## **PIER 2010 Annual Report**

## Puerto Rico Sea Grant

#### Official Level of Effort - Only Approved Funding

Report Generated by YULISSA GARCIA on 12/13/2021

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Impacts & Accomplishments
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#### 2010 Level of Effort

National Focus Area Name	SG Federal	<b>Match</b>	Pass Thru	<u>Federal +</u> <u>Match + Pass</u> <u>Thru</u>	LOE without Leverage (%)		LOE with Leverage (%)
Healthy Coastal Ecosystems	\$495,559	\$404,866	\$83,189	\$983,614	40 %	\$12,459	40 %
Safe and Sustainable Seafood Supply	\$0	\$0	\$0	\$0	0 %	\$0	0 %
Hazard Resilient Coastal Communities	\$220,486	\$150,657	\$0	\$371,142	15 %	\$0	15 %
Sustainable Coastal Development	\$546,969	\$469,177	\$83,189	\$1,099,335	45 %	\$12,459	45 %
Other	\$0	\$0	\$0	\$0	0 %	\$0	0 %
TOTAL ALL FOCUS AREAS:	\$1,263,014	\$1,024,699	\$166,378	\$2,454,091	100 %	\$24,918	100 %

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### 2010 Impacts & Accomplishments

# Puerto Rico Sea Grant (PRSG) consults and seeks advice from resource users for the conservation and restoration of wildlife refuge

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems

- Impact
- PO Review Complete

**RECAP:** No Recap in database

## PROGRAM FOCUS AREAS: ECOSYSTEMS AND HABITATS; HEALTHY COASTAL ECOSYSTEMS

Puerto Rico Sea Grant (PRSG) and the Interdisciplinary Center for Coastal Studies (CIEL) team collaborated with the Department of Natural and Environmental Resources (DNER) in the development of a stakeholder consultation process for the conservation and restoration of wetlands managed by the Boquerón Wildlife Refuge (BWR), located at the Southwest coast of the Island. A consultation process Application and Implementation of a Conservation Action Planning Methodology (CAPM) was developed as part of this effort. Information on best management practices, conservation targets, threats, as well as research, restoration and conservation needs was gathered from waterfowl hunters, local communities, visitors, recreational business owners, resource managers, and scientists. The information gathered was instrumental in the elaboration of a management plan for the refuge, and portions of the report were successfully used in the preparation of a proposal for the restoration of the area. The project also embraces a PRSG collaboration with the DNER, the US Fish and Wildlife Service (USFWS), and stakeholders, to develop a stewardship effort in favor of the refuge.

PARTNERS: Puerto Rico Department of Natural and Environmental Resources;

ASSOCIATED PROJECT(S):

MARINE OUTREACH PROGRAM (2010 - 2011)

### Nurturing Local Leadership for the Implementation of the Tres Palmas Marine Reserve Management Plan

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems; Sustainable Coastal Development

- Impact
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: ECOSYSTEMS AND HABITATS; SUSTAINABLE COASTAL DEVELOPMENT

Sea Grant and the CIEL are facilitating the process of the implementation of the management plan for the Tres Palmas Marine Reserve, through an officially constituted board and the creation of the NGO Amigos de Tres Palmas. The Management Board for the Tres Palmas Marine Reserve (TPMR) in Rincón, Northwest Puerto Rico has been receiving advisory services from Sea Grant in relation to the implementation of the reserves' management plan, the acquisition of adjacent land and the collaboration of the municipal and insular governments. Sea Grant has developed a group of local residents that are collaborating as volunteers to save this marine reserve. The Tres Palmas Marine Reserve was designated thanks to the efforts of Sea Grant and the Surfrider Foundation but its designation did not include the authorization of a budget.

**PARTNERS:** None listed in Database

ASSOCIATED PROJECT(S):

MARINE OUTREACH PROGRAM (2010 - 2011)

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## Puerto Rico Sea Grant and the Interdisciplinary Center for Litoral Studies (CIEL) get Funding from NOAA to Develop Desecheo Island Marine Reserve, Management Plan

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems

- Impact
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: ECOSYSTEMS AND HABITATS; HEALTHY COASTAL ECOSYSTEMS

Puerto Rico Sea Grant and the CIEL team collaborated with stakeholders from the Northwest Coast, to develop the Management Plan for the conservation of Desecheo Island Marine Reserve, an offshore island on the Mona Passage. This was a participatory process that engaged the stakeholders in the stewardship of the resources. Fishers, recreational business owners, the Puerto Rico Tourism Company, UPRM, and the Department of Natural and Environmental Resources were represented in the Steering Committee. Sea Grant and the CIEL will also participate in the facilitation of the management board that will implement the plan.

