

Living with Water

November 10, 2026

Our Core Objectives

Part 1: To spark interest and care for the ecosystems that surround seacoast homes and provide practical resources on wetlands, shorelands and water quality that could be shared with clients.

Part 2: To provide information on tides, flood zones and insurance that can help clients assess risks, prepare for risks preemptively and mitigate damage after impacts.



This course is approved for ME and NH CEU Credits!

From Maine:
This program has been approved by the Director of Real Estate Commission for 3 clock hours toward fulfillment of the educational requirements for activation or renewal of a real estate license.

The Commission is interested in the quality and delivery of educational programs which are offered to licensees and, therefore, welcomes and encourages comments regarding program subject matter and quality of delivery of the program.

Outline for Today

9:00 am Welcome & Introductions

PART I: SELLING THE SEACOAST

9:20	Our Coastal Landscape
9:25	Shoreland and Wetlands Rules
10:00	Break
10:15	*SITE VISIT: FLOOD MITIGATION at STRAWBERY BANKE*

PART II: FLOOD RISK & RESILIENCY

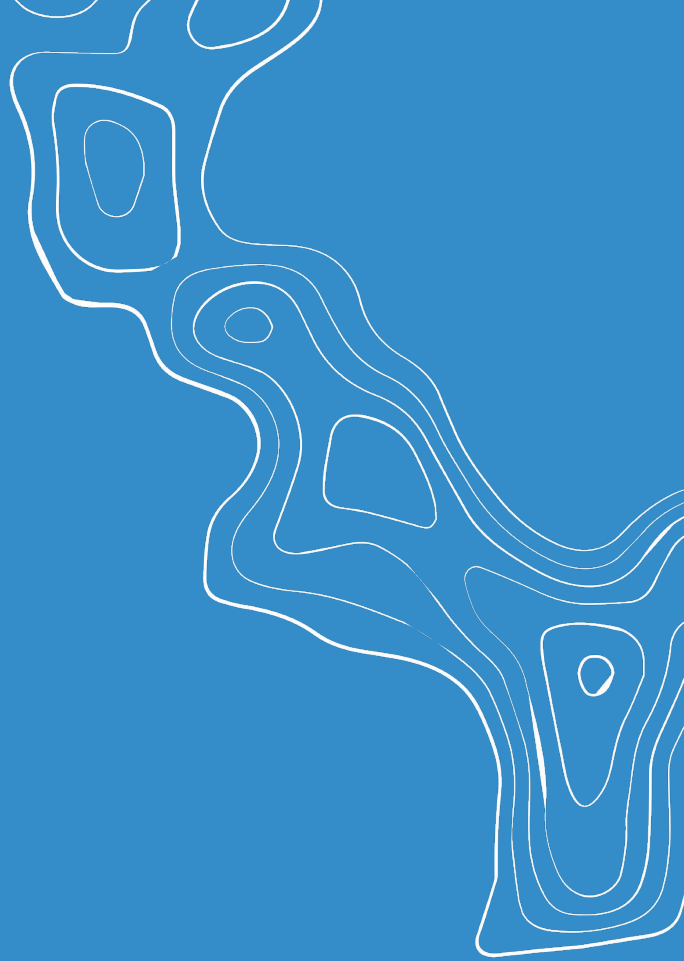
10:45	Tides and Water Levels
11:05	Determining Flood Risk
11:25	Flood Resiliency
12:00 pm	Adjourn

A few requests for today....

One person, one mic

No one knows everything,
but together we know a lot

Embrace curiosity



Adapted from the Anti-Oppression Resource & Training Alliance (AORTA)

Who We Are

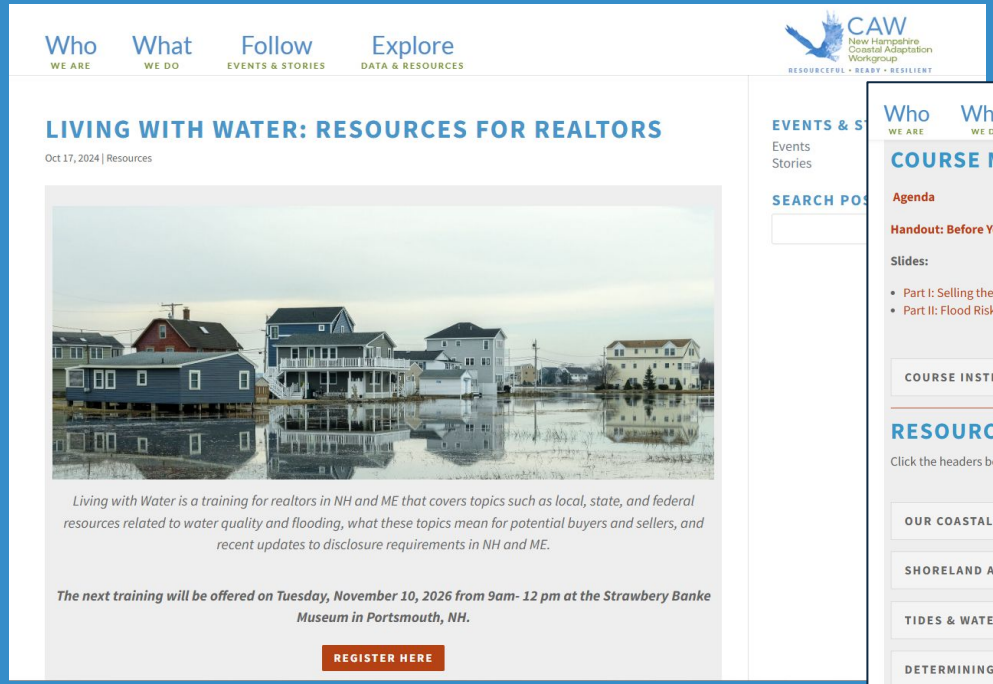
Talia Sperduto, Samonas Realty
Lynn Vaccaro, Great Bay National Estuarine Research Reserve
Abigail Lyon *, Piscataqua Region Estuaries Partnership
Lisa Wise, Strafford Regional Planning Commission
Jennifer Gilbert, NH DES Coastal Program
Kaleigh Johnson, Portsmouth Atlantic Insurance
Hannah Volk, NH Sea Grant

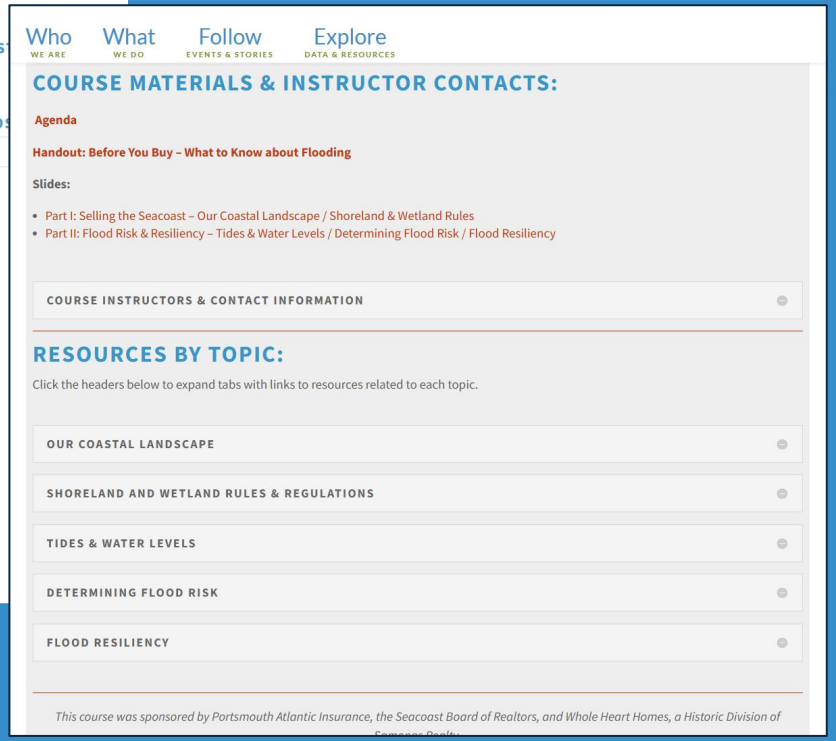
Course Sponsors: Portsmouth Atlantic Insurance, Samonas Realty, Simple Title Closing and Escrow, Great Bay Stewards and the NH Coastal Adaptation Workgroup

**Abigail is not here today but developed content about water quality*



All course materials, slides and links will be available at: nhcaw.org





Tell Us About You

1. **Which statements describe you?**
   a. I work in real estate in NH
   b. I work in real estate in Maine
   c. I serve on a municipal board or committee
   d. I have personally experienced flooding

2. **How long have you worked in real estate in this region?**
   a. Less than 5 years
   b. 5 - 15 years
   c. More than 15 years

3. **What questions or interests prompted you to come today?**

Part 1. Selling the Seacoast

- Our Coastal Landscape
- Shoreland and Wetland Rules







- Key natural features of the coastline
- Protecting these habitats protects people

