



ECOSYSTEM & HUMAN COMMUNITY INTERSECTION IN THE COASTAL ZONE

A Critical Investment

JUNE 2020 - JUNE 2022
PROGRESS REPORT

THE
UNIVERSITY
OF RHODE ISLAND

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JUDITH SWIFT
Director (outgoing)

Full Professor III in the Department of Communication Studies (1997-2022) and the Department of Theatre (1972-2022/active-1998), Unlimited Appointment in Film Media (1997-2022), Honors Professor (1982-2022), and as of June 30, 2022, a Professor Emeritus. The CI director position is a half-time appointment during the academic year and fulltime in the summer. During the academic year, Swift also taught Honors courses each semester, served on graduate committees, mentored students for Senior Honors Thesis Projects, provided significant university, regional, and statewide service, and directed one or more productions in a professional (Equity) theatre annually (blocked by the pandemic), which is creative activity external to the CI but often linked as with the Coastal Cabaret, performed at 45+ sites from Rhode Island to California. Swift coached scores of grad students and faculty in presentation skills for scholarships, fellowships, conference presentations, public testimony, etc. Swift led the NIEHS-funded SRP STEEP Research Translation Core, Rhode Island's Scientific Support for Environmental Emergency Response (SSEER) network, and served on the 41°North editorial board, as well as working in tandem with the CI team on multiple aspects of CI events, website development, and oversight of leveraging and catalyst grants — all within the framework of a shared team and shifting leadership paradigm designed to empower employees at all stages of their careers. Swift will continue to serve parttime as the director of the North Atlantic Coast CESU network through December 2022 to complete some initiatives.



AMBER NEVILLE, MLS
Assistant Director, Strategic Planning & Engagement

Neville oversees the programmatic design and implementation of CI projects and engagement activities, as well as day-to-day operations. Amber co-leads the Research Translation Core of URI's STEEP (Sources, Transport, Exposure & Effects of PFAS) Superfund Research Program, developed the website and works collaboratively on the URI Plastics Land to Sea initiative, and sits on the editorial board of 41°N. She is also a co-lead of the coordination team for Rhode Island's Scientific Support for Environmental Emergency Response (SSEER) network, Authorized Organizational Administrator (AOR) for the North Atlantic Coast Cooperative Ecosystem Studies Unit, and helps lead the Climate Response Demonstration Site initiative. Areas of expertise: Strategic planning, systems and fiscal management, communications.



NATHAN VINHATEIRO, PHD
Assistant Director, Science & Data Management
Research Associate Professor

Vinhateiro works to promote and support interdisciplinary coastal research at the University and among regional collaboratives convened through the CI, serving as chair of the RI Environmental Monitoring Collaborative, and on the coordination team for Rhode Island's Scientific Support for Environmental Emergency Response (SSEER) network. He is a science advisor for the CI's Climate Response Demonstration Site initiative, which examine risks to different types of coastal environments – natural, mixed-use, and urban from sea level rise, storm surge, and coastal erosion. He also leads a CI initiative focused on defining areas of public access to the RI shoreline and providing policymakers with up-to-date information to describe how coastal processes and climate change impinge on public trust lands. Areas of expertise: Coastal geology, coastal hazards, geographic information systems (GIS).

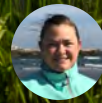
PART-TIME STAFF



Peter August, PhD, CI associate scientist, NRS Professor Emeritus. Leads the Climate Response Demonstration Site at Napatree Point (Natural Area).



Greg Bonyng, Geospatial Extension Specialist. Leads the URI Geospatial Extension Program hosted by URI Environmental Data Center and co-leads SSEER.



Teresa Crean, AICP, formerly of the Coastal Resources Center and Rhode Island Sea Grant. In February of 2022, Crean was appointed as the Director of Planning, Building, and Resiliency in Barrington, RI, continuing to serve as a valued CI partner for the Climate Response Demonstration Site in Bristol County (Mixed-Use).



Charles Roman, PhD, CI associate scientist, NRS and GSO adjunct faculty, and until 2022, co-leader of the Climate Response Demonstration Site in Bristol County (Mixed-Use).



JACLYN WITTERSCHEIN
Marine Research Specialist III

Witterschein joined the CI team in October 2021 with a background in nonprofit management and universal access, as well as evolving experience in natural resource management and coastal sciences. Witterschein serves the CI in fiscal planning and management, science communication, and as oversight and outreach for the Climate Response Demonstration Sites. Witterschein is completing her M.A., Sustainability and Environmental Management, at Harvard University Extension School. Areas of expertise: Outreach and communications, fiscal oversight, natural coastal systems.

ASSOCIATE DIRECTORS

- Arthur Gold, PhD, of NRS/CELS, serves as an advisory Associate Director. *In phased retirement.*
- John King, PhD, of GSO, serves as an advisory Associate Director. *Retired.*
- Emi Uchida, PhD, of ENRE/CELS, serves as a project Associate Director.

The Coastal Institute remains hopeful and intentional that the pandemic's awareness of **one planet — one people** will inform our shared ecosystem challenges and actions imperative for the coastal environment.



The Coastal Institute (CI) was founded in 1998 to achieve a university-wide expansion of multi- and interdisciplinary coastal ecosystem research and engagement through the development and application of a multifaceted program of support of CI Senior Fellows. Employing a careful but imaginative study of a broad range of activities, the CI mission is to increase our understanding of the relationship between human activity and the condition of the coastal environment and its resources. The CI then brings to bear this understanding to work in partnership with local, state, federal, and international agencies to contribute to the solution of the complex problems of human use and development in coastal zone environments. The CI was charged with and designed for working across and beyond traditional structures to encourage new approaches to problem-solving.

This report provides an overview of the major projects, partnerships, and investments the CI has developed and supported from June 2020 through June 2022. Given the fiscal year cycle, this period best captures an overview of the return on investment (ROI) of CI-initiated or supported activities in tandem with its 150+ Senior Fellows as well as local, state, regional, and federal agencies, NGOs, and other partner academic institutions, elected officials, and municipalities.

Three of several examples include URI's service as host of the North Atlantic Coast (NAC) region of the national network of the 17 Cooperative Ecosystem Studies Units (CESU). The NAC-CESU's administrative home is the CI; its director serves as the NAC-CESU regional director and the assistant director of Strategic Planning serves as the authorized organizational representative (AOR). As another example, when the CI supported and contributed to both the original 5-year NIEHS-funded Superfund Research Program (STEEP) and the recently approved 5-year renewal, the CI's role as the Research Translation Core expanded its international reach to the Faroe Islands, a unique and homogeneous culture set between the Norwegian Sea and the North Atlantic. Most recently, the addition via the URI Vice President of Research and Economic Development to the CI's research development support of a Plastics: Land to Sea COLAB will further expand the CI's international research and outreach. Other large research initiatives are in process of adopting the CI as their

administrative home. These and other smaller but equally important initiatives are supported by the CI.

In keeping with its mission, the CI strives to serve as a neutral venue to promote collaboration, advance knowledge, and translate science. The Coastal Institute's role as a neutral venue includes collaboration with and support for the work of a wide range of partners. The CI does not reside within a single college or department at the University of Rhode Island but serves as a transdisciplinary venture that encourages bi-directional communication, the translation of disciplinary terminology and development of mutually defined parlance and encompasses a variety of interests both in academia and beyond. Because of this structure, the CI retains a neutral stance with regard to research and associated regulatory action or policy so long as the path forward protects our oceans, coastal, and upland ecosystems and communities. This overarching principle informs the CI's activities, e.g., meeting design and attendees, outreach focus and content, and overall event structure and audience.

The Coastal Institute also promotes collaboration by serving as a convener for state and regional organizations, and newly interested or previously invested parties to address problems facing our coasts and watershed. The CI serves as the host organization, convener, and co-coordinator for a variety of state and regional collaboratives. By leveraging expertise, experience, and research across geographic areas and scientific disciplines, the CI works to develop cutting-edge solutions to the problems facing our coastal zone environment and communities.

This report does not contain an exhaustive list of activities; more information is available at <https://ci.uri.edu/>. It is important to note that our reference to return on Investment (ROI) considers not only financial returns on the university's overhead investment but also externalities or intangible returns that magnify URI's value to the many external partners with whom the CI engages. The externalities speak to quality of life for humans and other species populating an ever-changing planet.

Our last report unavoidably addressed the impact of the Coronavirus pandemic. By the June 2020 conclusion of that report, the Coronavirus COVID-19 identified in Wuhan, China in December of 2019 had framed a renewed perspective of the interconnectedness of the planet we share. As the U.S. alone continues to

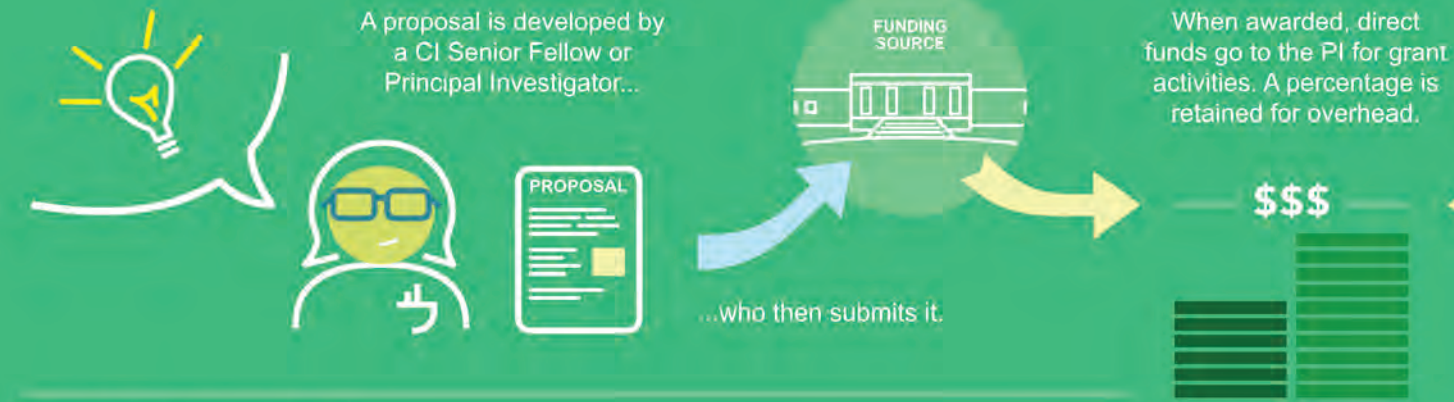
add to its loss of 1.02M lives to date with 6.35M deaths worldwide, an even greater existential tragedy takes centerstage as climate change pushes its way into the foreground with intensification and increased frequency of tornadoes, wildfires, heat advisories and warnings, flooding and erosion as well as another projected uptick for this season in tropical cyclones/hurricanes. Species are rapidly being obliterated, phenological discord is accelerating, wildlife and their habitats are colliding with human populations. Socioeconomic strain, food and water insecurity, legacy and emerging contaminants, violence wrought by war and the companion prevalence of mental illness underscores the need to address issues of environmental justice, healthcare inequity, ecosystem protection, and climate change impacts on communities and nations marginalized by race, religion, and divisiveness among the body politic.

The CI community remains hopeful and intentional that the pandemic's awareness of one planet — one people will inform our shared ecosystem challenges and actions imperative for the coastal environment.

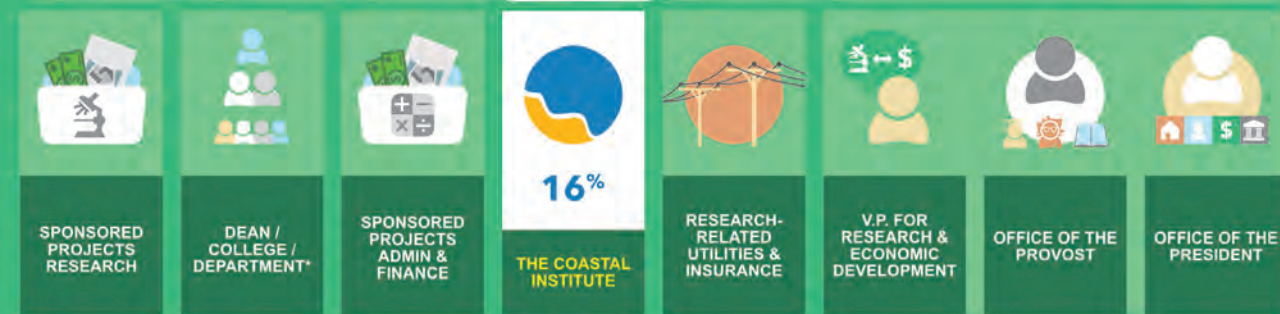
As I look to the past with gratitude for the founding principles of inaugural director, Dr. Peter August, July 1, 2000 – June 30, 2009, and to the future with confidence in the incoming director, Dr. Elin Torell, August 1, 2022, this report concludes my tenure as CI director.

