



A Newsletter from the New Jersey Sea Grant Consortium

Summer 2022

Building Aquaculture Career Interest and Competencies Through Student Engagement in a Pilot Apprenticeship



Diana Burich (left) with ASAP students at Cape May Salt Oyster Farm.

Shellfish farming is an important and ever growing sector in New Jersey's coastal economy. Given the continuing entry of new shellfish farmers and planned expansion of existing farms in the State, further growth is inevitable and would result in significant ecological and economic benefits while providing high quality sustainable seafood to meet increasing consumer demand.

The new Apprenticeship in Shellfish Aquaculture Program (ASAP) is an initiative offered through a partnership between New Jersey Sea Grant Consortium and Rutgers University that offers high school students an opportunity to learn about aquaculture while getting their "feet wet" in the field through virtual and experiential training. The purpose of this pilot project is to introduce middle and high school students and their communities to aquaculture as a career opportunity and an emerging and important food production system. By providing a pathway to enter careers in this growing sector, ASAP provides students with an understanding of the field of shellfish aquaculture and helps them build necessary skills so that they are employment-ready and primed for a successful career start.

Project development began in summer 2021, when collaborators engaged New Jersey educators interested in increasing aquaculture literacy in their schools with industry professionals in a three-day workshop to develop curriculum content, discuss instructional approaches and to identify necessary employment skills. Teachers then recruited students for ASAP in spring 2022, which employs a three-fold approach: virtual workshops, in-person "boot camp" and 20-hour farm work experience.

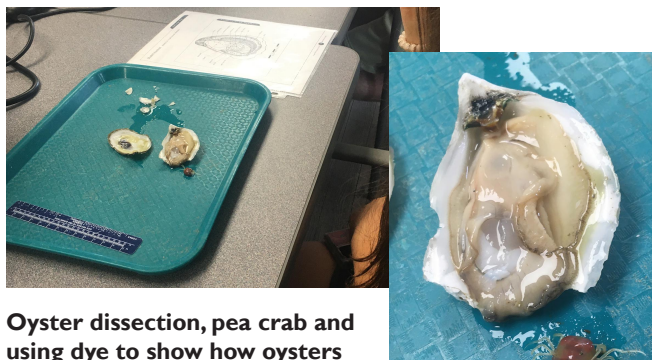
Beginning in May, seven high school students participated in four hour-long virtual workshops where they learned about local and global applications of aquaculture and had the opportunity to interact with researchers, professionals, and shellfish growers. During the week of June 27, ASAP students participated in the second program component: a one-week summer training "boot camp" that offered in-class lessons and field experiences at Rutgers University's Cape Shore Laboratory and Aquaculture Innovation Center in Cape May County.

According to Diana Burich, Director of Education and co-creator of the program, "As the aquaculture industry in New Jersey grows, there is a real need to help shellfish farmers find competent employees. ASAP is an opportunity for students who already have an interest in shellfish aquaculture to be immersed in learning about this food source, how products are grown and marketed, and what it really takes to make that happen. The students were full of enthusiasm and enjoyed the activities, and the entire group, collaborators and students alike, were understanding of the importance of this project. Whether students plan to pursue aquaculture in college or head directly out into the workforce, NJSGC has a responsibility as a resource in helping to bring these two sectors together and provide relevant opportunities for growth."



Students learning about oyster ecology and biology from Michael Acquafredda, PhD (center) post-doc from NOAA NEFSC.