Part 1A. Our Coastal Landscape

Photo from NewEngland.com

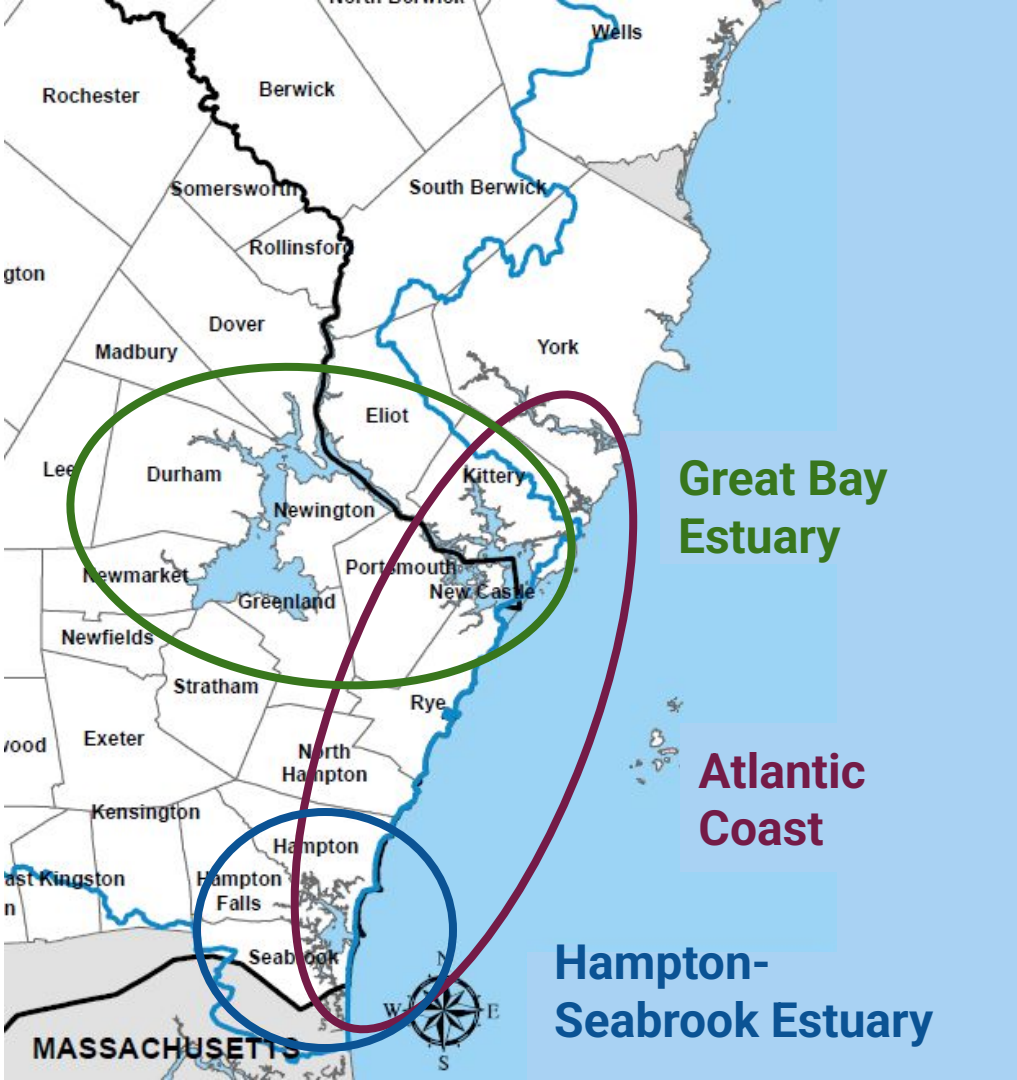
Seacoast NH

18
miles
coastal
shoreline

2
nationally
significant
estuaries

326
miles
tidal
shoreline

17
coastal zone
communities



Coastal habitats make this area special



Dunes & Beaches

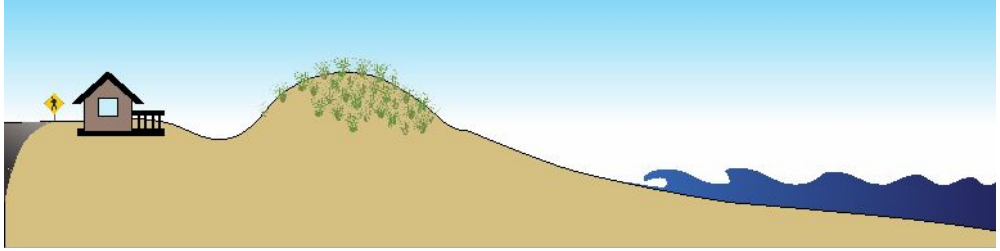


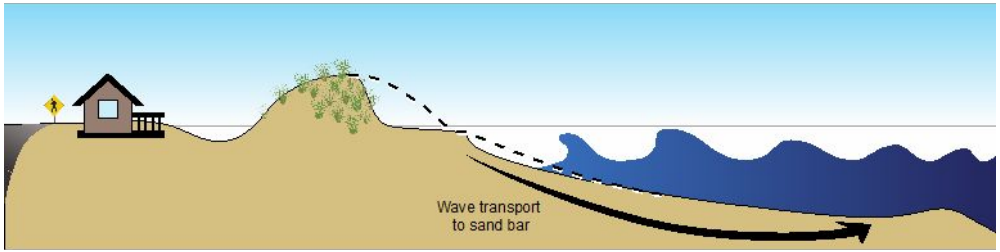
How beaches and dunes work

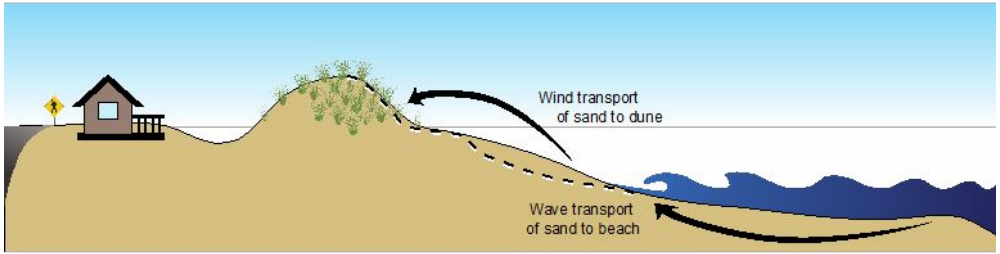
Dunes provide sand for beaches

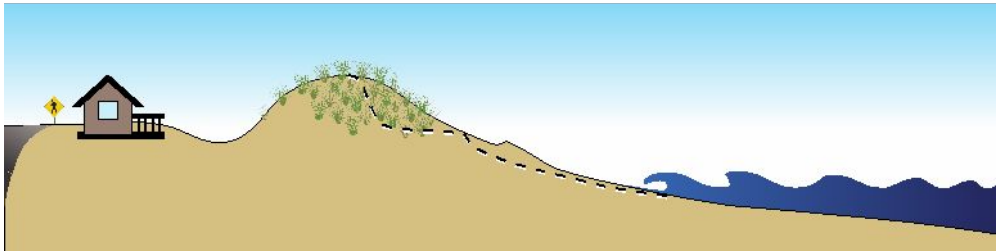
Protect landward properties and infrastructure during storms

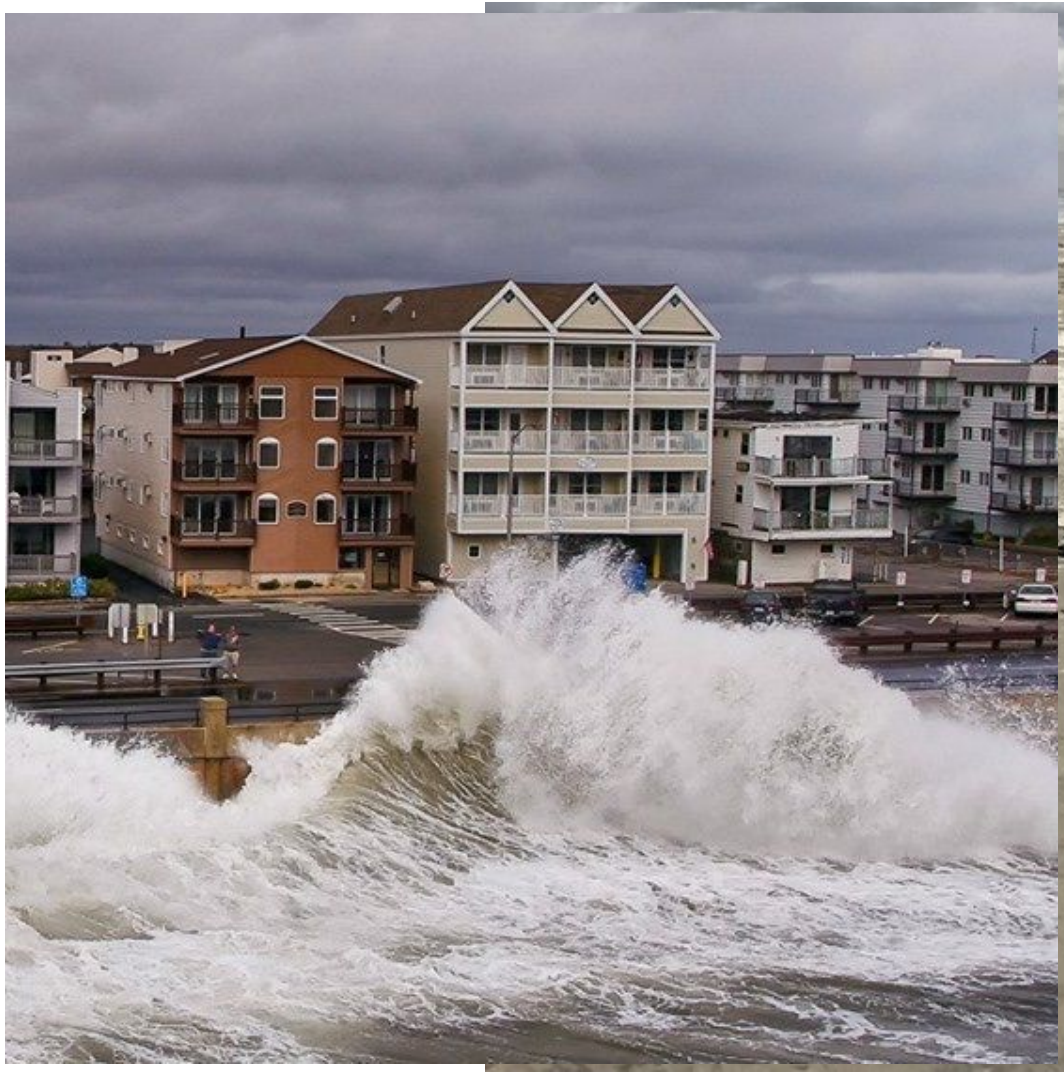
Capture sand and store it for the next storm



