



Resilient Rhody: Statewide Climate Resilience Action Strategy

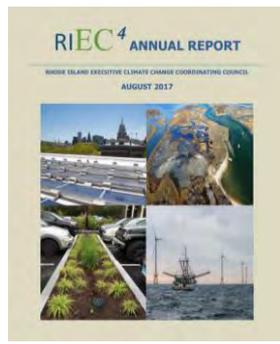
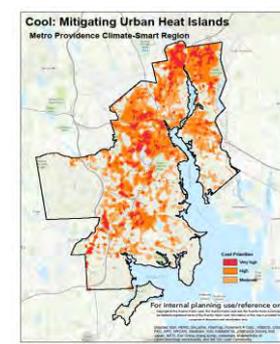
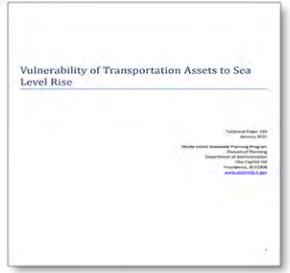
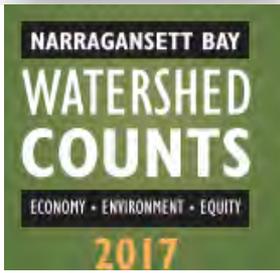
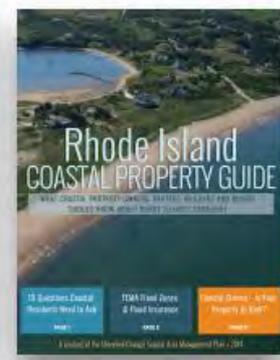
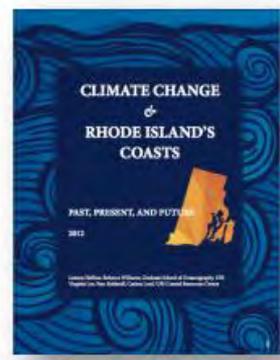
RIEC⁴

 RHODE ISLAND
INFRASTRUCTURE BANK

Workshop Agenda

- Climate Resilience Action Strategy Update – 25 Minutes
- Strategy Q & A – 10 Minutes
- Resilience Action Workshop – 35 Minutes
 - Project examples and studies we should know about
 - Identify priority actions/investments by Natural System Asset Type
 - Report out

STATEWIDE CLIMATE RESILIENCY ACTION STRATEGY



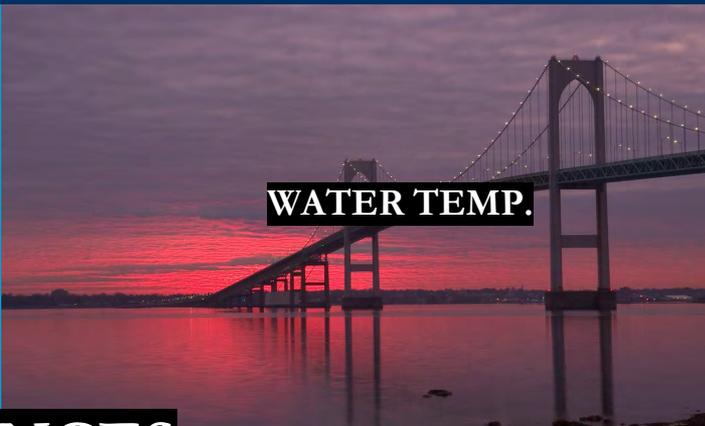
Year	Rhode Island Department of Health Climate Change Adaptation Plan			
Vision	Charting path towards a healthy, resilient, and resilient Rhode Island			
Impacts	Severe Flooding in South	Coastal Erosion	Reduced Wetland	Sea Level Rise
Outcomes	Programs underway to reduce risk of flooding and infrastructure damage through a variety of strategies including: enhanced infrastructure, improved emergency response, and other measures.	Statewide vulnerability assessment and risk reduction plan.	Statewide vulnerability assessment and risk reduction plan.	Statewide vulnerability assessment and risk reduction plan.
Subobjectives	Reduce the number of people and businesses in high-risk areas.	Improve the resilience of critical infrastructure.	Improve the resilience of critical infrastructure.	Improve the resilience of critical infrastructure.
Priorities	Severe Flooding	Coastal Erosion	Sea Level Rise	Reduced Wetland
Intervention	Policy & Support Change Community Engagement Organizational Framework Individual Engagement			
Tools & Resources	Rhode Island Statewide Vulnerability Assessment, National Oceanic and Atmospheric Administration (NOAA) Coastal Change Viewer, Rhode Island Department of Environmental Management (DEM) Coastal Change Viewer, Rhode Island Department of Environmental Management (DEM) Coastal Change Viewer, Rhode Island Department of Environmental Management (DEM) Coastal Change Viewer.			