PARTNERS: Puerto Rico Department of Natural and Environmental Resources; Puerto Rico Tourism Company;

ASSOCIATED PROJECT(s):

MARINE OUTREACH PROGRAM (2010 - 2011)

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#### Coastal Communities Provide Local Knowledge for Resiliency Efforts

NATIONAL FOCUS AREAS: Hazard Resilient Coastal Communities; Healthy Coastal Ecosystems

- Impact
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: HAZARD RESILIENCE IN COASTAL COMMUNITIES: HEALTHY COASTAL ECOSYSTEMS

Three coastal communities from the Southwestern city of Mayaguez, located in pockets of the remnant of one of the largest mangrove forests and coastal marshlands in Puerto Rico, volunteered to participate in this project. Our team held three focus groups in the communities of San José, El Seco and El Maní. Participants provided information on their knowledge and practices regarding coastal hazards and response measures, such as: tsunamis, hurricanes, storm surges, evacuation routes, home safety protocols and resiliency. Among other concerns, they also identified climate change as a priority issue for their communities and their resilience to the impacts of change. Community members also identified a matrix of processes as the key components of climate change. Participants stated that the actual evacuation routes are not the best, due to their proximity to the sea and riverbanks. Discussions from the focus groups identified and located, for each community, the best routes and scenarios for evacuation in a map. Education programs and outreach from local and state agencies were also identified as a

priority to develop together future plans on relocation and evacuation routes, based on their different needs and the socioeconomic and cultural characteristics of their respective communities. Publications highlighting evacuation routs, community shelters, storm surge maps and other information for the resiliency of the community have been developed for each community.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(S):

ENHANCING SEA GRANT'S ABILITY TO HELP COASTAL COMMUNITIES ADAPT TO CLIMATE CHANGE (2010) CLIMATE CHANGE ADAPTATION CAPACITY BUILDING INITIATIVE (2012)

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#### Sea Grant Collaborates with the EPA in a Storm-Water Management Effort

NATIONAL FOCUS AREAS: Sustainable Coastal Development

- Impact
- PO Review Complete

**RECAP:** No Recap in database

PROGRAM FOCUS AREAS: COASTAL COMMUNITIES AND ECONOMIES; SUSTAINABLE COASTAL DEVELOPMENT

As part of the efforts and collaboration with Puerto Rico EPA Storm-Water Program in previous years, capacity building was provided to the 78 municipalities of Puerto Rico. Thanks to this effort up to date, 70 municipalities of Puerto Rico have active permits for storm-water management.

**PARTNERS:** None listed in Database

ASSOCIATED PROJECT(S):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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## Puerto Rico Sea Grant Collaborates on Local Action Strategies Effort for Land Based Sources of Pollution

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS

Our program collaborated with the Coral Reef Task Force Local Action Strategies (LAS), the Natural Resources Conservation Service and several other agencies in the Guanica- Rio Loco Watershed Project, which seeks to address LAS at Río Loco. This is an effort to control land-based sources of pollution in order to reduce loss of coral reef cover. Through the promotion and application of integrated watershed and land use management practices on agricultural lands it is expected that a decline of land based sources of pollution will be accomplished.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(s):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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## Wetland Characterization Workshop Broadens Scientific Understanding of Practitioners

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

## PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS

Field technicians, resource managers, planners and engineers gained knowledge on characterization and identification of hydric soils, hydrophytes plants, the hydrology of coastal wetlands and salt flats. Participants had the opportunity to characterize a wetland and learned how to use the guide that serves as a tool to work in wetland determination, enhancement and conservation, as well as all, biotic and abiotic

components of wetlands and coastal salt flats. Participants reported an increase on scientific understanding, and their intention to apply the acquired knowledge in their working area. Number of participants: 13, contact hours: 52.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(S):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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## Jobos Bay National Estuarine Research Reserve Coastal Training Program Integrates the Sandwatch Project

