

2014

# ANNUAL REPORT

New Jersey Sea Grant Consortium





# Chairman's Message

Sandy Hook houses two beacons. The Lighthouse, erected in 1764, is the nation's oldest protector of shipping lanes. New Jersey Sea Grant Consortium, founded 200 years later, is the State's staunchest defender of maritime well-being. These twin guardians stand but a few hundred yards apart.

New Jersey Sea Grant Consortium is unique in the United States, comprised of 24 colleges, universities and other entities committed to preserving, protecting and honoring New Jersey's coastal environment. As you will see in these pages, we excel at maximizing our grant and operating funds to promote research, outreach and education.

Our scientists study what lies beneath the waves and what lies at the water's edge. We are out in the field in coastal communities, educating residents on coping with climate change. The origins of Superstorm Sandy are less important than the lessons we learn from it. Our educators have eyes on the future, instilling a sense of awe into thousands of children who pass through our doors each year. Your scientists of tomorrow are our pupils today.

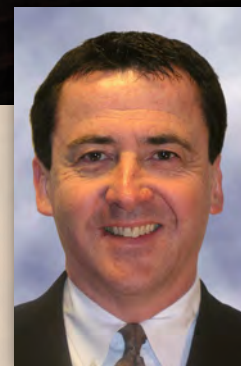
In no small ironic way, the Consortium serves as a beacon to the National Park Service. As many of you know, historic Fort Hancock is collapsing into the sand from age and neglect. In attracting development partners to resurrect historic buildings,

the National Park Service points to our Headquarters as an example of what commitment and partnership can accomplish. But then, we have always been about commitment and partnership.

Yet our light needs to shine brighter. Because of our status as a not-for-profit entity, we use every available dollar for research, outreach and education. Nothing is left over for promoting our brand. As one of my friends remarked: "Why is the Sea Grant Consortium such a secret? People need to hear about your amazing work."

Yes, they do. You have paused over these pages reflecting our 'amazing work' because you believe in our mission. If you can support us financially, we promise we will return ten-fold on your contribution. If you can forward our website to five of your friends, even better. Notoriety is a beautiful thing. If you have thoughts to share, we'd love to hear from you. We have great ideas, but not a monopoly on them.

Know that our beacon will always shine brightly for you. On behalf of our member institutions, staff and board, I am proud to offer this annual report.



DENNIS KEARNEY  
Chairman  
Board of Trustees



CLAIRE  
ANTONUCCI  
Executive Director

Each year all of us at New Jersey Sea Grant Consortium look forward to publishing our annual report and the opportunity it gives us to share the past year's accomplishments with you. 2014 brought significant growth to the Consortium and especially our work supported by our association with the National Sea Grant Program. Last year, this national network, which the Consortium has proudly been a part of since 1976, was justly recognized at the federal level for its good work and unique ability to effectively direct and leverage financial and intellectual resources towards solving pressing coastal and Great Lakes issues at the local level. A well-deserved funding increase for the National Sea Grant Program benefitted not only the national office but also the state programs including New Jersey. For us, increased funding allowed us to:

- Award an additional \$550,000 to scientists at New Jersey's top universities to conduct research that promotes healthy, resilient and climate-ready coasts;

## Executive Director's Message

- Directly train 190 New Jersey educators to teach coastal resilience, shore protection, climate adaptation and marine technology in their classrooms and prepare and disseminate resilience and climate science-related curriculum materials to hundreds more;
- Establish and co-fund the position of Coastal Resilience and Climate Adaptation Specialist to support New Jersey's coastal communities as they implement hazard resilience and climate adaptation strategies;
- Teach over 15,000 schoolchildren through our K-12 programs; provide marine and environmental merit badge programs for 1050 girl and boy scouts.

As always, our annual report only touches upon the highlights. I hope this report inspires you to want to know more about our research, education and extension programs and that you will visit us in person or on our website to learn more about us. We look forward to hearing from you as we continue to make a difference for our state and its coastlines.



# NJ Sea Grant Consortium

Founded in 1969, New Jersey Sea Grant Consortium (NJSGC) is a not-for-profit affiliation of colleges, universities and other entities dedicated to advancing knowledge and sustainable use of New Jersey's marine and coastal resources. To achieve its goals, the Consortium engages the power of New Jersey's

**The vision of NJSGC is a sustainable future for New Jersey's coastal environment.**

**Our mission is to promote responsible use of New Jersey's coastal and marine environment.**

academic community and a wide variety of other partners to coordinate programs and conduct projects that ensure a healthy environment for New Jersey and its coastally-dependent economy.

Since 1976 NJSGC has administered the National Oceanic and Atmospheric Administration's National Sea Grant

College Program in New Jersey. Created by Congress as a federal and state partnership, Sea Grant is a network of 33 programs that bring together the intellectual capacity of the nation's colleges and universities to solve ocean, coastal, Great Lakes and island problems. In recognition of its academic and scientific achievements the Consortium was awarded full Sea Grant College status in 1989.

As part of the Sea Grant network, NJSGC competes for federal funding to support research, extension, communications and education programs directed towards meeting the needs of New Jersey's coastal environment and its stakeholders.

Research funded by NJSGC reflects local concerns and provides solutions to New Jersey's most pressing marine and coastal issues including water quality, climate adaptation, coastal resilience,

recreational and commercial fisheries management and coastal hazard mitigation.

NJSGC's Extension Agents work side by side with New Jersey's citizens, coastal municipalities and marine dependant industries to increase hazard resilience, implement best management practices and adopt sustainable development strategies. Extension expertise ranges from coastal hazard mitigation and shoreline engineering to marine recreation, shellfish aquaculture and water resource management.

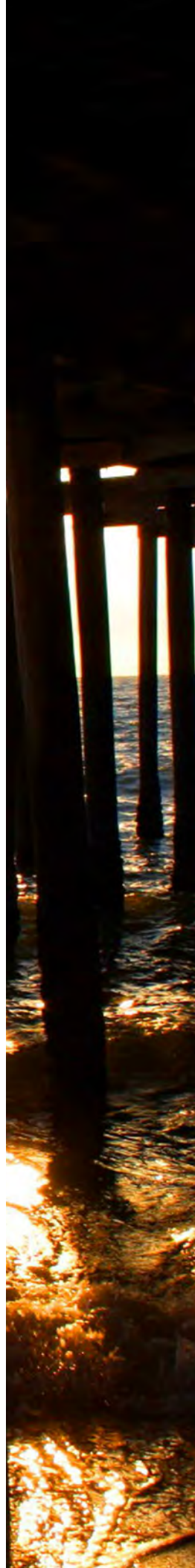
NJSGC's Communicators prepare and transmit marine and coastally related information to a wide range of audiences from targeted groups to the general public using all means and mediums including web and social media.

NJSGC's Educators work with the public and especially New Jersey's school-aged children to provide them with direct learning experiences focused on understanding the science of our shoreline and the means to sustain and care for it.

Some of NJSGC's success stories include developing fast growing cultured oyster seeds and disease resistant shellfish to help revitalize the state's oyster industry, capitalizing on new communication technologies to create better tools to predict and transmit warnings about potentially dangerous rip currents, and improving the engineering of dunes and shoreline protection systems to increase the resilience of New Jersey's coastal communities.



Over the years, NJSGC has come to be recognized as one of the state's leading coastal connections. While marine and coastal research and outreach remain the cornerstones of the Consortium's activities, a current focus is to put the results of the work it supports to find new ways for science to create and sustain resilient coastal communities and economies.



The Extension Program at NJSGC had a productive and successful 2014. Extension staff continued to serve coastal communities across the state, region and the nation by delivering new, continuing and expanded projects. Agents and specialists met with coastal stakeholders both individually and in groups to provide technical assistance through educational activities and tours. They presented at conferences, workshops, symposia, seminars and outreach events, and served as members on boards, advisory councils, committees and associations. Extension staff also enthusiastically received thousands of visitors at NJSGC's annual two-day public outreach event, Ocean Fun Days.

In addition to Director Dr. Peter Rowe, full-time extension staff at Sandy Hook included Mr. Michael Danko, Assistant Extension Director and Marine Recreation Agent, and Ms. Diana Burich, Sea Grant Program Associate. The Extension Program also maintained its successful Memoranda of Agreement (MOA) with Stevens Institute of Technology to retain the services of Dr. Jon Miller as NJSGC's Coastal Processes Specialist. An MOA with Rutgers University Cooperative Extension supported Water Resources Agent, Ms. Jessica Brown. Extension activities in shellfish aquaculture were implemented by Ms. Lisa Calvo, Shellfish Aquaculture Program Coordinator, through an MOA with the Haskin Shellfish Research Laboratory at Rutgers University. In response to NJSGC's 2014-2018 strategic plan which featured coastal resilience and adaptation among its goals, a partnership was initiated with the Urban Coast Institute at Monmouth University to establish the position of Coastal Resilience Program Manager which was subsequently filled by Dr. Ryan Orgera.