Facilitated by Burich and collaborators Jenny Shinn of Rutgers University's Haskin Shellfish Research Laboratory and Lisa Calvo of Sweet Amalia Oyster Farm, students learned about the biology and ecology of oysters and hard clams, two economically-important species grown in New Jersey. Students toured Cape May Salt Oyster Farm, built farm gear, and helped maintain "crops" to keep them fouling- and disease-free. Staff and interns at the Aquaculture Innovation Center and Cape Shore Lab led students through hatchery and husbandry operations, where students learned about life stages and the importance of algae in the production of larval



Oyster dissection, pea crab and using dye to show how oysters transfer particulates across gills.

spat. Experts like Michael Acquafredda, PhD, National Research Council's postdoctoral research associate from National Oceanic and Atmospheric Administration Northeast Fisheries Science Center (NOAA NEFSC) and Douglas Zemeckis, PhD, Rutgers University's Cooperative Extension Agriculture and Natural

NJSGC's Coastal and Marine Science Education and Community Engagement intern, Catherine Rodriguez (left) with Jihyana Price, NOAA IN-FISH intern.

Resources County Agent, met with students and talked about current research and shellfish farms as agricultural and commercial businesses. Students even learned to shuck oysters, identify flavor profiles and cook Oysters Rockefeller.



Students are currently in the final phase of the program: 20-hour farm experience where they will gain experience in aquaculture-related work thanks to collaborating industry partners such as Sweet Amalia Oyster Farm in Cape May Courthouse and Forty North Oyster Farm in Barnegat. Upon completion of the program, students will receive a Shellfish Aquaculture Apprenticeship Certificate of Accomplishment, a stipend for their participation and a greater appreciation for New Jersey's shellfish farmers and the aquaculture industry's overall collaboration with industry and academic project partners

Favorite Beaches Contest

New Jersey's Picks Announced in Ocean City

The annual public poll began in 2008 to encourage stewardship and pride for the Garden State's beautiful beaches. The 2022 Favorite Beaches awards ceremony was held at the beautiful Ocean City Music Pier on July 8th. After thousands of votes, the results are in....

Overall First Place: Ocean City
Runner up: The Wildwoods

Monmouth County First Place: Asbury Park
Runner up: Spring Lake
Ocean County First Place: Seaside Heights
Runner up: Point Pleasant Beach

Atlantic County First Place: Brigantine
Runner up: Margate
Cape May County First Place: Ocean City
Runner up: The Wildwoods



New Jersey Sea Grant Consortium Executive Director Dr. Peter Rowe (left) presents Ocean City Mayor Jay Gillian with the Favorite Beaches award for Cape May County and Overall Favorite Beach.



Ocean City receives Favorite Beaches award for Cape May County and Overall Favorite Beach.

The New Jersey Sea Grant Consortium Held the Annual Jersey Shore Photo Contest Once Again!



The New Jersey Sea Grant Consortium held its annual Jersey Shore Photo Contest once again! This year we received many

beautiful submissions showcasing the grandeur of the nature and sunsets we witness on the Jersey Shore. We had almost 200 submissions. Out of all the wonderful shots, twelve talented photographers' beauties won the contest. The winning photos shown below were shot in familiar locations like Sandy Hook, Bradley Beach, Seaside Heights, and many more. The 2023 desktop calendar with these dazzling photos will be available on njseagrants.org in a few months. But in the meantime, view the winners below!



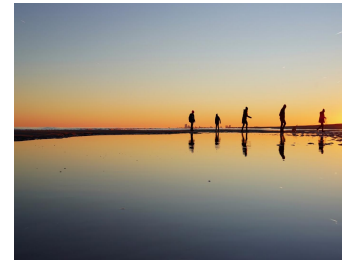
Comet Neowise by the Lighthouse
Mark Ceres



Fences and Footprints
Kate Booth



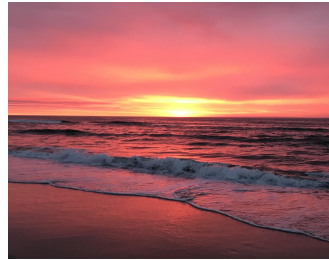
Hats Off for Summer at the Jersey Shore
Mary Ellen Connelly