Judith Swift, Director (outgoing)
July 1, 2009 – June 30, 2022

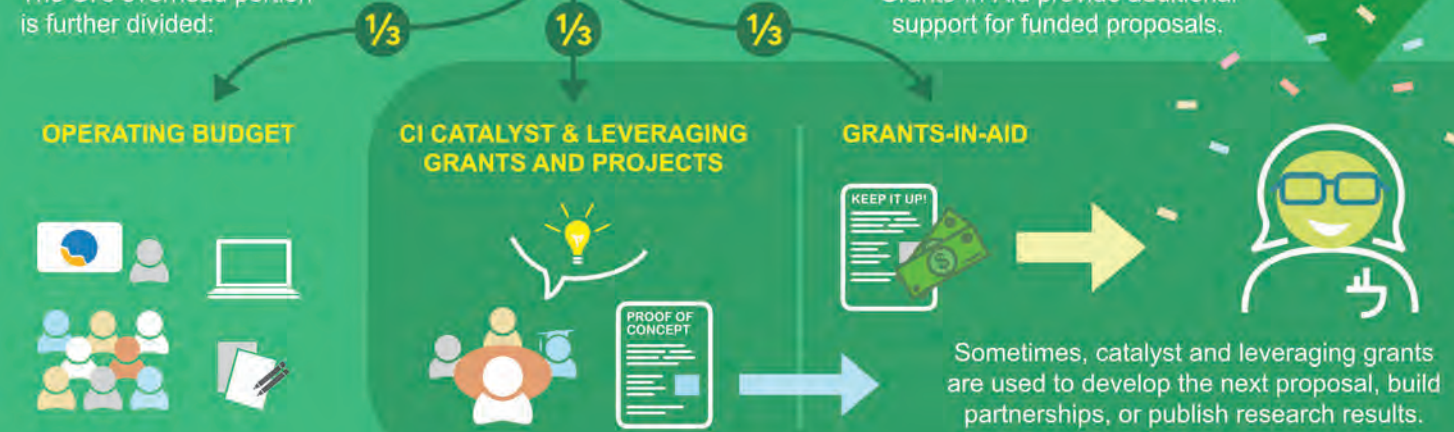
THE PATH TO FUNDING



Overhead is distributed to URI offices and colleges.



The CI's overhead portion is further divided:



CI fiscal management support provided by GSO

RETURN ON INVESTMENT

GIAs go to the PI based on previous year's proposals to fund...



GRANTS-IN-AID allow the PI to selectively reinvest in their own research, in alignment with the CI mission.

The CI partners on specific projects based on thematic areas, including...



CI PROJECTS benefit the environment, the public, and the state; are deploy-able to other regions; and can be used as models.

Leveraging grants to the PI supplement existing grants for unsupported needs like...



LEVERAGING GRANTS fill underfunded gaps, help disseminate grant results, and enhance URI's reputation.

Catalyst grants are used to stimulate interdisciplinary thinking that lead to...



CATALYST GRANTS to the PI are used to develop proofs of concept for additional funding.



ENRICHING COASTAL KNOWLEDGE

URI & THE NATIONAL PARK SERVICE

Seven National Park Service (NPS) personnel are duty-stationed at URI.

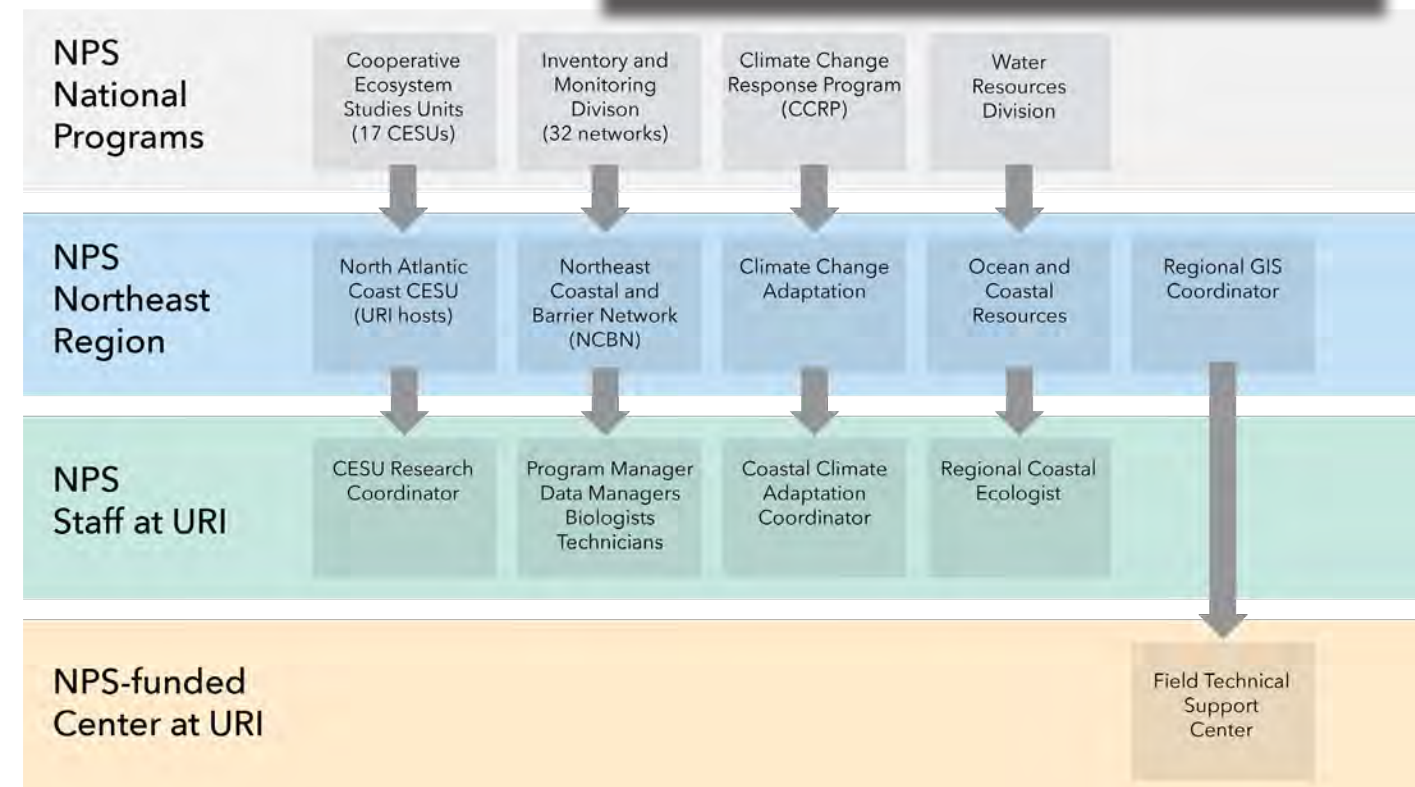
NPS programs include the North Atlantic Coast Cooperative Ecosystem Studies Unit (NAC-CESU), the Northeast Coastal and Barrier Network (NCBN), the Climate Change Response Program (CCRP), and the Field Technical Support Center. These programs provide support to URI in the form of grants, internships, field experience, classes, career counseling, academic mentoring, and service on graduate committees.

CI Support: \$2,500 in annual support.

Partners: National Park Service.

ROI: Detailed in *Partnership for the Environment*, an annual summary available on the CI website.

▼ National Park Service (NPS) programs and staff associated with URI.





NORTH ATLANTIC COAST COOPERATIVE ECOSYSTEM STUDIES UNIT



URI's role as the NAC-CESU host university is situated within the CI. The CI Director serves as NAC-CESU Director, working with nine federal partners, 36 non-federal partners, one tribal partner, and regional units.

NAC-CESU partnerships and resultant projects and products work to fulfill four objectives: demonstrate excellence in research and technical assistance; facilitate student education and career-enhancement; foster effective information exchange, outreach, and communication; and facilitate collaboration and active involvement among partners.

▼ CESU federal partners.

The CI is working in tandem with the CESU federal director, Dr. Tom Fish, to develop capability to support environmental emergency response – based in part on the CI's SSEER – in service of the NAC region and with the ultimate goal of its development throughout the national network. The US Department of the Interior/National Park Service manages the CESU regional initiative to move resources rapidly from federal agencies to targeted researchers via statements of interest, a funding capacity of particular value when the conducting of research is critical within a tight timeframe, e.g., assessing damage to national parks post-Superstorm Sandy.

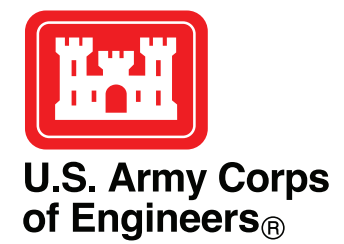
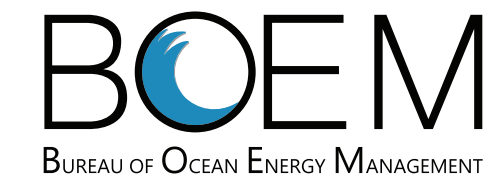
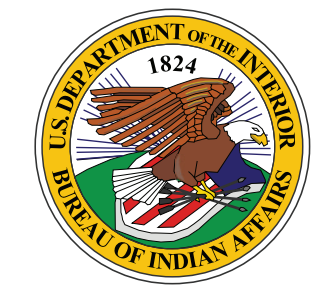
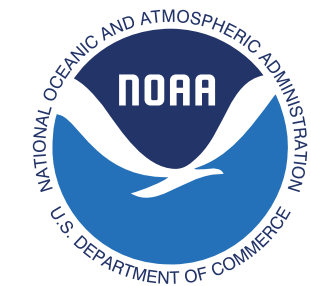
The NAC-CESU website has been redesigned to include current technology in support of the region, including a projects database to serve as a data collection tool for all projects, to be shared widely.

The NAC-CESU Director serves on a number of CESU councils/committees: Non-federal representative on Federal Council representing 17 federal agencies, member of DEI Committee, National Meeting Planning Committee, national taskforce to define student engagement in CESU field activities (author of position paper).

CI Support: \$16,200 annual average, Director and staff time.

Partners: National Park Service, US Department of the Interior.

ROI: \$385,000 average for 2021-2022, due to reduced funding opportunities as a result of the pandemic. \$16,200 per year to URI/CI as the host institution with additional administrative grants as awarded for unique initiatives.





CLIMATE RESPONSE DEMONSTRATION SITES



With the intensification of coastal storms as a result of climate change – rising seas, stronger winds, torrential rainfall, extreme flooding – coastal communities and ecosystems are increasingly more vulnerable to degradation, displacement, and destruction.

Coastal Institute Climate Response Demonstration Sites (CRDS) explore and develop successful adaptation practices implemented in Rhode Island, with the objectives to test, monitor, and “demonstrate” the ecosystem and community responses to adaptation actions.

With collaboration from local municipalities, a range of research scientists, regulators, and conservation agencies, transferable knowledge and outcomes are developed that may reveal potential solutions to climate-related problems. CI serves to disseminate

findings on coastal resilience and adaptation throughout RI coastal communities and along the East and Gulf Coasts.

As of 2022, the CI is collaborating with partners on three sites representing a range of RI’s coastal communities: natural, mixed-use, and urban watershed. Within those strategic areas, CI funding supported:

- Development of climate adaptation strategies reflecting the unique characteristics of the local communities.
- Studies of long-term changes to the natural area documenting natural ecosystem recovery following major storms.
- Development of management actions, such as reducing trampling of dunes and restoring native vegetation are facilitating natural geological and ecological processes of barrier systems.

- Organization of public workshops to educate on the threats of climate change and initiate consensus-building for required community adaptation.

- Coordination of state-wide discussions to establish a voluntary buyout program to support an adaptation strategy for low-lying homes and businesses to relocate to higher elevation lands.

- Engagement of URI students in all aspects of the program, providing career-building opportunities to work with real-world climate change issues and interact with professional managers, policy-makers, and scientists.

Funding is primarily supplied by an anonymous gift of \$500,000 procured by Director Swift. Budget applications follow for each site.

◀ Counterclockwise from top left: Napatree Point Conservation Area; waterfront residential property in Warren; Roosevelt Lake at Roger Williams Park.



Natural Area Climate Response Demonstration Site: NAPATREE POINT, WATCH HILL, RI

Led by Peter August, PhD

CI established its first Climate Response Demonstration Site at the Napatree Point Conservation Area in Westerly, RI.

Napatree Point Conservation Area was once the site of 39 summer “cottages” that were destroyed in the 1938 Hurricane. Following that natural disaster, the conservation area was established, and construction no longer permitted. This CRDS demonstrates how natural areas can heal and adapt to impacts of climate change. Napatree, managed by The Watch Hill Conservancy, is now considered a biodiversity hotspot, and has been designated a Globally Important Bird Area by the National Audubon Society. Thus far, funding from the CI has supported:

- Mapping and monitoring of eelgrass beds off the Napatree bayside (northern) shore. Patches of submerged aquatic vegetation between Napatree and Sandy Point are the largest in the state of Rhode Island.
- Wildlife cameras and acoustic detectors, which monitor mid-size mammal and migratory bat activities on Napatree. Bat migration along Napatree in the fall is noteworthy.
- Preparation of the 2020 and 2021 State of Napatree Reports, comprehensive synopses of monitoring and stewardship of the Napatree Point Conservation Area.
- Monitoring water quality of Little Narragansett Bay, the estuary that receives freshwater flow from the Wood and Pawcatuck Rivers whose drainage area is one-third of



the total land surface of Rhode Island.

- A series of community workshops to understand mitigation options for sea level rise impacts to Watch Hill. Hosted a clinic for Avondale, RI residents to view CRMC/URI StormTools maps of individual residential properties.
- The development of a long-term monitoring and stewardship plan for the Napatree Point Conservation Area.
- Internship and experiential learning opportunities for URI undergraduate and high school students.

CI Support: Grants-in-Aid to advance Napatree monitoring and stewardship. Beginning in FY23,

▲ Chuck LaBash and Mike Bradley of the URI Environmental Data Center operate an underwater drone to map eelgrass off Napatree Point, Westerly, RI.

\$19,800 per year in private funding.

Partners: The Watch Hill Conservancy, Watch Hill Fire District, RI Natural History Survey, US Fish and Wildlife Service, RI Coastal Resources Management Council, RI Department of Environmental Management, RI Sea Grant, URI Watershed Watch, Eastern Connecticut State University.

ROI: In addition to the summary above, funding and time supported initiatives published in the State of Napatree reports (<https://thewatchhillconservancy.org/napatree/napatree-resources/>).



Urban Watershed Climate Response Demonstration Site: ROGER WILLIAMS PARK, PROVIDENCE, RI

Led by Art Gold, PhD, CI
Associate Director

Roger Williams Park – the jewel of Providence Parks – is anchored by a string of man-made ponds that provide a refuge for residents throughout the state and serves as the primary source of water-based enjoyment and a coastal metaphor for many underserved residents of the Greater Metropolitan Providence area.

