



Annual Report 2021



Our Mission

To serve Monmouth University and the public as a forum for **research**, **education**, and **collaboration** in the development and implementation of science-based policies and programs that support stewardship of healthy, productive, and resilient coastal ecosystems and communities.

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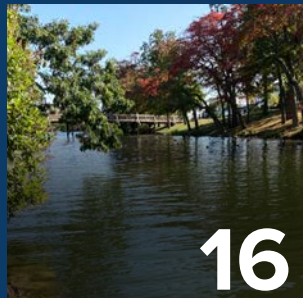


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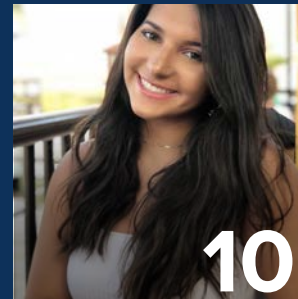
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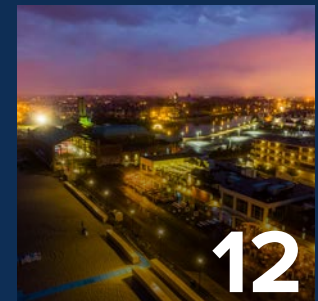


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On Resilience and the New Normal

2021 — another peculiar year, unlike any before. How many times did it seem we were turning a corner, only to slide back to uncertainty? The University was vigilant in tracking and monitoring campus health and supporting faculty and students as they continued to adjust to online learning. Beaches reopened to the public with limited restrictions and record numbers of visitors came to the Jersey Shore to revive their spirits, reminding us how fortunate we are to live where we do.

Ironically, the return of all of this activity reminded us how vulnerable these resources are to human influence. The eerily quiet skies and seas of 2020 provided a temporary respite for ocean wildlife and ecosystems. Carbon emissions that had drastically reduced the previous year increased as we returned to our cars, and airline and shipping activity rebounded.

UCI Marine Scientist Jim Nickels did yeoman's work to ensure that safety protocols were in place this summer so that Monmouth

students could continue to go to sea to conduct research on the *R/V Heidi Lynn Sculthorpe*. Students in the School of Science Summer Research Program were able to once again present their research posters in person on campus outside in beautiful Erlanger Gardens. This report includes a description of some of their diverse and impressive work under these challenging conditions.

The upcoming 10th anniversary of Superstorm Sandy in October reminds me that the catastrophe was responsible for entering the term "resilience" into the common lexicon, recognizing the resilience of individuals in responding to the storm and calling on communities to take actions to become more resilient to the inevitable next hurricane. UCI Associate Director Tom Herrington continues to be a leader in improving our understanding of the impacts of sea level rise and coastal storms and working with communities to design more effective responses.

It was also regularly noted after Sandy that there was a need to take action to adapt to these more frequent and severe storms as the

"new normal." These same terms – resilience and new normal – are often invoked to describe our response to the challenges posed by the pandemic. The jury is still out on whether we have fully learned the lessons of Sandy or how we will change as a result of the pandemic, but a return to the ways of the past is not an option.

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The jury is still out on whether we have fully learned the lessons of Sandy or how we will change as a result of the pandemic, but a return to the ways of the past is not an option.”

Although the UCI's work in 2021 was mostly conducted remotely, there was a brief window before the Omicron wave when UCI/Rechnitz Family Endowed Chair in Marine and Environmental Law and Policy Randall Abate and I were able to travel to Glasgow, Scotland, to attend the 26th Convention of the

Parties of the U.N. Framework Convention for Climate Change (COP26). While the negotiations largely focused on the global impacts and national responses needed to address a changing climate in an ever more populated and developing world, it was easy to visualize how these issues are playing out in real-time along the coast of New Jersey.

The state is in the process of developing a comprehensive Climate Adaptation Plan and Coastal Resilience Strategy. The race is on to develop offshore wind farms that are projected to reduce carbon emissions and jump start a new ocean industry, yet there are still concerns about impacts of these facilities on fisheries and ocean ecosystems. While on one hand the Army Corps of Engineers is considering plans to fortify our shoreline with a mix of tide gates, hard structures, and nature-based features, there are still calls from some to retreat from the coast. We are rightfully more aware that many of the worst impacts of climate change and coastal storms are disproportionately felt in communities of color

and environmental justice communities, and that there is a need to address these imbalances.

There is plenty of work for the UCI to do in the coming year, but we are grateful for all of the support we received and what we were able to accomplish in 2021.

And, to conclude, a poem from Mary Oliver to provide some perspective on our tempest-tossed world.

The Poet Compares Human Nature to the Ocean from Which We Came

The sea can do craziness, it can do smooth, it can lie down like silk breathing or toss havoc shoreward; it can give

