

# **PUERTO RICO SEA GRANT COLLEGE PROGRAM 2024–2027 STRATEGIC PLAN**

**FALL 2022**







Image credit: Pichón Duarte

## Introduction

The Puerto Rico Sea Grant 2024-2027 Strategic Plan was developed and nurtured by management and selected members of our staff, who provided guidance into its development. Information drawn from meetings, communications (electronic mail, letters, and position papers) and activities with our interested parties (resource managers, fishers, extension agents, researchers, educators and coastal resource users) was used to prepare the plan. To guide the program into future areas of concern, we used information from focus groups, interviews, and a survey of resource users, managers, and scientists. A survey and a meeting among members of the Advisory Council was conducted to finalize the process in 2022. This consultation process led to our 2024-2027 Strategic Plan, adapted to tend to the evolving needs based on the current political, socioeconomic, environmental, and coronavirus and monkey pox pandemic threats. As called for by the National Sea Grant College Program (NSGCP), this plan is reflective of integration with the relevant portions of the strategic plans of the NOAA, the U.S. Department of Commerce (DOC) and the Administration. This plan is aligned to the national strategic plan and national performance measures in an iterative and integrative planning process to harmonize our plan at all levels: local, regional and national. This strategic plan will be used as the basis for program evaluation and was developed through an inclusive stakeholder process and in collaboration with the assigned Federal Program Officer and is expected to align to the national strategic plan and national performance measures.

Sea Grant is continually examining policies, procedures and stakeholder needs that will shape future plans and programs to enhance the value we deliver to the archipelago of Puerto Rico and the United States Virgin Islands. We will build upon Sea Grant's historic impacts, our short-range achievements and long-range visioning efforts with partners to support those initiatives that have been successful and identify innovative new approaches to ensure continued progress in the future.

# Vision

Puerto Rico Sea Grant envisions a future where environmentally-literate resource users and informed decision-makers live in harmony with our coastal and marine resources while businesses and communities adapt to environmental and socioeconomic changes.

Our vision supports that articulated in the NSGCP where we use our natural resources in ways that “capture the economic, environmental and cultural benefits they offer, while preserving their quality and abundance for future generations.” As stated in NOAA’s Strategic Plan, that vision requires healthy ecosystems, as well as resilient communities and economies “in the face of change.”

# Mission

Puerto Rico Sea Grant’s mission is to enhance the use and conservation of coastal, marine resources in Puerto Rico and the United States Virgin Islands to create a sustainable and resilient economy founded on a healthy environment and vibrant, diverse communities.



# The Environment in Which We Work

Since its inception the UPRSGCP has been instrumental in solving problems and creating benefits and opportunities for coastal communities and marine resource users in the Caribbean region. Our program has responded to local environmental challenges through the dissemination of science-based information and in virtue of its non-regulatory presence in local communities. In Puerto Rico, Sea Grant is considered an established ambassador, generating policy-relevant research and spreading scientific and technological discoveries among resource managers, decision makers and the general public, all in favor of the sustainable development of our coastal and marine resources.

If there is a turning point that has influenced the way Puerto Rico Sea Grant develops and implements its educational, outreach and research efforts, are the current COVID-19 and monkey pox pandemic, the rampant government corruption that has been characteristic in Puerto Rico during the last decades resulting in more than 11 mayors being arrested during 2022 and the recent arrest by the FBI of the former governor of Puerto Rico, Wanda Vázquez who was charged with conspiracy, federal programs bribery, and honest services wire fraud. Puerto Rico was also shaken by 3 quakes of magnitude 5.0 or above during 2021, 26 quakes between 4.0 and 5.0, 1,092 quakes between 3.0 and 4.0 and 2,122 quakes between 2.0 and 3.0. Virtually everything in Puerto Rico, from the beaches and nature reserves to the roads and power utility, had been for sale as the deeply indebted U.S. colony archipelago struggles to pay back millions of dollars to Wall Street. Public access to the beach, which is guaranteed under the Constitution of Puerto Rico, had been the exception. However, as the local government seeks to remake the island into a hub for mainlanders seeking to avoid taxes, it is finding new and creative ways to claim the waterfront.

