

# THE current

RESEARCH AND HAPPENINGS FROM  
RHODE ISLAND NSF EPSCoR | WINTER 2014

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**• Rhode Island NSF EPSCoR**

Experimental Program to Stimulate Competitive Research

Amy Dunkle  
EDITOR AND COMMUNICATIONS COORDINATOR

Basics Group  
DESIGN

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PHOTOGRAPHY

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#### On the Cover:

Longtime mentor Dr. Dan McNally, Bryant University, works with a student in the laboratory. Photo credit: Patrick O'Connor, Bryant University

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# Greetings from Dr. Jennifer Specker



The Project Director & Principal Investigator of Rhode Island's Collaborative Agreements with the National Science Foundation's Experimental Program to Stimulate Competitive Research

Let me begin by saying farewell and thank you to the departing Co-Chairs of the state's Science & Technology Advisory Council (STAC) — Peter Alfonso and Clyde Briant, Vice Presidents for Research at the University of Rhode Island and at Brown University. Their leadership was pivotal at a time when Rhode Island won its first five-year, \$20 million grant from NSF EPSCoR through Track-1.

Concurrently, we welcome the new Co-Chairs of STAC and Vice Presidents for Research: Gerald Sonnenfeld, Ph.D. in Immunology, and David Savitz, Ph.D. in Epidemiology, who, respectively, joined the University of Rhode Island and Brown University early this fall. Both vice presidents earned international status in the general area of human health.

We entered our fourth year of our five-year Track-1 award with the announcement of the winners of the 2013 Collaborative Grants Program through the Rhode Island Research Alliance. Congratulations to the successful candidates, whose projects are described on pages 12-13. Receipt of the award from NSF would not be possible without the generous engagement of the Research Alliance.

Fast approaching is our deadline of early August 2014 for submitting the next proposal to NSF for EPSCoR Track-1. Throughout October, Sally Beauman, project administrator, and I visited all partners to discuss re-examining budgets and justifications for Years 4 and 5. This serves as an important reconsideration of where we are four years after the proposal was submitted.

We — Steering Committee members — held a statewide meeting in Providence on November 22, 2013, to discuss the process for preparing the next Track-1 proposal. Two similar meetings were held earlier this year in Narragansett and Providence. In brief, one-page white papers will be due January 10, 2014, authored by at least two people from different institutions. The ideas need to be consistent with the state's Science and Technology Plan [<http://stac.ri.gov/state-science-and-technology-plan/>]. The Steering Committee is accorded the authority to choose topics according to the National Science Foundation. All those interested are advised to contact their institution's partner liaisons (pages 14-16). Also, see <http://web.uri.edu/rinsfepscor/research-infrastructure-improvement-rii-track-1/> for more information.

There are other new layers here in Rhode Island. We were awarded a three-year, \$2 million collaborative agreement through the NSF EPSCoR Track-2 process. Our collaborators are watershed experts and resource economists in Vermont and Delaware. We will be working with Rhode Island's Department of Environmental Management with the goal of preserving clean water through research on specific watersheds.

Finally, here at the central office at the Narragansett Bay Campus, we welcome two key staffers: Sally Beaman is our new Project Administrator and Amy Dunkle is our new Communications + Outreach Coordinator. Please introduce yourselves to these very talented additions to our staff, featured on page 17.

*Jennifer Specker*

Jennifer Specker, Ph.D.  
Rhode Island Project Director  
of NSF EPSCoR Tracks 1 and 2  
Professor of Oceanography  
University of Rhode Island

Our Mission is to provide a platform to promote collaboration and cooperation among Rhode Island's institutions of higher education (IHE) and to enable alignment of our efforts with the needs of the state to increase research competitiveness, especially in marine life science and affiliated sciences.

We believe this will improve the employment rate, provide more attractive employment opportunities, create new businesses, and preserve and strengthen our connection to Narragansett Bay, its watersheds, Rhode Island Sound, and the Atlantic Ocean.



## goodbyes & hellos at URI



This fall, Rhode Island NSF EPSCoR bids farewell to Dr. Peter Alfonso, outgoing vice president for research and economic development for the University of Rhode Island. Dr. Alfonso held the position of chief research officer at URI since March 1, 2007.

At the same time, Rhode Island EPSCoR welcomes aboard Dr. Gerald Sonnenfeld. He will take over the helm in providing the vision and strategic planning for URI's research and business development programs.

Prior to taking the position at URI, Dr. Sonnenfeld served as vice president for research at Clemson University in South Carolina. Before joining Clemson, Dr. Sonnenfeld was the vice president for research and a professor of biology at Binghamton University, part of New York's public university system.





# Seeking answers to big questions.

Rhode Island NSF EPSCoR supports collaborative, nationally competitive research conducted by graduate fellows at the University of Rhode Island, Brown University and Rhode Island College. Their research projects align with one of the three specific questions seeking to answer: What is the response of marine life to climate variability? Here, we feature three graduate fellows studying Question #1, which asks: →

What are the stress responses and evolutionary potentials of marine organisms in response to increased climate variability?

## JANIS HALL, RHODE ISLAND COLLEGE

Population hikes along the coastal region since the Industrial Revolution have increased the amount of human waste entering adjacent bodies of water. In Rhode Island, Narragansett Bay has endured these high levels of nutrient sources for many years.

The impact of this human source of nutrient enrichment, also known as eutrophication, can be seen in this vital ecosystem by increasing plant production, disease-causing bacteria, greenhouse gas emissions, and decreasing oxygen concentration within the water column.



Janis Hall working in the field

These resulting environmental issues have led to the ongoing degradation of Rhode Island's shorelines, major fish kills, and higher contributions to global climate variability. The numerous habitats that fringe Narragansett Bay — rocky intertidal zones, seagrasses, and salt marshes — all play important roles for the large coastline of the little Ocean State.

Salt marshes along Narragansett Bay serve many ecological functions, including water quality maintenance, storm surge reduction, erosion control, and habitat and food to fish and

wildlife. The dominant species within salt marshes is the ribbed mussel, *Geukensia demissa*. This shellfish has been found to be a useful indicator species of the nutrient enrichment within coastal marshes, exhibiting increases in density, biomass, and growth rates with an increase in nutrient supply.

My research focuses on populations of ribbed mussels within three fringing salt marshes along Narragansett Bay, to further analyze the impacts of nutrient enrichment on this species. Through my work, I have found that the density, biomass, and growth rates were all greater within the mussel population in the high nutrient salt marsh — a factor that was expected.

However, I also found that their physiological condition (how healthy they are) was highest within the mussel population at this site. Despite these positive impacts on their ecological parameters, mussels at this salt marsh had an observed decrease in average shell length and increased mortality, suggesting that the stimulated increase in density, biomass, growth rate, and condition index will further lead to negative impacts on these populations.