Park ponds are plagued by harmful algal blooms that generate closures for most water related activities during summer. With predictions of more frequent storms (that can carry polluted runoff) and periods of hot weather that enhance algal blooms, the use of the ponds could become more restricted as well as dangerous to people and their pets.

Moreover, the coastal magic of water meeting land is not widely available to underserved BIPOC communities. Although Narragansett Bay is only a mile or so away from the park, those

communities have been denied coastal access via the restriction of endless no-parking zones. The water/land intersection within Roger Williams Park is a perfect playscape for children discovering nature. An intangible of this effort is the nurturing of nature/human bonding and a specific love of coastal zones.

CI Support: \$20,000 for URI staff and CI Associate Director to engage in field instrumentation and analyses; \$8,000 for state-of-the-art analytical instruments to detect cyanotoxins. Beginning in FY23, \$18,564 per year in private funding to The Nature Conservancy for pollution monitoring and watershed stewardship.

Partners: CI cooperates with a consortium of groups, including RI Audubon, The Nature Conservancy, UNH, Providence Parks Department, Stormwater Innovation Center, and the Roger Williams Park Conservancy on monitoring and pollution abatement.

ROI: URI student involvement; strengthened community partnerships; cross-over proposals and research opportunities for Senior Fellow PIs.

▼► URI MESM students from Indonesia learn about water quality monitoring projects in Roger Williams Park.



The Coastal Institute plays a key role in monitoring that targets pollution sources and fosters the assessment of stormwater abatement practices. Upcoming support will enable URI students and local high school students to galvanize watershed stewardship through participatory science activities.

Professor Arthur J. Gold, Associate Director, Coastal Institute



Mixed-Use Climate Response Demonstration Site:

BRISTOL COUNTY

Warren • Barrington • Bristol

Led by Nathan Vinhateiro, PhD, CI Assistant Director; assisted by Jaclyn Witterschein, CI MRS III

Mixed-use coastal areas are common across southern New England. These areas are characterized by moderate-to-high density residential development, commercial and business areas, a rich history, maritime industry and heritage, parks and recreation areas, outstanding natural resources, and cultural and socioeconomic diversity.

Since 2016 the CI has partnered with the East Bay communities of Barrington and Warren, and more recently with Bristol (2021) to support adaptation actions that can be adopted by the three towns, as well as other coastal municipalities, to achieve community resiliency and ecosystem sustainability. Collectively, these communities, their infrastructure, and ecosystems are among the most vulnerable in Rhode Island to the impacts of sea level rise and flooding from coastal storms, thus actions to enhance community resilience are common and shared.

Across Bristol County the CI has worked with multiple partners – town officials, community members, university researchers, and students – on a range of planning and outreach programming.

Examples of CI-supported activities include:

- workshops on property buyouts and managed retreat strategies
- GIS analyses to evaluate potential flood risks to town assets and transportation corridors
- informational tours of climate vulnerable areas
- regular participation in the town's municipal resilience programs

By emphasizing transferability of the science, planning, and adaptation practices from these sites to other communities on the front lines of climate change, CI programs can serve as a model for other mixed-use communities across the region.

CI Support: Staff time for associate scientist, digital media/systems specialist, and coastal community planner. Beginning in FY23, \$18,000 per year in private funding.

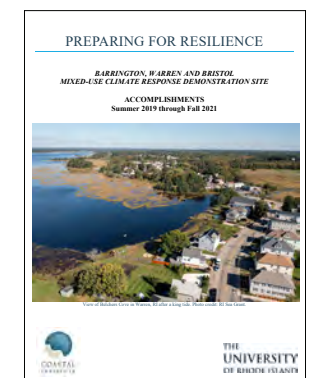
◀ A URI MESM student from Indonesia explores a shoreline restoration project in Barrington.



CI Partners: Town of Warren, Town of Barrington, URI Coastal Resources Center, Save the Bay, RI Coastal Resources Management Council, The Nature Conservancy, University of Pennsylvania, CELS, GSO.

ROI: In keeping with the CI mission to develop and test best practices for coastal management and sustainable design, aimed at significant economic return in human health, property protection or removal, preparation and oversight of new wetlands, saltmarshes, and other inevitable ecosystems changes.

More information can be found in the CI report, *Preparing for Resilience: Accomplishments Summer 2019 through Fall 2021* (<http://bit.ly/3kam4e7>).



▼ Bob Rulli, Director of Planning & Community Development for the Town of Warren, talks about flooding and resultant damages in front of a condemned home.





Roger Williams Park introduces thousands of RI's BIPOC children to the meeting of land and water as a metaphorical coastal zone.

It serves as relief from the urban heat island of Greater Metropolitan Providence and welcomes immigrants and citizens alike.

Roger Williams Park is a *one planet – one people* microcosm worthy of ecosystem oversight.



CATALYZING RESEARCH & INTERDISCIPLINARY COLLABORATION

COASTAL INSTITUTE STRUCTURE & FUNDING

The Coastal Institute advances knowledge by providing training and support to CI Senior Fellows and other collaborators to increase scientific understanding of our coasts and communities.

The CI supports interdisciplinary research and the scientists who conduct that research through Senior Fellows programs, grants-in-aid, and opportunities to collaborate on projects that support the mission of the CI. The CI also sponsors workshops and professional development opportunities to support and produce high-quality and competitive research.

CI Project Funding

Leveraging Grants

Senior Fellows, individuals sponsored by a Fellow, e.g., students, or others whose project focus is in alignment with the mission of the Coastal Institute, may apply for funds to enhance sponsored projects. The range of grants varies widely and could, for example, support the development of a complex database crucial to the funded research or a luncheon for a site visit of the funding agency. Applications are rolling and depend upon the availability of funds.

Catalyst Grants

Senior Fellows or individuals sponsored by a Fellow may apply for funds to support the investigation of a concept or theory. This support could include the use of focus groups to test a particular outreach approach or engaging in a small research project that tests a given hypothesis and provides sufficient “proof of concept” to enable the researchers to seek significant funding from an agency

or foundation. Applications are rolling and depend upon the availability of funds.

GIA

One of the primary privileges afforded to CI Senior Fellows affiliated with URI is the opportunity to apply for Grants-in-Aid (GIA). Coastal Institute Senior Fellows are eligible to apply for a GIA (approximately up to the amount that equals one-third of the overhead returned to the Coastal Institute related to that Senior Fellow’s funded proposal(s)). A specific amount available is emailed to all funded Senior Fellows annually as soon as the returned overhead balance becomes available. These funds may be used to support activities related to an ongoing funded CI proposal or applied to research or activities aligned with current or future research in keeping with the Coastal Institute mission. Not all requests are approved. Applications must meet the CI mission and relate to funded research. GIA supports senior fellow research, including conference attendance, journal publication, proposal review and development, staff training, lab equipment, computers, field work support, repairs, student funding, summer salary and related costs due to COVID-19.

Reporting Structure

In 2019, the Coastal Institute began reporting to the Vice President for Research and Economic Development, Dr. Peter Snyder. In light of the Coastal Institute’s deep commitment to expanding research in coastal zones with interdisciplinary teams, this reporting structure fits the conceptual model and structure submitted to and approved by the then Office of Higher Education and RI Board of Governors for Higher

Education. They envisioned the CI’s role to protect and maintain an interdisciplinary and multi-agency mission.

In addition to the formal reporting structure, the CI Director had developed a CI Advisory Group consisting of a GSO-based associate director, a CELS-based associate director, an associate project director whose social science or science discipline is project-related and therefore shifts from time to time, and associate scientists. These associates are called upon to review CI initiatives, provide feedback on future projects under consideration, review catalyst or leveraging grant proposals as needed and provide guidance as to ways the CI should focus to fulfill its mission in a dynamic environment. They had met annually to review CI initiatives and progress — not so during the pandemic given the slowdown in research fieldwork.

In accord with Vice President Snyder’s approval and incoming Director Elin Torell’s agreement, associate directors will continue to provide regular advice and feedback. Also, the CI Director meets with the Director of RIDEM, NBEP, and EPA Region I and EPA-AED reasonably regularly to discuss gaps and needs in keeping with the CI’s mission. The close association with NBEP is also helpful to keep the big picture in mind, as is the CI Director’s role as Director of the North Atlantic Coast CESU, and the CI’s presence on the NBEP Management Council.

◀ Senior Fellow Leonard Yui, Associate Professor of Architecture at Roger Williams University, leads MESM students through Touisset Marsh, Warren, and *Five Ecological Pillars*, an art installation focused on climate change and the history of environmentalism (<https://bit.ly/3ZqmehA>).

COASTAL INSTITUTE SENIOR FELLOWS

The heart and soul of the CI.

More than 150 interdisciplinary scholars and practitioners constitute the communal expertise that the CI brings to bear by highlighting, examining, and working to resolve environmental problems in coastal ecosystems. Due to the variety of disciplines and projects in which Senior Fellows collectively engage, their work contributes to a URI reputation synonymous with coastal leadership far beyond the boundaries of Rhode Island.

The goal of the Coastal Institute Senior Fellow network is to provide a space for:

- research enrichment
- supported collaboration
- multidisciplinary discussion
- unrestricted support

Our fellows, whose expertise spans public, private, and academic settings, are engaged in disciplines that include:

- biological sciences
- science communications, writing and rhetoric
- consulting
- ecosystem management
- ecosystem restoration
- environmental economics
- film and documentary making
- fine and performing art and coastal zone inspiration
- fisheries and animal science
- geosciences
- government
- green infrastructure
- human health and services
- landscape architecture
- natural resources science
- naval undersea warfare
- chemical engineering
- oceanography
- photography
- social sciences
- water quality/wastewater treatment

An annual tradition, the Senior Fellows Field Trip, provides insight into the health of a particular ecosystem or an innovative solution in the Narragansett Bay watershed. The pandemic may have interrupted our ability to meet and converse, but in 2021, at long last, we gathered our Senior Fellows at an Open House on both the Narragansett and Kingston campuses—in person over a breakfast nosh, or via Zoom, to reconvene and collaborate once again.

Past field trips include:

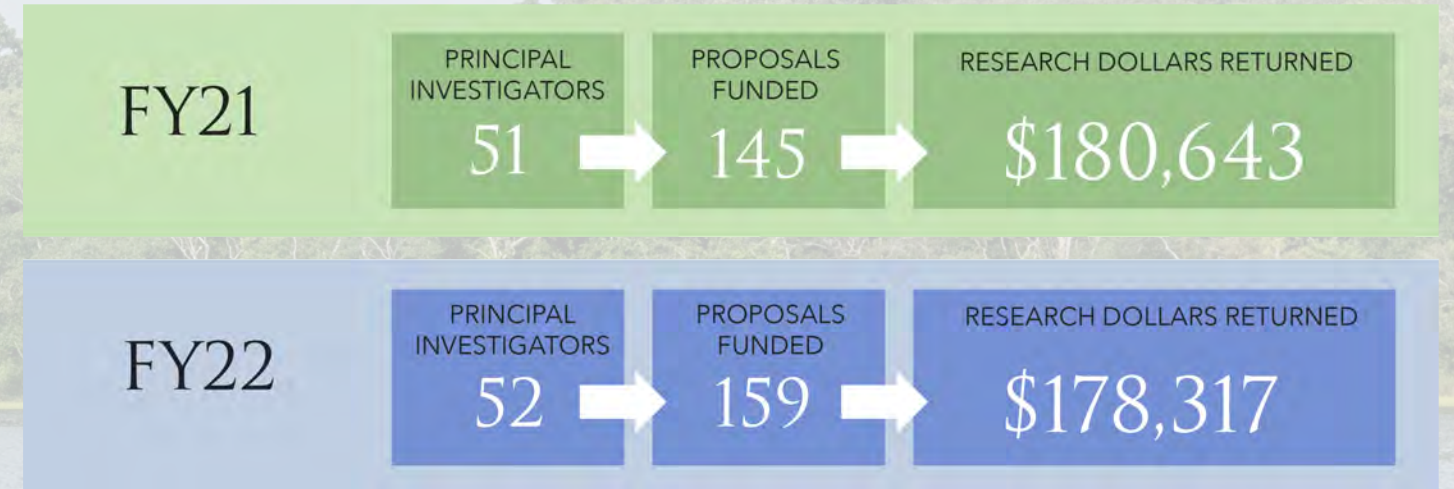
- Narrow River
- Watson Farm
- Taunton and Port of Providence
- Napatree Point
- Windmist Farm
- Scituate Reservoir

CI Support: \$3,500 annual average event funding, CI staff time, and student time.

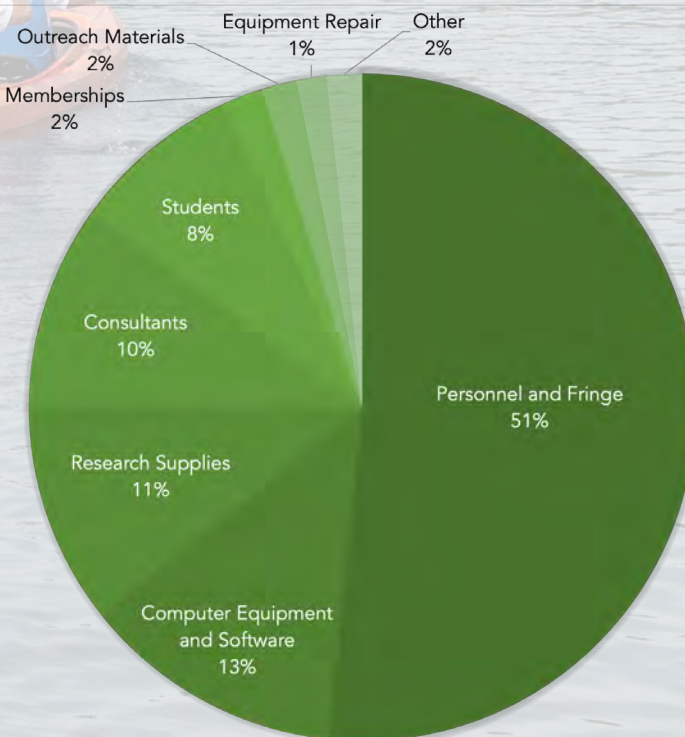
Partners: Partners vary each year with field trip site, e.g., Save the Bay, NPS, agricultural sites, experimental contaminant removal sites, and other environmental partners from the Rhode Island upper watershed to south shore coastal ponds.