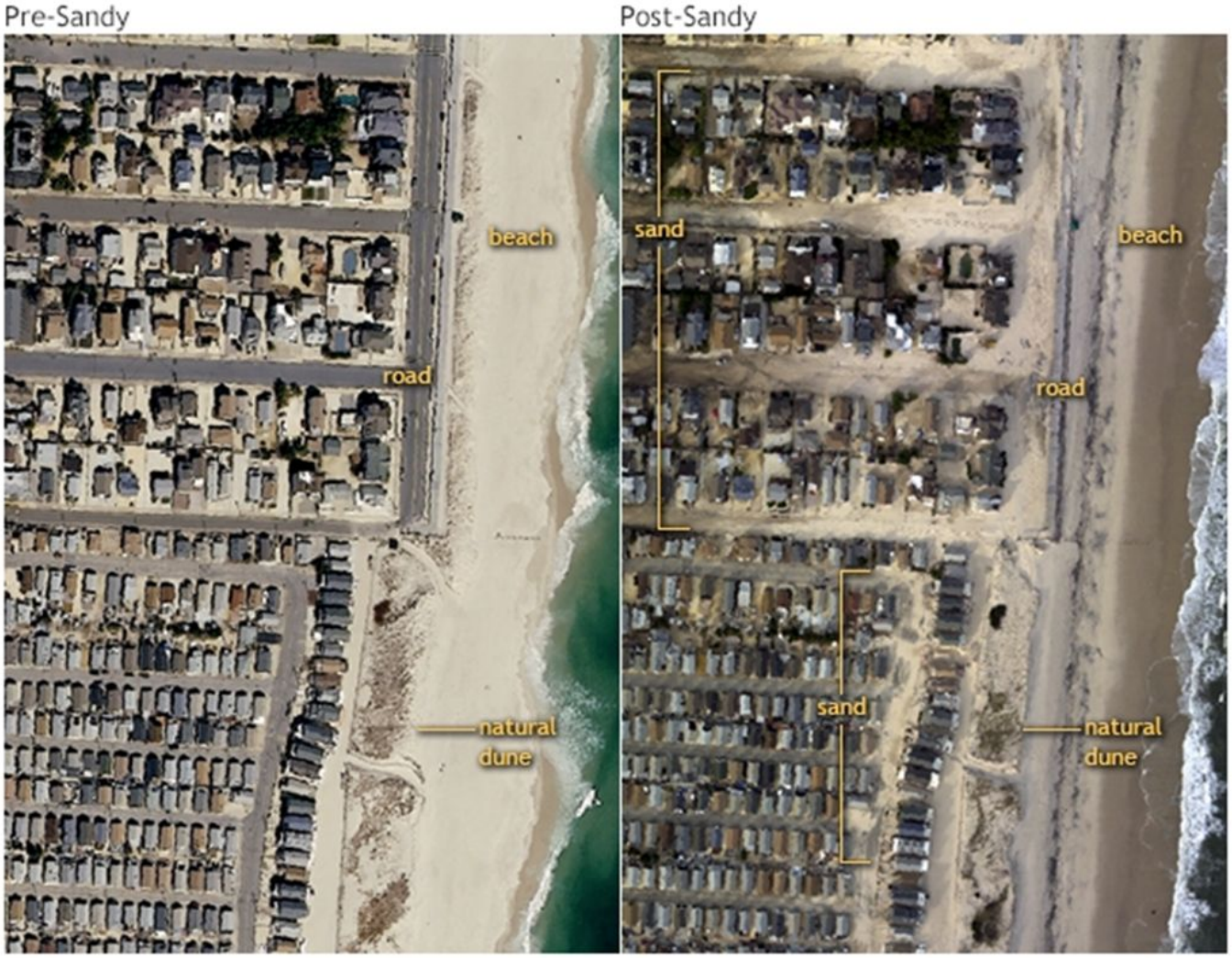








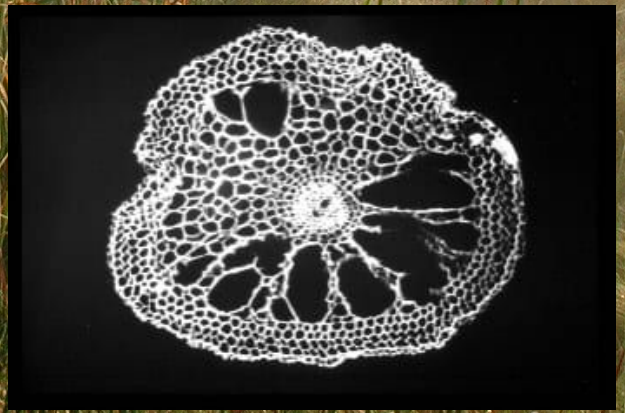



Pre-Sandy
Post-Sandy
beach
road
natural dune
sand
beach
road
sand
natural dune
small dunes
wider dunes

Salt Marshes



Salt Marshes

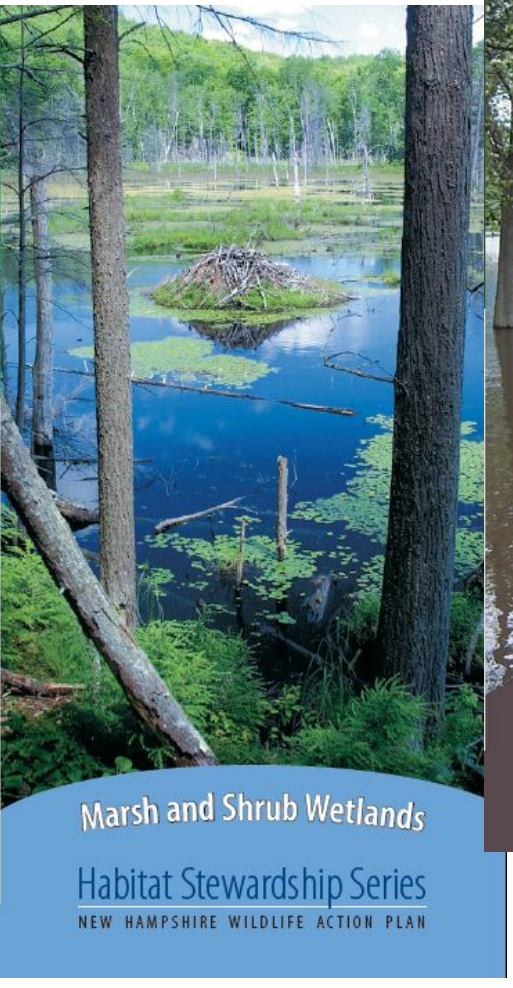


Salt Marshes



Rivers & Freshwater Wetlands




Marsh and Shrub Wetlands
Habitat Stewardship Series
NEW HAMPSHIRE WILDLIFE ACTION PLAN