Reflection
Jen Acolia



Enjoying the Beach in January
Laura Weberlist



Sailors Be Warned
Lois L. Mullen



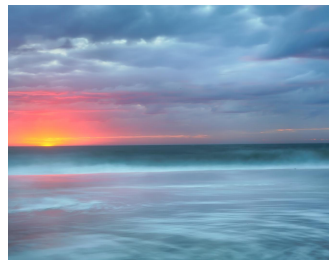
After the Storm
William Dalton



Pre-Dawn Sentinels
Gina Olkowski



Least Tern Chick Makes Funny Faces When Mom Isn't Watching
Scott Miller



Tequila Sunrise
Mia Mutascio



The Sun Between The Dune Grass
Richard Pasquarella



Water Dance
Barbara Mele

Alexandra Swanson is Sea Grant's 2023 Knauss Finalist

The National Oceanic and Atmospheric Administration (NOAA) and Sea Grant have continued the tradition of the Sea Grant John A. Knauss Marine Policy Fellowship program and have announced the finalists of the 2023 class. The finalists, who are early career professionals, will be placed in Washington, D.C. federal government offices. The 2023 class represents the largest in recent years with 86 finalists. New Jersey Sea Grant's very own nominee, Alexandra Swanson of Princeton University, has been chosen as a finalist for the prestigious Fellowship. Learn more about Alexandra below!



ALEXANDRA SWANSON

Why did you decide to apply? What drove your interest in the Knauss program?

I have always found the most fulfillment in roles that allow me to engage in environmental protection and public service.



Having spent much of my life near the water in Wisconsin and the Northeast, I have witnessed firsthand the impact that healthy coastal and Great Lakes ecosystems can have on surrounding communities. What really drove my interest in the Knauss program was the opportunity to gain in-depth coastal policy

experience. I am passionate about protecting these natural systems and helping the people that depend on them thrive, so getting to work on crafting actionable coastal policy on the federal level is a dream job, and one that I hope will lead to more opportunities in this field.

How did your education and research experience help with the application process?

Through my experiences and training in ecological research, environmental policy, and community-level conservation, I have gained a diverse skill set that I believe made my Knauss application stand out. As an undergraduate at Brown University, I conducted research in a biogeochemistry lab and wrote a senior thesis, which helped me to develop analytical and scientific communication skills that have been highly transferable to public policy. My direct experience and training in public policy through positions with the Providence, Rhode Island City Council, the White House Council on Environmental Quality, and my Master's of Public Affairs program at Princeton University have helped me build policy

research, analysis and writing skills that will be directly applicable to the Knauss Fellowship. Serving in the Peace Corps in Panama, my work involved environmental education, mobilizing the community around conservation-related initiatives, leading trainings, and working with nonprofits and local government officials. This experience allowed me to hone my leadership, project management, and communication skills, which will serve me well as a Knauss Fellow.

How are you preparing for this unique experience?

I am preparing for the Knauss Fellowship by diving headfirst into coastal policy as a Fellow with Urban Ocean Lab (UOL), a climate policy think tank for coastal cities. At UOL, I have been working to design a "Blue New Deal" policy framework with model policies and best practices for climate-ready coastal cities.

Can you give us any details on what you might be doing as a legislative cohort? What do you hope to learn and gain from this experience?

I am so excited to gain experience in the legislative branch, where such important and impactful policies take shape. I will either be working directly with a congressional office or on a committee. However, I will not be placed until next year so I do not have many details on exactly what I'll be working on, other than that it will involve ocean and coastal policy. I hope to gain a deep understanding of the legislative process from this experience, especially as it pertains to coastal policy issues.

Do you have any future plans or ambitions following the Knauss Fellowship?

After the Knauss Fellowship, I plan to continue to work on coastal, conservation and climate policy issues, either in the government or nonprofit sector. Wherever I end up, I hope to continue to do work that leverages environmental protection as a means to achieve climate justice and resilience for communities.