Wealth of reports completed to date

EC4 Science and Technical Advisory Board (2017)



HEAT



WATER TEMP.

CHANGES



SEA LEVEL RISE

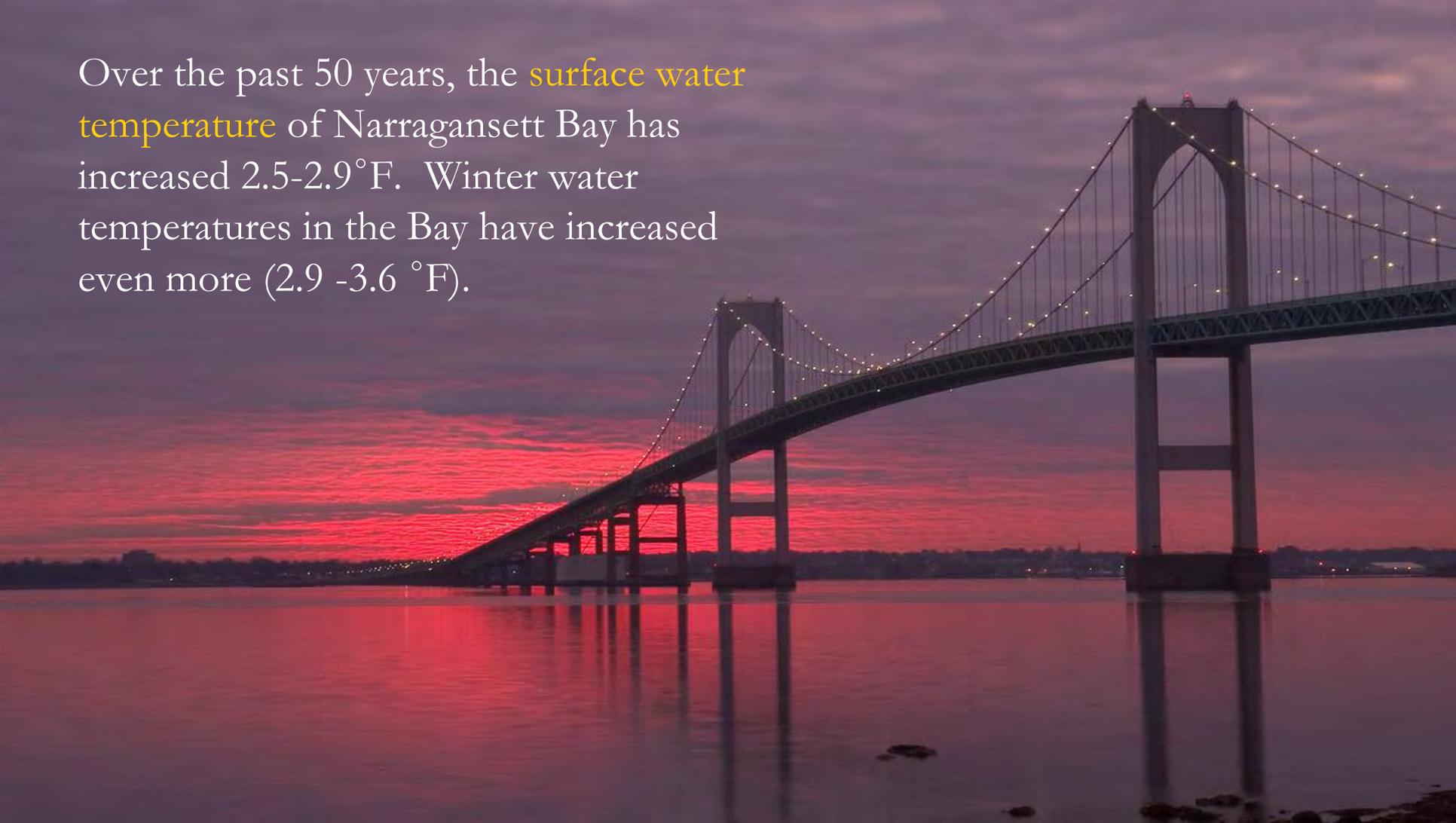


PRECIPITATION



Temperatures in Rhode Island have increased by more than 3°F since the beginning of the 20th century. 2016 was the warmest year on record globally.

Over the past 50 years, the **surface water temperature** of Narragansett Bay has increased 2.5-2.9°F. Winter water temperatures in the Bay have increased even more (2.9 -3.6 °F).





Sea levels have risen 10 inches in RI since 1930 (Newport tide gauge). Updated NOAA predictions (Jan. 2017) put sea level rise in RI at close to 1 ft. by 2030 and upwards of 9 ft. by 2100.