Floodplain Forests
Habitat Stewardship Series
NEW HAMPSHIRE WILDLIFE ACTION PLAN


Peatlands
Habitat Stewardship Series
NEW HAMPSHIRE WILDLIFE ACTION PLAN


Vernal Pools
Habitat Stewardship Series
NEW HAMPSHIRE WILDLIFE ACTION PLAN

Buffers

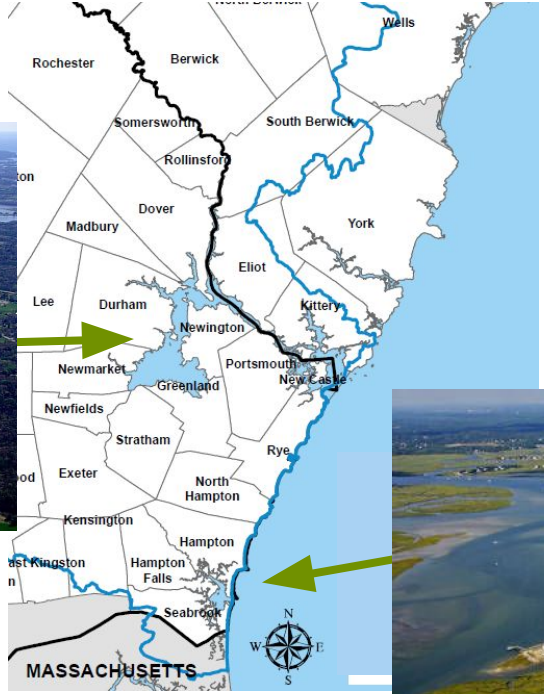


Coastal habitats make this area special & provide valuable ecosystem services



Buffers





Dunes & Beaches



Rivers and Freshwater Wetlands

Salt Marshes



SUPPORT HEALTHY FISHERIES

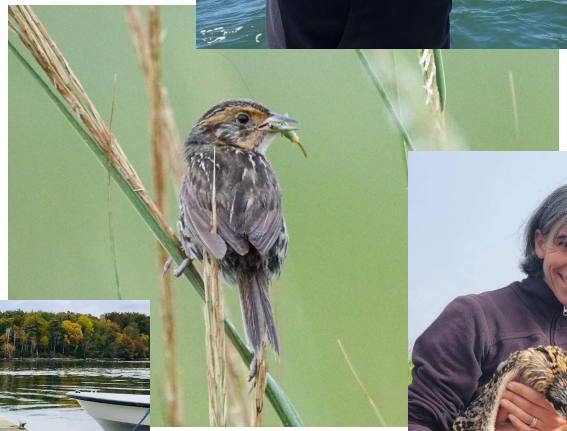


PROVIDE ESSENTIAL FISH & WILDLIFE HABITAT





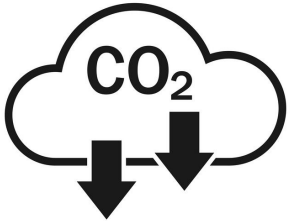




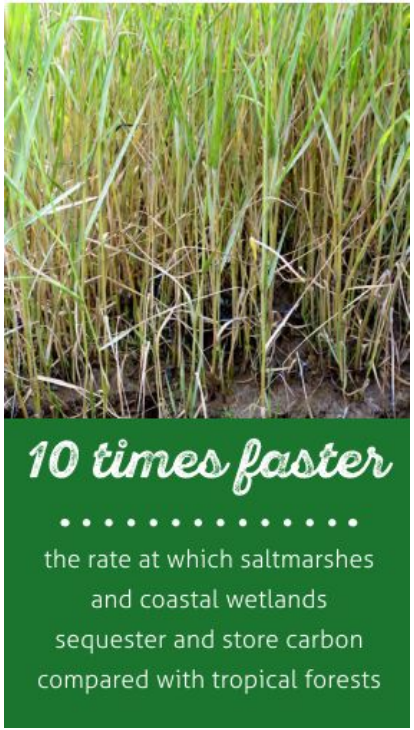








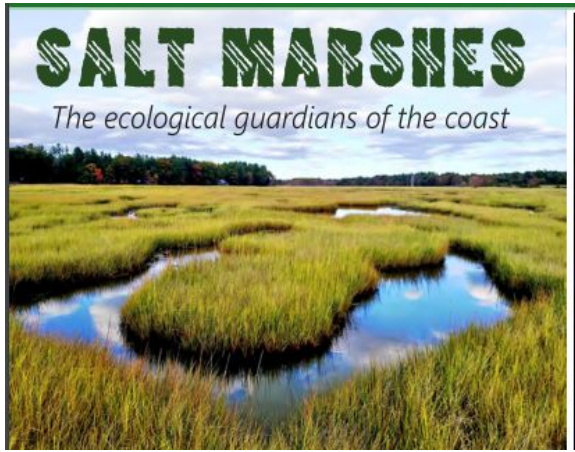
SEQUESTER CARBON

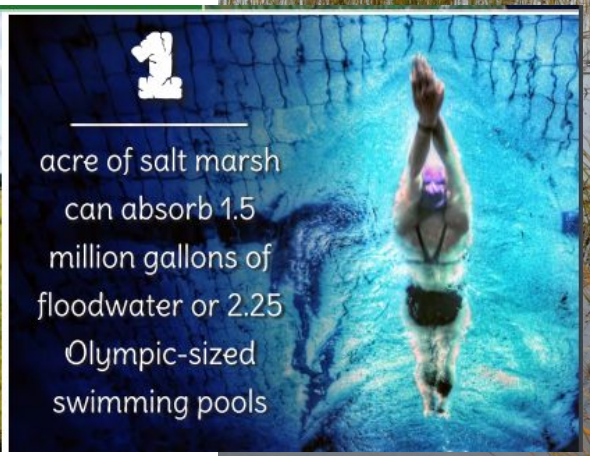





ENHANCE WATER QUALITY
Exeter / Stratham

REDUCE COASTAL FLOODING





PROTECT SHORELINES FROM EROSION



Protecting coastal habitats protects us!

- Keep development away from streams, wetlands and tidal waters
- Leave a thick vegetated buffer along the water's edge
- Avoid trampling fragile marsh or dune grasses
- Address all sources of erosion
- Use landscaping techniques that benefit wildlife and water quality




Salmon Falls River
Great Bay Estuary
Fall 2021
January 2022
Graphic by Peter H. Taylor, Waterview Consulting

RESOURCE:
Caring for Our Marshes: A Guide for NH's Seacoast



ACTIONS THAT PROTECT MARSHES AND HOMES

When you take care of a marsh, it takes care of you. The best practices shown here give marshes extra space and minimize direct impacts so habitats can thrive and safeguard coasts. Healthy marsh grasses slow erosion, stabilize shorelines, and lessen the need for expensive seawalls. These recommended actions also lower property maintenance costs, improve water quality, and preserve the natural beauty of the coastline.

1. Add driveway infiltration to absorb runoff and filter pollutants.

2. Keep pets away from the marsh to protect birds and grasses.

3. Maintain your septic system to protect water quality.

4. Relocate fire pits inland to avoid harming plants and soil.



5. Build smaller docks and limit paths to protect marsh vegetation.

6. Pick up litter to keep the marsh safe for people and wildlife.

7. Store boats upland to protect marsh edges and vegetation.

8. Set a "no-mow" line away from the marsh to maintain a healthy buffer.

9. Slow your boat to reduce wakes and erosion.

10. Create rain gardens to capture runoff and reduce pollution.

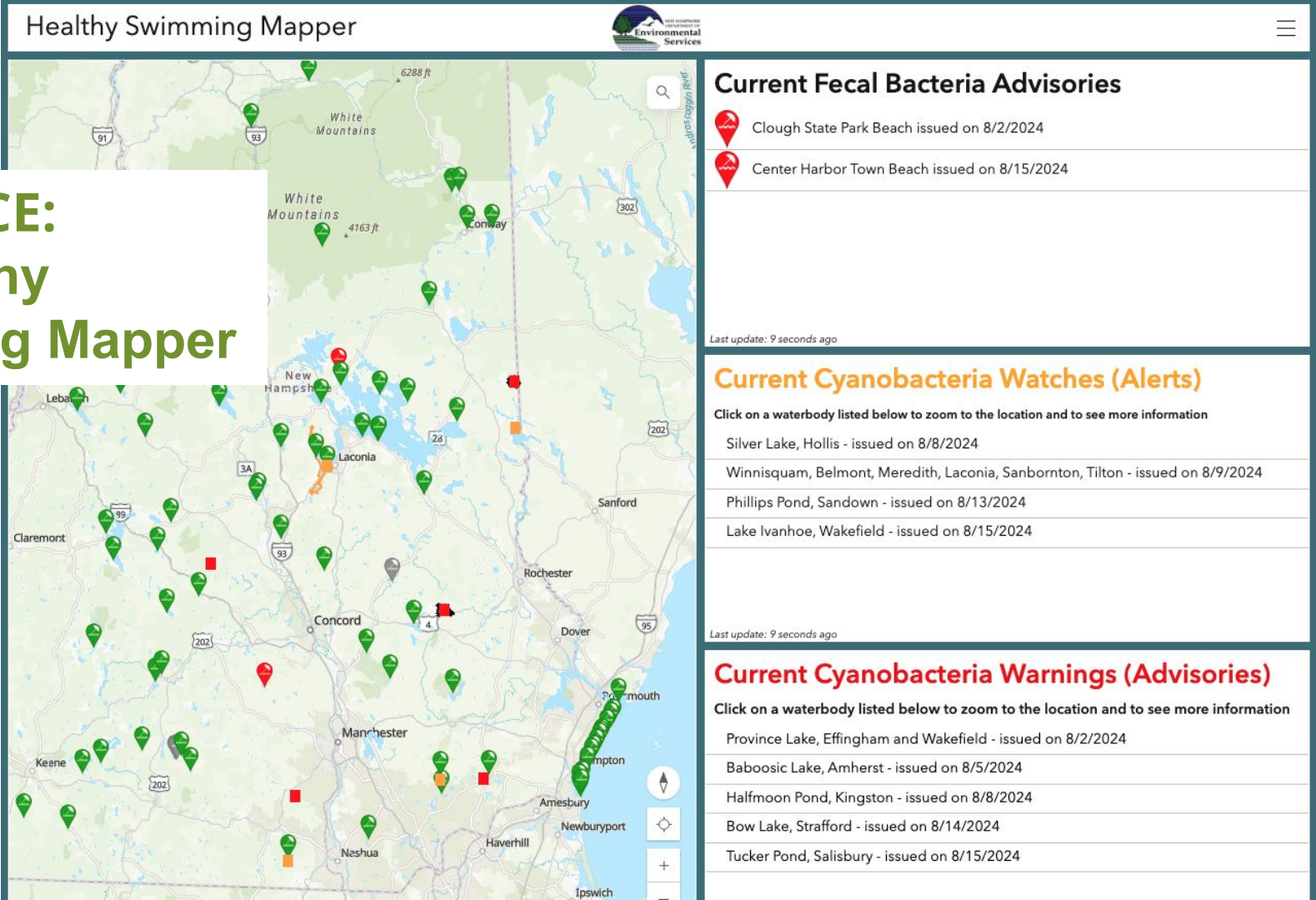
11. Preserve trees to stabilize shorelines.

12. Work with neighbors to care for your shared shoreline.

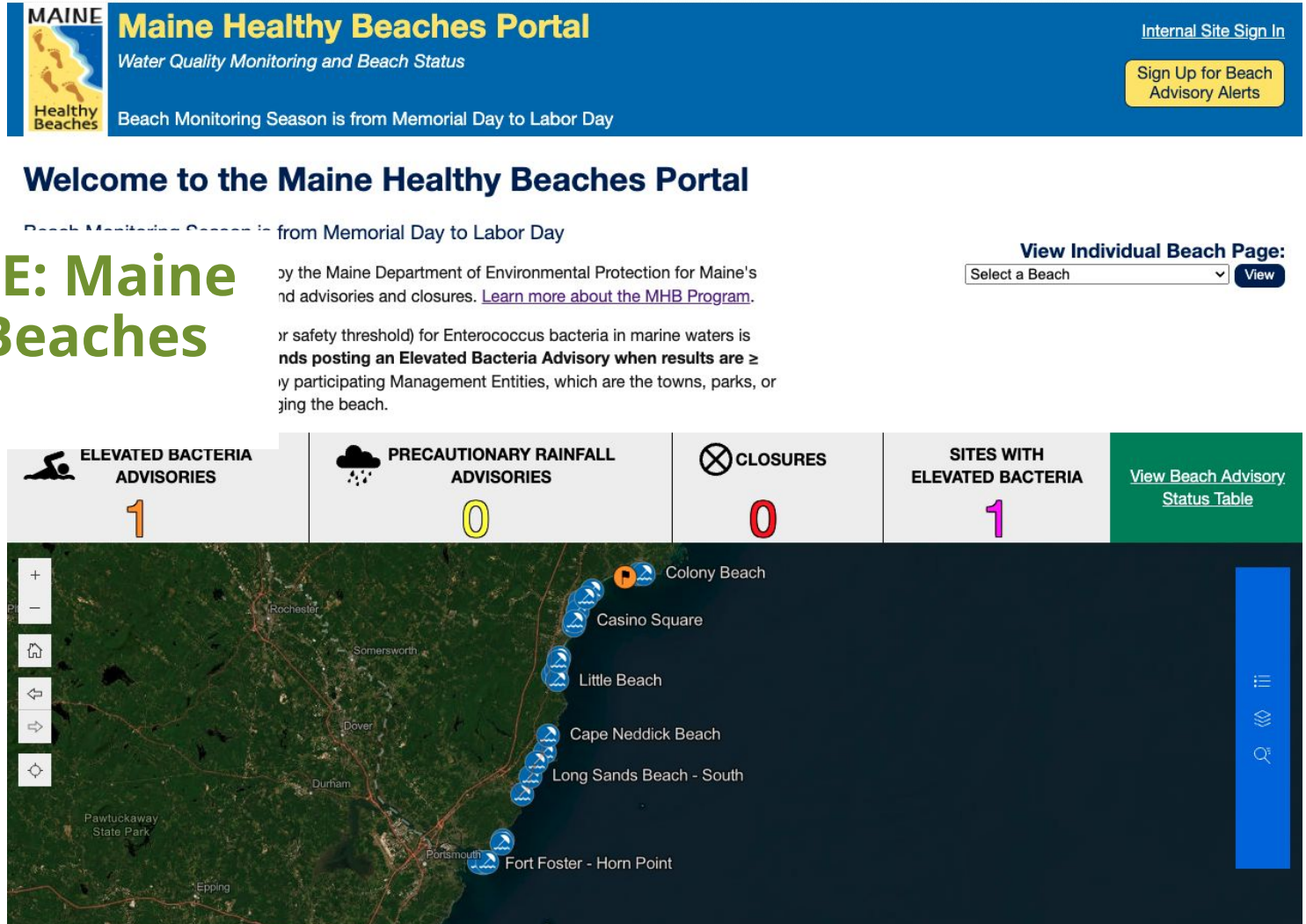
How do I know if it’s safe to swim and play in the water?



