

2ND ANNUAL
CAPE COASTAL
CONFERENCE

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Linking Science with Local Solutions and Decision-Making

Coastal Resilience Grant Programs – Supporting Local Adaptation Efforts



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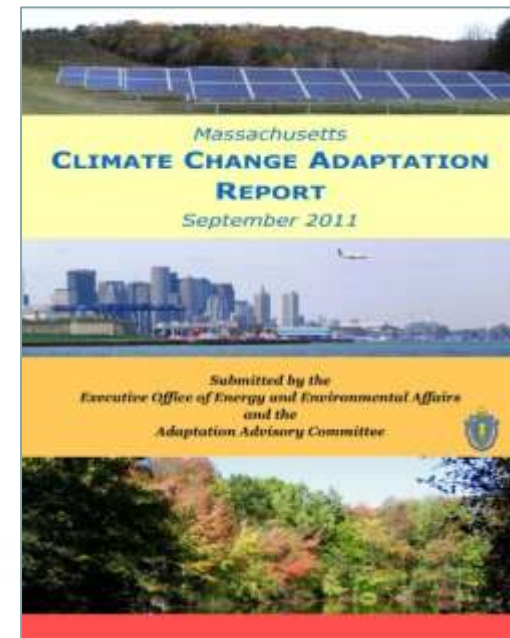
CZM Grant Opportunities for Coastal Resilience

- Coastal Community Resilience (Jan. 2014)

Financial (\$1 million) & technical resources to advance new & innovative local efforts to increase awareness of climate impacts, identify vulnerabilities & implement measures to increase community resilience

- Green Infrastructure for Coastal Resilience (Feb. 2014)

Financial (\$1.3 million) & technical resources to advance understanding & implementation of natural approaches to mitigating coastal erosion & flooding problems



Eligible Projects

Community Resilience

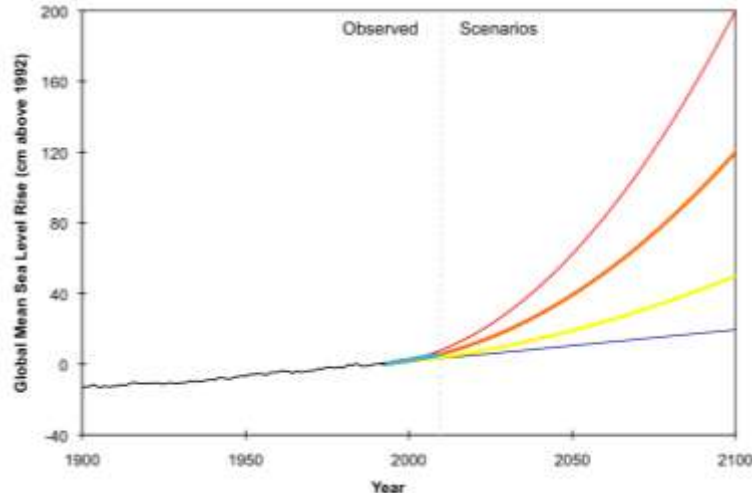
- Conducting public education & awareness or other communication initiatives
- Assessing vulnerability & risk
- Identifying & implementing management measures, standards or policies
- Redesigning to accommodate changing conditions
- Enhancing natural storm-damage protection

Green Infrastructure

- Beach, berm & dune building, enhancement or restoration with compatible sediment & native vegetation
- Bio-engineering with coir rolls, natural fiber blankets & other organic, biodegradable materials with plantings
- Natural oyster or mussel reef creation, enhancement or restoration
- Fringing salt marsh creation or restoration

StormSmart Resources

Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning



StormSmart Coasts

StormSmart Properties Fact Sheet 4: Bioengineering - Coir Rolls on Coastal Banks

The coast is a very dynamic environment and coastal shorelines—especially beaches, dunes, and banks—change constantly in response to wind, waves, tides, and other factors such as seasonal variation, sea level rise, and human alterations to the shoreline system. Consequently, many coastal properties are at risk from storm damage, erosion, and flooding. Inappropriate shoreline stabilization methods can actually do more harm than good by exacerbating beach erosion, damaging neighboring properties, impacting marine habitats, and diminishing the capacity of beaches, dunes, and other natural landforms to protect inland areas from storm damage and flooding. StormSmart Properties—part of the Massachusetts Office of Coastal Zone Management's (CZM) StormSmart Coasts program—provides coastal property owners with important information on a range of shoreline stabilization techniques that can effectively reduce erosion and storm damage while minimizing impacts to shoreline systems. This information is intended to help property owners work with consultants and other design professionals to select the best option for their circumstances.