The results from this study are informative alone, showing the variations among the ribbed mussel populations within differing nutrient level salt marshes, but also will be used as a starting point for a long-term study.

Many initiatives have been made to resolve the large amounts of human waste flowing into Narragansett Bay and throughout the next decade, the concentration of nutrients may vary in these salt marsh habitats, having a major impact on these ribbed mussel populations.

**ABIGAIL BOCKUS, UNIVERSITY OF RHODE ISLAND**

Climate variation affects global current patterns, which, in turn, cause dramatic changes to local environments. These fluctuations pose problems for animals that may not have the genetic makeup to cope with their new surroundings.

The rate of change is especially pronounced in the world's oceans, whose inhabitants are the first to suffer the negative impact of a rapidly altered habitat. Research focused on understanding how marine animals react to these changes is essential to determining their future health and abundance as well as predicting what the ocean will look like in generations to come.

Every year, a group of scientists spends the summer at the Bamfield Marine Sciences Centre in Vancouver Island, British Columbia, studying one of the large predators in the region — the spiny dogfish shark, *Squalus suckleii*. The location of the research station and available facilities (including a 200,000 liter holding tank) provide a unique opportunity for collaboration between some of the leading fish physiologists worldwide.

The visiting scientists focus on how these sharks adapt to a variety of environmental changes such as increases in temperature and acidity as well as decreases in oxygen availability. By examining these adaptations, researchers can provide crucial information for predicting the fate of spiny dogfish under the progressive influence of climate variability. This year, as a URI graduate fellow, I participated in the research with the support of Rhode Island NSF EPSCoR.

The EPSCoR research focused on a small molecule used by spiny dogfish, and many other animals, including humans, to help stabilize cell structure and function. This molecule, Trimethylamine oxide (TMAO), can be accumulated to help reduce the stress imposed by many environmental variables including, changes in salinity, pressure and temperature. However, TMAO's potential role in relation to climate change has received little to no attention.

Scientists will begin by studying how animals obtain this essential molecule and how accumulation strategies might affect its use by the animal. For example, if an animal must get the TMAO molecule from the prey that it eats, how might changes to its diet (possible shifts induced by climate variability) affect its dependence on TMAO?

Scientists will continue to explore TMAO's ability to counteract environmental stress by conducting

studies in the lab that target what happens to TMAO levels under increasing temperatures. The second half of this research will be conducted on the Pacific spiny dogfish's closest relative, *Squalus acanthias*, a similar species that lives in Narragansett Bay.

Determining what happens to TMAO levels under elevated temperatures will shed light on the consequences of a warming ocean on the overall health of these species. This research also will provide evidence that can be used to determine the ability of spiny dogfish sharks to adapt to changing temperatures. With this information, scientists can predict whether shark populations will evolve with their environment or be forced to migrate north to cooler waters.



Abigail Bockus

Spiny dogfish are some of the most abundant predators in the world's oceans. Because of this, and the vital position of spiny dogfish in their respective food webs, information gathered on behavioral changes in these species can be used to predict overall ecosystem stability under the new environmental conditions wrought by climate variability.

Research accomplished by this project is answering fundamental questions regarding the future fitness of species found worldwide while providing novel insight into TMAO's ability to combat the stress of increasing temperatures. The majority of marine animals accumulate TMAO and further research on this intracellular molecule could be critical in unlocking clues to the impact of climate variability on the marine environment.

**KERRY WHITTAKER, UNIVERSITY OF RHODE ISLAND**

Marine diatoms are some of the most diverse organisms on the planet, with an estimated 200,000 species thought to exist.

Diatoms are also great movers and shakers of the earth's atmosphere and climate; as primary producers, they absorb carbon dioxide from the atmosphere, and fix this into carbon that supports life in the ocean. Through the process of photosynthesis, it has been estimated that

diatoms produce as much oxygen as all of the rainforests on the planet.

Unfortunately, we know very little about how this vast diversity of diatoms is distributed throughout the globe, or how this diversity arose in the first place.

Better understanding the distribution and evolution of diatom diversity will help us

to understand the ways in which these important primary producers impact diverse marine ecosystems, and the health of the planet.

My research explores diversity and genetic connectivity of marine diatoms, and its relationship to their ability to grow under diverse conditions. I explore the extent of intraspecific diversity, meaning the diversity below the species level and its distribution over the global ocean.



Kerry Whittaker

I do this by using markers found within the DNA of diatoms that can be used to tell “who’s related to whom,” even if they appear to be identical under a microscope. Through my work, I hope to better understand the biodiversity nested within diatom species, and how this diversity has evolved and continues to evolve over time.

Biodiversity has a lot to do with the ability of a species, or an ecological community, to adapt to changes in the environment. Greater diversity often relates to a greater

resiliency tolerance to environmental change. However, we know very little about the extent of diversity in diatoms, or the relationship to their functional role in the environment.

We do know that diatoms are extremely important primary producers — absorbing carbon dioxide from the environment, fixing it into carbon, and releasing oxygen for our planet. By explor-

ing the extent and distribution of diversity in a diatom species over space, the goal is to better understand the resiliency and adaptability of diatoms to a changing climate.

Additionally, I am interested in the ways in which climate change will affect diatom evolution, which is ongoing and driven by complex variables of environment, hydrography, behavior, and resource competition.

## Three-state project to assess watershed health

Rhode Island researchers are collaborating with their counterparts in Delaware and Vermont to create a network of high tech sensors in the watersheds of the three states.

The project is funded with a \$6 million National Science Foundation (NSF) grant that will collect real-time data to better preserve and protect our water sources.

The sensors, placed in streams, measure baseline water quality parameters that help researchers determine the overall conditions of water bodies.

These state-of-the-art water sensors assess the health of the watersheds and how extreme weather events may impact them. They are deployed continuously for weeks at a time, taking a biogeochemical pulse of the watershed.

Economists from the three states are creating models to conduct experiments on the social dimensions. They seek to understand how water resource users may respond to better information on water quality and with climate variability.

The three states formed the North East Water Resources Network (NEWNet) to

carry out the three-year project, which is funded by the NSF's EPSCoR Research Infrastructure Improvement Track-2 program.

Jennifer Specker, Rhode Island NSF EPSCoR Project Director and Principal Investigator, leads the Rhode Island team, which includes: hydrologists Art Gold and Kelly Addy, economists Emi Uchida, Todd Guilfoos and Haoran Miao, ocean engineer Chris Roman, and chemist Jason Dwyer, all from University of Rhode Island; and ecologist Jameson Chase, of Salve Regina University.