NATIONAL FOCUS AREAS: Sustainable Coastal Development

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

PROGRAM FOCUS AREAS: SUSTAINABLE COASTAL DEVELOPMENT

Sandwatch is an educational program in which the UPRSGCP collaborates with UNESCO to increase environmental consciousness about the conservation and sustainable use of marine and coastal resources in Puerto Rico, through the participation of coastal communities, NGO's, schools and a diverse combination of community leaders and volunteers. Sandwatch is "An activities orientated approach used to provide step by step instructions, to cover monitoring methods and data analysis, including observation and recording, erosion and accretion, beach composition, human activities, beach debris, water quality, waves, long-shore currents, plants and animals." Volunteers gather data about currents, waves, organisms, beach profile, water quality, sand composition and use of coastal resources and at the same time are applying and developing scientific and mathematical knowledge, writing skills, technical skills and creative abilities. Sandwatch is an excellent tool to educate coastal communities and resource users about beach dynamics and changes, the fragility of marine and coastal resources, anthropogenic impacts and sustainable coastal development through monitoring, analyzing, sharing and taking action. Data collected by the volunteers is available to other Sandwatch groups, managers of the resources, students and researchers and can be accessed under our Sandwatch Project blog: http://www.seagrantpr.org.In collaboration with the JBNERR CTP we trained a group of community leaders and stakeholders in Sandwatch techniques and activities were developed in the Pozuelo beach in Guayama, and Cayo Caribe in Salinas.. Number of participants: 21, contact hours: 126.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(S):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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#### Storm Water Pollution Prevention Plan for Industries is Expected to Reduce Effluent Discharges

NATIONAL FOCUS AREAS: Sustainable Coastal Development

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: SUSTAINABLE COASTAL DEVELOPMENT

Training for engineers, private consultants, and elected officials to capacitate them in the process and requirements of the Multi-Sector General Permit of EPA in Puerto Rico. General concepts of the permit, control measures, effluent limits, correction actions and monitoring requirements were discussed. This training activity was in collaboration with the EPA Storm water Program in Puerto Rico. Number of participants 22, contact hours: 132.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(s):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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#### Fishers education through The Vertical Line

NATIONAL FOCUS AREAS: Safe and Sustainable Seafood Supply; Sustainable Coastal Development

- Accomplishment
- PO Review Complete

#### PROGRAM FOCUS AREAS: COASTAL COMMUNITIES AND ECONOMIES; SAFE AND SUSTAINABLE SEAFOOD SUPPLY

Through the Fisheries Extension Enhancement Grant, Puerto Sea Grant, in collaboration with the Interdisciplinary Center for Coastal Studies (CIEL) is publishing and distributing the quarterly bulletin The Vertical Line (Fuete & Verguilla, in Spanish) shared with more than 800 fishers, resource managers and scientists. The Vertical Line editions of February, May and August 2009 informed the stakeholders on the pros and cons of MPAs, the Lion Fish Invasion in the Caribbean and the new laws and regulations at the Commonwealth of Puerto Rico. Fishers, scientists and managers contribute to the bulletin through comments, articles and reviews.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(s):

FISHERIES EXTENSION ENHANCEMENT (2006 - 2010)

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## Puerto Rico Sea Grant and the Jobos Bay National Estuarine Research Reserve Coastal Training Program Augment Project Design and Evaluation Capacity of Southwest Stakeholders

NATIONAL FOCUS AREAS: Other; Sustainable Coastal Development

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: BIOTECHNOLOGY; SUSTAINABLE COASTAL DEVELOPMENT

UPR Sea Grant College Program with the collaboration of Jobos Bay National Estuarine Research Reserve JBNERR) Coastal Training Program (CTP), NOAA Coastal Services Center, and Coral Reef Program hosted a project design and evaluation training for stakeholders of the Southwest of Puerto Rico. Specifically the target audience was composed of social scientists, planners and agronomists with particular interest in the development of projects related to restoration science, outreach and extension projects in the Rio Loco and Guanica Bay watershed. The goal of this training was to improve the ability of the participants in the design and evaluation of impacts or outcomes of projects and products. Number of participants: 23, contact hours: 368.

**PARTNERS:** None listed in Database

ASSOCIATED PROJECT(S):

COASTAL COMMUNITY DEVELOPMENT (2010 - 2011)

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#### Puerto Rico Sea Grant promotes ocean literacy among educators

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems; Other

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS; MARINE AND AQUATIC SCIENCE LITERACY

Puerto Rico Sea Grant coordinated five education workshops with the participation of forty-four educators who were capacitated on matters related to Sea Grasses, estuaries, global warming and beach monitoring. These educators have been transferring this knowledge to their students by incorporating knowledge gained in their courses and using Sea Grant educational materials provided at the workshops.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(s):

MARINE EDUCATION (2010 - 2011)

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#### **Enlightenment and Ocean Literacy through Sea Adventures**

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems; Other

- Accomplishment
- PO Review Complete

## PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS; MARINE AND AQUATIC SCIENCE LITERACY

In collaboration with the NGO G-works, Inc. one thousand three hundred and thirty students participated in the Marine Science Adventure Program where Sea Grants' education coordinator introduced them to the marine environment through lectures, laboratories and field activities. For many of these students, this was the first field learning experience. Students and teachers were fascinated with the marine environment and the opportunities to learn through organized observation.

