

Coastal Resilience Grant Program



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Support for Local Adaptation

Coastal Community Resilience Grants

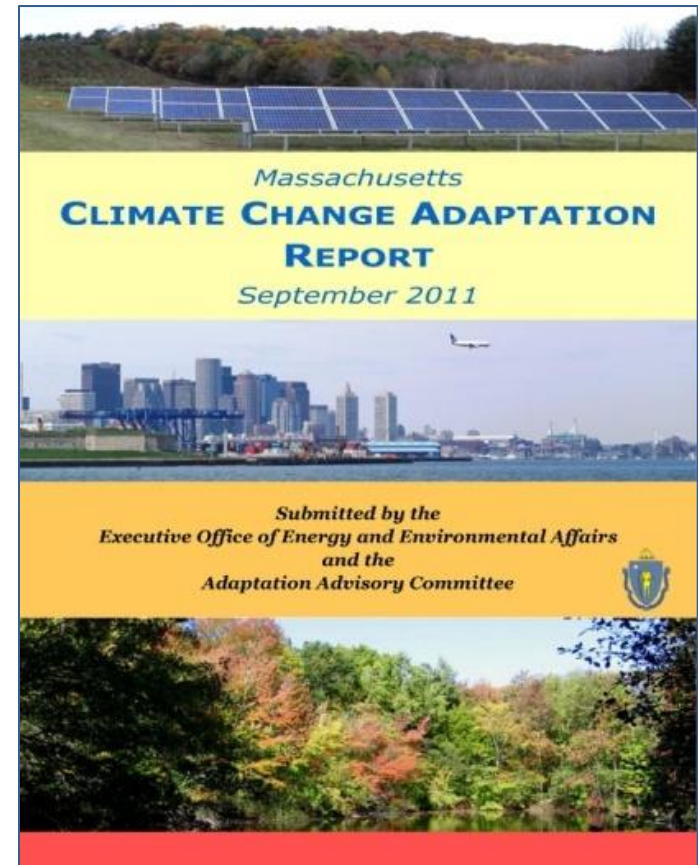
Advance innovative local efforts to increase awareness of climate impacts, identify vulnerabilities & implement measures to increase community resilience

Green Infrastructure for Coastal Resilience Grants

Advance understanding & implementation of natural approaches to mitigate coastal erosion & flooding problems

State Capital Funding available:

Jan./Feb. 2014	\$2.3 million
Sept. 2014	\$3 million
June 2015	\$3 million



Coastal Community Resilience Grants

Eligibility

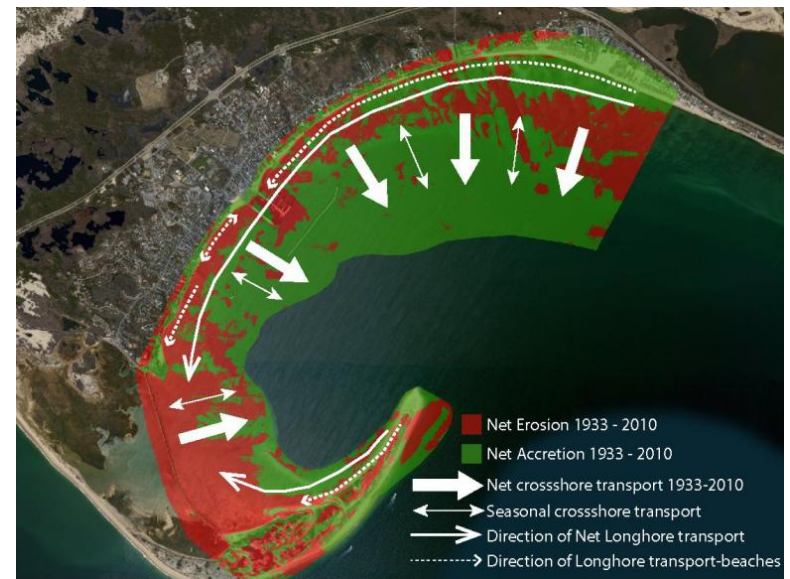
- 78 coastal cities and towns

Funding

- Up to \$350,000 per application

Project Types

- Public education, outreach, communication
- Risk and vulnerability assessment
- Municipal infrastructure retrofits
- Identify and implement management measures, standards, and policies



