Long Island Sound Coastal Erosion Forum Suffolk County

May 10, 2023

Long Island Sound Study

A Partnership to Restore and Protect the Sound

Sea Grant New York

Suffolk County Soil and Water Conservation District

County Legislature Suffolk County, N. Y.

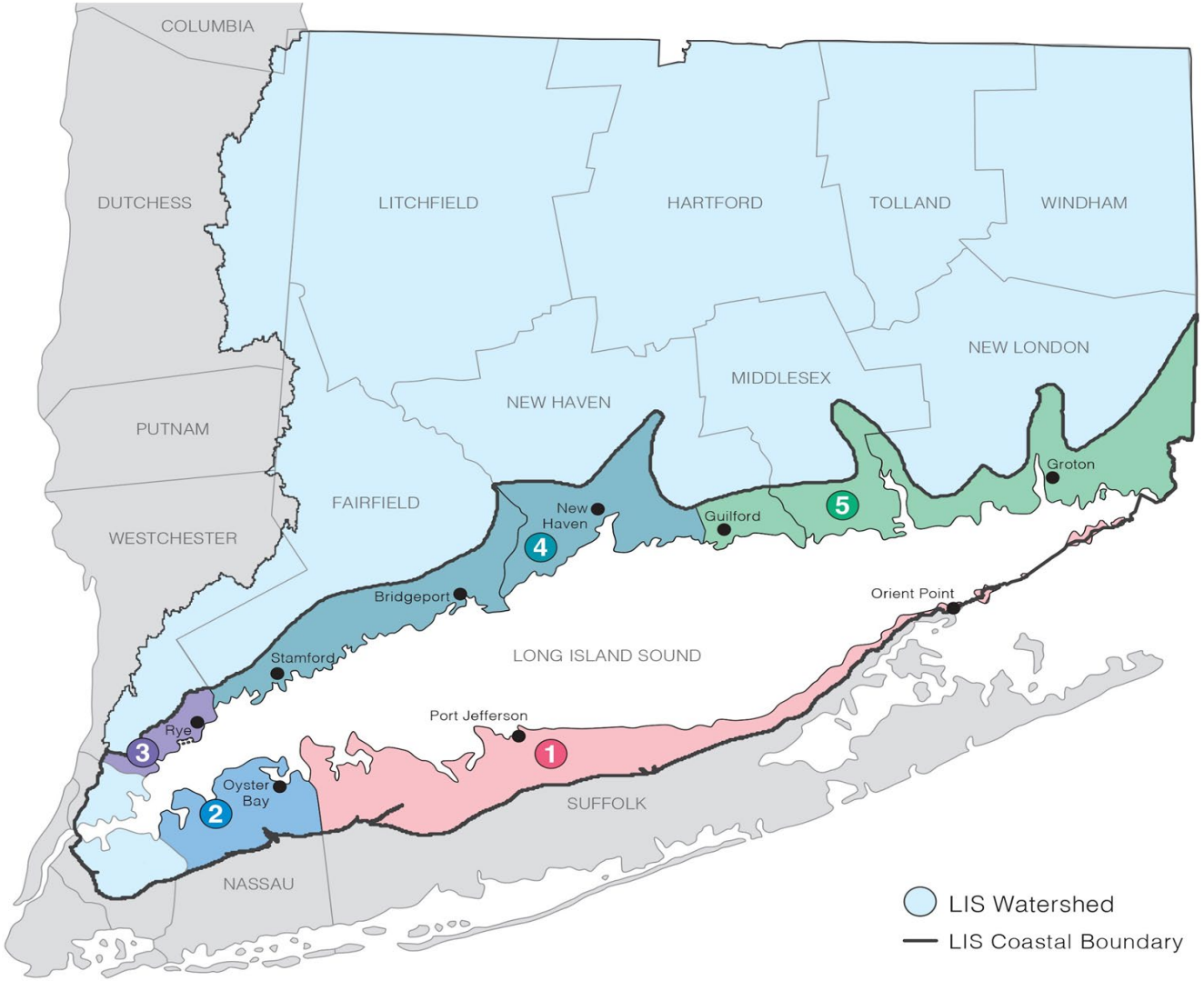
Goals for today's forum:

- Share information on coastal erosion and shoreline protection best practices
- Discuss challenges
- Identify opportunities to increase resilience
- Enhance coordination across communities

Agenda

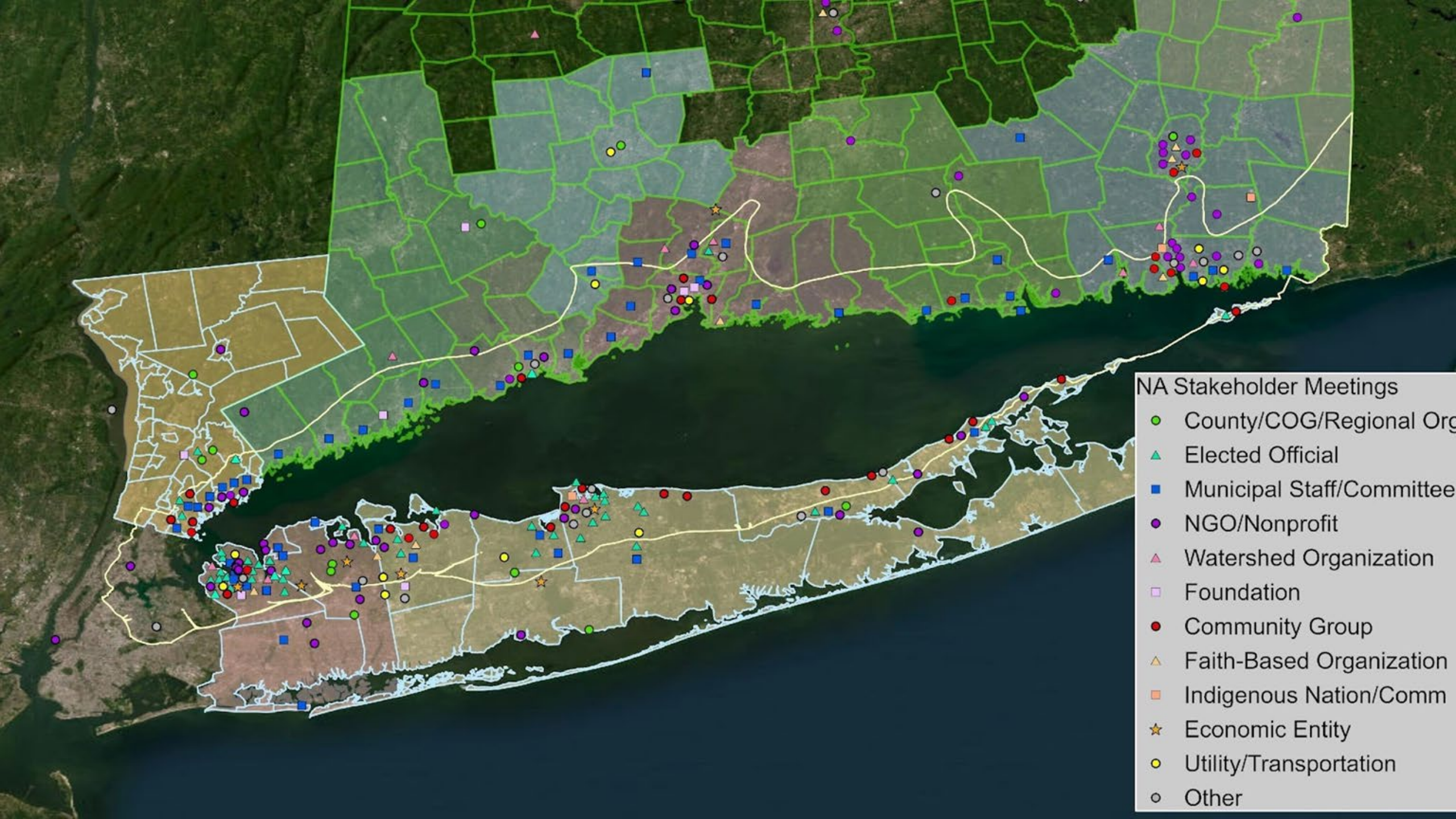
10:00am	Networking
10:25am	Welcome & Opening Remarks
10:45am	Strategies to Address Coastal Erosion
12:00pm	Coastal Erosion Hazard Areas, Local Codes & Policy
1:00pm	Networking Lunch
1:45pm	Small Group Discussions & Report Out
3:00pm	Wrap Up and Next Steps

Long Island Sound Sustainable & Resilient Communities



Vision:
Vibrant, informed, and engaged communities that use, appreciate, and help protect Long Island Sound.

Communities can anticipate, adapt, and recover from the effects of disturbances induced by sea level rise, extreme events and human impacts, while achieving well-being for all


NA Stakeholder Meetings
County/COG/Regional Org
Elected Official
Municipal Staff/Committee
NGO/Nonprofit
Watershed Organization
Foundation
Community Group
Faith-Based Organization
Indigenous Nation/Comm
Economic Entity
Utility/Transportation
Other

Long Island Sound Study
A Partnership to Restore and Protect the Sound

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A Regional Needs Assessment to Help Build a Sustainable & Resilient Long Island Sound

In 2022, a team of CT and NY Sea Grant Sustainable and Resilient Communities (SRC) Extension Professionals conducted an informal needs assessment of coastal Long Island Sound (LIS) communities to better understand the environmental threats and hazards that they are most concerned about, what communities may already be doing to address these issues, and what barriers they are facing when it comes to implementing projects and taking action.

The goal of the SRC team's work is to help LIS communities anticipate and overcome disturbances caused by a changing climate while achieving well being for all. Their work is guided by a Long Island Sound Study SRC Work Group and a five-year work plan. **For more information, visit LISStudy.net/SRC.**

This factsheet presents a brief overview of the SRC team's findings from their informal needs assessment.

The SRC team had over 300 conversations with stakeholders during 2022. This figure shows the breakdown of stakeholder entities reached for the needs assessment.

A team of five SRC Extension Professionals based in Suffolk County, NY, Nassau County, NY, Westchester County, NY, Western CT, and Eastern CT are working to advance sustainability and resilience in Long Island Sound coastal communities.

Top Environmental Threats

The SRC team identified **stormwater and associated flooding as the primary environmental threat** faced by communities region-wide.

The following were also identified as issues for a number of communities:

- Sea level rise/coastal flooding
- Extreme weather and storms
- Water quality
- Coastal erosion
- Habitat loss and/or degradation
- Invasive species
- Tree loss
- Impacts from development

The Long Island Sound Study, an EPA National Estuary Program, brings together local, state, and federal governments with communities, NGOs, universities, industry, and user and environmental groups to improve the health of Long Island Sound.

Challenges and Barriers to Implementing Sustainability & Resilience Initiatives

Four main categories of challenges/barriers were identified through the SRC team's informal needs assessment. Generalized quotes below represent common challenges the team heard.

Limited Capacity

- Lack of staff, technical expertise
- Limited and/or ineffective coordination across levels of government, stakeholder groups

"We are a small municipality with very few employees - there is no bandwidth to move projects along, or apply for grants."

Governance Challenges

- Lack of political will, leadership, action
- Frequent leadership changes can hinder sustained momentum
- Codes and ordinances can be difficult to update and enforce

"Different interests can lead to nothing getting done."

Funding

- Grant requirements can be burdensome and hard to navigate
- Limited opportunities for long-term funding, capacity-building, maintenance, private landowners

"We've applied to XYZ grant multiple times with no success, it's not worth the effort."

Institutional Inequities

- Lack of inclusion from all communities
- Disconnect and/or lack of trust between communities and government/institutions

"Opportunities for public involvement generally do not enable participation by communities with environmental justice and equity concerns."

Next Steps from the SRC Team

Ultimately, the SRC team aims to promote the implementation of high-impact projects in communities and to educate and train community decision-makers to enable a better regionally-coordinated response to climate change and other environmental challenges.

Needs assessment findings are now being used by the SRC Extension Professionals to inform their work, including:

Training & education programs to help build capacity and provide technical guidance.

Breaking Down Barriers to implementation, including programs to reduce capacity barriers that communities may face when applying for competitive funding opportunities and implementing projects.

An online **LIS Resilience Resource Hub** that identifies the most relevant tools and funding opportunities for implementing projects.

An **annual bi-state workshop** to bring together government and decision-makers across both New York and Connecticut to promote collaboration and knowledge-sharing.

April 2023

LISResilience@gmail.com
To learn more, visit LISStudy.net/SRC

What the SRC Team is working on

- ★ Training Programs
- ★ Annual Bi-State Workshop
- ★ Resilience Resource Hub
- ★ Project Pipeline
- ★ Break Down Barriers Program

1ST ANNUAL LIS SUSTAINABLE
& RESILIENT COMMUNITIES
BI-STATE WORKSHOP

THURSDAY
DECEMBER 1, 2022
12:30-4 PM

For more information & to RSVP:
visit tinyurl.com/LISResilience
or scan the QR code below!

