

New Jersey
Sea Grant Consortium

2021 ANNUAL REPORT

Cover Photo - Jen Acolia "Reflection"



Acting Executive Director's Message

As the newly appointed Executive Director of the New Jersey Sea Grant Consortium (January 2022), I am pleased to present to you the 2021 Annual Report. After the unprecedented and surreal year of 2020, NJS GC greeted 2021 with optimism as Covid-19 vaccinations became available and the pandemic restrictions eased. And yet, the pandemic hit back with additional outbreaks in the summer and late fall. It was a bumpy ride, but one we handled with more confidence after having experienced the unknown in 2020. Like a rolling tidal wave, NJS GC had its ups and downs, yet we returned safely to the finish line. While we mainly continued to work remotely we ventured out into the world cautiously but with confidence. We certainly saw this through our Education Program as in-person summer camps, scouting programs, and school field trips began to start up again. We even were able to engage with some of our stakeholders. Our funded researchers were able to more fully engage in their projects. And,

we were able to push through our online fatigue as virtual meetings are part of our culture now. This general success could not have been done without the hard work and dedication of NJS GC's staff, board members, partners, stakeholders, and friends. Our adaptable and creative staff allowed NJS GC to continue responding to New Jersey's coastal and marine concerns of its people and by sustaining our state's marine and coastal resources. NJS GC's dynamic mission shines through the interaction of its people with our marine and coastal research, education, communication, and extension programs. I know this report will speak to that dynamic and our successes in 2021. Thank you for your interest and support for NJS GC. I hope you enjoy this Annual Report.



**DR. PETER
M. ROWE**

OMNIBUS Research Awards 2020-2022

Spatial and Temporal Patterns in Shorebird Distribution in Relation to Horseshoe Crab Eggs

Dr. Daphne Munroe, Haskin Shellfish Research Laboratory; Rutgers, The State University of New Jersey

Physics-Based Assessment of Hurricane-Induced Wave Hazards Under Climate Change: Barrier Islands of New Jersey

Dr. Reza Marsooli, Stevens Institute of Technology

Mapping eastern black rail habitat to aid coastal conservation and climate resiliency planning

Dr. Julie Lockwood, Rutgers, The State University of New Jersey

Demographics, survivorship and post-released behavior of sharks captured in the land-based recreational shark fishery using fisheries-dependent data

Dr. Keith Dunton, Monmouth University

"Local catch-of-the-day": Connecting NJ seafood harvesters with culturally and economically diverse customers

Dr. Cara Cuite, Rutgers, The State University of New Jersey

Project SEA: Science, Education, and Action

Dr. Lauren Madden, The College of New Jersey

Developing and Implementing an Index to Assess the Resiliency of New Jersey's Fishing Communities to Climate Change Impacts

Lisa Auermuller, Jacques Cousteau National Estuarine Research Reserve; Rutgers, The State University of New Jersey

Development of Point-of-Use Trace Metal Sensor and In-situ Sediment Extraction New Jersey

Dr. Philip Sontag, Rutgers, The State University of New Jersey

Impacts of Oyster Aquaculture Gear on Submerged Aquatic Vegetation Recruitment and Recruitment Processes

Dr. Elizabeth Lacey, Stockton University

Optimizing Atlantic striped bass aquaculture through the integration of duckweed and macroalgae

Dr. Gal Hochman, Rutgers, The State University of New Jersey

Microplastic ingestion by New Jersey breeding seabirds

Dr. John Wiedenmann, Rutgers, The State University of New Jersey

Interactive influences of Dermo disease and the Microbiome on Crassostrea virginica disease susceptibility and microbial dynamics

Dr. David Bushek, Haskin Shellfish Research Laboratory; Rutgers, The State University of New Jersey

Developing capacity for microplastics extraction from an archived New Jersey larval fish time series

Dr. Thomas Grothues, Rutgers, The State University of New Jersey Marine Field Station

