



*A candle is a small thing. But one candle can light another.
And see how its own light increases, ...*

COASTAL RESILIENCY

and the Natural Capital of our Marshes



Vast wetland complex provides coastal resilience.

By Dr. Lenore Tedesco, Executive Director of The Wetlands Institute

Coastal New Jersey is a remarkable place. Spectacular beaches, vast expansive tidal marshes, and the wonderful communities that have been nurtured here. For many, it is the wealth of natural capital that separates our community from so many others. It's the reason generations of families make this their home, or their special place at the shore, where their ties to this place grow stronger each year as does their renewal of family traditions.

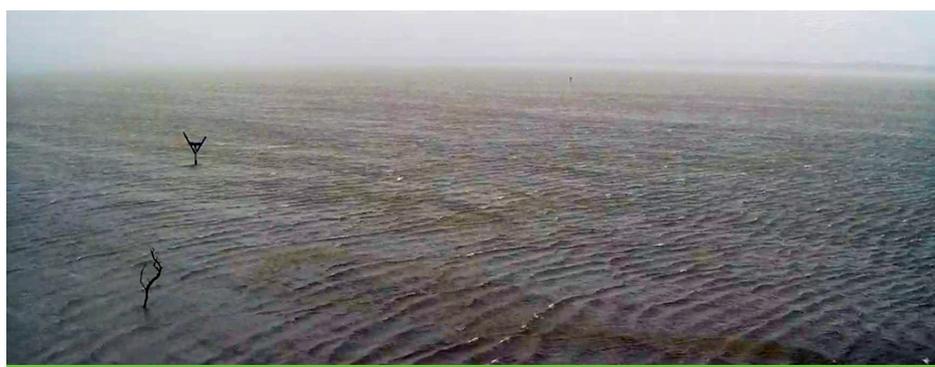
Coastal New Jersey is special for so many reasons, but now is the time to consider the future of our community and how it will be shaped, both by nature and by the plans that are put in place to protect and nurture it. The effect of climate change on the New Jersey coast is the single largest environmental challenge we face. Climate change, and the associated increase in severity and frequency of extreme weather events and sea-level rise, are making our communities vulnerable. Lessons from Sandy, Winter Storm Jonas, Florence, and Michael all point to the need to move beyond a debate about climate change and on to adaptation and building resilience of coastal communities.

Resilience means the ability to recover quickly, or to spring back into shape. Resilience has taken on new meaning in a post-Sandy New Jersey as coastal communities struggle with storm preparedness:

How well is Seven Mile able to withstand the onslaught of storm winds, waves and rising water? How well is critical infrastructure protected? How good are the building codes to protect the built



Tidal floodwaters overtopping marsh grasses.



October 2015 storm flooded marshes.

community? How smart has the planning and growth been? How much has been spent locally on preparedness? How are we utilizing our natural resources to be the front line to provide protection to the island? Post-Sandy assessments show that for every one dollar spent on preparedness, six dollars are saved in disaster-response costs. Becoming a resilient community is smart.

I have written periodically about sea-level rise and the wide-ranging effects that rising seas have on low-lying coastal communities. I have also spoken widely

about the need to plan and implement a host of changes that lead to more resilient communities. I am pleased to say that there have been significant conversations happening at the regional, state and local levels on both the planning and adaptation side of the equation. Coastal communities up and down the Atlantic and Gulf are taking notice that this is no longer a business-as-usual time. New Jersey has undertaken a significant effort to craft the New Jersey Coastal Resilience Plan – a plan that looks at natural resources, economic and social infra-

structure, and identifies gaps in knowledge and weaknesses that need to be addressed. The plan aims to establish a consistent vision for the coastal zone and identify resilience strategies and projects that can be implemented in the near term, along with decision support tools to enhance local adaptation. I am working to help with plan development around natural resources and hope to bring new ideas to the planning process and also back to the island.

The Wetlands Institute continues to focus our efforts on the protection, preservation, restoration, and stewardship of our tidal marshes. And with good reason – a series of recently released studies have been evaluating the benefit of coastal wetlands for flood risk reduction. One such study used Lloyd's of London property-loss data to show that wetlands play a critical role in reducing risks from storms. These industry models showed that during Superstorm Sandy, marshes prevented \$625 million in direct flood damages across the 12 states impacted by Sandy. In New Jersey, coastal wetlands reduced property damages by more than 20 percent, and communities backed by healthy marshes were the beneficiaries.

The Seven Mile area is fortunate to have a wealth of wetlands – due in no small part to The Wetlands Institute when, in 1969, the institute was founded with the purchase of more than 6,000 acres of wetlands that extended from Sea Isle City to Wildwood and the mainland to the barrier island. That purchase dramatically slowed planned development and marsh loss. For the past 50 years, our coastal community has benefited from the natural protections these wetlands



We don't accomplish anything in this world alone... and whatever happens is the result of the whole tapestry of one's life ...

continued from page 40

provide. Yet, while that wetland set-aside was crucial to the protection of our communities, there is more to do.