RESOURCE: NH Healthy Swimming Mapper

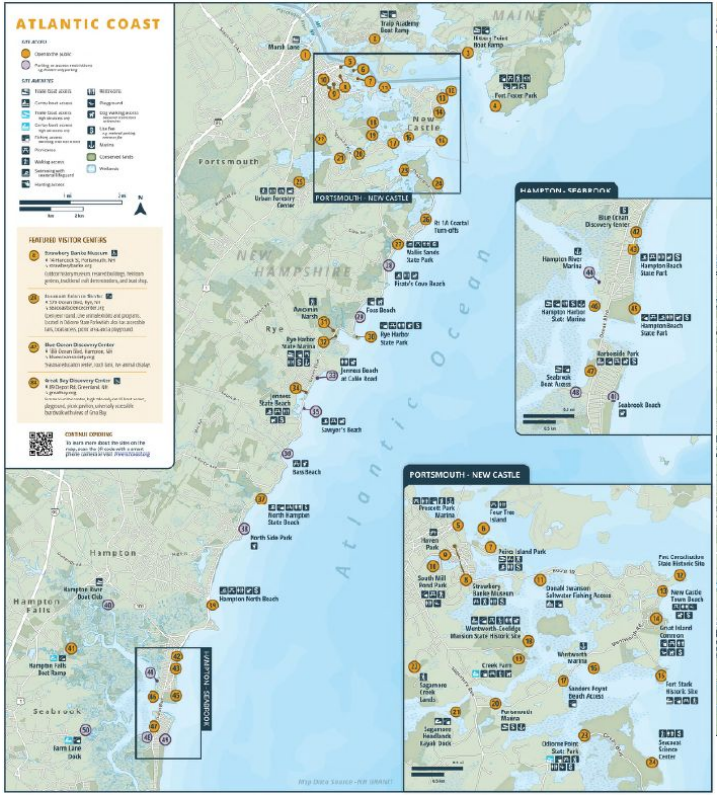


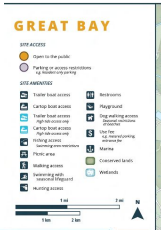
RESOURCE: Maine Healthy Beaches Portal

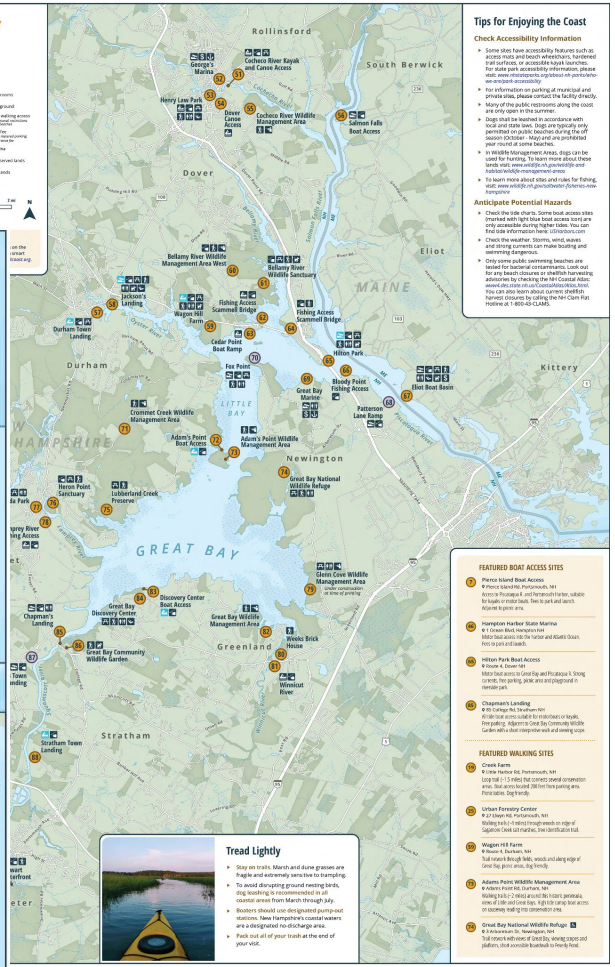


RESOURCE:
NH Coastal Access Map









RESOURCE:
7 Rivers to the Coast

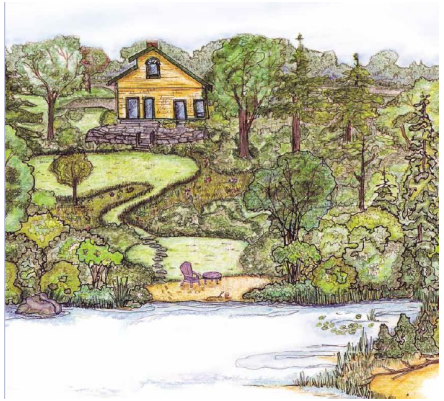


RECAP: Our Coastal Landscape



Coastal habitats make this place special

Coastal habitats provide valuable ecological services



We can protect these habitats so they can protect us

- Overview of state rules & regulations
- Local ordinance & regulations

Part 1B. Shoreland and Wetland Rules

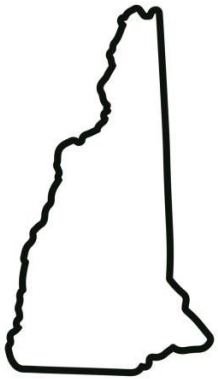


Abigail Lyon, PREP

PROTECTING CLEAN WATER STARTS AT HOME

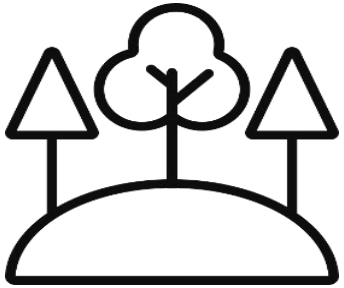


Protecting Shorelands in NH and ME - Similar Goals Different Approaches

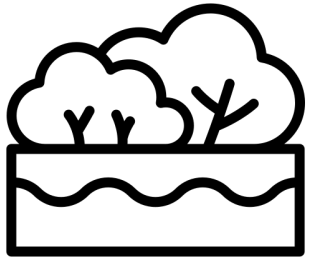


Shoreland Water Quality Protection Act (RSA 483-B)





Mandatory Shoreland Zoning (38 M.R.S. ch.3, subch. 1)





Water Quality Protection

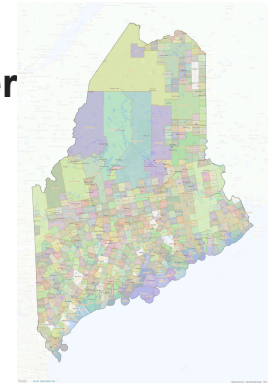
Habitat Conservation

Vegetation & Buffer Importance

ADMINISTERED BY

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

DEPARTMENT OF ENVIRONMENTAL PROTECTION · STATE OF MAINE ·



Jurisdictional Areas

- Lakes & ponds >10 acres (Great Ponds)
- Coastal wetlands
- Tidal waters

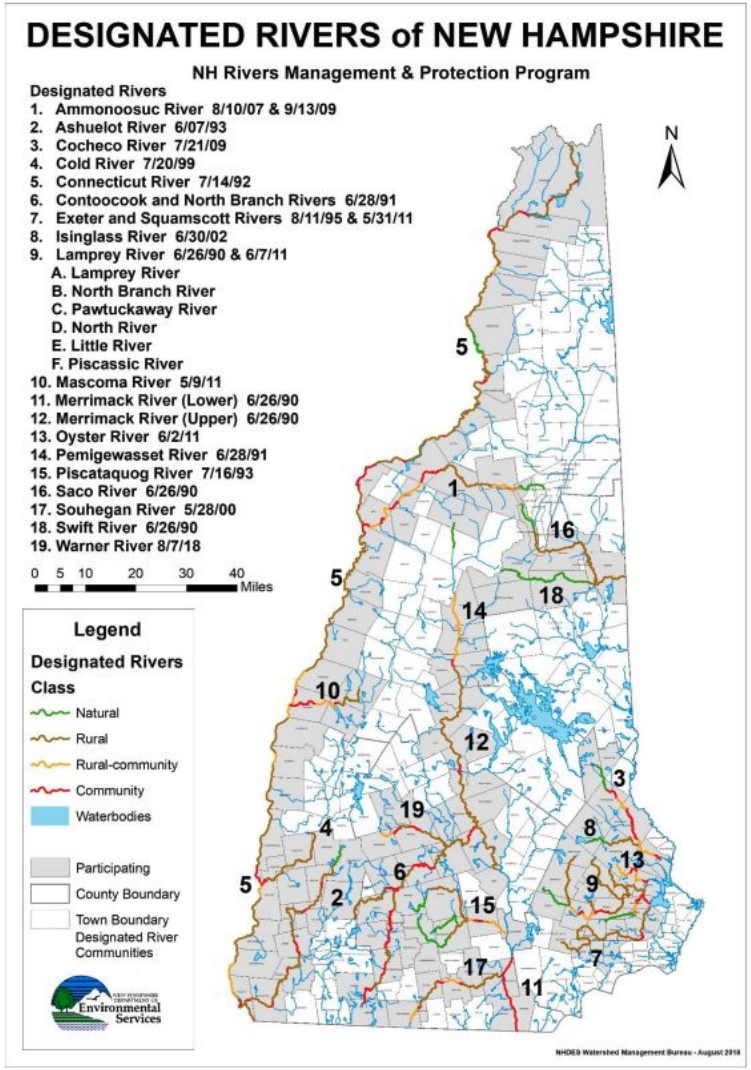


- Upland edge of freshwater wetlands
- 75 feet horizontal distance of high-water line for certain streams