# A MENTOR'S WORK

*Making a difference, one life at a time*

The mentor role transcends the classroom and research lab for Dr. Dan McNally, a Bryant University professor who teaches environmental science courses at the intermediate and advanced levels.

By Amy Dunkle





Dr. Dan McNally in the lab with a student

**M**entoring is a lifestyle, from raising three children to teaching and directing Sunday school, coaching youth sports, teaching undergraduates, and serving as an advisor to the student Science Community Initiative.

Even though he has been at Bryant for 17 years, Dr. Dan McNally figures, “In essence, I have always been a mentor.”

Dr. McNally compares his role as a parent to that of an instructor, how he treats students and his own children: “There are many similarities in mentoring both. I have been very fortunate to meet people who helped me along the way. It is those people, who have helped make me what I am today. I have never forgotten those people. It is hard not to do the same for others.”

He traces his commitment to his own undergraduate experience. He says he remembers feeling lost upon entering college and retaining that sense of not having a direction into his upperclassmen years.

“I didn’t have a lot of answers about my future,” Dr. McNally says. “I didn’t have a mentor in college, and I made a lot of bad decisions.”

He sees a mentor playing many roles: Advisor, counselor, tutor, instructor, advocate, coach, friend, and role model. And, he adds, to some degree, a mentoring can mirror parenting.

Consequently, Dr. McNally says, mentoring does take additional time beyond the typical teaching preparation:

“You have to be really committed to make a difference. To do well, you have to take the time to get to know your students. Students who want to learn are like sponges, and the more time you spend teaching them, the more they learn.”

#### LEARNING TO BE A SCIENTIST

Bryant University student Jessica Vickers offers deep praise for Dr. McNally as an educator. She describes his classes as innovative and fresh, and says his passion about the subject matter comes through his teaching and motivates her to be a better student.

“I gained a mentor just from taking his classes,” she says. “He has enhanced my education by allowing me to understand what I am passionate for and what I would like to concentrate on in graduate school.”

Bryant senior Allison Hubbard spent her summer 2013 Summer Undergraduate Research Fellowship (SURF) experience under McNally’s guidance, researching an historic oil spill on Narragansett Bay’s Prudence Island. The project aimed to determine whether any bacteria at the site could degrade naphthalene, a simple, yet toxic compound found in petroleum-based fuels.

Hubbard reflects, “It was a life-changing experience being able to work in the lab with Dr. McNally. He gave us direction, but let us explore different methods in order to create our own hypotheses, and to have a chance to be real researchers.”

The 10-week experience confirmed Hubbard’s passion for science and the thrill of exploring the unknown: “Yes, I did learn that 99 percent of science is failure, but what I learned from the journey is priceless. I gained a myriad of skills that can apply to lab work, research, and science writing.”

Hubbard says that working with Dr. McNally made her want to investigate environmental toxicology, and has influenced her in determining what she may want to do within the scope of her Master’s work.

#### THE SURF EXPERIENCE

Hubbard’s experience models exactly what Rhode Island NSF EPSCoR’s mentoring program intends to provide, according to undergraduate research coordinator Jim Lemire, adjunct professor of biology and marine biology at Roger Williams University.

An ideal mentor is not just about the research, Lemire says, but also about being a scientist. That means managing the data, working with colleagues, attending meetings, dealing with professional organizations, writing papers, and communicating what you find.



**“I enjoy working with students who are driven to learn, especially those who take responsibility and hold themselves accountable. This shows they have reached a level of maturity and readiness to graduate and be a productive member of society. For the most part, that is what keeps us going.”**

- Dr. Dan McNally

“These students already have an interest in science and research,” Lemire explains. “But, do they really know what that means in terms of a life experience? You can go to school and learn about biology, and do research in a lab. But, that doesn’t necessarily prepare you for being a scientist.”

The 10-week immersion of the SURF program offers undergraduates firsthand insight into what the life of a scientist involves, and the mentor plays an invaluable role. As with Hubbard, many students emerge from their research projects with the fires of their science passion stoked and excited to pursue new frontiers.

The experience would not happen without mentors like Dr. McNally. Nor, is mentoring a one-way relationship. Undergraduates bring a new and energetic perspective, with questions that may not have been considered before.

And, for professors at primarily undergraduate institutions, or PUIs, where there are no graduate students to assist with research, the undergraduates fill a vital role in moving science forward. The pursuit of science needs

students who are properly trained, and motivated and excited by doing the work.

#### **UNDERGRADS UNDERGO TRANSFORMATION**

Dr. McNally says that throughout the years, he has had students not assigned to him seek him out for help because he was available.

The unofficial mentoring extends to science majors who are required to join a faculty-led research team and conduct meaningful research, students presenting papers or posters at professional conferences, and science majors inducted into the Sigma Xi Honor Society every year in a joint chapter with Brown University.

As do his peers, Dr. McNally says he finds the transformation of undergraduates amazing. And, playing a role in their education and discovery certainly carries a sense of reward for mentors.

In that respect, Dr. McNally says, being a mentor is a natural extension of being educator: “I believe it involves a lot of listening and encouragement, while asking students the right questions to prompt their thought process to solve problems.”

## perspective

### **One student’s view: Mentor opens doors to possibilities**

By Amy Dunkle

Dr. JD Swanson, Salve Regina University, found his calling when a professor of his gave direction to his academic pursuits. He, in turn, is doing the same for his students.

Salve undergraduate Noe Mercado was accepted to the SURF 2013 program, with Dr. Swanson serving as his mentor, and he worked on macroalgal bloom formation patterns around Narragansett Bay.

The expectation was that he would be in the lab daily, performing various molecular

techniques, and Dr. Swanson consistently checked in on him and monitored his progress.

“He would ask me about the purpose of the research, and most importantly ‘the big picture,’” Mercado says. “If there was something I did not understand or wanted to learn more about, Dr. Swanson was always willing to devote time to explain.

“Sometimes, he would challenge me to find the answers on my own and provide me articles and textbooks that were relevant to the topics.”



Noe Mercado

Now in his senior year, Mercado says the research he performed this summer set the foundation for his senior thesis and is helping to guide him in application for graduate school.

“I would not have discovered all of these possibilities if it were not for my mentor, Dr. Swanson, and for Rhode Island NSF EPSCoR,” he says.

# Making an investment in the future

Mentoring undergraduate students goes hand-in-hand with teaching in higher education.

By Amy Dunkle

In his 25th year with the Providence College biology department, Dr. John “Jack” Costello reflects on the experience, saying, “I’ve really been mentoring students the whole time.”