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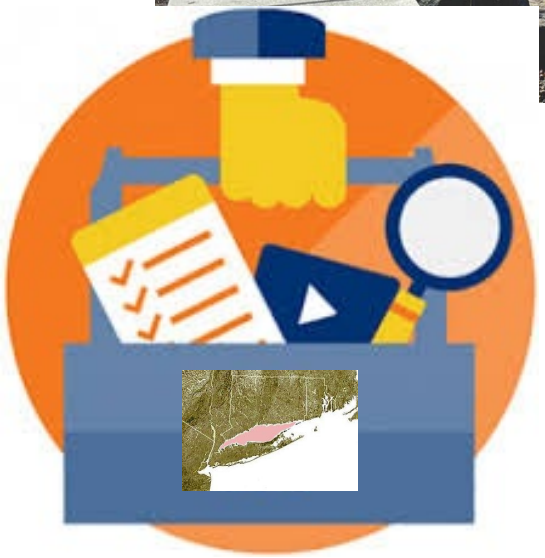

Opening Remarks

Strategies to Address Coastal Erosion

Kathleen Fallon
Coastal Hazards and Processes Specialist, New York Sea Grant

Corey Humphrey
District Manager, Suffolk County Soil and Water Conservation District

Alexa Fournier
Restoration Planning and Policy Manager, Division of Marine Resources, NYSDEC

Tom Mohrman
Maidstone Landing Association/Riverhead Beach Committee

Causes of Erosion
&
Mitigation Options

Long Island Coastal Erosion Forum - Suffolk County

May 10, 2023

Port Jefferson Village Center

Kathleen M. Fallon, Ph.D.
Coastal Processes and Hazards Specialist
New York Sea Grant

Sea Grant New York

- **Coastal erosion:** the removal of beach, dune, and/or bluff sediments by the physical forces of wave action, tides, currents, high winds, or a combination of these
- Can be very complex
- Choice of treatment depends on
  - An understanding of the cause(s) of erosion
  - Determination of what asset needs protection

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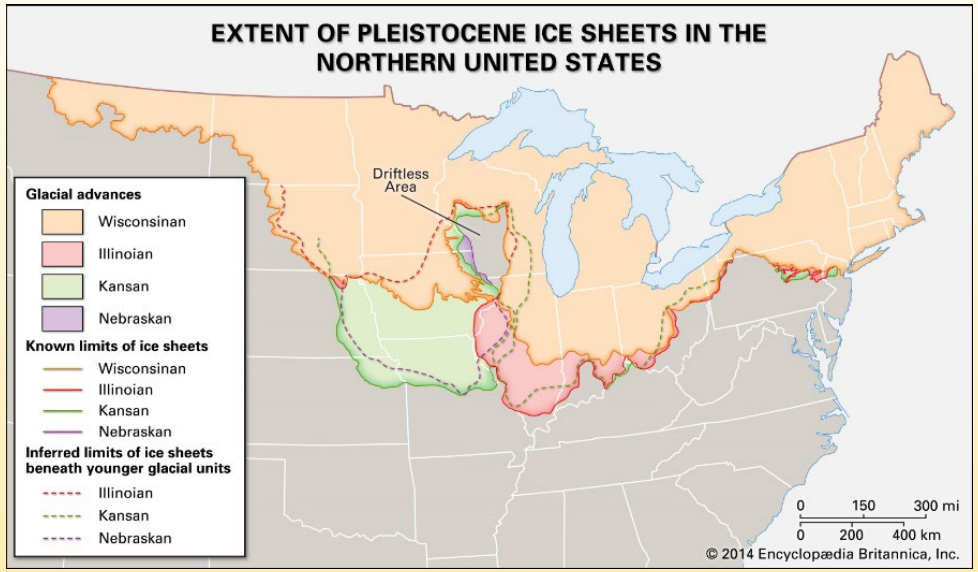
Coastal Bluffs

- Remnants of the terminal moraine deposited during last glacial maximum (21,000 years ago)
- Composed of wide variety of unconsolidated sediments
  - Range in size from silts and clays to large boulders



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Bluff Erosion

Table 3-3. BLUFF RECESSION RATES, NORTH SHORE, LONG ISLAND, N.Y.

Location	Period of Record	Recession Rate (m/yr)	Recession Rate (ft/yr)
Oak Neck Point	1915-1922[a]	0.3	1.0
East Fort Point	1833-1883[a]	0.9	3.0
Eatons Neck	1933-1966[b]	0.5	1.6
West Fort Salonga	1933-1966	0.5	1.6
Crane Neck Point	1911-1945[c]	0.8	2.6
Old Field Point	1933-1966[b]	1.6	5.2
	1911-1945[c]	0.8	2.6
	1886-1955[d]	0.3	1.0
Belle Terre	1933-1961[b]	0.3	1.0
	1933-1966	0.2	0.8
Miller Place	1948-1955[d]	0.6	2.0
Rocky Point	1933-1966	0.2	0.8
Wading River	1933-1966	0.5	1.6
Wildwood State Park	1933-1966	0.0	0.0
Oregon Hills	1933-1966	0.5	1.6
Horton Point	1933-1966	0.2	0.5
	1933-1960[b]	0.5	1.6
Mulford Point	1933-1960[b]	0.3	1.0
0.7 mi. west of Orient Point	1933-1960[b]	0.6	2.0

- Primary source of sediment for beaches
- Is episodic
  - Long periods of stability
  - Large-scale erosion event in short-period of time

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Causes of Erosion

- Heavy rainfall can wash sand down the face of the bluff if it is not vegetated
- Oversaturation of the ground (rainfall or sprinklers)
  - Groundwater can loosen and pick up sediments as it flows through the bluff
  - In winter, groundwater can freeze causing cracks to expand and larger areas to break away
- Wind
- Surge
  - If waves attack the base, normally protected by a beach, sediment is removed resulting in undercutting leading to instability and slumping

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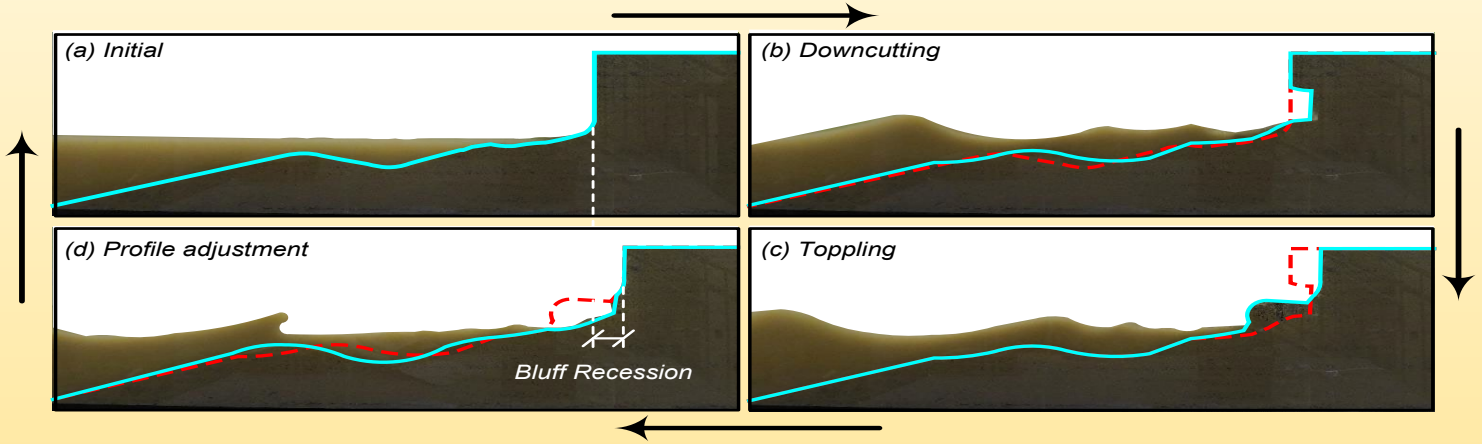
Bluff Recession

- Involves a broad range of factors including both sea- and land-based processes



- Impossible to recover (naturally)
- Poses substantial risk to safety of nearby structures and infrastructures
- Has many social, environmental, and economic impacts on coastal communities

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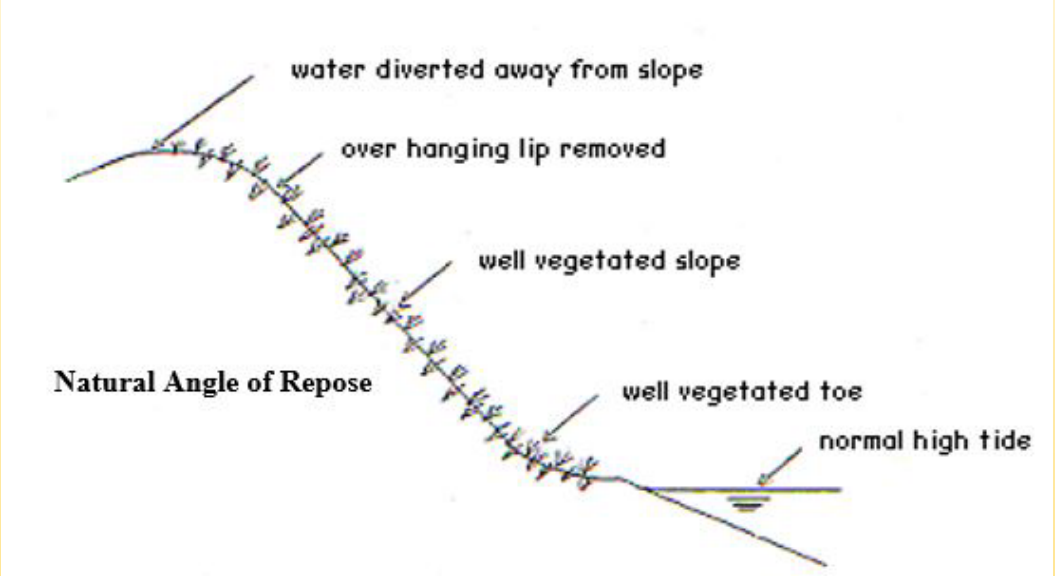
Erosion Control Methods

- Erosion process can be slowed by:
  - Maintaining the natural angle of repose
  - Stabilizing the toe of the bluff
  - Stabilizing the top of the bluff
  - Revegetating the face of the bluff



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Mitigation Options

- Groundwater issues can be resolved by
  - Decreasing the amount of water being inputted
  - Installing a drainage system
- Planting a buffer at the top of the bluff can reduce water flowing over the face
- Planting vegetation assists in binding the sediments, absorbing groundwater, and slowing runoff

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Mitigation Options

- Regrade or terraced slope

Sea Grant
New York

Mitigation Options

- Bulkheads or revetments installed at the toe of the bluff can protect against wave attack
  - This deprives the beach of sediment; complete stabilization may result in the reduction of beach width and eventual disappearance

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- The most appropriate option must be determined by:
  - Necessity
  - Upland land use
  - Shoreline site conditions / adjacent conditions
  - Ability to be permitted
- Costs are a major consideration
  - Initial construction + short- and long-term maintenance
- Impacts on environment and processes
- Proposed construction within coastal areas requires permits
  - Federal, state, and local jurisdictions

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THANK YOU!

QUESTIONS?

CONTACT INFORMATION

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631-632-8730

Sea Grant New York

Suffolk County Soil & Water Conservation District

Corey Humphrey C.P.E.S.C.

District Manager

Office Hours: Monday through Thursday 7:30 a.m. - 4:00 p.m. Friday 7:30 a.m. - 3:00 p.m.

What is a Conservation District?

Suffolk County SWCD is a public funded government office that is committed to the protection, preservation, restoration and enhancement of our natural resources by providing education, and technical assistance for all land users.

The mission of the district is to conserve the natural resources of Suffolk County through planning, design, and implementation of conservation practices that control and prevent soil erosion, sedimentation, flooding and non-point source pollution, assisting in the irrigation and drainage of agricultural lands, preserve wildlife, and protect public lands.

Bringing stakeholders together to solve complex environmental problems

When was SWCD formed?

1937 In response to the Dust Bowl F.D.R. called for the “Standard Soil Conservation Districts Law” allowing each state to organize conservation districts.

1940 NYS Passed Law providing framework for local districts.

1964 Suffolk County SWCD established – County Resolution 245, 1964

Today, the US has nearly 3,000 conservation districts!

SWCD Responsibilities

1. Water Quality and Nitrogen Reduction
2. Erosion and Sediment Control
3. Nonpoint Source Pollution Control
4. Irrigation Design
5. Drainage and Flood Control
6. Natural resource Protection
7. Invasive Species Control

Facts about Suffolk SWCD

- Established in 1964, under NYS Department of Agriculture and Markets Law 260.22
- Beatlemania

Facts about Suffolk SWCD

1/58 Conservation Districts in NYS

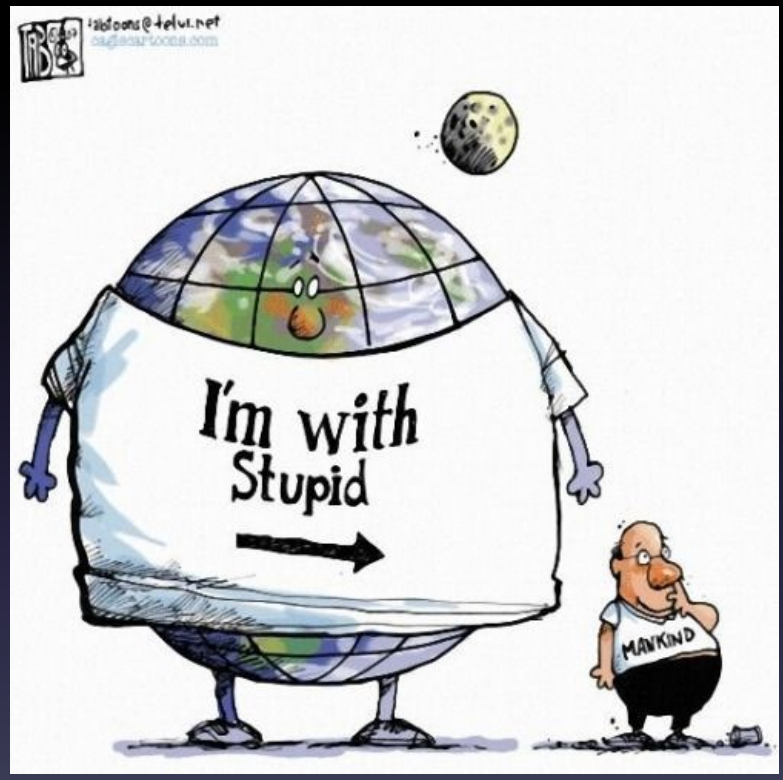
Funds from Suffolk Co., NYSSWCC, Grants

Public ***and*** Private land

Technical assistance

"On the ground" conservation projects

Suffolk SWCD is unique in NYS. ***Why?***



What else does the SWCD do?

"Conserve and protect Suffolk County's natural resources through technical and financial stewardship programs and projects"

-Soil Health
-Erosion Control Planning and Training
-Watershed Protection
-Native Landscape Restoration
-Water QUALITY & QUANTY
-Outreach and Education
-Youth Agricultural Education
-Green Infrastructure Design
-Municipal Consultation

For a full list of our services, please visit us at www.SuffolkSWCD.org

Bluffs and You

A conservation guide to erosion and sedimentation of Long Island's North Shore Communities

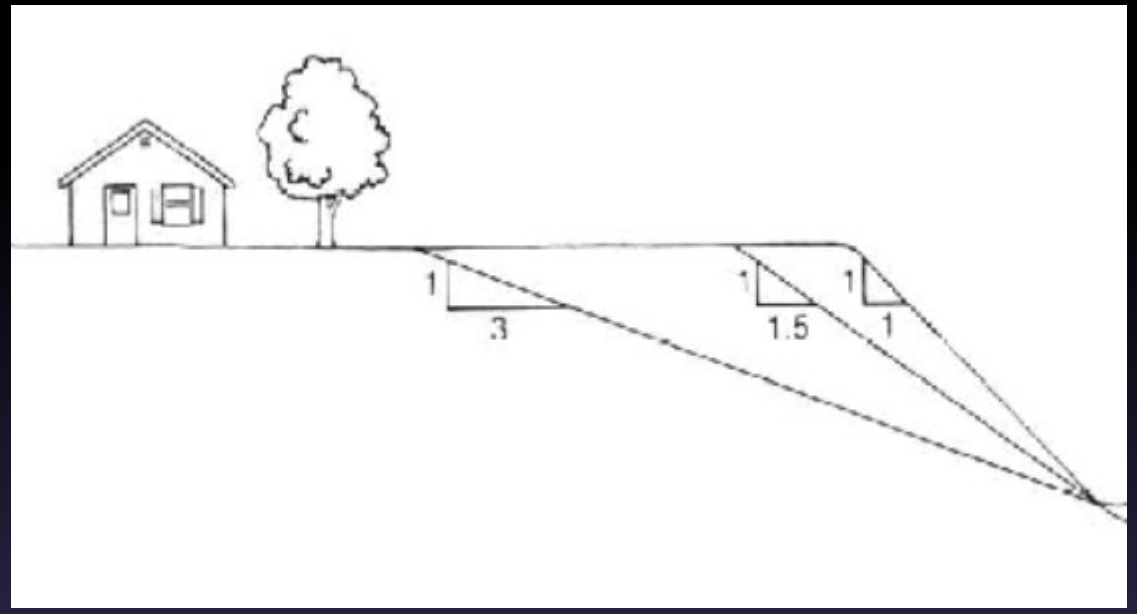
Have you seen this in your community?