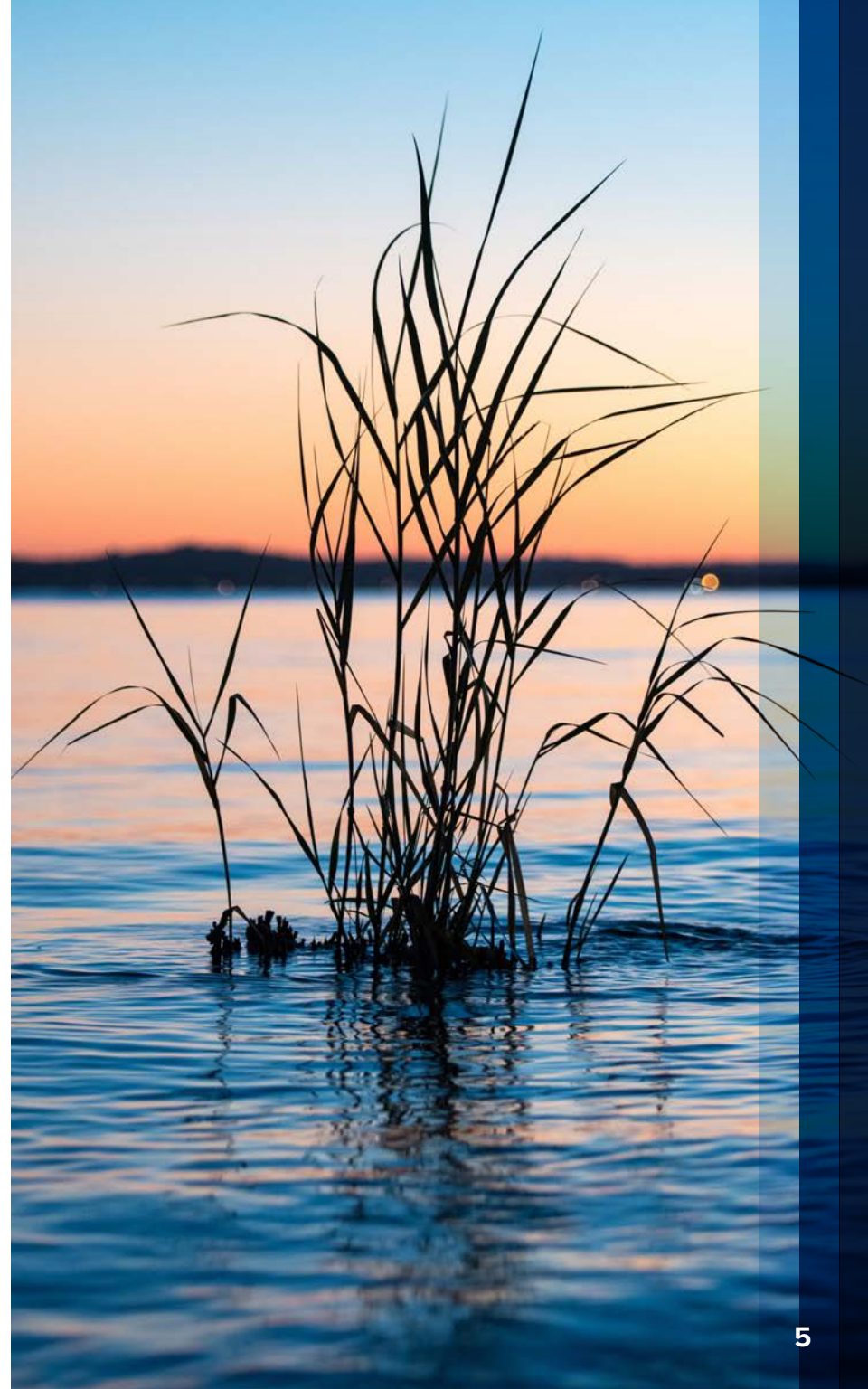
gifts or withhold all; it can rise, ebb, froth like an incoming frenzy of fountains, or it can sweet talk entirely. As I can too,

and so, no doubt, can you and you.



TONY MACDONALD

Director, Urban Coast Institute



Fulfilling a Commitment to Excellence, Access, and Ambition

The UCI celebrated its 15th year of operation — its “Crystal Anniversary” — in 2021. The experience crystallized how far we’ve come. On our social media channels, we looked back on 15 seminal moments in the UCI’s history during a 15-day countdown to Earth Day. When you enter the hashtag #UClat15 on Instagram, Twitter or Facebook, you’ll find plenty of stories of community impacts and research milestones which wouldn’t have been possible without the enthusiasm and innovation of Monmouth University students. As the UCI looks forward to the future, the University has completed a Strategic Plan that provides a road map for Monmouth’s continued rise as a national leader in higher education through its commitment to **Excellence, Access, and Ambition**.

The UCI will serve as an active partner in advancing these goals.



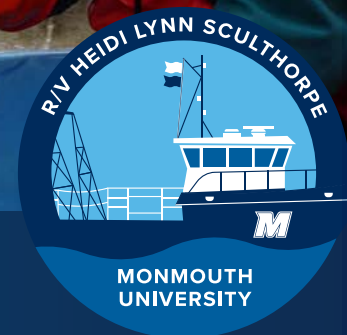
As illustrated throughout this report, the UCI takes pride in its efforts each day to enhance faculty collaboration and student experience in these strategic areas.

EXCELLENCE: The UCI fosters an “only at Monmouth” classroom experience by providing access to three research vessels (including the 49-foot *R/V Heidi Lynn Sculthorpe*, captained by UCI Marine Scientist Jim Nickels), cutting-edge technologies, and experiential learning activities that take advantage of the University’s location at the world’s greatest laboratory — the Jersey Shore. It supports faculty innovation, curriculum enhancement and research grants, and secures outside funding for research and community engagement.

ACCESS: The UCI makes Monmouth more accessible for students by offering endowed scholarships, research grants, paid field assistant positions, and funding to support classroom purchases, conference fees and more. As part of its ongoing commitment to diversity, equity, inclusion and justice, the UCI focuses on expanding access and experiences for Monmouth students on campus by engaging them with real-world challenges locally and globally.

AMBITION: The UCI recently obtained observer status for the U.N. Framework Convention on Climate Change. Staff are active as members of National Academy of Science boards, editors of national journals, and leaders, and participants on boards for national, regional and state professional organizations. Working with faculty, the UCI secures funding for research efforts that include partners from other universities and external organizations that amplify the reach and impact of Monmouth University efforts.

In these pages, you’ll find highlights of the UCI’s contributions to the student journey and field of marine science and policy over the last year.



The UCI by the Numbers: 2021

Heidi Lynn Sculthorpe

110 students aboard

60 class/research/contract work days

Little Hawk & Seahawk

55 students aboard

61 class/research/contract work days

Student & Faculty Support

17 Heidi Lynn Sculthorpe Scholars student grants

16 student-faculty research projects funded

4 endowed scholarships

4 marine field assistant positions

Heidi Lynn Sculthorpe Scholars Research and Faculty Enrichment Grants



The **Heidi Lynn Sculthorpe Scholars Program** offers competitive grant funding for students and faculty mentors of all disciplines whose work furthers the goals and mission of the UCI. The program supports hands-on research projects that provide real-world experience to students while helping make a positive impact in coastal communities.



For the first time in 2021, a grant supported a participant in the Monmouth University Provost's **Summer Scholars Living and Learning Community**, which enables students to live on campus all summer while conducting their research. Endowed Associate Professor of Marine Science Jason Adolf was named the program's faculty coordinator beginning last summer.

The UCI also contributes funding to the **School of Science Summer Research Program** to support students conducting marine research projects. Following a COVID interruption in 2020, the School of Science Summer Research Program Symposium returned to its traditional

home at Erlanger Gardens with in-person poster presentations by over 40 students. The annual event is the culmination of 10 weeks of collaborative research by students and faculty mentors.