Green Infrastructure Grants



Eligibility

- 78 coastal cities and towns and certified 501 c3 non-profits

Funding

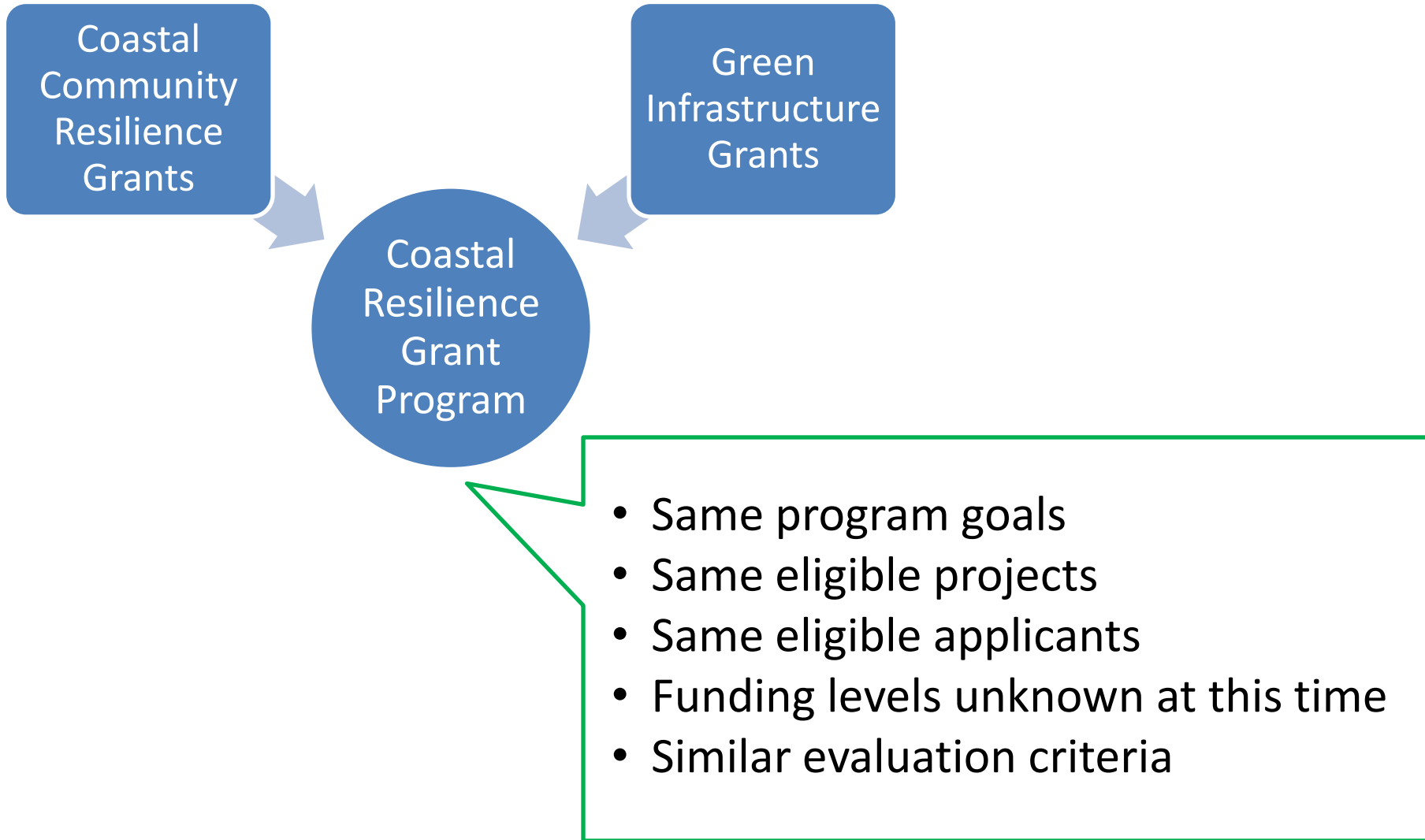
- Up to \$750,000 per application

Project Types

- Beach, berm, and dune building, enhancement, or restoration with compatible sediment and native vegetation
- Bio-engineering with coir rolls (on coastal banks), natural fiber blankets and other organic, biodegradable materials with plantings
- Natural oyster or mussel reef creation, enhancement or restoration
- Fringing salt marsh creation or restoration
- Natural enhancement of existing coastal structures