Dr. Jack Costello

However, he adds, “What happened in the last five years is that Rhode Island NSF EPSCoR developed a system for mentoring students during the summer. EPSCoR formalized the mentoring and added depth to what I already was doing.”

Dr. Costello, whose area of focus lies in zooplankton ecology and animal-fluid interactions, has mentored about four students in the past five years through the EPSCoR Summer Undergraduate Research Fellowship (SURF) program.

The program, Costello says, adds structure to the mentoring experience through activities and seminars designed to develop the professional latitude of the students.

At the same time, Dr. Costello says mentors gain from the experience: “Personally, I enjoy the mentoring. It’s rewarding to see students learning about a world they didn’t know existed. But, professionally, I also get a lot out of it because of the work that we do together. Many of my publications, I have students as co-authors.”

At Salve Regina University, Dr. JD Swanson finds mentoring equally beneficial and draws enthusiasm from the experience. His area of interest focuses on how cells grow and develop, particularly how they communicate to build precise structures.

“The students invigorate me,” he says. “I’m in awe of how the students respond to mentor-based research projects. Each student is different, but you can see them rise up and often surpass the goals that both of you set.”

Dr. Carol Thornber, a University of Rhode Island marine community ecologist, figures she has mentored more than 50 students since she began mentoring in 1997.

From her perspective, Dr. Thornber says she, too, gets something back from the process: “I enjoy watching students develop confidence and independent research skills, and their excitement when they reach an ‘Aha!’ moment of discovery.”

## PAYING IT FORWARD

As a Karate instructor, Dr. Swanson was familiar with the mentor role when he started his first job out of graduate school eight and a half years ago. He traces the journey from his poor performance as an undergraduate to the life-changing impact of one professor.

He was hired for the summer between his junior and senior years by a professor in an adjunct position at the New Zealand university where he studied.

“She, for some reason, saw a glimmer of potential in me,” he recalls. “I was amazed by her in that I was able to ask her any question relevant to biology and she was able to answer it. This lit a fire in me and led us to working together through both my undergraduate degree and my M.S. She really started me down the path that I am on today.”

[continued on page 18](#)



Dr. J.D. Swanson (sixth from the right) with students he has mentored.

# A new generation of exploration

This summer, 34 students from the nine Rhode Island NSF EPSCoR institutions spent 10 weeks immersed in their science and pursuing research projects that ranged from the visualization and imaging of marine plankton to decomposition rates in state salt marshes, microbial ecology of contaminated coastal sites and macroalgal bloom ecology and genomics.

By Amy Dunkle

The Summer Undergraduate Research Fellowship (SURF) program selects students based on competitive criteria and includes mentorship by faculty researchers and events for professional development. The program — run collaboratively with the National Institutes of Health INBRE Program — has supported 175 students since its inception in 2007.

“Ultimately, SURF epitomizes the EPSCoR mission to build research competitiveness in the state by supporting students to advance their education and train the next generation of scientists,” says Coordinator Jim Lemire.

The summer program also works to advance the research field as a whole, Lemire adds: “Maybe in little steps, maybe in giant steps, maybe in a different direction. The students’ work may be the last piece or the first piece, or part of the bigger picture. It’s all about moving science forward.

This year, 80 students applied and 34 were awarded fellowships. Applicants were selected based on 1) their

degree of academic preparedness, 2) alignment of their interests/future goals with EPSCoR’s mission, and 3) the degree to which a summer research experience

would help the students in attaining their career goals.

Through SURF, undergraduates gain access to research opportunities that go beyond the normal laboratory coursework and independent research during the academic year, when they are limited to the amount of time they can dedicate to their work.

The intensified summer research program breeds a much deeper involvement in the science, and advances technical and cognitive skills. The program helps students define a clearer idea of their career path.

SURF also invokes a greater level of confidence and helps with retention and graduation rates. To meet the SURF 2013 students and discover more about their projects:

[http://issuu.com/amydunkle/docs/surf\\_2013](http://issuu.com/amydunkle/docs/surf_2013)

The students wrap up their summer research projects by showcasing their accomplishments at a poster session during the annual SURF Symposium, hosted by the University of Rhode Island. More than 300 people attended the conference this summer, including members of the Rhode Island state government, academic institutions, industries, and the general public.



Providence College biology major Brigid Garrity researched Shoulder Girdle Movement During Alligator Strides for her SURF 2013 project, under the guidance of mentor Dr. David Baier. The summer experience was memorable, Garrity says: “I have been working on this project since last summer, and we are finally working on quantifying our results, which is very rewarding.”

Victoria Themuda, a Rhode Island College biochemistry major, studied heat shock protein levels in marine invertebrates as responses to climate change for her SURF 2013 research project. Mentored by Dr. John Williams, Victoria says the summer research experience enhanced her academic confidence, gave her a better understanding of the scientific process, and helped her narrow down which field of science she wants to explore further.



# 2013 STAC grants fund six teams, 18 scientists

This summer, Rhode Island Gov. Lincoln D. Chafee and the Rhode Island Science & Technology Advisory Council (STAC) announced the recipients of the 2013 Rhode Island Research Alliance Collaborative Research Grants.



Awards ceremony for the 2013 Collaborative Research Grant. (from the left) Lt. Governor Elizabeth Roberts, STAC Co-Chair Dr. Clyde Briant, Dr. Marta Gomez-Chiari, Governor Lincoln Chafee, and STAC Co-Chair Dr. Peter Alfonso

The awards — totaling \$810,541 — will fund six projects, representing 18 scientists from five research institutions throughout the state. The grants are the seventh round of awards aimed at facilitating collaborative research in Rhode Island and support STAC's partnership with the National Science Foundation's (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR).

To date, STAC has invested \$8.5 million in collaborative research projects that have yielded a return of \$36 million back to the state in the form of grants for continued research, new federal programs, infrastructure improvements, commercialization of new products and venture funding for new companies.

This most recent grant cycle called for proposals that addressed the three research questions related to Rhode Island NSF EPSCoR: What are the impacts of climate change on marine life?

The 2013 award recipients include scientists pursuing research in aquaculture diseases, ocean acidification, fisheries management and electro-microbiology.

The selected teams include scientists from the University of Rhode Island, Brown University, Rhode Island College, Roger Williams University and the U.S. Environmental Protection Agency:

## RI Seaweed Biodiversity Project: Establishing a DNA-Based Framework for Understanding Seaweed Range Expansions in RI Waters

Invasive species of plants and animals can present huge problems for both coastal management and biosecurity. Working together, these two investigators will use genomics to identify algal marine "bio-invaders" and build a library of seaweed barcodes. This data will lead to the development of early detection models that will enhance the biosecurity of Narragansett Bay and its surrounding waters.

