THE UNIVERSITY OF RHODE ISLAND

COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES 2018–2023

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### Message from the Dean



The College of the Environment and Life Sciences (CELS) embodies the historic mission of the land-grant university system with its three-fold mission of education, research, and public outreach. We offer graduate and undergraduate academic programs in environmental and life sciences, as well as environmental economics, management, and policy. Each year, more than 2,000 students in these critical fields of study benefit from the knowledge of our approximately 100 faculty members, most of whom actively conduct research on topics of relevance to the state, the nation, and the world. We take pride in our efforts

to attract and retain faculty and students from across the globe, capitalizing on the variety of experiences and perspectives brought to the college by our diverse faculty and student body. Consistent with our land-grant and sea-grant heritage, we actively engage with the public to ensure that members of the community benefit from the skills and expertise of our faculty, staff, and students.

This strategic plan describes goals and sub-goals related to each of our three mission areas, complementing and aligning with goals and strategies articulated in the 2016-2021 University of Rhode Island Academic Strategic Plan. The CELS goals are broad and ambitious, and provide direction for our work while allowing for course corrections as new and exciting opportunities arise. Faculty, staff, students, and stakeholders were deeply engaged in the development of our strategic goals, and I am pleased to report that their ideas are paramount within this plan.

It falls upon all of us within CELS to implement the plan and ensure that we move forward in achieving these worthwhile goals and objectives. A true measure of our success will be evident when seeing the impacts of our pursuit on the nature and function of the college and all that it does.

Thanks for all that you do,

John D King

John D. Kirby, Ph.D. Dean, URI College of the Environment and Life Sciences

### Vision

University of Rhode Island College of the Environment and Life Sciences (CELS) will be a national leader among colleges specializing in environmental and life sciences, environmental management, policy, and design. *Adopted 16 November 2006* 

### Mission

URI CELS strives for excellence in teaching, research, and service. We prepare our students with the skills, knowledge, and insight to address the challenges of today's world and support their development as lifelong learners. We foster collaboration among our undergraduate and graduate students, staff, and faculty in experiential learning and provide opportunities for students to apply their knowledge beyond the University. We address contemporary problems through innovative, relevant, and scholarly research. We extend our research-based knowledge through community engagement in the tradition of our land-grant and sea-grant heritage and are dedicated to outreach and service to our state, national, and global community. *Adopted 16 November 2006.* 

In support of the vision and mission statements of the College of the Environment and Life Sciences, elected and appointed members of the Curriculum Committee, Diversity Committee, Research Committee, and Cooperative Extension, and Outreach Coordinating Committees have come together to formulate a Strategic Plan to guide priorities for the college's three mission elements of instruction and learning, research and discovery, and engaged extension and outreach.

These three mission elements are not intended to work independently of each other. Our cutting-edge research and scholarship inform our instructional activities with students and contribute to the success of our extramural extension clientele. Likewise, our engagement with extramural extension clientele informs our research activities to keep them timely and relevant, and our extension and outreach activities provide great opportunities for practical engagement and experiential learning to all our CELS students. Recognizing the complementary nature of the elements of our mission, we cooperate and work collaboratively with faculty and staff from other URI colleges, most prominently the Graduate School of Oceanography, in the fulfillment of our mission.

# Academic Programs

The College of the Environment and Life Sciences' Academic Strategic Plan focuses on the following mission elements that align with the URI Academic Strategic Plan 2016-2021, leverage our strengths, and position our students and faculty for success in meeting the evolving challenges of the 21st century.

