comprehensive Assessment Procedure* (DECAP) is a comprehensive assessment method for determining the condition of a wetland site relative to reference condition (<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/DECAP%20Protocol%20v5.2%20July%2009.pdf>). The DECAP and associated assessment models have been developed and refined by both regional and national wetland scientists following standard HGM development guidelines. Protocols for the DECAP can be obtained by contacting DNREC Watershed Assessment Section. DERAP is coordinated with DECAP.
- 3) The state also has a *Mid-Atlantic Tidal Wetland Rapid Assessment Method* (http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/Tidal%20Rapid_Protocol%203.0%20Jun10.pdf). The overall formatting follows that of CRAM to depict the major wetland attributes including Plant Community (biotic and physical structure), Hydrology, and Buffer.
- 4) Intensive assessment involves the direct measure of specific wetland functions, processes and ecosystem services. Intensive assessments are performed to validate landscape, rapid, and comprehensive assessments and to determine long term changes in wetlands. Currently, the WMAP is working to establish permanent monitoring stations in wetlands throughout the State to collect baseline data on healthy and impacted wetlands and to determine how they are responding to different stressors and changing overtime.

Statewide Wetland Monitoring Plan

The Department has a *Delaware Wetland Monitoring Strategy* which was developed in 2011. http://water.epa.gov/type/wetlands/upload/delaware_wpp.pdf

Overall Wetland Gain and Loss Tracking System

Delaware does not currently have an overall gains and loss tracking system.

Wetland Monitoring and Assessment Characteristics

Level	None	Level 1	Level 2	Level 3
<i>Delaware</i>		Information Needed	Information Needed	Information Needed

Type	None	IBI	Condition	Functional
<i>Delaware</i>		Information Needed	Information Needed	Information Needed

Frequency	None	Project Specific	Ongoing
Delaware		Information Needed	Information Needed

Description: The Watershed Assessment Section (WAS) maintains a Surface Water Quality Monitoring Program for all waters of the state. The program collects data on the chemical, physical, and biological characteristics of Delaware waters. This information is entered into a national database called STORET (storage and retrieval system) and is used in assessing the water quality of each basin for the state's Watershed Assessment Report (CWA §305(b) Report).

WAS's Wetland Monitoring and Assessment Program has developed standardized protocols for non-tidal wetlands and is developing standardized protocols for tidal wetlands and restoration sites. Protocols are based on assessing the condition of wetlands and determining the dominant stressors that are lowering wetland condition on the watershed level. Methodologies include the Delaware Comprehensive Assessment Protocol (DECAP) and the Delaware Rapid Assessment Protocol (DERAP). DECAP is an assessment of a wetland based on the vegetation, hydrology, soils, surrounding land use, and topography of the site. DERAP is a rapid assessment methodology based on identifying the presence or absence of stressors to wetland sites in three categories: hydrology; habitat and plant community; and surrounding buffers. The program is also prioritizing land for restoration and protection.

Participation in National Wetland Condition Assessment

NWCA Study Type	Yes	No
National Study	X	
State Intensification Study		X

Section D. Water Quality Standards

Wetland and Water Quality Standards

Type	None	Use Existing WQ Standards	In Process	Adopted	Future Direction
Wetland-specific Designated Uses		X			
Narrative criteria in the standards to protect designated wetland uses		X			
Numeric criteria in the standards based on wetland type and location to protect the designated uses		X			
Anti-degradation policy includes wetlands		X			

Description: Delaware has not adopted water quality standards or designated uses specific to wetlands. However, WQS and designated uses apply to all “waters of the state,” which include wetlands. Surface WQS are narrative and numeric in nature and include criteria related to temperature, dissolved oxygen, bacteria, nutrients and toxic substances. State WQS designate wetland-related uses, including fish, aquatic life and wildlife habitat and primary and secondary contact recreational activities. Anti-degradation standards are not specifically identified for wetlands, and so the provisions that apply to all “waters of the state” also apply to wetlands. Degradation of water quality in such a manner that results in reduced number, quality, or river or stream mileage of existing uses is prohibited.