Collaborators:

Christopher Lane, University of Rhode Island  
Brian Wysor, Roger Williams University

## Electric Microcable Bacteria in Narragansett Bay Sediments

Coastal dead-zones are spreading globally due to increased human pressure and climate change, resulting in sulfidic conditions that are toxic to marine life. Working in the new area of electromicrobiology, this team believes microbial bacteria are evolving to detoxify sediment making areas safe again for marine life. If correct, these findings will open new opportunities in bioenergy, nanotechnology and material science.

Collaborators:

Jeremy Rich, Brown University  
Bethany Jenkins, University of Rhode Island

## Temperature-mediated Changes in RI's Benthic Community: What Are the Implications for Local Food Webs and Fisheries?

In Southern New England, the population of winter flounder, an important species for both commercial and recreational fisheries, has declined since the 1980s. Coincident with this is a dramatic population increase of summer flounder and blue crabs, natural predators of juvenile winter flounder, which have migrated north to follow warming waters. This team will study the population dynamics of these three species in order to improve fisheries management strategies and return winter flounder to R.I. waters.

Collaborators:

David Taylor, Roger Williams University  
Jeremy Collie, University of Rhode Island

## The Pathogenic Cause and Impact of the Local Sea Star Wasting Disease

Starfish from New Jersey to the Gulf of Maine have fell victim in the past two years to a mysterious and deadly infectious disease. This collaboration brings together six researchers from three institutions with ecological, veterinary, molecular, microbial, and aquaculture expertise to identify what pathogen is causing these deaths before it can spread to additional species in the marine environment.

Collaborators:

Gary Wessel, Brown University  
Roxanna Smolowitz, Roger Williams University  
Marta Gomez-Chiari, University of Rhode Island  
Edward Baker, University of Rhode Island  
Niels-Viggo Hobbs, University of Rhode Island



The Rhode Island Science & Technology Advisory Council (STAC) is a coalition of leaders in the field of science and technology representing business, medicine, higher education, and government. Our mission is to establish long term economic vitality for Rhode Island, build on world class research and development, design and cyber resources.

## Estimating the Potential for Evolutionary Adaption of Marine Organisms to Climate Change

This project focuses on a main objective of the NSF EPSCoR program: To make R.I. an international leader in understanding and predicting the response of marine organisms and marine ecosystems to climate variability. The team will use native marine shrimp to study the evolutionary potential of marine species to warming waters. Funding also will be used to train the next generation of marine scientists and share information on career pathways in the private industry, government agencies and higher education.

Collaborators:

Jason Kolbe, University of Rhode Island  
Carol Thornber, University of Rhode Island  
Jason Gear, U.S. Environmental Protection Agency

## Ocean Acidification Effects on Plankton Community Composition and Food Web Energy Flow

Ocean acidification and its impact on food webs has quickly emerged as a pressing global issue. While studies have been conducted on how certain species react to climate change stressors, understanding whole marine community responses is a challenge that is limiting progress in predicting effects of on food web structure and function. This research will incubate whole plankton communities for several weeks under manipulated pH and environmental conditions in order to identify the sensitivity of food webs to future environmental changes.

Collaborators:

Susanne Menden-Deuer, University of Rhode Island  
Tatiana Rynearson, University of Rhode Island  
Breea Govenar, Rhode Island College  
Jason Gear, U.S. Environmental Protection Agency



2013 Collaborative Research Grant winner Dr. Christopher Lane accepts congratulations from Lt. Governor Elizabeth Roberts

## Partner Liaisons

The Partner Liaisons foster research training for students on Rhode Island NSF EPSCoR campuses, share information with colleagues about available infrastructure and equipment, assist in National Science Foundation reporting requirements, and assist their institutions with developing goals and strategies for continued excellence in student mentoring.

### LIAISON UPDATES

On Dec. 1, Salve Regina University will transition the institution's partner liaison role. Dr. Lisa Zuccarelli, chair of Salve's science departments, will turn the reins over to Dr. JD Swanson and Dr. Jameson Chace. Rhode Island NSF EPSCoR is grateful for the time and energy Dr. Zuccarelli devoted to the program and welcomes Dr. Swanson and Dr. Chace.

### DR. ELISABETH AREVALO

Associate Professor, Molecular Evolution, Providence College



Dr. Arevalo earned her Ph.D. from Brigham Young University and her M.S. from Universidad Nacional

Autónoma de México. She received her B.S. from Universidad Autónoma Metropolitana.

She is interested in many aspects of evolutionary biology, including phylogenetics, speciation, and social evolution. She has combined field observations and molecular techniques to address questions in a phylogenetic framework. She used lizards and wasps as model organisms and has worked on the phylogenetics and molecular evolution of these model organisms, and more recently on the reproduction of social wasps, contrasting the biology and social structure of tropical vs. temperate species.

### DR. NANCY E. BREEN

Associate Professor, Chemistry, Roger Williams University



Dr. Breen earned her Ph.D. in Physical Chemistry from Oregon State University. She graduated from Russell

Sage College with her B.S. in Chemistry.

She teaches analytical chemistry and instrumental analysis, and classes in the general chemistry sequence. Her doctoral and post-doctoral work was in the field of Raman Spectroscopy. Currently, her research uses Gas Chromatography to determine the fatty acid profile of various marine samples including aquacultured eggs, broodstock diets, muscle tissue and algae. The information garnered from the profile can lead to improvements in aquaculture techniques to optimize production and can also be used to expound the health benefits of human consumption of fish.

### DR. JAMESON CHACE

Associate Professor, Biology and Biomedical Sciences, Environmental Studies, Salve Regina University



Dr. Chace holds a Ph.D. and M.A. in Ecology from the University of Colorado/Boulder, and a B.S. in Biology from Eastern

Connecticut State University. He teaches General Biology I/II, conservation biology, ecology, evolution, Tropical Biology (Belize).

His area of research is primarily avian ecology, primarily how landscapes affect bird populations and communities. His current work involves exploring broader aspects of avian responses to the environment.

Studying sea duck wintering populations off Newport Neck has opened questions about abundance and distribution of prey base through habitat modeling in the near shore environment. Food chain dynamics, and potential trophic cascades, are affected by changes to near shore and intertidal zone, and by nutrient pollution. Dr. Chace and his students have investigated nutrient flux in small coastal watershed over the past three years, results of which tie back to near shore productivity, local small fish and marine invertebrate community composition, and, ultimately, foraging behavior by sea ducks in winter.

### DR. ALFRED CRAIG

Professor and Chair, Biology Department, Community College of Rhode Island



Dr. Craig holds an Ed.D. in Education from the School of Education at Johnson and Wales University, an M.S. in

Biology from Brown University, and a B.S. in Plant Science from the University of Rhode Island.