Intense rainfall events in New England have increased 71% since 1958. RI's average annual precipitation has increased more than 10 inches since 1930.



What's at Risk



- 15,380 active flood insurance policies covering over \$3.8 billion in residential and commercial property



- 337 miles of state and municipal roadway are vulnerable to flooding in a 100 yr. storm surge event



- 19 wastewater treatment facilities, all located in coastal or riverine flood zones



- Salt marshes provide recreational and commercial fishing activities with an estimated of \$6,417 an acre. Coastal wetlands generate \$2 billion annually.



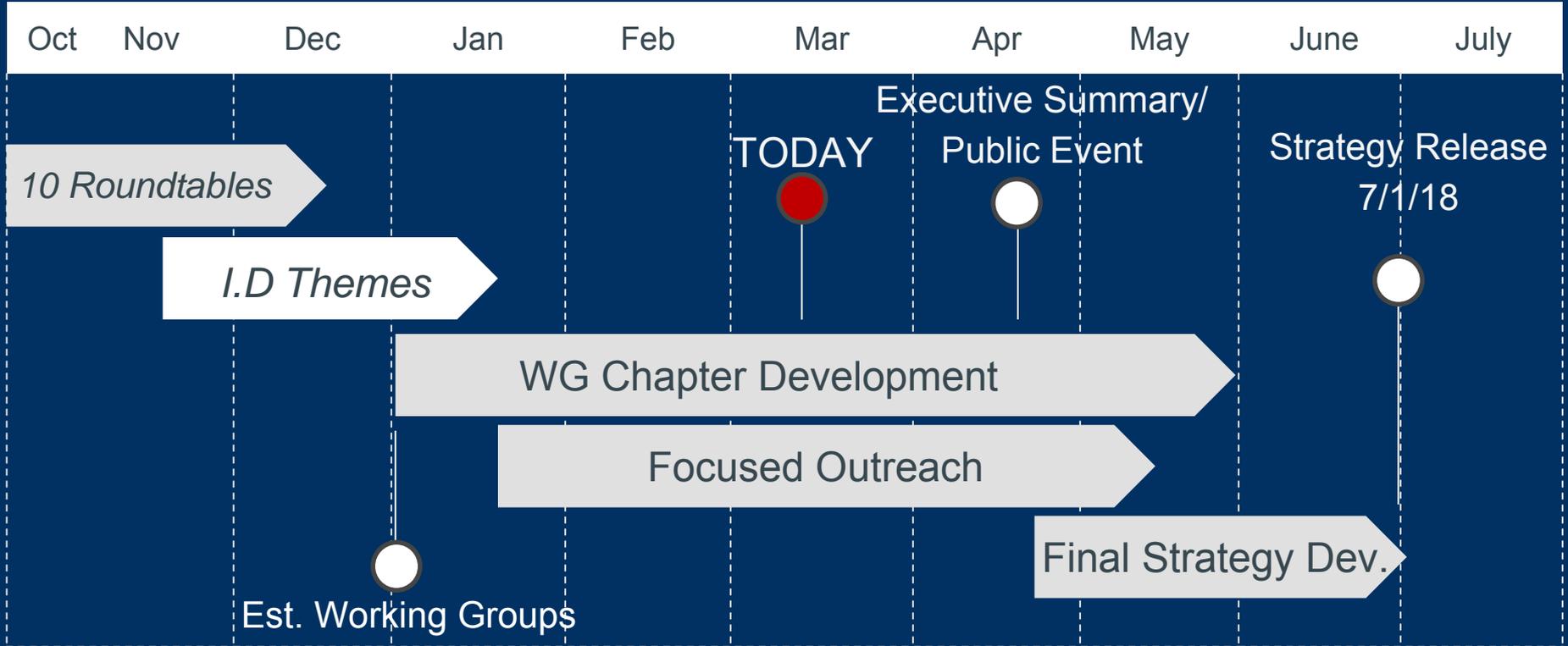
How are we defining Climate Resilience?