Although Superstorm Sandy is fully two years in the past, the Extension team continued to incorporate coastal storm and climate change into their ongoing activities in accordance with NJSGC's strategic plan. These efforts engaged New Jersey's coastal stakeholders and communities to become resilient to future storm events. Extension Staff continued their involvement in two Sandy related projects as a result of funding from the National Sea Grant Program and NOAA Sandy Supplemental Funds. One project is focused on dunes and dune education in order to assist communities with building better dunes. For the other project, the Coastal Storms Awareness Program (CSAP), New Jersey, New York and Connecticut Sea Grant Programs received funding to support research and extension on understanding the response of individuals to storm warning messaging.

Dr. Rowe continued his involvement in Sea Grant Extension at the regional and national level while Extension staff continued their success in obtaining grants and contracts. For example, Michael Danko received funds from the State of New Jersey to continue the Clean Vessel Act and Clean Marina Programs. With additional funding from NSGO he completed a survey investigating how

coastal businesses respond to and increase their understanding and awareness of the impacts of climate change. Mr. Danko also continued outreach activities on a Mid-Atlantic Sea Grant award on best practices for reducing the introduction of aquatic invasive species in the live bait trade.

The following summaries highlight the projects and activities of the Extension Program's Agents and Specialists in 2014.

## **PETER ROWE, Ph.D.**

*Associate Director for Sea Grant Administration,  
Director of Research and Extension*

## **Building Coastal Resilience in New Jersey**

Dr. Rowe committed significant time to several projects related to coastal resilience which is a major theme in NJSGC's 2014-2018 strategic plan. Both he and Dr. Miller were panelists at a final workshop at St. Peter's College in Jersey City for a Coastal Communities Climate Adaptation Initiative (CCCAI) award with Stevens Institute of Technology and Jersey City. They presented information to Jersey City stakeholders on barriers to building resilience and long term impacts of sea level rise. Building on the previous year's workshop "Gulf to Shore: Disaster, Recovery and Rebuilding Lessons Learned from the Gulf Coast" co-hosted with partners JCNERR and BBP, and teaming up with Hawaii Sea Grant and FEMA, NJSGC hosted a Coastal Community Resilience training workshop at Monmouth University.

At the Rising Tides Forum at the Bayshore Center at Bivalve, Dr. Rowe presented a talk on coastal resilience as part of the Delaware Sea Grant CCCAI project, "Weathering Change." Dr. Orgera was instrumental in coordinating with the Bayshore Center and providing guidance for Dr. Rowe. Dr. Rowe continued management of the CSAP in partnership with New York and Connecticut Sea Grants. Initial research results from the 10 research projects provide substantial opportunity for Sea Grant programs to make an impact on coastal storm awareness and resilience to many specific stakeholder groups including minority communities, non-English speakers, the elderly, the disabled, and families. Final results and products will be available in 2015.

Finally, Dr. Miller and Dr. Orgera joined Dr. Rowe and other Sea Grant Specialists from New York Sea Grant in Louisiana by invitation from the Louisiana Sea Grant Program to learn about how Louisiana communities are still recovering, but are becoming more resilient after hurricanes Katrina and Rita.





## Extension

**JON MILLER, Ph.D.**  
*Coastal Processes Specialist*

### Living Shorelines

The NJSGC Coastal Processes Specialist (CPS) continued to work closely with the State and its coastal communities on the development of its living shorelines program. Living shorelines projects which promote hazard resilience while also offering the benefits of ecosystem restoration have been turned to increasingly in the wake of Sandy. Dr. Miller worked closely with the State Department of Environmental Protection and other state and local government organizations and NGO's on the development of General Permit 29 (N.J.A.C.7:7-7.29) which makes the permitting of living shorelines projects a more streamlined process. With the general permit in place, the CPS has shifted to helping the State and its communities identify and design living shorelines projects. The CPS is currently working with the State of New Jersey on the development of engineering design guidelines for living shorelines projects. These guidelines will help communities identify suitable locations for living shorelines projects and ensure that they are designed correctly. Dr. Miller is working with The Nature Conservancy and others on the development of a web-based tool designed to help communities identify potential living shorelines projects. The web-based application will be one of the tools utilized by the CPS on a future living shorelines project funded by the National Fish and Wildlife Foundation.

### Coastal Resilience

In the post Superstorm Sandy world, Dr. Miller continued to work with the State and its communities on a number of projects aimed at reducing risk and increasing community resilience to future storms including identifying appropriate hazard mitigation strategies for both beach and bay front communities. Through cooperation with the Coastal Protection Technical Assistance Service, the CPS worked directly with several communities to design and implement effective erosion mitigation strategies. As part of these coastal resilience activities, Dr. Miller is working with USDA and NJSGC sponsored researchers on a dune manual intended to help communities understand the role dunes play in reducing risk. The manual will contain information that will assist communities in developing healthy, effective dunes.

Dr. Miller also worked with urban communities on coastal resilience issues. The CPS supported research performed through a CCCAI grant which allowed the City of Jersey City to investigate several options for reducing their risk to future storms. He co-hosted a workshop on resilience of urban systems which focused on the importance of linking social and physical infrastructure to reduce risk and accelerate recovery from future disasters. More recently, Dr. Miller partnered with Stevens Institute of Technology and FEMA's National Disaster

Preparedness Training Center to host a FEMA Hurriplan training course. The course drew participants from a variety of sectors and ultimately culminated in the location and basic design of a FEMA compliant storm resistant building on the campus of Stevens Institute of Technology in Hoboken.

**MICHAEL DANKO**  
*Assistant Extension Director, Marine Recreation Agent – Fisheries and Boating*

### Climate Change Outreach for Waterfront Business Owners

The NJSGC Marine Recreation Agent, as part of his CCCAI project, conducted a needs assessment of waterfront business owners in late fall of 2013 to support the development and implementation of an education and outreach campaign. The needs assessment targeted marina owners and operators from 460 marinas in New Jersey and achieved a survey response rate of 13%. The results provided invaluable information that will help waterfront property owners gain an understanding of climate changes and develop long-term plans that will help them reduce impacts from projected changes in the climate. Seventy-five percent of respondents expressed some degree of concern about climate change and eighty-five percent of respondents reported some degree of concern about sea level rise. In addition, respondents provided numerous examples of actions they have already taken to reduce damage from storms in the future. A final report providing details on all the results was released in 2014. This assessment will be used to engage the community of waterfront business owners on the increasingly important topic of climate change.



### Aquatic Nuisance Species Research and Outreach

The Marine Recreation Agent worked with Sea Grant Programs from Delaware, Maryland, Virginia and North Carolina, the Smithsonian Environmental Research Center and the University of Maryland for the last two years on a project that integrates research and education to address the pathway in which aquatic nuisance species (ANS) are being transported. The research focused on the pathway that plants, animals and pathogens take to areas outside of their normal range through the sale of marine baitworms and packing algae from Maine. Research results indicate that proper disposal of the bait worms, algae (or other

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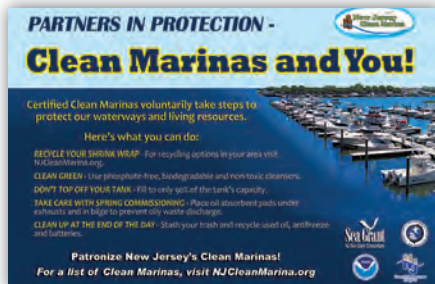


packing material), and containers has the potential to limit the spread of ANS.

The outreach message developed from the research “Protect Our Fisheries - Trash Extra Worms & Packing” highlights the importance of proper disposal. This message is the focus of education materials that were piloted in selected bait and tackle shops from New Jersey to North Carolina. Agent Danko worked with bait and tackle shops in New Jersey to get feedback on the materials and to enlist their help with distributing final versions of the materials to educate their customers on the importance of preventing the spread of ANS through baitworm packing materials.

## New Jersey Clean Vessel Act Program

The damage caused by Superstorm Sandy continues to impact recreational boating facilities throughout the state and some areas have been slower to recover than others. The Marine Recreation Agent assisted the New Jersey Department of Environmental Protection Division of Fish and Wildlife with the New Jersey Clean Vessel Act Program to help restore the 85 pumpout facilities that were damaged.



Pumpout facilities are vital tools that help protect water quality in New Jersey's coastal bays and rivers. Having an adequate supply that is easily accessible to recreational boaters is critical for success. The New Jersey Clean Vessel Act Program was able to maximize federal and state funds to rebuild or replace approximately 40 pumpout facilities in 2014. Additional funds have been secured and it is anticipated that the number of working pumpout facilities will be restored to close to pre-storm numbers for the 2015 boating season.