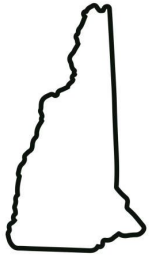


- 4th order streams or greater
- Designated rivers









Reference Lines & Setbacks

0-50 ft Waterfront Buffer

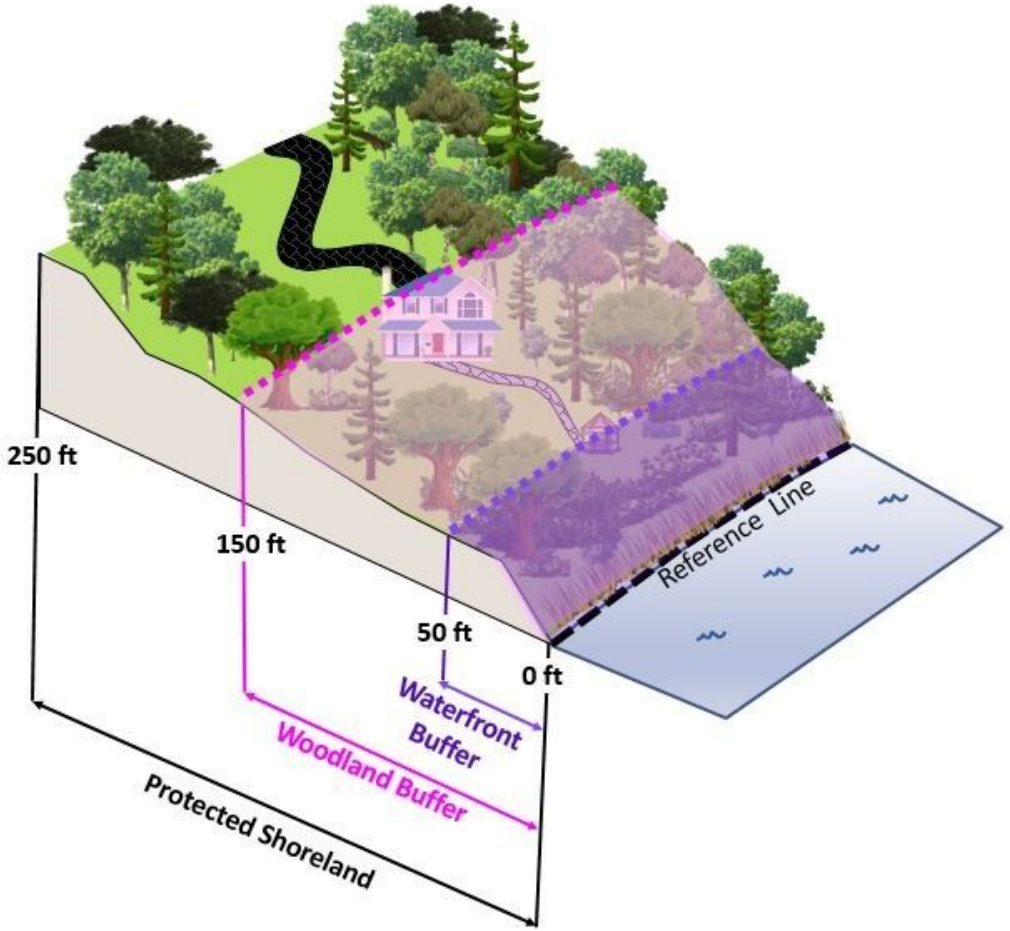
Limited vegetation changes

Setback for primary buildings

0-150 ft Woodland Buffer

At least 25% of area left as natural woodland

0-250 ft Protected Shoreland



Graphic by NHDES

RESOURCES: NHDES & MEDEP Shoreland Webpages

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Advisories | Events | OneStop | About | Contact | Feedback

Home and Recreation | Business and Community | Climate and Sustainability | Permits, Rules and Regulatory | Resource



Home > Land > Waterfront Development > Protected Shoreland

Protected Shoreland

Managing vegetation and development in proximity to public waters.



Surfaces that do not allow water to infiltrate water can impact water quality in our lakes and rivers.

New Hampshire shorelands are among the state's most valuable and fragile natural resources. Removing natural vegetation from shorelands can impact water quality and affect the beauty of our landscapes. Fill, excavation and construction can have similar impacts. In New Hampshire, shorelands next to public waters are protected by state statute and rules. This helps ensure greater protection of property, water quality, human health, flora and fauna, and recreational opportunities.

The Shoreland Water Quality Protection Act (RSA 483-B) and its associated rules, Env-Wq 1400,

Featured Video: (P… Beach

This 10-minute video p… introduction to non-tida… in New Hampshire.

WATCH THE VIDEO

Resources

Technical Assistance

File a Complaint

Maine.gov Agencies | Online Services | Help | Search Maine.gov

MAINE DEPARTMENT OF Environmental Protection

Contact Us | How Do I

Search DEP

About | Air Quality | Land Resources | Spills & Site Cleanup | Sustainability | Waste Management | Water

Home → Land Resources → Programs → Watershed → Shorefront Property Owner Information

- Contacts
- Permits, Licenses, Certifications
- Programs
- Laws
- Rules
- Publications and Resources
- Monitoring and Reporting

Shorefront Property Owner Information

Welcome shorefront property owners! Whether you live along a lake, stream, river, wetland or bay, you have a wonderful resource right outside your door. Here are tips to help keep that water clean, resources to assist you, and regulations that might affect you.

How Do I...

- How do I find a Permit … application form online … activities are subject to … process?
- How do I determine if a … suspicious aquatic plan… invasive?
- How do I get my well te… determine if my drinkin… safe? Who do I contact … a problem with my drin… water?
- How do I report proble… septic system?

Protecting clean water

When it rains or snow melts, stormwater runoff picks up various pollutants such as dripped or spilled petroleum products, soil, fertilizer, pesticides, and animal waste and carries them to the nearest ditch, storm drain or stream and then on to lakes, rivers and bays. Individually small amounts of pollutants may seem insignificant, but collectively they add up to create the largest source of pollution to Maine's waters. How can we keep these pollutants out of our waters? By reducing the source of pollutants and by capturing the stormwater before it moves off your property.

Regulations (the most common rules and laws but by no means a complete list of regulations that potentially could affect shoreland owners)

The Natural Resource Protection Act (NRPA) focuses on protecting natural resources, including signi… wildlife habitat, wetlands, great ponds (generally, lakes over 10 acres) and rivers, streams and brook… permit is required when an activity will be:

Protecting Wetlands in NH and ME

Wetland Rules outline how the public can legally impact wetlands and other jurisdictional areas.

Wetlands include but are not limited to swamps, bogs, marshes, forested wetlands, wet meadows, and vernal pools



Chester Bog Credit: Ed Karjala



Spruce Creek Credit: Emily Lord



Northwood Lake

Jurisdictional Areas

- Wetlands
- Surface waters
- Upland tidal buffer zones
  - 100 ft in NH
  - 75 ft in ME
- NH Prime wetlands (100 ft)
- Sand dunes

Often more stringent buffers & setbacks at local level.

Maine municipalities regulate wetlands under the Municipal Shoreland Zoning Act.



TEST YOUR KNOWLEDGE

What is the BEST way to determine if there is a wetland on or adjacent to a property?

a. Review the National Wetlands Inventory (online mapper)
b. Call the town/city to learn about potential wetlands
c. Conduct a site walk to look for evidence of wetlands
d. Consult a state certified wetland scientist

NHDES Wetland Rules

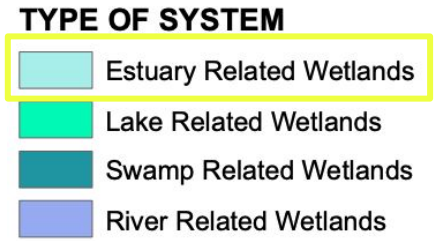
ARE THERE WETLANDS ON A PROPERTY?

32 Back River Road Durham, NH

- National Wetland Inventory
- Town Maps
- NH Certified Wetland Scientist









ARE THERE WETLANDS ON A PROPERTY?



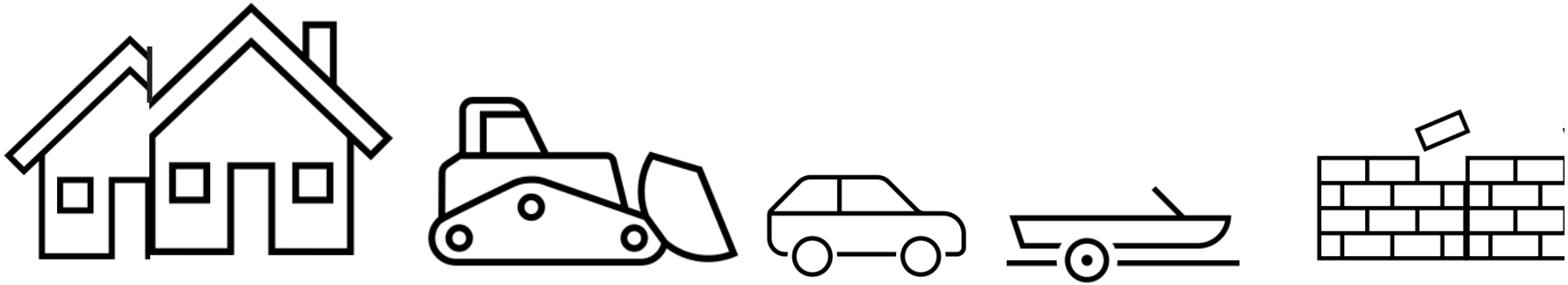
32 Back River Road Durham, NH

- Slope down hill and toward a water body
- Channel or water flow patterns
- Draining soils
- Depressions holding water in spring
- Consider the time of year for visual assessment



When do you need a wetlands permit?

