

OUR SHORE Coastal Erosion Assessments and Site Reports: Peaks Island



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Emma Polhemus, Shore Corps Steward, Maine Conservation Corps & Island Institute
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The Maine Department of Environmental Protection (DEP) is currently developing OUR SHORE, a program that seeks to support homeowners, contractors, and communities who want to integrate nature-based strategies (NbS) into their plans for coastal resilience. The program provides informational tools in the form of a Quick Assessment to identify erosion hazards and a longer guide on how to apply NbS techniques, as well as outreach and training events for homeowners and shoreline stabilization practitioners.

In partnership with the Maine Conservation Corps, the OUR SHORE Program provides direct technical assistance on NbS to property owners and communities by placing Shore Corps Stewards with nonprofits across the state of Maine. Each Shore Corps Steward receives specialized training from the OUR SHORE program and state partners. From May 2025–May 2026, Island Institute is hosting a Shore Corps Steward, Emma Polhemus, to support the Casco Bay islands as they expand NbS opportunities for public and private properties.

Alongside community partners and Island Institute staff, the Shore Corps Steward visited three coastal sites on Peaks Island in March 2026 to complete OUR SHORE Assessments of coastal erosion. The following report documents the results of these assessments along with recommended erosion management actions that align with OUR SHORE guidelines and prioritize nature-based and hybrid strategies.

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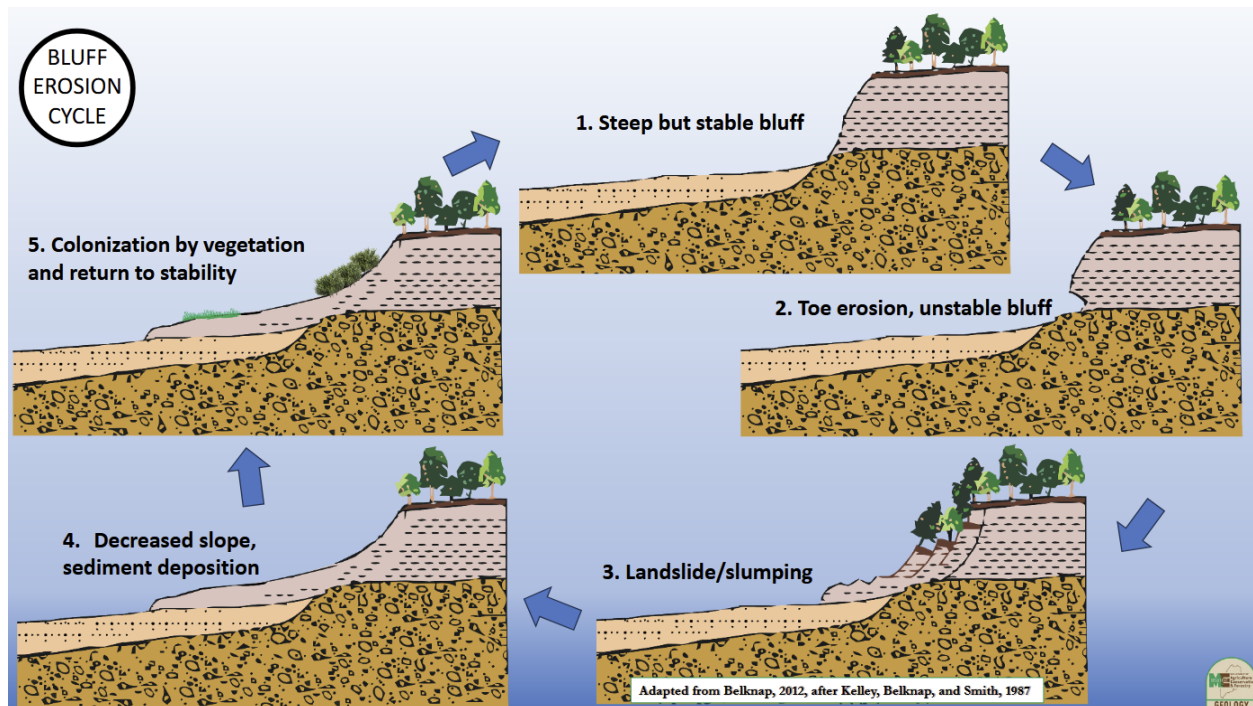
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Key Terms

Coastal bluff: A type of coastal shoreline where unconsolidated sediment (e.g. sand or clay) forms a steep slope 3 feet or taller. Coastal bluffs are located above the high tide line, and can be adjacent to different habitats like salt marshes or mud flats. The top of a bluff where flat land meets the slope is called the crest and the base of the bluff is called the toe. The slope in between the crest and toe is called the bluff face.