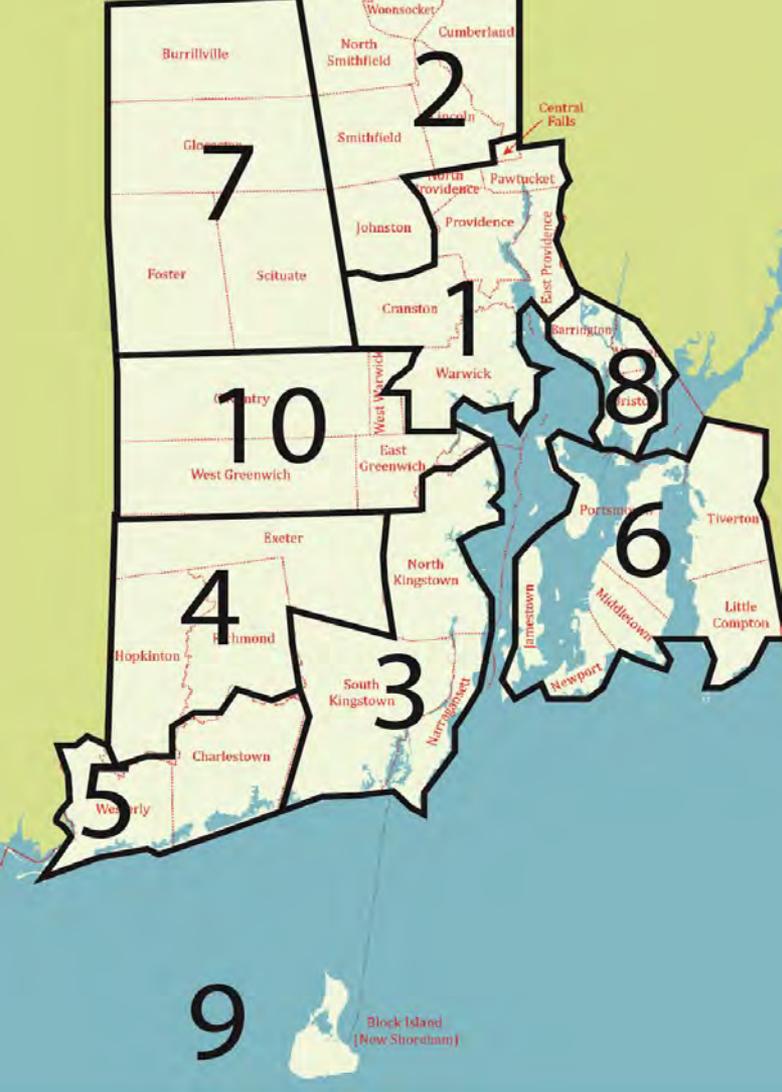
Climate Resilience is the capacity of individuals, institutions, businesses, and natural systems within Rhode Island to survive, adapt, and grow regardless of chronic stresses and weather events they experience.