# How We Work

To manage Puerto Rico's and the U.S. Virgin Islands' coastal and oceanic resources in ways that balance anthropogenic needs with environmental health, the island must progress in three fundamental areas:

- better information about how tropical coastal and oceanic ecosystems function, how anthropogenic activities affect tropical coastal and oceanic living resources and how we can adapt to environmental, socioeconomic, climate and geologic changes;
- citizens who understand the complexities of tropical coastal environments and the interactions between anthropogenic use and the health of coastal ecosystems;
- management and decision making processes that are based on sound data and information, and involve everyone who benefits from the beauty of Puerto Rico's limited coastal resources, and include mechanisms to evaluate the trade-offs between anthropogenic and environmental needs.

Over the 2024-2027 period, UPR Sea Grant will concentrate its efforts in four areas: Healthy Coastal Ecosystems (HCE); Resilient Communities and Economies (RCE), Environmental Literacy and Workforce Development (ELWD) and Sustainable Fisheries and Aquaculture (SFA). These four interrelated focus areas emerged from the strategic planning process as areas of critical importance to the health and vitality of the Caribbean region's coastal resources and communities. They respond to issues of major importance to NOAA, the NSGCP, local decision-makers and resource users, and are topical areas in which Puerto Rico Sea Grant (PRSG) has made substantial contributions in the past and is positioned to make significant contributions in the future. In each of the four focus areas, our program identified specific goals to pursue strategies designed to take advantage of its strengths in integrated research, outreach and education, and its respected, trustworthy and well-established presence in coastal communities of the region.

Understanding relationships and synergies across focus areas is vital to achieving our goals. PRSG could not address these complex and interrelated issues without the collaboration of our public and private sector partners. Understanding how activities in one area support and complement other activities and using partnerships to accomplish shared goals are strategies inherent to PRSG and will be central to achieving the goals outlined in our Strategic Plan 2024-2027.

Considerable efforts will be developed and implemented to increase the resiliency of our coastal communities, emergency managers, first responders and resource users. This plan sets the guidelines for the following strategic goals: improvement of program administrative capabilities, complete the transformation of the research efforts, improve communications at all levels of program endeavors, increase our efforts in outreach initiatives, develop effective mechanisms for the assessment and accountability of all our endeavors, and actively engage in activities that promote climate change adaptation, resiliency of coastal communities to natural hazards and the sustainable development of our coastal and marine resources.

Puerto Rico Sea Grant integrates efforts across the following functional areas, which represents how Sea Grant generates, transmits, translates, and transitions knowledge to address critical issues with interested parties and partners:

<b>Research</b>	The generation of new knowledge is a core part of Puerto Rico Sea Grant (PRSG), providing answers to key questions about our ocean, coasts, and watersheds. Research may be conducted by PRSG staff or through extramural research that has been reviewed for merit and that is often competitively selected.
<b>Education</b>	Transmitting knowledge through formal and nonformal mechanisms to allow learners to act is central to the transformational nature of PRSG’s work.
<b>Extension</b>	The exchange of knowledge and its application by communities, governments, NGOs, business and industry-often accomplished through direct interaction, technical assistance, and demonstration projects-is at the heart of PRSG’s operational model.
<b>Communication</b>	The transmission of information to targeted audiences through a variety of media to create awareness and engagement complements traditional extension and education activities.
<b>Management</b>	Establishing and maintaining the infrastructure and partnerships needed to support the activities of PRSG is an essential task. This function allows our program to exist, grow and serve.

# Core Values

PRSG's core values are essential and enduring tenets that influence the organization and support its mission. The core values support a culture of integrity and scientific neutrality enabling our program to serve as a trusted broker of information.

## Vision

Advancing creative, innovative solutions that address emerging and chronic challenges through engagement, science, and stewardship.

## Collaboration

Seeking and sustaining partners with whom we leverage each other's strengths, and responsively, respectfully integrating diverse expertise and perspectives to reach shared goals.

## Sustainability

Advancing environmental stewardship practices and communicating the value of the services that the coastal, watershed and ocean ecosystems provide to the archipelago.

## Accountability

Operating with integrity and transparency while maintaining quality and relevance in all functional areas, including program management.

## Diversity, Equity, Inclusion, Justice, and Accessibility

Proactively engaging with the range of identities, cultures, communities, and capacities present throughout our areas of work, with respect and sensitivity to each person's experiences, history and systemic challenges.