Maravilla Clemens selected as a Coastal Management Fellow

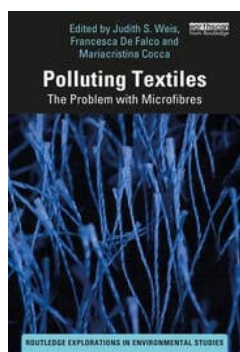


MARAVILLA CLEMENS

Maravilla Clemens, from Rutgers University and nominated by New Jersey Sea Grant, was matched with the California Coastal Conservancy to improve wetland health and coastal resilience in Southern California by developing a regional wetland monitoring program, funding and managing community-based restoration projects, and coordinating multiple state and federal agencies.

NJSGC in Your Community

Judith Weis, New Jersey Sea Grant Stakeholder Advisory Board Member, has recently published a book entitled **Polluting Textiles: The Problem with Microfibres**



Dr. Judith S. Weis's book examines the critical issue of environmental pollutants produced by the textiles industry. Composed of contributions from environmental scientists and materials and textiles scientists, this edited volume addresses the environmental impact of microplastics, with a particular focus on microfibres released by textiles into marine and freshwater environments. The book will be of great interest to students and scholars of environmental conservation and management, environmental pollution and environmental chemistry and toxicology, sustainability, as well as students and scholars of material and textiles science, textile engineering and sustainable manufacturing.

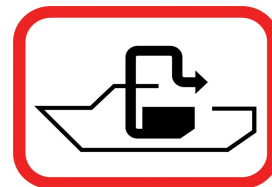
Dr. Judith S. Weis is an emeritus Professor of Biological Sciences at Rutgers University, Newark. She received her bachelor's degree from Cornell University, and MS and PhD from New York University. Her research focuses mostly on estuarine ecology and ecotoxicology, and she has published over 250 refereed scientific papers, as well as a book on salt marshes ("Salt Marshes: A Natural and Unnatural History") in 2009, a book on fish ("Do Fish Sleep?") published in 2011, and a book on crabs ("Walking Sideways: The Remarkable World of Crabs") in 2012. She serves on the editorial board for BioScience, and is one of the editors of the on-line Encyclopedia of Earth.

She is a Fellow of the American Association for the Advancement of Science (AAAS), was a Congressional Science Fellow with the U.S. Senate Environment and Public Works Committee, and was a Fulbright Senior Specialist in Indonesia in 2006. She has been on numerous advisory committees for USEPA, NOAA, National Research Council and chair of the Science Advisory Board of the NJ Department of Environmental Protection.

For more information visit
<https://www.routledge.com/Polluting-Textiles-The-Problem-with-Microfibres/Weis-Falco-Cocca/p/book/9780367760755>

Boating Updates!

Attention Boaters! The pumpout boat Circle of Life will not be operating for the remainder of the 2022 boating season due to a mechanical breakdown. The Ocean County pumpout boats Water Warrior and Pollution Solution are still servicing boats in the Seaside Park area of Barnegat Bay. In addition, there are numerous pumpout facilities located at marinas on Barnegat Bay and throughout the state. Please visit NJBoating.org for a complete list of pumpout facilities and other boating information.



Planning on shrink wrapping your boat for the winter? Plan ahead and make a plan to recycle your shrink wrap in the spring. Check out to NJBoating.org for information on recycling your used shrink wrap.

The NJSGC will be exhibiting at the Jersey Shore Boat Sale and Expo on September 23-25, 2022.

Stop by the exhibit for current information on marine science related research and education. On Saturday and Sunday in partnership with the Marine Trades Association of New Jersey there will be a Kids Cove Scavenger Hunt. Kids will be able to return their completed scavenger hunt to the NJSGC for a take home craft.

The Jersey Shore Boat Sale & Expo isn't just for adults!
Check out our fun activities for Little Boaters in our

KIDS COVE

SATURDAY SEPTEMBER 24 & SUNDAY SEPTEMBER 25
10AM - 4PM

* Please note that some Kids Cove Activities are only available at specific times.