Former research interests were in plant science at the University of Rhode Island and in the areas of immunology and oncology in the Division of Biology and Medicine at Brown University. He also was a commercial fisherman on Narragansett Bay and offshore for several years as well as an instructor at Marine Education Associates, formerly located in Davisville, RI. He teaches several Biology Department courses at CCRI, including Biology in the Modern World, Introductory Biology: Cellular, Introductory Biology: Organismal, and Human Physiology. In addition, Dr. Craig teaches courses in Evolution and Environmental Science at the Rhode Island Department of Corrections.



**DR. BREEA GOVENAR**

Assistant Professor, Biology,  
Rhode Island College



Dr. Govenar received her Ph.D. in Biology from Pennsylvania State University, and her B.S. in Ecology, Evolution,

and Organismal Biology from Tulane University, with additional coursework at Université de Lyon I (France) and Harvard University.

Her research interests are in community ecology and ecosystem function in marine and deep-sea habitats, including hydrothermal vents; causes and consequences of species diversity; trophic ecology and food web dynamics; and the evolution and diversity of invertebrates. She teaches Fundamental Concepts of Biology, Invertebrate Zoology, Biology Senior Seminar, and a First Year Seminar in Symbiosis.

In addition to her teaching and research, Govenar has been a Guest Investigator at the Woods Hole Oceanographic Institution since 2010.

**RICHARD D. HORAN**

Managing Director, Slater Technology Fund



Mr. Horan received his M.B.A. from the Tuck School at Dartmouth, and an A.B. from Dartmouth College.

He joined Slater in 2002 and focuses in the area of life sciences and biomedical technology. At Slater, he has led the fund's investments in NABsys, Inc., a venture-

backed company developing DNA sequencing technology; Medrobotics, Inc., a developer of integrated systems for robotic surgery; ProThera Biologics, Inc., a biopharmaceutical company developing protease inhibitors for treating acute systemic inflammation; CytoSolv Inc., a developer of protein therapeutics for wound healing derived from porcine choroid plexus; and Mnemosyne Pharmaceuticals Inc., a drug discovery venture targeting NMDA receptor function as a broad-based approach to treating neuro-psychiatric conditions.

**DR. DAN MCNALLY**

Associate Professor, Department of Science and Technology,  
Bryant University



Dr. McNally holds a Ph.D. in Environmental Engineering from Michigan Technological University; an M.S. in Civil

Engineering, Michigan Technological University; an M.A. in Computer Resources Management, Webster University; and an M.A. in Business Administration, Webster University. He also earned a B.S. in Architecture from the University of Detroit.

Dr. McNally's academic interests focus on environmental toxicology and risk assessment, green technologies for sustainability, and investigation and remediation of contaminated sites. His research interests include factors affecting bioremediation of contaminated sediments: biodegradability and bioavailability, trace metal uptake by vegetation grown on coal-generated fly ash and migration of PAH contaminants from exposed petroleum products in the environment.

**NEAL OVERSTROM**

Director, Edna Lawrence Nature Lab,  
Rhode Island School of Design



Overstrom holds an M.A. in Zoology from Connecticut College and an M.L.A., Landscape Architecture,

from the University of Massachusetts/Amherst, and a B.S. in Biology from the University of Connecticut.

A biologist, designer, and educator, Overstrom has focused his work on promoting environmental education and literacy through informal learning experiences. Prior to coming to RISD, he held senior posts for exhibit development, zoological management, and aquatic animal research at the Mystic Aquarium. His interests involve investigating biological influences on design, particularly the ways in which pattern, form and living elements in the built environment can reinforce the human-nature connection.

**DR. DAVID RAND**

Professor, Biology, Brown University



Dr. Rand received his Ph.D. in Biology from Yale University, and a B.A. in Biology from Harvard College.

He is interested in how natural selection acts on genes and genomes. One major focus of his research is how the mitochondrial genome and its interactions with the nuclear genome influence animal performance, evolutionary fitness, and aging. A second major interest is how thermal selection influences the genetic composition of populations. The goals of this work are to identify the genetic interactions that allow organisms to adapt to environmental heterogeneity.

#### DR. CAROL THORNER

Associate Professor, Biological Sciences,  
University of Rhode Island



Dr. Thorne holds a Ph.D. in Biology from University of California/Santa Barbara, and a B.S. in Biology from Stanford

University.

Dr. Thorne is a marine community ecologist with a research focus on marine macroalgae, their importance in nearshore/coastal food-webs, and the impacts of climate change on these systems. She works in a variety of marine systems, including salt marshes, estuaries, mudflats, and rocky shores, including intertidal and subtidal habitats. Her research is interdisciplinary, experimental, and quantitative, and she collaborates with a variety of basic and applied biologists.

The largest project in the Thorne laboratory involves the causes and consequences of macroalgal bloom formation in coastal systems. Dr. Thorne and her students are studying a variety of questions about bloom dynamics, including the impacts of climate change and anthropogenic nitrogen on bloom growth, the effects of herbivory and decay and decomposition on estuarine and salt marsh trophic dynamics, and the ecological interactions among bloom-forming species and genera, including *Ulva* and *Gracilaria*.

In addition, Dr. Thorne's other active, funded research projects include the impacts of climate change on the evolution of marine species, the ecological dynamics of invasive species, and plant-herbivore interactions in terrestrial hemlock forests.

#### DR. JOHN-DAVID SWANSON

Assistant Professor, Biology and  
Biomedical Sciences,  
Salve Regina University



Dr. Swanson earned a Ph.D. in Integrative Biosciences (ecological and molecular plant physiology option) from

Pennsylvania State University, and an M.S. and B.S. in Biology from the University of Waikato/New Zealand.

He teaches a variety of classes, including Human A&P for non-majors and developmental biology. His research lab works primarily on cell-cell communication, using raspberry and blackberry prickles, human stomach cancer cells and algal blooms as models. The goal of his research is to address the big picture question of relationship vs. form/function, by way of comparing across organisms to assess if the relevant molecular pathways are conserved.

#### DR. PETER WOODBERRY

Dean, Business, Science and Technology,  
Community College of Rhode Island



Dr. Woodberry earned his AB in Psychology from Syracuse University, an MPA in Public Policy from New York University

and a Ph.D. in Adult and Career Education from the University of Connecticut.

As the Dean of Business, Science and Technology, he is responsible for seven academic departments, including the natural sciences, business, computer studies, engineering and technology. In the natural sciences, Dr. Woodberry oversees CCRI's Associate in Science (AS) in Science, the AS in Chemical

Technology and a Certificate in Biotechnology. Dr. Woodberry chairs several college-wide committees, including the Curriculum Committee, Academic Advisory Council and the Faculty Evaluation Committee.