# Cross-Cutting Principles

These concepts provide a common foundation for all the following Focus Areas and the work Sea Grant conducts. Recognizing these Cross-Cutting Principles enhances PRSG's capabilities in order to meet future needs. In the course of implementing the 2024-2027 Strategic Plan, our program will:

- Cultivate and sustain partnerships by integrating the expertise and capabilities of partners from international, federal, tribal, state, and local communities as well as from academia, nongovernmental organizations and industry.
- Enhance diversity, equity, inclusion, justice and accessibility by seeking and integrating diverse perspectives to advance cultural understanding and enable the network to pursue its vision and mission with, and for, all audiences. We will actively create mechanisms to allow all people to participate in network activities. Bringing a range of perspectives, values and tools together to find solutions that are more innovative, creative, inclusive and responsive will help us be successful in tackling problems facing coastal communities.

# Focus Area Overview

National focus areas enable PRSG to concentrate capabilities, programs and resources to address and respond to the nation's most urgent ocean and coastal needs. By addressing the following focus areas, PRSG aims to prepare communities to address risks from events such as drought, flooding, hurricanes and declines in fisheries as well as other changing conditions that may affect a community's resilience and sustainability.

A national framework of focus areas describes PRSG's overarching priorities based on national, regional and local needs and initiatives. The focus areas also provide a structure to organize relevant accomplishments, impacts and outcomes with applicable priority. Each Sea Grant program contributes to the national focus areas and goals. Program strategies are aligned with the national framework, but participation in individual focus areas and goals are determined after consultation with local and regional interested parties and advisors, allowing local-level input to identify and develop methods to address emerging and chronic issues.

Focus areas provide an order to the wide expanse of PRSG's topical interests. In practice, we recognize focus areas are interrelated and that a single activity may advance the goals of multiple focus areas. Additionally, no focus area is structured to align with a single Sea Grant functional area or another. Rather, we expect each focus area will be fulfilled through effort in each of the functional areas.

## Focus Area: Environmental Literacy and Workforce Development

**Goal: A diverse, environmentally literate public participates in lifelong formal and nonformal learning opportunities.**

*ACTION: Create and implement educational resources and opportunities that are diverse, equitable, inclusive, just and accessible for formal and nonformal learners to explore multiple ways of learning and knowing and to develop their curiosity and learning abilities throughout their lives.*

### **DESIRED OUTCOME:**

- Individuals consider themselves environmentally literate lifelong learners who utilize knowledge to support, build and restore healthy natural and human communities.

*ACTION: Develop, provide and assess research, curricula, tools and other resources for educators, students and lifelong learners to support personal choice, participatory decision-making and community planning processes.*

### **DESIRED OUTCOMES:**

- Educators, students and lifelong learners have current information and innovative tools that meet or exceed relevant standards and practices.
- People know and can act on issues that impact their lives, communities and environments.
- Community members use their knowledge to remove barriers and act for personal and social resilience and adaptation to changing economic, environmental and social conditions.



*ACTION: Strengthen the ability of individuals, organizations and communities to acquire, synthesize and use knowledge, dispositions, skills and abilities to make informed and responsible decisions regarding coastal and environmental issues.*

**DESIRED OUTCOMES:**

- Individuals, organizations and communities create innovative opportunities, businesses and communities that respect diverse ways of knowing and learning, address systemic problems in equitable and just ways, and integrate traditional and novel cultures.
- Coastal communities are sustainable, healthy, diverse centers of tradition, innovation and prosperity.

**Goal: A diverse, skilled and environmentally literate workforce that is engaged and able to build prosperous lives and livelihoods in a changing world through traditional and innovative careers.**

*ACTION: Identify and remove barriers to accessing training and learning opportunities so that the nation's diverse population is connected to and prepared for the range of career paths that support the needs of coastal communities.*

**DESIRED OUTCOME:**

- All members of a community are enabled to explore and pursue the variety of occupations that are essential to sustain coastal communities, economies and ecosystems.

*ACTION: Increase opportunities for students at all levels (P-12, undergraduate, graduate, post-graduate and technical and vocational) to gain knowledge and experience addressing issues that are important to our ocean, coasts and their respective watersheds.*

**DESIRED OUTCOMES:**

- Sea Grant student opportunities provide increased literacy, experience and preparedness in critical disciplines, skills and issues.
- Students from all backgrounds and with diverse needs are thoughtfully and intentionally supported in and have access to formal, nonformal and experiential learning, training and research experiences.