Bluffs and You

Bluffs and You

Bluffs and You

Angle of Repose



CONTROLLING COASTAL BLUFF GROUNDWATER – NY SEAGRANT https://seagrant.sunysb.edu/glcoastal/pdfs/BluffGroundwater.pdf

- Sediment composition determines optimum angle
- 1:3 is ideal for sandy bluffs and allows for vegetation to grow
- As erosion continues over time, an angle that was once acceptable or protected by vegetation may no longer be stable

Is this a problem for me?

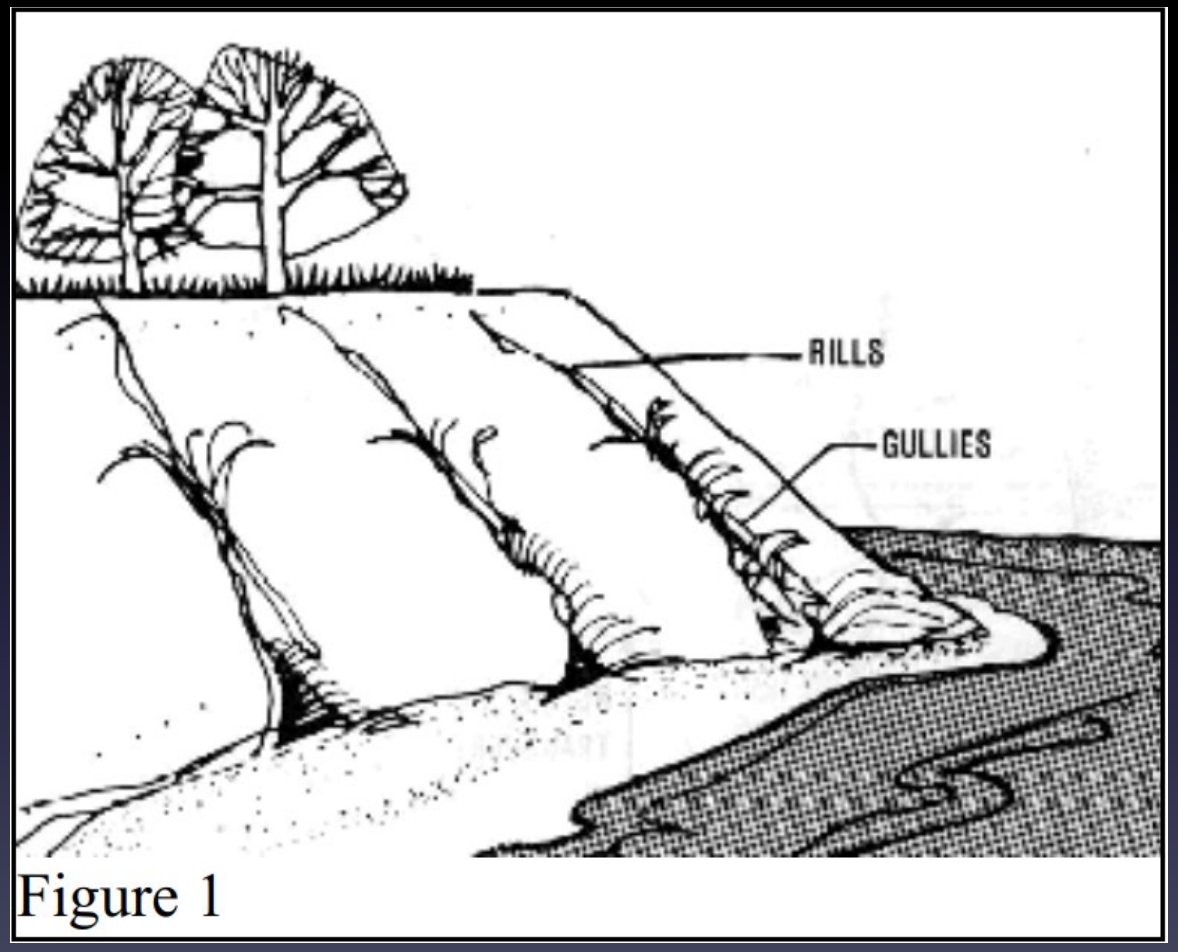
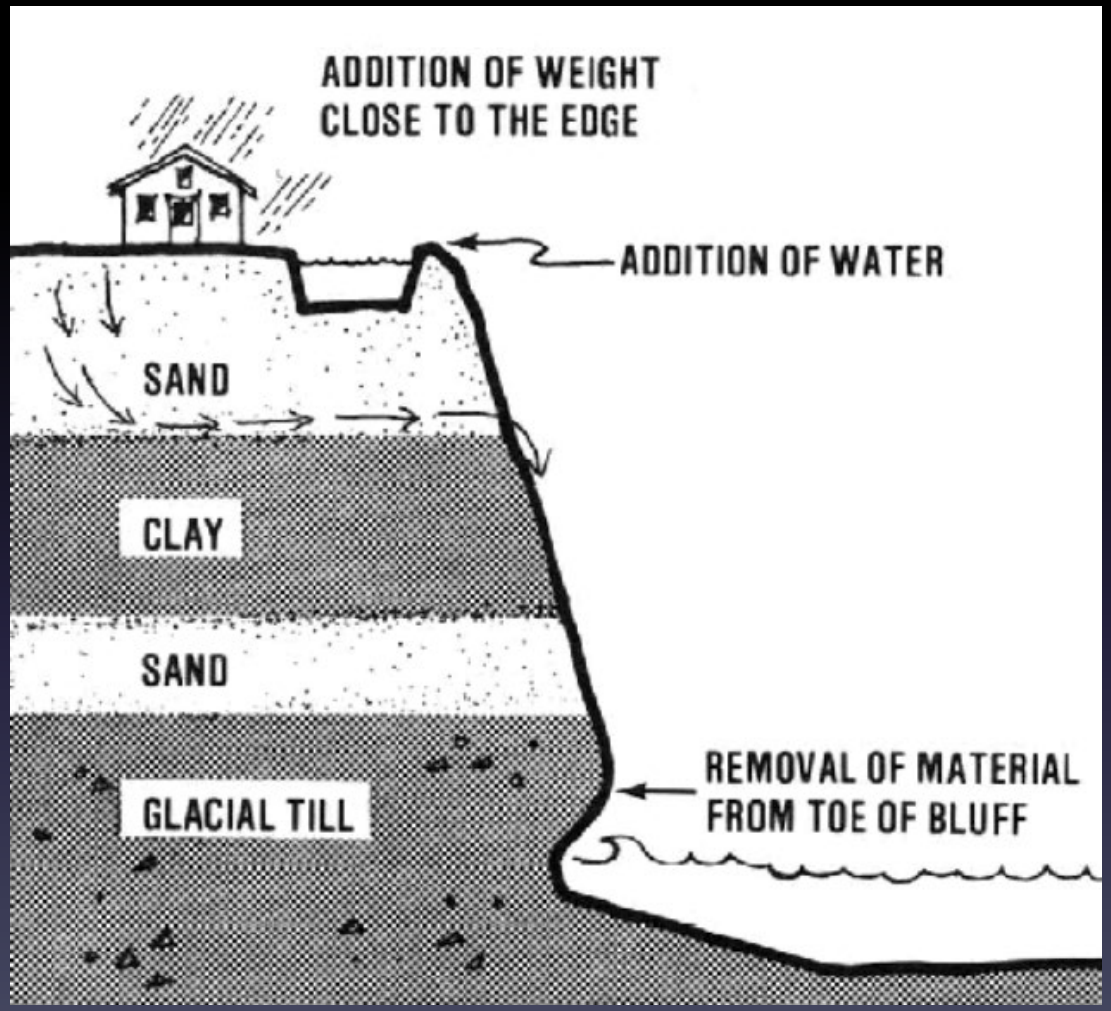


Figure 1

CONTROLLING COASTAL BLUFF GROUNDWATER – NY SEAGRANT https://seagrant.sunysb.edu/glcoastal/pdfs/BluffGroundwater.pdf

Signs that we have an issue



CONTROLLING COASTAL BLUFF GROUNDWATER – NY SEAGRANT https://seagrant.sunysb.edu/glcoastal/pdfs/BluffGroundwater.pdf

The 9 “*easy*” steps to Mitigation

~a protocol for decision making~

I have a resource concern, but what should I do?

1. Identify Problems and Opportunities
2. Determine Objectives
3. Inventory Resources
4. Analyze Resource Data
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions
8. Implement the Plan
9. Evaluate the Plan

3 Types of Mitigation

1. Avoidance – what are some appropriate and practicable alternatives with a consideration on impact of our actions

2. Minimization – managing the severity of the impact an action will have on the site.

3. Compensatory – managing impact by replacing or providing substitute resources for impacts that remain after avoidance and minimization measures have been applied. Appropriate and practicable actions to restore, establish, enhance, and/or preservation resource function.

3 Types of Mitigation

1. Avoidance – what are some appropriate and practicable alternatives with a consideration on impact of our actions

Open Space Preservation of the most impacted parcels

Coastal Retreat

Coordinated planning efforts between adjoining municipal jurisdictions

Curb the permittance of zoning variances

Buyout Incentives

Amending Local Zoning Laws

3 Types of Mitigation

on impact of our actions

2. Minimization – managing the severity of the impact an action will have on the site.

Improve the site to minimize the overall impact

Update laws and enforce damaging actions

Incentivize minimizing impact actions

Utilize technology to reduce the impact and monitor progress

3 Types of Mitigation

on impact of our actions

2. Minimization – managing the severity of the impact an action will have on the site.

3. Compensatory – managing impact with substitute resources for impacts that remain after avoidance and minimization measures have been applied.

NOT RECOMMENDED – Mitigation is not a resource swap!

Bluff Erosion: Water Erosion

What are the two main factors deteriorating bluffs on NS?

Seepage: groundwater infiltrates landward of the bluff, but discharges through a bluff face degrading stability

Runoff: surface water erodes sediment from the top and/or face of the bluff transporting sediments towards the toe

Bluff Erosion: Tops and Toes

BMPs to limit Seepage and Runoff impacts on coastal properties:

Convey runoff from of impervious surfaces away from bluff

Infiltrate runoff as far away from the bluff as feasible to avoid Seepage

Evaluate irrigation needs and limit damaging excess irrigation

Winterize irrigation systems to avoid leaks and broken pipes

Utilize smart irrigation controllers and rain sensors

Update zoning laws and enforce damaging actions such as non-permitted construction

Bluff Erosion: Tops and Toes

BMPs to limit Seepage and Runoff impacts on coastal properties:

Regrade surfaces landward, away from bluff

Utilize native flora species that do not require irrigation

Swap turf grasses for bunching grasses and rhizome plants

Plant diverse vegetation for stabilization, avoid new trees!!!

Control weeds and maintain dense vegetation

Incentivize conservation easement opportunities

Bluff Stabilization: Erosion Control

Rolled Erosion Control Products aka “RECP”, is a man-made product that blankets a well groomed soil and provides:

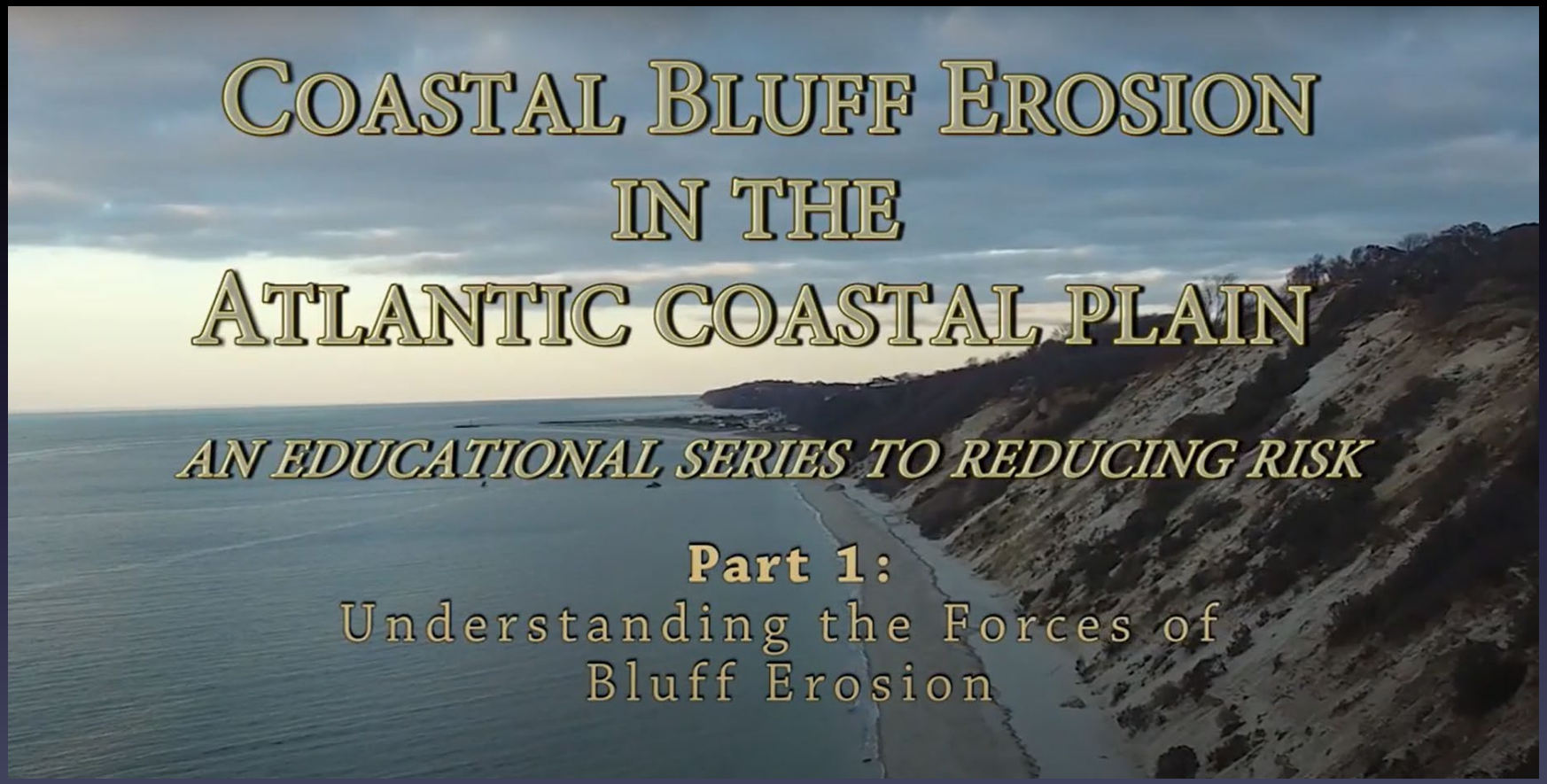
- Soil stability
- Reduced temperature fluctuations
- A medium for new plants
- Protects against weatherization of bluff face
- Biodegradable long term degradation
- Limits wildlife trespassing
- Provides good seed to soil contact
- Holds moisture
- Relatively inexpensive
- Jute, coconut, hemp, synthetic materials

Bluff Stabilization: Vegetative Control

Just a few of the recommended plants that can be helpful to stabilize bluffs on NS properties

- American Beachgrass
- Big Bluestem
- Partridge Pea
- Sheep Fescue
- Coastal Panicgrass
- Cordgrass
- Northern Bayberry
- Beach Plum
- Prickly Pear
- Evening Primrose
- Seaside Goldenrod
- Rudbeckia

Want more information?



