



## Our Eyes Are on the Marshes by Dr. Lenore Tedesco



LeeAnn Haaf with Partnership for the Delaware Estuary, using RTK to map marsh elevation

If you have lived near the coast or have visited for many years, you have probably noticed the changes in water levels in our marshes. Lots of people have told me that it used to be a really big deal when the meadows were flooded because it didn't happen very often. Times have changed. Now, the meadows flood several times every month – even on sunny calm days. What causes this and what does it mean for our marshes and the wildlife that depend on them?

Regardless of the cause, sea level in our area is rising. For the past 100 years or so, this is something that scientists directly measure through local tide gauges. We are fortunate to have several gauges in the area that have relatively long records so that we can see how sea level has changed. Sea level measurements taken in both Atlantic City and Cape

May show that sea level is rising at a rate of about 4 mm/year (0.16"/year). This doesn't seem like much perhaps, but between 1911 and 2016 that is a change of more than 1.3' with more than 6" of that rise occurring after 1980. Simply put, the water is rising higher each year and we see it now more dramatically because it's flooding the marshes more frequently to deeper depths. It's also bringing high tide lines higher up on our beaches and now even causing flooding on some of the area streets.

Understanding how local area marshes are adjusting to rising sea levels has been the focus of a new research program at The Wetlands Institute. Thanks to funding from *The Davenport Family Foundation* and the *Leff Family Foundation*, The Wetlands Institute has launched a new Coastal Sustainability and Wetland Health Research Program. The research program is focused on studying how rising sea level is affecting our local marshes and the wildlife that depend on them.

Over the past year, we have established several marsh monitoring stations that allow for precision measurement of the marsh surface elevation. Wetland plants are very sensitive to water depth and maintain maximum growth potential over a very narrow range of water depths. Thus, these stations enable researchers to understand how the marsh is responding to increased flooding. Coupled with monitoring marsh elevation, scientists are also documenting water chemistry and how well the marsh grasses are growing.

Detailed surveys of salt-marsh dependent animals are also adding to our understanding about the impacts

to local populations and builds upon decades of Institute work. The health of coastal bird and diamondback terrapin populations are tightly linked to the condition of coastal marsh systems. Changes in population size, marsh use, and breeding success can indicate changes within the salt marsh. Several species of birds nest just above the marsh surface and nest loss due to flooding has become a new reality for them. Birds of special interest include American oystercatchers, clapper rail, willet, and laughing gulls.

There is a lot to learn so as stewards of the wetlands, so our staff is working to learn as much as we can and provide guidance to decision-makers about the condition of our marshes and how they can continue to play an important role in coastal sustainability and storm protections for our community.



Brian Williamson, The Wetlands Institute Research Scientist collecting water chemistry data

A non-profit organization studying, preserving and protecting wetlands and coastal ecosystems. Founded in 1969 by Herbert Mills, Executive Director of the World Wildlife Fund.

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## Visit Us

**Hours:** September 25 - May 20, open Saturday and Sunday 9:30 to 4:30. Closed December 23 - January 5.

**General Admission:** Members: Free.  
Non-members: \$8 Adults, \$6 Children 3-12.

*Views From the Tower* is the quarterly newsletter of The Wetlands Institute and can also be found on our website.

wetlandsinstitute.org

# Marsh Musings

by Dr. Lenore Tedesco, Executive Director

It's fall and I am perplexed at how fast the year is flying by. I guess it happens every year but it's no less surprising. It remains a very busy time of year but our tasks have shifted from serving our families and friends in summer programs, to sharing discoveries with school groups, to data analysis, reporting, grant writing, and - yes - strategic planning. As we look ahead to the close of 2017, and the dawning of 2018, it is a very special time at the Institute. In 2019, The Wetlands Institute will celebrate 50 years of wetland protection and stewardship. It is a remarkable milestone and in preparation for the upcoming celebrations, we are working to rediscover our history and embrace The Wetland Institute's place in helping to define our community.

