



*Who We Are, What We Do*

# DNREC Division of Watershed Stewardship



## DIVISION MANAGEMENT & SUPPORT – Frank Piorko, Director

Manages and protects the state's soil, water and coastlines with a comprehensive array of watershed programs to ensure proper stewardship of Delaware's natural resources.

These programs protect and maintain the state's shoreline and navigable waterways; regulate changes to coastal and urban lands; develop and implement innovative watershed assessment, monitoring and implementation activities; promote wise land use, water quality and water management practices, while maintaining a strong local agricultural interest, protecting urban communities and providing for public safety.

## CONSERVATION SECTION –Robert Baldwin, Administrator

### Conservation District Administration

Delaware's three Conservation Districts (New Castle, Kent and Sussex Conservation Districts) are authorized by Delaware Code, Title 7, Chapter 39 to further conservation, protection, development and utilization of land and water resources in the state. They are involved in numerous programs and activities that help landowners become better stewards of their land, most notably the State Cost-Share Program. The Division's Conservation District Operations Program is responsible for the administration and direction of the Conservation District programs as well as providing technical assistance for survey.



## Restoration and Conservation Program

The goal of the Restoration and Conservation Program is to work together to ensure that the maximum level of environmental results are being derived to establish and improve wildlife habitat, enhance water quality, provide stream-bank protection and reduce erosion. Restoration efforts involve a variety of initiatives including stream restoration, invasive species control, establishment or reestablishment of early successional (native warm season grasses) and secondary successional (trees/shrubs) habitats, wetland restoration, Phragmites control, shoreline stabilization and riparian corridor planting. The Program is also involved with monitoring and assessing the effectiveness of these restoration efforts and devising better ways to implement various restoration techniques.



### Ag Liaison

Provide overall coordination of Agriculture Policy and Agricultural Issues as related to DNREC with other local, state and federal agencies, including representation on the Delaware Nutrient Management Commission and related Chesapeake Bay Program groups.



### Drainage Program

The Drainage Program works with private and public landowners throughout the State to assist with water management problems. This goal is accomplished by providing private Technical Assistance, Tax Ditch Assistance, and Publicly Funded Drainage Projects. We work closely with the Conservation Districts, DeIDOT and other partners to accomplish our goals.

The Drainage Program manages the State's Drainage and Stormwater Assistance Line which receives hundreds of calls annually. The Drainage Program and Conservation Districts track these concerns in the Drainage Concern Database. Once assigned to a staff member, concerns are reviewed on site and a path forward is identified.



### Debris Pit Remediation

Sinkholes created as a result of burying trees and stumps when land was being developed in the late 1970s and 80s pose threats to human health and property. These sinkholes, commonly referred to as debris pits, can be many feet deep and devoid of oxygen making them difficult to escape and potentially lethal. The debris pits often host concentrated pockets of methane produced by the decaying wood posing health hazards. Additionally, settling of the buried debris under a structure may lead to significant and sometimes severe structural damage. The Debris Pit Program provides technical assistance and cost-share funding to landowners for the remediation of the debris pits.



### **Tax Ditch Program**

In 1956, the General Assembly passed the Tax Ditch Law, which authorized the creation of tax ditch organizations by Superior Court Order.

Currently, there are 240 organizations statewide that maintain more than 2,000 miles of tax ditches. These ditches are the backbone of drainage infrastructure and provide drainage to more than 50 percent of state roads, 23 municipalities, three counties, 38,000 properties and 829 square miles, or about 1/3 of the state. The tax ditch watersheds range in size from a two acre watershed to a 56,000 acre watershed.

The Tax Ditch Law requires DNREC to provide technical and administrative assistance to the tax ditch organizations. Additional services to tax ditch organizations include: right of way research, construction inspections, financial audits, environmental permitting, and jump start meetings for inactive tax ditch organizations. Since severe flooding in 2010, four new tax ditch petitions have been received, three of which have received planning orders from Superior Court.



### **Private Landowner Technical Assistance**

Private Technical Assistance is provided directly to private landowners. This assistance can be as simple as making easily implemented recommendations like lot grading and gutter repairs. They can also be complex engineered solutions that may or may not require environmental permitting but will be constructed by the landowner or their contractor.