Check out the Suffolk SWCD's YouTube page for video

Suffolk County
Soil & Water Conservation District

Corey Humphrey	District Manager
Ann Marie Calabro	Agronomist
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TBD	Environmental Planner
TBD	Environmental Planner
Susan Odell-Pepe	Administrator I

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Thank You!

Corey Humphrey
SuffolkSWCD.org

NEW YORK STATE | Department of Environmental Conservation

Permitting a Living Shoreline

DEC Requirements and Strategies for Success

Alexa Fournier

Restoration Planning and Policy Manager

NYSDEC Division of Marine Resources

alexa.fournier@dec.ny.gov

May 10, 2023

What are Living Shorelines?

Shoreline techniques that incorporate natural living features alone or in combination with structural components such as rock, wood, fiber rolls, bagged shell, and concrete shellfish substrate.

Demonstration site in Southold, installed by Cornell Cooperative Extension with support from Peconic Estuary Partnership, Town of Southold, & Suffolk County

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Applicability

Living shoreline installations are best suited to low or moderate energy, sheltered areas of the Marine District

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Living Shoreline Goals:

- Control or reduce shoreline erosion while maintaining benefits comparable to the natural shoreline such as allowing for natural sediment movement
- Use the minimum number of structural components necessary for hybrid techniques to obtain project goals
- Improve, restore, or maintain the connection between the upland and water habitats
- Incorporate habitat enhancement and natural elements ex: native re-vegetation, establishment of new vegetation

NYS Living Shorelines Guidance Document

- Released in 2017
- Encourages appropriate use of nature-based shoreline protections
- Provides info on types of LS, the permitting process, siting and monitoring considerations

https://www.dec.ny.gov/docs/fish_marine_pdf/dmrlivingshoreguide.pdf

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Permitting Standards (Wetlands and Waters) 6 NYCRR § 661, 6 NYCRR § 608

- Compatible with the policy to preserve and protect tidal wetlands and that the project will not cause unreasonable, uncontrolled, or unnecessary damage to the natural resources of the State.
- Compatible with and will not endanger the public health, safety, and/or welfare.
- Reasonable and necessary.
- Complies with the appropriate use guidelines. eg: if a proposed regulated activity is a presumed incompatible use, must demonstrate that the proposed activity will be compatible preservation, protection, and enhancement of the present and potential values of tidal wetlands.

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Evaluate the Standards

Suitability to overall conditions - fetch, soils, erosion, adjacent conditions and habitat.

Avoid Impacts - ecological, physical, recreational uses- how can living shorelines enhance function.

-Designed to provide erosion control while enhancing the area involved: water quality, habitat, adaptability (SLR) and sand movement.

Public health and safety - How will project effect adjacent landowners?

sediment movement, shellfish?, navigability, access.

Reasonableness - Is there an erosion problem, alternatives analysis.

CLCPA - Consider factors related to climate change

Evaluate the Standards, Continued

Some projects will be PIP (Presumptively Incompatible – Prohibited)

Not all fill is created equal.

Provide alternative consideration.

Is project reasonable? Is there erosion? What is at risk?

Does project type fit the need?

Will the project likely provide ecological uplift?

When in doubt—consider a Pilot Project!

Small scale = less risk

Proper Siting Considerations

Understand all erosive forces and rates - wave characteristics, boat wakes, runoff, ice.

Habitat- plants animals, water quality, sunlight

Other physical info:

- tidal range
- datums
- SLR projections
- existing site conditions: slope, soil type

Consider Factors Related to Climate Change

Higher mean and spring tide levels,

Higher storm surges and larger areas of inundation,

Extreme precipitation rates and greater storm water runoff,

Greater frequency and intensity of storms,

Wetland migration inland, Changes in salinity and migration of the salt wedge, and permanent inundation of coastal properties.

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Adaptive Management: Maintenance, Monitoring and Adjusting As Needed

Crucial to Successful establishment of a living shoreline

-plant survival or protection

-removal of invasive species/debris

-opening channels to drain ponding water

-measuring erosion and accretion patterns

-replacing / removing sediment

-assuring structural materials stay in place

e.g. replacing stakes, moving fiber rolls, adding larger rock

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Tips for Success

1. Engage with regulators early

2. Choose your design carefully

3. Build a strong case for your selected design

4. Be Flexible! Something will change—that's OK.

Resources for the applicant:

- Pre application **meetings**
- Division of Environmental Permits- **Coordinate** with other state agencies and municipalities
- **Joint applications** for permits (DEC and USACE) http://www.dec.ny.gov/permits/6222.html
- Application **checklists**
- **Uniform Procedures Act-** Laws speak to fairness in review procedures and time frames for review. 15 day review, 45-90 days for decisions.
- Regulated area **maps**
- One stop waterfront permit planner https://waterfrontnavigator.nyc/

  (NYC, DOS, DEC, EDC)

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Other Resources

Living Shoreline Techniques in the Marine District of New York State - DEC guidance doc, released 2017

https://www.dec.ny.gov/docs/fish_marine_pdf/dmrlivingshoreguide.pdf

Using Natural Measures to Reduce the Risk of Flooding and Erosion - 2020 guidance doc from DOS/DEC

https://www.dec.ny.gov/docs/administration_pdf/crranaturalmeasuresgndc.pdf

Living Shorelines: Background, Benefits, and Use

http://opdgig.dos.ny.gov/#/storyTemplate/11/1/1

Model Local Laws to Increase Resilience – Guidance from DOS

https://www.dos.ny.gov/opd/programs/resilience/index.html

Thank You!

Contact Info:
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alexa.fournier@dec.ny.gov

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Maidstone Landing Bluff Erosion & Outdoor Classroom Project

Tom Mohrman

May 10, 2023

Threats: Driving on the beach

Threats:
Beach Parties

Threats: Climbing on the bluff

Adopt a Park Program

Proper Signage & Enforcement

Educating Permit Holders

MORE STUFF

- The operation of **trikes, motorbikes, minibikes** or any other two-, three- or four-wheeled fuel-powered vehicle and **all-terrain vehicles** (ATVs) is prohibited on any beach within the Town of Riverhead.
- All vehicles operating on the beach must be fully **insured** (including liability insurance).
- No motor vehicles may be operated on the shores of the **Peconic Bay** beaches at any time.
- If you see a **seal, whale, porpoise, dolphin or sea turtle** in distress call the New York Marine Rescue Center 24-hour hotline at (631) 369-9829. It is important to remember that all of these animals are federally protected under the Marine Mammal Protection Act and the Endangered Species Act, and you must maintain a distance of at least 50 meters (150 feet) away at all times.
- Be mindful of beach grass and its delicate root system. Any damage to the root system (by foot or vehicular traffic) will weaken and destabilize the bluff -- which will lead to erosion. **Stay off the grass - Stay off the bluff - Fight Erosion.**

VIOLATIONS OF BEACH DRIVING REGULATIONS CAN RESULT IN FINES OF $500 OR MORE

DRIVING ON THE BEACH

Do it Safely
Do it Responsibly
Do it Legally

TOWN OF RIVERHEAD

THE TEN RULES FOR DRIVING ON THE BEACH

I ALWAYS HAVE AND DISPLAY A PERMIT
This one is pretty obvious -- and if you've got this pamphlet you probably already have a permit. All the same, it is worth emphasizing...get a 4x4 permit. Remember, this is different than the Beach Parking permit and only available to Riverhead Residents. And once you have the permit...display it appropriately and prominently on any driver's side window.

II OBEY ACCESS RULES
The 4x4 permit does not give you the right to drive on any Riverhead beach at any time. Almost all Riverhead beaches have rules restricting vehicle access based on the time of year and the time of day. Be sure to check the signs where restrictions are posted when using any beach access point.

III OBEY THE SPEED LIMIT
The beach is beautiful...why are you rushing? The speed limit on all beaches is 10 MPH. It is simple — don't go any faster. And be smart and courteous when others are using the beach — even if that means going slower than 10 MPH.

IV OBEY GENERAL BEACH RULES
All of the regular beach rules apply to you. So no open fires, no off-leash pets, no littering, etc.

V HAVE AN APPROPRIATE VEHICLE
You need a real 4x4 high ground clearance vehicle to drive on the beach. And remember to air down and use low gear when appropriate. So don't try driving on the beach with your new Corvette or a Checker Cab. **Note that All Wheel Drive is not the same thing as 4WD** and is not a good idea on the beach. It can cost you THOUSANDS of dollars to get towed off the beach (plus any repairs). Don't mess around.

VI HAVE APPROPRIATE EQUIPMENT
Good things to have include: a tow rope, an air pressure gauge, a tire inflation device, jack with board, inflated spare tire, shovel, fire extinguisher, first aid kit and a flashlight. Planning on a marathon fishing session? Bring a portable toilet!

VII RESPECT THE ENVIRONMENT
The beach is a precious place and there are those who think that people should just stay off it. We don't agree, but the only way to keep it healthy is if we all respect the environment. That means that we should all clean up after ourselves ("pack out what you pack in"), obey all fishing regulations, and in general be a good environmental steward. 4x4 drivers should know this more than anyone. So leave the beach cleaner than you found it. And DON'T PARK ON SEA GRASS (or any other vegetation).

VIII RESPECT PRIVATE PROPERTY
In many places in Riverhead people live right at the beach (or up on the bluffs above the beach). Be respectful of these folks. Don't make noise or otherwise be a nuisance. Remember that in most places the land above the mean high water mark is private property. That means you shouldn't be driving above the high water mark without the homeowner's permission. **Stay far away from the base of the bluff** and most people will be happy. Help keep the peace!

IX BE SAFE
A good rule is don't do anything stupid. Don't drive fast, don't drive drunk, don't drive an inappropriate vehicle, etc.

X HAVE FUN
Yeah, we want you to obey the rules. But we also want you to have fun. So get out there and enjoy the beach.

FOLLOW THESE SIMPLE RULES AND HELP MAINTAIN THE RIVERHEAD TRADITION OF FUN IN THE SAND

Riverhead Charter School helping clean beach, erect snow fencing and plant beachgrass

Finished Project

American Beach Grass Taking Root

Beach Grass on Toe of Bluff

Relic Beach Clean Up Stations at 75 Beaches in Suffolk County

Strategies to Address Coastal Erosion – Q&A

Kathleen Fallon
Coastal Hazards and Processes Specialist, New York Sea Grant

Corey Humphrey
District Manager, Suffolk County Soil and Water Conservation District

Alexa Fournier
Restoration Planning and Policy Manager, Division of Marine Resources, NYSDEC

Tom Mohrman
Maidstone Landing Association/Riverhead Beach Committee

Coastal Erosion Hazard Areas, Local Codes & Policy

Eric Star & Ryan Porciello
Region1 CEHA Program, NYSDEC

Elizabeth Hornstein
SRC Extension Professional, New York Sea Grant

Barbara Kendall
Coastal Resources Specialist 3, New York State Department of State

Mark Lowery
Assistant Director, Office of Climate Change, NYSDEC

NEW YORK
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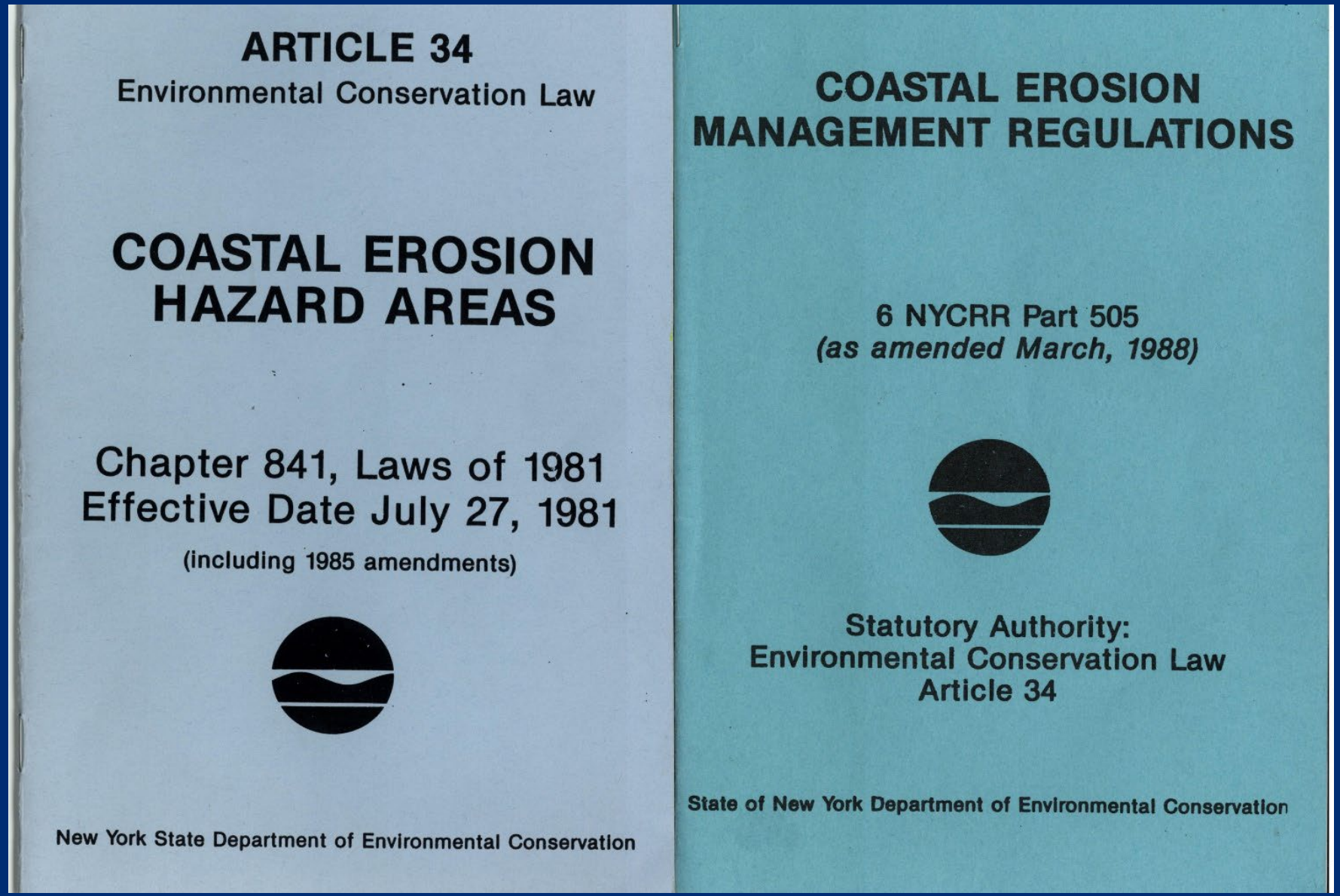
Department of
Environmental
Conservation