What Are Bioengineering and Coir Rolls?

Coastal bioengineering projects reduce erosion and stabilize eroding shorelines by using a combination of deep-rooted plants and erosion-control products made of natural, biodegradable materials, such as coir rolls. Coir rolls are cylindrical rolls that span 12 to 20 inches in diameter, are packed with coir fibers (i.e., coconut husk fibers), and are held together with mesh. The rolls are typically 10- to 20-feet long and can be stitched together to provide continuous shoreline coverage. In contrast, coir envelopes are coir fabric filled with sand. Coir envelopes have very different impacts and design considerations and should not be confused with coir rolls.

Below: This coir roll has been planted with vegetation prior to installation.

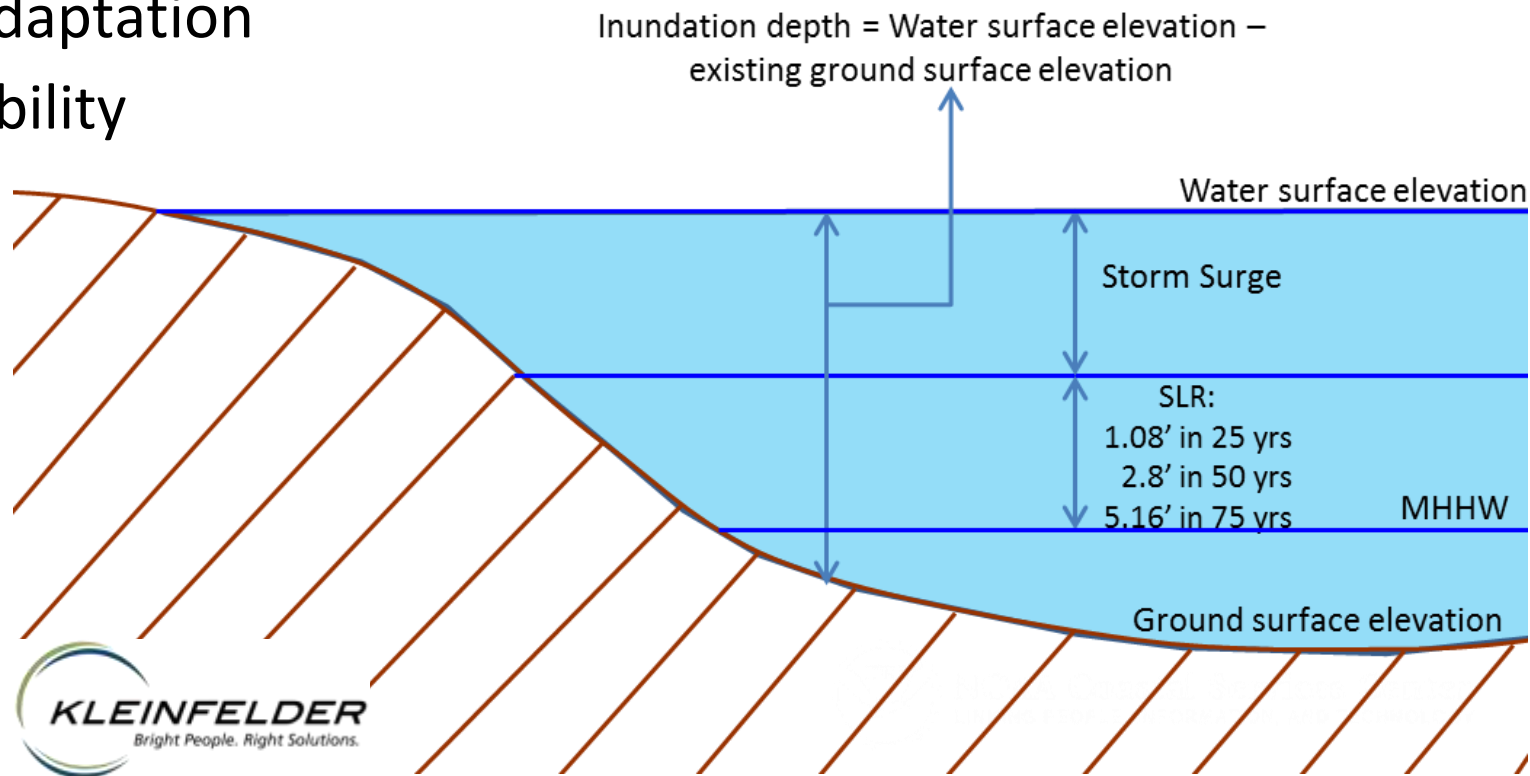
No shoreline stabilization option permanently stops all erosion or storm damage. The level of protection provided depends on the option chosen, project design, and site-specific conditions such as the exposure to storms. All options require maintenance, and many also require steps to address adverse impacts to the shoreline system, called mitigation. Some options, such as seawalls and other hard structures, are only allowed in very limited situations because of their impacts to the shoreline system. When evaluating alternatives, property owners must first determine which options are allowable under state, federal, and local regulations and then evaluate their expected level of protection, predicted lifespan, impacts, and costs of project design, installation, mitigation, and long-term maintenance.



