



# Sea Grant and a Changing Climate

A firm grasp of local and regional climate conditions is critical for the effective management of infrastructure, economic ventures, environmental resources, and public safety. As climate conditions continue to change, coastal communities are experiencing an increase in strong storms and surge flooding, rising sea levels, increased rainfall, and prolonged droughts. Coastal counties represent 40% of the United States' population and 45% of the national gross domestic product, making a large portion of the nation vulnerable to the effects of climate change.

Sea Grant focuses on helping communities understand climate science and how they can adapt to the opportunities and challenges that a changing climate presents. Our close connections with the people of the coasts, and commitment to sharing the best science so that people can make informed choices, ensures that we will continue to seek opportunities to serve.



Boaters along the coast of Florida. Image: Florida Sea Grant.

## The following are examples of Sea Grant's work in climate:



Waterfront in Valdez, AK. Image: Alaska Sea Grant.

### Alaska Sea Grant research demonstrated variance tracking as tool to predict fisheries instability and potential collapse

Alaska Sea Grant-funded researchers found that changes in catch increased prior to collapses in Alaska crustacean fisheries. In addition, they found that increasing variability could be detected up to five years prior to a collapse. Detection of changes may provide early warning of impending shifts in ecosystems and populations.

### Washington Sea Grant builds momentum for state efforts to tackle ocean acidification

Washington Sea Grant was funded to do field and laboratory research into acidification's effects on commercial shellfish and on the zooplankton base of the marine food chain. The work established partnerships with state agencies to implement recommendations and to include funds to do acidification research.

### Puerto Rico Sea Grant helps communities resist disasters

Focus groups led by Puerto Rico Sea Grant revealed information about the local community's capacity to take actions to reduce risk from coastal hazards and avoid disaster. Participants identified climate change, natural hazards and their resilience capacity, as points of concerns, and stated that meetings, outreach, and establishment of communication were advantageous for the community and coastal agencies.



Educational activities developed by Puerto Rico Sea Grant. Image: Oliver Bencosme Palmer.

### Georgia Sea Grant and Tybee Island take prompt action

Georgia Sea Grant and partners worked with city managers, engineers and planners to begin to address actions recommended in the Tybee Island Sea Level Rise Adaptation Plan. Actions taken by the city to implement the adaptation plan led to improvements and efficiencies in city infrastructures to prevent the inundation during high tides, and opening discussions with the Georgia Department of Transportation to include sea level rise projections when planning public service projects and construction.



## SCIENCE SERVING AMERICA'S COASTS

National Sea Grant College Program

1315 East-West Highway Silver Spring, MD 20910

seagrant.noaa.gov

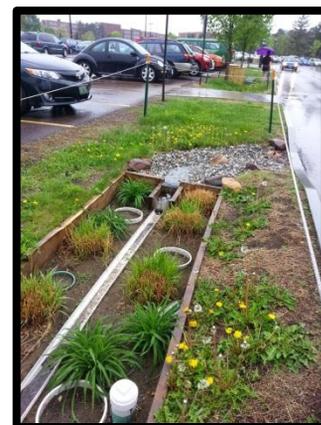
Joshua Brown | joshua.brown@noaa.gov | (301) 734-1271

### Illinois-Indiana Sea Grant investigate costs of green infrastructure for storm water management

Studies by Illinois-Indiana Sea Grant investigated the standards and costs of green infrastructure as a possible replacement or supplement to conventional urban storm water infrastructure. As a result, the State of Illinois awarded \$4.8 million to communities and organizations to install more than 24 acres of green infrastructure.

### New Hampshire Sea Grant and Cooperative Extension promote sound lawn care

New Hampshire Sea Grant staff worked with agricultural specialists to provide information to community residents about lawn care practices to reduce polluted runoff, leading to healthy turf and high quality waters. A four-year regional project created the opportunity to integrate turf, water resources, and social science findings. In 2013, New Hampshire Sea Grant extension and communication staff developed an information sheet that outlines recommendations for lawn care framed for home-owners based on the research findings.



Rain garden filtering water before it enters the storm sewer. Image: Amanda Cording.

## Our Climate Partners



Training volunteers to collect phenology data as an indicator of climate change. Image: New Hampshire Sea Grant.

The **Sea Grant Climate Network** is a network of Sea Grant outreach professionals whose mission is to increase the effectiveness of Sea Grant climate programming and outreach nationwide by coordinating Sea Grant climate-related activities, sharing talent and resources, and working with climate agencies and organizations within NOAA, the federal government, and the communities we serve.

To expand our climate research and outreach, Sea Grant also partners with other **Office of Oceanic and Atmospheric Research** at NOAA and across NOAA including **National Weather Service, National Marine Fisheries Service, National Ocean Service,** and the **National Environmental Satellite, Data, and Information Service.** Federal partners include the **U.S. Environmental Protection Agency** and the **Federal Emergency Management Agency.** Additionally, Sea Grant partners with local and state emergency managers and natural resource managers, and well as private industry partners.

### About Sea Grant:

The Sea Grant model integrates research, outreach, and education for science with real world impacts. To share and explain new research discoveries, engage citizens in decision-making processes, and empower stakeholders to address national, state and local issues as they emerge, Sea Grant takes a multi-faceted approach to outreach through programs of education, extension, and communication. Specialists in each of these areas translate research into usable information and products for many audiences, ensuring that scientific information is delivered to those who need it, and in ways that are relevant.

Sea Grant experts implement national priorities at the local level, while also identifying citizens' needs in order to inform state and national research agendas. This two-way flow of services and information ensures that Sea Grant solutions meet demonstrated needs, help support businesses, and enable policy makers to make balanced, well-informed decisions.

To learn how to work with Sea Grant on climate adaptation and other projects, visit our website at [seagrant.noaa.gov](http://seagrant.noaa.gov) and explore the **National Sea Grant Resilience Toolkit** under "What We Do".



**SCIENCE SERVING AMERICA'S COASTS**

**National Sea Grant College Program**

1315 East-West Highway Silver Spring, MD 20910

[seagrant.noaa.gov](http://seagrant.noaa.gov)

Joshua Brown | [joshua.brown@noaa.gov](mailto:joshua.brown@noaa.gov) | (301) 734-1271