Statewide Climate Resilience Action Strategy

- Identify and prioritize resiliency actions and investments in response to the impacts caused by climate change that affect our communities, infrastructure and economy
- Catalyze the planning and vulnerability studies already developed
- Position Rhode Island as a national leader in resiliency action and create a better prepared Ocean State

Climate Resilience Action Strategy Timeline





Statewide Resiliency Roundtable Series

10 Roundtables over 2.5 months

350 Attendees

35% Municipal Planners/Staff

25% Environmental Orgs

15% Community Orgs (Chambers, Faith-based groups, Historic districts)

10% Business Owners

10% State agency employees

5% Residents

Representation from 35 of 39 Cities and Towns

“The statewide strategy needs to recognize that municipalities are on the front lines of dealing with the impacts of a changing climate”

“Rhode Island has done a lot of planning and vulnerability studies, this strategy needs to drive investment where it’s needed most”

“We are glad you ventured to the inland communities for the Roundtable discussion as we often feel left out of the process since we aren’t on the coast”

“How are we going to pay for all these needed infrastructure upgrades?”

What we learned

- Clear communication matters
- There is a tremendous amount of work already underway
- Municipalities are on the front lines of climate adaptation planning
- Statewide climate adaptation investments require collaboration and new ways of working



Resiliency Themes

“Prioritize to Optimize”

- Critical Infrastructure Assets
 - Clean Water, Roads and Bridges
- Utilities
 - Drinking Water, Electric Grid
- Natural Systems
 - Coastal & Upland
- Emergency Response and Preparedness
- Local Community Resilience / Education
- Paying for Climate Resilience Projects



State of Rhode Island
Climate Change

HOME / Climate Science / State Actions / Cities & Towns / Residents / Businesses / Resources / Resilient Rhody

HOME / RESILIENT RHODY

Executive Order

"Rhode Island is a leader. We're the only state with an effective wind farm, and we're committed to upholding the principles of the Paris Climate Agreement. By aggressively working to combat climate change and protect our coastal state from its effects, we're creating a stronger, safer, and greener Rhode Island for future generations."

—Governor Gina M. Raimondo

Resilient Rhody

Rhode Island's First Comprehensive Climate Preparedness Strategy

On September 19, 2017, Governor Gina M. Raimondo signed an Executive Order appointing a Chief Resiliency Officer to drive climate resiliency efforts across the state, both within government and in collaboration with business, academic, and nonprofit partners, with the mission to develop a statewide Climate Resiliency Action Strategy to be submitted to the Governor by July 1, 2018.

The goal of this Strategy is to identify actions – e.g., projects, policies and legislative, funding and financing opportunities, etc. – that the state can take to better prepare for a changing climate. Rhode Islanders are seeing the impacts of climate change in our communities already, and the time to take action is now. So the actions included in the Strategy include things we can begin work on now.

Resiliency Roundtables

These investments will leverage the extensive work that many around the state, from environmental organizations to educators, institutions to state agencies, have already been doing. We're building upon efforts, as the first step for the Chief Resiliency Officer, now to host a series of Resiliency Roundtables across the state, to listen to local and regional leaders, learn what has been done, and hear their priorities for local climate resilience in the future.