PARTNERS: G Works;

ASSOCIATED PROJECT(S):

MARINE EDUCATION (2010 - 2011)

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#### Sea Grant Summer Environmental Workshop

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems; Other

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS; MARINE AND AQUATIC SCIENCE LITERACY

During five days twenty-nine students participated in the marine summer workshop Discovering the Marine World. Students explored and studied different coastal environments from our southern coast learning about the diverse and fragile ecosystems and its economic and environmental importance. At the end of the workshop students were able to explain the importance of mangroves, corals and marine grass beds ecosystems and the need to promote its conservation. As part of this effort Sea Grant also collaborated with Jobos bay NEER in the design and development of the Jobos Bay Education Manual of Activities which highlights the diverse coastal environments observed in the reserve. A DVD to be used as an educational tool by K-12 teachers was also produced as part of this effort.

PARTNERS: None listed in Database

ASSOCIATED PROJECT(S):

MARINE EDUCATION (2010 - 2011)

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#### Educational Community Effort Accomplishes a Significant Reduction in Marine Turtle Nest Poaching

NATIONAL FOCUS AREAS: Healthy Coastal Ecosystems; Other

- Accomplishment
- PO Review Complete

**RECAP:** No Recap in database

#### PROGRAM FOCUS AREAS: HEALTHY COASTAL ECOSYSTEMS; MARINE AND AQUATIC SCIENCE LITERACY

Sea Grants' educational efforts in southern Puerto Rico's beaches significantly reduced marine turtle nest poaching through the development of a monitoring program. In an effort to prevent poaching, assist hatching and raise hatchlings survival rates, three coastal communities from municipalities of the southeast of the island were educated about the importance of conserving marine turtles and their habitats. The interest, support and commitment of the local community and the concurrence of teachers and students were instrumental for the success of this effort.

**PARTNERS:** None listed in Database

ASSOCIATED PROJECT(S):

MARINE EDUCATION (2010 - 2011)

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#### 2010 Leveraged Funding

**Project Level** 

**Program Level** 

Source	Title	Amount	Type
National Fish and Wildlife Foundation (NFWF)	Rio Loco Watershed Conservation Buffers, Puerto Rico	\$24,918.20	Managed
	TOTAL:	\$24,918	

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## **Performance Measures**

## 2010 Communities implementing hazard resiliency practices

(No Data)

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## 2010 Sea Grant Products - (tools, technologies, info services)

Description	Developed	Used
One tool developed. Nucleic acid primers specific for Bifidobacterium adolescentis, a known indicator of human fecal contamination, were used by Sea Grant reserchers to detect coastasl water fecal contamination in less than two hours.	Yes	Yes
One tool/information service developed. UPR Sea Grant researchers have produced K-12 education materials to increase environmental (coral reef) awareness in the local community. During the project 45 high school students participated in the hands on workshop. Seven high school teachers expressed interest in incorporating these materials in the science curricula.		Yes

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## 2010 Economic (market and nonmarket) impacts

Description	Businesses Created / Retained	Created	Economic Benefit	Patents
	/	/		

#### 2010 National Performance Measures - General

Performance Measure	Annual Target	Reported	Program Comment
Number of fishers who adopt and implement responsible harvesting techniques and practices.	2,356	21	
Number of stakeholders who modify their practices using knowledge gained in fisheries sustainability, seafood safety, and the health benefits of seafood.	34,268	21	
Number of coastal communities who have adopted/implement sustainable - economic and environmental - development practices and policies (e.g., land-use planning, working waterfronts, energy efficiency, climate change planning, smart growth measures, green infrastructure) as a result of Sea Grant activities.	71	7	
Number of coastal communities who have restored degraded ecosystems as a result of Sea Grant activities.	27	4	

## 2010 Program Performance Measures

Program Performance Measure	Annual Target	Reported	Program Comment
Number of stakeholders who use ecosystem-based approaches in the nanagement of land, water, and living resources in coastal areas as a result of Sea Grant activities.	100		