Extension

COASTAL RESILIENCE SPECIALIST/ COASTAL PROCESS SPECIALIST

Coastal Resilience Specialist Laura Kerr and Coastal Process Specialist Dr. Jon Miller continued to be actively engaged in providing support to the New Jersey Coastal Resilience Collaborative (NJCRC). Support in 2021 focused on clearly defining the NJCRC's niche, growing its partnership in specific sectors, and building out its role in working directly with coastal communities. Kerr recently helped launch a Technical Resilience Directory for municipalities hoping to address coastal resiliency in their towns. This community support included technical assistance "coffee talks" to foster the role as a trusted coastal resilience advisor, and, most-importantly, to better understand their needs in addressing coastal resilience particularly as new guidance, rules, and recommendations are released from the State. Work continued on updating the NJ Living Shorelines Engineering Guidelines funded by NJDEP, to reflect the most recent research. Dr. Miller recently served on the local organizing committee of the Restore America's Estuaries Technical Transfer Workshop that brought hundreds of living shoreline practitioners to the event in Cape May.

SHELLFISH AQUACULTURE PROGRAM COORDINATOR

The COVID-19 pandemic continued to have an unprecedented impact in 2021 on economies around the world and severely disrupted food supply chains. New Jersey oyster farmers were particularly hard hit, having previously relied on sales to restaurants, farmers were forced to pivot to direct sale opportunities. Lisa Calvo, the Shellfish Aquaculture Program Coordinator developed a shellfish farm directory designed to connect consumers to New Jersey shellfish farms and their products and educate them about the methods and benefits of shellfish aquaculture. Calvo teamed up with the NJSJC Education Department to create a groundbreaking career-readiness project that introduced middle and high school students to oyster aquaculture as a career opportunity. The project, designed to build competencies through student engagement in a school-based enterprise oyster farm was launched in 2021 with a professional development workshop for educators. It featured farm tours and presentations from shellfish growers, NOAA Office of Aquaculture, Minorities in Aquaculture, Fishadelphia, and the hospitality industry. The project will continue in 2022 with workshop participants to develop opportunities in aquaculture for their students.

MARINE RECREATION AGENT

The Marine Recreation Agent, Michael Danko, in collaboration with the Mid-Atlantic Coastal Acidification Network, Mid-Atlantic Regional Coastal Observing System, Mid-Atlantic Regional Council on the Ocean, Rutgers Cooperative Extension and the Virginia Institute of Marine Science conducted the "Hooked on Ocean Acidification" seminar series. The virtual series connected recreational anglers, educators, and natural resource managers with regional scientists studying the impacts of acidification in Mid-Atlantic waters. The sessions covered how ocean acidification can affect recreationally important fish and shellfish, the potential for seagrasses buffering acidic waters to help with reef restoration, the models to forecast changes and mitigation efforts. Work continued with the NJDEP and the Harmful Algal Bloom Expert Team to develop guidance documents designed to help lake managers and communities. Several NJSJC member institutions including George Mason University, Monmouth University, Montclair State University, Rowan University and Rutgers University serve on the panel along with members from federal agencies and private consultants.

RESILIENT COMMUNITIES AND ECONOMIES SPECIALIST

Resilient Communities and Economies Specialist (RCES), Dr. Tom Herrington, worked on planning for and convening the Sea Grant Northeast/Mid-Atlantic People on the Move in a Changing Climate Regional Coordination Network workshop. Over 60 invited national and regional human migration experts, climate scientists, outreach and extension agents, planners, resilience practitioners, local and state officials, and coastal stakeholders participated. The outcomes of the workshop are being synthesized into a summary report on regional research, data, outreach, education, policy, and professional network needs required to address issues related to future climate change driven migration from the coast. The RCES continued the successful partnership with New York Sea Grant on the BEachSAFEly social media campaign and kicked off the 2021 campaign at the State of the Shore Press Conference. The campaign provides beach and COVID-19 safety messages for beachgoers. Plans were made to continue the partnership in summer 2022. Dr. Herrington continues to serve on the NJ Coastal Resilience Collaborative which addresses coastal flooding, beach erosion and stormwater.