Educational Excellence-Innovative Curricula to Enhance Student Success

**Research and Discovery**—Integrating Research and Experiential Learning into the Student Experience

Global Perspective—Building Global Competence

*Diversity and Social Justice*—Fostering an Inclusive and Diverse CELS Community

The CELS Academic Plan aligns with the following goals of URI's Academic Strategic Plan:

- Goal 1—Enhance Student Success (strategies 1, 2, 3, 4 and 6) Goal 2—Expand Research, Scholarship, and Creative Work (strategies 2 and 4)
- Goal 3—Grow a Global Presence (strategy 3)

Goal 4—Embrace Diversity and Social Justice (strategies 1, 2, and 3)



### Academic Programs

#### Focus Area 1: Educational Excellence—Innovative Curricula to **Enhance Student Success**

Rapid changes in knowledge, nature and identity of disciplinary fields, and career opportunities for students require graduates to have a professional toolkit that will allow them to adapt to the evolving needs of the workforce. CELS will be a leader in offering students innovative academic and co-curricular opportunities that support academic success, foster the development of critical thinkers and productive citizens, honor disciplinary fields and promote interdisciplinary study, and meet the evolving needs of employers.

#### Goal 1:

By 2023, CELS will enhance program excellence through innovative curriculum development and assessment .:

- SUB-GOAL 1: Leverage our excellence in research and extension/outreach to provide innovative academic programs at both the undergraduate and graduate levels, including, but not limited to environmental communication, biotechnology, sustainable agriculture, global environmental change, and environmental health.
- SUB-GOAL 2: Implement learner-centered, research-validated course design to include evidence-based teaching methods and student metacognition. Integral assessment tools will allow monitoring of the effectiveness of these methods in improving knowledge retention and promoting deeper learning.
- SUB-GOAL 3: Integrate skill-building across the curriculum, including experimental design, data analysis, geographic information systems, remote sensing, rhetoric, communication, and data visualization.
- SUB-GOAL 4: Integrate and assess learning outcomes at all levels of the curriculum.
- SUB-GOAL 5: Incorporate student, alumni, and employer feedback into program assessment; review and update the program curricula if necessary to ensure that the evolution of our programs meet the needs of graduates as they enter the working world.

# in the University.

Goal 2:

- and employability.
- programs.
- faculty.
- innovations.

• SUB-GOAL 6: Build and strengthen formal partnerships with other academic programs and departments

#### By 2023, CELS will implement new programs, pedagogies and modes of course delivery to enhance student learning and meet the needs of a changing student body.

• SUB-GOAL 1: Develop innovative certificate, degree, and dual-degree programs to provide students with interdisciplinary and multidisciplinary opportunities to increase their success

• SUB-GOAL 2: Support development of online courses and programs using best-practices for online education.

• SUB-GOAL 3: Collaborate with Community College of Rhode Island (CCRI) to design courses and programs that will transfer seamlessly to CELS degree

 SUB-GOAL 4: Support research in the scholarship of teaching and learning and professional development of

• SUB-GOAL 5: Integrate learning outcomes assessments with pedagogical

 SUB-GOAL 6: Increase online, summer and J-term offerings of high interest and high enrollment courses.

#### Goal 3:

By 2023, CELS will provide students with comprehensive academic, resource and career advising to support student achievement, increase retention and graduation rates, and prepare students for post-graduation success.:

- SUB-GOAL 1: Periodically evaluate the roles and relationships of the CELS professional and faculty advisors to support student success.
- SUB-GOAL 2: Periodically evaluate the effectiveness of tools used to assess CELS student progress through degree milestones, retention and degree completion; identify and address barriers to student success.
- SUB-GOAL 3: Provide students with clear degree progress information using the e-Campus Degree Progress Report and program-specific academic maps; support student attainment of degree milestones.
- SUB-GOAL 4: Support dual enrollment of undergraduates in graduate certificates and professional master's degree programs to accelerate and enhance student success in the workplace.
- SUB-GOAL 5: Offer co-curricular programming that supports the professional and career development goals of CELS students, including development of professional skills.



### Academic Programs (continued)

### Focus Area 2: Research and Discovery—Integrating Research and Experiential Learning into the Student **Experience**

CELS faculty address global challenges through research and outreach programs across the fields of environmental and life sciences, environmental economics, and resource management. CELS will lead the University in offering academic programs and opportunities that integrate research, experiential learning and outreach into the student experience.