ROI: CI Senior Fellow field trips are a vivid exercise in disciplinary cross-pollination. Several CI proposals have grown out of daylong discussions that encourage scientists to meet colleagues from other departments, colleges, and institutions.

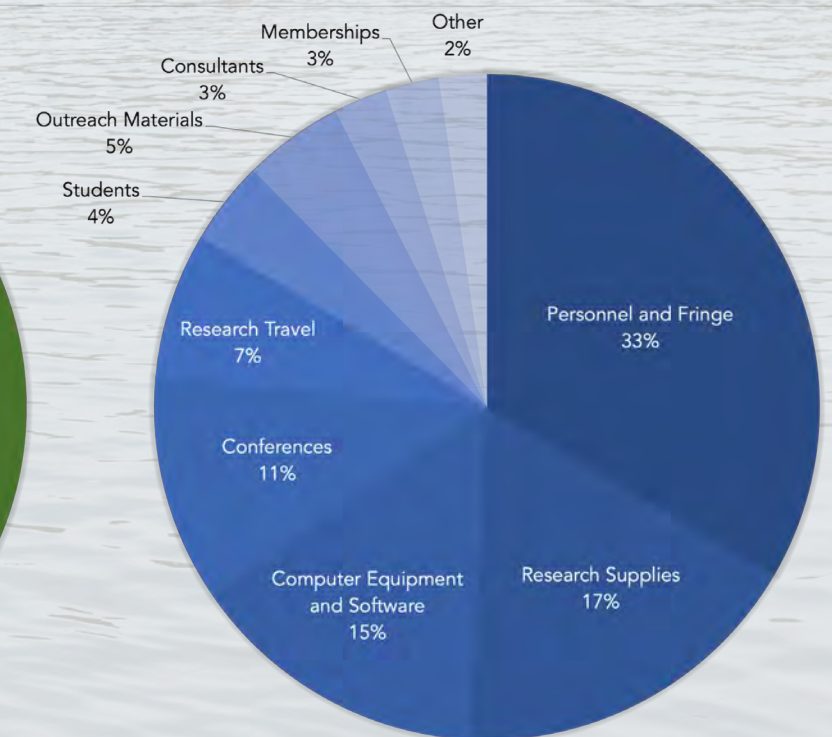
BY THE NUMBERS



GIA EXPENSES



FY21



FY22

WELCOME NEW SENIOR FELLOWS



SKYLAR BAYER, PHD
Alaska NOAA Regional Office,
Habitat Restoration Division



THOMAS BOVING, PHD
Department of Geosciences,
University of Rhode Island



ALISSA COX, PHD
Department of Natural Resource
Science, University of Rhode Island



TRACEY DALTON, PHD
RI Sea Grant, Department of Marine
Affairs, University of Rhode Island



ANDREW DAVIES, PHD
Department of Biological Sciences,
University of Rhode Island



EMILY DIAMOND, PHD
Departments of Communication
Studies and Marine Affairs,
University of Rhode Island



JANET FREEDMAN, MS
Rhode Island Coastal Resources
Management Council (retired)



PETER FREEMAN, MS
Coastal Resources Center, University
of Rhode Island



JOE GOODWILL, PHD
Department of Civil and
Environmental Engineering,
University of Rhode Island



MADISON JONES, PHD
Department of Natural Resources
Science, University of Rhode Island



CHRISTOPHER KINCAID, PHD
Graduate School of Oceanography,
University of Rhode Island



JASON KRUMHOLZ, PHD
McLaughlin Research Corporation



CONOR MCMANUS, PHD
Rhode Island Department of
Environmental Management



KATE MULVANEY, PHD
US Environmental Protection
Agency



TOLANI OLAGUNDOYE, PHD
Department of Natural Resources
Science, University of Rhode Island



TYLER PAVLOWICH, PHD
Coastal Resources Center, University
of Rhode Island



COLEEN SUCKLING, PHD
Department of Fisheries, Animal
& Veterinary Science, University of
Rhode Island

PLASTICS: LAND TO SEA

The Coastal Institute helped to establish the Plastics Land-to-Sea COLAB (co-laboratories). The goal of the COLAB is to actively contribute to solving increasing plastics pollution through bench and applied science and research, as well as a coordinated program of outreach and community collaboration.

According to a landmark study by Jambeck et al. published in 2015 it is estimated that 8 million metric tons of plastics waste entered the oceans from land inputs during the year 2010 alone. The Plastics Land-to-Sea COLAB aims to continue to shed light on the environmental and economic reality of plastics pollution as a pressing global crisis by sharing information concerning the University's campus-wide plastics pollution research projects

which engages dozens of URI scientists from various departments in collective "co-lab" activities to both understand pollution problems and pose solutions to them.

The Plastics: Land to Sea COLAB is primarily fueled by investigator-led research projects which includes contributions from more than 50 faculty across colleges working with governments, universities, and agencies around the world.

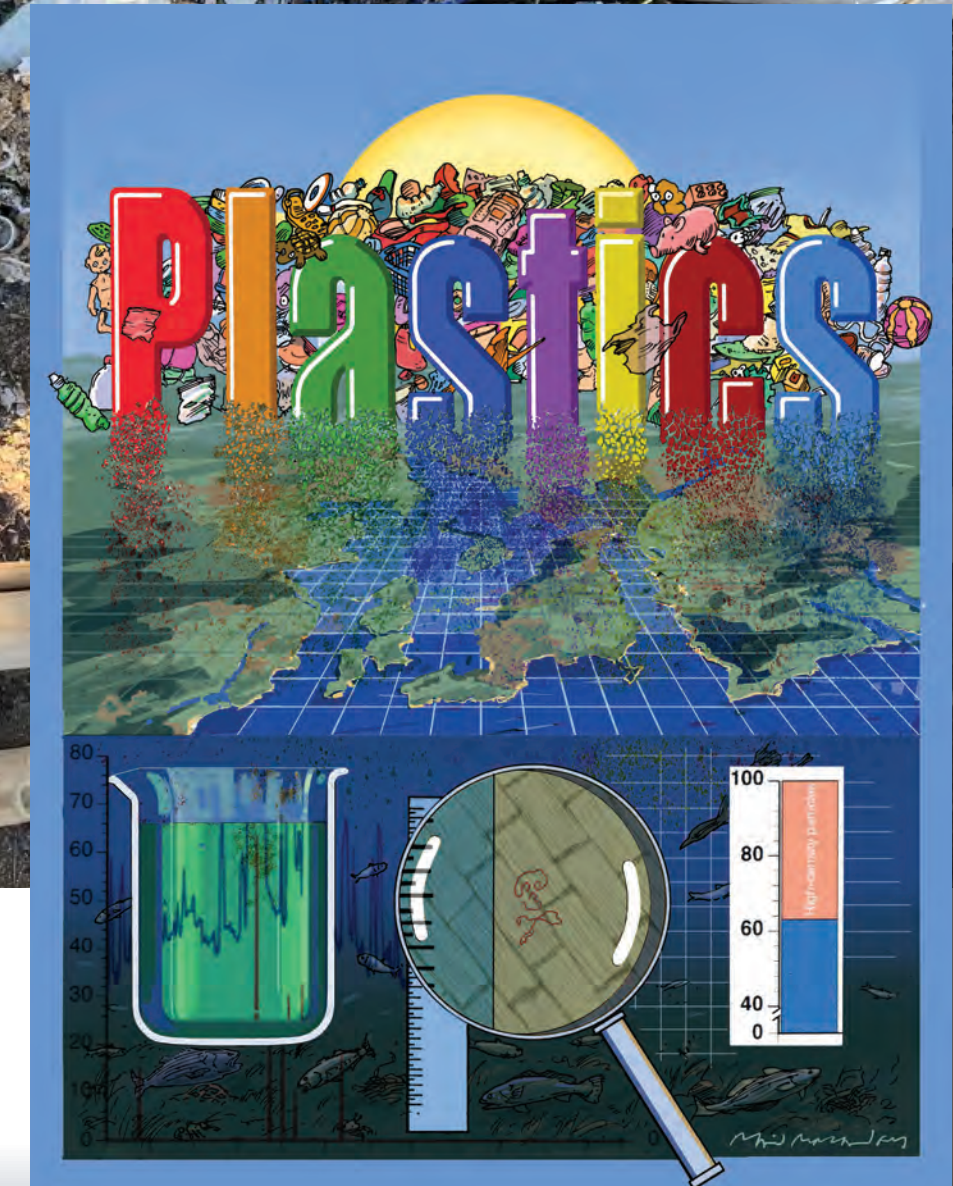
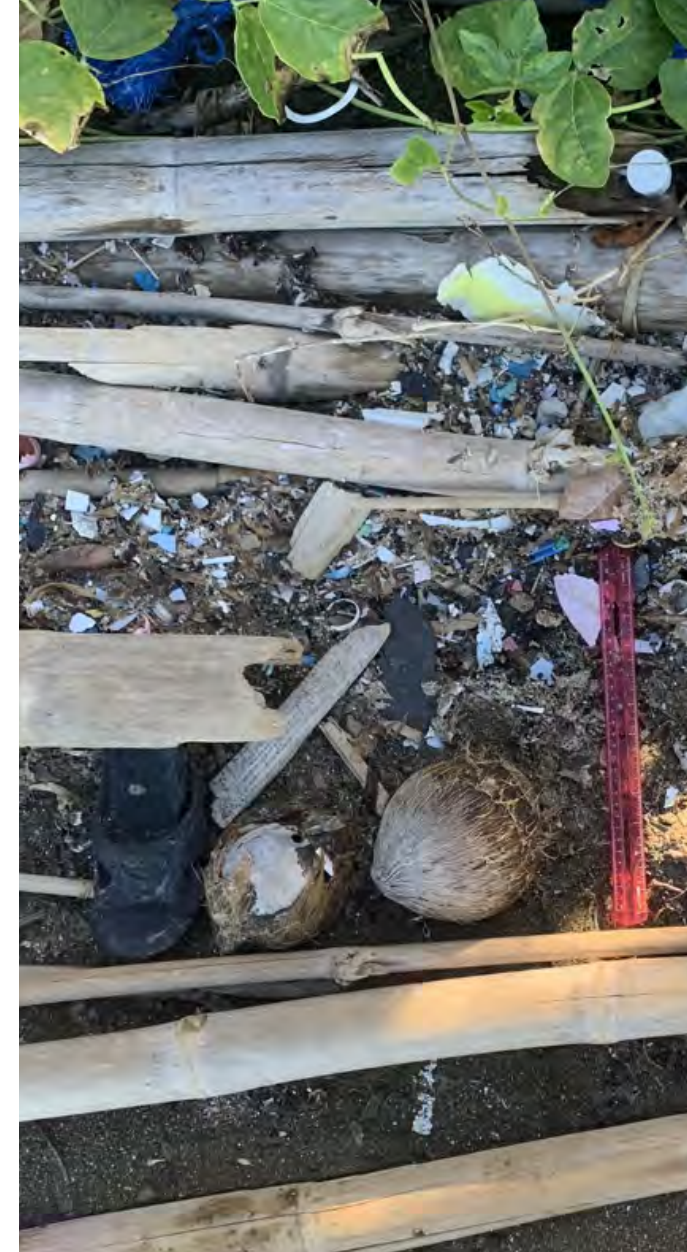
The faculty expertise is diverse, including polymer chemists, textile engineers, oceanographers, multimedia journalists, eco-physiologists, political scientists, pharmaceutical scientists, economists, and sustainable business faculty. They are supported by state-of-the-art centralized core facilities that advance research and collaborations. This work is supported by multiple funders, by the URI Division of Research and Economic Development, and the Coastal Institute.

Key Achievements:

- Community newsfeed signup: plastics.uri.edu/sign-up-for-updates/
- Website launch to share science stories visually and textually, and providing profiles on the people – scientists, staff, and students – behind the science: <https://plastics.uri.edu/>
- Social media launch via Twitter: <https://twitter.com/URIPlastics>
- Researcher networking via LinkedIn: <https://www.linkedin.com/groups/9166975/>

CI Support: CI Director time, CI Assistant Director time.

ROI: The COLAB holds great promise of developing solutions to micro- and nanoplastics problems that have penetrated ecosystems throughout the globe and threaten human and ecosystem health with major effects on species survival.



► Artwork for the URI magazine, *Momentum: Research & Innovation*, Spring 2021, generously created by David Macaulay, world-renowned British-born American illustrator and writer of beguiling books for children to adults, including *Cathedral* and *The Way Things Work*.

Microplastics are a daunting, yet critical ocean challenge intricately linked to the health of humans and our environment, climate change, industry, and the economy. Understanding the sources, fate and impact of marine plastics in the state of Rhode Island and Southern New England is paramount to understanding the health of regional human-environment relationships.

Kelton McMahon, PhD, Assistant Professor of Biological Oceanography. Graduate School of Oceanography

41°N

RHODE ISLAND'S OCEAN AND COASTAL MAGAZINE

In partnership with Rhode Island Sea Grant (RISG), the CI set out to revamp 41°N, which had previously served a limited audience of researchers and practitioners. Incorporating sought-after feedback from focus groups and subscribers, 41°N now deservedly bears the masthead of RI's premier ocean and coastal magazine, with distribution to 12,000. This newly branded biannual magazine examines a range of subjects: climate change, marine commerce and recreation, ecology and habitats, ocean planning, cultural history, and the economy.