The program also offers **Faculty Enrichment Grants** and **Mini-Grants** year-round to support individual or collaborative projects for the enhancement of existing curriculum, new curriculum development, research and scholarship, and team-teaching opportunities.

See our full list of 2021 Heidi Lynn Sculthorpe Grant awardees on the next page.

Summer Research Grants

Assessing the State and Dynamics of a Turtle Assemblage in Lake Takanassee, New Jersey

Students: Christopher Meehan and Megan Malaty
Faculty mentor: Sean Sterrett, Ph.D., assistant professor, Department of Biology

Comparative Soil Analysis of Healthy Maritime Forests and Ghost Forests

Student: Carrington Retzios
Faculty mentor: Pedram Daneshgar, Ph.D., associate professor, Department of Biology

Developing Harmful Algal Bloom Forecast Models for Monmouth County, NJ Coastal Lakes

Student: Karly Nolan
Faculty mentor: Jason Adolf, Ph.D., endowed associate professor of marine science, Department of Biology

eDNA as a Tool for Surveying Turtles in Coastal Lakes

Student: Delaney Mestey-Jones
Faculty mentor: Megan Phifer-Rixey, Ph.D., UCI marine genetics faculty fellow

The Effect Hurricanes Have on Sustainable Tourism in the Bahamas and New Jersey

Students: Catherine Melman-Kenny and Sabria Smith
Faculty mentor: Ken Mitchell, Ph.D., chair, Department of Political Science & Sociology

Evaluation of Coastal Lakes as Turtle Habitat in Monmouth County, New Jersey

Students: Megan Malaty and Christopher Meehan
Faculty mentor: Sean Sterrett, Ph.D., assistant professor, Department of Biology

Exploring Salt Tolerances of Lichens in New Jersey Coastal Ecosystems

Student: Emily Vasquez (UCI/Provost Summer Scholar)
Faculty mentor: Pedram Daneshgar, Ph.D., associate professor, Department of Biology

Female Labor Force Participation and Care of Children in Coastal New Jersey

Student: James T. Allan
Faculty mentors: Katherine Ramirez, Ph.D., assistant professor, Department of Economics, Finance, and Real Estate; Geoffrey Fouad, Ph.D., assistant professor, Department of History & Anthropology

Geospatial Representation of Lower Hudson Raritan Estuary Water Quality

Student: Nicholas Box
Faculty mentor: Jason Adolf, Ph.D., endowed professor of marine science, Department of Biology

Mutual Benefits for Offshore Wind Energy in the Mid-Atlantic: Science and Policy Strategies to Mitigate Harm to Marine Species and Maximize Benefits for Renewable Energy

Student: Riya Ajmera
Faculty mentor: Randall Abate, J.D., Rechnitz, Family/UCI endowed chair in marine and environmental law and policy

New Jersey Coastal Resilience Collaborative Policy Analyst

Student: Samantha Pawlik (research assistant)
Faculty mentor: UCI Associate Director Thomas Herrington, Ph.D., and Director Tony MacDonald, Esq.

The '30 by 30' Initiative: Implementing Area-Based Management Strategies to Confront Marine Biodiversity Loss in the Mid-Atlantic Region

Student: Kyra Velock (research assistant)
Faculty mentor: Randall Abate, J.D., Rechnitz, Family/UCI endowed chair in marine and environmental law and policy

Faculty Enrichment Grants

Are Ghost Forests Really Forests or Salt Marshes? Exploring the Impacts of Sea Level Rise and Flooding on Coastal Forest Communities

Faculty researcher: Pedram Daneshgar, Ph.D., associate professor, Department of Biology

Counseling with Nature: A Qualitative Study of the Experiences of Ecotherapy Clients

Faculty researcher: Megan Delaney, Ph.D., associate professor, Department of Professional Counseling
Student researcher: Molly Malkinski

Experiences of Youth Climate Activists

Faculty researchers: Alyson Pompeo-Fargnoli, Ph.D., assistant professor, Department of Educational Counseling and Leadership; Melissa Alvare, Ph.D., lecturer, Department of Political Science and Sociology

Sea Level Rise – Flood Risk, Property Values and Income Effects on New Jersey's Coastal Communities

Faculty researcher: Gina McKeever, DBA, instructor, Department of Finance, Economics and Real Estate
Student researcher: Valentina Pane

Also see page 12 for DEIJ project grants.

Internships by Heidi Lynn Sculthorpe Scholars

Heidi Lynn Sculthorpe Scholars often go on to earn prestigious internships. Congratulations to:

2021 NOAA Ernest F. Hollings Undergraduate Scholars
 Aidan Bodeo-Lomicky, Hannah Craft and Johanna Vonderhorst

Global Ocean Forum Research Assistants
 Kyra Velock and Johanna Vonderhorst



President's Medal Celebrates

Robert Sculthorpe

Congratulations to Robert B. Sculthorpe '63 '15HN, on receiving the inaugural President's Medal in recognition of his extraordinary service, philanthropy, and leadership. The award, created by President Patrick Leahy, represents the highest honor Monmouth University can bestow on an individual.

The Sculthorpe name holds particular significance for the UCI. The UCI's student research grant program and Monmouth University's largest research vessel, the *Heidi Lynn Sculthorpe*, are named in memory of his daughter and in honor of his many contributions to the institute and University.

2021 UCI Endowed Scholarships

The **Ann and Alfred L. Ferguson '13HN UCI Endowed Scholarship** and **MacDonald Family UCI Endowed Scholarship** were awarded for the first time in 2020-21.

The **Rita Mangan UCI Endowed Scholarship** and **Urban Coast Institute Endowed Scholarship** established by the UCI Advisory Committee will be made available in 2022. These scholarships are intended to encourage Monmouth students to become active global citizens while fostering an understanding of the coastal and marine environment and communities, legal studies, public policy, and research methods.



Riya Ajmera

ANN AND ALFRED FERGUSON SCHOLARSHIPS

Class/Major: Junior, Chemistry with a Concentration in Biochemistry

In Her Own Words: "Knowing the environmental pressures, animal injustice, and lack of proper knowledge that exist in the current state of the world, I am deeply motivated to create change in any way that I can. There has never been a moment when I have not been active in environmental policies and actions around the world."