The other primary method for providing private technical assistance is through our “Violators of Parole (VOP) Program” or “Prisoner” projects. This program which is primarily utilized in Sussex County uses 13 person crews to manually remove debris from drainage channels. These projects provide a low impact, low cost way to alleviate some types of drainage problems. Through these projects the Drainage Program provides maintenance to approximately 10 miles of drainage ditches each year.



## Publicly Funded Water Management Projects

The Drainage Program is also responsible, with assistance from the Conservation Districts, for the planning, engineering, permitting and construction oversight of publicly funded water management projects throughout the State. Most of these projects are approved as Resource, Conservation, and Development projects by the Joint Committee on Capital Improvement (Bond Bill).

These projects are initiated by a drainage concern and include scoping of potential solutions, surveying of existing conditions, engineering of project designs, environmental permitting, temporary right of way acquisition, production of construction documents, and coordination and inspection of project construction. These projects are funded by a combination of 21st Century Funds, Grants, Community Transportation Funds and private investments.



## Sediment and Stormwater Program

The Sediment and Stormwater (S&S) Program is charged with implementation of Delaware's Sediment and Stormwater Law. (7. Del. C. Ch. 40), and the Delaware Sediment and Stormwater Regulations. The purpose of the law is to reduce erosion and sedimentation. Every land disturbing activity in the State of Delaware is regulated by the Sediment and Stormwater Law. The S&S Program, through a series of delegated agencies throughout the state, ensures that these land disturbances are in compliance with the Sediment and Stormwater Regulations. DNREC's S&S Program provides oversight and technical guidance to delegated agencies in carrying out the responsibilities of the program. Staff members are responsible for plan review, construction site review, and post-construction maintenance reviews of stormwater management BMPs.

Additionally, staff members conduct training sessions for "responsible personnel" to assist with compliance efforts on active sites and provide technical assistance to owners for maintenance to ensure practices continue to function as designed. The S&S Program also has been delegated by EPA the implementation authority over Delaware's NPDES Stormwater Construction General Permit program (7. Del. C. Ch. 60). Program staff is currently going through the lengthy process of completely rewriting the Delaware Sediment and Stormwater Regulations.



## SHORELINE & WATERWAY MANAGEMENT SECTION – Tony Pratt, Administrator

### Beach/Shoreline Nourishment and Protection Program

Protects and enhances Delaware's beaches using science-based dune and beach management practices that include: nourishing eroding beaches using sand from offshore borrow sites and material from inland borrow areas, rebuilding dunes following coastal storm events, planting beach grass to promote dune growth and fencing dunes to protect them from pedestrian traffic. The Shoreline and Waterway Management...



...Section works closely with the US Army Corps of Engineers to carry out their Storm Damage Reduction program which involves replenishing Delaware's Ocean coast and Lewes Beach with dredged material from offshore borrow sites.

The section is also responsible for the operation of the Indian River Sand Bypass System, which is designed to provide an ongoing source of sand nourishment to the north side of Indian River Inlet by bypassing sand dredged from the south side of the inlet to the north side.



### Waterway Management Program

The Waterway Management Program is responsible for improving and maintaining Delaware's navigable waterways. This includes: implementing dredging projects to remove accumulated sediment from channels to improve navigation; establishing and maintaining aids to navigation to ensure channels are properly marked for safe navigation; and removing trees, debris, abandoned vessels and derelict structures from waterways that are hindering safe navigation. A key component of dredging operations is sediment management. As projects evolve in the future, every effort will be made to re-use dredged material for beneficial purposes (e.g. wetland restoration, island habitat creation/restoration).

In addition, the program works with the Department's Division of Fish and Wildlife to initiate dredging projects in State owned lakes and ponds to remove sediment and unwanted aquatic vegetation to improve fisheries habitat and recreational access to these bodies of water.

The program is also responsible for mechanically harvesting nuisance build-ups of macro-algae along shorelines and in near-shore areas in the Inland Bays to maintain water quality, aesthetics and boating access.