Section E. Voluntary Wetland Restoration

Delaware does not have a formal, statewide voluntary wetland restoration program at this time.

- The state’s Ecological Restoration and Protection Team (ERPT) is a coalition of state and federal agencies and organizations that works to restore and protect streams, drainage ditches, wetlands, and riparian corridors 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. ERPT’s wetland restoration takes place in a variety of settings from marginal agricultural fields to school yards to create additional wildlife habitat, improve water quality and increase the efficiency of farming operations.
<http://www.dnrec.delaware.gov/swc/district/Pages/Restoration.aspx>
- Delaware’s Division of Fish and Wildlife (DNREC-DFW) partners with state and federal agencies, private landowners, and other organizations on voluntary wetland management and restoration programs. The Division promotes private conservation and restoration of wetland habitat by citizens on their own land as part of its private and public land wetland restoration program, *Phragmites* control cost-share program, and other invasive species control programs.
- The Division of Soil and Water Conservation’s Coastal Management Program (CMP) conducts coastal restoration and education programs and provides special area management planning and assistance to state and local governments for local land use planning. This effort has included lots of work on public beach areas.
- Delaware’s Division of Parks and Recreation has an Open-Space Program for purchasing environmentally sensitive areas adjacent to public lands and also has easements on property containing wetlands.
- The Department of Agriculture administers an agriculture preservation program.
- The state also coordinates with U.S. Fish and Wildlife Service under the Partners for Wildlife Program.

Types of Wetland Restoration Work Funded by the State:

Type of Work	YES	NO	Description
Fund Wetland Restoration (may include easement agreements)	X		Division of Fish and Wildlife Division of Soil and Water Conservation Division of Parks and Recreation Open Space Program
Private Land Restoration	X		If adjacent to public lands only – Division of Parks and Recreation
Public Land Restoration	X		DNREC – DFW, DSWG - CMP
Technical Assistance	X		All relevant agencies
Tax Incentives		X	
Other		X	

Voluntary Wetland Restoration Program Components

Wetland Restoration Efforts	Nothing in the Works	Planning	In Progress	Mature/Complete
Program has a set of restoration goals	N/A			
Coordinate with relevant agencies that outline restoration/protection goals and strategies and timeframes	N/A			
Developed multi-agency body to coordinate restoration/protection efforts	N/A			
Set restoration goals based on agency objectives and available information	N/A			

Goals for Restoration Projects*

Goal	Yes	No	Description
No Net Loss	X		
Reverse Loss/Net Gain		X	
Nonpoint Source Pollution (NPS)/WQ		X	
Total Maximum Daily Load (TMDLs)		X	
Habitat	X		
Coastal Protection	X		
Floodwater Protection		X	
Groundwater		X	
Other (please describe)		X	

Landowner Guides and Handbooks to Assist with Voluntary Wetland Restoration Efforts

- State website to support voluntary restoration efforts by citizens:
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/LandownerProtectionOptions.aspx>
- *Wetland Restoration in Delaware: A Landowner's Guide – Part 1: Restoration Stories*
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/restoration%20guidebook%20part%201%20all%2024%20pages.pdf>
- *Wetland Restoration in Delaware: A Landowner's Guide – Part 1: Resources for Restoration*
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/restoration%20guidebook%20part%201%20all%2024%20pages.pdf>
- *Land Use Decision Making and Wetland Protection: A Guide for Public Participation*
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/Delaware%20Wetlands%20Public%20Participation%20Guidebook%20Final.pdf>

Section F. Innovative and/or Highly Effective Education and Outreach

- DFW's *Aquatic Resources Education (ARE) Center*, funded with grants from FWS, hosts wetland-related teacher and youth group education trainings at the Center's overnight lodge. The Eco-Explorers Program, started with a grant from the Delaware Department of Education, is a hands-on education field-trip program that allows fifth grade students to learn about tidal salt marsh plants and animals. In addition, DFW has helped to integrate wetlands into the seventh grade watershed curriculum through a presentation on Delaware wetlands and other activities.
- Through its ARE Center, DFW has also developed, in collaboration with local high school students, *Wetland Activities for Delaware Educators (WADE) kits*. The kits, a series of eight interactive "curriculum-standard-correlated" learning stations, are loaned out to middle school teachers across the state. DFW runs WADE kit trainings to introduce teachers to the kit and show them how to use it. ARE has also assisted in adapting and producing copies of the WADE kits for use by educators in New Jersey.