COMMUNITY ROUNDTABLE LOCATIONS

1. Westerly
2. Pawtucket
3. Cranston
4. Woonsocket
5. East Greenwich
6. Wickford
7. Westerly
8. Westerly
9. Westerly
10. Westerly

ROUNDTABLE CO-HOSTS

- Westerly: State of the Bay
- Pawtucket: Action Rhode Island
- Cranston: Cranston Resilience Center, RR RISE
- Woonsocket: Woonsocket Historical Association
- East Greenwich: East Greenwich Community Center, and Woonsocket Historical Society
- Wickford: Wickford Historical Society
- Westerly: Wickford Historical Society

ROUNDTABLE ATTENDEES

State Agency Employees	10%
Business Owners	10%
Community Organizations	15%
Environmental Organizations	25%
Residents	5%
Municipal Planners/Staff	35%

COASTAL

Stipulations / Vulnerabilities

Stipulations

- Severe Weather Events (e.g., Hurricanes, etc.)
- High Water
- Flooding

Stipulations

- Sea level rise
- Agging infrastructure
- Spread of invasive species
- Coastal erosion
- Developmental pressure and access to floodplains

"The statewide strategy needs to recognize that municipalities are on the front lines of dealing with the impacts of a changing climate"

"Rhode Island has done a lot of planning and vulnerability studies, this strategy needs to drive investment where it's needed most"

UPLAND

Stipulations / Vulnerabilities

Stipulations

- Severe Weather Events (Hurricanes, etc.)
- High Water
- Flooding
- Forest fires

Stipulations

- Agging infrastructure
- Spread of invasive species / forest pests
- Drought
- Temperature swings
- Developmental pressure and access to floodplains

"We are glad you ventured to the inland communities for the Roundtable discussion as we often feel left out of the process since we aren't on the coast"

"How are we going to pay for all these needed infrastructure upgrades?"

If you are registered on this page, this is the place to interact with us as we continue to work toward climate resilience here in Rhode Island. Send us your feedback!

Strategy Outline & Chapter Leads

1. Making the Case for Climate Resilience: *EC4, Science and Technical Advisory Board (STAB)*
2. Critical Infrastructure and Utilities: *RIDEM, OHCD, RIEMA*
 - Water - RIDEM, WRB
 - Power - OER, DPUC
 - Transportation - RIDOT, SPP
 - Food – GOV, RIDEM
3. Natural Systems: *CRMC, DEM*
 - Coastal – CRMC
 - Upland - RIDEM
4. Emergency Preparedness: *RIEMA*
5. Community Resilience: *RIDOH*
6. Financing Climate Resilience Projects: *RIIB*