**JESSICA BROWN**

*Water Resources Agent*

## Programming for Municipal Officials and Communities

In 2014, the Water Resources Agent (WRA) worked with NJSGC partners to expand programming for municipal officials with the creation of the “Asking the Right Questions in

Stormwater Plan Review” workshop. This training program was delivered in partnership with the Association of New Jersey Environmental Commissions and the New Jersey Department of Environmental Protection. The program demonstrated a 25% increase in understanding by workshop participants about the role that New Jersey municipal officials have in approving stormwater management plans and a 21% increase in the average rating of general stormwater management knowledge for workshop participants. The WRA is working to make an e-tool of workshop material available to all 544 municipalities in the upcoming year. Over 40 paraprofessionals (citizen volunteers) were trained to collect watershed data and assess locations for future stormwater management. The WRA continues to work with paraprofessionals and project partners to gather data for municipal impervious cover assessments.

## Water Conservation

The WRA continued to educate and reach out to residents, community groups, and youth about water conservation. Over 23 presentations were given in informal education settings on topics ranging from residential rain gardens, rain barrels, and larger rainwater harvesting systems. Additionally the WRA continued to use the Stormwater Management in Your Schoolyard program to teach over 1,000 youth about water conservation and nonpoint source pollution. The WRA was able to work with NJSGC's Communicators to coordinate and provide technical support for the New Jersey Top Ten Beaches Rain Barrel Art Project. The Rutgers Cooperative Extension Water Resources Program donated ten rain barrels that featured iconic coastal, beach, bay, ocean and boardwalk scenes and images celebrating the New Jersey Shore painted by local New Jersey artists. The rain barrels were showcased at the NJSGC 12th Annual State of the Shore Media Event and other community events. The program promoted environmental awareness and stewardship of all our coastal and water resources.





## Extension

LISA CALVO

Shellfish Aquaculture Program Coordinator

### Cape May Oyster Cooperative Launched

As a result of the efforts of NJSGC's Shellfish Aquaculture Program Coordinator, oyster enthusiasts in the Philadelphia metropolitan area will soon have more opportunity to enjoy farm-raised Cape May oysters. The Cape May Oyster Cooperative was officially incorporated early winter 2014. The Co-op hopes to achieve enhanced production and distribution capacity of their distinctive high-quality Cape May oysters. Working together the member farmers will improve consumer appreciation and expand market share of their product by tapping the growing desire for locally produced seafood and the overall oyster renaissance. The NJSGC Shellfish Aquaculture Program Coordinator worked closely with the growers to develop the Co-op and collaborated with Cape May County officials to obtain an USDA Rural Development Enterprise Grant to promote direct market access. The grant included funds for a refrigerated van which will be shared by Co-op members. The truck will support the grower's efforts to meet the increasing demand for locally grown products.

### Research Informs Efforts to Minimize *Vibrio* Risks

The Cape Shore of the Lower Delaware Bay supports an emerging and productive aquaculture industry. Here, oysters are grown on intertidal flats where they are exposed twice daily during low tide. Previous studies from the Pacific



Northwest indicated that intertidal exposure can accelerate the proliferation of common estuarine bacteria (*Vibrio*) responsible for sporadic cases of illness associated with the consumption of raw or undercooked shellfish. To evaluate whether this result applies to the mid-Atlantic, the NJSGC Aquaculture Program Coordinator, in collaboration with Rutgers scientists, conducted a preliminary study testing whether levels of total and pathogenic *Vibrio parahaemolyticus* differ between oysters cultivated intertidally and subtidally along the Delaware Bay Cape Shore. The research did not find elevated levels of the bacteria in intertidally grown oysters. The study results show that the relationship between intertidal environmental conditions and *Vibrio* levels in harvested oysters is not as straightforward as previously thought and suggest that locally relevant harvest and management practices are required to minimize the risk of *Vibrio* illness. The team will collaborate with researchers at the Virginia Institute of Marine Science to further elucidate the ecology of *Vibrio* and its relationship with farm practices in the mid-Atlantic region.

## Communications

Effective communication is essential to the Consortium's mission. As unbiased providers of scientific information, the Communications staff at the NJSGC supports the organization's educators, agents, specialists and researchers by producing a broad range of informative products from fact-sheets, brochures, newsletters, posters and reports to social media and web-based communications. In doing so, they help businesses, agencies, students, teachers, individuals and the media better understand New Jersey's marine and coastal environment and help them make informed choices affecting its use and care.

The Communications team is led by Communications Specialist Matthew McGrath. Communications Associate Rory Joyce serves as NJSGC's publications and graphic

designer. During 2014, team members also included Jeanne Crump, Lianna Bass and Kim Kosko.

The year was one of transition for the Communications Department. The focus of the department has turned to [www.njseagrant.org](http://www.njseagrant.org) and the use of social media to communicate the Consortium's work. One example is the use of Twitter to "live Tweet" two Coastal Storm Awareness Programs, or CSAP, research focus groups at the Brick library.

Going forward, digital tools will be used to their greatest possible effect. One such planned project is the update of the Consortium's expertise database, which is accessible on the Consortium's website. The existing database is an 80-page searchable PDF. The plan is to build a web-based database that can be easily edited, updated, and shared.



While the Communications team played an integral role in NJSGC education, extension and research projects, they also contributed several special projects during 2014 including:

## The State of the Shore Press Conference

In 2014, this annual event took place on Thursday, May 22 at McLoone's Supper Club, Asbury Park. The event featured Dr. Jon Miller's State of the Shore Report on the condition of New Jersey's beaches going into the summer season. Dr. Miller is NJSGC's Coastal Processes Specialist and an Assistant Research Professor at Stevens Institute of Technology. Presenting with Dr. Miller were NJDEP Commissioner Bob Martin and Dr. Stewart Farrell, Director of the Richard Stockton College Coastal Research Center. Winners of the New Jersey Top Ten Beaches survey were announced at the event by Grace Hanlon, Executive Director of Travel and Tourism for the State of New Jersey.



## Rain Barrel Art Project

The purpose of this collaboration between NJSGC's Communications and Extension programs was to increase awareness and interest in the use of rain barrels. Water Resources Extension Agent Jessica Brown, also of Rutgers University's Water Resources Program, worked with Communications staff members Jeanne Crump and Kim Kosko to recruit local artists to paint rain barrels using Jersey Shore themes. Participating artists were Norma Wokas,



MaryAnn Goodwin, Suellen Crowley, Marty Falivene, Susan David, Jermaine Johnson, Diana Gonzalez, Karen La Du, Lisa Fischer, Lucretia McGuff-Silverman, Dennis Plummer, Suzanne Ritger and Luis Rivera. The barrels debuted at the State of the Shore press conference and were displayed at various events and festivals throughout the summer of 2014.

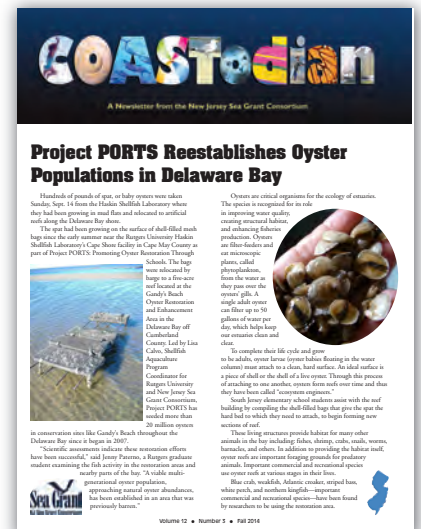
## Stew Tweed Fisheries and Aquaculture Scholarship

To honor the memory of Marine Extension Agent Stewart Tweed, the Stew Tweed Fisheries and Aquaculture Scholarship was founded in 2008. Each year since then the scholarship has been awarded to students pursuing studies in fisheries and marine-related technology. In 2014 the scholarship for a high school student went to Samuel Coakley, a senior at The Marine Academy of Science and Technology at Sandy Hook who would be attending Rutgers School of Environmental and Biological Science in the fall. The second recipient was Amanda Wenczel, a doctoral



candidate at Rutgers University Haskin Shellfish Research Lab. The scholarships were presented by Claire Antonucci of the NJSGC, Tom Hayes, Director of Community Relations at New Jersey Natural Gas and Gail Tweed during Ocean Fun Days at Sandy Hook on Sunday, May 18th.

The Communications Department also creates the COASTodian, a newsletter originally intended for legislators, but now distributed more widely. It provides an update on the recent projects and activities of the various departments at the Consortium.





## Preparing the Next Generation of Scientists and Stewards

In 2014 Consortium educators led marine science learning experiences for just over 15,000 K-12 students. Accompanied by classroom teachers and parent chaperones, these students



participated in NJSJC's long-standing and well-known field trip program that promotes understanding, stewardship and informed, responsible use of New Jersey's marine and coastal resources while reinforcing and enriching classroom science, mathematics and technology skills. Program objectives are met by leading students through hands-on, inquiry-centered investigations of the barrier beach, salt marsh, maritime forest and estuarine ecosystems adjacent to the Consortium's Sandy Hook Headquarters and typical of the New Jersey coast.

An additional 1800 K-8 students received instruction at their school through the Consortium's "Oceans-To-Go" program.