Bluff erosion cycle: Coastal bluffs follow a predictable geologic cycle of erosion and stability. In the bluff erosion cycle, the toe of a stable bluff is eroded, creating instability. The unstable bluff slumps, meaning that sediment from higher up the bluff falls or slides to the toe. The fallen sediment creates a more gradual slope and provides habitat for intertidal and upland vegetation, which protects and restabilizes the bluff, returning to the beginning of the cycle. The diagram below, created by the Maine Geological Survey, illustrates this cycle.



(Slovinsky, 2025)

Shoreline stabilization: Often called shoreline hardening or armoring, this typically refers to building hard, manufactured structures (like seawalls, bulkheads, and/or riprap) along a coast or water's edge to attempt to stop erosion and protect private property. Shoreline stabilization can also refer to plants and natural materials used for the same purpose.

Nature-based strategies: Strategies that utilize natural processes and ecosystems to address environmental challenges. For shoreline erosion, several nature-based solutions can be

employed to manage and mitigate erosion while also providing additional benefits to the ecosystem

End-effect erosion: Worsened coastal erosion that happens at the ends of protective structures like seawalls or riprap, causing increased damage to neighboring properties by disrupting natural sediment flow, essentially pushing the erosion problem next door in a domino effect

Scouring: An effect that occurs when waves hit a hard, vertical wall. That wave energy is not absorbed; instead, it is reflected downward and sideways. This redirected, high-energy flow "scoops out" and carries away the sediment (sand, soil, and/or sea bottom) at the base of the structure and in adjacent areas. Consequences of scouring include deepening the water in front of the structure and creating more intense wave energy, degrading habitat, and the undercutting of the foundation of the hardened structure leading to failure of the structure

Fetch: The distance that wind can blow over water towards a shoreline without interruption by a land mass or structure. Shorelines with a high fetch are very exposed to wind, and therefore experience bigger waves, while shorelines with a low fetch are sheltered from wind, storms, and waves. The exposure level of a coastal site is sometimes expressed as *annualized fetch*, which combines the fetch from different directions with how often the wind was blowing in each direction during a year.

Mapping Tools

The following maps and mapping tools are referenced throughout this report:

Living Shorelines Decision Support Tool: Created by the Maine Geological Survey (MGS), this mapping tool rates stretches of shoreline from probably not suitable to highly suitable for a living shoreline design (i.e., using nature-based strategies). Suitability ratings are based on environmental factors like the shoreline geology, annualized fetch, and height and angle of the slope. This tool is a helpful starting point for deciding whether to build a living shoreline, but any site should be assessed on the ground and in detail before choosing a shoreline stabilization strategy.

Coastal Bluff Maps: The MGS Coastal Bluff Maps classify coastal bluffs as stable, unstable, or highly unstable. Stable bluffs have dense vegetation cover, gentler slopes, and no signs of erosion. Unstable and highly unstable bluffs have exposed soil on the bluff face, steeper slopes, and signs of erosion like fallen trees and displaced blocks of soil. Data for the Coastal Bluff Maps was last collected in 2020, so some bluffs mapped as stable might be unstable at present, and some unstable bluffs might have stabilized. New Coastal Bluff Maps of Casco Bay are expected in 2026.

Beginning with Habitat Maps: Beginning with Habitat is a program created by the Maine Department of Inland Fisheries & Wildlife (IF&W) to share information on plant and wildlife habitats and conservation. Since any shoreline stabilization project, whether nature-based or a hardened structure, will impact the surrounding environment, these maps can help decision-makers and project designers understand what habitats and wildlife are in the area and how to minimize negative impacts. Some of the data included in Beginning with Habitat maps also affect the permitting process. For example, shoreline stabilization permits have to undergo additional review by IF&W if the project will occur near protected habitats like high-value waterfowl and wading bird habitat.

