

Living with Water

November 18, 2025



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.

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 SITE VISIT: FLOOD MITIGATION at STRAWBERY BANKE

10:30 Break

PART II: FLOOD RISK & RESILIENCY

10:45 Tides and Water Levels

11:05 Determining Flood Risk

11:25 Flood Resiliency

12:00 pm Adjourn

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.

A few requests for today....

One person, one mic

No one knows everything, but together we know a lot

Embrace curiosity



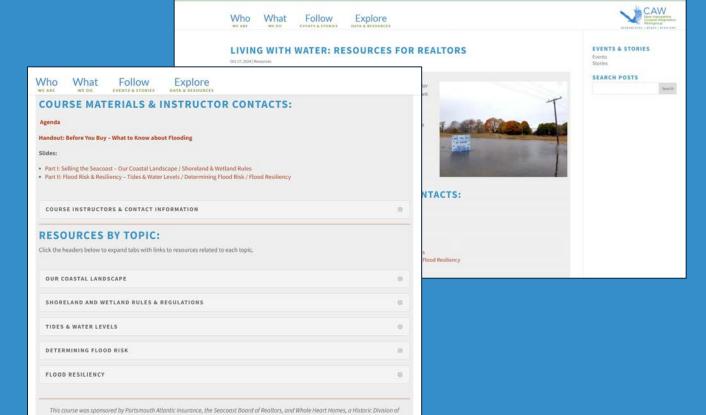
Adapted from the Anti-Oppression Resource & Training Alliance (AORTA)

Who We Are

Lynn Vaccaro, Great Bay National Estuarine Research Reserve
Abigail Lyon, Piscataqua Region Estuaries Partnership
Lisa Wise, NH Sea Grant and UNH Extension
Jennifer Gilbert, NH DES Coastal Program
Kaleigh Johnson, Portsmouth Atlantic Insurance

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

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







Part 1A. Our Coastal Landscape

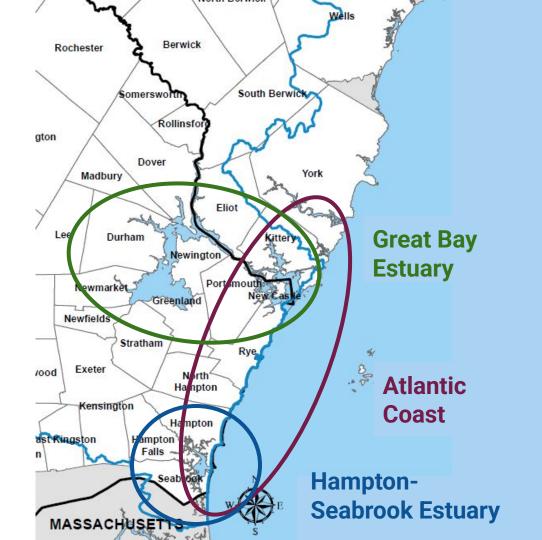
Seacoast NH

miles coastal shoreline

nationally significant estuaries

326 miles tidal shoreline

coastal zone communities





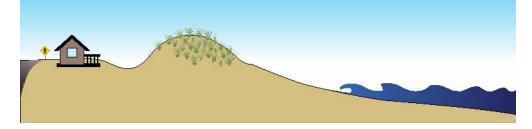


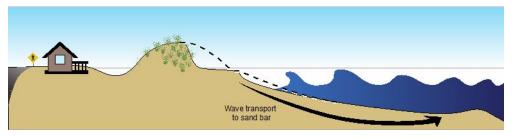
How beaches and dunes work

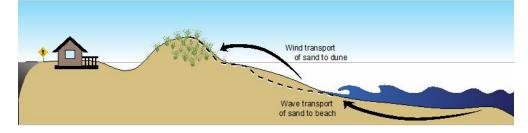
Dunes provide sand for beaches

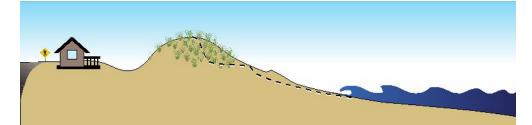
Protect landward properties and infrastructure during storms