Lejla Canka

ANN AND ALFRED FERGUSON SCHOLARSHIPS

Class/Major: Sophomore, Political Science with a Concentration in International Relations

In Her Own Words: "My studies have allowed me to become a much more active, aware, and environmentally conscious member of my community, as well as the global community as a whole. From researching highly urbanized cities and the detrimental effects that industrialization has had on surrounding environments, to learning of the significant threat that rising sea levels and carbon emissions pose to coastal areas, my studies have only encouraged me to do all that I can to aid in the process of fostering an understanding of the coastal and marine environment and communities."

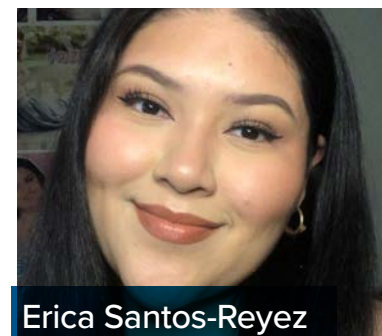


Samantha Pawlik

ANN AND ALFRED FERGUSON SCHOLARSHIPS

Class/Major: Senior, Political Science with a Concentration on Legal Studies

In Her Own Words: "Ever since I was a young girl, I've had a passion for taking care of animals and protecting the beaches I grew up living near. A huge part of this profound interest in the environment is due to the fact that I grew up spending my days at the beach or on a boat, admiring the natural beauty of the world around me. I continue to show my appreciation for our oceans and our lands every day and hope to continue this in law school by making a real difference in policy and law."



Erica Santos-Reyez

MACDONALD FAMILY SCHOLARSHIP

Class/Major: Sophomore, Political Science with a Concentration in International Relations

In Her Own Words: "I was born and raised in Long Branch, New Jersey, therefore environmental protection regarding the beach has always been close to my heart. I hope to one day help in passing legislation that would protect the beach I grew up with. I hope to influence others into seeing the importance of taking care of the environment, as this planet is the only one we have and it allows us to experience so many amazing life memories."

An Eventful Year, Virtually

Although the pandemic precluded holding large gatherings on campus in 2021, the UCI introduced visitors from around the world to Monmouth through a robust schedule of online events.

In its second year, the **Global Ocean Governance Lecture Series** assembled panels of internationally recognized experts to discuss scientific and policy issues that hold important implications for coastal and marine ecosystems. The series is jointly organized with Monmouth's Institute for Global Understanding and hosted by its director, Rechnitz Family/UCI Endowed Chair in Marine and Environmental Law and Policy Randall Abate. Segments in 2021 focused on protection measures for whales, social justice issues in international fisheries, and adapting marine shipping governance and maritime sovereignty to respond to climate change.

The UCI's **Marine and Environmental Policy Series** invites speakers to deliver presentations on timely regional issues, often with ties to course curriculum at Monmouth. Last year's lectures covered government policies that can be enacted to protect people and the environment from harmful algal blooms and lessons learned for America from tuna management decisions abroad.

The UCI supported Monmouth University's **Climate Crisis Teach-In**, which has cemented its status as an annual showcase for interdisciplinary research taking place on campus. Abate, UCI Associate Director Thomas Herrington, Director Tony MacDonald, and Endowed Associate Professor of Marine Science Jason Adolf also shared their expertise as presenters and moderators on panels at the weeklong event. You can watch a full lineup of Teach-In talks at monmouth.edu.

Watch Online

Visit our YouTube channel at youtube.com/UrbanCoastInstitute to view these 2021 webinars:

Reflections from the COP26 Climate Summit: Real Progress or Just 'Blah, Blah, Blah?'

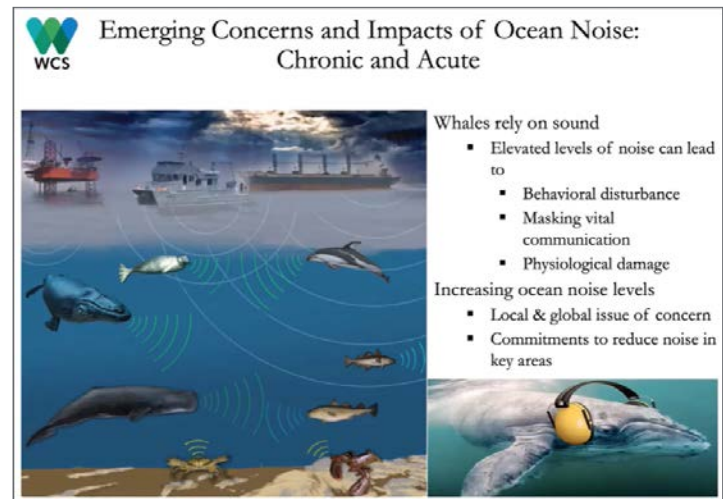
Current Issues in Global Governance of Whales

The Empirics of Equity: Examining Tuna Management Decisions in the Western and Central Pacific and Indian Oceans

Climate Change and Harmful Algal Blooms: Legal and Policy Responses to Protect Human Health, Marine Environments, and Coastal Economies

Global Fisheries Governance and Social Justice

Global Perspectives on Adapting Marine Shipping Governance and Maritime Sovereignty to Respond to Climate Change



A Commitment to Diversity, Equity, Inclusion, and Justice

Building upon Monmouth University's commitment to ensuring all people feel welcome on campus, the UCI issued its own statement on Diversity, Equity, Inclusion, and Justice (DEIJ) in 2021. It recognizes that communities of color and environmental justice communities *"bear a disproportionate share of the burden of marine pollution, coastal storms, and sea level rise, as well as uneven access to and distribution of benefits from the ocean. In order to support an ocean that will thrive and benefit future generations, we need to design more ambitious and inclusive solutions."*

DEIJ Projects

The UCI issued a call for proposals in 2020 to support faculty/student research and community-based projects focused on sustainably rebuilding coastal communities and economies after the pandemic while addressing impacts to and needs of vulnerable populations. Grants were awarded for two projects that proceeded last year:

- A team of researchers that includes Associate Professor of African American History Hettie Willilams, Ph.D., Specialist Professor of Public History Melissa Ziobro, GIS Program Director Geoffrey Fouad, and students is working to preserve Asbury Park's African American history through the **Paradoxical Paradise** project. The group has assembled a growing online library of archival documents and photos, interactive maps, oral histories, podcasts, and other multimedia, all of which are publicly accessible at paradoxicalparadise.com.