The OUR SHORE Quick Assessment

The OUR SHORE Quick Assessment is a tool used to quickly analyze the causes and impacts of erosion at a shoreline site. The assessor ranks the site as lower, moderate, or higher instability risk based on a variety of criteria in the following categories.

Criterion	Characteristics of Lower Instability Risk	Characteristics of Moderate Instability Risk	Characteristics of Higher Instability Risk
Example: Bank Height	Low bank (less than 3 feet)	Moderate bank (3-6 feet)	High bank/bluff (over 6 feet)

Source & Severity of Erosion – Assess the locations & sources of of instability

Height & Slope Risk – Assess contributions of height, slope, and soil to instability risk

Overland Water from Land Use – Assess how property use affects stability through overland flow and groundwater

Revegetate/reconnect shoreline buffer – Assess levels of buffer vegetation for stability and habitat connection

The Quick Assessment then provides a list of possible management options based on the instability risk in each category. A complete erosion management plan is created by combining practices to address each source of instability. The Quick Assessment was designed to provide a starting point from which homeowners, contractors, municipal officials, and others can begin to consider nature-based strategies for managing erosion. It does not represent a complete environmental assessment or provide detailed erosion management plans. The complete OUR SHORE Guide and practitioner trainings provided by DEP are available to supplement the Quick Assessment when more detailed assessment or technical guidance is needed.

OURSHORE Quick Assessment: Boat Ramp
Centennial St, Peaks Island, ME

Existing Site Conditions:

Location:

A public boat launch is maintained by the City of Portland within the Centennial St right-of-way. The boat ramp, adjacent beach areas, and neighboring private properties are evaluated in this assessment. The Centennial St boat ramp is used to launch trailered boats as well as hand-carried small boats. Some kayaks and canoes are stored on the beach adjacent to the boat ramp. To either side of the boat ramp right-of-way are private, residential properties.

Environmental Characteristics:

The paved boat ramp and stone sidewalls extend 75 ft into the coastal wetland. Shoreline areas surrounding the boat ramp consist of sand and gravel beaches. Inland of the beach, the bank is low and gradually sloping. Sections of the bank have been hardened with placed stone for erosion control.

Areas nearby the Centennial St boat ramp are included in National Wetland Inventory maps. Moderate to high value Tidal Waterfowl and Wading Bird habitat is mapped in and around the coastal wetland. While the Centennial St boat ramp and neighboring properties do not fall within a delineated sand dune system, there are mapped coastal sand dunes nearby.

Erosion:

As a public shoreline and water access site, erosion, coastal flooding, and storm damage to the boat ramp infrastructure are community concerns at this site. Some sections of the shoreline within the neighboring properties have already been stabilized with stone structures to manage erosion. The site assessment and report aim to provide management recommendations consistent with OUR SHORE best practices to mitigate ongoing erosion, minimize the negative impacts of existing hard structures on adjacent shoreline areas, and improve habitat and infrastructure resilience.

