



A Newsletter from the New Jersey Sea Grant Consortium

# Sandy Storms the Jersey Coast - Lessons Learned

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Superstorm Sandy made landfall near Atlantic City on October 29, 2012, devastating New Jersey's coastline. Sandy's unique path placed northern New Jersey's coastal communities, including those along Raritan Bay, directly in the path of the most damaging part of the storm. The intensity of the storm's surge resulted in widespread damage to natural and built environments, with an estimated 60,000 structures damaged or destroyed and the total loss of many beach and dune systems. A complete assessment of Sandy's impacts could take years but preliminary data provide a glimpse at some lessons learned to guide the rebuilding process already underway.

Perhaps the most important lesson is adequate preparation is key to minimizing damage and accelerating recovery. The costs of rebuilding have been proven to far exceed those of preparation, yet communities have hesitated to fully commit to those costs given the lack of storms over the past two decades. Those that did invest by supporting beach nourishment projects, dune building, seawall construction, or smarter building/zoning regulations, tended to suffer significantly less damage than those that did not. Furthermore, it was a combination of measures, not a single approach, that proved most effective in mitigating Sandy's effects. In general, communities protected by high and wide beaches backed by large dunes suffered less damage than communities with narrow beaches and small dunes. Communities fronted by adequately engineered seawalls—many of which were buried under dune systems and “activated” once the dune was compromised—also tended to be better protected. In spite of these protection measures, the storm surge from Sandy toppled the coastal defenses in many communities, overwhelming the low spot in the defense system.

Once communities were inundated, newer structures built on piles and elevated above the base flood



elevation performed better while rapidly moving water quickly compromised many older structures built at grade on shallow foundations.

In the coming months and years, the lessons learned from Sandy will likely radically change how we approach coastal sustainability and hazard mitigation. Sandy was not the first, nor will she be the last major storm to impact the New Jersey coast and although the impacts were undeniably devastating, New Jersey has a long, successful history of responding well to adversity. The Ash Wednesday Storm of 1962 sliced Long Beach Island into five pieces, destroying many older houses built on shallow block or slab-on-grade foundations. During the rebuilding process, many of those structures were rebuilt on more robust foundations, increasing their resiliency to future storms.

In 1986, in response to significant damage caused by hurricanes and Nor'easters in 1984 and 1985, New Jersey established the New Jersey Beach Profile Network (NJBPN) to provide invaluable insight into the processes shaping New Jersey's coastline. In 1991 and 1992, New Jersey's coast was again battered by back-to-back Nor'easters, one of which would become the basis for the best-selling book and subsequent movie, *The Perfect Storm*. In response to the devastation these storms caused, the New Jersey legislature established the Shore Protection Fund which has been used to study dozens of innovative shore protection technologies and finance the construction of hundreds of coastal protection projects while helping New Jersey secure hundreds of millions of dollars in federal shore protection money. Sandy continues to challenge New Jersey and the recovery process has just begun, but every indication shows New Jersey will rise to the occasion as we have done in the past and the result will be a safer, more resilient and sustainable coast for everyone to enjoy.

## Post-Sandy: Hooked on Restoration

The Sandy Hook peninsula, home to the New Jersey Sea Grant Consortium (NJSGC) for nearly four decades, was one of many coastal areas ravaged by the ironically named Hurricane Sandy on October 29th.

Due to damages to power lines and other critical infrastructure facilities at the Gateway National Recreation Area, NJSGC's Building #22 offices are still undergoing repair and restoration and won't be fully operational and ready to occupy until after the start of the New Year.

In the interim, NJSGC's staff has set up a network of satellite work stations that enables us to provide stakeholders throughout the state and region with the research, outreach and education resources and services they have come to expect from us. They will be needed more than ever in the months ahead as we all work together to restore our coastline. With your continued support we will remain an integral part of the effort to recover, rebuild, and renew New Jersey's critical coastal resources.

Please visit our website at [njseagrant.org](http://njseagrant.org) for continued post-Sandy updates and to access the wealth of information it offers about NJSGC's ongoing activities.