In partnership with Ohio's Wright State University, NJSJC educators provided a week-long summer institute in geoscience education for the fourth consecutive year to students, teachers, administrators and parents from Ripley, Ohio who are participating in a multi-year National Science Foundation funded research project, Project PATH (Parents, Administrators, Teachers and Higher Education Faculty helping rural disadvantaged students stay on a pathway to a geoscience career). The idea behind Project PATH is that by exposing students while they are still young to geoscience careers, a future workforce will result that will be equipped to deal with local,

state and national environmental and technical needs. Project PATH was developed and is administered by Principal Investigator Dr. William Slattery of Wright State. Highlights of the week included a tour of the NOAA/NMFS James J. Howard Marine Sciences Laboratory, a hunt for cretaceous fossils at Poricy Brook, a marine sampling cruise on Sandy Hook Bay and a tour of the New York/New Jersey Harbor Estuary.

## Training Formal and Informal Educators

In the wake of Superstorm Sandy, NJSJC educators began to develop curriculum materials on coastal resiliency and climate adaptation to educate K-12 students and the public about climate change and the climate-associated challenges (flooding, coastal erosion, extreme weather conditions) that coastal communities face. NJSJC extension agents and researchers worked with education staff to identify common areas of public misconception on these topics that impede sound decision-making. NJSJC educators determined that some of the most important ideas to demonstrate to children were that the environment is energetic and constantly changing, and that human impacts can have far-reaching effects on natural system dynamics. Themes that have been developed into lesson plans include the biology of Cape-variety American Beach Grass (*Ammophila breviligulata*), an examination of the appropriate volume of beach sand needed for coastal protection, the importance of botanical components in securing dune structure, the value of dunes, the effects of human development to coastal ecosystems, and future effects of climate-induced sea level rise.

A grant received from TD Bank and the Jersey Shore Partnership Foundation permitted education staff members Rosemary Higgins, Mindy Voss and Diana Burich to provide four face-to-face professional development trainings on the materials to a total of 175 formal and informal educators during 2014. Curriculum materials continue to be developed and as they are completed they are integrated into NJSJC's existing education programs and disseminated broadly via NJSJC's website.



Working with more than 50 educators, NJSJC, the Metropolitan Waterfront Alliance and the New York Department of Conservation developed and published *Harbor Literacy Points for Educators, Students, and the Public*. Designed to integrate the study of the New York/New Jersey Harbor Estuary into the everyday curriculum of elementary, middle, and high school students, the publication includes key topics, learning opportunities, and resources focused on watersheds, estuaries, marine ecosystems, water quality, and harbor history. The Literacy Points consist of five topic areas, covering essential information for a "Harbor-literate" citizen to know along with questions for further



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research and discussion. The guide includes a list of organizations that offer waterfront stewardship, research, and education opportunities in New York and New Jersey and an index linking the study of New York/New Jersey Harbor to the curriculum content standards of both states.

### Enriching STEM Education through the Marine Sciences

Education at the NJSGC continually strives to provide science, technology, engineering and mathematics or STEM education opportunities that engage students with interesting and exciting STEM content but also encourage a passion for marine science and the desire to make a difference. In 2014, NJSGC K-12 Program Coordinator Diana Burich received grants from the PSEG and PADI Foundations to support the development and implementation of STEM programming for middle school-aged students focused on coastal ecology and estuarine research. The program, which was piloted with students from the Hudson County Vocational School District's Explore 2000 Middle School in Jersey City, focused on the use of underwater ROVs (remotely-operated vehicles) in ocean exploration. In addition to illustrating a broad range of science concepts, the program exposed the students to



new technologies and experimental engineering design. A capstone event for the program occurred when teams of students designed and constructed their own ROVs and ran a "mission" in a local lake. Students participating in the ROV program also met NOAA scientists who utilize ROVs in their research and worked with engineers and engineering students from Stevens Institute of Technology who design and build robots for the Navy. A curriculum guide is being developed so that teachers statewide can

implement the ROV program into their classroom and out-of-school time programs. The ROV activities were also incorporated into field trip programs given by NJSGC to several New Jersey school districts including Red Bank and Sayreville.

### Boy and Girl Scout Collaborations

NJSGC's Scout Program grew by 86% in 2014. A total of twenty-six badge-related programs and five field trips specifically tailored for scout and informal groups were developed and added to NJSGC's roster of programs by Scout Program Coordinator Jody Sackett. New offerings include "It's Your Planet, Love It!" and "Wonders of Water" Journey programs for Daisies, Brownies and Juniors, and "Native Life" for Cub Scouts. Each program uses marine science and environmental themes to support badge

requirements, is outdoor-based, often includes laboratory experiments, and is highly interactive. While NJSGC has long offered the Boy Scout Oceanography merit badge (several staff members are certified Oceanography merit badge counselors), staff also became authorized to offer the

Environmental Science merit badge and taught programs on the new badge to both individual scouts and troops from New Jersey, New York, Pennsylvania, and Delaware. A total of 1041 boy and girl scouts participated in NJSGC's scout programs in 2014.



### Horseshoe Crab Twilight Beach Walk

For many years, NJSGC has hosted a once-a-year guided twilight walk to observe horseshoe crabs on Sandy Hook. The scheduling of this annual program coincides with the full moon in June, considered the optimal time to see mating horseshoe crabs on the beach. In 2014, attendance for this program exceeded all expectations.

To accommodate a record 225 attendees, including scout troops and their families, several sessions were held over the first weekend in June. Attendees learned about this amazing





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living fossil through hands-on observation of live horseshoe crabs, at educational learning stations located throughout NJSGC's building, and on a guided hike along Sandy Hook Bay's shoreline. Scouts were awarded a special NJSGC Fun Patch upon completion of the program.

### Science Learning during Out-of-School Time

110 children from grades 3 through 8 attended NJSGC's 2014 Marine Science Summer Camp. Six week-long sessions were offered. Led by Brittany Dusko, a former NJSGC field instructor and current Sayreville secondary school marine biology teacher, each week of camp included intensive explorations of Sandy Hook's coastal ecosystems coupled with challenging classroom activities such as the use of solar energy, a bioluminescence lab, seaweed identification and an investigation of how sunscreen works. Jennifer "Susu" Zhao, a high school student at the Marine Academy of Science and Technology, completed part of her summer internship during the camp. Ms. Zhao was placed with NJSGC through the Hutton Junior Fisheries Biology Program sponsored by the American Fisheries Society. The principal goal of the Hutton Program is to stimulate interest in careers in fisheries science and management among groups underrepresented in the fisheries professions, including minorities and women.



### Connecting the Public to New Jersey's Coastal Environment

Ocean Fun Days, NJSGC's annual large-scale public outreach event, was held in on May 17 at Island Beach State Park and on May 18 at Sandy Hook. Over the course of the weekend, over 10,000 visitors participated. Along with the event's founding partner and lead sponsor New Jersey Natural Gas, the weekend was organized by NJSGC's Rose Higgins in coordination with the New Jersey Department of Environmental Protection and the Asbury Park Press. Both days featured free eco-tours, dozens of children's activities



and educational exhibits about the Jersey Shore while offering tips on caring for New Jersey's coastal resources for future generations. Over 75 exhibitors added to the success of the event contributing activities including seining, coastal crafts, an energy-saving scavenger hunt, youth fishing clinics, face painting, touch tanks and clamming demonstrations. A student science fair competition that focused on conserving energy at home brought dozens of young scientists to the event and, as always, everyone enjoyed Ocean Fun Day's famous fiddler crab races led this year by NJSGC's Dr. Peter Rowe. Special attractions at Sandy Hook included the opening of many of Sandy Hook's historic sites with interpretive tours provided by Park Service staff and the once-a-year opportunity for the public to tour the NOAA Fisheries Service James J. Howard Marine Sciences Laboratory.

## NOAA Fisheries/Sea Grant Graduate Fellowships

Christopher Free, a Ph.D. candidate at the Institute of Marine and Coastal Sciences, Rutgers University, was awarded a 3-year fellowship to support his research on “An evaluation of data-poor stock



CHRISTOPHER FREE

assessment methods using data-rich stock assessments from the RAM Legacy Stock Assessment Database.” His dissertation advisor is Dr. Olaf P. Jensen, Assistant Professor, Institute of Marine and Coastal Sciences, Rutgers University, and his mentor is Dr. Jonathan J. Deroba,

Research Fishery Biologist at the National Marine Fisheries Service (NMFS) Northeast Fisheries Science Center in Woods Hole, Massachusetts.

Princeton University Ph.D. student Lisa McManus was also awarded a 3-year fellowship to pursue research on her project “Assessing the impacts of connectivity on coral reef metacommunity dynamics in the Coral Triangle.” Her dissertation advisor is Dr. Simon A. Levin, George M. Moffet Professor of Biology in the Department of Ecology and Evolutionary Biology at Princeton University. Her NMFS mentor is Dr. Russell E. Brainard, Chief, Coral Reef Ecosystem Division, at NOAA NMFS Pacific Islands Fisheries Science Center in Honolulu, Hawaii.