Capture sand and store it for the next storm













small dunes

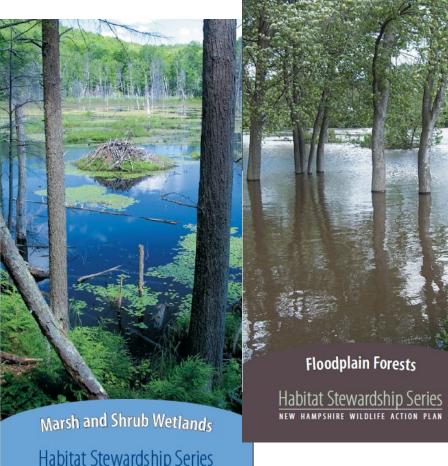
wider dunes

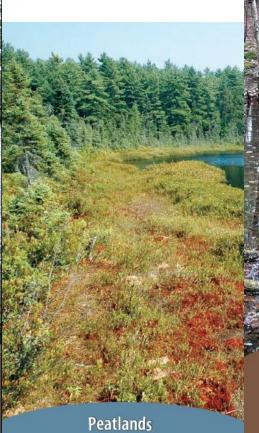














Habitat Stewardship Series

NEW HAMPSHIRE WILDLIFE ACTION PLAN

Habitat Stewardship Series
NEW HAMPSHIRE WILDLIFE ACTION PLAN



Coastal habitats make this area special & provide valuable ecosystem services



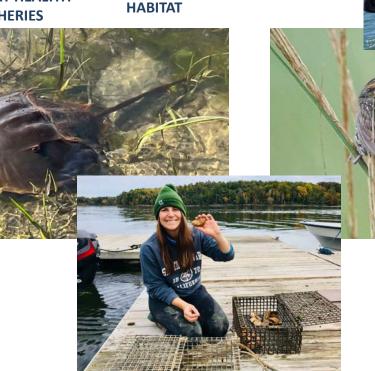




SUPPORT HEALTHY FISHERIES



PROVIDE ESSENTIAL FISH & WILDLIFE HABITAT











10 times faster

the rate at which saltmarshes and coastal wetlands sequester and store carbon compared with tropical forests







REDUCE COASTAL FLOODING



acre of salt marsh can absorb 1.5 million gallons of floodwater or 2.25 Olympic-sized swimming pools



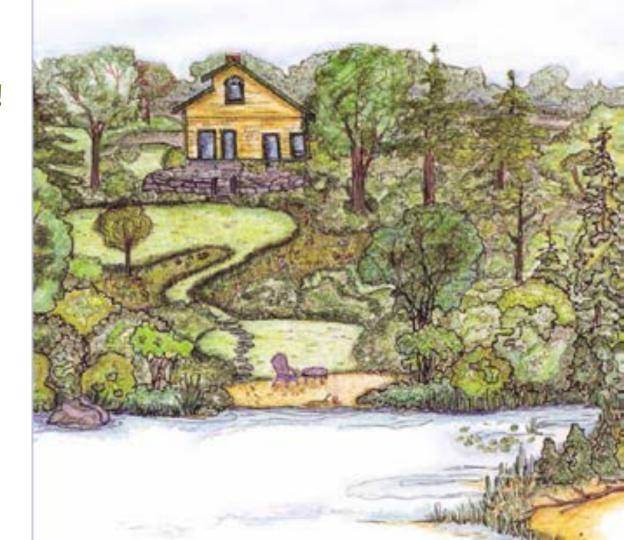


PROTECT SHORELINES FROM EROSION



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





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



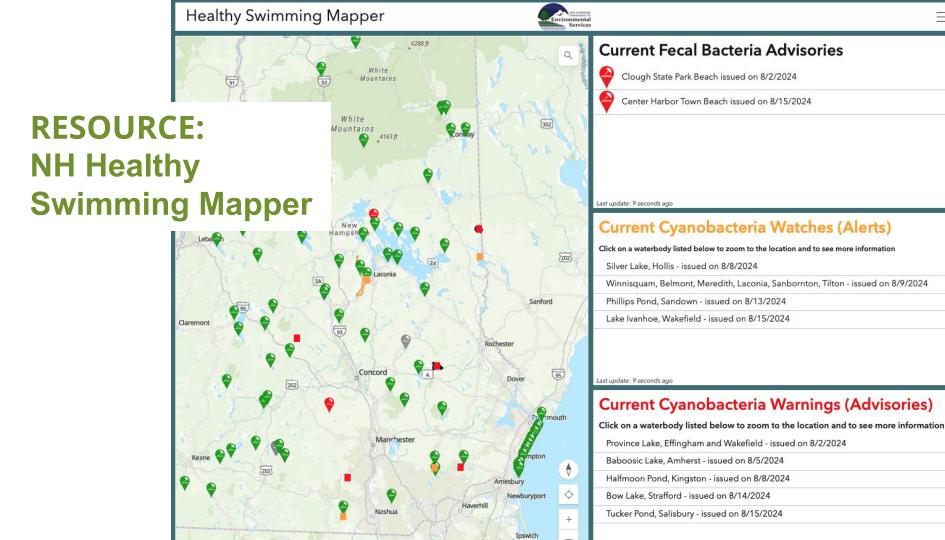
When you take care of a marsh, it takes care of you. The best practices shown here give marshes extra space and minimize direct impacts so habitats can thrive and safeguard coasts. Healthy marsh grasses slow erosion, stabilize shorelines, and lessen the need for expensive seawalls. These recommended actions also lower property maintenance costs, improve water quality, and preserve the natural beauty of the coastline. 1. Add driveway 2. Keep pets away from 3. Maintain your septic system infiltration to absorb the marsh to protect birds to protect water quality. runoff and filter and grasses. pollutants. 4. Relocate fire pits inland to avoid harming plants and soil.