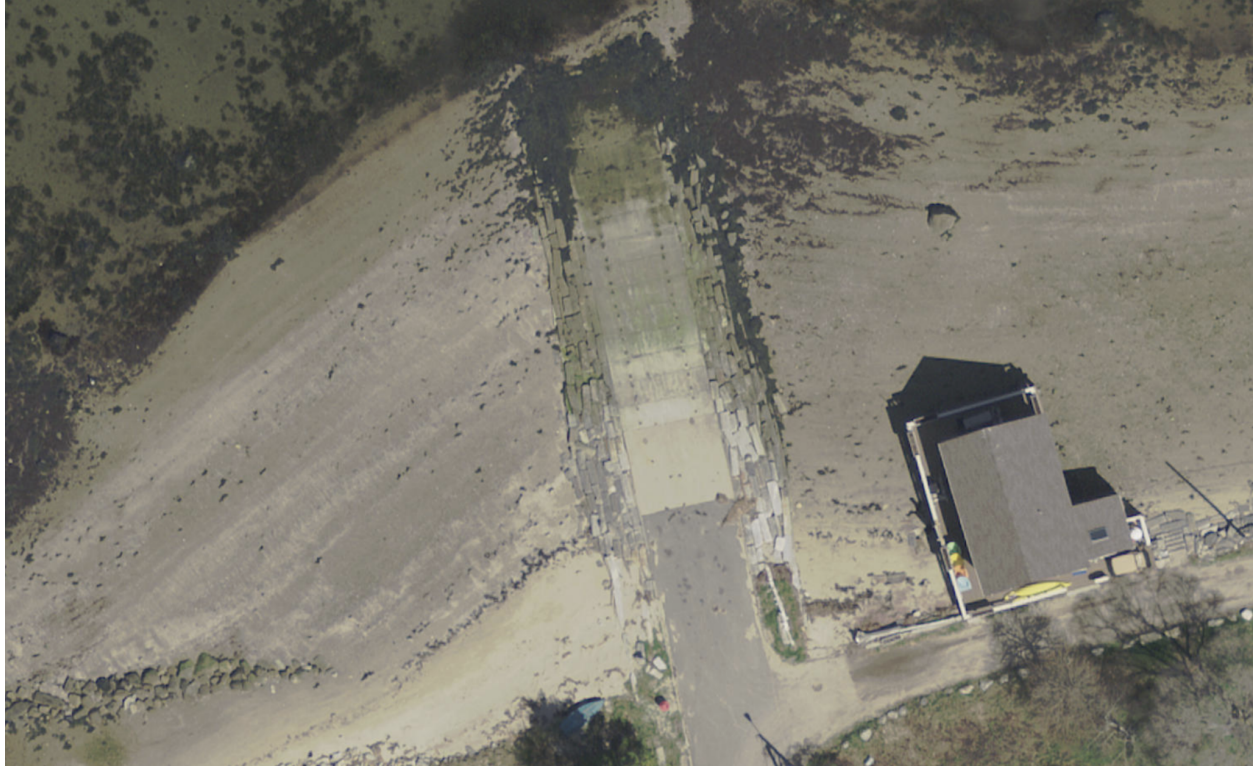


Figure 1: Aerial image of the Centennial St boat ramp. Source: Maine Geological Survey *Maine Highest Astronomical Tide Line* map.



Figure 2: Photograph of the beach and shoreline of the neighboring private property to the east of Centennial St.



Figure 3: Photograph of the east side of the Centennial St boat ramp and boat ramp parking.



Figure 4: Photograph of the beach and shoreline of the neighboring private property to the west of Centennial St.



Figure 5: Photograph of existing riprap stabilization on a private property adjacent to the Centennial St boat ramp.



Figure 6: Beginning with Habitat map showing National Wetland Inventory areas (blue and white pattern)



Figure 7: Beginning with Habitat map showing Tidal Waterfowl and Wading Bird habitat areas (dark blue).