#### Goal 1:

By 2023, CELS will support experiential learning opportunities for all **CELS** students through curricular and co-curricular programs, and provide them with the experience and confidence to successfully compete for professional opportunities upon graduation.

- SUB-GOAL 1: Incorporate real-world problems into the curriculum, by providing students with the opportunity to work in multidisciplinary teams in which they apply tools taught in the classroom.
- SUB-GOAL 2: Provide increased opportunities for service learning and outreach through collaborations with URI Cooperative Extension as well as state, municipal and K-12 partners.
- SUB-GOAL 3: Strengthen partnerships with state/federal partners and local and global industry to expand and formalize options for experiential learning for students including internships, research opportunities, directed study courses and capstone experiences.
- SUB-GOAL 4: Provide increased opportunities for CELS students to engage with the public through course-based, co-curricular, college-wide programs.

- SUB-GOAL 5: Support place-based teaching strategies that emphasize the study of local places, extramural experiences and a diversity of field experiences, including those available at CELS farms and research facilities, including marine facilities at the Narragansett Bay Campus and rich and
- SUB-GOAL 6: Promote career/professional development through alumni/ industry engagement, the CELS URISE program, and the University's Center for Career and Experiential Education.

diverse local natural habitats.

#### Goal 2:

By 2023, CELS will increase opportunities for student engagement in research.

- SUB-GOAL 1: Increase the number of students who engage in research experiences.
- SUB-GOAL 2: Offer problem-based learning experiences that allow students to address questions of immediate concern to stakeholders in the state of Rhode Island.
- SUB-GOAL 3: Offer research-based capstone experiences as an option for students to meet the D1 general education outcome requirement (Integrate and Apply).
- SUB-GOAL 4: Secure funding to increase the number of research fellowships offered through CELS programs (e.g. Coastal and Environmental Fellows. Science and Engineering Fellows, and Energy Fellows).

 SUB-GOAL 5: Provide opportunities for students to present research at local, regional, and national symposia, providing exposure, experience, and networking opportunities.

#### Goal 3:

By 2023, CELS will foster the development of interdisciplinary knowledge and will build more connections across disciplines and academic units.

- SUB-GOAL 1: Evaluate and streamline CELS undergraduate majors through program revisions to improve time to completion and facilitate the ability of students to complete relevant second majors and minors.
- SUB-GOAL 2: Develop interdisciplinary majors that allow students to combine training in existing areas of strength in academic units across campus.
- SUB-GOAL 3: Solidify collaborations with other URI programs to provide relevant interdisciplinary courses and experiential learning opportunities to students (e.g. Entrepreneurship in Food Systems. Aaribusiness with College of Business: One Health with the Health Collaborative: Food Security and Equity with College of Arts and Sciences; Marine Biology and Fisheries with the Graduate School of Oceanography).



### Focus Area 3: Global Perspective—Building Global Competence

Global competence can be developed through opportunities allowing engagement with issues of global importance and through interaction with a diverse community of fellow students and scholars. CELS is well-positioned to support this effort through our international research and outreach activities, our growing portfolio of faculty-led studyabroad courses, and our increasingly diverse faculty and student body.

#### Goal:

By 2023, CELS will prepare students to engage in international education, research, and outreach collaborations and to be successful global citizens.

• SUB-GOAL 1: Incorporate the international outreach and research activities of CELS faculty and staff into the undergraduate and graduate curricula.

and summer courses. opportunities.



### Focus Area 4: Diversity and Social Justice—Fostering an Inclusive and Diverse CELS Community

CELS is an inclusive community that embraces diversity in all its forms and recognizes that diversity of thought and experience contributes to our excellence.