ACTIONS THAT PROTECT MARSHES AND HOMES

- 5. Build smaller docks and limit paths to protect marsh vegetation.
- Pick up litter to keep the marsh safe for people and wildlife.
- Store boats upland to protect marsh edges and vegetation.
- 8. Set a "no-mow" line away from the marsh to maintain a healthy buffer.
- Slow your boat to reduce wakes and erosion.
- Create rain gardens to capture runoff and reduce pollution.
- 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?





Maine Healthy Beaches Portal

Water Quality Monitoring and Beach Status



Internal Site Sign In

Beach Monitoring Season is from Memorial Day to Labor Day

Welcome to the Maine Healthy Beaches Portal

RESOURCE: Maine

Healthy Beaches

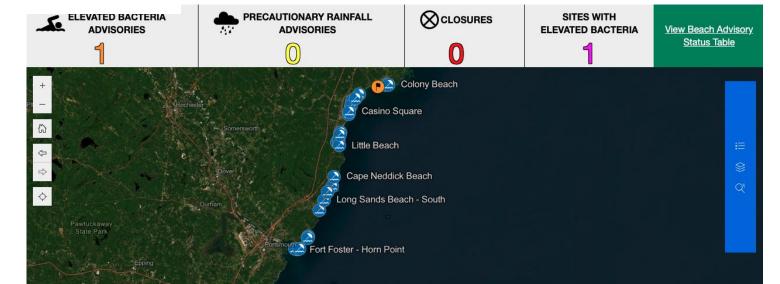
Portal

from Memorial Day to Labor Day

by the Maine Department of Environmental Protection for Maine's and advisories and closures. Learn more about the MHB Program.

or safety threshold) for Enterococcus bacteria in marine waters is nds posting an Elevated Bacteria Advisory when results are ≥ y participating Management Entities, which are the towns, parks, or aing the beach.

View Individual Beach Page:
Select a Beach



RESOURCE: NH Coastal Access Map





Tips for Enjoying the Coast

Rollinsford

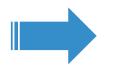
RESOURCE: 7 Rivers to the Coast



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



Part 1B. Shoreland and Wetland Rules

PROTECTING CLEAN WATER STARTS AT HOME



Protecting Shorelands in NH and ME - Similar Goals Different Approaches

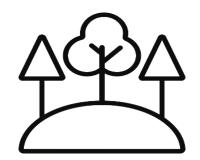


Shoreland Water Quality Protection Act (RSA 483-B)

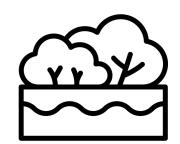
Mandatory Shoreland Zoning (38 M.R.S. ch.3, subch. 1)



Water Quality Protection



Habitat Conservation



Vegetation & Buffer Importance









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



DESIGNATED RIVERS of NEW HAMPSHIRE wn of Kittery **NH Rivers Management & Protection Program** ork County, Maine **Designated Rivers** d Use Zoning Map 1. Ammonoosuc River 8/10/07 & 9/13/09 Ashuelot River 6/07/93 Cocheco River 7/21/09 Cold River 7/20/99 5. Connecticut River 7/14/92 6. Contoocook and North Branch Rivers 6/28/91 7. Exeter and Squamscott Rivers 8/11/95 & 5/31/11 8. Isinglass River 6/30/02 9. Lamprey River 6/26/90 & 6/7/11 A. Lamprev River B. North Branch River C. Pawtuckaway River D. North River E. Little River F. Piscassic River 10. Mascoma River 5/9/11 11. Merrimack River (Lower) 6/26/90 12. Merrimack River (Upper) 6/26/90 13. Oyster River 6/2/11 14. Pemigewasset River 6/28/91 15. Piscataquog River 7/16/93 16. Saco River 6/26/90 17. Souhegan River 5/28/00 18. Swift River 6/26/90 19. Warner River 8/7/18 Legend **Designated Rivers** Class Natural ~~~ Rural Rural-community ~~~ Community Waterbodies Participating County Boundary Town Boundary Designated River Communities