"I SPY" SCAVENGER HUNT

Located on Sandy Hook, the NJ Sea Grant Consortium conducts marine science research and education. Little skippers can participate in a nautical version of "I Spy Scavenger Hunt" at the show. Kids that complete the Scavenger Hunt can enter to win a fishing or boating related prize. Two winners will be selected at the end of the day on Saturday and Sunday. There will also live turtles at the show for the skippers to be on the lookout for. Stop by the NJ Sea Grant Consortium booth on the concourse to enter the drawing.



KIDS RUN THE BASES

Children 4 to 12 years old get their chance to run the bases on a genuine Minor League baseball field both Saturday and Sunday. Come with your parents and meet us between Sections 106 & 107 at 12 pm and 2pm.



BOUNCE HOUSE

Head up to the concourse and get ready to get your bounce on! Saturday and Sunday 12-4



MEET BUSTER

The BlueClaws mascot Buster will be visiting the show on Saturday at 1 PM!



Dr. Jon Miller and Laura Kerr Study Beach Nourishment in Long Branch

New Jersey Sea Grant Consortium's own Dr. Jon Miller, Coastal Processes Specialist, and Laura Kerr, Coastal Resilience Specialist, team up to research and monitor our beaches. Since the 2020 Sandy Hook to Barnegat Inlet Beach Erosion Control Project beach replenishment in Long Branch, the Stevens Institute of Technology Coastal Engineering Research Group (CERG) has been monitoring the area under the support of the New Jersey Coastal Protection Technical Assistance Service (NJCPAS) program.

To document the rapid evolution of beach nourishments, Dr. Miller, Ms. Kerr, and their research team use a series of three methods to measure the status of the beach. First a DJI Phantom 4 Pro drone is used to take aerial photographs along the stretch of beach (Image 1). This paints a visual picture of erosion and the status of the shoreline. At the same time a team conducts walking surveys using backpack-mounted real-time kinematic (RTK) GPS system (Image 2). Lastly, all hands-on deck as the team uses its Dynamic Underwater Coastal Kinematic Surveying (DUCKS) System. Mounted on a jetski, Kerr braces the waves and takes data along a 3-mile stretch of the Jersey Shore (Image 3). The DUCKS system integrates traditional real-time kinematic global positioning system (RTK-GPS) topographic surveys, with hydrographic surveys conducted from a personal watercraft.

All 3 pieces of the puzzle (drone, walker, and DUCKS), formally called the Stevens CERG CSS - Coastal Surveying System, are collecting locations and elevations in different ways. After the surveys, the team goes back to the office to stitch all the data together to create a digital elevation model (DEM) or surface elevation map of the area. They then compare how those DEMs change over time to find areas of erosion and accretion.

In July 2020 the New York District of the US Army Corps of Engineers (USACE), the New Jersey Department of Environmental Protection (NJDEP), and the City of Long Branch completed a large-scale renourishment project, as a part of the Sandy Hook to Barnegat Inlet, Beach Erosion Control Project. The renourishment area spanned from approximately Sycamore Ave., Elberon, to Howland Ave. Long Branch.

So, what has the team found so far? Data from this year is still being collected, but since the renourishment project, the sand diffused rapidly with the majority spreading to the north. As the filled shoreline receded over the year, the general shape stayed the same. After the initial 53% increase within the fill area, there was an expected rapid decrease in volume as the fill diffused. After one year, the August 2021 data shows that 42% of the fill material remained within the fill area, and 76% of the material remained within the Long Branch system. Stay tuned for data updates!



Image 1 - Laura Kerr (right) and some of her team launch the drone.



Image 2 - Stevens Team walks the beach with the backpack mounted GPS system.



Image 3 - Laura Kerr collects data via jetski.

NJSGC welcomes Julie Lang as its new K-12 Program Coordinator

Julie is a New Jersey native, who grew up visiting Sandy Hook every summer with her family. She graduated from The Rochester Institute of Technology with a bachelor's degree in photography and a minor in journalism. After graduating and returning home to New Jersey, she quickly developed a passion for scuba diving, underwater photography, marine conservation, and sustainable living.