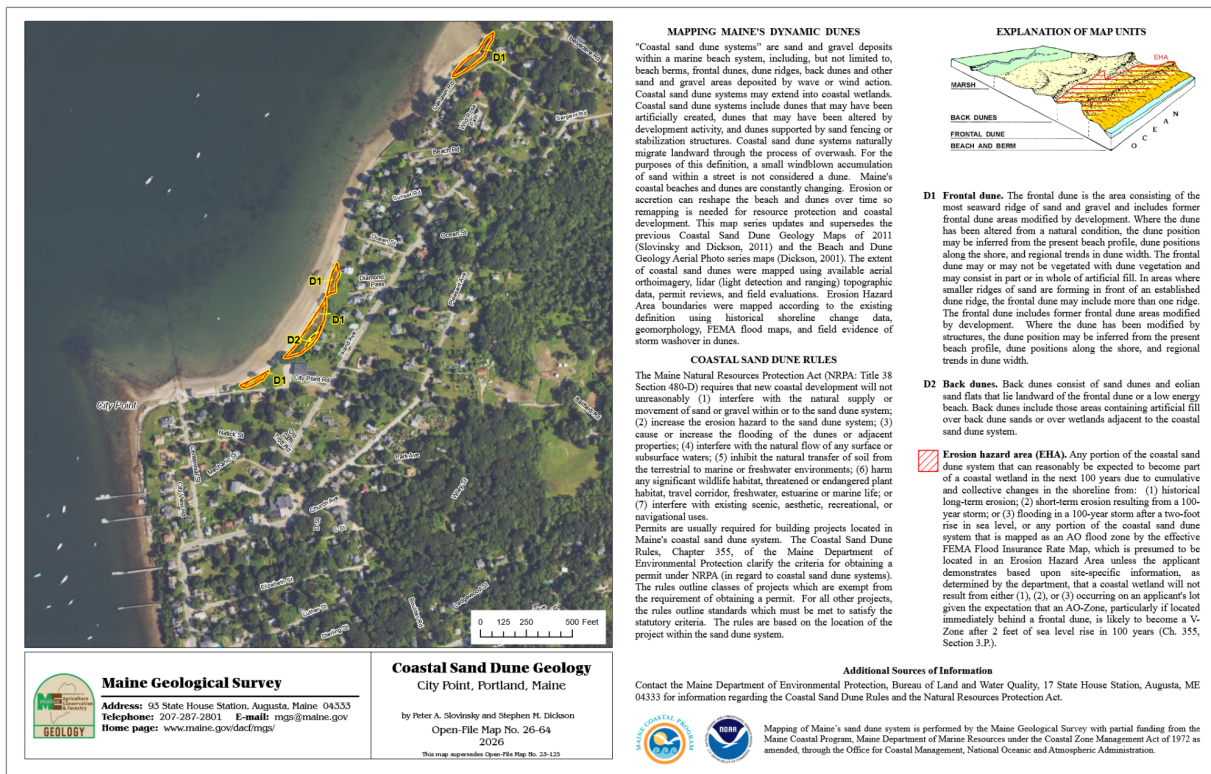


Figure 8: Maine Geological Survey map of Coastal Sand Dune Geology near the Centennial Street boat ramp.

OUR SHORE Quick Assessment:

Source & Severity of Erosion:

Overland Erosion	Low - No recent bank erosion or loss from overland flows
Groundwater	Low - No evidence of groundwater seepage
Toe Erosion	Moderate - Moderate toe erosion, beginning to slump
Wave Erosion	Low - Site is mostly sheltered from severe wave action

Height & Slope Risk:

Bank Height	Low Bank (less than 3 feet)
Slope Severity	Low Slope (less than 3L:1V)
Current Slope	Moderate - More than half of surface has vegetation and duff layer
Soils	Low - Soils contain mix of sediments and stone; fairly stable soil condition

Overland Water from Land Use:

Surface Water Flow to Bank	Low - No concentrated or channelized flow from adjacent land use
Lawn or Bare Ground Near Bank	High - Lawn area or bare ground is located within 25 feet of the shoreline
Impervious Surface Near Bank	High - Roads, driveways, houses, or other impervious surfaces are within 25 feet of the shoreline
Overall Impact of Surface Flow	Moderate - Moderate Overland Impact from surface water

Revegetate/Reconnect Shoreline Buffer:

Vegetation Within 250 Feet	Sparse vegetation (less than 20%)
Vegetation Within 25 Feet	Average vegetation (20-70% coverage)
How Natural is the Shoreline Habitat	Moderate - Bank impaired by riprap/hardened structures, but vegetation is present OR is pruned, mowed, or otherwise altered

Proposed Management Actions:

Protect and Enhance Dune Vegetation:

While the Centennial St site is not within a mapped sand dune, there is sand dune vegetation, including American beach grass, present on the upper beach at the site. Vegetation such as beach grasses helps to hold sand in place and prevent beach erosion, as well as diffusing wave energy before it reaches the shore. Existing vegetation should be protected and preserved to maintain its function in erosion control. In addition to not intentionally removing any of the beach vegetation, foot traffic over vegetated areas should be minimized. For additional shoreline protection, more dune grasses can be planted to enhance and expand existing vegetated areas along the shoreline.