### Dam Safety Program

The Dam Safety Program provides for the preservation and enhancement of Delaware's public dams. The program provides regulatory oversight of 48 dams throughout the state and monitors and inspects 42 state-owned dams in a partnership with the Division Fish & Wildlife and DelDOT's Bridge Management Section. The DSP is also responsible for preparing dam-break inundation maps and emergency action plans for the state-owned dams, as well as identifying needs, coordinating engineering studies and implementing repairs and improvements to these dams.



### **Beach Regulatory Program**

The Delaware Legislature passed the Beach Preservation Act in 1972. The act defines the beach as the area extending from the Mean High Water line of the Atlantic Ocean and Delaware Bay seaward 2,500 feet, and landward 1,000 feet and from the Delaware/Maryland line at Fenwick Island to the Old Marina Canal north of Pickering Beach.

The Building Line, which parallels the coastline, is designated on DNREC maps. No construction may take place in the beach area without a Coastal Construction Permit or Coastal Construction Letter of Approval from the Department. Construction activities seaward of the DNREC Building Line are extremely limited.



### **Floodplain Management Program**

The Floodplain Management Program acts as a liaison between the Federal Flood Insurance Program (FEMA) and local municipalities that are in the National Flood Insurance Program. In doing so, they make sure the local municipalities are adhering to the requirements set by the program through their building codes and are involved when repetitive loss properties are going through a buyout process or receiving financial assistance to retrofit.



### **Engineering Technical Program**

The Engineering Technical Section conducts biannual surveys of the Atlantic Ocean coast and Delaware Bay beach profiles accounting for what is on land and in the water. They produce templates for State beach nourishment projects in the planning and permitting phases and conduct pre- and post- surveys of those project areas. They also conduct pre- and post- surveys for State dredging projects.



### **WATERSHED ASSESSMENT & MANAGEMENT SECTION – John Schneider, Administrator**

The Watershed Assessment and Management Section is made up of two program areas.

The Watershed Assessment Program focuses on water quality standards, assessments, Total Maximum Daily Loads, shellfish harvesting area monitoring and assessment, shellfish processing and handling facility inspection, and recreational waters monitoring and assessment.

The Watershed Management Program develops watershed plans, assesses the condition of stream and wetlands resources, educates the public about impacts and strategies to restore these resources, and conducts stream and wetland restoration projects.



### **Watershed Assessment Group**

Watershed Assessment works to protect, conserve, and restore Delaware's impaired waters for aquatic life and human use. This involves assessment, analysis and management of the many factors that affect these aquatic resources.



### **Surface Water Quality Standards Program**

In order to protect Delaware's surface waters for plants, animals, and people, Water Quality Standards are set to establish harmful levels of pollutants. Water quality standards are the regulations that list designated uses of waters, water quality criteria, and an antidegradation policy. The criteria are expressed as concentrations, parameter levels or as narrative statements. It is assumed that if criteria are met, designated uses will be protected.



### **Surface Water Quality Monitoring Program**

Each year, a water quality monitoring plan is developed, which lays out the locations and frequency of sampling and determines the parameters that will be measured in each sample. This data is compared to standards to assess if water quality is acceptable or needs improvement. Plans also include the monitoring of habitat and biological quality.

Volunteers from the Delaware Nature Society, the Nanticoke Watershed Alliance, and the Delaware Sea Grant Program assist with surface water quality monitoring efforts. These water quality evaluations are presented to the EPA every other year.



### **Water Quality Monitoring, Special Toxics Studies Program**

This program studies the effects of toxic chemicals in surface water, sediment and organisms. Data generated by this program have been used to reduce the release of toxic contamination to the environment, thereby reducing human health risks and risks to the ecosystem.

The work of this program helps support diverse programs within and beyond the State, including toxics Total Maximum Daily Loads, National Pollutant Discharge Elimination System discharges, dredging, fish consumption advisories, major chemical releases and natural resource damage assessment.



### **Total Maximum Daily Loads (TMDLs)**

When waters are classified as impaired, a Total Maximum Daily Load (TMDL) must be established. TMDLs are regulations that place limits on the amount of a pollutant that can enter a water body from point and nonpoint sources. Since 1998, our watersheds have been modeled to establish TMDLs for nitrogen, phosphorus, bacteria and toxics for all of the waters in Delaware impaired by these parameters. These sophisticated watershed, hydrodynamic and water quality models are used to determine what pollutant load reductions are necessary in order to meet water quality standards and to develop TMDL regulations.