## Professional Landscapers Really Dig Rain Garden Workshop

In the past year, Amy Boyajian and Jessica Brown, New Jersey Sea Grant Consortium (NJSGC) Water Resources Agents and Program Associates with the Rutgers Cooperative Extension (RCE) Water Resources Program, have adapted their already successful New Jersey “Rain Garden Training for Professional Landscapers” program for several partners throughout Delaware and Pennsylvania. The training sessions were developed to provide landscape professionals with skills needed to install and maintain a rain garden as well as assist them with marketing their new service offering. The program includes in-class lectures and a hands-on demonstration leading to the actual installation of a rain garden. Training locations in the mid-Atlantic region have included Smyrna and Dover, Delaware in addition to Kennett Square and Philadelphia, Pennsylvania.

In October 2012, Boyajian and Brown headed south again to deliver this training program in Lewes, Delaware. Through a partnership with Delaware Sea Grant, Delaware



**Pictured (left to right) are Jessica Brown and Amy Boyajian, both of Rutgers University and NJSGC; Ed Lewandowski, University of Delaware, Delaware Sea Grant; Lara Allison and Sara Esposito, both of the Delaware Department of Natural Resources and Environmental Control.**



**The Delaware workshop exercises included the creation of a functioning rain garden.**

Department of Natural Resources and Environmental Control, Delaware National Estuarine Research Reserve, and Delaware Center for the Inland Bays, the program was delivered to 25 professional landscapers and master gardeners. Invited speakers included representatives from Delaware Sea Grant, Rutgers/New Jersey Sea Grant Consortium, Environmental Concern, Inc., United States Fish and Wildlife Service, University of Delaware Cooperative Extension, Delaware Department of Natural Resources and Environmental Control, and SPOSATO, Inc. Program evaluations showed the workshop exceeded the expectations of 100% of the participants, and over 85% of the audience indicated they intend to install a rain garden within the next year.

Through these regional partnerships, the RCE Water Resources Program and the NJSGC have continued to strengthen its “Rain Garden Training for Professional Landscapers” program. Since its debut in 2007, this educational program has reached eight states beyond New Jersey through approximately 25 training programs and have involved over 1,000 landscape professionals.

## Fishing for New Members

The New Jersey Sea Grant Consortium (NJSGC) Extension and Communications programs will play a supporting role in an upcoming feasibility study to evaluate incorporating locally farmed shellfish and responsibly harvested seafood into the local food marketplace.

In cooperation with the New Jersey Department of Agriculture, Rutgers University and the state’s shellfish growers, the NJSGC will help coordinate and conduct a survey to assess the interest of community-supported agriculture (CSA) farms to include seafood in their share programs.

The NJSGC was asked to participate in the project based



on a successful pilot seafood share program it launched this past year with Rutgers Cooperative Extension of Ocean County and Sea Salt CSA in Galloway Township, Atlantic County, New Jersey. The program offered seafood to members bi-weekly via purchase of a separate seafood share. Other CSA operators became interested in finding out more and possibly participating in future programs.

The feasibility study will determine the logistics of connecting producer and market entities, expand areas where local seafood can be marketed, and develop a business model that can be sustainable over the long term for shellfish farmers and fishermen.





## Marine Science Programs Go Mobile

Despite the damage dealt to so many New Jersey school districts by Superstorm Sandy and the resulting school schedule downtime, the Education Program at the New Jersey Sea Grant Consortium (NJSGC) was up and running soon after the storm, ready to hit the road with its *Oceans to Go* in-school marine science programs. The program offers hands-on marine science topics that support state content standards and stimulate students' science skills and natural curiosity about marine and coastal creatures and habitats. They can be booked for in-school, after school or as evening family science events.

According to Rosemary Higgins, NJSGC College and Special Programs Coordinator, a new series of afterschool programs has been conducted throughout November and December at Our Lady of Mount Carmel School in Asbury Park as part of its 21st Century Grant Program. "The students at Our Lady of Mount Carmel have been eager to learn about our local marine animals and enjoyed among other offerings, the Sand Lab and Lenape Programs. The Horseshoe Crab Investigation really helped them to understand the importance of this ancient and amazing native of the Jersey Shore. Each student had a chance to examine a horseshoe crab shell, learn about its anatomy, meet a live horseshoe crab and assemble a model



NJSGC's Mindy Voss introduces in-school program participants to a turtle.

to take home. This popular program really helps the students appreciate this creature."

For more information about booking a program or to see a complete list of *Oceans to Go* offerings, visit [njseagrant.org/education/in-schools](http://njseagrant.org/education/in-schools)



Students participate in activities designed to expand knowledge of marine animals, led by Rose Higgins.