Projects involving excavation, fill, dredge, dewatering, removal and/or construction of structures in/on any bank, flat, marsh, or swamp or adjacent to wetlands and water bodies.



RESOURCES: NHDES & MEDEP Wetland Webpages

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

OPEN MENU



Home › Water › Wetlands

Wetlands

Preserving and protecting New Hampshire's tidal and freshwater wetlands from unregulated alteration.

New Hampshire's diverse natural resources support many of the activities that drive its economy. Residents, businesses and visitors enjoy New Hampshire wetlands, streams, lakes and seacoast for their natural beauty and recreational opportunities.

In addition to their economic value, New Hampshire wetlands are of great importance for flood control, water quality, water

Wetlands P… New

As of July 1, 2… wetlands perm… application fe… increased fror… $600, as a res… passage of th… 2027 state bu… (referenced o…

MAINE DEPARTMENT OF Environmental Protection

Sear…

About ▾ | Air Quality ▾ | Land Resources ▾ | Spills & Site Cleanup ▾ | Sustainability ▾ | Waste Mar…

Home → Land Resources → Programs → Natural Resources Protection Act

- Contacts
- Permits, Licenses, Certifications
- Programs
- Laws
- Rules
- Publications and Resources
- Monitoring and Reporting

Natural Resources Protection Act

The Land Bureau has developed an online lic… which is applicable for all Land Licenses exc… Hydropower. Access the licensing system M…

Land Application and Permit Status

Chapters 305 and 310 rule changes webinar (YouTube): Learn about recently… Department's Chapter 305 NRPA Permit by Rule Standards and Chapter 310… Protection rules pertaining to shoreline stabilization and other activities.

- Slides from Chapters 305 and 310 rule changes webinar (.pptx)

Protected Natural Resources

Protected natural resources are coastal sand dune systems, coastal wetlands, … fragile mountain areas, freshwater wetlands, great ponds and rivers, streams …

DOCKS (TIDAL & NON-TIDAL)

- Regulated by NHDES under state Wetland Rules
- Frontage Minimums
  - **None** for tidal
  - **75 ft** freshwater*
- **Seasonal docks are required** except for water bodies 1,000 acres or and applicant demonstrates temporary dock is unsafe



- Regulated by municipalities under Mandatory Shoreland Zoning
- Frontage Minimums
  - **150 ft** tidal
  - **200 ft** freshwater
- **Temporary docks are required** unless an applicant demonstrates a temporary dock is not feasible





RESOURCES: Fact Sheets & Local Shoreland Zoning



ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WB-19

Permitting for Private, Non-Commercial Freshwater Docking Str

Projects involving dredge, fill, or placement of structures on, or within, the banks and lakebeds
require wetlands permitting from the New Hampshire Department of Environmental Services (
Bureau. The law authorizing NHDES to regulate these activities, RSA 482-A, took effect in 1967
regulated construction of permanent structures in tidal waters. In 1969, the law was expande
permanent and commercial structures in fresh water and, in 1978, the law was amended agai
seasonal docking structures.

Wetlands permitting is required for all new docking structures and modifications of docking
seasonal and permanent docking structures, and all boat and jet-ski lifts. Wetlands permitti
required for repairs of docking structures unless they have a valid registration pursuant to
Wetlands permitting is not required for devices attached solely to the sides or surfaces of
of securing lines for existing boat slips, such as cleats, whips, or tie-posts, and diving boar
that are not a navigational hazard.

Boat Slip Limitations

The size and number of boat slips on a property is regulated by state law. A boat slip is
which a boat is secured to a dock. The size of a boat slip is a predetermined, waterboc
water. For waterbodies 10,000 acres or less, a boat slip is a volume of water 20 feet lo
three feet deep. For waterbodies greater than 10,000 acres, a boat slip is a volume of
feet wide, and three feet deep. Note that only one lake in New Hampshire is greater
Winnipesaukee. State rules allow for as much as two feet of navigation space betwe
boat slip or structure. Water depth is measured at the normal high water mark (Figu

Figure 1 - Boat slip dimensions.

ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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WB-15

2020

Permitting of Residential Tidal Docks

In New Hampshire, construction and maintenance of tidal docks have been regulated under RSA 482-A since 1967. The law requires that a wetlands permit be obtained before a tidal dock is constructed. Design considerations have evolved over time to develop consistency with the criteria and requirements of the U.S. Army Corps of Engineers and the National Marine Fisheries Service for docking structures.

Docking structures located in tidal waters have unique requirements that dictate their design: They must be built to accommodate the rise and fall of the tide and withstand wave energy and winter ice flow. Based on the nature of the tidal system where they are located, they may not provide access to water for the entire tidal cycle. This fact sheet gives a general overview of some of the permitting requirements for residential tidal docks.

Configuration and Dimensions

A residential tidal dock must have one of the following **configurations** (Figure 1):

- A pile-supported, fixed pier perpendicular to the shore, that connects to a ramp, that connects to a float.
- A ramp that connects the shore to a float.
- A pile-supported fixed pier parallel to shore.

Ramp and float portions of residential tidal docks must be seasonal and removed from the water during the non-boating season. Note that only one docking structure is allowed on the frontage of a property.

The **maximum overall structure length**, including pier, ramp and float, measured seaward from the highest observable tide line, must not exceed 200 feet or the length needed to reach water of sufficient depth to allow the terminal section of the dock to be floating at mean low water, whichever is higher.

The **maximum overall footprint** of the entire structure serving a single residence must not exceed 1,500 square feet seaward of the highest observable tide line. In contrast, a residential tidal dock proposed to serve a group of residences may be larger so long as compensatory mitigation is provided for structures exceeding 2,000 square feet.

For **permanent piers**:

- The maximum width must not exceed 6 feet.
- The maximum length must not exceed 200 feet.
- The height of the permanent pier must be at least equal to the width to avoid shading the substrate or vegetation below, e.g., 4 feet wide x 4 feet high.

Floats may be of any configuration so long as the total square footage does not exceed 400 square feet. However, an additional 200 square feet may be allowed for a float serving a group of residences. All floats must be designed and installed so as to prevent substantial changes in their positions from tides and storm events that are less than hurricane force.

Temporary docks are regulated by **local zoning** which can vary by municipality in Maine

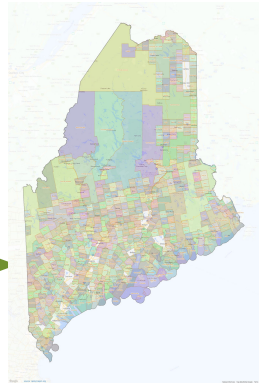
Permanent docks require permitting with **Maine Department of Environmental Protection** under the Natural Resources Protection Act

SEPTIC SYSTEMS

REGULATED & ENFORCED BY

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Maine Department of Health and Human Services
Maine CDC
Maine Center for Disease Control and Prevention



May require wetland and/or shoreland permits

Setbacks

50 ft to 75 ft for wetlands

75 ft to 125 ft ponds, estuaries, lakes, ocean



Setbacks

50 ft to 100 ft for residential



Accessory Dwelling Units (NH House Bill 577 updated RSA 674:71 to :73)

SEPTIC SYSTEMS

NEW AS OF SEPTEMBER 2024

House Bill 1113 updated RSA 485 A:39

Waterfront property transfers - buyer must hire a state-licensed septic system evaluator if any portion of the septic system is within 250 feet of a water body's reference line.

§4216. Transfers of shoreland property

Expanded to include **all shoreland** (not just coastal) in 2020

Disclosure of malfunctions within 180 days of transfer



PROPERLY MAINTAINING A SEPTIC SYSTEM



Replacement in Stratham, NH $28,000



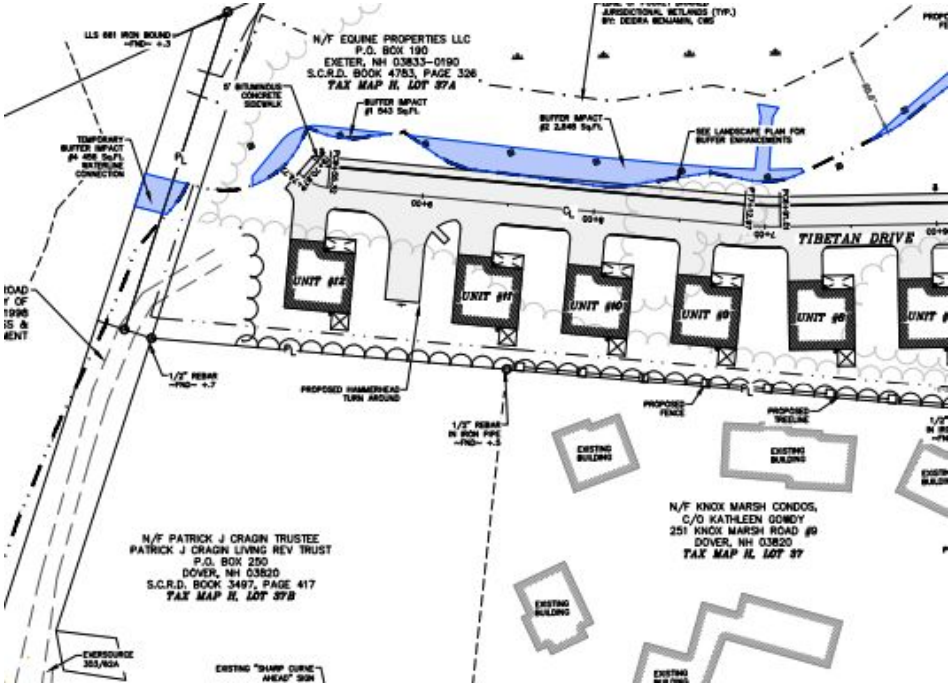
TEST YOUR KNOWLEDGE

Where can homeowners and buyers learn about rules and regulations about what they can do on their property?