LISA MCMANUS

The Population and Ecosystem Dynamics Fellowship is administered through the National Sea Grant College Program and NMFS. Annually it is awarded to Ph.D. and graduate students who are interested in careers related to marine ecosystems and population dynamics with a focus on modeling and managing systems of living marine resources. The goal of the fellowship program is to increase

available expertise in these fields, to foster closer relationships between academic scientists and NOAA Fisheries, and to accelerate career development of graduate students through real-world experience. Each fellow selected is required to work closely with an expert from NOAA Fisheries who serves on the fellow’s committee and provides access to research data sources and working/laboratory space in a NOAA Fisheries facility and on NOAA research vessels.

## Dean John A. Knauss Marine Policy Fellowship

Anna Hermes was awarded a Knauss Fellowship and was placed in the Executive Branch of the Federal Government to support the work of NOAA Oceanic and Atmospheric Research (NOAA OAR) Office of Laboratories and Cooperative Institutes and the NOAA Science Advisory



ANNA HERMES

Board. The goals of her fellowship were to coordinate, foster, and facilitate communication between OAR, the Office of Laboratories and Cooperative Institutes, and the NOAA Advisory Board with other NOAA offices and non-NOAA communities. She also helped evaluate office programs and policies to strengthen and integrate research, development, and service for OAR and NOAA. Anna received

her master’s degree from the Institute of Marine and Coastal Sciences in 2013 under the guidance of her advisor Dr. Elizabeth L. Sikes, Associate Professor, Rutgers University. Her thesis research investigated the spatial and seasonal particulate organic carbon cycling within the Delaware Estuary.

The Sea Grant Knauss Fellowship Program was initiated in 1979 by NOAA’s National Sea Grant College Program to provide an educational experience in the policies and processes of the Legislative and Executive Branches of the Federal Government for students enrolled in graduate or professional programs with an interest in ocean, coastal and Great Lakes resources and in the national policy decisions affecting those resources. The fellowship supports and contributes to all four NOAA goals: climate adaptation and mitigation, weather-ready nation, healthy oceans, and resilient coastal communities and economies.



# Research Awards

The Sea Grant program at the NJSJC supports stakeholder-driven research in direct service to New Jersey's coastal environment and its citizens. Guided by relevancy criteria determined through a collaborative planning process that receives input from stakeholders, advisory boards, partners and the public, NJSJC research reflects local concerns and provides solutions to New Jersey's most pressing marine and coastal issues.

Research projects sponsored by the NJSJC during 2014 were:

## Facilitating Natural Dune Building

**Principal Investigator: Dr. Nancy L. Jackson**

*Center for Natural Resources Development and Protection, New Jersey Institute of Technology*

**Co-Principal Investigators: Dr. Karl F. Nordstrom**

*Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey*

**Dr. Michel Boufadel**

*Center for Natural Resources Development and Protection, New Jersey Institute of Technology*



## Advancing Eastern Oyster Aquaculture through Marker-Assisted Selection

**Principal Investigator: Dr. Ximing Guo**

*Haskin Shellfish Research Laboratory, Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Gregory DeBrosse, Lisa Calvo**

*Haskin Shellfish Research Laboratory, Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey*

**Daniel Cohen, Industry Partner**

*Atlantic Capes Fisheries, Inc.*



## Development of Historically-Calibrated Sea Level Rise Projections for Risk Management Along the New Jersey Shore

**Principal Investigator: Dr. Robert E. Kopp**

*Department of Earth and Planetary Sciences, Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Dr. Benjamin P. Horton**

*Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey*

**Dr. Kenneth G. Miller**

*Department of Earth and Planetary Sciences, Rutgers, The State University of New Jersey*

**Dr. Richard G. Lathrop**

*Department of Ecology, Evolution and Natural Resources Rutgers, The State University of New Jersey*

**Dr. Benjamin H. Strauss**

*Climate Central*



## Determining Sustainable Catch Limits for Data-Poor Fisheries in New Jersey: Validation and Refinement of a Data-Poor Harvest Control Rule

**Principal Investigator: Dr. John Wiedenmann**

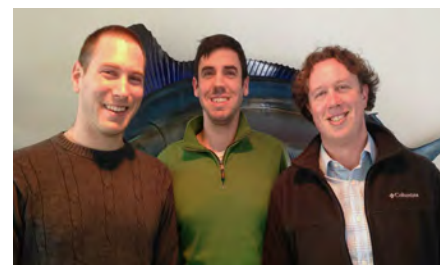
*Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Dr. Olaf P. Jensen**

*Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey*

**Chris Free, Graduate Student**

*Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey*



## Research Awards

### Understanding the Impacts of Climate Change on the Distribution, Population Connectivity, and Fisheries for Summer Flounder (*Paralichthys dentatus*) in the Mid-Atlantic

**Principal Investigator:** Dr. Malin Pinsky

*Department of Ecology, Evolution and Natural Resources, Rutgers, The State University of New Jersey*

**Co-Principal Investigators:** Dr. Janet Nye, Dr. Hyemi Kim

*School of Marine and Atmospheric Sciences, Stony Brook University*

**Dr. Kenneth Able, Dr. Olaf Jensen**

*Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey*

**Dr. Joel Fodrie**

*Institute of Marine Sciences, University of North Carolina at Chapel Hill*

**Dr. Chris Kennedy**

*Department of Environmental Science and Policy, George Mason University*



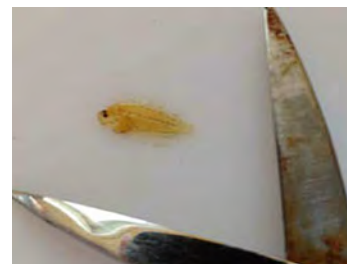
### Genetic Monitoring to Improve Fish Stock Assessments

**Principal Investigator:** Dr. Malin Pinsky

*Department of Ecology, Evolution and Natural Resources, Rutgers, The State University of New Jersey*

**Co-Principal Investigators:** Dr. Olaf Jensen, Dr. Kenneth Able

*Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey*



### A Green Technology for Nutrient and Metals Reduction in New Jersey Coastal Waters

**Principal Investigator:** Dr. Dibyendu Sarkar

*Department of Earth and Environmental Studies Montclair State University*

**Co-Principal Investigators:** Dr. Yang Deng

*Department of Earth and Environmental Studies, Montclair State University*

**Dr. Kirk Barrett**

*Department of Civil and Environmental Engineering, Manhattan College*

**Dr. Rupali Datta, Industry Partner**

*SIROM Scientific Solutions, LLC*



### Development of Climate Change Adaptation Elements for Municipal Land Use Plans: Building Resiliency in Ventnor City, New Jersey

**Principal Investigator:** Dr. Karen W. Lowrie

*Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey*

**Co-Principal Investigators:** Stacy Perrine, PP. AICP, Dr. Michael Greenberg, Veda Truesdale

*Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey*

**Lisa Auermuller, Jenna Gatto**

*Jacques Cousteau Coastal Education Center, Rutgers, The State University of New Jersey*





## Research Awards

### Minimizing Risks of Vibrio Bacteria in Farm-Raised Oysters Grown in Mid-Atlantic Intertidal Environments

**Principal Investigator: Dr. David Bushek**

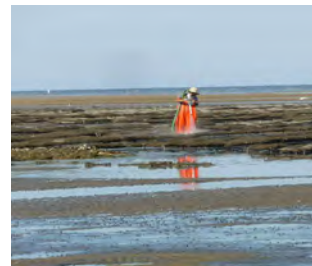
*Haskin Shellfish Research Laboratory, Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Dr. Tal Ben-Horin, Lisa Calvo**

*Haskin Shellfish Research Laboratory, Rutgers, The State University of New Jersey*

**Dr. Kimberly S. Reece, Dr. Corinne Audemard**

*Virginia Institute of Marine Science, College of William and Mary*



### Collaborative Climate Adaptation Planning for Urban Coastal Flooding

**Principal Investigator: Dr. Philip Orton**

*Stevens Institute of Technology*

**Co-Principal Investigators: Dr. Alan Blumberg**

*Stevens Institute of Technology*

**Tanya R. Marione-Stanton, AICP**

*Jersey City Division of City Planning*



### Enhancing the Effectiveness of Decision Support Tools for Coastal Resilience

**Principal Investigator: Dr. Richard Lathrop**

*Center for Remote Sensing and Spatial Analysis Department of Ecology, Evolution and Natural Resources Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Lisa Auermuller**

*Jacques Cousteau National Estuarine Research Reserve, Rutgers, The State University of New Jersey*

**Dr. Robin Leichenko**

*Climate Institute, Department of Geography, Rutgers, The State University of New Jersey*

**Dr. Melanie McDermott**

*Department of Human Ecology, Rutgers, The State University of New Jersey*

**Dr. Cymie Payne**

*Department of Human Ecology, School of Law, Rutgers, The State University of New Jersey*



