

## FRONTLINES

## Flooding and Wetlands in Delaware

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"FLOODING IS NATURAL. Disasters are manmade," said a FEMA official at DNREC's annual wetlands conference. Over the past few years, flooding has caused Delaware residents to suffer tens of millions of dollars worth of property damage both along the coast and within inland communities. From farms, to manufactured home parks, to rural neighborhoods and small businesses, flooding and drainage issues affect most Delawareans at one time or another.

So what can we do about it? We have a nationally recognized drainage program, strong partnerships with the Conservation Districts, an innovative outcome-based approach to stormwater management under development, a leading shoreline management and restoration program, and a system of tax ditches all coordinated to reduce flood impacts. Yet, despite these successful programs, there's much more work to be done.

We need to adopt more of a watershed-wide approach to flood mitigation. Waterways that could move water efficiently have been channelized or blocked. Much of the land that could best protect us all from flooding has unfortunately been altered or developed in ways that exacerbated the problem. Wetlands, which are exceptionally effective at absorbing stormwater with an average acre able to hold between 300,000 and a million gallons of water, have been filled in, forcing millions of gallons of water to move somewhere else and often into adjacent properties.

The increasing intensity of extreme weather events, combined with the challenges of rising sea level, demand that we think more holistically about solutions and move proactively toward long-term sustainability. This is one of the fundamental reasons we've begun a reorganization of the department and a key focus under the new structure will be watershed stewardship. From addressing the flooding of today and preparing to adapt to intensifying climate impacts in the coming years, we need to bring together the best scientists and engineers from across the department and throughout the state to develop innovative solutions to these pressing challenges.

One key opportunity area is the conservation, restoration, and creation of wetlands. For too long, wetlands have been undervalued and underrated in decision-making statewide. We know that they offer unrivaled and natural solutions for water storage, flood mitigation, erosion protection, water purification, aquifer recharge, and fishery and wildlife habitat. We must do more to ensure that wetlands are seen as part of the solution to these important and diverse challenges.



Over the centuries, Delaware's wetlands have suffered tremendously. Since Delaware was first settled by Europeans in the 1600s, more than half of our original wetlands have been lost and while much of our wetland loss has occurred in years past, it is still happening today – and at an accelerated rate. DNREC studies indicate that over the past 15 years, more than 2,500 acres of wetlands were lost due to conversion to other land uses in Sussex County alone.

This is significant because in the previous 10-year period, the total statewide wetland loss was 1,900 acres. Of the wetlands that remain, about a third are highly fragmented, or moderately or severely stressed.

Fortunately, there is a growing awareness of the cost of wetlands loss, both geophysically and economically, among citizens across the state and over the past several years, thousands of acres of wetlands have been restored and created in Delaware – on large tidal marshes, local school grounds, backyards of private landowners, marginal agricultural fields and along tax ditches.

A dedicated team at DNREC has assisted individuals, groups and businesses to preserve and restore our wetlands (an article in this issue illustrates some of the many efforts to restore Delaware's precious wetlands). For example, in the past year, we celebrated the completion of the newly enhanced Slough's Gut Marsh near Bethany Beach – a project that transformed 24 acres of eroded and degraded marsh into a productive, healthy ecosystem by removing old mosquito control ditches and creating mudflats, ponds and tidal channels that provide feeding areas for wading birds and habitat for fish, crabs and other invertebrates. Recently, we also celebrated the 100th wetland to be adopted through our innovative Adopt a Wetland Program and our team stands ready to assist parties interested in this program.

Despite this increased attention, wetlands remain vulnerable and their loss and degradation continue to threaten private property by exacerbating flood damage and further impairing our water quality. While there have been numerous studies and reports produced on the challenges, the time has come for us to implement more innovative solutions to preserving, restoring and protecting our wetlands. In the coming year, we will advance a series of recommendations for a comprehensive approach to flood mitigation and watershed restoration and we hope that you will help us make these recommendations a reality.

By working together, we can address the flooding and sea-level rise challenges of this century, protect our precious wetlands, and leave a more sustainable state for future generations. **OD**