Section G. Climate Change and Wetlands

The State of Delaware is engaged in a range of climate change-related activities. However, the state wetland program is not able to evaluate any permit decisions related to a changing climate. While they may be able to warn about changes, they cannot regulate unless change has been documented on a map. Examples of state-level work in Delaware on climate change that relate to wetlands include:

- The Delaware Department of Natural Resources and Environmental Control (DNREC) developed a statewide climate change vulnerability and risk assessment, which was published in March 2014. [The Delaware Climate Change Impact Assessment](#) summarizes past climate trends and future climate projections for Delaware and provides a summary of current and future impacts from changes in temperature, precipitation, and sea level on five key sectors: public health, water resources, agriculture, wildlife and ecosystems, and infrastructure.

- The Delaware Coastal Programs Section of DNREC is leading a multi-year [Sea Level Rise Initiative](#) to help assess and prepare for the potential impacts of sea-level rise in the state. Delaware’s Sea Level Rise Advisory Committee (SLRAC) was established by DNREC in 2010 and supports the Initiative, helping the state assess and plan for sea-level rise. They also used a simple model to develop maps to show the possible impacts of inundation based on various Sea Level Rise scenarios for Delaware’s waterways and the land that surrounds them (watersheds) including tidal wetlands:
<http://www.dnrec.delaware.gov/Pages/SLRMaps.aspx>

SLRAC released a report entitled, [“Preparing for Tomorrow’s High Tide: Sea Level Rise Vulnerability Assessment for the State of Delaware](#), in July 2012. This report represents the first phase of SLRAC’s work, intended to be used as a starting point for more detailed localized or resource-based assessments and as a basis for prioritizing state responses to sea-level rise. The report contains 55 recommendations for adapting to sea-level rise, targeting 16 vulnerable resources identified as of high or moderate concern in the state’s 2012 Sea Level Rise Vulnerability Assessment.

- In September 2013, Governor Jack Markell established the Governor’s Committee on Climate and Resiliency (Executive Order 41, [Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions](#)). The Committee oversees the development of an implementation plan to continue reducing emissions. It is also charged with developing agency-specific actionable recommendations for improving Delaware’s preparedness and resilience to climate impacts on public health and safety, public infrastructure and facilities, water resources, natural ecosystems, agriculture, tourism, and other industries.

Section H. Integration

Entity/Program Area	Yes/No	Description of the Connection
NPDES/Stormwater	YES	Very close relationship with Sediment and Stormwater Division staff; share quarterly meeting; jointly look at sites
303(d)	NO	
305(b) reporting on wetlands	NO	
Total Maximum Daily Load (TMDLs)	~	Informal coordination
Climate Change/ Resiliency	YES	SLRAC Efforts re Sea Level Rise
Land Use /Watershed planning	YES	Voluntary preliminary land use strategy meetings; division can comment on developer plans, with information about where there are relationships with wetlands
Flood/Hazard Mitigation	UNKNOWN	
Coastal Work	YES	A primary focus of wetlands work and regulation in the state
Wildlife Action Plan	UNKNOWN	
Statewide Comprehensive Outdoor Recreation Plan (SCORP)	UNKNOWN	
Other (Specify)	UNKNOWN	

Section J. State Wetland Program Continuum

Continuum Stage		Core Element 1: Regulation	Core Element 2: Monitoring & Assessment	Core Element 3: Wetland Water Quality Standards	Core Element 4: Voluntary Restoration
Mature Stage	High	X			X
Initial Implementation Stage	↑				
Development Stage			X		
Early Stage		Low			X* (but full coverage under subaqueous WQS)

*Important note: Delaware does not have wetland-specific water quality standards; however, the state provides all- encompassing coverage of wetlands under existing subaqueous water quality standards.