### Adolescent and Family Decision Making in Time of Disaster

**Principal Investigator: Dr. Cristina Hoven**

*Division of Child and Adolescent Psychiatry, Columbia University*

**Co-Principal Investigators: Dr. George Musa**

*Columbia University*

**Dr. Lawrence Amsel**

*Columbia University*

# Research Awards

## Best Practices in Coastal Storm Risk Communication

**Principal Investigator: Dr. Cara Cutie**

*Department of Human Ecology, Rutgers, The State University of New Jersey*

**Co-Principal Investigators: Dr. Karen O'Neill**

*Rutgers, The State University of New Jersey*

**Dr. William Hallman**

*Rutgers, The State University of New Jersey*

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*Rutgers, The State University of New Jersey*

**Dr. Steven Decke**

*Rutgers, The State University of New Jersey*

**Dr. Christopher Obropta**

*Rutgers, The State University of New Jersey*

## They Had the Facts, Why Didn't They Act? Understanding and Improving Public Response to National Weather Service Coastal Flooding Forecasts

**Principal Investigator: Rachel Hogan Carr**

*Director, Nurture Nature Center*

**Co-Principal Investigators: Dr. Burrell Montz**

*East Carolina University*

**Lisa Auermuller**

*Jacques Cousteau National Estuarine Research Reserve, Rutgers, The State University of New Jersey*



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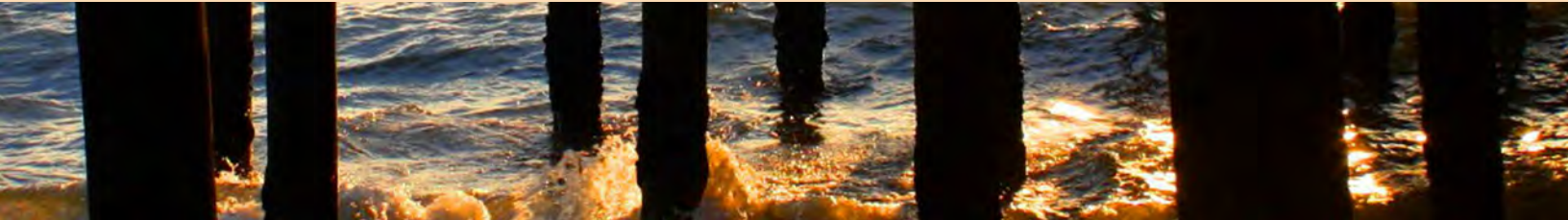
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NEW JERSEY SEA GRANT CONSORTIUM, INC.  
FINANCIAL STATEMENTS AND  
INDEPENDENT AUDITOR'S REPORTS  
September 30, 2014 and 2013



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
FINANCIAL STATEMENTS  
September 30, 2014 and 2013

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## INDEPENDENT AUDITOR'S REPORT

To the Board of Trustees of  
New Jersey Sea Grant Consortium, Inc.

### Report on the Financial Statements

We have audited the accompanying financial statements of New Jersey Sea Grant Consortium, Inc. (a nonprofit organization), which comprise the statements of financial position as of September 30, 2014 and 2013, and the related statements of activities, functional expenses, and cash flows for the years then ended, and the related notes to the financial statements.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of New Jersey Sea Grant Consortium, Inc. as of September 30, 2014 and 2013, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.




*Other Information*

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The accompanying schedules of expenditures of federal awards and state financial assistance, as required by Office of Management and Budget Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, are presented for purposes of additional analysis and are not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated, in all material respects, in relation to the financial statements as a whole.

*Other Reporting Required by Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated February 23, 2015, on our consideration of New Jersey Sea Grant Consortium Inc.'s internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering New Jersey Sea Grant Consortium, Inc.'s internal control over financial reporting and compliance.

  
German, Vreeland & Associates, LLP  
Cedar Knolls, New Jersey  
February 23, 2015

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
STATEMENTS OF FINANCIAL POSITION  
September 30, 2014 and 2013

ASSETS	2014	2013
Current assets		
Cash and cash equivalents	\$ 1,307,275	\$ 1,013,845
Accounts receivable	11,932	175,794
Grants and contracts receivable	523,728	260,945
Prepaid expenses and other current assets	53,456	48,046
Total current assets	<u>1,896,391</u>	<u>1,498,630</u>
Property and equipment, net	<u>762,354</u>	<u>831,202</u>
 TOTAL ASSETS	 <u>\$ 2,658,745</u>	 <u>\$ 2,329,832</u>
 LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and accrued expenses	\$ 76,937	\$ 100,282
Accrued rent	3,899	3,899
Due to subrecipients	362,358	187,476
Deferred revenue	537,672	256,552
Total current liabilities	<u>980,866</u>	<u>548,209</u>
Long-term liabilities		
Accrued rent, net of current portion	<u>38,987</u>	<u>42,886</u>
Total liabilities	<u>1,019,853</u>	<u>591,095</u>
Net assets		
Unrestricted	1,631,155	1,731,000
Temporarily restricted	7,737	7,737
Total net assets	<u>1,638,892</u>	<u>1,738,737</u>
 TOTAL LIABILITIES AND NET ASSETS	 <u>\$ 2,658,745</u>	 <u>\$ 2,329,832</u>

See accompanying notes.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
STATEMENTS OF ACTIVITIES  
Years Ended September 30, 2014 and 2013

	2014			2013		
	UNRESTRICTED	TEMPORARILY RESTRICTED	TOTAL	UNRESTRICTED	TEMPORARILY RESTRICTED	TOTAL
<b>SUPPORT AND REVENUE</b>						
Grants and contract revenue	\$ 2,395,393	\$ -	\$ 2,395,393	\$ 1,589,173	\$ -	\$ 1,589,173
Contributions	53,556	-	53,556	36,734	-	36,734
Educational and service program revenue	204,368	-	204,368	157,360	-	157,360
Membership dues	37,191	-	37,191	37,445	-	37,445
Interest income	2,443	-	2,443	2,995	-	2,995
Other income	12,724	-	12,724	176,755	-	176,755
Total support and revenue	<u>2,705,675</u>	<u>-</u>	<u>2,705,675</u>	<u>2,000,462</u>	<u>-</u>	<u>2,000,462</u>
<b>EXPENSES</b>						
Program services						
Educational activities	376,839	-	376,839	192,185	-	192,185
Research activities	2,097,960	-	2,097,960	1,612,905	-	1,612,905
	<u>2,474,799</u>	<u>-</u>	<u>2,474,799</u>	<u>1,805,090</u>	<u>-</u>	<u>1,805,090</u>
General and administrative						
Total expenses	<u>330,721</u>	<u>-</u>	<u>330,721</u>	<u>314,706</u>	<u>-</u>	<u>314,706</u>
	<u>2,805,520</u>	<u>-</u>	<u>2,805,520</u>	<u>2,119,796</u>	<u>-</u>	<u>2,119,796</u>
<b>CHANGE IN NET ASSETS</b>	(99,845)	-	(99,845)	(119,334)	-	(119,334)
<b>NET ASSETS, Beginning of year</b>	<u>1,731,000</u>	<u>7,737</u>	<u>1,738,737</u>	<u>1,850,334</u>	<u>7,737</u>	<u>1,858,071</u>
<b>NET ASSETS, End of year</b>	<u>\$ 1,631,155</u>	<u>\$ 7,737</u>	<u>\$ 1,638,892</u>	<u>\$ 1,731,000</u>	<u>\$ 7,737</u>	<u>\$ 1,738,737</u>

See accompanying notes.

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
STATEMENT OF FUNCTIONAL EXPENSES  
Year Ended September 30, 2014

	Program Services			General and Administrative	Total Expenses
	Educational Activities	Research Activities	Total Program Services		
Salaries	\$ 237,517	\$ 409,253	\$ 646,770	\$ 140,030	\$ 786,800
Payroll taxes and benefits	73,075	118,040	191,115	35,395	226,510
Payments to subrecipients	-	1,452,516	1,452,516	-	1,452,516
Professional fees	11,165	43,693	54,858	22,815	77,673
Supplies	14,765	13,207	27,972	11,837	39,809
Advertising	2,165	2,958	5,123	-	5,123
Telephone	1,318	7,889	9,207	4,833	14,040
Postage	1,033	4,336	5,369	1,825	7,194
Occupancy	975	-	975	47,546	48,521
Repairs and maintenance	-	100	100	6,841	6,941
Printing	1,786	6,697	8,483	221	8,704
Conferences and training	14,197	26,357	40,554	1,935	42,489
Dues and subscriptions	243	910	1,153	6,035	7,188
Awards	3,500	300	3,800	-	3,800
Miscellaneous	3,396	-	3,396	5,968	9,364
Total expenses before depreciation	365,135	2,086,256	2,451,391	285,281	2,736,672
Depreciation	11,704	11,704	23,408	45,440	68,848
Total expenses	\$ 376,839	\$ 2,097,960	\$ 2,474,799	\$ 330,721	\$ 2,805,520

See accompanying notes.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
STATEMENT OF FUNCTIONAL EXPENSES  
Year Ended September 30, 2013

	Program Services				Total
	Educational Activities	Research Activities	Total Program Services	General and Administrative	
Salaries	\$ 88,530	\$ 489,754	\$ 578,284	\$ 136,767	\$ 715,051
Payroll taxes and benefits	19,980	156,240	176,220	47,737	223,957
Payments to subrecipients	-	834,053	834,053	-	834,053
Professional fees	7,860	48,585	56,445	27,578	84,023
Supplies	4,520	18,282	22,802	11,331	34,133
Advertising	1,953	1,400	3,353	-	3,353
Telephone	13	9,293	9,306	4,313	13,619
Postage	649	6,146	6,795	853	7,648
Occupancy	-	-	-	49,642	49,642
Repairs and maintenance	613	100	713	23,451	24,164
Printing	649	11,383	12,032	143	12,175
Conferences and training	6,856	17,545	24,401	3,570	27,971
Dues and subscriptions	39	1,573	1,612	5,000	6,612
Awards	-	6,150	6,150	-	6,150
Miscellaneous	4,976	-	4,976	-	4,976
Total expenses before depreciation	136,638	1,600,504	1,737,142	310,385	2,047,527
Depreciation	55,547	12,401	67,948	4,321	72,269
Total expenses	\$ 192,185	\$ 1,612,905	\$ 1,805,090	\$ 314,706	\$ 2,119,796

See accompanying notes.