Extension

WATER RESOURCES AGENTS

Water Resources Agents, Sara Mellor and Richard Kelly continued running the Green Infrastructure Champions Program for the third consecutive year with ten unique and completely virtual educational sessions offered. Sessions provided an unforeseen opportunity to expand outreach beyond New Jersey, recruiting participants from Connecticut, Maryland, Kansas, and Puerto Rico. In 2021, there were 122 new Green Infrastructure Champions and leaders capable of advocating for green infrastructure in their communities. These sessions have generated participants to seek guidance on moving forward with incorporating green infrastructure in their communities. Preliminary engineering designs of green infrastructure master plans were created for the Tewksbury Municipal Complex, the Summit Community

Center, and the Save Barnegat Bay Education Center. These master plans were developed by Sea Grant-funded staff working with Rutgers bio-environmental engineering students.

JERSEY SHORE JUNIOR SCIENCE SYMPOSIUM

The Fifth Jersey Shore Junior Science Symposium was held virtually on March 19 and hosted by Ocean County College. NJSGC provided awards at the 2021 Symposium for the Top Environmental Paper to Lana Van Note, Marine Academy of Technology and Environmental Science, Stafford Township, for her paper on alternatives to plastics. The award for the Top Environmental Poster went to Cassandra Vongrej, Marine Academy of Technology and Environmental Science, Stafford Township for her poster on Seagrass.

Communications

In September 2021, NJSGC welcomed new Communications Specialist Samantha Kreisler to the staff. Samantha is responsible for writing and distributing content including the NJSGC newsletter COASTodian, email blasts, managing social media accounts, and documenting NJSGC's presence and research impacts throughout the State of New Jersey and Mid-Atlantic region. Within NJSGC, Samantha will be an integral part of its strategic planning, fund-raising efforts, and research communications. As part of the Sea Grant Communications Network, she will work with other state Sea Grant programs and the National Sea Grant office to represent New Jersey's voice and to improve Sea Grant communications as a whole.

"FAVORITE BEACHES" PHOTO CONTEST

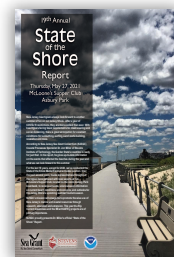
New Jersey boasts some of the most picturesque beaches along the East Coast. To celebrate and embrace these natural elements of the Garden State's beautiful coastline, NJSGC held the "Favorite Beaches" photo contest in May. After dozens of breathtaking entries and thousands of votes, the Top 12 images were



ultimately used to create NJSGC's yearly desktop calendar. Visit njseagrant.org for more information and to download beautiful calendars for your desktop.

STATE OF THE SHORE

The 19th Annual State of the Shore media event was held once again in Asbury Park in May. Speakers included NJDEP Commissioner Shawn M. LaTourette, NJSGC Coastal Processes Specialist Dr. Jon K. Miller, NJSGC Resilient Communities and Economies Specialist Dr. Tom Herrington, and NJSGC Acting Executive Director Dr. Peter Rowe.



NEW JERSEY'S FAVORITE BEACHES

The contest debuted in 2008 as New Jersey's "Top Ten Beaches." It was initially designed to encourage friendly competition and camaraderie amongst Jersey Shore communities. Following Hurricane Sandy, the contest was rebranded "Favorite Beaches." Dr. Peter Rowe, NJSGC Acting Executive Director announced the winners at the Music Pier in Ocean City just before July 4. Members of the press, mayors and town officials attended. Ocean City was the overall winner. These events and contests were all organized by Rory Joyce, Communications Associate.

Education

K-12 PROGRAMS

The COVID pandemic caused disruption to environmental education opportunities throughout the nation, yet New Jersey Sea Grant Consortium's educators are resilient and creative. This allowed for them to be more adaptable in the challenging educational environment. The first half of 2021 showed a continuation with recently-developed virtual programs for 31 schools and community groups, engaging 811 participants from March-June. Outdoor experiential learning field trips resumed on Sandy Hook in September and continued through to November with 10 programs attended by 6 schools with 326 students ranging in grades from 3rd through college. This shift from online to in-person engagement reflects schools' changing policies towards student interactions outside of district facilities in response to the continuing decrease in COVID-related illnesses.

