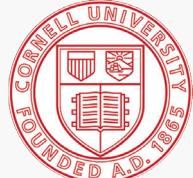




# NYSG: Climate Change Adaptation and Education



**Katherine Bunting-Howarth**  
112 Rice Hall  
Cornell University  
Ithaca, NY 14853-5601  
Tel: 607.255.2832  
Email: [keb264@cornell.edu](mailto:keb264@cornell.edu)  
[www.nyseagrant.org](http://www.nyseagrant.org)



Land and yard features lost to erosion in Hamlin, NY (Monroe County). Image credit: 2017 Coastal Flooding Survey Project. Cornell University and New York Sea Grant

New York Sea Grant (NYSG) provides multiple platforms for extension, outreach and education opportunities on climate change along New York's Atlantic Ocean and Great Lakes coastlines. The nearly 50 year coastal science program connects New Yorkers to climate science, from providing teacher training and connecting communities to climate experts to exploring best practices for shoreline protection and supporting local governments.

## Documenting the Impacts of Record High Water Levels

In response to record high water levels, NYSG provided funding to Cornell University investigators to develop and implement surveys to assess the impacts of inundation and erosion on individual parcels, and collect pictures to document the event. NYSG acted as liaison between Cornell University and municipalities and property owners. This winter NYSG will be developing a story map to highlight results and pictures. More at <https://seagrant.sunysb.edu/waterlevel2017>.

## Working with Local Governments on Climate Adaptation and Green Infrastructure

NYSG, with partners, is providing training opportunities for local governments that will improve the resiliency of communities to the impacts of climate change and other community stressors. A standalone, day-long event was held in Erie County (May 2017), a resiliency track is being offered at the Genesee/Finger Lakes Regional Planning Council's Local Government Workshop (November 2018), and two resiliency sessions will be offered at the NYS Tug Hill Commission's Local Government Conference (March 2018). More at [>> Resources >> Presentations](https://seagrant.sunysb.edu/ccd).

NYSG's Coastal Community Development Specialist, with Great Lakes Sea Grant Network and NOAA colleagues identified the lack of a "process" for engaging coastal communities in climate adaptation planning as a major gap. NYSG is using a social science approach to effort to address this gap and to identify climate adaptation tools and resources for customization for use in the Great Lakes. Tool customization is currently underway.

In 2016, NYSG helped establish a City of Rochester/Monroe County Green Infrastructure Collaborative that published a localized green infrastructure retrofit design and maintenance standards guidance document in 2017. The document will help local leaders address stormwater, flooding and water quality issues. The collaborative is holding a manual training workshop in June 2018. See the document at [>> Resources >> Tools](https://seagrant.sunysb.edu/ccd).

## Facilitating Expert and Community Engagement on Climate

Five years post-Sandy, Helen Cheng says the superstorm still looms in the memories of our stakeholders, but NYSG is working with groups to help them prepare for coastal hazards and to be resilient for the next big storm.

In an effort to improve the coordination and delivery of climate, weather and preparedness-related information, a series of public events called the "Climate Forums" are being held in critically-affected sectors and coastal communities of New York City (NYC).

The series is dedicated to enhancing awareness of climate-related coastal events and providing information, resources and tools to empower communities. Since the series' inception in late 2016, there have been five Climate Forums held in the Jamaica Bay watershed and over 200 participants from neighborhoods across the city have attended. More at [>> Resources >> Presentations](https://seagrant.sunysb.edu/jamaicabay).



Waves driven onto yard in Rochester, NY (Monroe County). Image credit: 2017 Coastal Flooding Survey Project. Cornell University and New York



Helen Cheng, NYSG's Jamaica Bay Coastal Resilience Specialist at SRIatJB, the Science and Resilience Institute at Jamaica Bay, hosts a NYC climate forum and podcast series. Image credit: Jason Koski, Cornell University Photography/ Ezra Cornell University's Magazine



NYSG shoreline tour participants view a bluff protection and stabilization project along Lake Ontario.

Image credit: courtesy of Heather Weitzner/NYSG

## Monitoring Natural and Nature-Based Shoreline Features in New York State

NYSG partners on a collaborative two-year initiative for which the goal is to develop and test a monitoring framework for a range of shoreline stabilization strategies to better understand their ability to provide ecological services, mitigate storm impacts, and contribute to community well-being.

Key here will be developing monitoring protocols to track the performance of nature-based features and other non-structural and structural shoreline erosion management measures, in the context of varying New York State regional shoreline conditions.

As part of this process, NYSG will work to gather recommendations for monitoring through hosting regional workshops across the three out of four regions of New York State. More on this effort, which includes "living shorelines and "nature-based shorelines" in, respectively the State's marine and Great Lakes waters, at <https://seagrant.sunysb.edu/nyshorelines>.

## Bringing Climate Change into the Classroom

NYSG recognizes the importance of educating classroom teachers on climate change science to prepare their students for the ecosystem changes caused by climate change, as well as teaching the actions their students can take to help mitigate increases in greenhouse gases and other effective responses to climate change. With Great Lakes teachers, NYSG works with university scientists and those from the National Weather Service to help deliver accurate, up-to-date science to educators.

In New York's Hudson River Valley, Sea Grant collaborated with New York State Department of Environmental Conservation (NYSDEC) partners to create a set of nine place-based lesson plans and activities to help middle school teachers and students understand climate change close to home. More at <https://seagrant.sunysb.edu/hvclimate>.

These lessons inspired Sea Grant's participation in a National Oceanic and Atmospheric Administration

(NOAA)-funded climate literacy project in NYC public schools in partnership with Brooklyn College and the National Wildlife Federation. The three year Resilient Schools Consortium Project (RiSC) engages underserved middle and high school teachers and students in 12 schools in the vulnerable coastal community of South Brooklyn, hard hit by Superstorm Sandy. This curriculum will transfer to schools throughout NYC and be made available to communities across the U.S. that are likewise looking for ways to increase climate literacy in urban youth and engage youth in resiliency planning. Additionally, NYSG partners in another climate project launched by the Cornell-affiliated Paleontological Research Institution. "Climate to Go" is in the second phase of a crowdfunding campaign in its quest to bring climate change science to every U.S. high school. Sea Grant has conducted some workshops, during which its specialists presented coastal storm awareness research summaries and emergency preparedness go-bags teachers can share with students and families. More on RiSC and Climate-to-Go at [>> News](https://seagrant.sunysb.edu/nyc).

Sea Grant is also currently involved in a U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) project exploring possible development of a Climate Master training program akin to the successful Master Gardner (MG) and Master Forester programs Cornell Cooperative Extension has facilitated for decades. In Ulster County, Sea Grant integrates climate change education in the Ulster MG program, based at the county's water wise garden at State University of New York (SUNY) Ulster.

## Supporting Climate Change Research

NYSG has supported a variety of climate change research projects over the years. These studies have covered topics ranging from improving storm surge modeling used for flood prediction, to the impacts of sea level rise on coastal habitats and how climate change impacts coastal communities and natural marine populations. More at <https://seagrant.sunysb.edu/research>, <https://seagrant.sunysb.edu/climate>.



An example of a living shoreline.  
Image credit: courtesy of Jay Tanski/NYSG



Some 100 elementary school teachers have taken part in the NOAA Environmental Literacy Grant-funded "Visualizing Coastal Change" workshop series held at Queens College.  
Image credit: courtesy of David Jakim