JULIE LANG

As Julie's interests in marine science grew, she began working as a field guide in 2019. The inspiring environment at NJSGC motivated Julie to completely change her career path and return to school for her master's degree in Nonprofit Administration at Rutgers University. She began working as NJSGC's Education Associate earlier this year and has become an asset to the education department, working diligently alongside staff members to resume in-person programming, build relationships with school leaders, and help Education staff wherever she can.

Diana Burch, Director of Education at NJSGC comments 'This is a well-earned recognition, with Julie having exhibited all of

the great qualities necessary to run this robust and ever-growing program. I couldn't have asked for a better person to take over running the program that I have been committed to since 2009, and I look forward to seeing what great things lie ahead for Julie."

As K-12 Program Coordinator Julie brings with her a fresh set of ideas and an enthusiasm for showing students that science does not have to be difficult or scary – in fact it can be quite fun! Less than a week into her new role, Julie is working on updating NJSGC's field trip resources into an easily accessible digital format and updating our ever-popular programs to suit students of all ages. Julie is excited to continue learning and developing programs alongside the Education Department and NJSGC is equally happy to welcome her aboard!

SCHOOL SEASON IS BACK

In Person Field Trips

The Coastal Experience is NJSGC's collection of marine science field trips for children in grades PreK-12. These outdoor experiential learning programs are offered year round and include active, hands-on participation in marine science activities. For more information or to make a reservation, please contact NJSGC's K-12 Program Coordinator Julie Lang.

Virtual Programs

Visit the coast without leaving your classroom and learn in-depth about New Jersey's marine and coastal ecosystems in an intimate, small-group setting. Taught LIVE by our experienced environmental education staff, NJSGC offers a variety of opportunities to engage students, scouts, and learners of all ages! Lively presentations, demonstrations, experiments, and games encourage student interaction and spark their curiosity on topics that are designed to excite while meeting educator's curricular needs, scout leader's requirements, and/or families' interests. For more information or to make a reservation, please contact NJSGC's Education Specialist Mindy Voss.

Programs and prices vary. All virtual K-12 programs support Next Generation Science Standards and New Jersey Student Learning Standards for Science. Visit the NJSGC website to learn more.

ATTENTION 3RD, 4TH & 5TH GRADE EDUCATORS

As part of the Every Kid Outdoors initiative, 3rd, 4th, and 5th graders (along with their families and teachers) are encouraged to visit national parks to experience the natural wonders and cultural history that can be found there. NJSGC headquarters has long been located at Sandy Hook, thus bringing this unique national park experience to tens of thousands of students since 1976.



Educators interested in participating in the Every Kid Outdoors program through NJSGC can choose from 2 FREE virtual programs or 1 field trip program led by NJSGC educators. Whether your students are in class or learning from home, we can enhance their educational experience with a fun "virtual" field trip or an exciting experiential learning program! For more than 30 years, school groups from New Jersey and neighboring states have enjoyed learning about coastal ecosystems with NJSGC at Sandy Hook, a unit of Gateway National Recreation Area. NJSGC is proud to partner with the National Park Service and Jamaica Bay-Rockaway Parks Conservancy to offer FREE programs to 3rd, 4th, and 5th grade students. For more information or to make a reservation, please contact NJSGC's K-12 Program Coordinator Julie Lang. The Every Kid Outdoors initiative is made possible by a generous contribution from the National Park Foundation. Learn about the education efforts of our partners, the National Park Service and Jamaica Bay-Rockaway Parks Conservancy.

WE'RE HIRING - Looking for a part-time job ? NJSGC is now accepting applications for Field Instructors. Apply today at <https://njseagrant.org/bout-us/job-opportunities/> Join a great group of people who share their knowledge with students to promote a love of environmental science. Gain hands-on educational experience and work in one of the most unique natural "classroom" environments in New Jersey, Gateway National Recreation Area-Sandy Hook Unit.