			Stakeholders (fishers, municipal government, surfers, business owners, teachers, students) are engaged in the stewardship of the coral reef resources of the Tres Palmas Marine Reserve, in Rincón, thru a management board, and the development of an NGO. Stakeholders (fishers, municipal government, researchers, recreational services providers, US FWS, Homeland Security, US Coast Guard) are engaged in the stewardship of the coral reef resources of the Desecheo Island Marine Reserve, in the Mona Passage, thru a management plan and a management board, for the conservation of the resources. Sea Grant efforts in ecosystems and habitat literacy resulted in the active participation of forty-seven (47) community volunteers that have taken responsibility for the conservation. The integration of the volunteers in these efforts prevented poaching, contributed to the hatching and rising of the hatchlings, and served as an exercise to educate the local community on the importance to conserve these
Number of coastal communities engaged in activities (e.g. visioning, resource inventories, analysis of development policies) or making informed development decisions that address the sustainability of economic and environmental resources as a result of Sea Grant's capacity building, tools, data, technologies, and/or education of community leaders.	10	7.000	endangered species.  San José Lagoon: Fishers participated in the development of a Traditional Ecological Knowledge mapping exercise to identify their resources, historical site in the design of a master plan for the sustainable development of those poor communities in the San Juan Metro Area Four coastal communities of the municipality of Mayagüez (San Jose, Güanajibo Homes, EL Seco and El Maniparticipated in workshops, talks and pub hearings to assess coastal hazards that could affect them as a result of natural events. These communities are in the process of implementing or adapting strategies and plans to mitigate damages and impacts from these coastal hazards.
Number of coastal communities who have adopted/implement sustainable - economic and environmental - development practices and policies (e.g., land-use planning, working waterfronts, energy efficiency, climate change planning, smart growth measures, green infrastructure) as a result of Sea Grant activities.	30		
Number of fishermen, resource managers (harvesters, and fishermen) who adopt and implement responsible harvesting and processing techniques and practices.	500	23.000	Stakeholders (fishers, municipal government, surfers, business owners, teachers, students) are engaged in the stewardship of the coral reef resources of the Tres Palmas Marine Reserve, in Rincón, thru a management board, and the development of an NGO. Stakeholders (fishers, municipal government, researchers, recreational services providers, US FWS, Homeland Security US Coast Guard) are engaged in the stewardship of the coral reef resources of the Desecheo Island Marine Reserve, in the Mona Passage, thru a management plan and a management board, for the conservation of the resources.
Number of coastal communities provided with information/trained in local	48	7.000	

hazard resiliency, and hazard mitigation tools, techniques, and best practices.			San José Lagoon: Fishers participated in the development of a Traditional Ecological Knowledge mapping exercise to identify their resources, historical sites, in the design of a master plan for the sustainable development of those poor communities in the San Juan Metro Area. Four coastal communities of the municipality of Mayagüez (San Jose, Güanajibo Homes, EL Seco and El Maní) participated in workshops, talks and public hearings to assess coastal hazards that could affect them as a result of natural events. These communities are in the process of implementing or adapting strategies and plans to mitigate damages and impacts from these coastal hazards.
Number of coastal municipalities who adopt/implement hazard resiliency practices to prepare for and respond to/minimize coastal hazardous events.	15		
Number of citizens provided with information/trained in local hazard resiliency, and hazard mitigation tools, techniques, and best practices.		8000.000	

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## 2010 Metrics

Staffing Numbers	Individuals	SG FTEs	non-SG FTEs
Administrative	6.00	2.67	2.83
Communications	11.00	1.00	6.45
Education	6.00	2.34	1.00
Extension	10.00	3.34	4.41
Research	58.00	3.60	1.45

<b>Core Funding</b>	Proposals	<b>Institutions Involved</b>	From Home Institution
Pre-Proposals			
Full Proposals			
Proposals Funded			

Student Support	Number of New Students	Number of Continuing Students	Number of Degrees Awarded
Sea Grant Supported Undergraduate Students	15	21	
Sea Grant Supported MS/MA Graduate Students	4	20	
Sea Grant Supported PhD Graduate Students	1	7	
Other Sea Grant Supported Professional Degree Graduate Students	8	1	

Other Metrics	Amount
VolunteerHours	2500
Number of P-12 Students Reached Through Sea Grant-Trained Educators or Directly through Sea Grant Education Programs	6582
Number of P-12 Educators who participated in Sea Grant education programs	
SG-Sponsored/Organized Meetings/Workshops	43
Attendees in SG Meetings/Workshops	1166
Public or Professional Presentations	10
Attendees at Public or Professional Presentations	26111
Clean Marina Program Certifications	
HACCP Number of people with new certifications	