Coastal Erosion Hazard Areas (CEHA)

Ryan Porciello
Environmental Program Specialist
NYSDEC - Division of Water
Stony Brook

Permits Required for Shoreline Work

- NYSDEC
  - Article 34 – Coastal Erosion Hazard Areas
  - Article 25 – Tidal Wetlands
- US Army Corps. of Engineers (USACE)
  - Required if work extends below Mean High Water (MHW)
- Joint Application Form (JAF) covers all of the above
- *Permits may also be required at the Local Town/Village level in some cases*



ECL Article 34

Title 6 of New York Codes, Rules, and Regulations (NYCRR) Part 505

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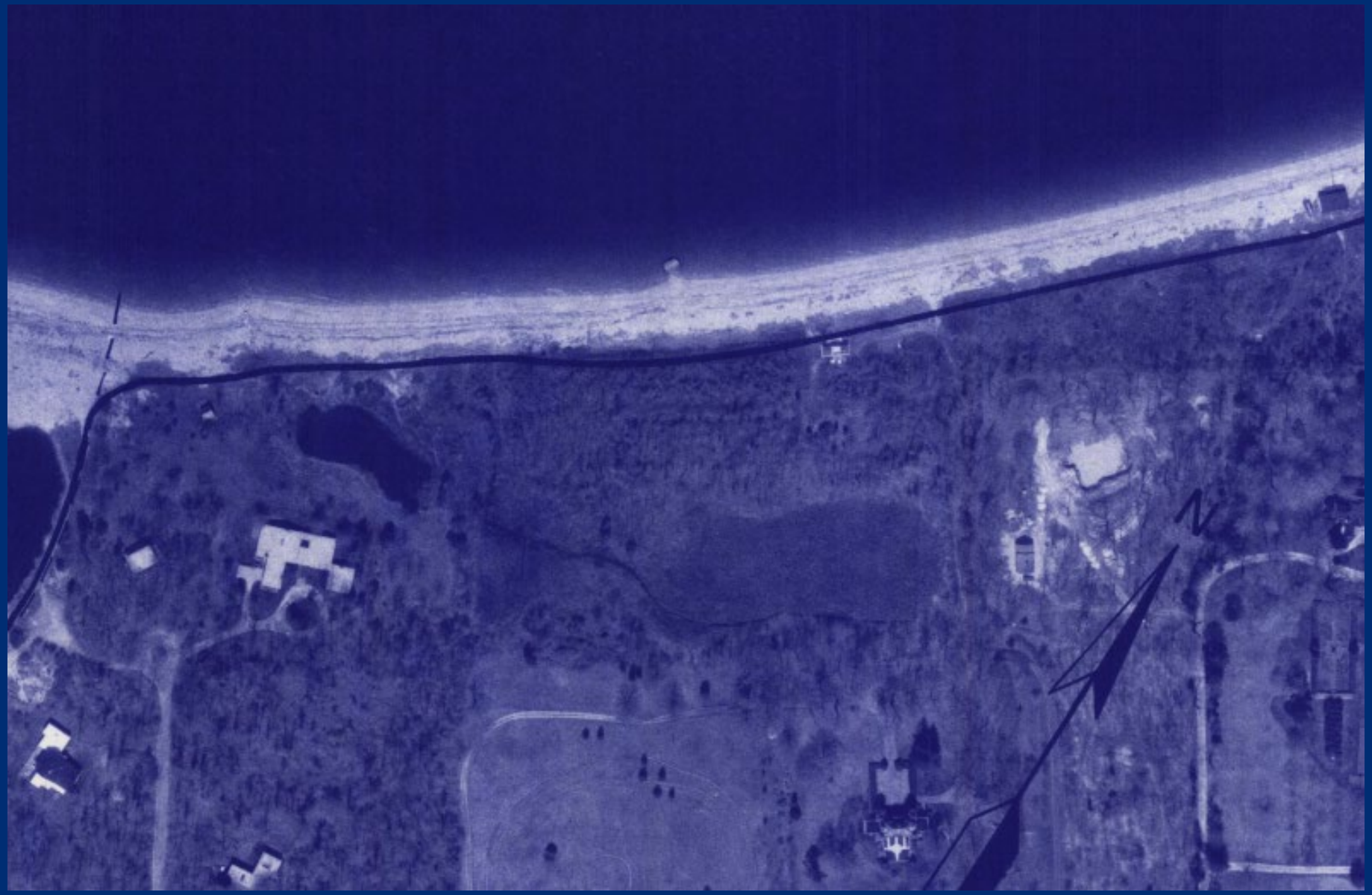

SAMPLE CEHA MAP

CEHA Line is mapped 25’ landward of the receding edge of bluff

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Department of Environmental Conservation

CEHA – Purpose and Intent

- To promote and preserve the Natural Protective Features (NPFs), such as dunes, bluffs, and beaches of coastal areas.
- Minimize or prevent damage or destruction to NPFs, other natural resources, man-made property, and to protect human life.
- Site new construction or placement of structures a safe distance from active erosion and storm impacts.
- Ensure that erosion control structures are properly built.

CEHA Program Administration

- **Local Delegation:** Local Governments may regulate CEHA within their jurisdictions by adopting a local program that has been certified by DEC
- Approximately 70% of Long Island coastal communities have a DEC-certified local program. NYSDEC administers CEHA in the remaining communities
- NYSDEC monitors the local administration of CEHA by requiring annual reports and conducting periodic audits of the local programs

Activities Within CEHA – 6 NYCRR Part 505.8

- Exempt Activities: No CEHA permit needed. Normal maintenance, native plantings, private elevated walkways, etc…
- Prohibited Activities: All development is prohibited unless *specifically* listed in Part 505.8
- Regulated Activities: CEHA permit required. Construction or modification of structures, erosion protection structures, etc…
  - Must meet permit issuance standards. Permit not guaranteed

Erosion Protection Structures

- Every site/application extremely unique
- Applicants must first articulate issue they are trying to solve
- Hierarchy of solutions from “do nothing” to seawalls/steel bulkheads
- Recession Analysis
- Alternatives Analysis
- Must document real need for measures beyond “soft” or “nature-based”

Erosion Protection Structures

- Must have a long-term maintenance program which includes specifications for normal maintenance and periodic replacement of materials
- All materials used must be durable and capable of withstanding inundation, wave impacts, storm conditions
- Must not be likely to cause an increase in erosion at the development site or other locations
- Must minimize, and if possible prevent, adverse effects to NPFs and other natural resources or habitats

Contact Information

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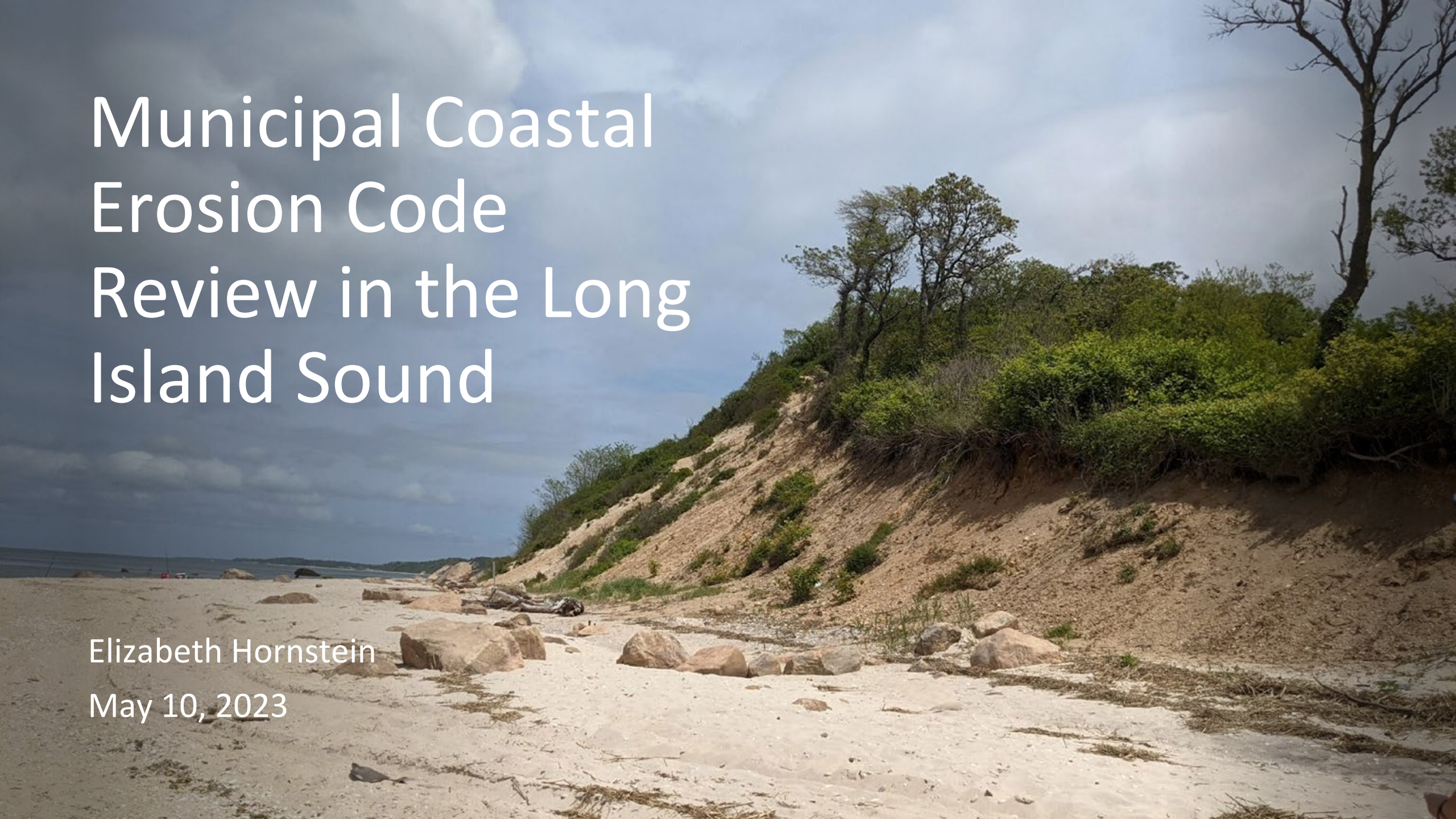

Municipal Coastal Erosion Code Review in the Long Island Sound

Elizabeth Hornstein

May 10, 2023

Project Overview

- Worked with a Law & Policy Fellow: Angelica Austrich, J.D. Candidate ‘23, City University of New York School of Law
- Reviewed current municipal Coastal Erosion Hazard Areas code and compared to NYSDOS Model Local Laws for Resilience
  - 2 CEHA code options in the NYSDOS Model Local Laws for Resilience

https://dos.ny.gov/model-local-laws-increase-resilience

Key Findings

- 4/5 Towns and 5/11 Villages are CEHA Certified Communities

- Most CEHA certified municipalities use the basic CEHA code provided by NYS
  - Regulates activities that can occur in mapped nearshore areas, beaches, dunes and bluffs
  - Restrictions for coastal erosion protection structures
- Some municipalities include alterations to vegetation in their regulated activities
  - CEHA Model Law Option 2, based on Town of Brookhaven Law

Town of Southold Code Additions

- *“In the event that the Board determines that an engineer's report is necessary to assist it in its determination, then the Board shall secure an engineer to evaluate the impact of the application upon the rate of coastal erosion. The fee necessarily attending to such engineer's services shall be borne by the applicant and shall not exceed $2,500.”*
- Setbacks for bluffs: *Residence, driveways, cesspools and swimming pool but must be setback 100ft from top of bluff*

Head of the Harbor – Bluff Restrictions

A. The impact upon a bluff from site disturbance shall be minimized by siting all structures at a minimum distance from the landward edge of the bluff to be determined by the erosional rate of the bluff and the amount of land required for the structure to remain unaffected for a period of 50 years. In no case shall any structure, including swimming pools, be located closer than 100 feet from the landward edge of a bluff.

B. There shall be no land disturbance within the setback zone, including removal of vegetation, alteration of grade, alteration of surface soils, placement of temporary structures or similar activities.

C. Natural vegetation shall be retained to stabilize the bluff face and to disperse stormwater.

D. Stormwater from developed parts of the property shall be directed in such a manner that it does not flow across the surface of the land to the bluff face. No natural slope of land away from the bluff face shall be altered, and no overland flow of stormwater shall be allowed to reach the bluff face of an adjacent property.

E. Stormwater shall not be recharged in a quantity or a location from which surface runoff or subsurface water or groundwater flow will undermine the bluff face.

F. Impermeable paving shall be minimized, with trap rock and native gravel required for driveways, and for other outdoor surfaces, such suitable permeable paving as brick or flagstone on sand.

G. Roads and driveways shall be sited in such a manner that no stormwater from a road or driveway will reach the bluff face or the beach below.

H. Where ground cover has been disturbed, the area within 100 feet of the bluff face shall be replanted with native vegetation suitable for the location.