Section I. Contact Information

Scott Figurski

Delaware Department of Natural Resources and Environmental Control
 Wetlands and Subaqueous Section
 89 Kings Highway
 Dover, DE 19901
 (302) 739-9943
Scott.figurski@state.de.us

Mark Biddle

Delaware Department of Natural Resources and Environmental Control
 Watershed Assessment Section
 820 Silver Lake Boulevard, Suite 220
 Dover, DE 19904
 (302) 739-9939
Mark.biddle@state.de.us

Delaware Department of Natural Resources and Environmental Control

Division of Mosquito Control
 (302) 739-9917

Section J. Useful Websites

State Government Programs

1. Department of Natural Resources and Environmental Control
<http://www.dnrec.delaware.gov/Pages/Portal.aspx>
 The Department of Natural Resources and Environmental Control oversees several agencies that work together to restore, monitor and protect Delaware's wetlands, while educating the public about the importance of the state's wetlands. These agencies work with other state partners, federal programs and non-profit conservation organizations to synergize efforts that will benefit wetlands.
 - a) Delaware Wetlands
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/default.aspx>
 - b) Delaware Wetland Monitoring and Assessment Program
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Wetland-Monitoring-and-Assessment.aspx>
 - c) Adopt a Wetland Program
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/AdoptaWetland.aspx>
 - d) Northern Delaware Wetland Rehabilitation Program
<http://www.dnrec.state.de.us/fw/intmrmt.htm>
 - e) Delaware Open Space Program (Acquisition)
<http://www.dnrec.delaware.gov/OpenSpaces/Pages/OpenSpaceProgram.aspx>
 - f) Whole Basin Management Approach
<http://www.dnrec.delaware.gov/WholeBasin/Pages/index.aspx>
2. Delaware Division of Fish & Wildlife
 - a) Northern Delaware Wetland Rehabilitation Program
<http://www.dnrec.state.de.us/fw/intmrmt.htm>
1. Division of Water
 - a) Wetlands and Subaqueous Lands Section
 The Wetlands and Subaqueous Lands Section provides permitting services for activities in Delaware's wetlands, bays, rivers, streams, lakes, ponds and other waterways that might require a permit pursuant to Delaware law. These activities include marina construction and operation, as well as the construction of docks and piers, shoreline stabilization projects, dredging, filling, bridge or culvert construction, utility crossings of streams, and a myriad of other projects that could affect Delaware's waters and wetlands.
<http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx>
 - b) Surface Water Discharges Section
<http://www.dnrec.delaware.gov/wr/Services/Pages/SurfaceWaterDischarges.aspx>
2. Division of Watershed Stewardship
<http://www.dnrec.delaware.gov/swc/Pages/default.aspx>
 - a) Conservation Districts
<http://www.dnrec.delaware.gov/swc/district/Pages/ConservationDistricts.aspx>
 - b) Nonpoint Source (NPS) pollution Program

<http://www.dnrec.delaware.gov/swc/district/Pages/NPS.aspx>

- c) Ecological Restoration

<http://www.dnrec.delaware.gov/swc/district/Pages/Restoration.aspx>

- d) Drainage Program

<http://www.dnrec.delaware.gov/swc/Drainage/Pages/TaxDitchRestoration.aspx>

- e) Sediment & Stormwater Program

<http://www.dnrec.delaware.gov/swc/Pages/SedimentStormwater.aspx>

Federal Government Programs

1. USDA Natural Resource Conservation Service

Wetlands Reserve Program

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/de/programs/easements/wetlands/>

Other Organization Wetland Links

1. Partnership for the Delaware Estuary

<http://www.delawareestuary.org/>

2. Delaware Wild Lands

<http://www.dewildlands.org/>