By now, we are all familiar with the vision of Herbert Mills and his seminal act of purchasing 6000 acres of tidal marsh. I reflect often on that event, and his effort to build this building. Herbert, and his fairly small team of partners, established a conservation foothold in South Jersey. They gathered some of the greatest minds in conservation and wildlife biology and they set upon a course to bring research, conservation and education under one roof. They succeeded. This building and its lofty goals set a high standard. He chose this place because it is a special place. This place matters and their actions nearly 50 years ago changed this community forever.

Last week marked the 6th anniversary of my leadership. It's no secret that I came aboard at a time in the Institute's history when it needed a change. I chose to find the balance between honoring our past while defining a future that is relevant. It has been a great burden and also a great honor. We set upon a course of reenvisioning the Institute to focus once again on the great conservation challenges of our time, while embracing our role as educator and steward.



I look out over a majestic marsh and wonder what if Herbert Mills hadn't permanently protected these marshes? What would this area look like? What would it be today? How would our community be different?

Over the course of the next year, I hope you will embrace our plans for the next 50 years and step up to help ensure that we can implement them. Herbert did an amazing thing nearly 50 years ago. Now it's our time to do something amazing; to give a gift of vision and action for those that will come 50 years from now and say "I'm so glad that they had the vision to do what they did". Certainly something to be a part of!

Contact me (ltedesco@wetlandsinstitute.org or 609-368-1211) to explore how your investment can shape the future.

## 2017 Institutional Sponsors:



# Why I Support The Wetlands Institute

by Lee Harp, Honorary Board Member

My love for the Wetlands Institute and what it has accomplished for nearly 50 years starts with my childhood. I grew up on the barrier beach island of Brigantine. The northern and southern third of the island were totally undeveloped and the bayberry bushes were so dense that young explorers could easily experience the thrill of being "lost". We learned to fish, crab and harvest clams, oysters and mussels about the same time we learned how to ride a bike. I'll never forget the smell of the marshes in wintertime when the cold winter wind blew strong out of the northwest. I had "mud in my blood" and was delighted when Herb Mills invited me to join the Institute's Board of Trustees in 1970.



The key elements that have kept me involved all these years have been the transformation of lives and attitudes toward the environment. About 10 summers ago, a brilliant young engineer from Exxon was required to do public service. She was accepted as an intern in the Terrapin Conservation Project and she absolutely loved the experience. Her final presentation was riveting because of her passion and eloquence as she described her team's discoveries. Her experience made such an impression on her that she quit her job and went back to school completing advanced degrees in environmental science. She's a professor of environmental science at a major northeastern university now. Then there are the young kids who participate in the Institute's summer programs. It is fascinating and delightful to see them with portable seine nets collecting live specimens from our marsh shore, and looking at what they caught under microscopes while drawing what they see, so absorbed that they forgot about lunch.

These impacts are inspiring and transforming lives and instilling a conservation ethic in generations to come. All worth supporting for a lifetime, don't you think?

## Planting for Nature by Dr. Lenore Tedesco



The triangle near 118th Street and 3rd Avenue in Stone Harbor has been transformed into an oasis for butterflies, songbirds, hummingbirds, and pollinators of all types thanks to a collaboration between the Borough of Stone Harbor and The Wetlands Institute.

The native perennial plants are doing remarkably well and by August, the site was a blaze of colors. The site is heavily utilized by butterflies with early surveys indicating more than 15 species of butterflies. The specific area was selected because it is along an important migration route for Monarchs and the quickly became a major site for Monarchs. We built it – and they came!