The CI and RISG now generate this publication as a vehicle for engaging people who bring a variety of interests and values to the many facets of coastal ecosystems. A distribution service and the newly launched 41Nmagazine.org website ensure that the magazine is available to both state residents and the thousands of visitors that flock to our coastal towns, ports, marinas, and beaches.



▲ The Future Issue
Fall/Winter 2022

In this issue, we highlight the work of many to right wrongs, rebuild, raise up others, and otherwise plan for a better future.



▲ Cage Fight
Spring 2020

This issue features the conflicts and compromises between Rhode Island's oyster growers and waterfront homeowners, how invasive species are being turned into tasty dishes, and how aging dams pose hidden threats to communities around the state.

The investment in 41°N helps Rhode Islanders, as coastal people, to understand how scientists and managers protect places of value, from ports to private residences. The return is broader community recognition of both the challenges and rewards of working together to protect and bequeath our coastal legacy.



▲ Facing Adversity
Fall 2020

In this issue, we explore the trials and tribulations Rhode Islanders have faced during this pandemic.

CI Support: \$20,000 average per year.

Partners: Rhode Island Sea Grant, GSO.

ROI: Acknowledgement from the public through focus groups, surveys, unsolicited mail, and the successful recent addition of



▲ The Makers Issue
Spring/Summer 2021

In this issue, we explore local craftsman and other makers that strengthen our communities and keep us connected to the ocean.

donations demonstrate that the formula is working, once again meeting both the CI's and RISG's missions. 41° N demonstrably increases and supports public engagement in coastal zone economic, cultural and recreational value, related challenges, and enhances the comprehension of related scientific research.

ENGAGEMENT WITH SCIENCE

STUDIO Blue

a multimedia coastal and ocean learning commons

Studio Blue has been a gathering space multimedia coastal and ocean learning commons hosted at the Narragansett Bay Campus, where prominent artists and students display their work on marine and coastal subjects. The melding of art and science enhances emotional and holistic science education. The visual richness of the space enhances the experience of hundreds of visiting guests year-round.

The studio remained closed as of the end of Summer 2020 due to COVID restrictions. In April of 2022, it was reopened with the showing of a series of stunning images, textiles, and candid photographs captured by URI's Coastal Resources Center as part of their internationally-renown programs on sustainable seafood, capable communities (and empowering women), and the maintenance of healthy habitats. The show will remain in place through September 2022.

CI Support: \$3,000 average annual.

Partners: nationally-acclaimed artists, GSO, the URI Department of Art, and the RI Experimental Program to Stimulate Competitive Research (EPSCoR).

ROI: Much is now made of STEM to STEAM and the CI is committed to providing artistic interpretations of the beauty of marine life and our coastal waters. Art promotes emotional learning and can plant a seed of responsive caring in the public that is shown to lead to more significant curiosity about science.



◀◀ Quahog, Eric Lutes.
 ◀ House on the Inlet, Christine Webb, for the Narrow River Preservation Association art auction, 2022.
 ▼◀ Narragansett Bay, Aron Belka.
 ▼ Flora's Embrace, Lori Jeremiah.



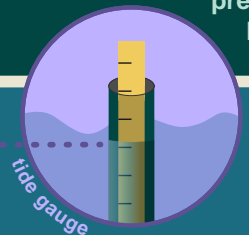
COMMUNICATING SCIENCE: RESEARCH TRANSLATION PRODUCTS

Rhode Island's shoreline is public land

It's in the Rhode Island Constitution—Rhode Islanders are entitled to enjoy access to the shoreline so they may fish, swim, gather seaweed, and simply walk along the shore. (Article 1, Section 17)

But where is the shoreline?

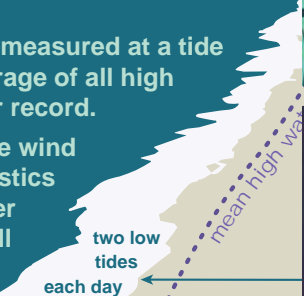
The shoreline is always changing under shifting tides, waves, winds, and sands. A 1982 RI Supreme Court legally defined the shoreline at "mean high water" to preserve alongshore passage. All land below this boundary is public.



Mean high water is measured at a tide gauge. It is the average of all high tides over a 19-year record.

Tide gauges remove wind and waves, so statistics like mean high water do not translate well to a real shoreline.

What does mean high water ... mean?



How do you know where legally walk on the shoreline?

Mean high water is tough to locate because it's a statistical. It can't be seen on the shore. And further complicate things, the boundary shifts daily as waves roll in, as beaches erode and rebuild, and with each new tide. In theory, mean high water represents high tide. On a real shoreline, it falls closer to low tide. That means the boundary is underwater for much of the day, leaving little room or time for public access.



where is the mean high water?

Our work in understanding shoreline change and public access as it relates to policy has provided an opportunity to create evergreen and useful products for informing Rhode Islanders about access to their coastline.

◀ Rhode Island's shoreline is public land informational rack card.

▼ Access Your Coast: A brief guide to Rhode Island's Rights-of-Way to the Shoreline pocket guide.

▼▼ Translation of one of our mean high water infographics, used in a local article to reach Spanish-speaking populations.



▲ Market Street North, Warren: Floodwater Depth on Roadway Analysis, 5 Foot Sea Level Rise. Map created by MESM student and CI employee Patrick MacMeekin.

► Silent Chemicals, Loud Science Podcast, a production featuring interviews with STEEP researchers Rainer Lohmann, Philippe Grandjean, and Laurel Schaidler.

►► Taking Control of Your Health: Medical monitoring of PFAS health effects, a STEEP informative brochure.

▼ Table Tips: Food for Thought, a STEEP informational card explaining PFAS in the food web.

What are PFAS?
PFAS (per- and polyfluoroalkyl substances) are a large class of chemicals used in a wide range of consumer products and industrial applications. There are thousands of different PFAS in use, but the most familiar types are PFOA and PFOS. PFAS are used to make products stain-, water-, and oil-resistant, and they are very stable and therefore remain in the environment for a long time. PFAS are often called "forever chemicals" and have been found all over the globe, even in places where they are not made or sold. Their usefulness in consumer products and the fact that they are so persistent means that nearly everyone is exposed to them. PFAS have been detected in the blood of over 99% of the US population.

How am I exposed to them?
There are a number of ways people can become exposed to PFAS. They are commonly found in products that are stain-

SOCIAL MEDIA & WEB

The Coastal Institute recognizes that our managed websites and social platforms, including Facebook, Instagram, Twitter, LinkedIn, and YouTube not only drive interest and engagement in our initiatives, but also keep us connected to the work of our Senior Fellows and community partners.

uri_coastalinstitute

Tidal datums can't be seen on the beach

In theory, mean high water represents high tide. But on a real shoreline, the line falls closer to low tide. Wave action causes the water level to run up the beach.

What can be seen is the Last High Tide Swash, also called

- seaweed line
- wrack line
- high water line
- high tide mark

Liked by sakonnetpreservation and 14 others

uri_coastalinstitute Drawing A Line in The Sand: is mean high tide a good marker for public shoreline access... more

URI Coastal Institute

Published by Amber Neville · June 13 ·

We are pleased to announce Elin Torell as the next Director of the [URI Coastal Institute](#). Torell, who serves as Director of International Programs at the URI Coastal Resources Center, brings more than 20 years of experience in helping coastal communities and countries around the world implement interdisciplinary science-based planning of marine resources tied to basic food and job needs. She holds a PhD in environmental studies and a MSc in human and economic geography. Torell... See more

URI Coastal Institute

Published by The Providence Journal · May 22 ·

The [URI Coastal Institute Shoreline Access Initiative](#) aims to document how much beach the public can access and for how long over the course of a typical day. Below Assistant Director, Nathan Vinhateiro and CI Senior Fellow, Janet Freedman (retired from the Coastal Resources Management Council of Rhode Island) take tidal measurements at South Kingstown Town Beach. #coastalgeologists #publicaccess #rিশoreline URI Graduate School of Oceanography Rhode Island Sea Grant Coasta... See more

PROVIDENCEJOURNAL.COM

Where is it legal to walk on RI beaches? You might need to tread water, scientists say

URI Coastal Institute

Published by Shared via AddThis · June 3 ·

How Science Can Inform Policy: Shoreline Access

ECORI.ORG

Seeking to Control Ever-Changing Environment, Shoreline Access Bill Requires Close Attention - ecoRI News

uri_coastalinstitute

University of Rhode Island

Liked by tnc_rhodeisland and 7 others

uri_coastalinstitute The newly launched "Plastics: Land to Sea" website will provide the science community with data resources and tools... more

October 29, 2021

Our social media posts on Facebook, Instagram, LinkedIn and Twitter have communicated our own initiatives, like coastal access, including a front-page article featured in *The Providence Journal*. Social media is also leveraged to relay news to our partners, Senior Fellows, and friends, as in the announcement of our incoming Director, Elin Torell.

THE UNIVERSITY OF RHODE ISLAND

PLASTICS LAND TO SEA

About Research Engagement Expertise

Plastics: Land to Sea

A dynamic research network to convene, communicate, collaborate, and accelerate ideas and strategies that inform society, guide public policy and reduce land-to-sea plastics pollutants.

AREAS OF RESEARCH

ORS g micro- and stics behaviors : environments. READ MORE →

IMPACTS Studying plastics pollution impact on living organisms. READ MORE →

SOLUTIONS Leveraging research for plastics pollution solutions. READ MORE →

About Communities **Research** Cores PFAS Resources News & Events

Research

RE →

RE →

RE →

The communication of major projects, including STEEP and Plastics: Land to Sea, require robust, clean, yet attractive websites. Information must be accessible and intuitive, while also engaging and user-friendly.

RI's Climate Challenge Waves of Change

Rclimatechange.org grew out of the Climate Change Collaborative — an RISG-funded collaborative blending the work of URI's Cancer Prevention Research Center's transtheoretical model (TTM) of behavior change, CRC's community engagement, and the CI's communication skills to foster climate change preparedness. Since 2014, the CI has maintained and supported the site, which translates climate science for non-scientific audiences through the use of everyday language, short videos, cartoons, photographs, and clear explanations to convey the significant threats posed by climate change and what Rhode Islanders can do to prepare.

Since its launch, the site has been used extensively by Rhode Island, New England, and scattered national high school and college instructors in classroom instruction,

which has led to invitations for the CI to participate in panel discussions, educational events, and other activities centered around climate change. In the decade since, many excellent climate change web resources have emerged from government agencies and NGOs. Because these primarily have a global or national focus, the site is now undergoing major revisions to become even more RI-centric.

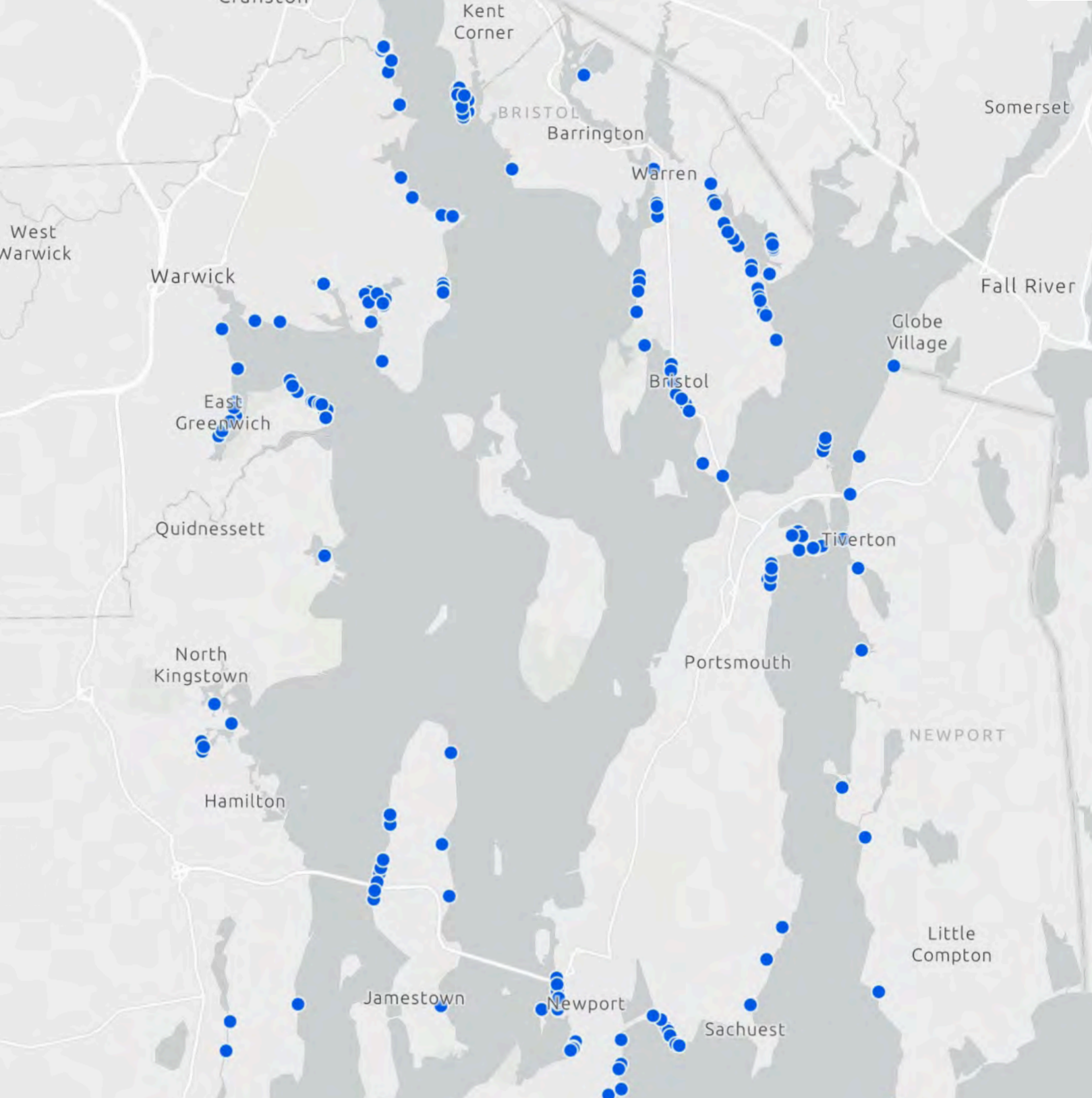
The new rclimatechange.org is built on an ArcGIS data hub, a cloud-based platform that combines ArcGIS functions with web navigation. This platform allows for seamless integration with a growing number of interactive mapping tools that use geospatial data to monitor and forecast climate changes in the state, including sea level rise projections, salt marsh migration, and habitat restoration activities.