### **Delaware's Shellfish Program**

Because shellfish can become unsafe for human consumption due to high levels of bacteria and viruses, we routinely survey pollution sources for indicator bacteria levels. Data from sampling stations are analyzed and the information facilitates program operating procedures and health standards that protect shellfish consumers. Delaware is a member of the National Shellfish Sanitation Program (NSSP), a cooperative of state, federal, and industry representatives responsible for establishing the national guidelines that protect consumer health in all certified state programs.

The program is responsible for monitoring and classifying shellfish growing areas to determine if recreational and commercial shellfish harvesting is safe. The program also inspects and ensures certification of all commercial shellfish shippers and processors within the state.



### **Recreational Water Program**

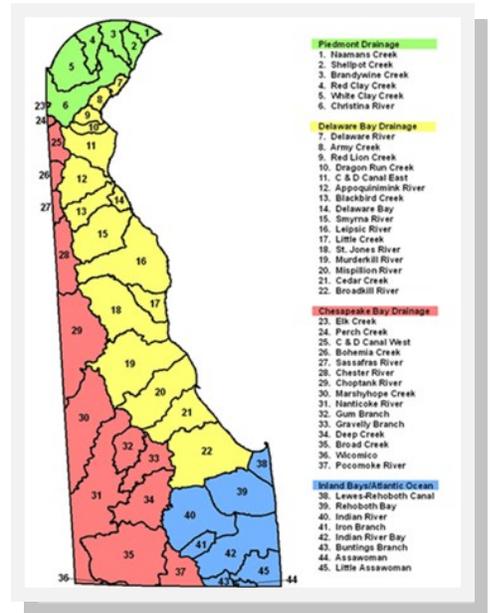
At all beach areas guarded by State or local governments, the water quality is monitored weekly during the swimming season to protect human health. If it is determined that an area is unsafe for water contact activities we advise the beach owner to not allow swimming. The state, in conjunction with the University of Delaware's Citizen Monitoring Program, monitors for the presence of potentially Harmful Algal Blooms (HABS) which could impact our inland and coastal beaches. The Recreational Water Program also monitors for other coastal hazards, such as floatable debris and oil slicks, to further our surveillance and protection of all of the State's recreational waters.



## Watershed Management Group

The goal of the Watershed Management Group is to work with stakeholders to develop action plans (Pollution Control Strategies and Watershed Implementation Plans) to meet water quality standards and the pollutant load reductions called for by Total Maximum Daily Loads (TMDL's). This Group also helps implement these plans by installing on the ground practices to restore waterways and improve water quality as well as educating stakeholders on what they can do to help reduce their impact on the environment.

The goal of this Group's stream restoration efforts is to return a stream to equilibrium by reestablishing structure and functionality of a system that existed before the impacts of urbanization. Stream restoration stabilizes degraded channels, significantly reduces sediment loading and improves water and habitat quality. Reducing sediment inputs to the stream results in decreased suspended solids and helps the State meet TMDL's.



## Wetlands Assessment, Monitoring, & Protection Group

The goal of DNREC's Wetland Monitoring and Assessment Program (WMAP) is to assess the condition, or health, of wetlands and the functions and ecosystem services that wetlands provide. This information is then used to inform the citizens of Delaware and to improve existing education, restoration, protection, and land use planning efforts. The Delaware Wetland Monitoring Strategy will guide future efforts of the WMAP in the areas of protocol development, wetland monitoring and assessment activities, research, and application of information. We work closely with other states through the Environmental Protection Agency's Mid-Atlantic Wetlands Program to establish and conduct research methods and share information.



## Non-Point Source Program

The Delaware Nonpoint Source Program (NPS) addresses nonpoint source pollution through educational programs, publications, and partnerships with other Delaware organizations.

- Administers a competitive grant made possible through Section 319 of the Clean Water Act, providing funding for projects designed to reduce NPS pollution.
- Administers the Agricultural Nonpoint Source Loan Program (NPSLP)
- Administers the Conservation Reserve Enhancement Program (CREP)