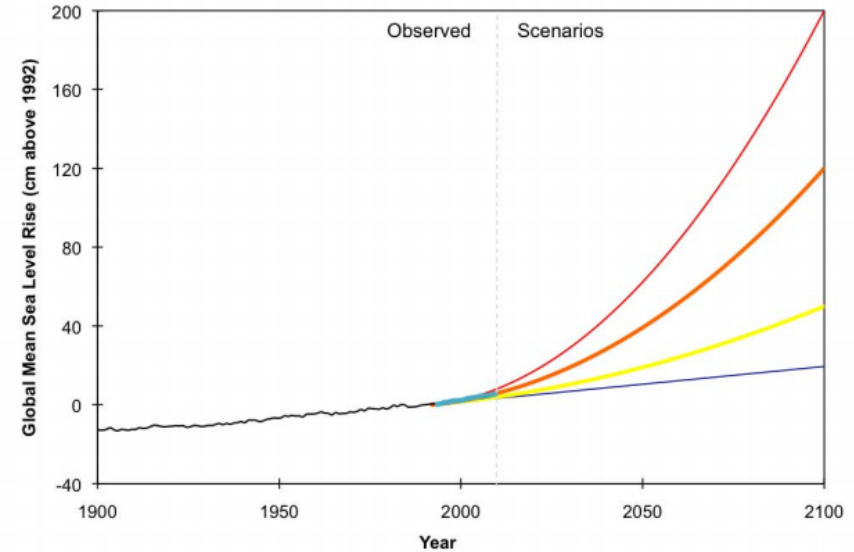


Combined Grant Program

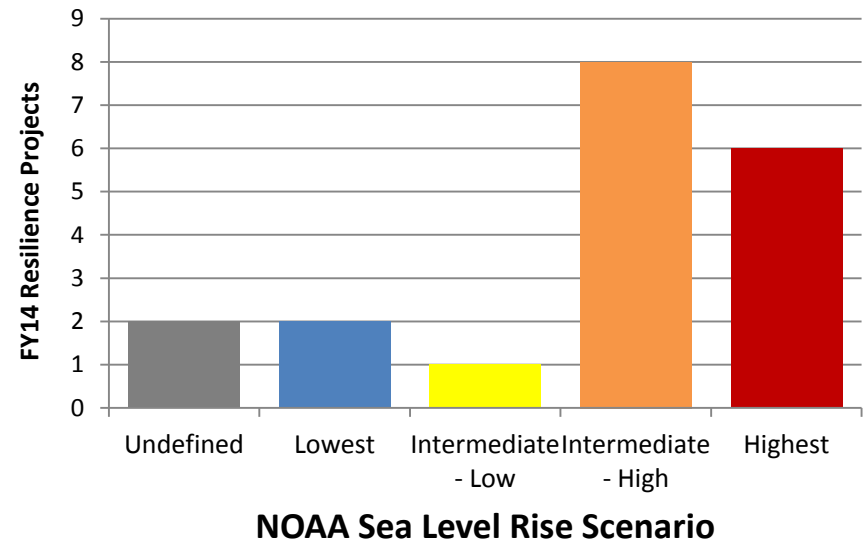


Competitive Evaluation Criteria

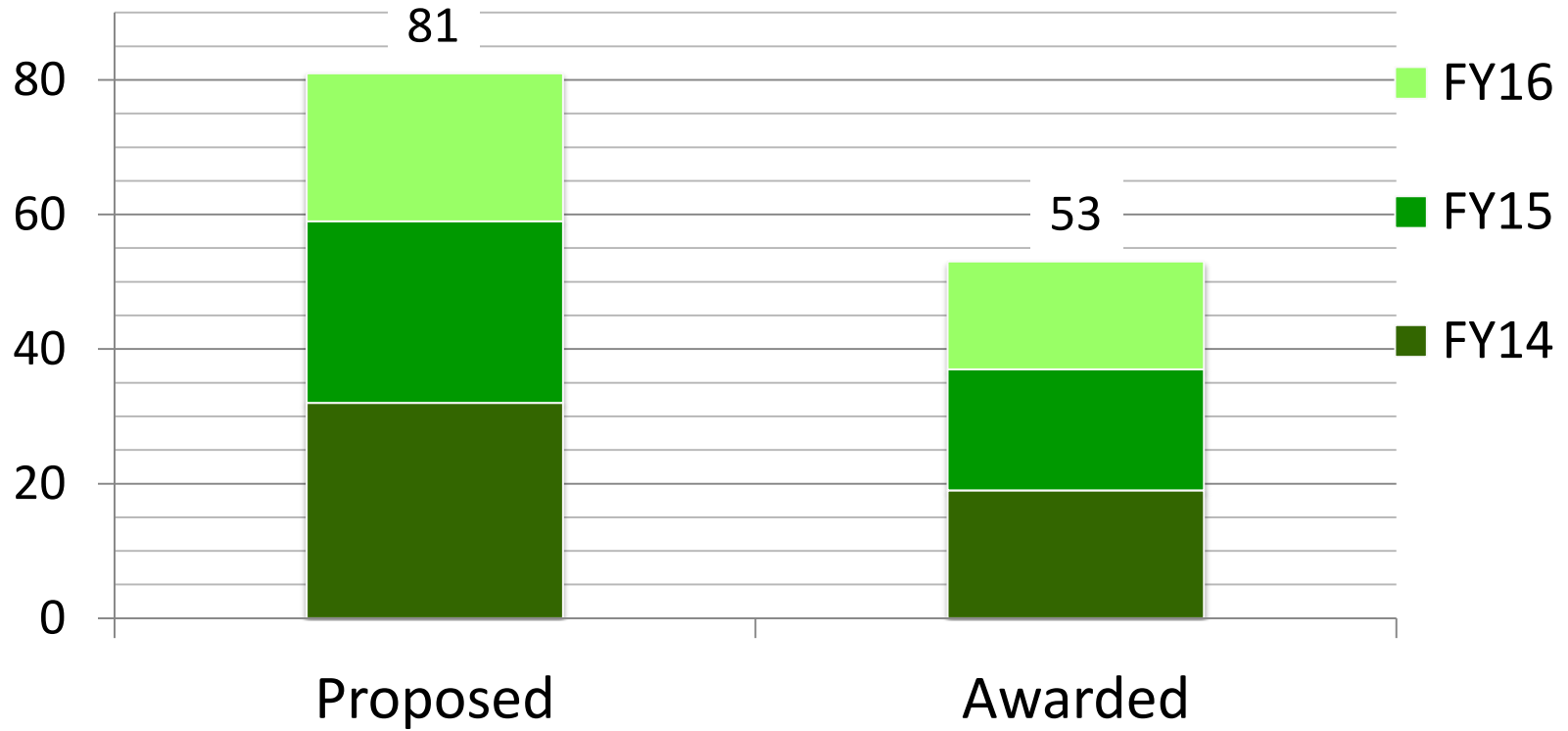
- Problem and need for assistance
- Current management approach
- Project description and public benefit
- Climate adaptation
- Transferability
- Timeline
- Budget (including 25% local match of total project cost)
- Project Management
- Partners



Global Sea Level Rise Scenarios for the United States National Climate Assessment (Parris et al., 2012)