# Research & Conservation

## Terrapins in the Classroom by Dr. Lisa Ferguson



Our kids are not the only ones headed off to school in the fall. Each year, we send diamondback terrapin hatchlings to spend the school year with teachers who are trained and permitted to raise the turtles with their students through our Terrapins in the Classroom program. The hatchlings come from eggs we salvage from female terrapins killed on roads during the nesting season. This year of care, called headstarting, allows the hatchlings to grow much larger than they would over the same period in the wild. Elementary, intermediate, and high schools from across the state are represented in our program, affording hundreds of students the chance to learn about our favorite brackish reptile through lessons integrating biology, conservation, wildlife, ecosystems, math, and writing. Terrapin-centric learning activities have been developed by many of the teachers and our staff, and are available on our website. At the end of the school year, the headstarted terrapins are returned to us for release, and graduated to life in the marsh. We are so thankful for all the dedicated teachers and schools who participate in this program and take on additional responsibilities for the important work of education, and for program support provided by the *Disney Conservation Fund*, *Stockton University*, and the *Leff Family Foundation*.

## American Oystercatchers-Hurricane Irma Survivors by Allison Anholt

This summer, The Wetlands Institute researchers were busy at work studying American Oystercatchers. To learn about these local-breeders, we captured and banded adults and young with orange bands on their legs. Each half-inch tall plastic band is engraved with a code—readable with binoculars—that helps us to track these shorebirds throughout their lives. Reports of these bands tell us important information about where the birds nest, locations they use during migration, and how long they survive. This year, one of our birds told us something special. Orange A65, as the chick born in June 2017 is called, made it through Hurricane Irma! On September 12, just two days after the storm hit, A65 was spotted on a northeastern Florida beach, where American Oystercatchers are not usually seen. A65 and 12 other American Oystercatchers touched down long enough for observers to read the bands before continuing their journey south. We were relieved to hear A65 weathered the storm, and will be eagerly awaiting news about our other banded birds!



### Go Paperless

Paperless newsletters are more sustainable and they help reduce our cost so a larger portion of your gifts directly support our research, conservation and education programs. Sign up for our e-newsletter at [wetlandsinstitute.org/newsletter](http://wetlandsinstitute.org/newsletter).

# Environmental Education

## Changing of Colors = Winter is Coming by Sue Slotterback



Everyone knows autumn is the time for change. It's colorful panoramic views of the forest foliage just before it falls to blanket the ground insulating roots, crowns, seedlings, and many small creatures from winter's frosty bite. These same changes occur in the salt marsh.

It begins in late August. The daylight, or photoperiod wanes. *Spartina* grasses lose their chlorophyll greens, showing their true hues of yellows-to-oranges as they flower and go to seed. In mid-September poison ivy, Virginia creeper, and winged sumac are the first to turn red signaling, "Here I am!" as they drop their leaves offering up their creamy yellow, navy blue, and wine-colored berries to migrating birds. Later in September the glasswort, or pickleweed shows off its orangey reds and scarlets and its taste turns bitter.

The season wears on; the photoperiod continues to recede. Leafy plants prepare for dormancy and the desiccation of winter's winds by limiting water circulation to their leaves and stems; the brilliant autumn pigments turn to browns and tans. Deciduous plants drop their leaves for insulation, but the dried leaves and seed head stems of herbaceous plants like grasses and flowers retain their ground.

The tides, wind, snow, and ice batter these dried plant parts. Seeds drop to the ground and are covered in mats of leaves and stems which serve as protection not only for seeds and root crowns, but also for small animals that are hibernating just under the marsh surface or eking out food sources and sheltering from the cold. Waiting....

Winter is here!

## Learning with Living Fossils by Shelby Schmeltzle

Continuing efforts to conserve and restore the local Atlantic Horseshoe Crab population, The Wetlands Institute (TWI) has partnered with the NJ Division of Fish and Wildlife's Aquatic Education Program to launch the Horseshoe Crabs in the Classroom program, which allows teachers all around New Jersey to raise horseshoe crab hatchlings and eggs in specialized tanks in their classrooms. By raising horseshoe crab hatchlings in captivity, away from predation or disease, their probability of survival to adulthood greatly increases. Through specialized permitting, TWI staff collect and hatch approximately 6,000 fertilized horseshoe crab eggs from the beaches of the Delaware Bay. Most of these eggs hatch and are released back into the bay, but others go to classrooms. Along with partners, we work to train NJ teachers receiving the horseshoe crab hatchlings and fertilized eggs on their care as well as proper set up and maintenance of their culture tank.