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
STATEMENTS OF CASH FLOWS  
Years Ended September 30, 2014 and 2013

	2014	2013
CASH FLOWS FROM OPERATING ACTIVITIES		
Change in net assets	\$ (99,845)	\$ (119,334)
Adjustments to reconcile change in net assets to net cash provided by operating activities		
Depreciation	68,848	72,269
Change in net assets and liabilities		
Accounts receivable	163,862	(159,543)
Grants and contracts receivable	(262,783)	121,047
Prepaid expenses and other assets	(5,410)	3,157
Accounts payable and accrued expenses	(23,345)	4,401
Due to subrecipients	174,882	(61,283)
Accrued rent	(3,899)	(4,463)
Deferred revenue	281,120	202,421
Net cash provided by operating activities	<u>293,430</u>	<u>58,672</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Sale of investments	-	520,938
Interest earned on investments	-	(1,779)
Net cash provided in investing activities	<u>-</u>	<u>519,159</u>
NET INCREASE IN CASH AND CASH EQUIVALENTS	293,430	577,831
CASH AND CASH EQUIVALENTS, Beginning of year	<u>1,013,845</u>	<u>436,014</u>
CASH AND CASH EQUIVALENTS, End of year	<u>\$ 1,307,275</u>	<u>\$ 1,013,845</u>

SUPPLEMENTAL CASH FLOW INFORMATION:

No amounts were paid for interest or income taxes for the years ended September 30, 2014 and 2013.

See accompanying notes.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
NOTES TO FINANCIAL STATEMENTS  
September 30, 2014 and 2013

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the New Jersey Sea Grant Consortium, Inc. ("NJSGC") have been prepared on the accrual basis of accounting. The significant accounting policies followed are described below to enhance the usefulness of the financial statements to the reader.

Organization – NJSGC is a 501(c)(3) institution dedicated to the care, conservation and sustainable-utilization of New Jersey's marine and coastal resources. The Sandy Hook-based Consortium currently consists of twenty-two colleges, universities and other organizations dedicated to advancing knowledge and stewardship of New Jersey's marine and coastal environment, and meets its mission through innovative research, education and extension programs.

New Jersey's coastline is a natural treasure and NJSGC is dedicated to understanding and caring for this resource. NJSGC programs range from sponsored research and marine science education for school-children to extension services for coastal municipalities, maritime businesses and the public.

Since NJSGC was founded in 1969, it has contributed leading research in the field of marine and environmental science. Since 1976, it has managed the New Jersey Sea Grant Program ("NJSGP"), part of a national network administered by the National Oceanic and Atmospheric Administration ("NOAA") that funds competitive research focusing on specific priority areas as well as education and outreach activities.

The Extension Program at NJSGC provides useful information to people employed or interested in fields related to marine resources-fishermen, coastal engineers, maritime industry personnel, resource managers, decision makers, and the general public. Extension Program personnel expertise includes biology, sociology, economics, public policy, and engineering. Each Extension Program professional works directly with coastal communities and business professionals to transfer information and effect change by applying science-based information to daily decision-making.

The Education Program at NJSGC is committed to assuring that New Jerseyans understand, value, and appreciate their marine and coastal environment and are able to apply sound evidence and science-based information to make well-informed decisions regarding its use, management, and care. This is accomplished through the wide range of educational services and products that the Education Program provides. The Program's teaching and learning activities range from direct instruction such as field trips, camps, scout programs, in-school presentations, college coursework, public outreach events to information preparation and dissemination including fact sheets, posters, lesson plans, activity guides, video conferences, web-based publications and other teaching materials.

Learn more about the NJSGC by visiting [www.njseagrant.org](http://www.njseagrant.org).

Basis of Presentation – External financial reporting by not-for-profit organizations requires that resources be classified for accounting and reporting purposes into net asset categories according to externally (donor) imposed restrictions. The unrestricted net asset category represents net assets that are not subject to donor imposed restrictions, the temporarily restricted net asset category represents net assets that are subject to time or purpose donor imposed restrictions and the permanently restricted net asset category represents net assets that are subject to donor imposed restrictions that cannot be satisfied by either the passage of time or by actions of NJSGC.

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
NOTES TO FINANCIAL STATEMENTS  
September 30, 2014 and 2013

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (cont'd)

Revenue and Support Recognition – NJSGC recognizes contributions as revenue when they are received or unconditionally pledged and records these revenues as unrestricted or restricted support according to donor stipulations that limit the use of these assets due to time or purpose restrictions. When a donor restriction expires, temporarily restricted net assets are reclassified and reported in the statements of activities as net assets released from restrictions. However, the receipt of restricted contributions whose restrictions expire or are otherwise satisfied within the period of receipt are reported as unrestricted revenues in the statements of activities.

NJSGC accounts for those contract revenues which have been determined to be exchange transactions in the statements of activities to the extent that expenses have been incurred for the purpose specified by the grantor during the period. Program revenues received in advance of their usage are classified as deferred revenue in the statements of financial position. In applying this concept, the legal and contractual requirements of each individual contract are used as guidance.

Additional unrestricted revenues are obtained from educational and service program revenue, membership dues, and investment income. These revenues are used to offset program expenses as well as the cost of property and equipment acquisitions and general and administrative expenses.

Tax Status and Incorporation – NJSGC is exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code. Accordingly, the financial statements do not reflect a provision for Federal income taxes. NJSGC has no uncertain tax positions at September 30, 2014 and 2013. There are no tax years prior to 2011 open for examination by the Internal Revenue Service. In addition, there was no interest or penalties related to income taxes included in the financial statements.

Valuation of Long-Lived Assets – In accordance with the accounting pronouncements related to accounting for the impairment or disposal of long-lived assets, NJSGC reviews long-lived assets, including property and equipment, for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. Management has determined that no assessment was required for the periods presented in these financial statements.

Estimates – The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures included in the financial statements. Accordingly, actual results could differ from those estimates.

Advertising – Advertising is expensed in the period incurred. Advertising expense was \$5,123 and \$3,353 for the years ended September 30, 2014 and 2013, respectively.

Property, Equipment and Depreciation – Property and equipment of \$5,000 or greater is recorded at cost when purchased, or at fair value at date of gift. Depreciation is provided for by the straight-line method over the estimated useful lives of the assets. Major renewals and betterments are charged to fixed assets; maintenance, minor repairs and replacements which do not improve or extend the life of the respective assets are expensed currently.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
NOTES TO FINANCIAL STATEMENTS  
September 30, 2014 and 2013

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (cont'd)

Expense Classification – The expenses of NJSGC are presented in the statements of activities under the following classifications which describe NJSGC program activities:

Educational activities – supports the educational goals of NJSGC by planning and conducting a wider range of K-12, college, teacher, and public education programs.

Research activities – aids and encourages scholarly activities in marine related subjects through cost reimbursement contracts.

All expenses which were not directly associated with the above service categories are categorized as general and administrative expenses. Additionally, there is a de minimis amount of fundraising expense that has been included in general and administrative expenses.