The primary focus of rclimatechange.org will continue

to be climate science, although its redesign will address the need for a centralized hub for RI-specific climate change information and will complement those that serve as "what to do" sites and others that simply codify climate change resources. Content will include background information about Earth's climate system and the greenhouse effect, causes of climate change (natural and anthropogenic), local indicators (warming trends, sea-level rise, storms, precipitation changes), and societal and ecosystem impacts. The site will also include downloadable infographics for use by state/local policymakers highlighting local climate trends and impacts to RI communities.

CI Support: \$40,000 development, \$5,000 updating/maintenance.

ROI: Contributes to the CI mission of advancing knowledge and solutions to environmental challenges.



RHODE ISLAND ENVIRONMENTAL MONITORING COLLABORATIVE

The CI Assistant Director serves as chair of the RI Environmental Monitoring Collaborative (RIEMC), partnering with vice chairs from the RIDEM, Assistant Director, Office of Water Resources and the Director of the Narragansett Bay Commission. The RIEMC was established in 2004, through the state's Comprehensive Environmental and Watershed Monitoring Act, to engage ~20 contributing members in the development and implementation of a statewide strategy for environmental monitoring. The whole of RIEMC represents state and federal agencies, nongovernmental organizations, and the academic community.

The RIEMC produces regular reports to inform decision makers in the RI General Assembly and the governor on the importance of environmental monitoring, the status and trends of statewide monitoring priorities, e.g., water quality, salt marshes, shellfish growing areas, etc., and the fiscal status of these critically important programs.

To ensure RIEMC transparency and increase accessibility of data and its interpretation, the CI recently led the development of a comprehensive program website (<https://www.rimonitoring.org/>) with funding provided by an EPA

Southeast New England Program Healthy Communities Grant to RIDEM and subcontracted to the CI. Overseeing the RIEMC is in keeping with the CI's mandate to serve as a neutral venue for dissemination of unbiased data, which the State uses to inform budgetary decision-making.

CI Support: \$500 annual average, CI Assistant Director time.

◀ The R.I. Coastal Resources Management Council (CRMC) with assistance of the Coastal Institute updated its ArcGIS online database containing information on each of the CRMC-designated public rights-of-way (ROW) to the shore (<http://www.crmc.ri.gov/publicaccess.html>).



SCIENCE TO PUBLIC SERVICE & POLICY

COASTAL ACCESS

The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state, including but not limited to fishing from the shore, the gathering of seaweed, leaving the shore to swim in the sea and passage along the shore...

Rhode Island State Constitution, Article 1, Section 17

The ability for the public to access the coast has been protected in Rhode Island since our 1663 founding Charter, which codified the public trust doctrine – the notion that resources like our coastline are so important that they are held by the government in trust for the people's use.

Access to the RI coast is provided at over 230 state-designated rights-of-way (ROW) and at hundreds of other points that are either owned by federal, state, or municipal government and managed for the public, or owned by private organizations who welcome the public. In Rhode Island, the public also has the right to lateral (alongshore) access for the entirety of the state's 400 miles of shoreline below mean high tide. However, the continued enjoyment of these public space is increasingly threatened by climate change, coastal development, and the actions of property owners to limit access. The issue is further complicated by restrictions on parking, signage, and other local ordinances.

With this in mind, the Coastal Institute in 2021 began supporting several new research and education programs developed to enhance and protect the public's access to the shore, reduce user conflicts by clarifying coastal

property ownership, and provide policymakers with up-to-date science and information about coastal processes.

- Coastal Monitoring - CI scientists are collecting data on south shore beaches to quantify potential limitations to alongshore public access in both time and space. These data are instrumental in the development of new legislation that protects both the public's access to the shore as well as any limits in access to shoreline property.

- Data Management - In a collaboration between URI and the RI Coastal Resources Management Council, the CI team developed a new mapping application to document all state-designated rights-of-way to the shoreline. Updating these areas regularly is essential because shorelines change regularly.

- Public Outreach - The CI produced a series of infographics and handouts about coastal access issues that have been widely shared on social media platforms and through the press. The purpose of these outreach materials is to add scientific clarity to the debate and to public policy. The CI does not engage in advocacy.

CI Support: CI Assistant Director, staff time; computer and GIS software.

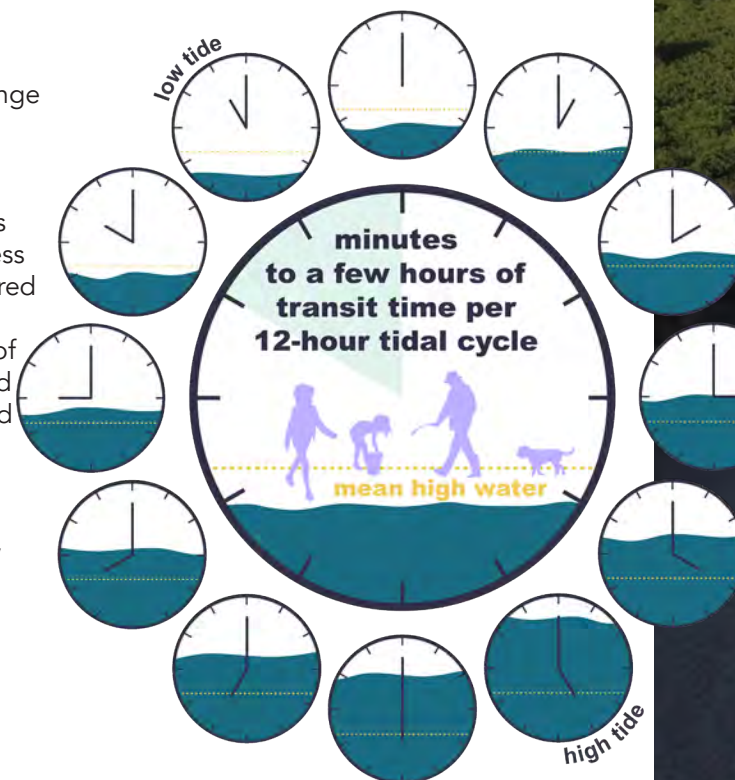
Partners: RI Sea Grant, RICRMC, Save the Bay

ROI: CI research is being used to inform state policy decisions that seek to safeguard public access for Rhode Islanders now and into the future.

- ▶▶ Senior Fellow and former CRMC Coastal Geologist Janet Freedman poses with an GNSS RTK receiver on South Kingstown Town Beach. Freedman and CI Assistant Director Nathan Vinhateiro have been collecting shoreline data to understand changing sands and resultant impact on lateral coastal access.

- ▶ Drone image from above South Kingstown Town Beach. "MHW" represents the elevation of mean high water, and the yellow dotted line represents the last high tide swash line.

- ▼ Graphical representation of time and tide lines as they relate to passable lateral shoreline. Designed by Julia Twichell for the CI.



SCIENTIFIC SUPPORT FOR ENVIRONMENTAL EMERGENCY RESPONSE

The CI is ready to rapidly deploy a group of scientists to respond to environmental emergencies in a neutral and unbiased way.

The CI maintains a Memorandum of Understanding (MOU) with the RI Department of Environmental Management (RIDEM), Office of Emergency Response, to improve environmental emergency preparedness and response in Rhode Island by partnering with RIDEM to deploy primarily college- and university-based research scientists, professional staff, and graduate students from throughout Rhode Island to assess, reduce, or remediate threats to public health and safety and the environment resulting from natural and human-made disasters. SSEER participants are not first responders per se; rather, they are research scientists who provide a range of scientific skills, e.g., causation, damage assessment ecological sites/populations, data, potential solutions and/or future prevention, assessment strategies, etc.

CI collaborates with the RIDEM Office of Emergency Management to hold an annual training event for SSEER personnel.

COVID-19 resulted in SSEER shifting its Summer 2020 summer workshop from in-person to online. Held August 4, 2020, it featured a series of brief presentations, beginning with standard overview presentations by SSEER leadership team members J. Swift, A. Neville, G. Bonyng, and J. Ball. They were joined by Steve Lehmann, senior scientific support coordinator, NOAA's Office of Response and Restoration (OR&R). The first keynote speaker was Elizabeth Roberts, Director of the URI



Academic Health Collaborative, who was invited to introduce the interdisciplinary nature of the Collaborative and to consider how the segue with human health might complement SSEER during a response event. The second keynote presentation was presented by URI Professors Isaac Gintis, URI Graduate School of Oceanography, and Austin Becker, URI Department of Marine Affairs, who introduced a new Rhode Island Hazard and Impact Modeling System for Emergency Management that is under active development.

The Summer 2021 annual workshop, held August 12, 2021, continued the adaptation to COVID-influenced business meeting norms. SSEER leadership pre-recorded and shared watch on-demand videos featuring the essential training content that is repeated annually (<https://ci.uri.edu/sseer/resources/annualworkshop2021>), including fundamentals of SSEER (background, purpose, and administrative functions), chain of custody procedures, and sUAS (e.g., drone) capabilities and regulations.

Youth Development Specialist Court King presented "Engaging Youth in Response to and Prevention of Environmental Threats to Underserved Black, Indigenous, and People of Color (BIPOC) Populations." This initiative is under design with C. King and J. Swift. Additional experts are reviewing the proposed project as grant funds are being sought.

A new SSEER rapid responder expertise and contact information database was designed, tested, and implemented. This Microsoft Office 365-based system has SSEER responder data stored in a secure cloud-based environment that is exclusively accessible to members of the SSEER leadership team.

The SSEER email listserv was successfully migrated from the former URI LISTSERV platform to URI's Google Groups system.

J. Swift is working with a CESU team and CI SSEER leadership to build a test case national model expanding a SSEER emergency response



model via the North Atlantic Coast CESU with intent to foster its adoption through the 17-region CESU national network.

Participation in disaster response training events: G. Bonyng and C. King attended the "Disaster Research Training Workshop" on December 2-3, 2021, at the Texas A&M University Superfund Research Center in College Station, TX. This intensive two-day training event featured lectures and tabletop exercises and culminated with a hands-on mock disaster scenario featuring various aspects of a potential response, including a daily briefing, travel logistics, soil and water field sampling, and a Town Hall Q&A session.

CI Support: CI Director or her designee oversight with Jim Ball, Director RIDEM/OEM; digital media/systems management specialist staff time; and \$17,307 Dr. August, Professor Emeritus, is provided 1.5 months to "deepen the bench" during hurricane and nor'easter seasons, and other possible emergencies. The August support also includes and ensures oversight of SSEER commitments in the Director's absence. Greg Bonyng, a specialist in GIS and drone technology (1.2 months at \$13,198 salary and Environmental Data Center service fee), also continued serving as part of the SSEER leadership team, joining A. Neville to facilitate a seamless transition during a June/July 2022 SSEER leadership team shift.

Partners: RI Department of Environmental Management, Office of Emergency Management, US Coast Guard, CELS, GSO, specialists in complementary areas from state and private colleges and universities, NOAA, OR&R.

ROI: Meets CI's mission in service of the State of Rhode Island; funding provided by RIDEM or next tier Incident Command System (ICS) lead agency in a qualifying emergency event.





INVESTING IN THE NEXT GENERATION

INTERDISCIPLINARY TRAINING: THE FASCIA TO THE BODY OF ENVIRONMENTAL SCIENCE

The URI Coastal Institute IGERT Project (CIIP) was conceived and led by a group of faculty from a wide range of departments: Peter August (NRS), Judith Swift (Com Studies), Cheryl Foster (Philosophy), Art Gold (NRS), Candace Oviatt (GSO), Jim Opaluch (ENRE), and Rick Burroughs (MAF).

CIIP, funded by the National Science Foundation (NSF) and focusing on coastal ecosystem management, welcomed its first of four cohorts of doctoral students in September 2005.

Trainees would be with the program for two years, working together to cultivate skills that would help them bridge gaps between disciplines and communicate their work to a wider audience, all while continuing work towards their doctorates. Each subsequent year a new cohort joined the program.

From 2005 to 2010, 24 CIIP trainees participated in intensive courses designed to challenge their reasoning, awaken their commitment to environmental justice, and enhance their communication and cross-disciplinary management skills. Although five of these trainees did not complete the entire two-year course due to changes in their courses of study or personal lives, 19 did and went forth, hopefully better prepared for a challenging career in a rapidly evolving climate. Little did they know the challenges they would face.

During CIIP's six years, faculty and trainees worked closely together, challenged and mentored each other as they tackled current and emerging issues inherent in the management of coastal communities and ecosystems. They applied unique pedagogy,

sponsored many exceptional guest speakers, and supported CIIP internships from China to Tanzania. Some ~12 years later, our reunion was one long discussion punctuated by invited discussions, focused lectures, career advice (often retrospective), and group assessments of the tools, skills, knowledge, and vision needed to pave the way to solutions.

The 8th Annual Scott W. Nixon Lecture, held in April 2022, featured a number of IGERT CIIP graduates, including main lecture speakers Brita Jessen, Robert Griffin, & Erika Lentz.