#### Goal 1:

**CELS** will create an active learning community among students, faculty, and staff that supports diversity, inclusion, and success. CELS will continue to foster a robust Diversity Committee, comprised of faculty, staff, and students, that works to provide a safe place for the CELS community to discuss issues of equity and inclusion for our college.

• SUB-GOAL 1: Foster the cultural competency of students, staff, and faculty and work to more fully understand how issues related to multiculturalism and social justice affect all aspects of our work, toward building more inclusive communities where all can thrive in research, in classes, and in service;

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• SUB-GOAL 2: Increase opportunities for international study through J-term

 SUB-GOAL 3: Strengthen existing international programs and seek out new collaborations with institutions outside of the United States for educational exchange, course articulation, graduate student recruitment, and dual degree

- SUB-GOAL 4: Develop additional international partnerships in the sustainable management of fisheries and aquaculture resources, resources economics, and water resources to attract additional international students to our graduate programs.
- SUB-GOAL 5: Develop online certificate programs that allow gualified international students to begin their education online before completing a graduate degree on campus.

a community that values both unique identities and the connections that foster collective growth and to embrace the multiplicity and complexity of identities within individuals or groups.

 SUB-GOAL 2: Develop faculty expertise in inclusive teaching pedagogies and subject matter, and support and reward programs that implement best practices of inclusivity across our three major mission elements of teaching, research, and community engagement.

• SUB-GOAL 3: Support the academic and social needs of our students through CELS Academic and Student Affairs Office and our student programming (e.g. the CELS leadership program, URISE; the Seeds of Success (SOS) student organization; and the first-year Living and Learning Community).

#### Goal 2:

**CELS will recruit and support** students, faculty, and staff to ensure diversity and inclusion of historically underrepresented groups from various backgrounds.

- SUB-GOAL 1: Recruit a more diverse faculty and staff to reflect and support our student body.
- SUB-GOAL 2: Increase recruitment of undergraduate and graduate students with a diversity of backgrounds.

## Research

By 2023, CELS research will be at the forefront of the state and nation's efforts to solve problems and challenges in environmental and life sciences using innovative, inclusive, and multidisciplinary team science approaches. The four strategic focus areas for growth over the next five years include:

#### Local to Global Environmental Change Agriculture and Food Systems Human and Environmental Health Multi-Scale Science: From Genomes to Ecosystems, Microbes to Humans

The CELS research community is vibrant and incorporates faculty, research professionals, and graduate and undergraduate students in the natural and social sciences. Numerous interdisciplinary partnerships both within and beyond CELS have arisen from the coupling of natural-human systems, and there is a recognition of the importance of incorporating social sciences research into the natural sciences, and vice versa. Our research strengths and collaborations span the globe and are directly linked to URI's land-grant and sea-grant missions, including the Agricultural Experiment Station and Cooperative Extension, and coastal and marine research.

The CELS Research Strategic Plan directly aligns with URI's Academic Strategic Plan, including three of the four core goals identified therein:

Goal 2—Expand Research, Scholarship, and Creative Work (strategy 1) Goal 3—Grow a Global Presence Goal 4—Embrace Diversity and Social Justice (strategy 2)

The four interwoven strategic focus areas encompass multiple academic departments and showcase our collective strengths. Central tenets of all four focus areas include:

- The application of big data, bioinformatics, and machine learning in the natural and social sciences.
- Awareness that many societal problems addressed by research in CELS are inherently interdisciplinary, requiring the perspectives of social, biological, and physical scientists.
- The enhancement of effective scientific communication as it applies to inclusive public and academic spheres.
- Recognition of the importance of diversity in academic background, training, and experience to efforts to solve complex problems.

Activities in all four focus areas take advantage of one or more of CELS' and URI's collective resources, including but not limited to the: Animal Care Facilities; Coastal Institute; Coastal Resources Center; Commercial Fisheries Center; Diving Program; East Farm; Environmental Data Center; Food Safety Education Program; Gardner Crops Station (Agronomy); High-Performance Computing Research Facility; Metcalf Institute for Marine and Environmental Reporting; Peckham Farm; Rhode Island Genomics and Sequencing Center; Rhode Island IDeA Network of Biomedical Research Excellence (RI-INBRE) Centralized Research Core Facility; and the Marine Science Research Facility at the Narragansett Bay Campus.