SCOUTS

Scout programs emerged from pandemic lockdowns in the summer with a total of 14 sessions held between June and October.



There were approximately 280 participants engaged in 7 different programs that included Boy Scout Environmental Science Badge and Girl Scout Junior Journey.

SUMMER COLLEGE PROGRAM

Introduction to Marine Biology, a 4-credit course taught at NJS GC's headquarters from May-July, combines 36 hours of class lecture with 48 hours of laboratory and field work. This class was one of the only in the area at the time that offered both lecture and lab in-person, giving 6 participating college students a much-needed respite from months of online learning at their home universities.

OCEAN FUN DAYS

The 18th annual Ocean Fun Days event took place online for a second year in a row in 2021. Six weeks of educational content, videos and resources were accessed by 5,700 website visitors from October 1-November 15. New this year was the addition of 3 live webinars that

were accessible via Zoom and streamed on Facebook Live.

Topics included horseshoe crab and diamondback terrapin ecology, as well as a Halloween

version of "Sharks vs. Rip Currents".

Approximately 461 individuals participated in these webinars, including 14 teachers broadcasting the events to their classrooms to engage approximately 350 children.



PROFESSIONAL DEVELOPMENT

NJS GC Educators collaborated with partners at Pennsylvania and Delaware Sea Grant programs, Chesapeake Bay National Estuarine Research Reserves in Delaware, Maryland and Virginia, as well as the Maryland Department of Natural Resources to host the Mid-Atlantic Climate Change Education Conference June 28-July 1. This conference, attended by 240 formal and informal educators, aimed to share the latest trends in climate science and education with 630 minutes of content in engaging workshops and interactive sessions provided by a host of experts in the fields of climate science education, research and communication.

PARTNERSHIPS

NJS GC and its Gateway National Recreation Area educational partners, National Park Service and Jamaica Bay-Rockaway Parks Conservancy, received a second round of funding from the National Park Foundation to participate in the Open Outdoors for Kids – Every Kid Outdoors project. This initiative encourages 4th graders, along with their teachers and families, to visit national parks to experience their natural wonders and cultural history. Funding provided the opportunity for 526 children to be engaged with remote programs and 74 scouts to participate in on-site activities that focused on Gateway's coastal ecosystems. All programs were provided free of charge thanks to the generous grant.



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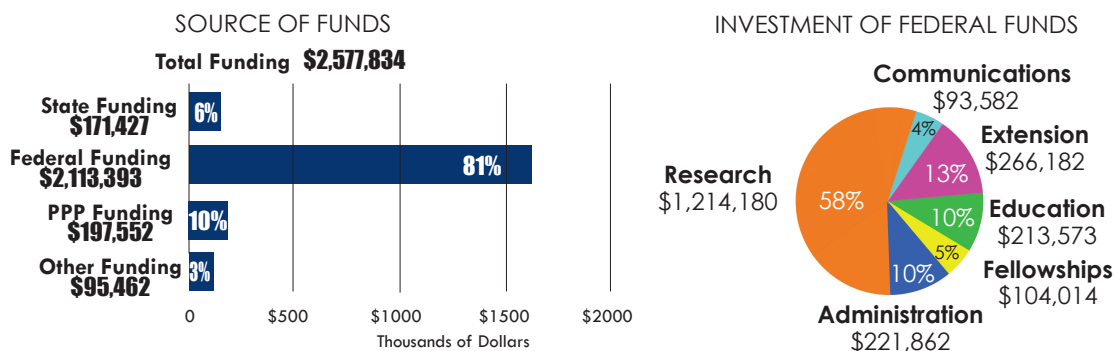
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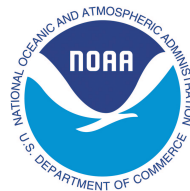
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