The program started in 2016 and was a success with 150 horseshoe crabs raised in 6 different classrooms by trained teachers. The success of the program's first year allowed it to grow more this year. The program currently has 8 teachers taking part, each raising 25 horseshoe crab hatchlings and 25 fertilized eggs, resulting in 400 horseshoe crabs going into classrooms throughout New Jersey, more than doubling the total from last year!

If you are interested in learning more about horseshoe crabs, the Horseshoe Crabs in the Classroom program, or just want to see some horseshoe crab hatchlings, come out to The Wetlands Institute and check out our horseshoe crab display and grow out tank. We look forward to seeing you!



# Around the Marsh

## Give the Gift of Membership!

Our members are the foundation of The Wetlands Institute. 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. Annual memberships start at \$25 and provide free admission to the Institute, a 10% discount at our Tidepool Shop, and discounted rates on most special events and programs. You can purchase memberships on our website, by phone at 609-368-1211 or by visiting The Wetlands Institute.



*Adopt*  
a Terrapin



*Adopt*  
a Horseshoe Crab



*Adopt*  
an Oystercatcher

## ADOPTIONS *make* GREAT GIFTS

Our symbolic Adoption programs allow YOU to contribute **directly** to the conservation of Diamondback Terrapins, Horseshoe Crabs, and American Oystercatchers. Adoption benefits and levels are listed on our website at [wetlandsinstitute.org/conservation](http://wetlandsinstitute.org/conservation).

# Tidepool Shop

Our book and gift shop is open every weekend from 9:30am to 4:30pm. Can't visit us? Call and purchase by phone. We will ship your purchase anywhere in the United States. Looking for a meaningful gift that also supports our mission? Find it at the Tidepool Shop. Not sure what to get? We also have gift cards!



## Wild Ornaments

Hang these birds, terrapins, and crab hand-crafted ornaments to make your holidays wild or keep them on display all year!

## Bags Bags Bags

We have a variety of hand bags, utility bags, kids bags, and wallets - all wildlife themed for the conservation-minded fashionista!



## Wild Jewelry

Artisanal jewelry for the wildlife lover. Choose from our selection of women and children jewelry and show your favorite coastal species some love!

# Winter Happenings

Join us all winter long for activities on the marsh every Saturday and Sunday. Unless otherwise stated, all activities are free with admission and occur onsite at The Wetlands Institute. For more information, visit [wetlandsinstitute.org/events](http://wetlandsinstitute.org/events).

## Seasonal Science Activities & Crafts

10AM to 4PM Saturday and Sunday



Each month we will offer a new self-guided science activity related to seasonal changes in nature. We provide the supplies and you create the learning!

## Aquarium Feeding

11AM Saturday



Help us feed the local marine life! We will open up feeding time so you can see the terrapins eating fiddler crabs and the horseshoe crab gobbling shrimp.

## Creature Feature

2PM Saturday



During this live animal presentation, get up close with turtles, fish, crabs, sea stars and urchins, mollusks, horseshoe crabs, or the popular animals of Finding Nemo. After the presentation, create your very own take-home craft.

## WINTER LECTURE SERIES



**Fridays, January-March – Save the Dates!**

**Due to renovations, our winter lectures will begin with a Covered Dish Dinner on January 26.**

## Lunch and Learn

Join us for a weekly exploration of topics important to our coastal and wetland ecosystems. Bring your lunch and The Wetlands Institute will provide coffee and dessert. Each week we will feature a different speaker and topic of discussion! Please check our website for complete details.