### Research

#### Focus Area 1: Local to Global Environmental Change

Environmental change caused by increasing populations, rapid development and resource depletion, and a warming climate presents significant challenges to natural systems and the societies that rely on them at global and local scales. Global models predict with high confidence that climate will continue to warm over the coming centuries, even if greenhouse gas emissions are stabilized at current levels. As the flagship research university of the Ocean State, we are uniquely positioned to monitor and predict these local and global changes, as many of them impact our nearshore and marine habitats. Our geospatially explicit research enables communities to both better understand and cope with changing hazards in the face of sea-level rise, stronger coastal storms, increasing water temperatures, impacts to water quality and availability, ocean acidification, changing disease patterns, invasive species, and biological invasions, among many other challenges. We are also focused on mitigating global environmental change by understanding the social and biological consequences of transitioning to renewable energy technologies. A particular strength of the CELS community is the dynamic interplay between natural and social scientists utilizing both quantitative and qualitative information and analysis.

#### Goal:

- By 2023, CELS researchers will have increased our ability to respond and adapt to local, regional, and global environmental changes.
- SUB-GOAL 1: Understand how environmental change may alter the biology and ecology of coastal, freshwater, marine, and terrestrial species and habitats on local through global scales.
- SUB-GOAL 2: Improve our understanding of human-natural systems (including coastal, freshwater, marine, and terrestrial), how they are coupled, and how to enhance their resilience to environmental change.
- SUB-GOAL 3: Expand our knowledge of the ecology of disease and of biological invasions, and how global change will impact the prevalence and spread of disease and invasive species.

 SUB-GOAL 4: Understand how the linkages between hydrology, energy, food, and policy can impact our environment and society.

 SUB-GOAL 5: Facilitate transitions to renewable energy technologies by better understanding their impacts on both humans and the environment.



### Research (continued)

#### Focus Area 2: Agriculture and Food Systems

CELS researchers take a systems-based, interdisciplinary approach to the biological and environmental sciences as applied to agriculture, aquaculture, fisheries, food policy, and economics, food safety, and food innovation. Our diverse faculty use a broad array of approaches to help achieve economically, socially, and ecologically sustainable production, management, consumption, and utilization of plants and animals for the development of healthy communities across a global scale. CELS is also uniquely positioned to analyze the social dynamics of food systems at local to global scales, with a broad range of expertise in markets and policy at various scales, consumer preferences, and the management of conflicts related to land, coastal, and offshore food production.

#### Goal:

By 2023, CELS researchers will have increased our ability, on local, regional, and global levels, to sustainably grow, harvest, market, and consume food from both terrestrial and aquatic species.

 SUB-GOAL 1: Create innovative approaches within the food system for local, national, and global sustainable

agriculture, aquaculture, fisheries, and food processing and innovation.

 SUB-GOAL 2: Understand how natural products and live microbial supplements can be used to prevent and mitigate disease outbreaks and contribute to healthy internal and external environments.

• SUB-GOAL 3: Enhance our understanding and communication of the global benefits and potential impacts

#### Focus Area 3: Human and Environmental Health

Environmental health is broadly defined as the study of how the environment influences human, animal, and plant health. A greater understanding of the science underlying how our environment impacts health will enable us to design safer and greener products and curb the rise of diseases associated with environmental and occupational exposures.

CELS has considerable expertise and potential for growth in the broad areas of human and environmental health. We are committed to devising innovative and interdisciplinary team-based approaches to address health challenges arising at the intersection of humans, animals, and the environment. CELS faculty are actively studying the molecular basis of infectious and noninfectious human, animal, and plant diseases, mechanisms of antibiotic resistance, and the design of new vaccines and probiotics. We are also investigating the distribution and impacts of health challenges across communities.