#### DR. LISA A. ZUCCARELLI

Associate Professor and chair, Biology and  
Biomedical Sciences, Chemistry, Salve  
Regina University



Dr. Zuccarelli received her Ph.D. in Biology from New York University. She earned an M.S. in Physiology and Neurobiol-

ogy from New York University and a B.A. in Biology and Chemistry from Albertus Magnus College. She is a neurobiologist who studies endocrine stress hormones in physiological systems, and is involved in the Leadership for Professional Scientist Series, an on-going series of workshops to promote professionalism in our undergraduate EPSCoR fellows.

## Steering Committee

The Steering Committee for Rhode Island NSF EPSCoR promotes collaboration, guides development and use of research infrastructure, and seeks competitive funding opportunities for the state's institutes of higher education.

#### DR. JENNIFER SPECKER

Project Director & Principal investigator,  
Rhode Island NSF EPSCoR, Professor,  
Oceanography, Graduate School of  
Oceanography, University of Rhode Island



Dr. Specker holds a Ph.D. in Fisheries and Wildlife and an M.A. in Zoology from Oregon State University; and a B.A. in

psychology from Miami University/Ohio.

Dr. Specker is a fish endocrinologist specializing in the metamorphosis of flounder, the reproductive biology of commercially-important marine fishes, the endocrine regulation of the gut and gills during development and adaptation, and stress and anesthetics in marine fishes.

#### DR. EDWARD HAWROT

Rhode Island NSF EPSCoR Co-PI,  
Alva O. Way University Professor of  
Medical Science, Brown University



Dr. Hawrot received his Ph.D. in Biochemistry from Harvard University, his A.B. with honors in Chemistry from

University of Detroit/Michigan.

As a past Established Investigator of the American Heart Association and Upjohn Professor of Pharmacology, his research interests include the understanding of the structure and function of nicotinic acetylcholine receptors and of the neurotoxins that target these important receptors.

#### DR. SHEILA ADAMUS LIOTTA

Rhode Island NSF EPSCoR Co-PI,  
Dean, School of Arts & Sciences,  
Providence College



Dr. Adamus Liotta, an associate professor of Chemistry, holds a Ph.D. and M.S. in Organic Chem-

istry from Cornell University, and a B.A. in Chemistry from Rutgers College of Rutgers University.

She was appointed the first dean of the School of Arts and Sciences in 2009, serving prior to that post as special assistant to the vice president for academic affairs. A Providence College faculty member since

1993, she chaired the Department of Chemistry and Biochemistry for eight years.

Dr. Adamus Liotta served as a partner liaison for Rhode Island NSF EPSCoR from 2011 until joining the Steering Committee in July 2013.

#### CHARLIE CANNON

Rhode Island NSF EPSCoR Co-PI,  
Associate professor, Industrial Design,  
Rhode Island School of Design



Currently on sabbatical, Mr. Cannon received an M.A. in Architecture from the Harvard University Graduate School

of Design and a B.A. in Anthropology from Wesleyan University. He is the chief design officer at Epic Decade/IP.21 Studio.

His areas of focus are sustainability, systems, and services and strategy; and he is responsible for curriculum development, outreach, and teaching.

#### CHRISTINE M.B. SMITH

Director Innovation Programs  
RI Economic Development Corporation



Christine Smith holds a B.S. in Diplomatic History from the Walsh School of Foreign Service at Georgetown University. At

the RI Economic Development Corporation, she is responsible for launching statewide economic development initiatives designed to maximize the economic impact of science, technology and innovation. In this role, she currently serves as Executive Director of the Rhode Island Science & Technology Advisory Council (STAC).

## Staff

#### SALLY J. BEAUMAN

Project Administrator



Sally is the point of contact for chief financial officers of collaborating institutions and maintains integrity of sub-awards.

With staff support, she is responsible for budget projections, purchasing, and accounting. She collects data from research facilities, partner institutions, and participants; compiles and analyzes data for reports; and helps write and coordinate the submission of proposals, plans and reports. Sally spent 15 years serving as the Project Manager for Guiding Education in Math and Science Network (GEMS-Net). She also held the position of Project Manager for Change Associated with Readiness, Education and Efficacy in Reform Science (CA-REERS). Sally has an M.A. (History) and a Master's of Library and Information Studies (Archives) from the University of Rhode Island; a B.A. (History), from URI; and A.S. (Business Administration), the Community College of Rhode Island.

#### AMY DUNKLE

Communications + Outreach Coordinator



Amy serves as the program's conduit for communication among Rhode Island's institutes of higher education, their

faculty, staff, and students, and for outreach to the general public. She writes, edits and coordinates the program's newsmagazine, The Current, manages the [www.riepscor.org](http://www.riepscor.org) website and social media sites, and assists with the outreach



program. Her writing and editing experience comes from a career in newspapers and freelance writing. She authored a book about South Dakota State University, The College on the Hill, and is finishing a book project with the SDSU College of Agriculture and Biological Sciences. She holds a Master's (Journalism & Mass Communication) from South Dakota State University and a B.A. (Political Science) from the University of New Hampshire/Durham.

#### JIM LEMIRE

Undergraduate Research Coordinator



Jim oversees the Summer Undergraduate Research Fellowship program and other undergraduate

research opportunities supported by Rhode Island NSF EPSCoR. An adjunct professor of biology and marine biology at Roger Williams University, Jim is involved in developing and teaching science courses for future teachers seeking education majors at RWU. His academic background includes: an M.A.T. (Biology) from Brown University (2003); an M.S. (Biology) from the University of Iowa (2000) where he carried out research on the population genetics and evolutionary biology of Yucca plants and Yucca moths; and an A.B. (double major - Biology and Environmental Studies; minor in Philosophy) from Bowdoin College, where he worked on understanding the biomechanics of growth in sea urchins.

#### TIM PELLETIER

Education, Outreach & Diversity Coordinator



Tim conducts outreach and teacher and curriculum support at the college, high school, and

middle school levels. Hands-on Science Experiences bring 6-12 graders to college campuses and Narragansett Bay locations for lab and field experiments. Rhode Island NSF EPSCoR also supports the purchase of shared equipment and supplies, teacher training and curriculum development for schools involved in the state Bioscience Academy Initiative; and coordinates educational opportunities with state agencies and industry organizations. Tim is coordinator of the RI Outreach Center for Biotechnology at the Community College of Rhode Island (CCRI). Before coming to CCRI, Tim spent more than 10 years working in the biotechnology industry in in vitro diagnostics, including research and development, product development, quality control, and marketing and sales. He grew up in Providence, RI, and graduated from Rhode Island College, with B.A.s in Biology, Sociology and Criminology.