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Using Model Local Laws to Increase Resilience

Long Island Coastal Resilience Forums

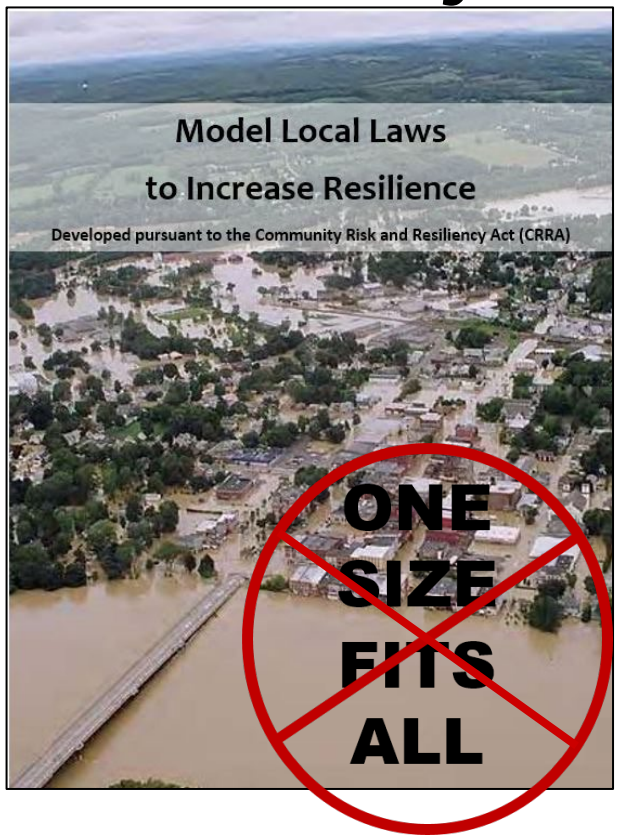
An Office of the New York Department of State

Barbara Kendall, Coastal Resources Specialist

May 2023

Model Local Laws: Local Implementation of Community Risk and Resiliency Act (2014)

as amended by the Climate Leadership and Community Protection Act (2019)



Models created from:

- Existing model laws
- Good examples of current local laws
- Combining sections from various laws using professional expertise

Adapt for local use

- Plug in sections to update existing laws *OR*
- Use entire model law for topics not currently addressed

CHAPTERS

1 Basic Land Use Tools for Resiliency

2 Wetland and Watercourse Protection Measures

3 Coastal Shoreline Protection Measures

4 Management of Floodplain Development

5 Stormwater Control Measures

Go to: https://dos.ny.gov/model-local-laws-increase-resilience

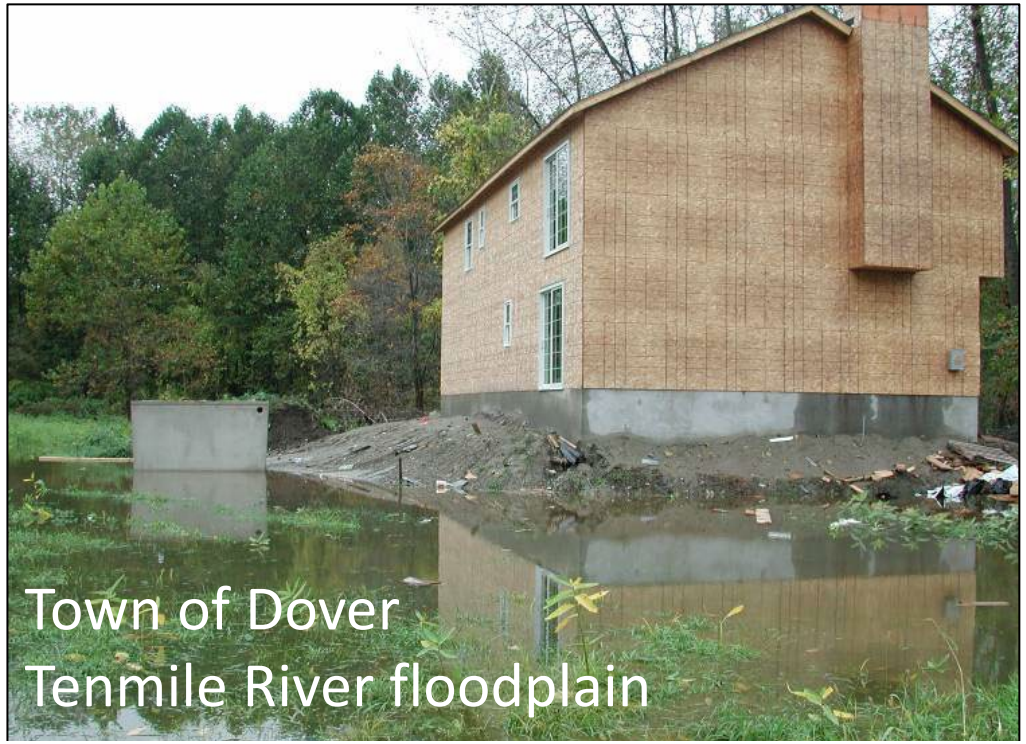
May 2023

9 categories of local land use tools from: Climate Adaptation Toolbox - Peconic Estuary Program Climate Vulnerability Assessment and Action Plan 2019

1. Incorporate wetland migration and sensitive critical natural areas into zoning	MLLS SECTION
Minimum Lot Size	1.2.1
Maximum lot coverage; Nonconformance of impervious surface coverage;	1.2.3 1.3.2
Wetland Conservation Overlay District	2.1.3
Maximum Disturbance Area (T. Southampton)	3.3.2
Limit Development in 100-year or 500-year Floodplain	4.1

1. Incorporate wetland migration areas and sensitive critical natural areas into zoning	MLLS SECTION
Setbacks	1.2.4
Simple Wetland Setbacks and Wetlands Buffer	2.1.1 2.1.2
Simple Watercourse Setbacks	2.2.1
Stream-related zoning standards	2.2.2
Coastal Vegetative Buffers	3.3.1

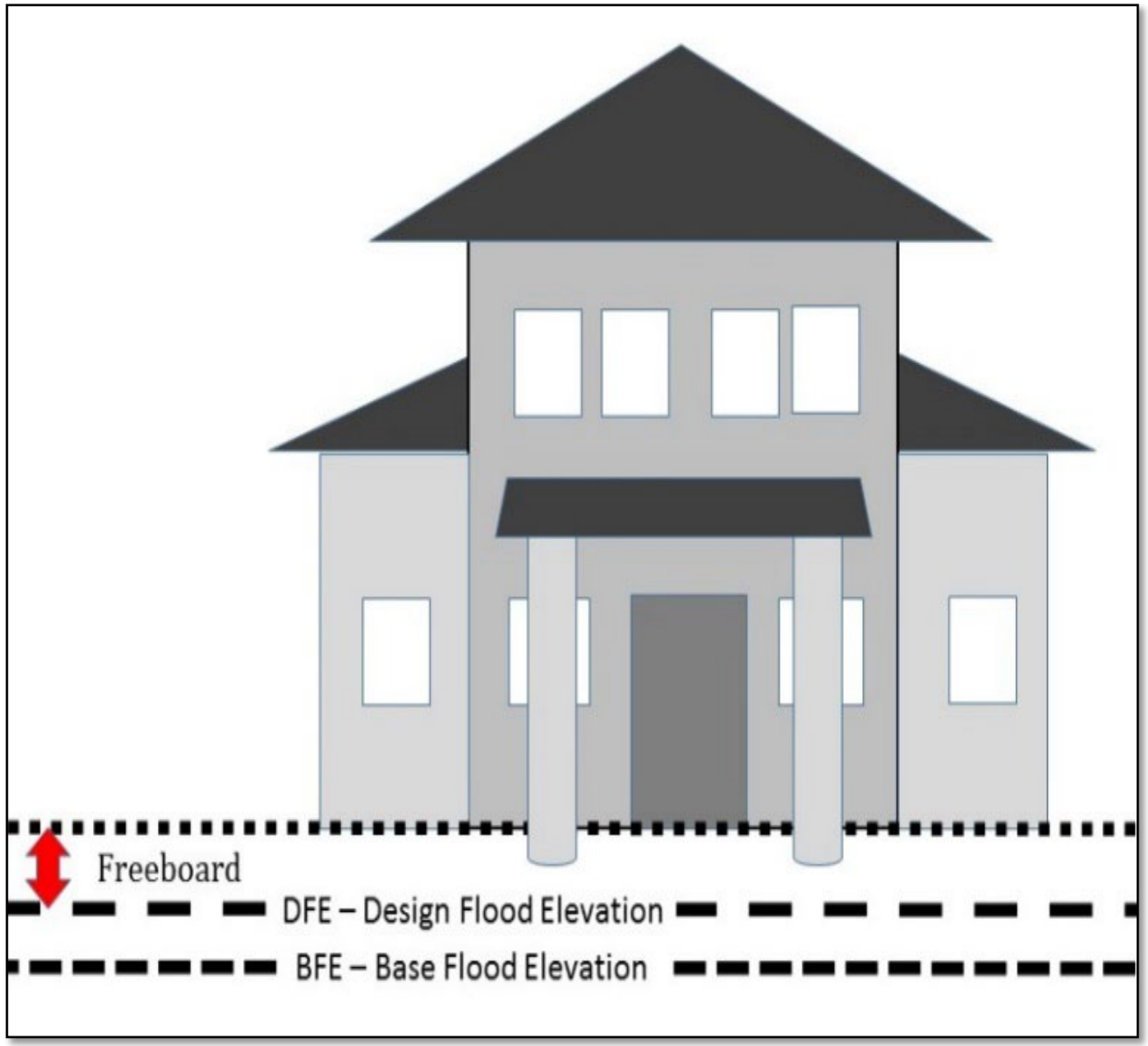
2. Create/Amend Overlay Districts	MLLs SECTION
Waterfront Overlay District	1.1.2
Waterfront Bluff Overlay District (Coordinate w/CEHA)	1.1.3
Watercourse Overlay District	2.2.3
Shoreline Protection Outside of Coastal Erosion Hazard Areas	3.1.3



Models from NYS DEC – ways to amend the standard FEMA Flood Damage Prevention Law to incorporate these provisions

3. Impose More Stringent Building Regulations	MLLs SECTION
Sale of land in regulated floodplain must disclose environmental constraints	1.5.7
Require dry land access to new buildings	4.3.8
Establish design flood elevation to reflect flood levels higher than shown on FIRMS and capture lands that flood adjacent to 100-yr floodplains	4.3.2

Replace BFE with Design Flood Elevation (DFE)



- NYS Uniform Code required freeboard (2 ft.) based on BFE (100 yr FP)
- DFE can be higher than BFE

Examples of basis for DFE:

- 500-yr flood elevation
- Extra height added to BFE
- Historical deficiencies
- Climate-informed science (ex. future conditions hydrology)

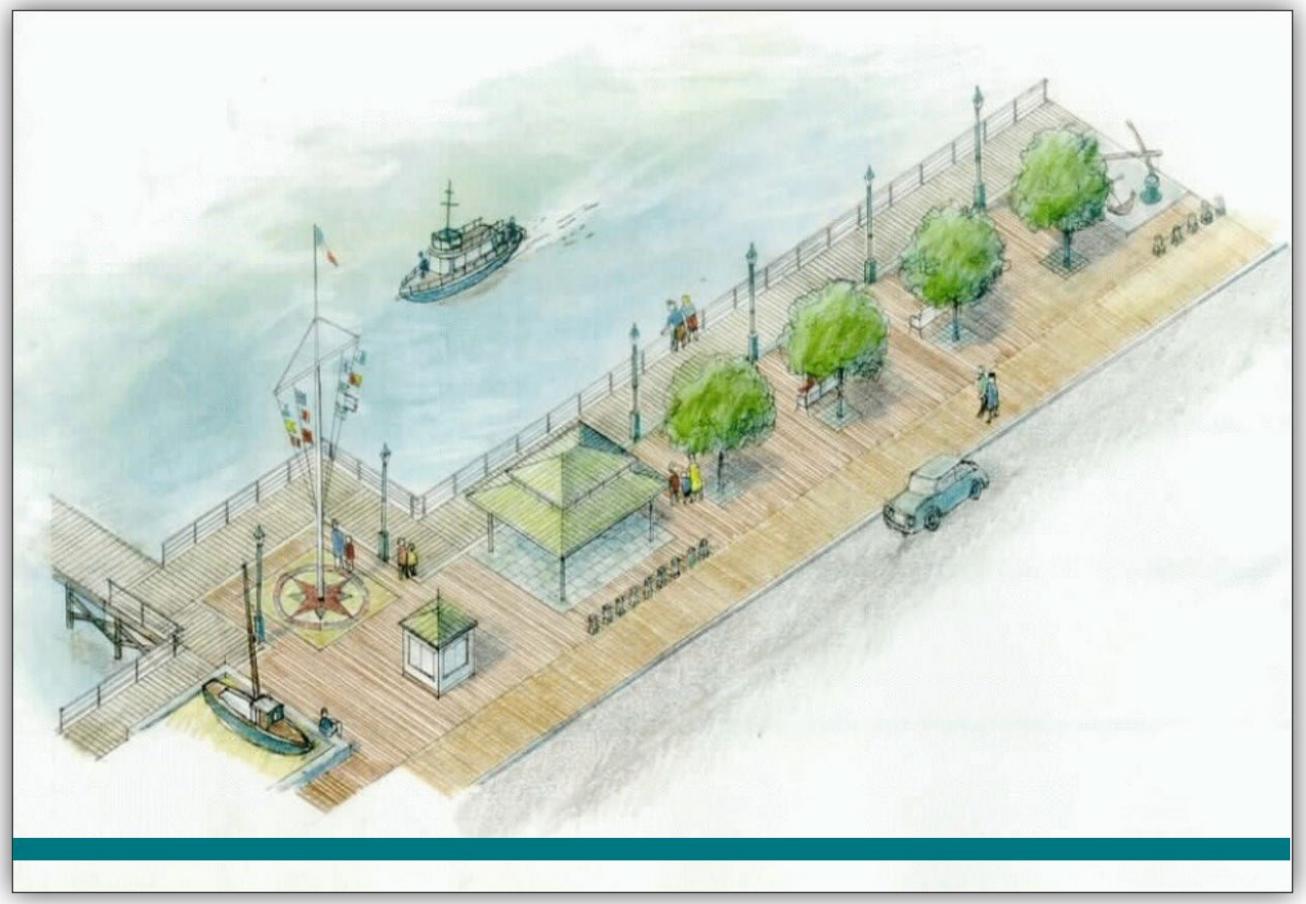
3. Impose More Stringent Building Regulations	MLLs SECTION
Prohibit new critical facilities in flood zones (amend flood damage prevention law)	4.3.6
Design requirements for elevated buildings	1.4.4.1
Non-conversion agreements: under elevated buildings	1.4.4.2

NYSDEC photo

4. Increase Coastal Setbacks	MLLs SECTION
Fixed mandatory setback (Brookhaven)	3.1.1
Erosion-based setback	3.2.3
Tiered Setback - Setback distance increases with lot size (East Hampton)	3.2.2