- A series of **Little Free Library** installations were placed in low-income coastal communities to counter the limited availability of books that has been exacerbated by virtual schooling and children's reduced access to school libraries. The work was carried out by a team that included Adjunct Professor Lori Burns, Assistant Professor of Curriculum and Instruction Jason Fitzgerald, Ph.D., Assistant, Assistant Professor of Literacy/Language Arts Kenneth Kunz, Ed.D., Science Education Lecturer Michelle Schpakow, Ed.D, and Monmouth University Librarian Kurt Wagner.

MacDonald Joins Citizens Campaign Task Force

UCI Director Tony MacDonald joined the Law and Policy Task Force for nonprofit Citizens Campaign. Founded by government law and policy expert Harry Pozycki, the group's mission is to educate all Americans to the fullness of their political power and introduce them to the shared experience of public service performed by participating in "No-Blame Problem Solving" of public issues. For more information on the Citizens Campaign, visit thecitizenscampaign.org.

Advancing Ocean Justice through the Mid-Atlantic

The regional ocean planning community has turned an introspective eye toward to its historic practices and concluded that underrepresented and marginalized communities have not been adequately included in decision-making processes. As core members of a team facilitating the Mid-Atlantic Committee on the Ocean (MACO), a consortium of state, federal, and regional agencies and Tribal entities formed to collaborate on ocean issues, UCI Director Tony MacDonald and Communications Director Karl Vilacoba are working to reform how ocean planning is conducted and promote ocean justice in the region.

The coming development of offshore wind farms in the Mid-Atlantic has raised questions about how disadvantaged communities can share in the economic opportunities while avoiding any negative impacts that may come from industrial activities. This was one of many ocean justice issues discussed by participants in a "Science, Knowledge, Equity and Justice for Regional Ocean Planning" panel that MacDonald and Vilacoba helped organize at the **2021 Mid-Atlantic Ocean Forum**.

Vilacoba also organized and moderated a region-wide student poster session which called for proposals that shared research on ocean science and policy challenges dealing with impacts on vulnerable and marginalized communities. Recordings of the sessions can be found at midatlanticocean.org.

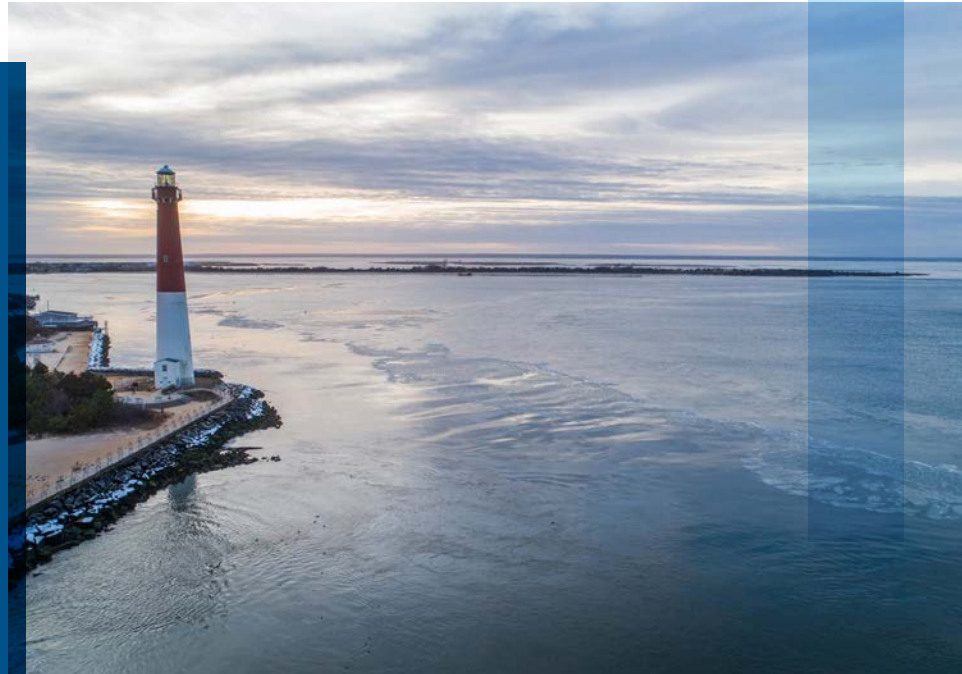


One of the ways MACO is working to improve representation is through more thorough and inclusive data collection and mapping. As the project manager for the Mid-Atlantic Ocean Data Portal (portal.midatlanticocean.org), Vilacoba collaborated with Tribal entities to assemble an Indigenous Nations, Communities, and Cultures map collection that shows which groups lived along the coast in the past, modern day Tribal headquarters, contact information for leaders and more.

He also profiled three Mid-Atlantic women who have been instrumental to the success of the nonprofit Black in Marine Science in an edition of the Portal's educational "Ocean Stories" story map section. To read the story, visit portal.midatlanticocean.org/ocean-stories.

From the U.N. to L.B.I., a Focus on Climate Impacts

In October, the eyes of the world focused on Glasgow, Scotland, where over 20,000 representatives of governments, industries, scientific and policy bodies gathered to accelerate progress on the goals of the Paris Climate Agreement and the U.N. Framework Convention on Climate Change. Among them were UCI Director **Tony MacDonald** and Rechnitz Family/UCI Endowed Chair in Marine and Environmental Law and Policy **Randall Abate**, who participated as official observers at the 26th U.N. Climate Change Conference of the Parties (COP26).



Dubbed “Jersey’s players in Glasgow” by *NJ Spotlight News*, MacDonald and Abate attended conference proceedings, met with colleagues from the U.S. and other observing groups, and kept the public and campus informed on the conference deliberations and their implications for our region by filing dispatches to a COP26 Trip Journal on the UCI website. After they returned, School of Science Dean Steven Bachrach moderated a webinar where MacDonald and Abate shared their impressions of the summit with the campus community.

From the British Isles to Long Beach Island, the UCI remained focused in 2021 on solutions to help make coastal communities better prepared to withstand climate impacts. Among its newest efforts, UCI Associate Director Thomas Herrington and a team of experts from around New Jersey received a National Coastal Resilience Fund grant to develop a restoration plan for marsh islands in Barnegat Bay that can improve the system's ecological health and protect nearby communities from flooding, coastal storms, and climate threats.

As the New Jersey Sea Grant Consortium resilient communities and economies specialist and a convener of the New Jersey Coastal Resilience Collaborative, Herrington is frequently consulted by public officials, media outlets, and residents as a trusted source of information on coastal resilience issues. In the fall he worked to organize a virtual "People on the Move in a Changing Climate" conference attended by academic institutions and government agencies throughout the East Coast. He also delivered a lecture on changes taking place along New Jersey's coast at Cape May Convention Hall.