R-RLC

of Maine

Atlantic Ocean



Reference Lines & Setbacks

0-50 ft Waterfront Buffer

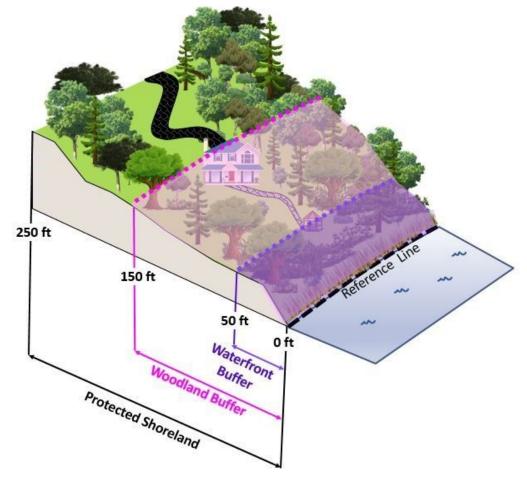
Limited vegetation changes

Setback for primary buildings

0-150 ft Woodland Buffer

At least 25% of area left as natural woodland

0-250 ft Protected Shoreland



RESOURCES: NHDES & MEDEP Shoreland Webpages



Laws

Rules

Publications and

Protected Shoreland

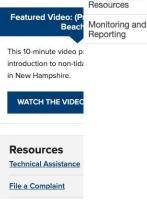
Home > Land > Waterfront Development > Protected Shoreland

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.



resources to assist you, and regulations that might affect you.

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)

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

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

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

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
 - o 250 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 <u>BEST</u> way to determine if there is a wetland on or adjacent to a property?

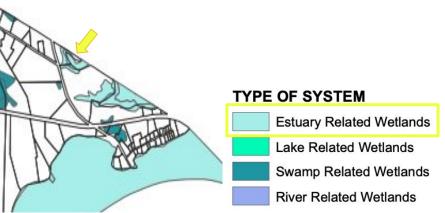
- a. Review the National Wetlands Inventory (online mapper)
- b. Call the town/city to learn about potential wetlands
- c. Conduct a site walk to look for evidence of wetlands
- d. Consult a state certified wetland scientist

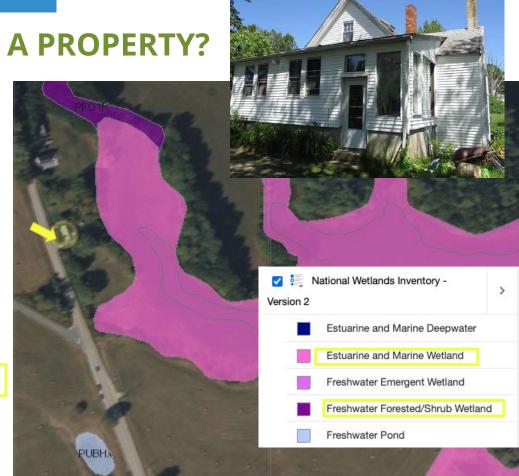
NHDES Wetland Rules

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

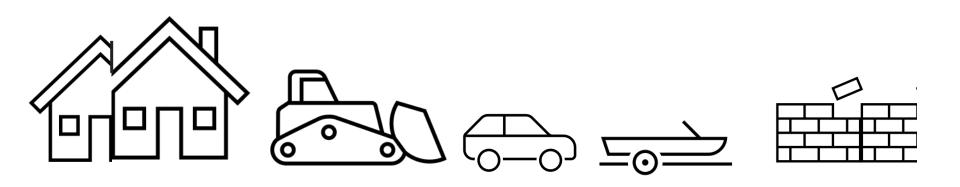
- Slope down hill and toward a water body
- Channel or water flow patterns
- Draining soils
- Depressions holding water in spring
- Consider the time of year for visual assessment





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







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



passage of the

(referenced or

Environmental Protection Sea

Home → Land Resources → Programs → Natural Resources Protection Act

Land Resources >

Air Quality ▼

MAINE DEPARTMENT OF

Natural Resources Protection Act

Sustainability *

Waste Mar

Spills & Site Cleanup ▼

The Land Bureau has developed an online lice which is applicable for all Land Licenses exceptions and the second s

Land Application and Permit Status

<u>Chapters 305 and 310 rule changes webinar (YouTube)</u>: 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 of

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



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 (f 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 expanded permanent and commercial structures in fresh water and, in 1978, the law was amended agai

Wetlands permitting is required for all new docking structures and modifications of docking seasonal docking structures. 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 f 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.