Measured sea-level rise rates are now approaching the point where marshes might no longer be able to keep up with increasing water levels. The local result is readily visible if you know what to look for. If you have been here for more than a decade, you probably remember when it was a fairly rare event when the marshes were flooded over by the tides. Now, the tides flood the marsh frequently – 10 to 12 times each month – on sunny days. That is direct visual evidence of rising sea level. Scientists at The Wetlands Institute are working to understand the local response to this rise through a series of monitoring programs that are assessing the marsh itself and the response of the plants and animals that rely on these marshes. We are also working on several federal and state teams to test novel approaches to building marsh resilience.

While the value of natural systems for coastal protection are well known (e.g., coastal dunes and beach renourishment), the concept of leveraging these services through engineering is less well-known but gaining as a tool to help build resilience. Natural and nature-based fea-



Elevated house on Stone Harbor Boulevard.

tures are those that mimic characteristics of natural features but are engineered to provide specific services including coastal risk reduction. They are projects that seek to intentionally align natural and engineering processes. The area around our barrier island is rapidly becoming a test bed for these nature-based solutions in the state of New Jersey, with two projects already on the ground and others in the planning stages. These projects are working to beneficially use clean dredged material to enhance marshes or to create



Elevating low bulkheads is an important resiliency step.

habitat that is being lost. A large area behind Avalon is a test site for restoring a drowning marsh, while an area on Ring Island, behind Stone Harbor, is a test site for the creation of high marsh and dune habitat for nesting shorebirds. We will continue to work on evaluating the effectiveness of these projects to help preserve coastal marshes with an eye toward increasing resilience of our coastal community and coastal ecosystems.

It's time that our communities move actively into planning and implementing

measures for coastal resilience. Continued beach- and dune-nourishment projects and new bulkhead height ordinances in Stone Harbor are good preventive steps. Pump stations in both Avalon and Stone Harbor will help mitigate floodwaters, but there is a lot more to be done. A key question now becomes, how well will we plan and implement policies that make our communities resilient and when will we work as a unified island? The communities that enhance preparedness and resilience in every policy decision and construction

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... and all the weavings of individual threads form one to another that creates something. ~Sandra Day O'Connor



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43



Flooding tides cover the marsh at The Wetlands Institute in December 2017.

project will be the ones that retain and enhance their economic vitality well into the future. It's time to act. Learn more about the issues and support communi-

ty-resilience decisions of the local municipalities. The Wetlands Institute is committed to helping our communities be leaders in the quest for resiliency.

Winter at Wetlands INSTITUTE

All winter long, there are activities on the marsh every Saturday and Sunday from 9:30am to 4:30pm. Visit wetlandsinstitute.org/events to see what's happening at The Wetlands Institute.

WINTER LECTURE SERIES

The winter lecture series consists of weekly daytime (Lunch and Learn) or monthly evening (Covered Dish Dinner) presentations at The Wetlands Institute. Throughout the series, guest presenters from around the state share presentations and/or programs on a variety of scientific and cultural topics. Visit wetlandsinstitute.org/winter-lecture-series for schedule and details.

HOLIDAY GIFT IDEAS

Looking for a meaningful gift that also supports wetland and coastal ecosystem conservation? Here are some great ideas:

- The Tidepool Shop is stocked with unique gifts and nature books for all ages.
- Give the gift of flexibility with a Gift Card that can be redeemed for Institute merchandise, event tickets, and more!
- When you give the gift of Membership to The Wetlands Institute, you not only support our mission but you also allow us to advance our impactful research, conservation and education work.
- Adoptions make great gifts! Our symbolic terrapin, horseshoe crab and American oystercatcher adoptions are a great way to directly impact conservation of their favorite wetlands species!



Adopt a Terrapin



Adopt a Horseshoe Crab



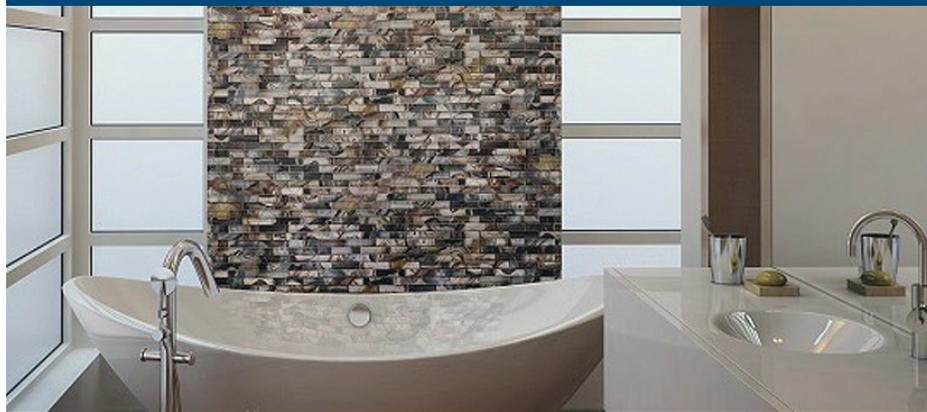
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