#### Goal:

By 2023, CELS researchers will have increased our ability to recognize and manage emergent human and environmental health challenges.

• SUB-GOAL 1: Encourage development of interdisciplinary teams of researchers with the capacity to understand the underlying biological and social

mechanisms that contribute to human, animal, and plant health threats.

 SUB-GOAL 2: Develop innovative strategies to prevent and mitigate the threats posed by new and/or resurgent infectious diseases through the development of new vaccines and probiotics.

• SUB-GOAL 3: Harness the power of big data and bioinformatics to implement improved preventative, diagnostic, and therapeutic approaches to human and environmental health challenges.

of genetic approaches to agriculture

and aquaculture, including selective

editing and other forms of genetic

SUB-GOAL 4: Maximize the capacity

of managed environments to provide

ecosystem services, such as nutrient management, water quality, and habitat

modification.

breeding informed by genomics, gene

• SUB-GOAL 4: Understand and address the distribution and impacts of human and environmental health challenges across communities, which have implications for social sustainability.



### Focus Area 4: Multi-Scale Science: From Genomes to **Ecosystems, Microbes to Humans**

An understanding of biodiversity at all levels is critical to our ability to productively, responsibly, and sustainably interact with our natural world. In addition to our appreciation and fundamental understanding of the natural world, the preservation of biodiversity is essential to preserve the key ecosystem services provided by organisms upon which we rely. CELS researchers study the evolutionary and ecological dynamics of biodiversity from microbes to humans, and at all levels of biological organization-from genomes through organisms and populations to ecosystems. We have particular strengths in marine and freshwater research, given our proximity to Narragansett Bay and Rhode Island Sound and their watersheds. While recognizing our traditional strengths in organismal research, our growing strengths in genomics and bioinformatics enhance our understanding of biodiversity and enable us to predict the responses of freshwater, marine, and terrestrial species to an ever-changing planet. CELS faculty and students will work in interdisciplinary, collaborative research teams, frequently across URI colleges to achieve these goals. We use our foundational knowledge of biology at scales from genes to ecosystems to develop effective land management plans, coastal and marine policy, a green economy, and a healthy and sustainable global ecosystem.

#### Goal:

By 2023, CELS researchers will have increased our understanding of (a) biodiversity at multiple scales from genomes to ecosystems, and (b) how the evolution and ecology of organisms, from microbes to humans, affects environmental and ecosystem health.

- SUB-GOAL 1: Promote interdisciplinary and collaborative research that integrates multiple levels of scientific inquiry (from genomes to ecosystems to social systems) and co-produces knowledge to ensure a sustainable planet.
- SUB-GOAL 2: Utilize big data and bioinformatics to enhance our understanding of structural and functional diversity, from microbial systems to ecosystems and large landscapes.

 SUB-GOAL 3: Understand the fundamental biological properties of genes and proteins, cells, organs and organ systems, organisms, populations, communities, and ecosystems, and their collective responses to environmental change.

 SUB-GOAL 4: By working with stakeholders, we will develop solutions to protect and restore biodiversity and the ecosystems that support our planet.

 SUB-GOAL 5: Understand how the coupling between human and natural systems can enhance and preserve biodiversity, enhance resilience, improve the management of aquaculture, fisheries, and wildlife populations and habitats, and promote a vibrant, sustainable environment.

## **Cooperative Extension and Public Engagement**

#### Focus Area 1: Food Systems and Agriculture

Demand for locally produced food has grown in recent years due to consumer interest in where and how their food is grown and raised. URI Cooperative Extension supports the production of safe, abundant food by providing training and assistance to Rhode Island food producers, processors, and entrepreneurs. In addition, URI Cooperative Extension introduces young people to sustainable agriculture to raise awareness of its importance to human well-being.