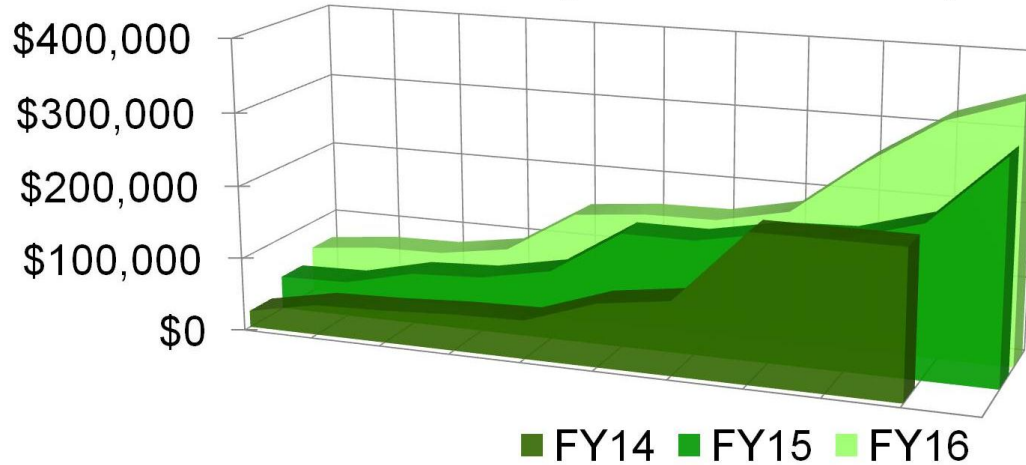


Level of Interest

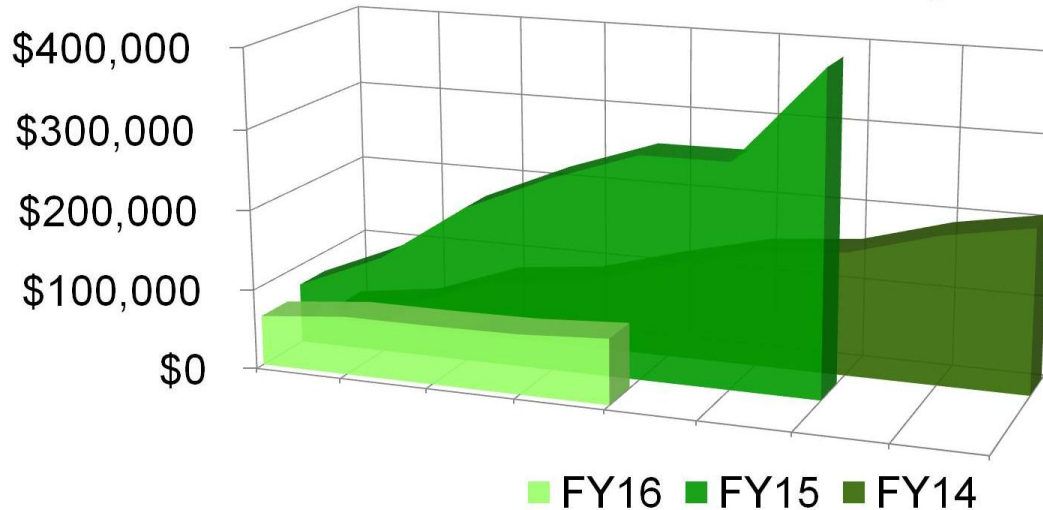


Resilience Awards

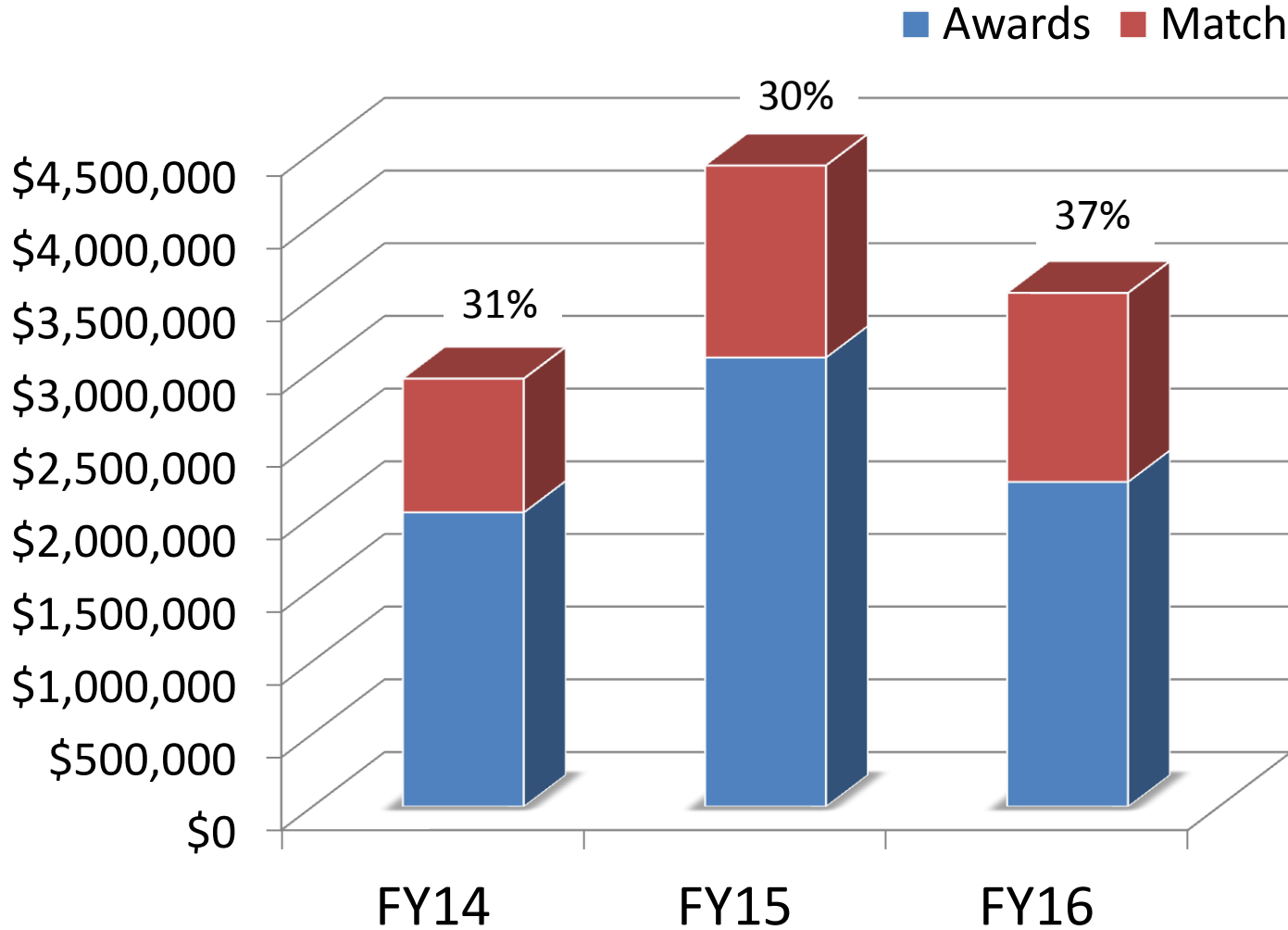
Community Resilience Projects



Green Infrastructure Projects



Leveraged Match



Available Resources