**Program Fee:** \$3 for members and \$5 for non-members  
Friday, 11:45am. February 2 - March 23 except on date of Covered Dish Dinner (February 23)

## Covered Dish Dinners

Nothing could be better than an evening filled with meeting new people, eating great food and engaging in scientific discussion! Join us the last Friday of each month, January - March, as we bring in guest speakers from around the region to share their knowledge of important issues in the field of environmental science and biology. In the spirit of covered dish dinners, please bring an appetizer, entrée, salad or dessert to share with at least eight people. Please check our website for complete details.

**Program Fee:** \$7 for members and \$12 for non-members, plus a covered dish to share. RSVP requested.  
Friday, 6:00pm. January 26, February 23, and March 30

## Aquarium Teaching & Touch Tank

11AM Sunday



Learn about local creatures found in the salty waters of the ocean or back-bay! Join an Institute educator for a unique, interactive learning experience as they teach about whelk, sea urchins, sea stars, mud snails, and more!

## Science Feature

2PM Sunday



Each Sunday we will focus on a different conservation issue including Marine Debris, Osprey Conservation, Alternative Energy, Horseshoe Crab Conservation, Terrapin Conservation and the world of Plankton.

## 2018 Special Events lineup:

Turtle Fest	March 31
Native Plant Sale	May 11-13
Spring Shorebird & Horseshoe Crab Festival	May 19-20
Crabulous Crab Day	July 13
Summer Celebration	July 28
Fall Migration Festival	Sept. 22

Visit [wetlandsinstitute.org/events](http://wetlandsinstitute.org/events) for details



The Wetlands Institute's Annual

**50/50** Raffle

WIN UP TO  
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Tickets: \$100 each

Call 609.368.1211 or stop in to buy tickets.

Drawing: December 19, 2017, 1:00pm  
at The Wetlands Institute

**Only 240 tickets being sold... Get yours today!**

\*\$12,000 if all 240 tickets are sold. No substitution of the offered prize may be made. Winner does not need to be present to win. Must be 18 years of age or older to participate. If you or someone you know has a gambling problem, call toll-free 1-800-GAMBLER (1-800-426-2537). Net proceeds will be used to support further environmental education and conservation programs at The Wetlands Institute. RA# 14-17 481-5-25895 Middle Township.



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# Views from the Tower



## It All Starts Here!

For nearly 50 years, The Wetlands Institute has been preserving, protecting and stewarding our wetlands and coastal ecosystems. In 1969, we preserved 6000 acres of wetlands and changed the course of history. In 1972, we built the Institute facility and made southern New Jersey a focal point of research, conservation and education about these marvelous places. From those milestones and every day since, we have been learning about wetlands and sharing our knowledge. We have been providing opportunities for exploration and building connections between people and the natural world. The support of our members and friends has always made it all possible. Your support has made a difference.

Please join with us to ensure these marshes are here for generations to come. Your gift – no matter the size – will help us to continue to work to safeguard the well-being of our fragile ecosystems and continue to be their stewards.

**The Wetlands Institute is a non-profit 501 (c)(3) organization.**



### **Yes! I want to support The Wetlands Institute!**

\$500    \$250    \$100    \$50    Other \_\_\_\_\_

#### **3 Simple Ways to Give:**

- Call 609.368.1211 to donate by phone,
- Complete and mail to: The Wetlands Institute, c/o: Christina Faulk, 1075 Stone Harbor Blvd, Stone Harbor, NJ 08247, or
- Donate online at **wetlandsinstitute.org/donate**

- My check payable to **The Wetlands Institute** is enclosed.
- Place a one-time gift on my credit card for \$\_\_\_\_\_.
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- My/my spouse's employer or company will match my gift.

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*I have already included The Wetlands Institute in my will or other estate plan.* (If you have already included The Wetlands Institute in your will or other estate plan, please let us know so that we can welcome you into the Herbert Mills Legacy Society!)