#### Goal:

By 2023, URI Cooperative Extension will have strengthened Rhode Island's food and agricultural systems by increasing Rhode Islanders' capacity to grow, process, and provide safe and nutritious food, and to better manage wild fisheries in Rhode Island and abroad.

#### Focus Area 2: Healthy Lifestyles

URI Cooperative Extension's efforts to promote healthy lifestyles for Rhode Islanders are focused on reducing obesity, improving the well-being of our state's youth population, and preventing Lyme disease. Half of the state's adults are projected to be obese by 2030, and currently, one-third of Rhode Island's youth population is overweight or obese. In addition, young people often experience poor self-image, emotional trauma, peer pressure, and exposure to unhealthy situations. Lyme disease, which affects Rhode Islanders at more than eight times the national average, is another health challenge for the state. URI Cooperative Extension addresses these challenges by encouraging children and adults to adopt healthy behaviors.

#### Goal:

By 2023, URI Cooperative Extension will have strengthened the ability of Rhode Islanders to take actions that promote healthy lifestyles and result in improved nutrition and physical activity, reduced risk of vector-borne diseases, and improved physical, social, and emotional health.

physical activity.

# **Cooperative Extension** and Public Engagement

The extension and public engagement strategic plan focuses on the following core elements that align with the URI academic strategic plan, leverage our strengths, and position our students and extramural clientele from Rhode Island, the nation, and abroad for success in meeting the evolving challenges of the 21st century:

Food Systems and Agriculture Healthy Lifestyles Land Stewardship Marine and Freshwater Resources **Energy Literacy** 

Most of these core elements are derived from an extensive strategic planning process undertaken by URI Cooperative Extension in 2017 (uri.edu/coopext). In addition to addressing the goals described below, we will seek to design and implement programs to achieve social and environmental justice, promote resilience to climate change, advance quality of life for Rhode Islanders, develop our state's workforce and state leaders, build resilient economies, and ensure sustainable ecosystems.

The CELS Cooperative Extension and Public Engagement strategic goals align with the following goals of URI's Academic Strategic Plan:

- Goal 2—Expand Research, Scholarship, and Creative Work (strategies 1, 2, 3, 4 and 5)
- Goal 3—Grow a Global Presence (strategies 1 and 4)
- Goal 4—Embrace Diversity and Social Justice (strategies 1 and 2)



• SUB-GOAL 1: Increase the capacity of Rhode Island producers to adopt innovative techniques for agriculture and aquaculture to achieve commercial viability and environmental sustainability.

SUB-GOAL 2: Increase the capacity of Rhode Island food producers. processers, and service sectors to improve food safety practices and to meet federal and state regulatory expectations.

- SUB-GOAL 3: Educate Rhode Island's youth population and consumers about food production, safe food handling, gardening, and ecosystem value.
- SUB-GOAL 4: In cooperation with the Coastal Resources Center at the Graduate School of Oceanography, we will engage with fisheries management officials and extension professionals locally and internationally to develop more robust fisheries management and aquaculture protocols.

 SUB-GOAL 1: Contribute to reduction of obesity-related disease in Rhode Island by teaching behavior-change techniques that increase intake of nutrient-dense foods and increase

SUB-GOAL 2: Increase tick literacy among Rhode Island residents to promote behaviors for disease prevention using education and technical assistance programs targeted especially

to community members of high-risk towns, outdoor workers, health professionals, children, and pest managers.

· SUB-GOAL 3: Improve the physical, social, and emotional well-being of Rhode Island's youth population by expanding activities, events, and educational experiences related to healthy living, especially those supporting the 4-H Healthy Living mission mandate.



### Cooperative Extension and Public Engagement (continued)

#### Focus Area 3: Land Stewardship

Land-use decisions made by private landowners, towns, and the state collectively affect water quality and quantity, ecosystem health, economic vitality, and quality of life. Many Rhode Island residents have become disconnected from the land and the current challenges we face in an urbanized state. URI Cooperative Extension communicates and demonstrates best management practices to agricultural producers, land managers, property owners, and others to support active stewardship of Rhode Island's land resources.