www.mass.gov/czm/stormsmart

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-foot 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.

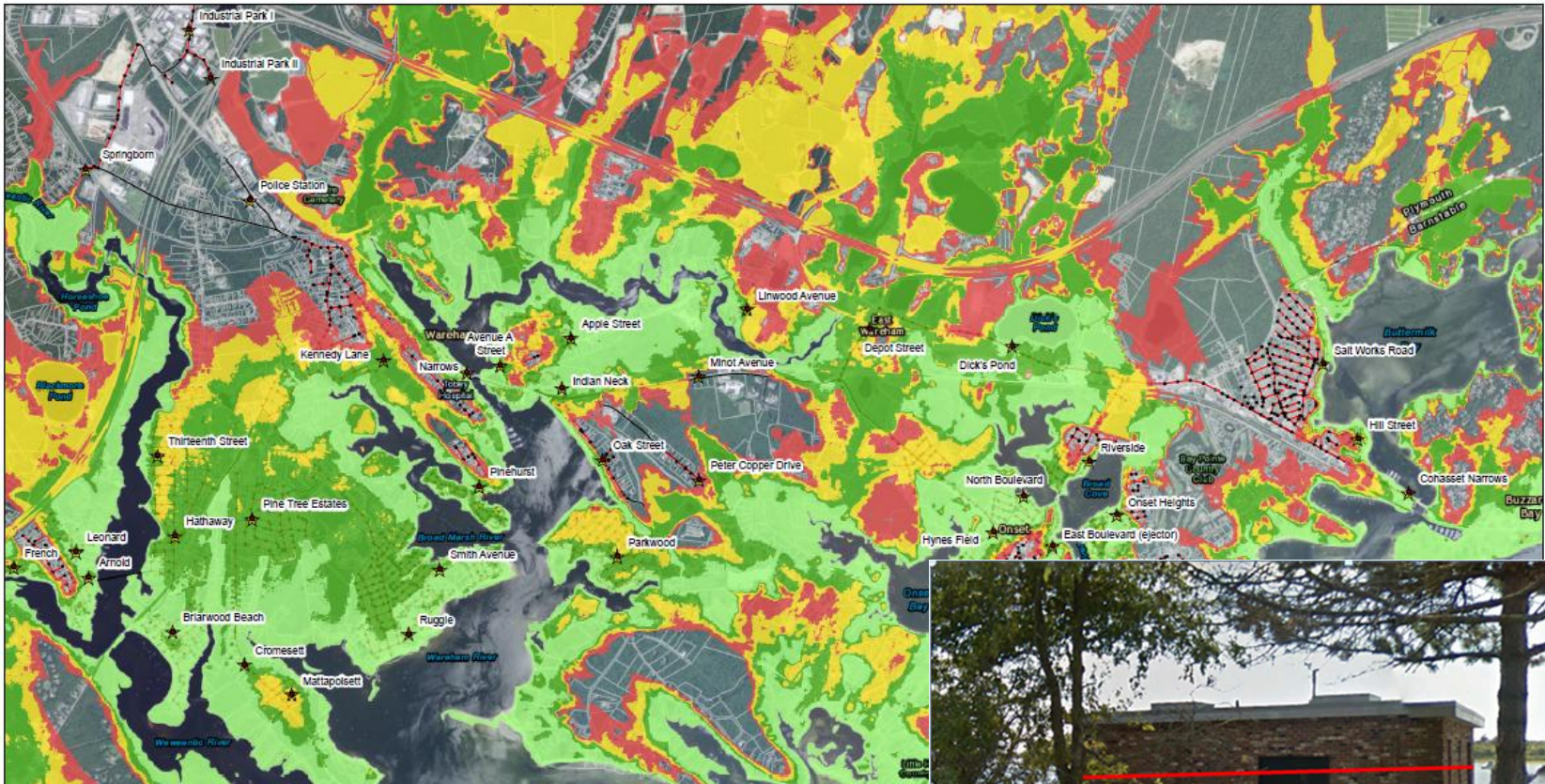
No shoreline stabilization option permanently stops all erosion or storm damage. The level of protection provided depends on the option chosen, project design, and site-specific conditions such as the exposure to storms. All options require maintenance, and many also require steps to address adverse 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 WILKINSON ECOLOGICAL DESIGN