The size and number of boat slips on a property is regulated by state law. A boat slip is ! The size and number of codes supported by a regulated by state seems a code support which a boat is secured to a dock. The size of a boat slip is a predetermined, waterbody water. For waterbodies 10,000 acres or less, a boat slip is a volume of water 20 feet to 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 betwee boat slip or structure. Water depth is measured at the normal high water mark (Figu

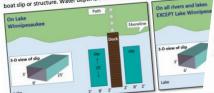


Figure 1 - Boat slip dimensions.



Permitting of Residential Tidal Docks

2020

In New Hampshire, construction and maintenance of tidal docks have been regulated under RSA 482-A since 1967. The In New Hampshire, construction and maintenance of tidal docks have been regulated under KDA MEG. A SINCE 1997. 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

Docking structures located in tidal waters have unique requirements that dictate their design: They must be built to 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 accommodate the rise and fall or 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.

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.

Ramp and float portions of residential tidal docks must be seasonal and removed from the water during the non-boating

The maximum overall structure length, including pier, ramp and float, measured seaward from the highest observable 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 The maximum overall footprint or 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 securate to or the international constraints that the security of the security

- 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

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 additional 200 square teet 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 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







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 System Evaluation / Inspections

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?

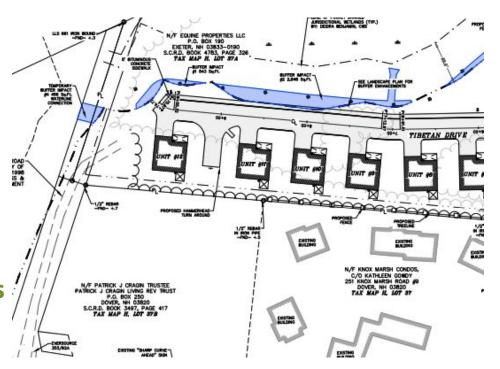
- a. A property owner can do anything they want on or to their property
- b. Consult your real estate agent
- c. Ask the neighbors
- d. Meet with municipal staff (i.e., City or Town Planner)

Local Ordinances & Regulations

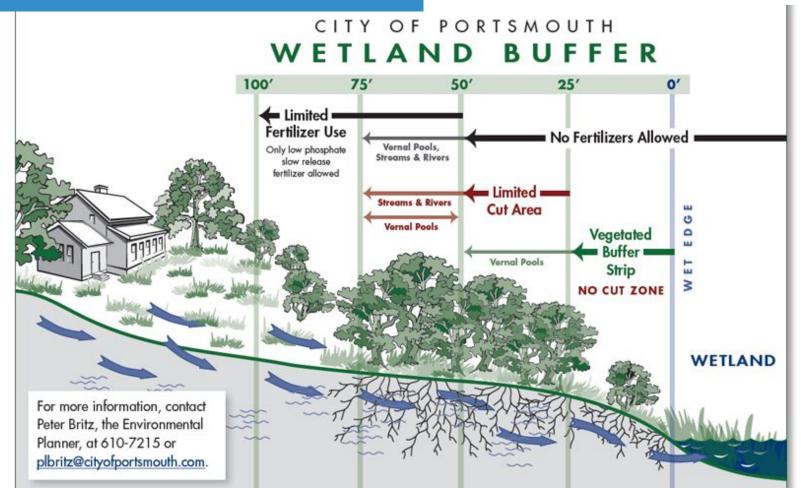
What about local protections?

- 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.