#### Goal:

By 2023, URI Cooperative Extension will have provided leadership, information, and guidance on the stewardship of land including urban, suburban, rural, and coastal landscapes to achieve ecosystem resilience, water resource protection, forest management, and economic and agricultural viability.

 SUB-GOAL 1: Increase implementation of best management practices to support sustainable agriculture and forestry by developing and delivering demonstration programs on URI farms and properties.

 SUB-GOAL 2: Increase the capacity of public and private landowners and conservation organizations to apply best stewardship practices to achieve coastal resilience, ecosystem resilience, and increased use of effective green infrastructure.

- SUB-GOAL 3: Ensure ready access to essential geospatial information for decision makers and landowners to support resource management decisions.
- SUB-GOAL 4: Increase public awareness of how land-use decision-making affects economic viability, quality of life, environmental health, and food security.
- SUB-GOAL 5: Increase the capacity of urban planners to improve urban, farm, park, and open space development by addressing climate change and native wildlife enhancement.



#### Focus Area 4: Marine and Freshwater Resources

Marine and freshwater resources are valued for drinking, irrigation, recreation, shellfishing, fishing, and aquaculture. In a densely populated state like Rhode Island, careful management is needed to protect and restore our marine and freshwater resources. URI Cooperative Extension contributes to the protection of water quality by monitoring watersheds and by providing educational programs concerning stormwater management, private well water protection, and on-site wastewater treatment systems. Recognition of URI's expertise in aquaculture and water resources has led to international extension opportunities, which are expected to become part of URI Cooperative Extension's portfolio over the next five years.

#### Goal:

By 2023, URI Cooperative Extension will have expanded the capacity of Rhode Islanders to assess water resources and apply management practices to restore and protect water resources.

 SUB-GOAL 1: Increase the capacity of citizen groups, the public, and private sector groups to understand, use. and contribute to the assessment of the status and trends of watersheds, streams, rivers, lakes, ponds, reservoirs, estuaries, and coasts.

water quality.

#### Focus Area 5: Energy Literacy

In accordance with the Resilient Rhode Island Act of 2014, URI will help the state meet statutory goals to reduce greenhouse gas emissions through public education programming. Energy use and energy production are major sources of emissions that need to be reduced. To be effective, communities and individuals must be informed about best practices related to energy consumption and innovations in energy production and distribution. URI Cooperative Extension offers education and training in energy literacy to the public while providing specialized training to students for future employment in the energy sector.

#### Goal:

By 2023, URI Cooperative Extension will have strengthened the capacity of Rhode Islanders to face current and future energy challenges related to sustainable energy consumption and production.



 SUB-GOAL 2: Increase the capacity of public and private sector groups to implement stormwater controls and green infrastructure practices to reduce risk of flooding and improve

 SUB-GOAL 3: Work with local officials, public water suppliers, households with private wells, and real estate. lending, and mortgage professionals to build their capacity to protect drinking water.

- SUB-GOAL 4: Work with state, federal, and international partners to increase targeted implementation of best management practices for agricultural, aquacultural, forestry, and other related industries to enhance water resources while sustaining economic vitality and ecosystem services.
- SUB-GOAL 5: Enhance the capacity of the private sector to upgrade onsite wastewater treatment systems for water quality improvement and resiliency to climate variability.

• SUB-GOAL 1: Increase Rhode Islanders' awareness of contemporary energy challenges and promote best practices that increase sustainable energy consumption and production to bring about behavior change.

• SUB-GOAL 2: Strengthen Rhode Island's growing energy sector by providing knowledge and skills to undergraduate and graduate students through the URI Energy Fellows Program.





## THE UNIVERSITY OF RHODE ISLAND COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES

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