Chapter 3: Natural Systems

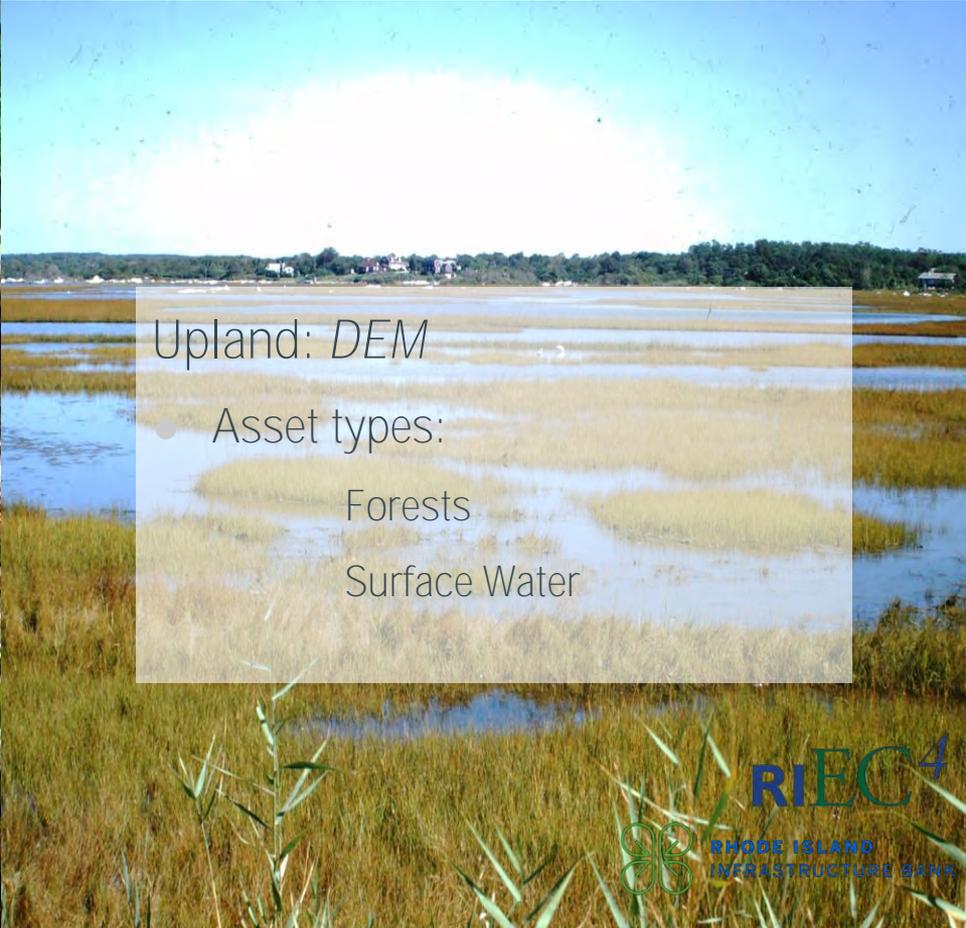


Coastal: *CRMC*

- Asset types:

 - Beaches and Barriers

 - Salt Marshes



Upland: *DEM*

- Asset types:

 - Forests

 - Surface Water

Action and Investment Time Horizons

NOW

Projects and processes that can be accelerated now with existing resources

2-5 Years

Actions and investments are identified but missing a critical resource, such as funding or permit

10 Years

Actions and investments are identified but multiple project components need to be developed