NOTE 2 – GRANTS AND CONTRACTS RECEIVABLE AND DEFERRED REVENUE

NJSGC operates under various grants and contracts. At September 30, 2014 and 2013, NJSGC was due certain amounts from funding sources which resulted from expenditures incurred in excess of payments received. In addition, NJSGC received funds from certain funding sources which represent payments in excess of expenditures incurred which has been recorded as deferred revenue. The following details grants and contracts receivable and deferred revenue at September 30, 2014 and 2013:

<u>Funding Agency</u>	<u>Grants and Contracts Receivable</u>	<u>2014</u>	<u>2013</u>
U.S. Department of Commerce			
National Oceanic and Atmospheric Administration			
Sea Grant Programs		\$ 385,688	\$ 135,504
U.S. Department of Fish and Wildlife Service		9,981	7,974
State of New Jersey – Department of Environmental Protection		120,546	116,239
Other		<u>7,513</u>	<u>1,228</u>
		<u>\$ 523,728</u>	<u>\$ 260,945</u>
	<u>Deferred Revenue</u>		
<u>Funding Agency</u>			
U.S. Department of Commerce			
National Oceanic and Atmospheric Administration			
Sea Grant Programs		\$ 454,317	\$ 206,425
State of New Jersey – Department of Agriculture		17,866	18,328
State of New Jersey – Department of Environmental Protection		40,000	-
Other		<u>25,489</u>	<u>31,799</u>
		<u>\$ 537,672</u>	<u>\$ 256,552</u>

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
NOTES TO FINANCIAL STATEMENTS  
September 30, 2014 and 2013

**NOTE 3 – PROPERTY AND EQUIPMENT**

Property and equipment, net of accumulated depreciation, at September 30, 2014 and 2013 consisted of the following:

	Estimated Life (Years)	2014	2013
Building improvements	5-20	\$ 1,157,887	\$ 1,157,887
Marine equipment	3-12	21,870	21,870
Machinery and equipment	5-12	<u>136,100</u>	<u>136,100</u>
		1,315,857	1,315,857
Less: Accumulated depreciation		<u>(553,503)</u>	<u>(484,655)</u>
		<u>\$ 762,354</u>	<u>\$ 831,202</u>

Depreciation expense totaled \$68,848 and \$72,269 for the years ended September 30, 2014 and 2013, respectively.

**NOTE 4 – RETIREMENT PLAN**

NJSGC has a 403(b) contributory defined contribution retirement plan (the "Plan") for those employees who meet eligibility requirements. Employees must have one year of service and 1,000 hours to be eligible to participate in the Plan. Participants must contribute a minimum of 2 percent of eligible salaries in order to receive a 6 percent contribution from NJSGC to the Plan. Pension expense was \$31,776 and \$34,783 for the years ended September 30, 2014 and 2013, respectively.

**NOTE 5 – LEASED FACILITIES**

NJSGC occupies facilities owned by the National Park Service at Fort Hancock, New Jersey. NJSGC pays for all operating costs including, but not limited to, utilities, repairs and maintenance. NJSGC entered into a twenty-year lease agreement expiring June 30, 2025, which was amended in 2012 and calls for minimum lease payments of \$3,383 annually. Rental expense for these facilities for the years ended September 30, 2014 and 2013 was \$7,282 and \$7,050, respectively.

**NOTE 6 – CONCENTRATIONS OF CREDIT RISK**

Financial investments which potentially subject NJSGC to concentrations of credit risk consist of cash and receivables. In an attempt to limit credit risk, NJSGC places all funds with high quality financial institutions. Management has not experienced any losses. Receivables are due from various governmental agencies with which NJSGC has a long history of collecting payments, which reduces credit risk.

**NOTE 7 – SUBSEQUENT EVENTS**

Management has evaluated subsequent events through February 23, 2015, the date on which the financial statements were available to be issued. During the year ended September 30, 2013 NJSGC submitted an insurance claim relating to hurricane Sandy. The insurance claim was paid to NJSGC during October 2013 in the amount of \$157,945 and is included in accounts receivable in the statement of financial position and included as other income in the statement of activities for the year ended September 30, 2013.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS  
Year Ended September 30, 2014

Federal Grantor Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Federal Expenditures
U.S. Department of Commerce			
National Oceanic and Atmospheric Administration Sea Grant Support	11.417		\$ 1,326,134
National Oceanic and Atmospheric Administration Coastal Storm Awareness Program	11.483		254,719
Passed through University of Delaware Development of a Research Plan for the Mid-Atlantic Region	11.417	18176	8,019
Passed through New Jersey Department of Environmental Protection Coastal Zone Management Administration Awards	11.419	SA7528121-C	80,170
Total U.S. Department of Commerce			<u>1,669,042</u>
Department of Homeland Security			
Passed through New Jersey Department of Environmental Protection Cooperating Technical Partners	97.045	EC13-006	26,416
U.S. Department of the Interior Fish and Wildlife Service Passed through New Jersey Department of Environmental Protection Clean Vessel Act	15.616	FG12-040	17,391
U.S. Environmental Protection Agency Passed through New Jersey Department of Environmental Protection Performance Partnership Grants	66.605	SR12-005	<u>12,600</u>
Total Expenditures of Federal Awards			<u>\$ 1,725,449</u>

See Independent Auditor's Report.

See accompanying Notes to Schedule of Expenditures of Federal Awards and State Financial Assistance.

NEW JERSEY SEA GRANT CONSORTIUM, INC.  
SCHEDULE OF EXPENDITURES OF STATE FINANCIAL ASSISTANCE  
Year Ended September 30, 2014

State Grantor Pass-through Grantor/Program Title	Award Number	Award Period	State Expenditures
NJ Department of Commerce			
NJ Department of Environmental Protection			
Barnegat Bay Nutrient Inference Model	MOA	01/10/12-09/10/13	\$ 2,979
Baseline Characterization of Phytoplankton and Harmful Algal Blooms	MOA	11/01/12-09/10-13	32,916
Coastal Outreach Advisory Team	MOA	11/28/12-03/31/15	5,000
Econological Evaluation of Sedge Island Marine Conservation in Barnegat Bay	MOA	01/10/12-10/10/13	27,933
Baseline Characterization of Zooplankton in Barnegat Bay	MOA	06/05/13-08/01/14	15,099
Flood Adaption Strategies for NJ Hudson River Waterfront	MOA	05/01/13-04/30/14	107,986
Barnegat Bay Diatom Water-Quality Calibration	MOA	05/16/13-11/16/14	109,350
Baseline Characterization of Phytoplankton and Harmful Algal Blooms	MOA	05/16/13-12/16/14	73,848
Ecological Evaluation of Sedge Island Marine Conservation in Barnegat Bay	MOA	06/05/13-11/30/14	30,433
Baseline Characterization of Zooplankton in Barnegat Bay	MOA	05/19/14-11/19/15	32,097
Barnegat Bay Nutrient Inference Model	MOA	02/01/14-08/01/14	18,000
Baseline Characterization of Phytoplankton and Harmful Algal Blooms	MOA	11/28/12-03/31/15	15,999
Living Shorelines	MOA	11/28/12-03/31/15	175,447
Clean Marine Program	MOA	10/01/09-03/31/15	1,228
Clean Marine Program	MOA	10/01/12-03/30/14	19,057
Total NJ Department of Commerce			<u>667,372</u>
NJ Department of Agriculture			
NJ Manual for Aquaculture	MOA	01/31/13-02/28/14	771
Fisheries Development	MOA	02/01/07-09/30/16	962
Total State Financial Assistance			<u>669,105</u>
Total Federal Awards and State Financial Assistance			<u>\$ 2,394,554</u>

See Independent Auditor's Report.  
See accompanying Notes to Schedule of Expenditures of Federal Awards and State  
Financial Assistance.



NEW JERSEY SEA GRANT CONSORTIUM, INC.  
NOTES TO SCHEDULES OF EXPENDITURES OF FEDERAL AWARDS AND STATE FINANCIAL ASSISTANCE  
September 30, 2014

**NOTE 1 – BASIS OF PRESENTATION**

The accompanying schedules of expenditures of Federal awards and state financial assistance present the activities in all the federal and state award programs of New Jersey Sea Grant Consortium, Inc. and are presented using the accrual basis of accounting. All financial awards received directly from Federal and state agencies as well as financial awards passed through other governmental agencies or non-profit organizations are included on the schedules.

**NOTE 2 - BASIS OF ACCOUNTING**

The accompanying schedules of expenditures of Federal awards and state financial assistance are presented using the accrual basis of accounting. The amounts reported in these schedules as expenditures may differ from certain financial reports submitted to Federal and state funding agencies due to those reports being submitted on either a cash or modified accrual basis of accounting.

**NOTE 3 – RELATIONSHIP TO BASIC FINANCIAL STATEMENTS**

Expenditures of Federal awards and state financial assistance are reported on the statements of functional expenses as program services or general and administrative expenses. In certain programs, the expenditures reported in the basic financial statements may differ from the expenditures reported in the schedule of expenditures of Federal awards and state financial assistance due to program expenditures exceeding grant or contract budget limitations, matching or in-kind contributions or capitalization policies required under accounting principles generally accepted in the United States of America.

**NOTE 4 – SUBRECIPIENT FUNDING**

A portion of the contract awards received from U.S. Department of Commerce, National Oceanic and Atmospheric Administration and other agencies, as reflected in the accompanying schedules of expenditures of Federal awards and state financial assistance, was subcontracted to the following organizations:

<u>Subrecipient Name</u>	<u>Subrecipient Expenditures</u>
Rutgers University	\$ 424,187
Stevens Institute of Technology	411,267
William Paterson University	43,793
Academy of Natural Sciences	320,267
Monmouth University	46,487
Rider University	48,365
Columbia University	119,108
The Nurture Nature Center	38,116
Other	926
	<u>\$ 1,452,516</u>