PHOTO BY WILLOW ECOSYSTEM DESIGN

Evaluation Criteria

- Problem & need for assistance
- Current management approach
- Project description & public benefit
- Climate adaptation
- Transferability
- Timeline
- Budget including 25% match
- Project management
- Partners



Community Resilience Awards

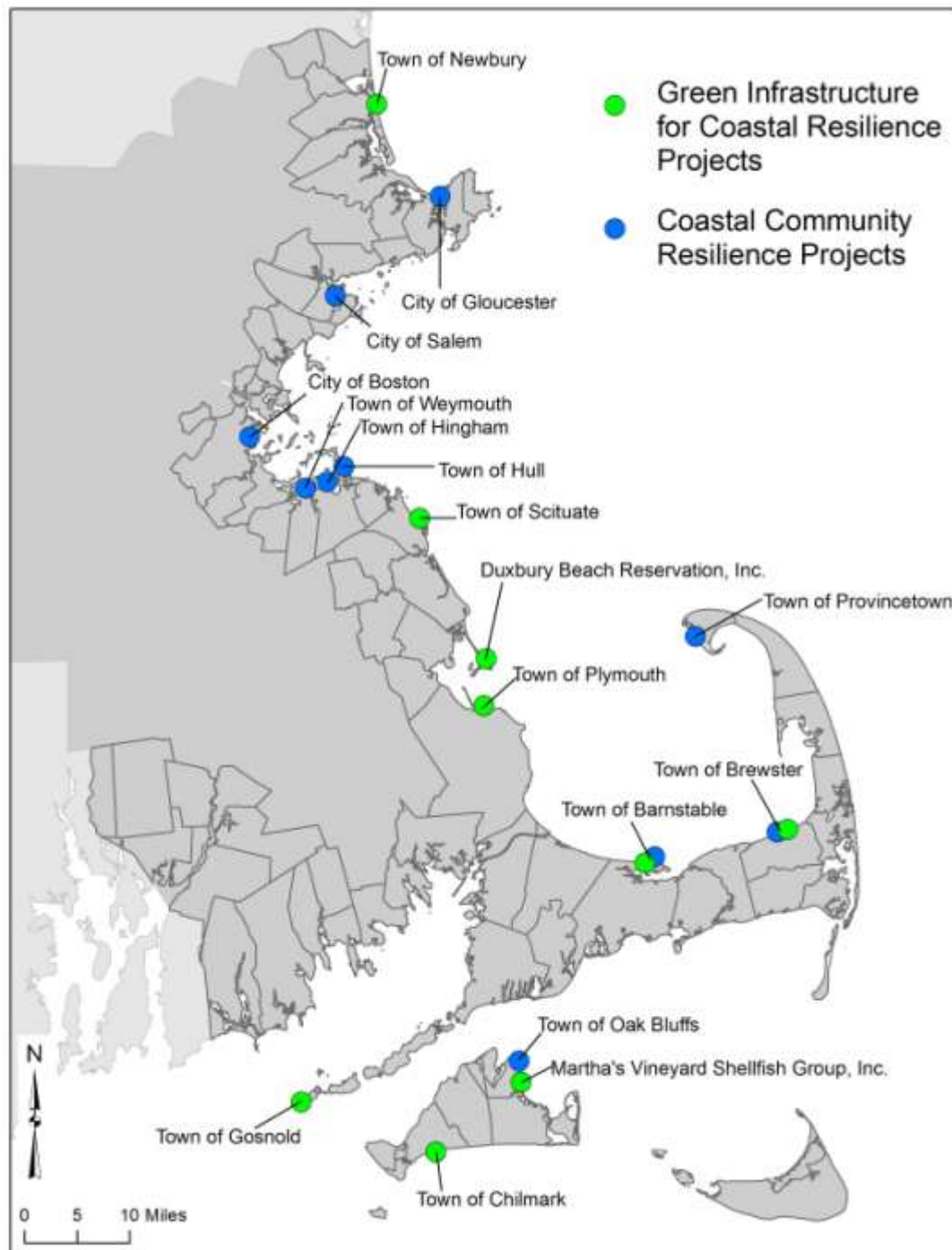
- 10 of 19 projects selected for ~ \$1 million:

Municipality	Project Title	Award
Town of Barnstable	<i>Community Rating System Application Assistance & Outreach</i>	\$52,560
City of Boston	<i>Designing for the Rising Tide: A Climate Change Preparedness Competition for Boston Harbor</i>	\$86,000
Town of Brewster	<i>Building Coastal Resilience in Brewster</i>	\$200,000
City of Gloucester	<i>Gloucester Climate Change Vulnerability Assessment</i>	\$50,000
Town of Hingham	<i>Hingham Climate Change Vulnerability, Risk Assessment & Adaptation Study</i>	\$44,461
Town of Hull	<i>Gun Rock/Atlantic Avenue Storm Damage Adaptation Project</i>	\$41,250
Town of Oak Bluffs	<i>Town of Oak Bluffs Pump Station Hazard Mitigation Projects</i>	\$200,000
Town of Provincetown	<i>Coastal Resiliency Assessment and Strategic Beach Stabilization Pilot Project</i>	\$100,000
City of Salem	<i>Rosies Pond Neighborhood Resiliency Project</i>	\$200,000
Town of Weymouth	<i>Fore River Avenue & Fort Point Road Seawall Reconstruction</i>	\$22,605

Green Infrastructure Awards

- 9 of 13 projects selected for ~ \$1.3 million:

Applicant	Project Title	Award
Town of Barnstable	<i>Shoreline Stabilization of North Barnstable Public Beaches Using Bioengineering Solutions</i>	\$186,500
Town of Brewster	<i>Brewster Green Infrastructure Project: Coastal Resilience at Breakwater Beach</i>	\$155,000
Town of Chilmark	<i>Squibnocket Town Beach Expansion & Restoration</i>	\$280,000
Duxbury Beach Reservation, Inc.	<i>Cobble Berm Restoration, Construction of Nurseries for Native Beach Grass Cultivation & Japanese Knotweed Eradication</i>	\$86,947
Town of Gosnold	<i>Improving the Coastal Resilience of Barges Beach on Cuttyhunk Island</i>	\$205,875
Martha's Vineyard Shellfish Group, Inc.	<i>Demonstration of Living Shoreline Technology & Development of Ribbed Mussel Seed Production to Protect & Restore Salt Marsh in Coastal MA</i>	\$35,262
Town of Newbury	<i>Building Capacity for Resilience of Human & Natural Communities in the Dune System of Newbury</i>	\$145,000
Town of Plymouth	<i>Long Beach Restoration/Enhancement</i>	\$75,000
Town of Scituate	<i>North Scituate Beach Nourishment</i>	\$118,000



Community Resilience – Oak Bluffs (\$200,000)

- Improving 3 pump stations that serve majority of sewer residents
- Raising electrical panels, installing flood walls & providing generators
- Accounting for 1.5' of sea level rise over a 40-year lifespan (using intermediate-high scenario)

Photo courtesy of Oak Bluffs



Community Resilience – Hull (\$41,250)

- Redesigning a revetment & seawall along Atlantic Ave.
- Limiting channelization of overwash material into Straits Pond
- Accounting for 1.25-1.5' of sea level rise over a 50-year lifespan (using intermediate scenario)



Green Infrastructure – Plymouth (\$75,000)

- Evaluating offshore berm, beach nourishment & realignment of Eel River to protect evacuation route for Plymouth Power Station
- Considering intermediate-high sea level rise scenario between 2025 & 2100



Green Infrastructure – Gosnold (\$205,875)

- Evaluating beach nourishment, dune restoration & other green infrastructure options for Barges Beach on Cuttyhunk Island to limit overwash into navigation channel (only access to island)
- Sea level rise scenarios will be considered when developing engineering plans & specifications



For More Information – mass.gov/czm/stormsmart