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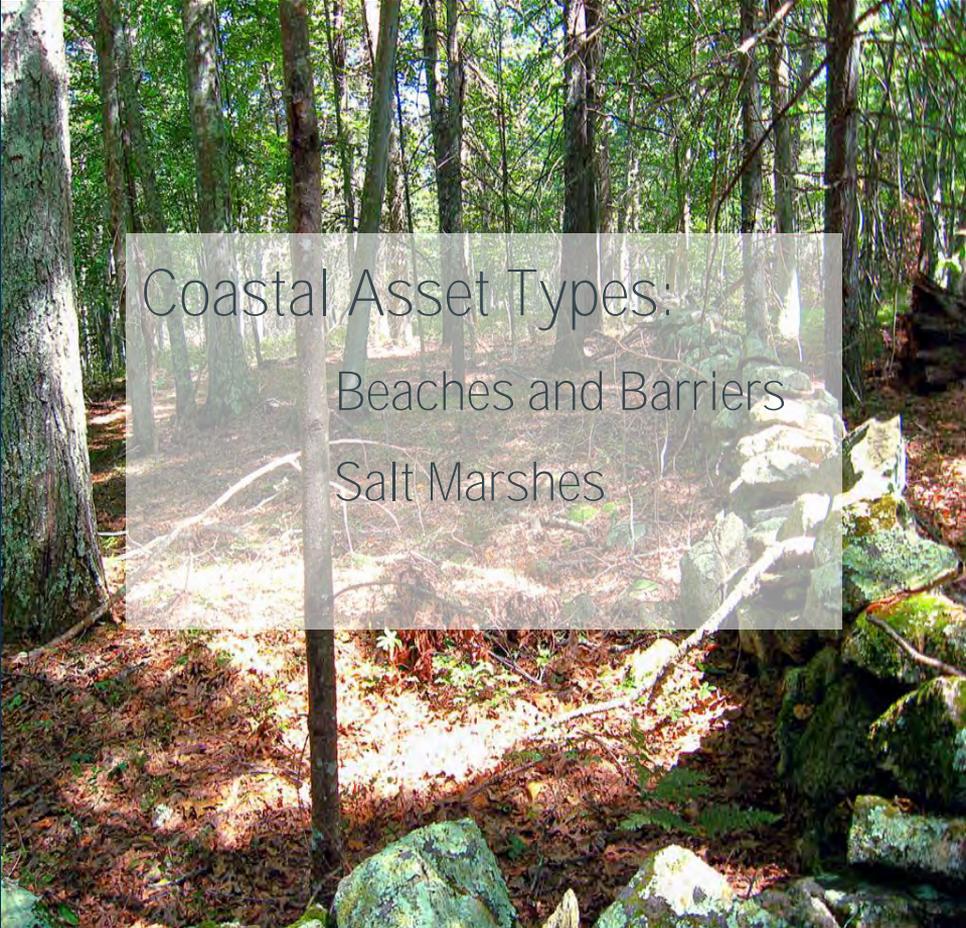
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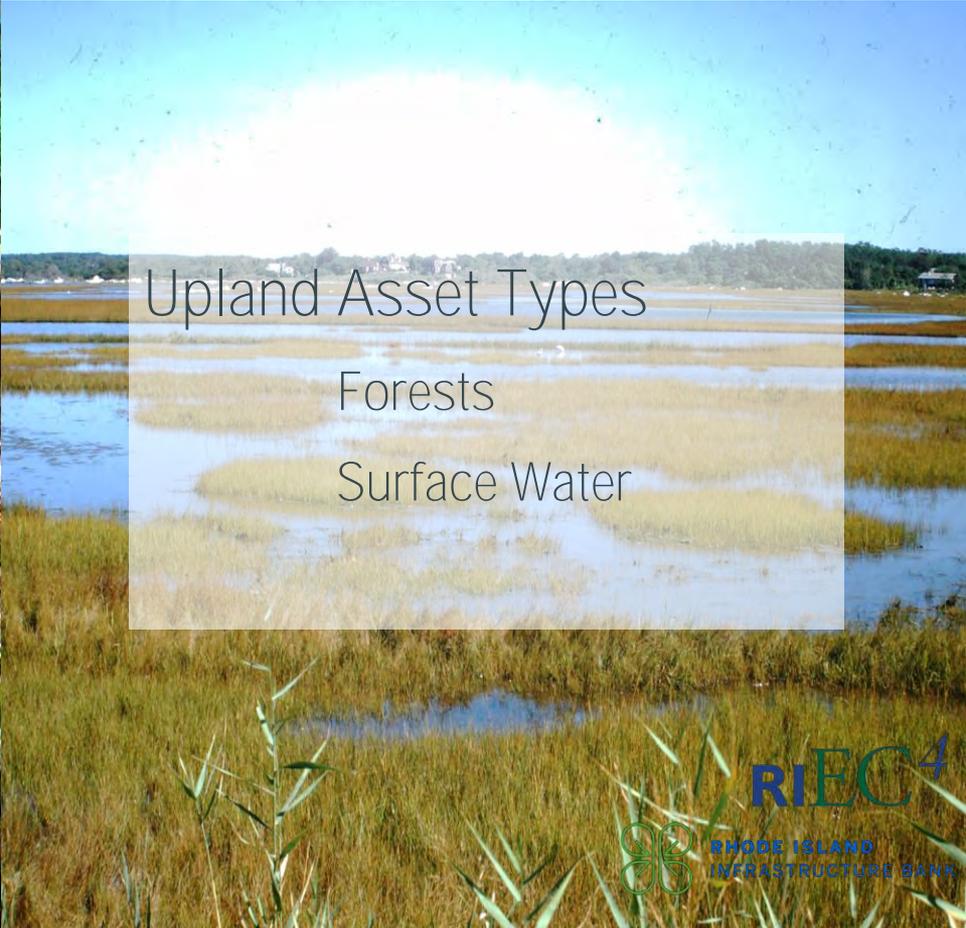
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Natural Systems



Coastal Asset Types:
Beaches and Barriers
Salt Marshes



Upland Asset Types
Forests
Surface Water