*ACTION: Prepare a responsive and diverse workforce to advance and benefit from sectors that support the needs of coastal communities and ecosystems and to adapt and thrive in changing conditions.*

**DESIRED OUTCOME:**

- Employment in coastal and watershed communities expands and diversifies. The existing and future workforce is able to adapt and thrive in changing environmental, social and economic conditions.

## Focus Area: Healthy Coastal Ecosystems

**Goal:** Coastal habitats, ecosystems and the services they provide are protected, enhanced and/or restored.

*ACTION: Co-develop, improve and share knowledge, decision-support tools, technologies and approaches to protect and restore ecosystems.*

### DESIRED OUTCOMES:

- Communities have greater awareness and understanding of ecosystem functions and the services they provide.
- Coastal ecosystem science and conservation needs are identified and prioritized through diverse participation by interested parties.
- Evidence-based science, traditional and local knowledge and innovative solutions inform and improve the management and conservation of coastal habitats.
- Coastal biodiversity, habitats and ecosystem functions and services are restored and sustained.
- Collaborative and inclusive planning and decision-making leads to enhanced stewardship and community benefits, especially for the most vulnerable.

**Goal:** Land, water, and living resources are managed by applying science, tools and services to sustain resilient coastal ecosystems.

*ACTION: Support a science- and management-driven framework that integrates research, observations, monitoring and modeling and that includes stakeholder engagement and traditional and local knowledge to provide a scientific basis for informed decision-making.*

### DESIRED OUTCOMES:

- Inclusive collaborations with diverse partners and other interested parties support planning, research and innovative solutions to address coastal and resource management needs, especially for vulnerable communities.
- Community science initiatives are utilized and contribute to improving our knowledge with respect to stewardship of ecosystems and their contributions to coastal communities and economies.
- Coastal communities and resource managers have access to and use science, data, tools and training to be effective in planning and decision-making processes.
- Resource managers understand the risks, options, tradeoffs and impacts of their decisions.

*ACTION: Identify and advance successful strategies that enhance resilient ecosystems and watersheds in the context of changing conditions, including environmental variability and climate change.*

### DESIRED OUTCOMES:

- Communities share, access, understand and use information regarding projected changes and related impacts within ecosystems.
- Communities can apply knowledge from case studies, training and tools to improve their ability to plan, prepare and adapt to environmental variability and climate change.

## Focus Area: Sustainable Fisheries and Aquaculture

**Goal: Domestic fisheries, aquaculture and other coastal and freshwater living resources supply food, jobs and economic and cultural benefits.**

*ACTION: Promote and support harvesting, culturing and processing techniques that lead to safe, sustainable, highquality food as well as economic, social and ecosystem benefits.*

### **DESIRED OUTCOMES:**

- Coastal residents and U.S. seafood consumers understand the benefits of domestically-produced seafood, both wild and farmed, for individual and environmental health.
- Coastal resource industries employ technologies and reinforce strategies to ensure safe and sustainable seafood and products.
- Coastal resource industries employ strategies that balance economic, community, cultural and conservation goals.

*ACTION: Support development of a trained and diverse workforce and enhance technology transfer in a manner that recognizes a variety of methodologies and approaches, including those based on traditional and local knowledge.*

### **DESIRED OUTCOMES:**

- Increased understanding and technological solutions that aid management and production.
- Engagement with interested parties and partnerships enable the industry to adapt and acquire innovative technologies and adapt to changing conditions.

**Goal: Natural resources are sustainably managed to support coastal communities and working waterfronts, including commercial, recreational, subsistence fisheries and aquaculture.**

*ACTION: Ensure the best available science, services and tools are available to and trusted by resource managers, the fishing and aquaculture communities and consumers.*

### **DESIRED OUTCOMES:**

- Commercial and recreational fishers and aquaculturists are knowledgeable about efficient, sustainable and responsible tools, techniques and uses of coastal and freshwater resources.
- Resource managers and fishing and aquaculture communities have access to and share diverse knowledge and tools to increase their capability to adapt to changing resource management needs, including those driven by climate change.
- Consumers understand the health and sustainability benefits of domestically produced seafood and use that knowledge to inform their seafood purchasing decisions.



## Focus Area: Resilient Communities and Economies

**Goal:** Coastal communities have the capability and resources to prepare for and adapt to extreme and chronic weather and coastal hazards, climate change, economic disruptions and other threats to community health and well-being.