Monmouth Polling Institute/UCI National Climate Change Survey Conducted September 2021

56%

Believe climate change
a very serious problem

66%

Support more
government action

76%

Believe in
climate change

62%

Believe sea level rise will affect
inland areas as much as coast



Will Climate Change Strike Baseball Umpiring?

It's hard enough to reach base when pitchers like Aroldis Chapman and Jacob deGrom throw the high heat. But what about when Mother Nature does?

A study by Monmouth University Associate Professor of Economics Eric Fesselmeyer, Ph.D., found that Major League Baseball (MLB) umpires call pitches less accurately in uncomfortable temperatures, with performance at its worst in extreme heat conditions. The analysis shows that the pitch-calling error rate is about 1 percentage point worse when temperatures are above 95 degrees, while accuracy is highest in games played in 80 to 90 degree weather. The results raise the prospect that America's pastime could be impacted by climate change, as warming temperatures and more frequent heat waves threaten to cause a further decline in officiating.

"The drop in accuracy may seem small, but it is nontrivial for this high-revenue, high-stakes industry," said Fesselmeyer, an affiliated faculty member of Monmouth's Urban Coast Institute. "Moreover, high temperatures cause an even greater decrease in accuracy on close call pitches along the edges of the strike zone."

Fesselmeyer's research has implications beyond baseball. If workers as experienced and well-versed in their craft as MLB umpires are susceptible to the heat's influence, the results are especially worrisome for industries that rely on less-experienced and lower-skilled workers such as agriculture, construction, and manufacturing, which are likely less capable of mitigating the impact of rising temperatures. A paper summarizing the work was published in *The Southern Economic Journal*.



Placing Harmful Algal Blooms Under the Microscope



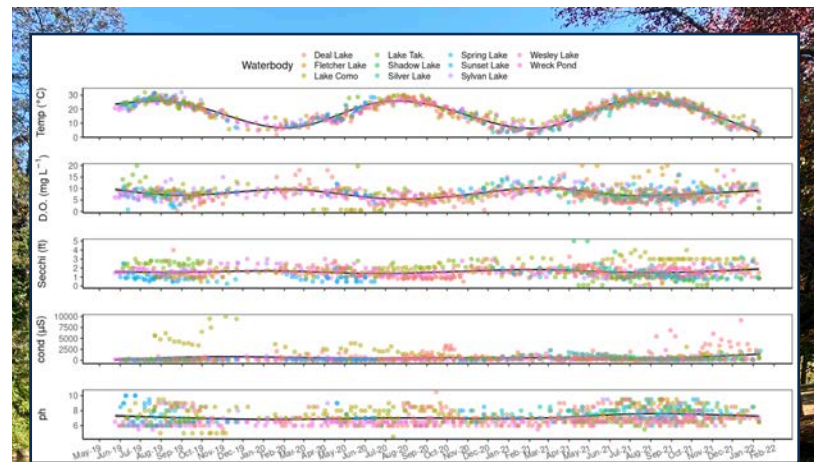
Monmouth University has emerged as a national leader in research and creative approaches for managing the growing economic and public health threat of harmful algal blooms (HAB). The issue has received heightened attention from New Jersey lawmakers in recent years, as lengthy closures to tourist destinations such as Lake Hopatcong and drinking water sources have underscored the urgency for solutions.

Endowed Associate Professor of Marine Science Jason Adolf, Ph.D., leads a HAB Expert Team launched by Gov. Phil Murphy to provide guidance to the New Jersey Department of Environmental Protection (NJDEP) on HAB prevention, mitigation, and management for the state's water bodies. Through a NJDEP grant, Adolf, UCI Community Science Coordinator Erin Conlon, and students have begun monitoring nearby Sunset and Deal lakes as part of a statewide study of factors driving HAB formation in New Jersey lakes. The two bodies differ from typical lakes in that they have ocean connections, which results in higher salinities and the occasional outflow of hazardous microbes at bathing beaches.



How's Your Lake's Health?

Check out the CLONet Data Explorer App at monmouth.edu/clonet to view graphics of data captured by citizen scientists for Deal Lake, Fletcher Lake, Lake Como, Lake Takanassee, Shadow Lake, Silver Lake, Spring Lake, Sunset Lake, Sylvan Lake, Wesley Lake, and Wreck Pond.



Adolf and Conlon have marshaled the enthusiasm of community volunteers to protect their neighborhood lakes through the Coastal Lakes Observing Network (CLONet). Through the program, University students and scientists train and equip community citizen scientists to sample beach-adjacent lakes in Monmouth County for measures such as temperature, salinity, clarity, and dissolved oxygen levels, then file their readings to an online database.

From CLONet's launch in mid-2019 to the close of 2021, the citizen scientists collected 1,000 samples — data that is beginning to reveal the triggers for HABs in each lake and how to predict and treat them.

With a grant provided in 2021 by the Jules L. Plangere, Jr. Family Foundation, the CLONet research will continue through 2023.

Herrington Takes Helm of *Journal of Marine Environmental Engineering*

UCI Associate Director Thomas Herrington was named the editor-in-chief of the *Journal of Marine Environmental Engineering* in 2021. Herrington previously served for four years as a member of the publication's editorial board, which currently includes representatives of American universities and military agencies as well as research institutions in Canada, China, Denmark, Greece, India, and the Netherlands. His term as editor will extend through 2024.

The journal's scope includes scientific and engineering disciplines addressing complex environmental problems in ocean and estuary waters and inland seas. Topics covered in past issues have included coastal and ocean processes, marine waste disposal, habitat enhancement and creation, fisheries management, dredging, beach erosion and management, and computer modeling, among many others. The journal was launched in 1993 and is published by the Old City Publishing, based in Philadelphia.

MacDonald, Committee for the Decade of Ocean Science Call for 'Ocean Shots'

In 2021, UCI Director Tony MacDonald and fellow members of the U.S. National Committee for the U.N. Decade of Ocean Science for Sustainable Development convened public meetings, expanded partnerships, and issued a call for transformational "Ocean Shots" — science and research proposals that align with the overall goal of the program. The federal government has asked the committee to review the Oceans Shots and identify cross-cutting themes that incorporate promising and innovative research concepts and align with established American ocean priorities. The themes identified will address compelling areas for public and private sector investment and provide opportunities for inter- and multi-disciplinary activities in support of ocean science. The committee will prepare a report in early 2022 that identifies the themes.