Retrofitting Existing Riprap with Vegetation:

Adding vegetation to an existing riprap design can enhance the shear strength and durability of the structure while improving shoreline habitat quality. Some riprap structures have plastic geotextile fabric installed underneath the stone. This fabric prevents plant roots from reaching the underlying soil or growing within the riprap, so a structure with geotextile fabric will require specific techniques to add vegetation. Live stakes, or branch cuttings of easily rooted shrubs, can be pushed directly through gaps in the stone into the underlying soil (Fig. 9). If the stakes aren't able to puncture through the filter fabric, a hole can be cut into the fabric, or a piece of rebar and a mallet can be used to first create a pilot hole for the live stake. Installing potted plants into existing riprap is also possible, but it requires more disturbance of the existing riprap design, since stones will have to be moved to create gaps large enough to place the plants.

Increasing Vegetated Buffers:

A vegetated buffer consisting of native shrubs, grasses, and groundcovers can significantly enhance shoreline stability. Even along stretches of shoreline that are stabilized with riprap, a vegetated buffer helps to prevent surface runoff and groundwater from destabilizing the riprap structure. A buffer also provides additional protection to the riprap in large storms when waves overtop the bank.

Vegetated buffers should have a minimum width of 10-15 ft across the entire bank for shoreline stabilization benefits. A mix of different woody shrubs and herbaceous plants like grasses, groundcovers, or ferns will provide the most effective mix of root system types to hold soil in place. Vegetated buffers can be planted using potted plants, live stakes, or seeds, but in many cases a buffer can be established or enhanced simply by designating areas of lawn to stop mowing and allowing native vegetation to reestablish.

Boat Storage Best Practices:

Storing boats on the shoreline can unintentionally damage or smother shoreline vegetation and increase erosion. Associated foot traffic to access stored boats can also contribute to this erosion. Best practices to prevent erosion caused by boat storage include choosing areas of the bank that do not have vegetation to store boats, or using an elevated lift or rack to store boats that protects the underlying vegetation. The path used to access stored boats should be clearly defined so soil and vegetation disturbance from foot traffic is kept to limited areas.