#### SHELLEY HAZARD

Scientific Research Grant Assistant



Shelley joined the office in May 2010. She is responsible for assisting with and supporting the execution of Rhode Island

NSF EPSCoR Collaborative Agreements. Among her duties, Shelley works with budgets, human resources, payroll, purchasing, and travel. Prior to her work with the EPSCoR office, she worked in the offices of Grant and Contract Accounting, Civil and Environmental Engineering, and the Management office of the Graduate School of Oceanography.

## Making an investment in the future

continued from page 10

Dr. Thornber says she was drawn to mentoring because of the excellent guidance she received throughout her academic experience as an undergraduate, graduate student and postdoctoral researcher.

Today, in her leadership capacity, she says mentoring adds to and complements both her teaching and research projects. She invites former mentees to give guest lectures in her courses, and she includes their research results in her classes and ongoing research efforts.

Dr. Costello also appreciates the opportunity to give back and readily credits those before him with having an influence on his life. Still, he says, the credit goes to the undergraduates.

"They make all of the choices," he says. "I just create a place where we are doing the work that we like to do. Everything they accomplish is really because they did it. It's more like I get to ride on their coattails."

Today, Dr. Swanson says, his research and teaching are intricately intertwined and it is impossible to separate one role from the other:

"I am a better researcher because of my mentoring and I am a better mentor because of my research. I have found that every grant written, every poster or paper published is partially for the goal of opening up opportunities for undergraduate students and to teach them a love and respect for science."

And, ultimately, he adds, that passion serves both undergraduates and mentors as well as advances the field of knowledge.

## Introducing CoresRI.org



This fall, academic and medical institutions from around Rhode Island unveiled CoresRI.org, a web directory of publicly shared core science

facilities and services that officials said could accelerate research collaboration for the benefit of the entire state.

The CoresRI.org team of Natalia Onufrieva, Jumoke Akinrolabu, and Pamela Swiatek won Brown's Excellence Award for Innovation. Bringing the resource to life took more than a year of work designing, managing, coding, and convincing research groups across Rhode Island to participate.

CoresRI.org provides detailed information on more than 500 lab instruments and services available in more than 30 core facilities and laboratories at 12 institutions. Site visitors — scientists, engineers or physicians — can search by institution, facility, general application or any

keyword to find electron microscopes, high-throughput gene sequencers, nuclear magnetic resonance spectrometers, bioinformatics services and many other resources.

The site helps fulfill and expand on the promise of shared core facilities, which are designed to make expensive scientific resources, such as high-end equipment and expert staff, available to a broad scientific community.

Beyond facilitating access to needed equipment, CoresRI.org can increase competitiveness in grant applications because researchers will be able to show they have access to relevant instruments regardless of location. The site also can help inspire new research collaborations as researchers discover what their peers are doing.

CoresRI.org partners are: Brown University, Bryant University, Care New England – Women and Infants Hospital, Community College of Rhode Island, Lifespan – Rhode Island Hospital, Providence College, Providence VA Medical Center, Rhode Island College, Rhode Island School of Design, Roger Williams University, Salve Regina University, and University of Rhode Island.

## EPSCoR Core Research Facilities

Rhode Island NSF EPSCoR supports four core research facilities to help discover the effect of climate variability on marine life. Each facility is open to researchers and students statewide. An inventory of available equipment and expertise can be found at [www.riepscor.org](http://www.riepscor.org).



**Nature Lab, Rhode Island School of Design, Providence**

A hands-on natural history collection and studio environment that offers the opportunity to examine and explore the patterns, structures and interactions of design in nature.



**Proteomics Center, Brown University, Providence**

Instrumentation for the physical characterization of biological macromolecules



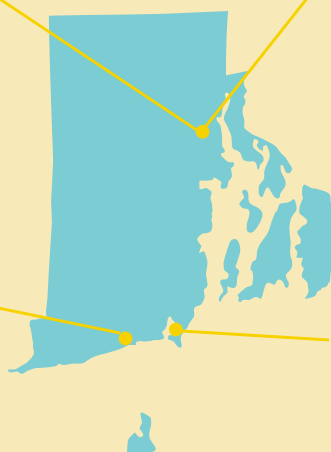
**Genomics & Sequencing Center, URI, Kingston**

Instrumentation for robotic sample preparation, fragment analysis, rt-qPCR, bioanalyzer



**Marine Life Science Facility URI, Narragansett**

Flowing seawater with temperature control, instrumentation for preparing organisms for analyses, BD Influx Flow Cytometer





*The Current* is created with paper manufactured with windpower and containing 15% PCW.



If you would like to receive *The Current* electronically, please contact [newsletter@riepscor.org](mailto:newsletter@riepscor.org).

## RI Science and Technology Advisory Council

Launched in 2005 and sustained by legislative statute in 2006 to make innovation central to the state's leadership agenda, the Rhode Island Science and Technology Advisory Council (STAC) is the official oversight body of Rhode Island NSF EPSCoR.

In 2007, STAC created the RI Research Alliance to establish a statewide platform for collaboration across the state's research organizations, increase competitiveness for federal funding, and support efforts such as the EPSCoR, Centers of Biomedical Research Excellence (COBRE) and IDeA Networks of Biomedical Research Excellence (INBRE) networks.

STAC Council members represent the academic, business and policy leadership of Rhode Island. They meet on a regular basis to review progress and develop new recommendations for enhancing research

and development, supporting entrepreneurial activity, and increasing innovation in Rhode Island.

Christine Smith is director of Innovation Programs at the RI Economic Development Corporation (RIEDC) and serves as STAC executive director.

### Council members are:

#### David A. Savitz

Vice President for Research,  
Brown University (Co-Chair)

#### Gerald Sonnenfeld

Vice President for Research and  
Economic Development, University  
of Rhode Island (Co-Chair)

#### Janet Coit

Director, Rhode Island Department  
of Environmental Management

#### Pierre Corriveau

Chief Technology Officer,  
Naval Undersea War Center

#### David Hibbitt

Founder and Former Chairman,  
ABAQUS, Inc.

#### Molly Donohue Magee

Executive Director, SENEDIA

#### Jay Marshall

Executive Director of Quality,  
Amgen Rhode Island

#### Patricia C. Phillips

Dean of Graduate Studies,  
RI School of Design

#### Thomas Rockett

Former Vice Provost for Research  
and Graduate Studies, URI

#### Peter Snyder

Vice President of Research, Lifespan

#### Donald Stanford

Interim Chief Technology Officer,  
GTECH Holdings Corporation

#### Marcel A. Valois

Executive Director, Rhode Island  
Economic Development Corporation