Scholarly Writings 2021

Visit the Reports & Publications page on the UCI website to view these and other writings by UCI staff, students, and collaborators.

"Anthropocene Accountability Litigation: Confronting Common Enemies to Promote a Just Transition," Randall Abate, *Columbia Journal of Environmental Law*

"Coastal Resiliency Considerations for America's Four Coasts: Preparing for 2100," Thomas Herrington, *Journal of Marine Environmental Engineering*

"Current laboratory protocols for detecting fish species with environmental DNA optimize sensitivity and reproducibility, especially for more abundant populations," Jason Adolf and Keith Dunton, *ICES Journal of Marine Science*

"The Impact of Temperature on Labor Quality: Umpire Accuracy in Major League Baseball," Eric Fesselmeyer, *Southern Economic Journal*

"What Is a Harmful Algal Bloom (HAB) and Why Do they Form?" by Jason Adolf, *ANJEC Report*

"Declining Discount Rates in Singapore's Market for Privately Developed Apartments," Eric Fesselmeyer, *Journal of Applied Economics*

UCI Launches Faculty Advisory Council

The UCI formed a Faculty Advisory Council in 2021 to provide it with guidance and new perspectives for enhancing academic and student engagement at Monmouth University. The council includes members representing a broad spectrum of academic disciplines and departments across campus.

Among its roles and responsibilities, the council assists in integrating the UCI more fully into Monmouth's academic programs to initiate high-impact opportunities for teaching, scholarship, research, and service, and to aid in student recruitment. The council also serves as a liaison with Monmouth schools, departments, faculty, and programs to increase understanding and support of the UCI mission.

- **Randall Abate** | Rechnitz Family/UCI endowed chair in marine and environmental law and policy, Department of Political Science and Sociology
- **Jason Adolf** | endowed associate professor of marine science, Department of Biology

- **Kimberly Callas** | assistant professor, Department of Art and Design
- **John Comiskey** | assistant professor, Department of Criminal Justice
- **Michael Cronin** | associate professor, School of Social Work
- **Eric Fesselmeyer** | associate professor of economics, Department of Economics, Finance, and Real Estate
- **Geoffrey Fouad** | assistant professor, Department of History and Anthropology
- **Jeanne Koller** | assistant professor, School of Social Work
- **Golam Mathbor** | professor, School of Social Work
- **Lindsay Mehrkam** | assistant professor, Department of Psychology
- **Michelle Schpakow** | science education lecturer, Department of Curriculum and Instruction
- **Claude Taylor** | director for academic transition and inclusion, Center for Student Success
- **Laura Turner** | assistant professor, Department of Mathematics

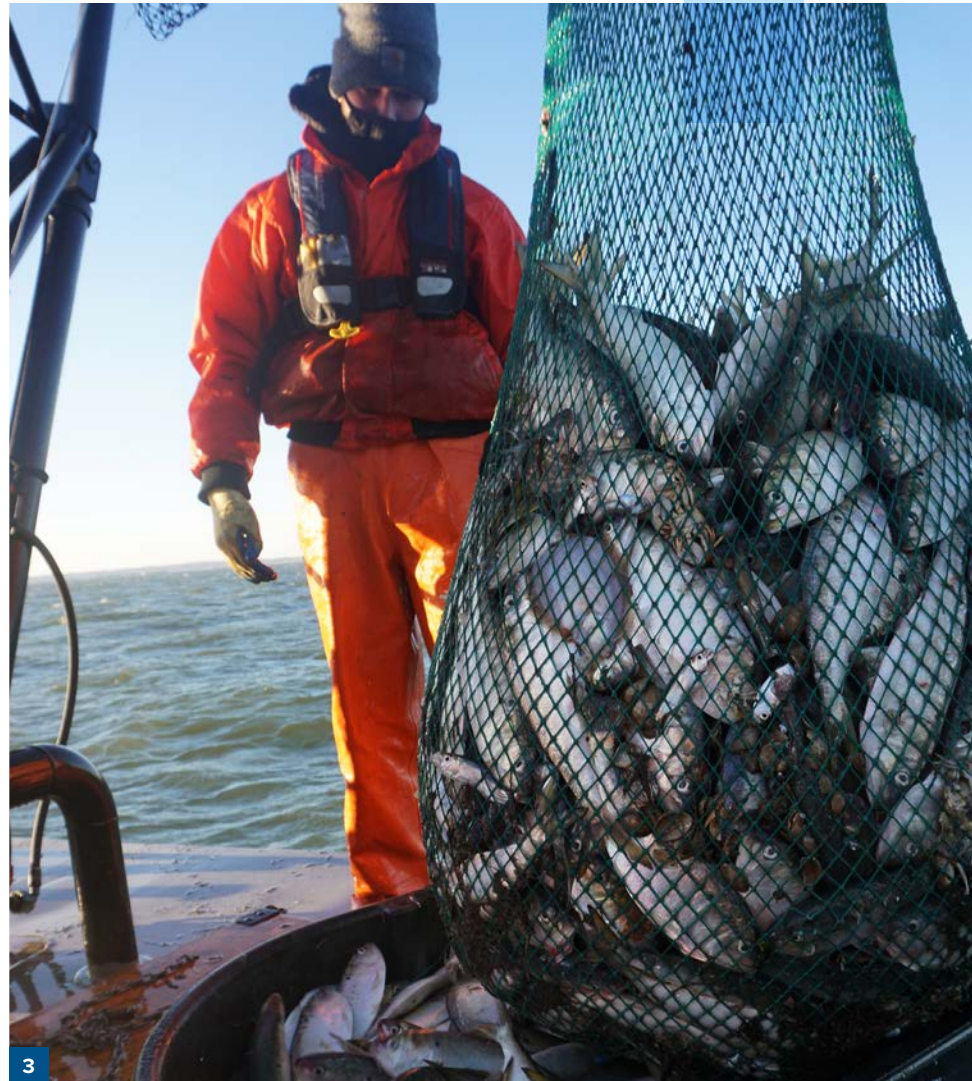
New Advisory Committee Members

The UCI Advisory Committee welcomed three new members who collectively hold over 50 years of experience in science and ocean policy fields in 2021: Kanesha Jones '03 (left), director of global quality management for Amneal Pharmaceuticals; Marion McClary (center), professor of biology and chair of the Department of Biological Sciences at Fairleigh



Dickinson University; and Kris Ohleth (right), director of the Special Initiative on Offshore Wind. See back cover for full committee list.