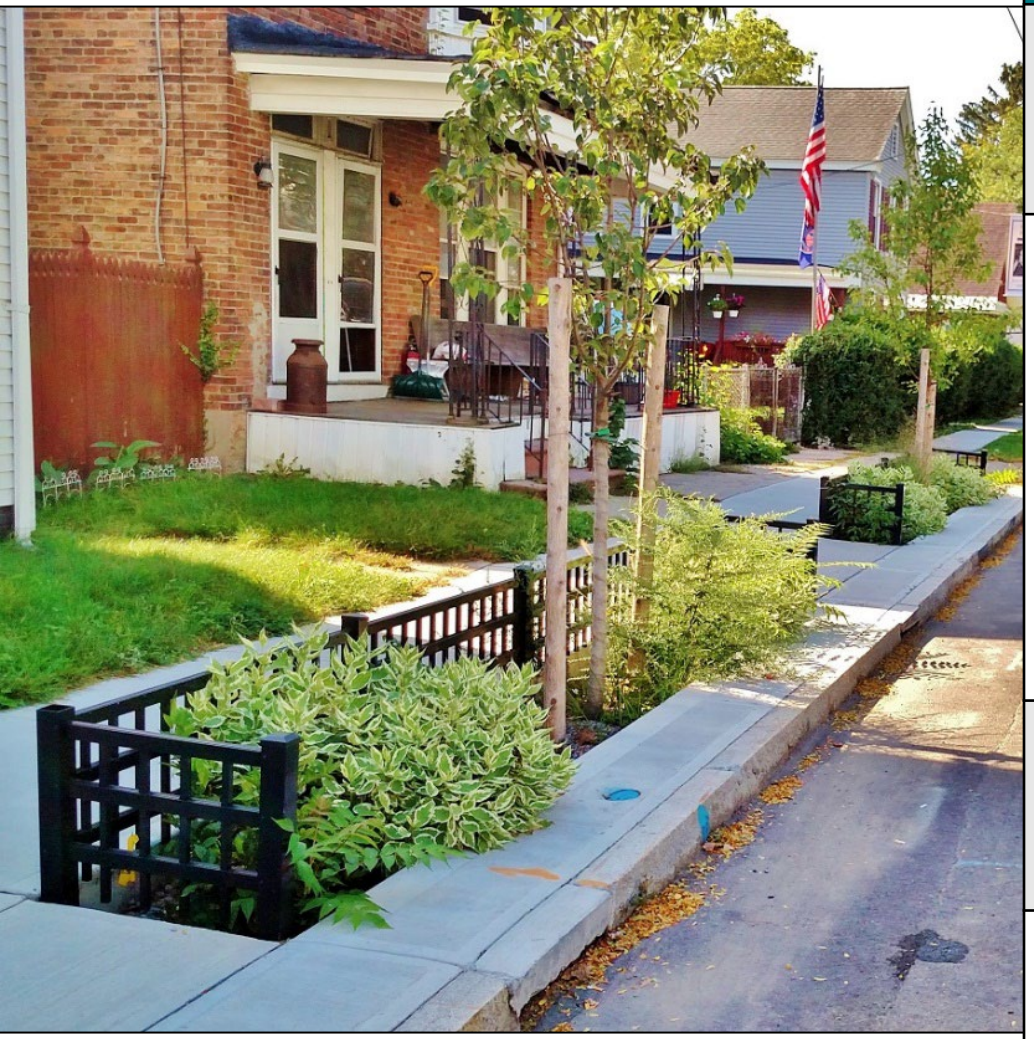
Example Cluster Development
Randall Arendt

5. Subdivision and Open Space Development	MLLs SECTION
Cluster, open space & conservation development	1.5.6
Subdivision in flood-prone areas; Safe building envelopes	1.5.1 1.5.2
Drainage improvements	1.5.3
Lot yield calculations	1.5.5
Design Standards to Protect Natural Features; Subdivision Woodlands	1.5.4.1 1.5.4.2



6. Site Plan Controls and Special Use Permits	MLLs SECTION
Encroachment on Drainageways	1.6.2
Wetland Conservation Overlay District	2.1.3
Stormwater Site Design Plans	5.4
Many of the other model local laws have provisions for site plan review and special use permits.	

7. Vegetation Protection Ordinance	SECTION
Simple wetland setbacks	2.1.1
Wetlands Buffer	2.1.2
Local Freshwater Wetland Law (Adapted from T. Brookhaven and T. Southampton)	2.1.4
Watercourse Overlay District; Local Watercourse Law	2.2.3 2.2.4
3.3.1 Coastal Vegetative Buffers; 3.3.2 Maximum Disturbance Area (T. Southampton)	3.3.1 3.3.2



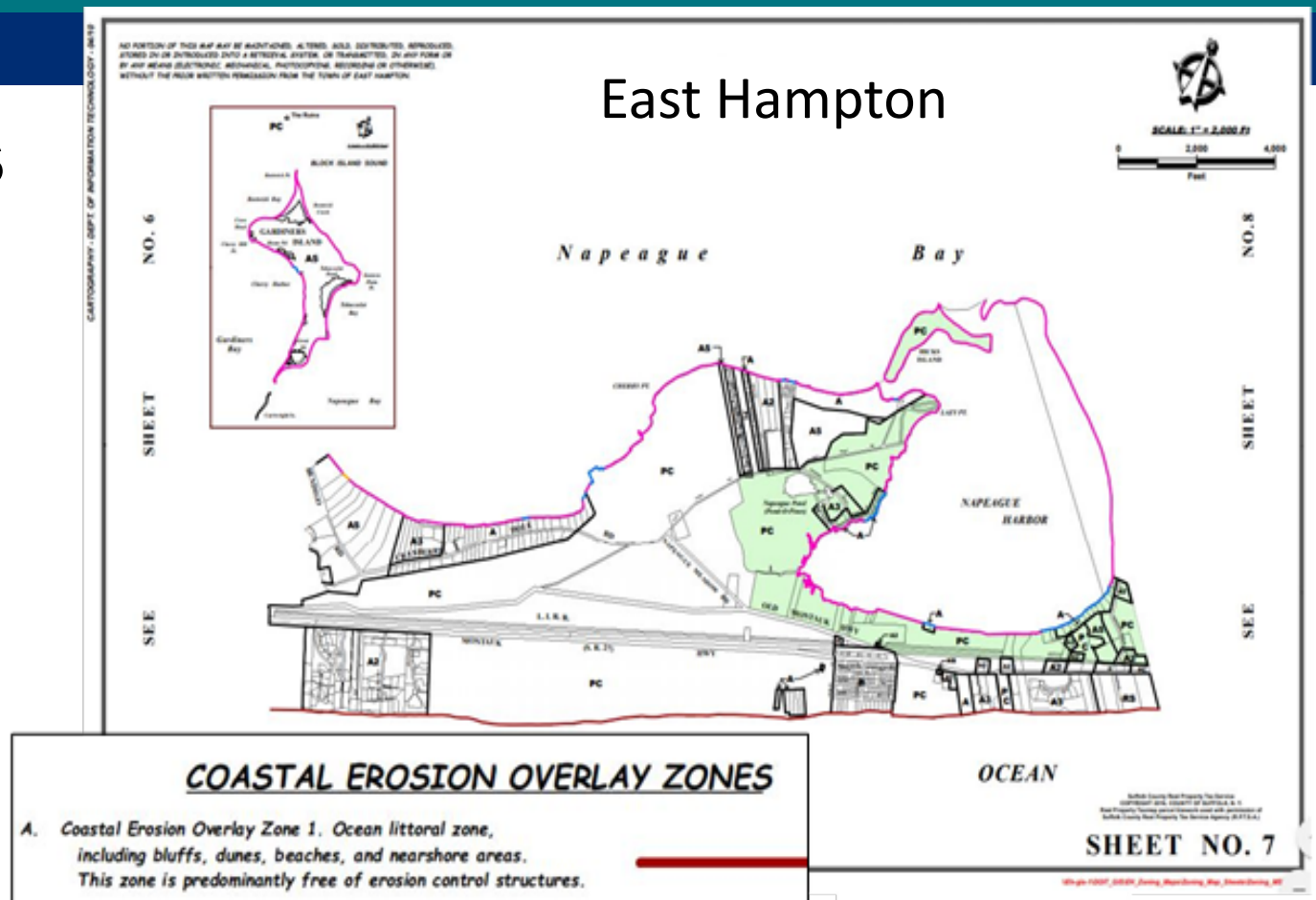
8. Green Infrastructure and Stormwater Management	MLLs SECTION
Prohibit encroachments on drainage ways (e.g. fences)	1.6.2
DEC Model Stormwater Management and Erosion and Sediment Control Laws – Two: 1. Impaired waters 2. Community resiliency	 5.4.1 5.4.2
Steep slope and erosion control performance standards	5.1.2
Stormwater utility program to fund stormwater management	5.5

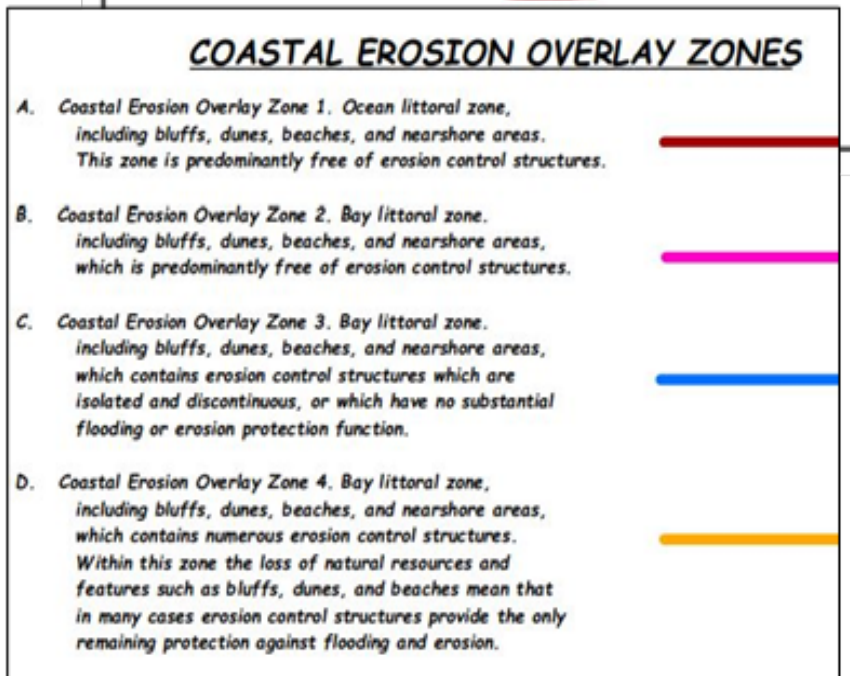
NYSDEC photo

9. Prohibit New Shoreline Structures or Replacement	MLLs SECTION
Shoreline Management Alternatives • Non-structural and Natural features • Nature-based measures • Structural measures	3.4
Special Use Permit Alternatives Analysis	3.4.1
Shoreline reach analysis to designate overlay zones (next slide)	3.4.2

Shoreline Reach Analysis

- ❑ Study shoreline characteristics
- ❑ Establish overlay zones
- ❑ Use to guide shoreline management decisions
  - – No erosion control structures
  - – Permit required to alter existing structures
  - – Limited repair of existing structures





Example of Erosion Overlay Zones on Sheet 7 of the Town of East Hampton Zoning Map.

NYS Shoreline Monitoring Framework

- Released 2018-Phase I Updated 2022-Phase II
- Measure resilience performance of shoreline features: *Ecological, Structural/Hazard Mitigation, Socio-Economic*
- 25 past/active sites across the state monitored by DOS and partners
- ArcGIS online portal for data

Do you know of a shoreline site that should be monitored?

Phase I website: https://dos.ny.gov/statewide-shoreline-monitoring-framework

Contact: Carolyn.fraioli@dos.ny.gov

Office of Planning, Development & Community Infrastructure

www.dos.ny.gov/opd

(518)474-6000

Division of Local Government Services

www.dos.ny.gov/LG

(518)473-3355

Questions & Discussion

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6 NYCRR Part 490
Projected Sea-level Rise

2023 Update

Community Risk and Resiliency Act (2014)

as amended by the Climate Leadership and Community Protection Act (2019)

- **Requires sea-level rise projections (DEC; adopted 2017)**
- Requires consideration of climate change by applicants for major permits and in DEC facility-siting regulations
- Requires model local laws to increase resilience (DOS, DEC; released 2019)
- Requires applicants demonstrate consideration of sea-level rise, storm surge and flooding in specified funding programs
- Adds mitigation of sea-level rise, storm surge and flooding to Smart Growth Public Infrastructure Policy Act criteria
- Authorizes DEC require mitigation of significant climate risks to any natural resource, public infrastructure or services, disadvantaged communities, or private property not owned by the applicant.
- Requires guidance on implementation (DEC, DOS)
- Requires guidance on use of natural resilience measures to reduce risk (DEC, DOS)

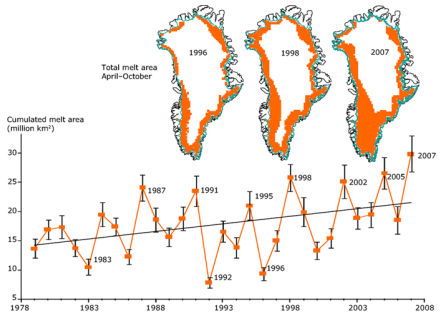
http://www.dec.ny.gov/energy/102559.html

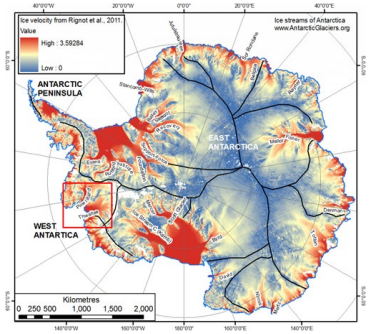
2017 Sea-level Rise Projection Rulemaking

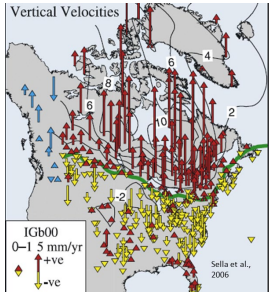
Downscaled from IPCC CMIP5 models

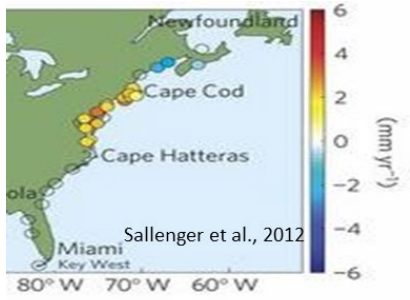
RCPs 4.5, 8.5

Projection outputs reported as percentiles



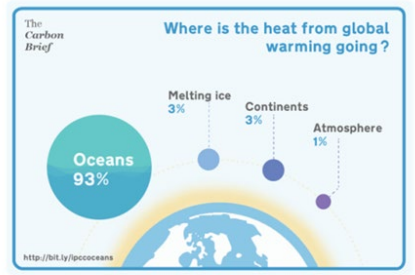




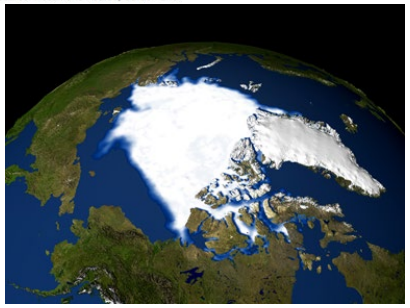


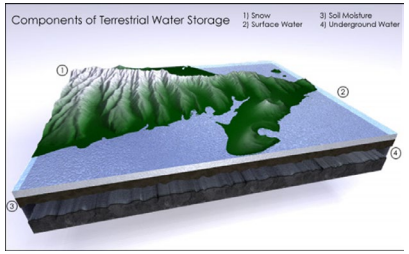
Sea Level Rise Components Included:

- Global
  - Thermal expansion
  - Greenland and Antarctic ice sheet melt
  - Glacier and ice cap melt
  - Land water storage
- Local
  - Ocean height change
  - Ice loss effects
  - Glacioisostatic adjustments



Source: Rosamund Pearce, Carbon Brief





Horton, R., D. Bader, C. Rosenzweig, A. DeGaetano, and W.Solecki. 2014. Climate Change in New York State: Updating the 2011 ClimAID Climate Risk Information. New York State Energy Research and Development Authority (NYSERDA), Albany, New York. (http://www.nyserda.ny.gov/climaid)

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6 NYCRR Part 490, Projected Sea-level Rise, 2017

Inches of rise relative to 2000-2004 baseline

	Region	Long Island					New York City/Lower Hudson					Mid-Hudson				
	Descriptor	Low	Low-medium	Medium	High-medium	High	Low	Low-medium	Medium	High-medium	High	Low	Low-medium	Medium	High-medium	High
Time Interval	2020s	2	4	6	8	10	2	4	6	8	10	1	3	5	7	9
	2050s	8	11	16	21	30	8	11	16	21	30	5	9	14	19	27
	2080s	13	18	29	39	58	13	18	29	39	58	10	14	25	36	54
	2100	15	21	34	47	72	15	22	36	50	75	11	18	32	46	71




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NY State Sea-level Rise Projections

2017

Source: ClimAID

Baseline: 2000-2004

Time intervals:

- 2020s
- 2050s
- 2080s
- 2100

Scenarios:

- Low
- Low-medium
- Medium
- High-medium
- High

2023 Update

Source: IPCC

Baseline: 1995-2014

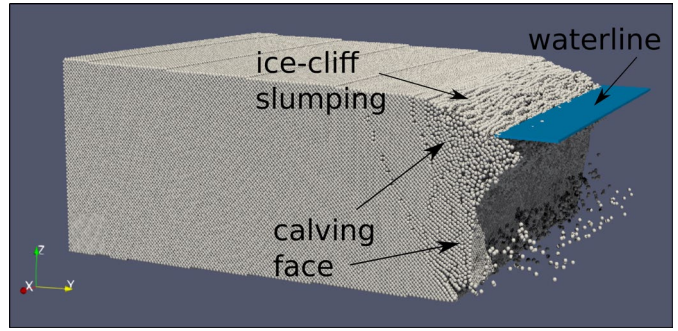
Time intervals:

- 2030s
- 2050s
- 2080s
- 2100
- 2150

Additional Scenarios:

- "Very High" – low probability, high consequence rapid ice melt for 2080s, 2100
- 2150

West Antarctic Ice Sheet. photo: NASA



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AR6: Drivers of Sea Level Change and Projection Sources

Sum of the components

Energy Budget Emulator:

- Thermal expansion
- Greenland ice sheet mass balance
- Antarctic ice sheet mass balance
- Glacier mass balance

Relationship to population:

- Land water storage

CMIP6 relationships:

- Ocean dynamic sea level

Tide gauge data:

- Isostatic adjustments

NYS Scenario Development

- SSP2-4.5 – consistent with Paris Agreement NDCs
- SSP5-8.5 – medium confidence – additional amplifying feedback mechanisms
- SSP5-8.5 – low confidence – includes some rapid ice melt

Distribution of model outputs adjusted for consistency with Part 490

Mid-Hudson projections based on NYC projections, adjusted for glacial isostatic rebound

Very high (RIM) scenario based on potential acceleration of ice mass loss and ice cliff instability

http://climatestate.com

Proposed 6 NYCRR Part 490, Projected Sea-level Rise, 2023

	Region	Long Island						New York City/Lower Hudson						Mid-Hudson					
	Descriptor	Low	Low-medium	Medium	High-medium	High	Very High	Low	Low-medium	Medium	High-medium	High	Very High	Low	Low-medium	Medium	High-medium	High	Very High
Time Interval	2030s	7	8	10	12	14	NA	6	7	9	11	13	NA	5	7	8	10	12	NA
	2050s	13	15	18	21	25	NA	12	14	16	19	23	NA	11	12	14	17	21	NA
	2080s	23	26	32	41	48	83	21	25	30	39	45	83	18	21	26	35	41	83
	2100	27	32	39	54	69	114	25	30	36	50	65	114	21	25	32	46	60	114
	2150	42	50	63	94	185	NA	38	47	59	89	177	NA	32	41	52	82	171	NA

Inches of rise relative to 1995-2014 baseline

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Percentage Differences 6 NYCRR Part 490, 2017/2023

	Region	Long Island						New York City/Lower Hudson						Mid-Hudson					
	Descriptor	Low	Low-medium	Medium	High-medium	High	Very High	Low	Low-medium	Medium	High-medium	High	Very High	Low	Low-medium	Medium	High-medium	High	Very High
Time Interval	2030s	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2050s	63%	36%	13%	0%	-17%	NA	50%	27%	0%	-10%	-23%	NA	120%	33%	0%	-11%	-22%	NA
	2080s	77%	44%	10%	5%	-17%	NA	62%	39%	3%	0%	-22%	NA	80%	50%	4%	-3%	-24%	NA
	2100	80%	52%	15%	15%	-4%	NA	67%	36%	0%	0%	-13%	NA	91%	39%	0%	0%	-15%	NA
	2150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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To comment:

Email:
climatechange@dec.ny.gov, include “Sea Level Rise” in subject line.

Postal Mail:

Sea Level Rise
Office of Climate Change
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-1030

Pre-proposal comments due by May 12, 2023

Request for comments and additional information:
https://www.dec.ny.gov/lands/102559.html

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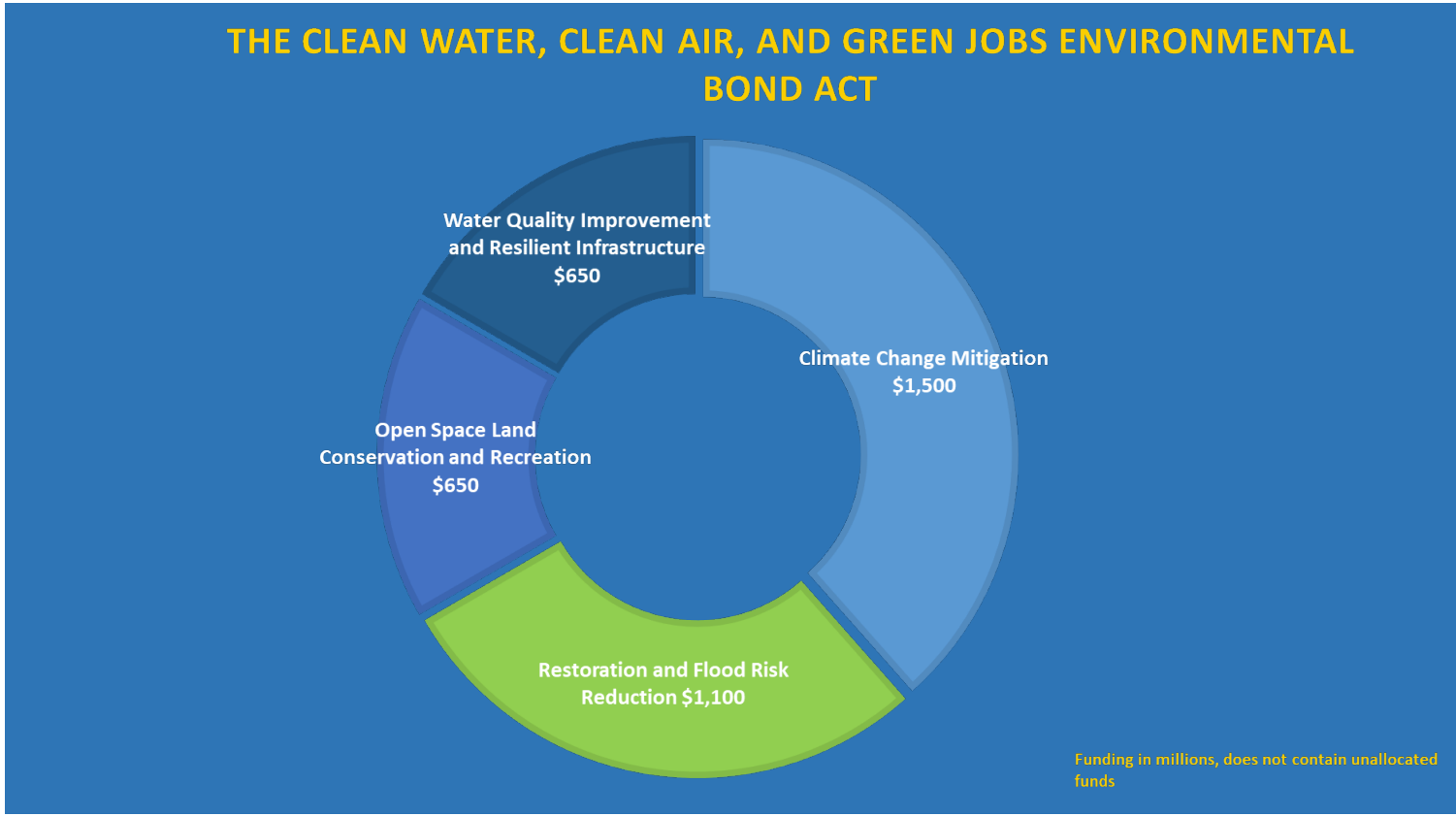
CWCAGJ Environmental Bond Act $4.2 Billion

Centers on equity and justice by committing significant resources directly to communities most affected by pollution and climate change.

Next steps:

Inter-agency working group to identify needs for environmental funding across the state and conduct stakeholder outreach on new program development.

Statewide listening tour for the public and potential funding applicants to learn about the Bond Act and weigh in on draft criteria to identify potential projects.



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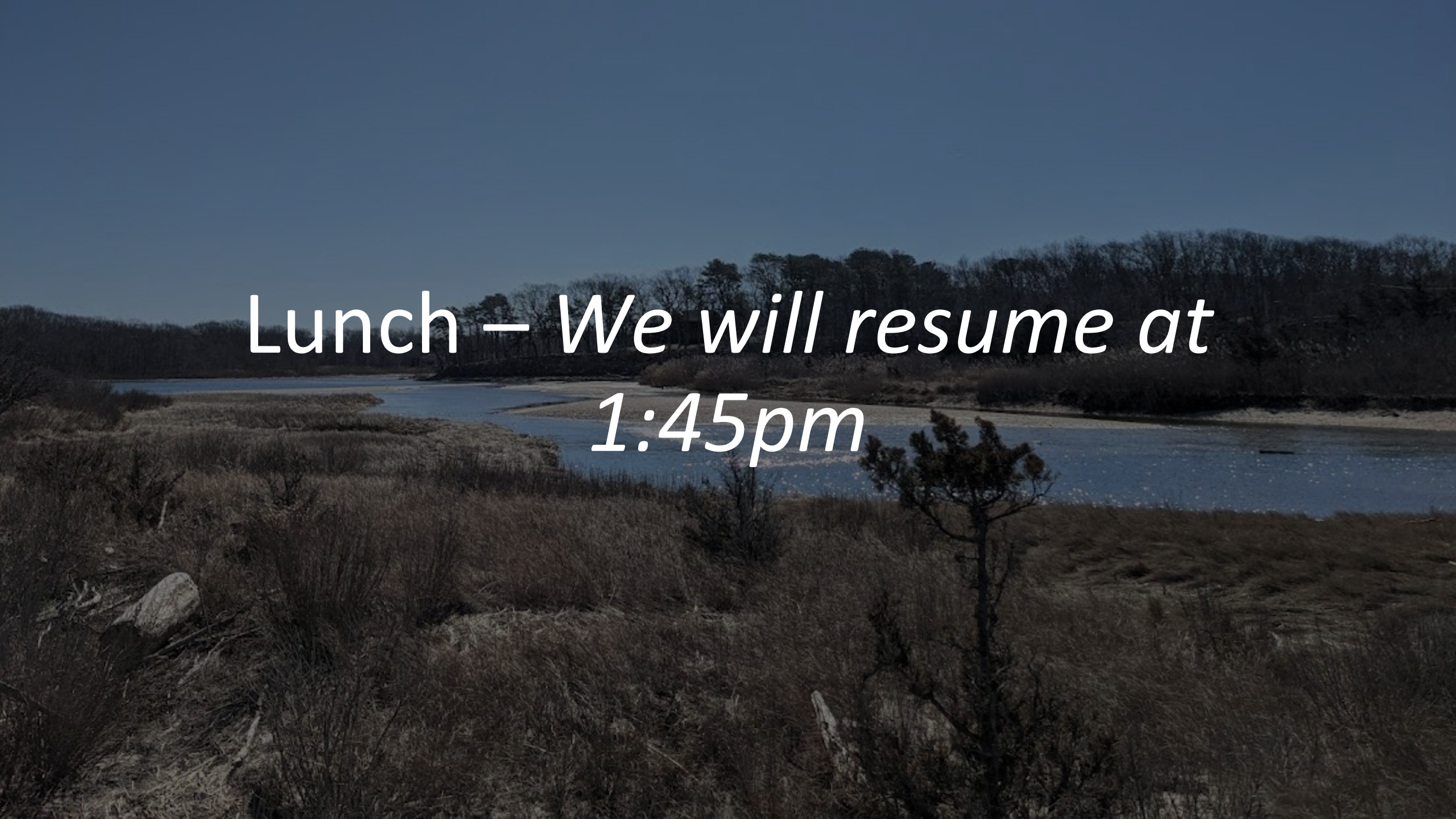
Coastal Erosion Hazard Areas, Local Codes & Policy – Q&A

Eric Star & Ryan Porciello
Region1 CEHA Program, NYSDEC

Elizabeth Hornstein
SRC Extension Professional, New York Sea Grant

Barbara Kendall
Coastal Resources Specialist 3, New York State Department of State

Mark Lowery
Assistant Director, Office of Climate Change, NYSDEC


Lunch – *We will resume at 1:45pm*

Small Group Discussions

- *2 facilitated discussion rounds, 25 min each*
- *3 discussion questions, 6 stations*

Station 1: Kathleen Fallon
Station 2: Corey Humphrey

How can we better educate private property owners who live on the shore or who are buying property on the shore?

Station 3: Barbara Kendall
Station 4: Mark Lowery

What support do municipalities/communities need from county, state, and federal agencies/entities to help address shoreline erosion and increase resilience?

Station 5: Elizabeth Hornstein
Station 6: Sarah Schaefer-Brown

As sea levels continue to rise, how do we balance protection of coastal infrastructure and communities with preserving our coastal habitats?

Small Group Discussions - *Report Out*

Thank you for attending!

Elizabeth Hornstein
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Coastal Processes & Hazards Specialist
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