NSF

IGERT
Integrative Graduate Education and Research Traineeship

SHAPING OUR FUTURE
Ensuring Sustainable Life in the Coastal Zone

THE COASTAL INSTITUTE AT THE UNIVERSITY OF RHODE ISLAND IS PLEASED TO ANNOUNCE THE 8TH ANNUAL SCOTT W. NIXON LECTURE

Riverine Systems • Watershed Dynamics • Estuarine Nurseries
Saltmarsh Drowning • Ecosystem Diversity

Hear experts on the urgent need to address climate change in the coastal zone.

GRADUATE STUDENT LUNCHEON

THURSDAY, APRIL 7TH
NOON - 1:00PM
BAY CAMPUS

Between a Trek and a Stroll: Pathways to a Career

PART OF THE SCOTT W. NIXON LECTURE SERIES

ABIGAIL ANTHONY
Commissioner, Public Utilities Commission and Division of Public Utilities

JASON KRUMHOLZ
Senior Environmental Scientist at Macgregor Research Corporation

ANNA PEIFFER-HERBERT
Associate Professor of Marine Science, Stockton University, NJ

LESLIE SMITH
Consultant/Business Owner, Your Ocean Consulting LLC

Join alumni of URI's Coastal Institute IGERT (Integrative Graduate Education and Research Traineeship) Project (CIIP) for a discussion of professional development, career challenges, and choices. Lunch provided.
Moderated by CI Assistant Director and CIIP alum, Nathan Vinthateiro.

IGERT was a NSF-funded program at URI (2005 - 2010) aimed at developing effective leaders in multidisciplinary problem-solving in coastal ecosystems.

While the CIIP faculty was pleased to hear these positive outcomes and intended consequences from those quoted above as well as consistent analogous commentary by other CIIPers, perhaps they are most pleased to note upon reflection that much of the NSF IGERT-driven program has had a positive influence on the direction of graduate education in environmental and marine sciences — a point noted unilaterally by the CIIP grads and others. At URI, the Master of Environmental Science

and Management (MESM) is an interdisciplinary program focused on preparing students to apply science and technology to real-world problems with a specific client. MESM was conceived by CIIP faculty, Dr. Arthur Gold and Dr. Peter August, to reflect learning methodologies in CIIP. In fact, graduate education today often mixes the “experimental content” of CIIP with a wide array of curricula that reflect the topics sidelined by traditional doctoral programs. The disciplinary mix

resulting in problem-solving within communities is a way to address topics like environmental justice interwoven in environmental concerns. Today's graduate student is far more likely to experience an interdisciplinary program in which the research involves a drilling down to a granular level on a particular phenomenon or species while the ancillary studies consider the broader implications for public health, the social sciences, arts, and humanities — essentially, strengthening the connective tissue of science.



CIIP introduced me to a powerful community early in my career – physical and social scientists, communicators, policymakers, managers – many of whom became mentors that helped me build and learn to trust my transdisciplinary instincts.

By spending so much time walking in other's shoes, I have become more innovative and creative in building and working with teams to address wicked coastal problems.

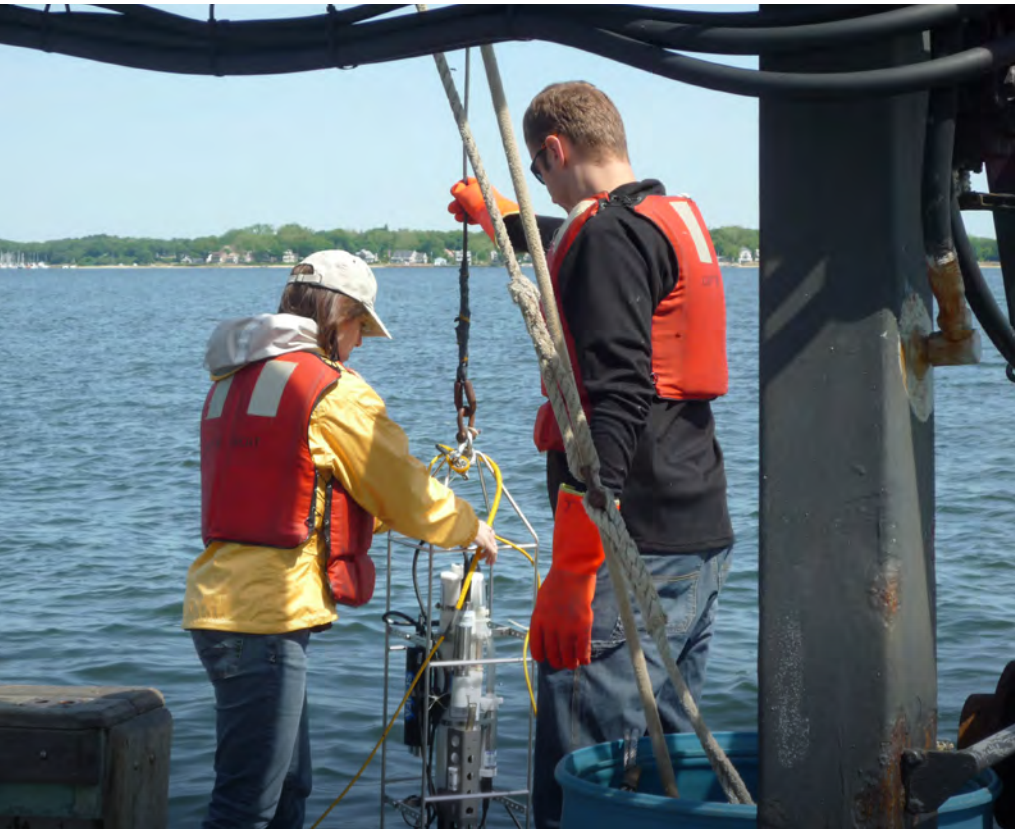
Erika Lentz, PhD, Research Geologist, US Geological Survey, Woods Hole



Most professional organizations are interdisciplinary, and CIIP taught me to be open to understanding other disciplines' methodologies.

The CIIP training inspired and supported me to approach all questions and issues analytically and thoroughly, a practice that I've carried on past graduation.

Abigail Anthony
Commissioner
RI Public Utilities Commission



The answer “no” is both common and unacceptable. Cast a wide net.

Jason Krumholz
Senior Environmental Scientist
McLaughlin Research Corporation



How much is enough? How persistent? How consistent? How are we building a path to these three questions? We need to continue keeping teams well-funded and lubricated, and we absolutely need to bring in the social science aspect as we look at what kind of projects we need to take on in the future... work is going to involve the wisdom of the natural resource managers on the ground. And so I'm really looking forward to learning more from that community.

I am very proud to say that CIIP keeps happening, and new teams of experts keep coming together.

Brita Jessen, PhD, Interdisciplinary Research and Partnerships Lead, South Carolina Sea Grant Consortium

There is no way I could be working where I am now in my professional life without the broader perspective I gained from interacting with CIIP.

Those few extra years were an essential part of preparing me to thrive in a research group like the Natural Capital Project the diverse perspectives I was exposed to from communication, ecology, social justice, the arts, even etiquette helped me round out into a more mature scientist and person. CIIP supported my work with applied partners on wind energy issues, informing U.S. wind energy leasing policy which has allocated \$5 billion dollars in leases this year. I continue to work in this space now on my own NSF-funded research looking at how climate change will affect wind energy planning among other ocean uses.



Robert Griffin, PhD, Economist, Nature Capital Project; Research Assistant Professor, UMass Dartmouth

URI MESM PROGRAM

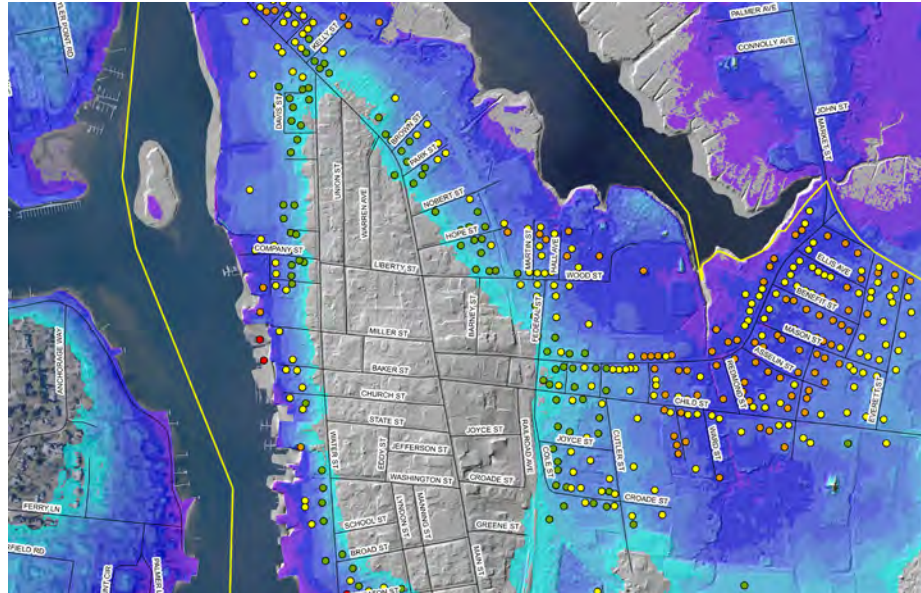
Supporting multidisciplinary learning, the Coastal Institute continues to partner with URI's MESM program, offering graduate students experiential learning activities and mentorship in applied coastal management, science, and communication.

Recently this has included a CI-funded project to evaluate the impacts of coastal flooding within the CI's Mixed-Use Climate Response Demonstration site in Bristol County, RI – a low-lying area with high-density development that is among the most vulnerable in the state to flooding from sea level rise and storm surge. For each of the three municipalities in Bristol County – Barrington, Warren, and Bristol, the CI worked with a MESM student to analyze impacts to the towns' transportation networks and residential housing stock, resulting in a suite of maps and GIS data products that are currently being used to assist town officials in medium and long-term decision making (image, right center).

CI Support: Staff time, between \$5,000 and \$10,000 annually.

ROI: The benefit of the CI investment is fourfold: direct technical support to RI coastal communities; mentor graduate students in mapping and data management; provide an overview of career opportunities for an applied graduate degree; and develop a model for numerous similar coastal communities along the Atlantic coast.

► (top, bottom) MESM students from Indonesia tour coastal areas in Warren and Barrington as part of the CI Climate Response Demonstration Site: Mixed-Use.



COASTAL INSTITUTE STUDENTS

CI employs undergraduate and graduate students to work on a per-project basis focusing on areas including development of communication tools such as primers and presentations and ongoing updates/additions to topic-specific websites for the RI general public, e.g., climate change, environmental monitoring, economic assessment of natural capital. Every effort is made to provide undergraduate and graduate student employees with more of a paid internship

than a job. Students have successfully used the unique CI experience to enhance their grad school, internship, and fellowship applications even in non-coastal science applications.

CI Support: \$25,000 average annual support.

Partners: Student employees are invited to plan events and meet scholars, artists, fishers, researchers, and others of interest. They are encouraged

to attend mentoring events and treated as a team member.

ROI: Enhances the experience of employed students, introduces them to a wide range of career options, enhances their CV, encourages young scientists and marine affairs students, etc. to engage in both research and complementary outreach. Many of our former student employees have gone on to Ph.D. programs in environmental science.



Kylie Engleman
URI B.A., 2025
Public Relations/Image Management Major



Milucy Fernandes
URI B.A., 2019
Analyst, Application Developer, CVS Health



Christine Gardner
URI M.S., 2020
Graduate Research Assistant, URI STEEP



Rebecca Gumbrewicz
URI B.S., 2019
Graduate Student Research Assistant, University of Maine



Hannah Klinger
URI M.S., 2020
Data Analyst, Massachusetts General Hospital



Pat MacMeekin
URI MESM, 2021
Rhode Island Department of Environmental Management



Alexandria Moura
URI B.A. 2023
Public Health Major



Teresa Schwemmer
URI B.S., 2015
Ph.D. Candidate at Stony Brook University



Gabriella Siciliano
URI B.A., 2022
Product Specialist, Staples HQ



SUPPORTING PROPOSAL DEVELOPMENT

FURTHER SUPPORT FOR OUR FELLOWS

In-Kind Support: Engaging Youth in Response to and Prevention of Environmental Threats to Underserved Black, Indigenous, and People of Color (BIPOC) Populations
Senior Fellow: Court King

At the SSEER Summer 2021 annual workshop, Youth Development Specialist Court King presented this initiative, under design with J. Swift. The goal is to develop a cohort of professionally trained urban BIPOC youth who would be prepared to inform and engage their community in preparation and safe response activities in the face of an urban natural or manmade disaster. The students would be fully informed about urban ecology, infrastructure challenges and danger, preventative activities, and practiced teamwork.

The majority of the BIPOC population lives in urban settings but most environmental response training is focused on suburban and exurban communities. This initiative is intended to improve community safety, initiate informed independence, increase individual and community agency, promote capacity to report and receive compensation for damages, lessen vulnerability, and increase internal community independence and pride as well as external community respect.

Catalyst Grant: "Call 'Em Fishermen" Documentary Film
Amount: \$5,000 (awarded for FY23)
Senior Fellow: David Helfer Wells

This grant will catalyze the planning of a feature length documentary film, titled "Call 'Em Fishermen", looking at women working in commercial fishing in Rhode Island. Women fishermen are impacting their industry through hard work at sea, business acumen on the docks, and community-wide advocacy efforts. While women in the U.S. have always worked on shore in seafood sales, fleet support, and advocacy, long-standing stereotypes and myths have kept all but a few women from going to sea. Seeing women model the collaborative approach to problem solving that they have historically tended towards will encourage working across and beyond traditional structures. The film will suggest new approaches to problem solving which will be key to managing coastal ecosystems for the benefit of current and future generations.