2021 Snapshots



PHOTOS

1. UCI Director Tony MacDonald presents Robert Sculthorpe with a T-shirt with the *R/V Heidi Lynn Sculthorpe* logo.
2. UCI Associate Director Thomas Herrington delivers a lecture at Cape May Convention Hall on climate change's impacts on the New Jersey coast.
3. Student Bryce McCall hauls a net full of menhaden aboard the *R/V Heidi Lynn Sculthorpe* during a research trawl on Raritan Bay.

PHOTOS

4. Volunteers dispose of debris collected during a UCI-hosted beach sweep in Long Branch on Monmouth University Alumni Weekend.
5. Assistant Professor of Wildlife Ecology Sean Sterrett and students sort through benthic samples taken from the floor of Sandy Hook Bay.
6. Staff presented MacDonald with a cake to celebrate the Institute's 15th anniversary.



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Financial Summary:

2021 External Funding Sources

GRANTS AND FOUNDATION WORK

Achelis & Bodman Foundation: Use of environmental DNA as a tool for conservation of marine fishes, and ecosystem threats in the Raritan Bay, Sandy Hook and the Lower New York Bay

Coastal States Stewardship Foundation: Support for ocean planning actions including development of Mid-Atlantic Ocean Data Portal and stakeholder outreach for Mid-Atlantic Committee on the Ocean/Mid-Atlantic Regional Council on the Ocean

Gordon and Betty Moore Foundation: Support for Ocean Science and Policy Fellow

Jules L. Plangere, Jr. Family Foundation: Monmouth County Coastal Lakes Observation Network (CLONet), working with communities to improve management and restoration of lakes

Mid-Atlantic Fishery Management Council: Northeast Regional Fish Habitat Assessment research

NJ Department of Environmental Protection: Ongoing support for multiyear zooplankton study in Barnegat Bay

NJ Department of Environmental Protection: Provide coordinating support and management of the NJ Coastal Resilience Collaborative, a network established to foster resilient coastal communities

NJ Department of Transportation: NY/NJ Harbor Contamination Assessment and Reduction Project (CARP II) sediment sampling and contaminant modeling in NY Harbor

NJ Sea Grant Consortium: Coastal Community Resilience Specialist to provide education and outreach services to coastal communities

MISCELLANEOUS AND UCI VESSEL CONTRACT WORK

Aqua Survey Inc.: Vessel sampling and current profiling support

Brinkerhoff Environmental: Sediment Sampling for Monmouth County Park System

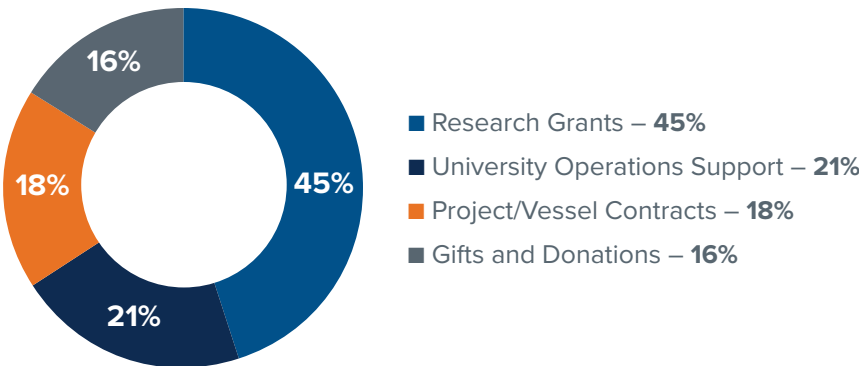
NOAA Sandy Hook Laboratory: Lower Passaic River White Perch Collection Study

Inspire Environmental: Vessel support for Army Corps of Engineers multibeam survey at New York Harbor Dredge Disposal site

Ørsted: Vessel support for South Fork (Long Island) wind farm project

Rutgers University: Vessel and hydrographic survey support for several coastal New Jersey projects

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An aerial photograph of a coastal area. In the foreground, there's a sandy beach with some footprints. A long, narrow pier or walkway extends from the beach into the ocean. On the pier, there's a small building with a dark roof and some green equipment. The ocean is a deep blue-green color, and the sky is not visible.

Give a Gift Now

Your gift to Monmouth University has a direct impact on the academic experience and post-graduate success of Monmouth University students. To make a tax deductible gift to the Urban Coast Institute, please use the contribution form at the link listed below. Monetary gifts to the Urban Coast Institute support UCI Scholars student-faculty research projects and UCI operations.

www.monmouth.edu/university/give

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National Academies of Science, Engineering and Medicine National Committee for the Decade of Ocean Science for Sustainable Development
NY/NJ Baykeeper, Board Member
Coastal States Stewardship Foundation, Board Member

THOMAS HERRINGTON, Ph.D.

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NJ Sea Grant Consortium, Board Member, Coastal Community Resilience Specialist
Jersey Shore Partnership Board of Directors
Journal of Marine Environmental Engineering, Editor in Chief
Northeast Shore & Beach Preservation Association, Vice President
N.J. Climate Change Alliance Long-Term Planning Working Group
Bay Islands Initiative Working Group
Rutgers University Flooding Technical Advisory Panel
Rutgers University Shellfish Aquaculture Technical Advisory Committee
Rutgers University CoPe MACH Hub Community Stakeholder Advisory Panel
U.S. Army Corps of Engineers South Atlantic Coast Study, Coastal Hazards System Technical Oversight Committee

VICE ADMIRAL PAUL G. GAFFNEY II, USN (RET.)

National Academies of Sciences, Engineering and Medicine Committee on Defense Research at Historically Black Colleges and Universities and other Minority Serving Institutions
National Academies of Science, Engineering and Medicine

JIM NICKELS

NJ Water Monitoring Council
Barnegat Bay Partnership, Science and Technical Advisory Committee
Marine Academy of Science and Technology Advisory Board

JASON ADOLF, PH.D.

NJ HAB and Lake Management Expert Team
NJ Water Monitoring Council (MU alternate)

RANDALL S. ABATE, J.D.

Journal of Sustainable Development Law and Policy
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