A student examines a turtle shell.

## Call Goes Out for Fellowship Candidates

The New Jersey Sea Grant Consortium (NJSGC) has issued its annual call for the prestigious Dean John A. Knauss Marine Policy Fellowship for 2014. Graduate students interested in policy issues related to marine, ocean and/or Great Lakes resources are encouraged to apply. The 33-year old fellowship, sponsored by the National Oceanic and Atmospheric Administration's National Sea Grant College Program, places select graduate students within the legislative or executive branches of the United States government or other related federal organizations in Washington, D.C.

Knauss alumni are often successful in parlaying the fellowship experience into high-impact roles within government and other non-

government organizations. Ryan Wulff, a former Knauss fellow in 2008, was recently appointed by President Obama as deputy U.S. commissioner to the International Whaling Commission.

Fellows selected for the 2014 program will receive \$56,500 to cover salary, living expenses, travel funds, moving costs and health insurance. New Jersey residents must apply for the program through the NJSGC by February 15, 2013. Program details and application materials may be found at [njseagrant.org/research/fellowships/312-2014-knauss-marine-policy-fellowship](http://njseagrant.org/research/fellowships/312-2014-knauss-marine-policy-fellowship).



## Tweed Scholarship Awards Increased for 2013

In response to a difficult economic climate and increasing costs of higher education, the New Jersey Sea Grant Consortium (NJSGC) has increased the monetary value for each of its two Stew Tweed Fisheries and Aquaculture Scholarships. The scholarship award for a graduating high school senior will increase to \$1,500 while the undergraduate/graduate award winner will receive \$2,000 to use toward his or her education.

“As part of our commitment to supporting the next generation of fisheries and aquaculture specialists, we felt increasing the scholarship amounts was one small way we could show that support during these

challenging economic times,” said Kim Kosko, NJSGC director of communications. The scholarship program was conceived in 2007 as a way to honor the legacy of Stew Tweed, a 27-year veteran of the New Jersey Sea Grant Marine Advisory Service, who passed away due to complications from leukemia that year. “Stew’s passion for building bridges between science-based research and outreach to both children and adults is at the core of our organization’s mission.”

Students interested in applying for the scholarship may access application materials by visiting [stewtweed.org](http://stewtweed.org).

## Shore Shots Desktop Calendars 2013 Set to Debut

The New Jersey Sea Grant Consortium (NJSGC) will continue a tradition started in 2012 and offer a series of desktop calendars for downloading to help welcome the New Year and celebrate the Jersey Shore.

The NJSGC 2013 Shore Shots desktop collection will embrace the natural elements of New Jersey Beaches through photography and feature outstanding entries from the NJ Top Ten Beaches photo contest which was the foundation for the award-winning 2012 Jersey Shore Shots calendar.

“There were so many incredible images among the hundreds submitted for that contest we wanted to be able to share more of

them,” noted Kim Kosko, NJSGC director of communications.

“The desktop collection seemed to be a perfect way to do that and to help us all remember what a true treasure the Jersey Shore is and motivate us to all work together to restore the shore to its pre-Sandy glory.”

The new calendars will be available for downloading beginning in January on the home page at [njseagrant.org](http://njseagrant.org).



# RESEARCH

## Priorities for Future Research Funding

The New Jersey Sea Grant Consortium recently selected specific research priorities to include in its Request For Proposals (RFP) that will be considered for funding marine and coastal research projects between 2014 and 2016. Potential topics were collected through stakeholder workshops, coastal issues caucuses, the Top Ten Coastal Issues survey, and an aquaculture-needs assessment this past spring and through individual responses obtained from coastal stakeholders, researchers and other colleagues throughout the summer and fall. The submitted topics were summarized and submitted to our Stakeholder

Advisory Board for selection at the end of November. Research priorities fall within the main focus areas of New Jersey Sea Grant and National Sea Grant Strategic Plans for 2014-2017. The three focus areas are Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture and Resilient Communities and Economies. The RFP was released in mid-December and the pre-proposals will be due in January. For additional information about the RFP or to obtain submission forms and instructions, visit: [njseagrant.org/research/rfps/rfp-2014-16](http://njseagrant.org/research/rfps/rfp-2014-16).