stormsmart coasts
supporting community
efforts to manage
coastal floodplains
mass.gov/czm/stormsmart

Current South Coastal Projects



Wareham (\$93,750)

Wastewater Infrastructure Vulnerability Assessment and Emergency Response Plan Related to Coastal Flooding and Climate Change



Current South Coastal Projects

Mattapoisett

(\$47,791)

*Protecting
Mattapoisett's Potable
Water and Sewer
Infrastructure in the Face
of Climate Change:
Assessing Risk and
Identifying Solutions*

New Bedford

(\$255,000)

*New Bedford Sewer
Pump Station Flood
Proofing*



Mattapoisett Coastal Resilience
(Preliminary results presented 10/19/15)

Projects funded coast-wide

1. Assess vulnerability and risk
2. Increase public education and outreach
3. Identify and implement management measures, standards and policies
4. Redesign and retrofit to accommodate changing conditions
5. Enhance natural storm damage protection

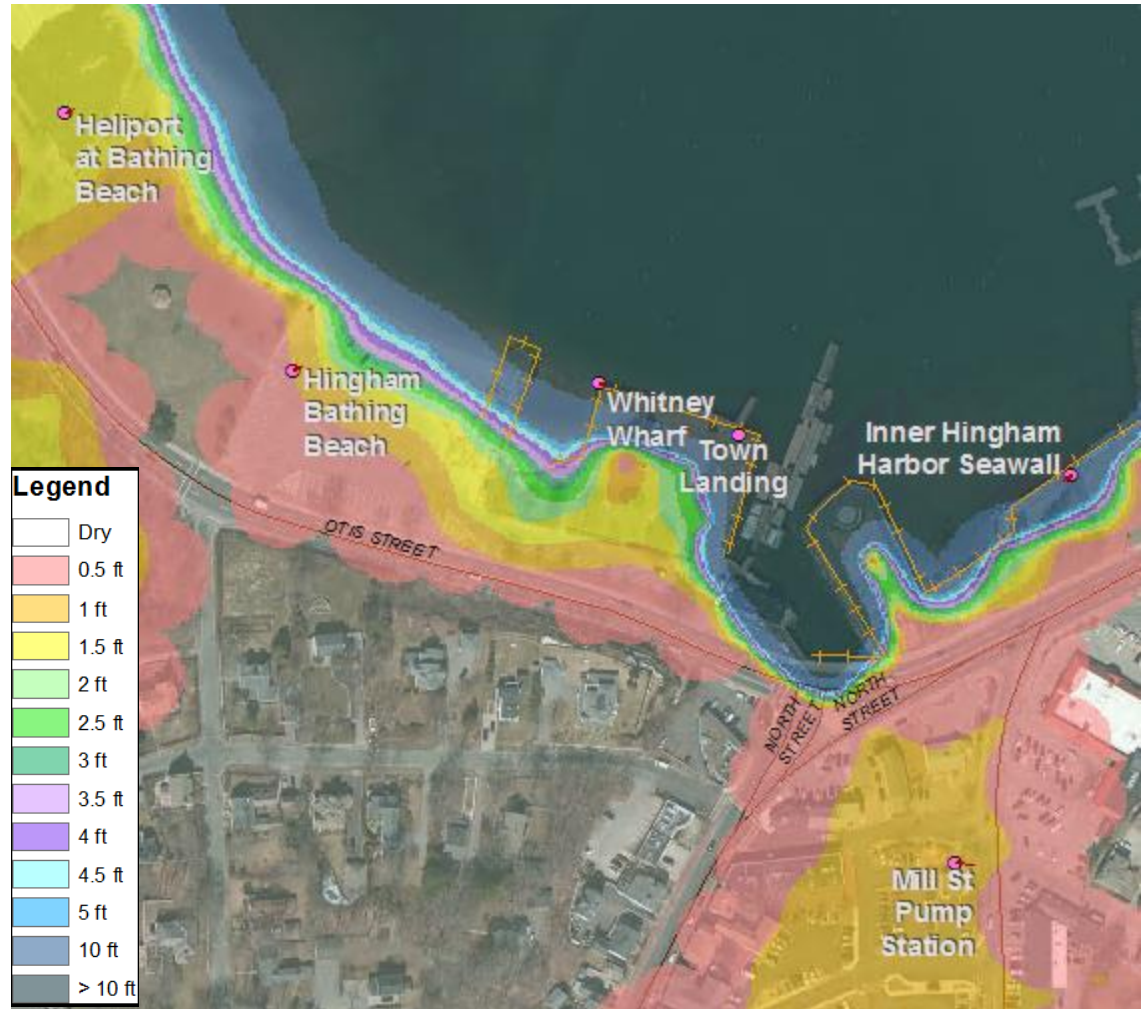
Phases:

- Planning
- Feasibility Assessment and Siting
- Design and Permitting
- Construction, Installation, and Monitoring

1. Assess Vulnerability and Risk

Hingham, Gloucester, Hull, Chelsea, Quincy, Lynn, Swampscott:

- Identify short and long-term vulnerabilities
- Assess probability of occurrence and consequences of impacts
- Recommend adaptation strategies



Inner Hingham Harbor; Depth of flooding above ground, 100-year flood + SLR in 2030

2. Increase Public Education & Outreach

Brewster:

- Assess vulnerability
- Gather input on community priorities
- Build consensus on local strategies



Essex and Great Marsh communities:

- Develop regional and local information packets and maps on risks
- Conduct regional workshop on adaptation strategies, financing



3. Identify and Implement Management Measures, Standards, or Policies

Barnstable:

- Apply to NFIP Community Rating System and develop application template

Scituate:

- Pursue town-wide prioritization planning to create “roadmap” for shoreline management strategies



4. Redesign and Retrofit

Oak Bluffs:

- Improve 3 pump stations that serve majority of sewered residents
- Raise electrical panels, install flood walls and generators
- Account for 1.5' of sea level rise over 40-year lifespan



5. Enhance Natural Storm Damage Protection

Martha's Vineyard Shellfish Group:

- Test “living shoreline” installations and develop methods toward a reliable ribbed mussel seed hatchery

Edgartown, Falmouth, Dennis, Plymouth:

- Design and permit beach nourishment and dune restoration project using compatible sediment

Salem, Winthrop, Plymouth:

- Conduct green infrastructure feasibility study

Lessons Learned and Tips for Successful Projects

- Advance planning with CZM
- Consider project setting and approach
- Consider all alternatives
- Be realistic about schedule and tasks
- Establish partnerships to facilitate projects
- Engage and inform the public
- Think about monitoring/maintenance needs beyond contract period
- Anticipate securing local match

Project Idea Discussion

- Public education, outreach, communication
- Risk and vulnerability assessment
- Municipal infrastructure retrofits
- Identify and implement management measures, standards, and policies
- Beach, berm, and dune building, enhancement, or restoration with compatible sediment and native vegetation
- Bio-engineering with coir rolls (on coastal banks), natural fiber blankets and other organic, biodegradable materials with plantings
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