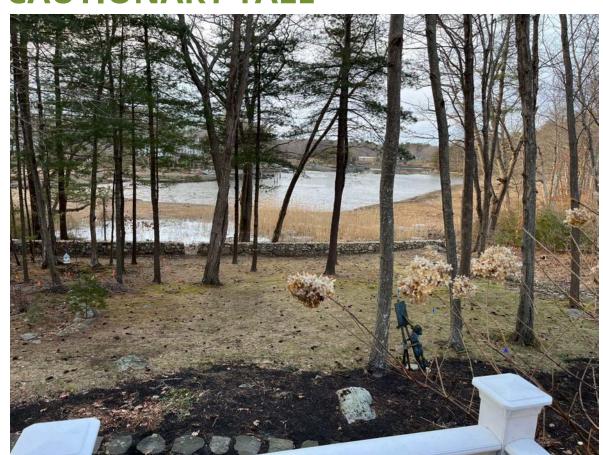
Local Ordinances & Regulations



RETAINING WALL - CAUTIONARY TALE

50 Odiorne Point Portsmouth, NH

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

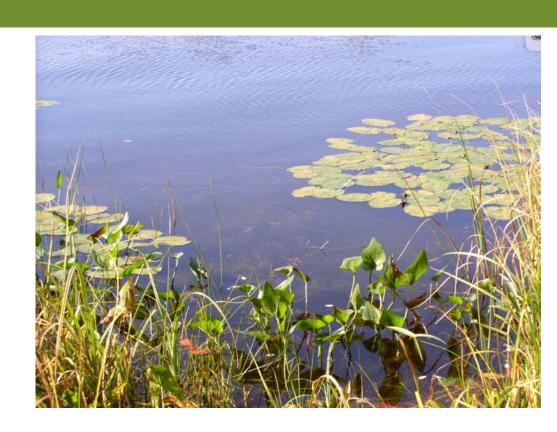


RECAP: Shoreland and Wetland Regulations

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

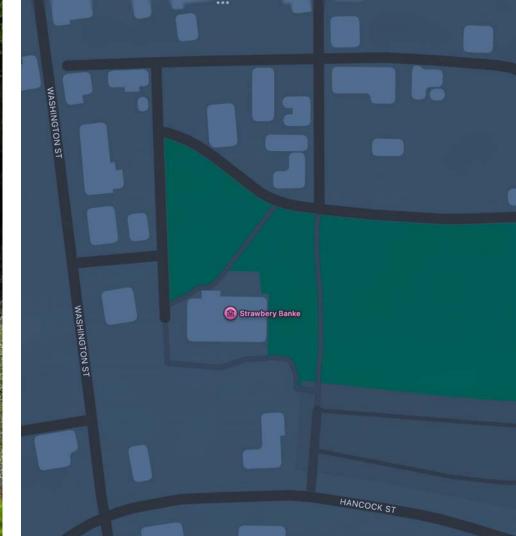
Always check for local regulations before a project!

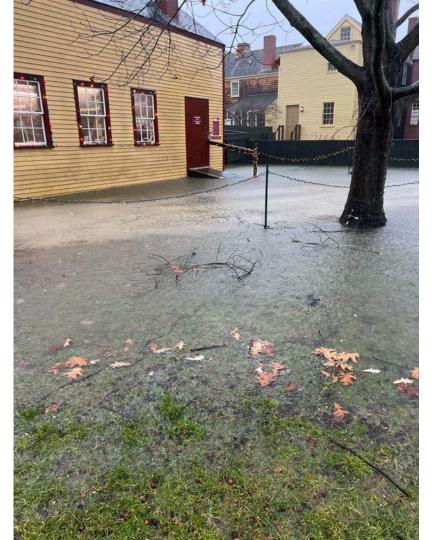


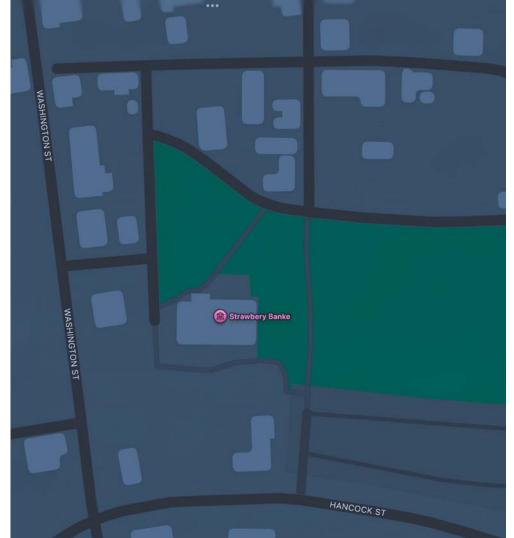














BASEMENT FLOODING CAUSED BY A KING TIDE

A TIME LAPSE VIDEO TAKEN ON NOVEMBER 17, 2020 AT STRAWBERY BANKE MUSEUM PORTSMOUTH, NH