*ACTION: Improve and expand exchanges of knowledge to better identify the diverse needs of communities and to increase the public's understanding of changing conditions and related impacts.*

### DESIRED OUTCOMES:

- Scientific understanding, including traditional and local knowledge, provides foundational information, and all community members understand the impacts of changing conditions and coastal hazards and have the capability to prepare, respond and adapt.
- Community leaders improve their understanding of changing conditions and coastal hazards and their capability to implement mitigation and adaptive strategies.

*ACTION: Work with communities to advance collaborative comprehensive planning, actionable science, and adaptive management strategies.*

### DESIRED OUTCOME:

- Inclusive collaborations with diverse interested parties and partners support mitigation and adaptation efforts built on knowledge from and responsive to the needs of all, especially the most vulnerable.

*ACTION: Work with communities to explore and support diversification, strengthening, sustainability and social equity within coastal economic sectors and the blue economy.*

### DESIRED OUTCOMES:

- Coastal communities have access to and share knowledge, tools, services and technologies to adapt and grow resilient economies.
- Leaders in coastal economic sectors understand how they can become more resilient through diversification including expanded renewable, regenerative and clean practices.

**Goal:** Water resources are enhanced, sustained and protected to meet existing and emerging needs of the communities and economies that depend on them.

*ACTION: Use engagement and information exchange to advance the understanding of how actions impact water quality, quantity and availability.*

### DESIRED OUTCOME:

- Community members understand watershed and coastal functions and the ecosystem services they provide, understand how their actions will impact water resources, and are able to make informed decisions.

*ACTION: Collaborate with diverse partners and interested parties, especially the most vulnerable, to advance plans and management practices for protecting and managing water resources.*

**DESIRED OUTCOMES:**

- Communities work with knowledge networks to share and access science, data, tools and services to anticipate changes in water resources, to protect and sustain water resources, and to make informed decisions.
- Communities have diverse, sustainable economies and industries that support existing and emerging water resource needs.



# APPENDIX: PERFORMANCE MEASURES AND METRICS

## Performance Measures for Environmental Literacy and Workforce Development

- Number of Sea Grant products that are used to advance environmental literacy and workforce development.
- Number of people (youth and adults) engaged in Sea Grant-supported nonformal education programs
- Number of Sea Grant supported graduates who become employed in a job related to their degree within two years of graduation.

## Performance Measures for Healthy Coastal Ecosystems

- Number of acres of coastal habitat protected, enhanced, or restored as a result of Sea Grant activities.
- Number of resource managers who use ecosystem-based approaches in the management of land, water, and living resources as a result of Sea Grant activities

## Performance Measures for Sustainable Fisheries and Aquaculture

- Number of fishers, seafood processors and aquaculture industry personnel who modify their practices using knowledge gained in fisheries sustainability and seafood safety as a result of Sea Grant activities.

## Performance Measures for Resilient Communities and Economies

- Number of communities that adopt/ implement sustainable economic and environmental development practices and policies as a result of Sea Grant activities
- Number of communities that adopt/ implement hazard resilience practices to prepare for and respond to minimize coastal hazardous events

## Cross Cutting National Focus Area Measures

- Number of Sea Grant tools, technologies and information services that are used by our partners/ customers to improve ecosystem-based management.
- Economic and societal impacts and benefits derived from Sea Grant activities (market and non-market; jobs and businesses created or sustained; patents/licenses)



## Cross Cutting National Performance Metrics

- Sea Grant Staffing: Number of individuals and full-time equivalents (FTEs) devoted to Sea Grant
- Core Funding Proposals: Number and origination of core funding pre- and full-proposals
- Number of volunteer hours
- Number of postsecondary students and degrees financially-supported by Sea Grant in higher education programs (undergraduate, graduate)
- Number of P-12 students who participated in Sea Grant-supported formal education programs
- Number of P-12 students reached through Sea Grant-trained educators
- Number of educators who participated in Sea Grant-supported professional development programs
- Number of Sea Grant-sponsored/organized events
- Number of attendees at Sea Grant-sponsored/organized events
- Number of public or professional presentations
- Number of attendees at public or professional presentations
- Number of individuals certified or recertified in Hazard Analysis Critical Control Point (HACCP) as a result of Sea Grant activities
- Number of peer-reviewed publications produced by Sea Grant