a. A property owner can do anything they want on or to their property
b. Consult your real estate agent
c. Ask the neighbors
d. Meet with municipal staff (i.e., City or Town Planner)

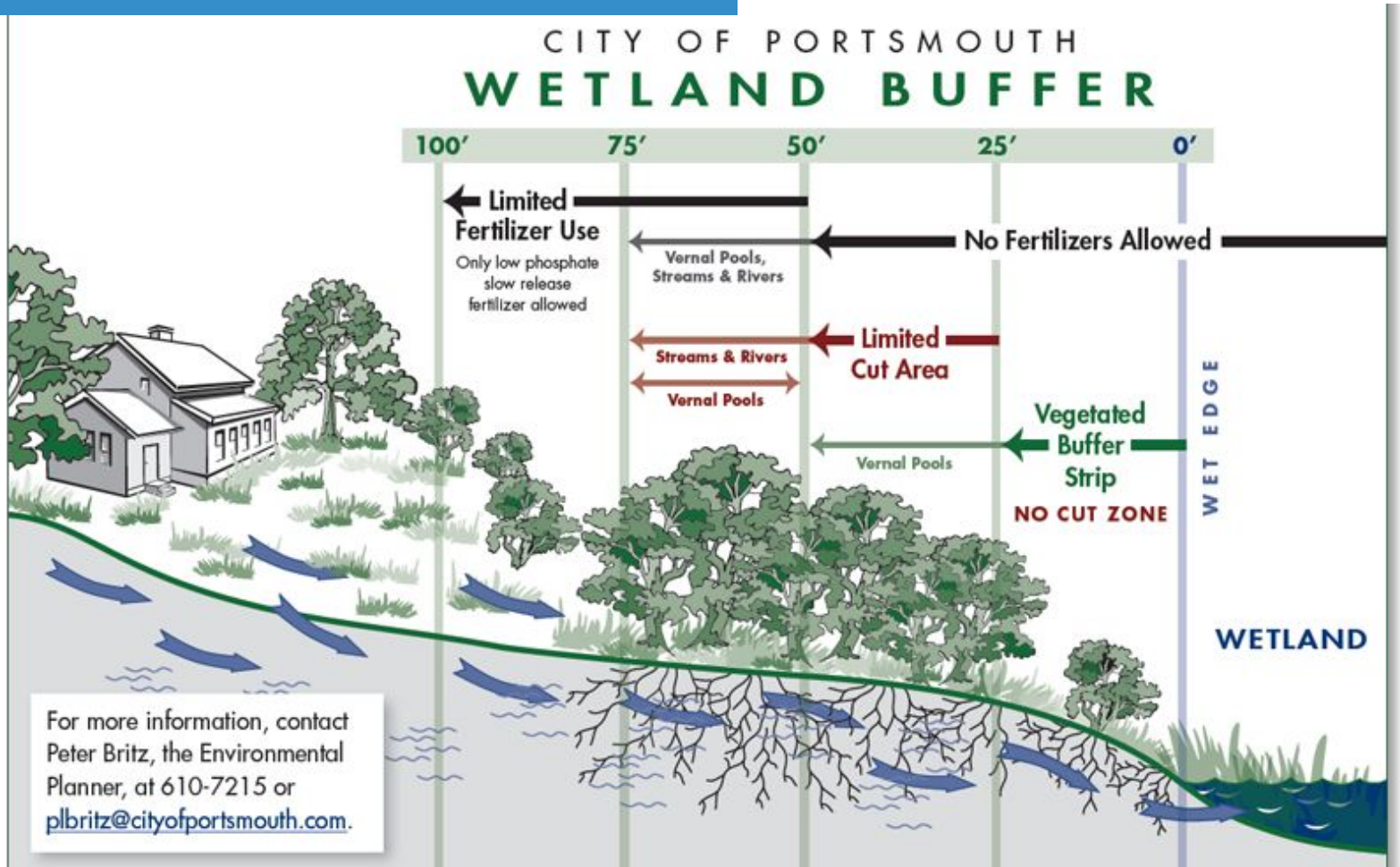
What about local protections?

- Local & thorough review
- Prevent cumulative impacts
- Reflects community interests
- Protects functions & values
- Local inspection & enforcement



Examples include **stormwater management**, **buffers and setbacks for wetlands**, **shoreland zoning** (ME), and **floodplain management.**

Local Ordinances & Regulations



RETAINING WALL - CAUTIONARY TALE

50 Odiorne Point
Portsmouth, NH

DON’T ask for forgiveness, ask for permission - always!



RECAP: Shoreland and Wetland Regulations

Shorelands and wetlands support clean water, wildlife habitat, and properties, plus they are beautiful

Regulations are in place at the State and municipal levels **to protect these ecosystems**

Always check for local regulations before a project!



QUESTIONS?

Information for Affidavits

For NH Credits

Course Number: 20-1260099

Course Provider:

Portsmouth Atlantic Insurance

For Maine Credits

Course Number: LU883C001LE

Course Provider:

Piscataqua Region Estuaries Partnership

BREAK

SITE VISIT

with **Rodney Rowland**
Director of Environmental Sustainability
Strawbery Banke





Basement Flooding Caused by a King Tide

A time lapse video taken on November 17, 2020
at Strawbery Banke Museum
Portsmouth, NH

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LCHIP
Land & Community Heritage Investment Program
MARK A. BUCKOVITCH
MASONRY CONTRACTORS
STONE/BRICK/BLOCK
603-234-4683
COMMERCIAL RESIDENTIAL


DOWNTOWN PORTSMOUTH
PISCATAQUA RIVER
PRESCOTT PARK
COURT STREET
ATKINSON STREET
MARCY STREET
PUDDLE LANE
CENTRAL LAWN
WASHINGTON STREET
HANCOCK STREET
1
2
3
4
5
6
7

Stormwater Garden

STRAWBERY BANKE PORTSMOUTH NEW HAMPSHIRE



4 Filtered water makes its way to the Piscataqua River through soils and the overflow pipe.

Puddle Dock: A Historic Landscape Revisited

The tidal inlet at the center of the Puddle Dock neighborhood was crowded with wharves and warehouses by the end of the nineteenth century. Some plants lined the shoreline, but residents complained that the area was polluted. Between 1896 and 1904, the City of Portsmouth filled in the tidal inlet. Ground water still rises and falls with the tides.



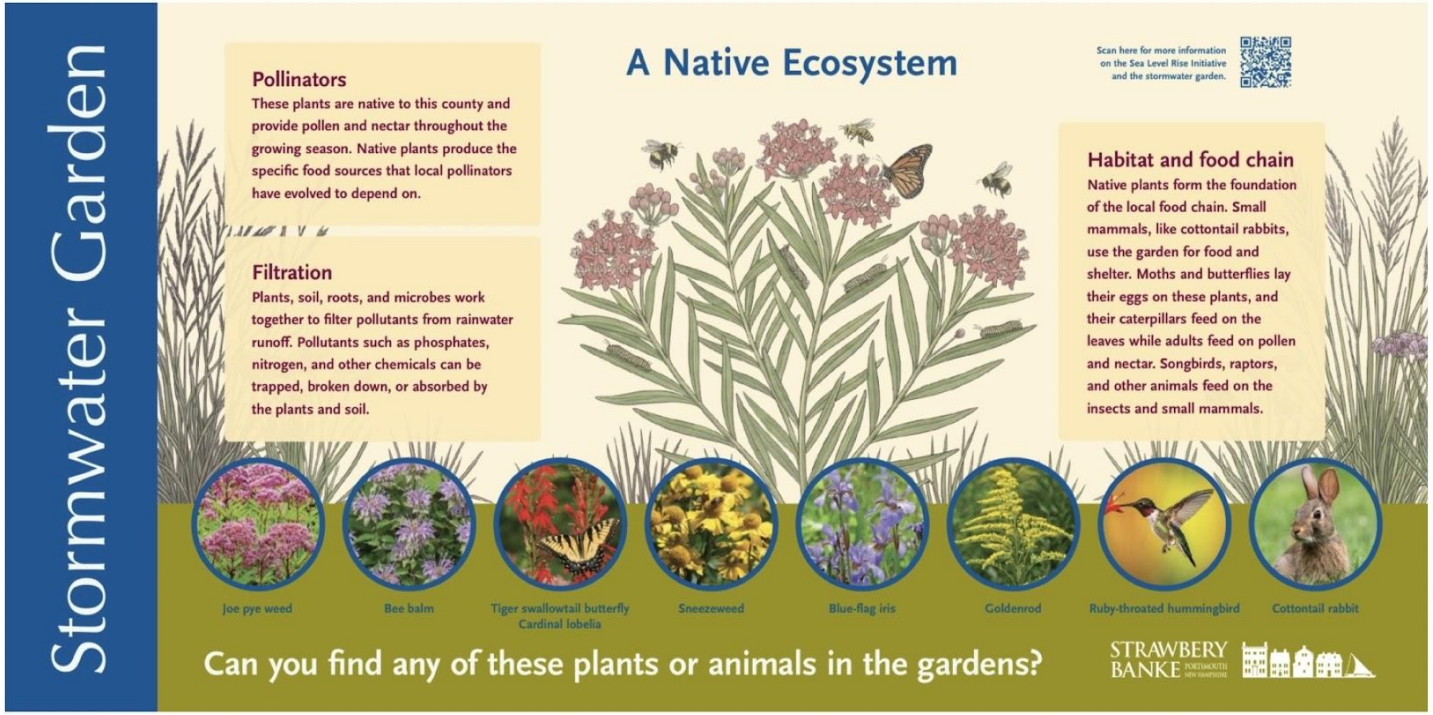
Sea Level Rise Initiative

This stormwater garden manages and controls stormwater, helping to protect the historic buildings at Strawbery Banke Museum. The plants are typical of the region.

Photo: Puddle Dock circa 1890, looking east from Washington Street toward the Liberty Flag Pole.

Scan here for more information on the Sea Level Rise Initiative and the stormwater garden.

THANK YOU TO OUR DONORS FOR MAKING THIS PROJECT POSSIBLE: Piscataqua Garden Club, Anonymous Foundation, Donor Name, Donor Name



STRAWBERY BANKE PORTSMOUTH NEW HAMPSHIRE