▼ Still from the David Helfer Wells documentary film, *Narragansett Bay Quahogger*.

Catalyst Grant: Pilot experiments on the effectiveness of behavioral nudges to reduce plastic bag consumption
Amount: \$5,000 (awarded for FY23)
Senior Fellow: Emi Uchida, PhD

This grant will catalyze pilot projects of two research experiments led by Emi Uchida (PI) in collaboration with Environment and Population Research Centre, Dhaka, Bangladesh. Plastic pollution in water is an emerging regional and global challenge, putting fishing industries and aquatic ecosystems at risk. Over 1.5 million tons of plastic waste flow into the oceans. Given this challenge, this project will explore the efficacy of behavioral nudges as non-regulatory interventions to change consumers' behavior toward minimizing the consumption of single-use plastic bags. The pilot project will serve as a proof-of-concept and will generate preliminary data to be used for future proposals. The study supports one Ph.D. candidate in Environmental and Natural Resource Economics. Additionally, the project will contribute to a module in Uchida's EEC345G (Sustainable Development) on randomized control trials and behavioral nudges.



SOURCES, TRANSPORT, EXPOSURE, EFFECTS OF PFAS (STEEP) URI SUPERFUND RESEARCH PROGRAM (SRP)

CI serves as lead of the Research Translation Core (RTC) of STEEP. This interdisciplinary and multi-institutional grant draws on the expertise of several URI colleges and units, including GSO, CELS (URI Cooperative Extension), COE, Pharmacy, University Libraries, and the CI; Harvard University, Department of Environmental Health; and Silent Spring Institute to conduct research on poly- and perfluoroalkyl substances (PFAS) that a) impact environmental and human health and b) engage the general public in the findings and potential prevention or lessening of adverse health impacts.

The overall goal of the RTC is to communicate and facilitate the use of STEEP research findings to advance research objectives, including ensuring continuity of message regarding what is currently known about PFAS. STEEP's RTC serves as the central hub to connect the four research projects and cores with the relevant stakeholders — ranging from subgroups of the general public to scientists,

and municipal leaders to elected officials—based in Cape Cod, the Faroe Islands, New England, and throughout the U.S.

Communication products are rooted in the concerns and knowledge deficits of impacted communities and their evolving understanding of PFAS as enhanced by STEEP-conducted research; communicate clear and concise explanations of needed management and policy considerations; and employ a range of complexity suited to individual target audiences without jeopardizing the scientific rigor demanded by the investigation of emerging contaminants.

A comprehensive STEEP website (www.uri.edu/steep) is complete and continues to grow with a mindful commitment to the use of a consistent design palette that incorporates engaging and original infographics, icons, and photos while employing succinct plain language and visuals that echo our social media platforms as a means to drive younger generations to the content-rich website and encourage

bidirectional and intergenerational communication. Sections of each project and core focus on the relevant aims and aspirations.

STEEP social media platforms also continue to grow and rely heavily on the use of images, as current research supports imagery as the greatest appeal to Gen Zs as well as older demographics, enhancing interest by as much as forty percent. STEEP social media platforms exist on Facebook (@steepsuperfund), Twitter (@steepsuperfund), Instagram (@steepsuperfund), YouTube (URI Superfund Research Program) and LinkedIn (uristeep) and have an ever-increasing follower base. These channels are employed to promote trainee accomplishments, advertise events, announce new products, highlight media coverage of PFAS, and drive users to the STEEP website. Through social media, STEEP generates a lively two-way information exchange with NIEHS and other federal agencies, SRPs, academic institutions, NGOs, and the general public.

RTC also launched a new podcast series designed to focus on interests and concerns of people of all backgrounds and educational levels. These more intimate conversations capture the nuance of underlying anxieties people are less likely to express in more formal informational sessions. RTC also completed a videos series to appeal to the more visually oriented social media and website users. Working with an award-winning videographer, a series of eight short videos were developed featuring the research of two project leaders and a series focused on a STEEP trainee.

RTC has continued to partner with key agencies including state and interstate agencies (e.g., RI Department of Health and RI Department of Environmental Management) as well as a range of federal agencies.

RTC also continues to expand communication with SRPs and National Institute of Environmental

Health Sciences (NIEHS) staff, sharing materials developed with current SRPs, e.g., Dartmouth's and North Carolina State University, regularly participating in and presenting during the monthly SRP webinars, and attending virtual SRP meetings and presenting a poster on communicating PFAS and community engagement. RTC also coordinated with the STEEP Community Engagement Core (CEC) to create a "Let's Talk About PFAS" webinar series designed for practitioners and stakeholders alike. RTC continues to collaborate with CEC on the development of promotional materials for STEEP events and worked with CEC to develop customized fact sheets, which summarize well water testing results for individual municipalities on Cape Cod.

RTC developed an annual report to elucidate STEEP's progress to date for the Annual Meeting of the External Advisory Committee and university administrators. RTC also worked with Trainee Action

Teams, offering opportunities to develop SciComm skills, DEI awareness, and social media use in addition to one-on-one sessions to help trainees overcome speaking anxiety and hone their professional voice for a variety of audiences. RTC continues to offer trainees assistance in communications and developing a professional persona.

RTC played a key role in promoting and marketing FLUOROS 2021: "An International Symposium on Fluorinated Compounds and Their Impacts on Human and Environmental Health" by launching an impactful website (<https://web.uri.edu/fluoros/>) to draw attendees from diverse backgrounds and affiliations, designing an electronic program guide, creating an engaging social media conversation, and helping to disseminate key findings with stakeholders, affected communities, and regulators, among others.

RTC has expanded its library of resource materials including a photo archive of original materials that capture STEEP's interactions with a range of communities reflecting socioeconomic diversity. These photos also document STEEP trainees, researchers, and stakeholders in the field, and serve as a visual timeline of STEEP's progress and accomplishments. RTC also produces a newsletter which summarizes STEEP research highlights, events, and trainee updates and is distributed to 1,205 subscribers, including all other SRPs, pertinent state and federal agencies, and NGOs. RTC also maintains an annotated news database on the STEEP website which regularly shares PFAS research updates focused on general PFAS research and STEEP accomplishments.

◀ STEEP trainees explain PFAS to young people at GSO Science Saturday, 2021.

◀◀ STEEP trainee Matthew Dunn completing passive sampler field work, detecting PFAS distribution in freshwater.



HIGHLIGHTS

Support of Summits, Conferences, and Programs

CI sponsors scientific and management conferences that highlight the ecology, resilience, or management of Narragansett Bay and its coast and watershed. The conferences, in turn, are a showcase for URI scientists and students as well as essential opportunities for partnership building, sharing of research, and dissemination of solutions.

FLUOROS Global 2021

When the original FLUOROS 2021 was squelched by the raging COVID-19 pandemic, the CI worked with STEEP Director, Rainer Lohmann, to expand the impact of the now virtual event to “FLUOROS Global 2021: International Perspectives on PFAS Science” a hybrid (in-person and virtual) multidisciplinary international exchange of information and multinational networking regarding the latest developments and scientific advances on poly- and perfluoroalkyl substances (PFAS) and their adverse health impacts for humans and the environment.

The core symposium took place October 3-7, 2021 at the WaterFire Arts Center in Providence, RI and served as a coordination hub for all international hosts to livestream talks and participate remotely with local in-person sessions as public health safeguards allowed.

FLUOROS Global 2021 provided an opportunity for a multidisciplinary international exchange of information and multinational networking regarding the latest developments and scientific advances on per- and polyfluorinated alkylate substances (PFAS) and their adverse health impacts for humans and the



environment. The hybrid conference addressed the rapidly evolving landscape of detection, health effects, regulation, remediation, and community response to PFAS contamination. National and international PFAS experts discussed state-of-the-art research and put forth their insights on advances in the field to the benefit of consumers, manufacturers, oversight and environmental agencies, and global health specialists. The model for this symposium was based on the imperative of global cooperation central to advances in pandemic management throughout 2020-2021.

Hundreds of established and early career scientists, government officials (international, federal, state, and local), impacted community members, journalists, environmental NGOs, and PFAS-linked product manufacturers attended this four-day event either in-person or virtually, where they shared cutting-edge knowledge and resources aimed to minimize human exposure and to reduce environmental effects of PFAS. Superfund Research Program (SRP) trainees

who comprise the critical voice of the next generation of scientists joined the diverse set of established speakers and attendees.

FLUOROS Global 2021 was hosted by the University of Rhode Island STEEP (Sources, Transport, Exposure, & Effects of PFAS) Superfund Research Program and funded, in part, by the National Institute of Environmental Health Sciences in coordination with partners from the Harvard T.H. Chan School of Public Health and Silent Spring Institute.

CI Support: Director, Assistant Director time; NIEHS award funding.

ROI: Made use of the strictures of a global pandemic to promote the longer and ongoing “pandemic” of legacy and emerging contaminants as well as their impact of human and other species health, ecosystem impact and, ubiquity in the food web as well as the negative effect of PFAS on the immune system — possibly a factor in the human ability to fight off COVID-19.

Land and Water Conservation Summit

The CI has consistently served as a lead sponsor of what may be the most valuable statewide meeting for the stewardship of RI's exceptional natural resources.

This annual, daylong conference provides information, skills training, and connections to conservation NGOs, watershed councils, town managers, regulators, and individuals interested in land, watershed, riverine systems, fresh and saltwater, and estuary conservation. Historically, the CI has prepared posters, a display table, and participated in the daylong summit.

CI Support: \$1,000 average, annually.

Partners: Rhode Island Audubon, Rhode Island Land Trust Council, STEEP Superfund Research Program, RI Department of Health, RI Department of Environmental Management.

ROI: Meets the CI mission to advance knowledge and develop solutions to environmental problems in coastal ecosystems. Summit attendees have included elected officials from Rhode Island and New England, e.g., mayors, town managers, former RI Governor Raimondo, Senator Jack Reed (D-RI), and Dr. Mamie Parker, former head of Fisheries and Northeast Director at the US Fish & Wildlife Service.

Narragansett Bay Estuary Program

Narragansett Bay is one of 28 estuaries across the US mainland and Puerto Rico protected under EPA's National Estuary Program. The Narragansett Bay Estuary Program (NBEP) is the local management entity that works to pursue conservation of the Narragansett

Bay watershed through direct research, outreach, and project funding.

The CI has had a longstanding role in the governance of the NBEP including the last several years which were marked by notable transitions in the organization led by the CI Director, who chaired the NBEP Steering Committee. In early 2019, the NBEP welcomed Mike Gerel as its new Executive Director. In January of 2020, the CI Director concluded nine years as chair of the NBEP Steering Committee, Executive Committee, and Communications/Media Committee. Most recently, the NBEP transitioned to a new host entity – Roger Williams University in Bristol, RI. The New England Interstate Water Pollution Control Commission (NEIWPCC) had for many years served as a gracious host to the NBEP overseeing operational support, grant management, and integration within the EPA National Estuary Program. The CI was pleased to continue support for the NBEP during this reporting period. In Spring of 2020 the CI Assistant Director was appointed to the Steering Committee, which sets the overall direction for the program and provides guidance on bi-state work to protect and preserve Narragansett Bay and its watershed.

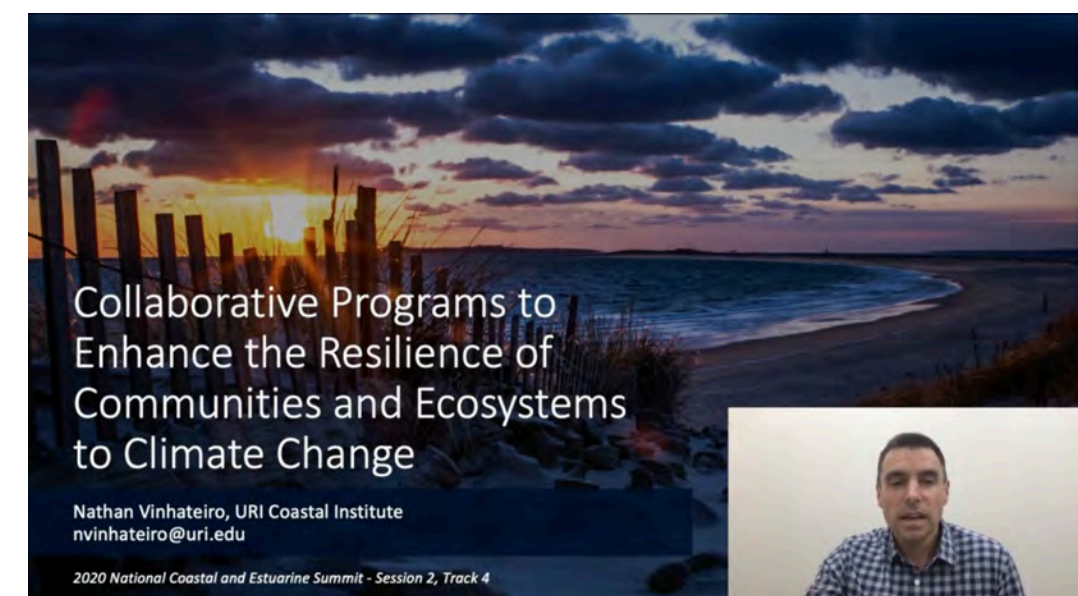
CI Support: Assistant Director time.

ROI: Regular dialogue and contribution to NGO's, participation in status and trends report, contribution and input on NBEP aims and projects regarding Narragansett Bay and watershed.



Coastal and Estuarine Summit

In October 2020 the CI team participated in Restore America's Estuaries (RAE) Biannual Coastal and Estuarine Summit, coordinating a dedicated session on coastal resilience initiatives in the northeast US, which featured the CI Climate Response Demonstration Sites as one of five regional initiatives showcased during the session. The session was featured on RAE's YouTube channel (<https://bit.ly/3HjEKB7>).





Coastal Institute
The University of Rhode Island

ci.uri.edu

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