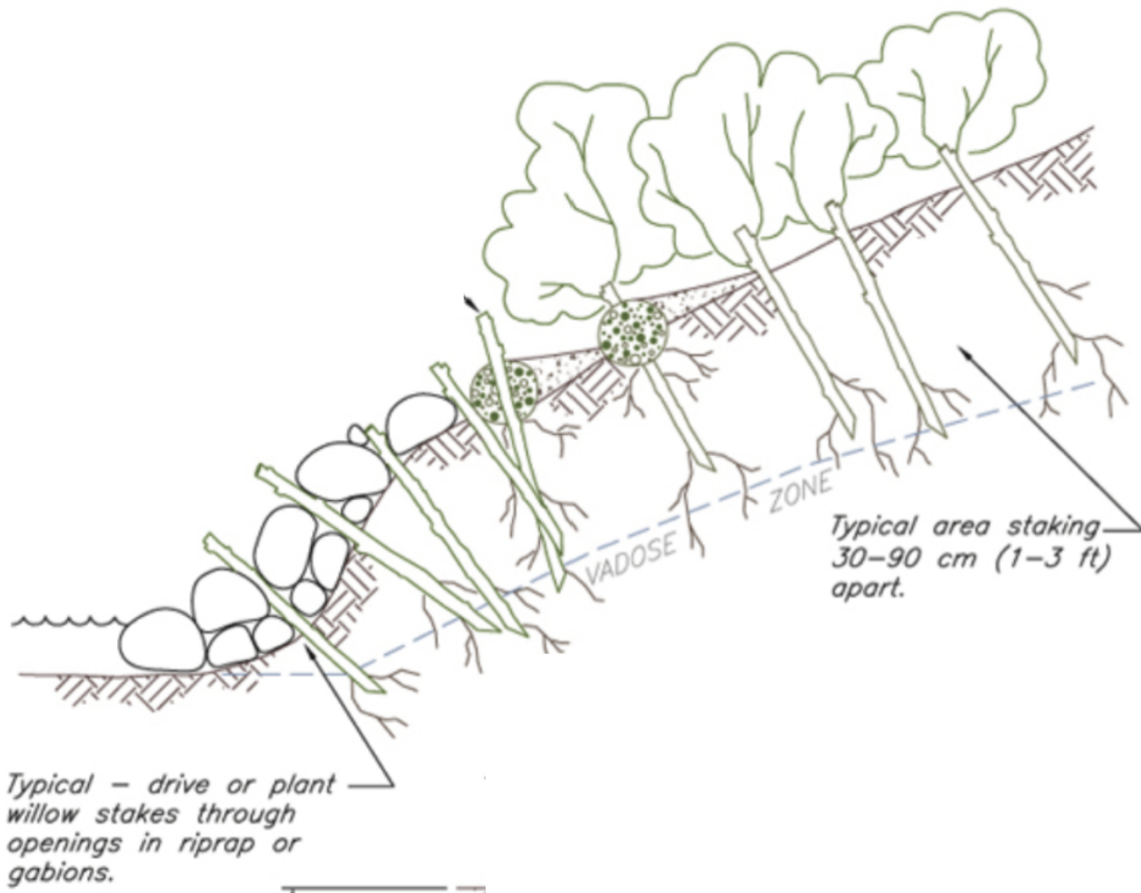


Figure 9: Example placement of live stakes into riprap (Virginia Department of Transportation).

OURSHORE Quick Assessment: Ferry Beach
Welch St, Peaks Island, ME

Existing Site Conditions:

Location:

Ferry Beach is a public beach adjacent to the ferry dock on the west side of Peaks Island. The beach is approximately 200 ft in length, bounded by Welch St to the north and a dock to the south. Ferry Beach has two access points currently in use: a newly constructed set of wooden stairs, and a dirt footpath. The beach is used as a recreation area as well as a site to land kayaks and small boats.

Environmental Characteristics:

The intertidal area at the site is a wide sand beach. Upland of the beach is a soil bank approximately 15 ft high with a moderate 45° slope. Riprap stone revetments are present at both ends of the beach where docks meet the bank. Areas of the bank without structures are primarily vegetated by invasive species including knotweed and Asiatic bittersweet.

The site is included in National Wetland Inventory maps (Fig. 5). Nearby mapped habitat types include moderate and high value Tidal Waterfowl and Wading Bird habitat (Fig. 6).

Erosion:

As a frequently used public beach, erosion at Ferry Beach is highly visible to the community. The two key erosion issues at the site are toe erosion, worsened by severe winter storm events, and erosion from surface water on the footpath and on both sides of the wooden stairs.



Figure 1: Photo of a section of the Ferry Beach bank including the footpath.



Figure 2: Photo of a section of the Ferry Beach bank between the footpath and access stairs.



Figure 3: Photo of the new access stairs at Ferry Beach.



Figure 4: Photo of a section of the Ferry Beach bank between the access stairs and southern end, including the existing stone revetment.



Figure 5: Beginning with Habitat map of Ferry Beach indicating National Wetland Inventory areas.



Figure 6: Beginning with Habitat map of Ferry Beach indicating Tidal Waterfowl and Wading Bird Habitat areas (dark blue).

OUR SHORE Quick Assessment:

Source & Severity of Erosion:

Overland Erosion	High - Bank erosion is occurring with measurable change from overland flows
Groundwater	Low - No evidence of groundwater seepage
Toe Erosion	Moderate - Moderate toe erosion, beginning to slump
Wave Erosion	Moderate - Site receives some wave action, but only large storms cause erosion. Only toe is affected

Height & Slope Risk:

Bank Height	High Bank/Bluff (over 6 feet)
Slope Severity	Moderate Slope (between 3L:1H—1L:1H)
Current Slope	Moderate - More than half of surface has vegetation and duff layer
Soils	Low - Soils contain mix of sediments and stone; fairly stable soil condition

Overland Water from Land Use:

Surface Water Flow to Bank	High - Concentrated or channelized flow is directed down the embankment with rills and gully erosion. No protection is in place
Lawn or Bare Ground Near Bank	High - Lawn area or bare ground is located within 25 feet of the shoreline
Impervious Surface Near Bank	High - Roads, driveways, houses, or other impervious surfaces are within 25 feet of the shoreline
Overall Impact of Surface Flow	High - Overland flow of water is a significant contributor to instability

Revegetate/Reconnect Shoreline Buffer:

Vegetation Within 250 Feet	Sparse vegetation (less than 20%)
Vegetation Within 25 Feet	Average vegetation (20-70% coverage)
How Natural is the Shoreline Habitat	Low - Bank is hardened and/or no vegetation present

Proposed Management Actions:

Managing Overland Flow Contributions:

Erosion from the surface flow of stormwater is visible on the footpath and alongside the stairs at Ferry Beach. General best practices for managing erosion caused by overland flows include covering areas of bare soil and slowing down or spreading out the flow of fast-moving, concentrated water down the slope. Mitigating overland erosion on coastal banks also reduces the slope's vulnerability to erosion caused by waves and storms.

At this site and areas with similar slopes, preventing surface erosion on dirt paths is difficult and requires regular maintenance, especially when there are roads and other impervious surfaces nearby. Since the stairs provide a stable point of access to the beach, ceasing use of the footpath and revegetating this area will be the most effective method of preventing overland erosion of this area. Temporary slope interruption techniques, which prevent water from taking a direct path down the slope, will limit erosion and speed up the revegetation process. Slope interruption methods for this site could use placement of coir logs or mulch-filled "socks" horizontally across the slope (Fig. 7). Native vegetation should also be installed in the footpath area for long-term protection. Because there are nearby populations of invasive species, mature plants purchased from a nursery will be more likely to successfully establish before the knotweed or bittersweet than seeds or seedlings. Lastly, after slope interruptions and native vegetation have been installed, any remaining areas of bare soil should be covered with erosion control mix (ECM), a specialized mulch that is effective at providing long-term soil protection.

Similar techniques can be used to mitigate erosion alongside the wooden stairs. Slope interruptions, such as coir logs, should begin at the top of the stairs to prevent water from traveling down the areas of exposed soil near the stairs. Additional coir logs could be used to enhance the natural terraced areas visible next to the stairs. The flat surfaces of these terraces slow the movement of runoff and increase the amount of water that infiltrates into the soil rather than continuing down the slope. Care should be taken that any slope interruption techniques direct water away from the footprint of the stairs, rather than towards. This can be accomplished by placing the slope interruptions at a slight angle so the end of the coir log or sock next to the stairs is at a higher elevation than the far end. The coir log or sock should also extend underneath the footprint of the stairs, so runoff does not create a new channel along the side of the structure. As with the footpath, native vegetation should be installed in all areas showing signs of surface erosion, then any bare areas of soil should be mulched with ECM.

Nature-based Toe Protection:

Some toe erosion is visible along the bank at Ferry Beach. The bank is not undercut, and the site is generally sheltered from high winds and large waves, making it a highly suitable location for

an NbS approach using biodegradable toe protection and vegetation. Coconut coir logs are frequently used for toe protection. The coir logs protect any exposed soil at the toe and provide protection against wave erosion, and the biodegradable coconut fiber provides suitable media for plants to grow and add long-term stability. For toe protection, the logs are placed in shallow trenches in the soil, then secured in place with stakes and twine (Fig. 8). Live stakes, cuttings of quickly-rooting native shrubs, can be used to secure the coir logs along with untreated hardwood stakes to increase the rate of revegetation at the site. Native vegetation should also be planted on the slope above the coir logs, since long-term stabilization of the site will be provided by the root systems of the plants as the coir logs biodegrade over time. A mix of salt tolerant tall grasses and woody shrubs will create the deep, fibrous root network necessary for effective stabilization.

Sand Dune Restoration:

Sand dune vegetation is present along the upper beach areas at the site. This indicates that environmental conditions are likely suitable for dune restoration and enhancement as a nature-based stabilization strategy. Sand dunes are highly effective at reducing the energy of oncoming waves before they hit the slope, and a dune at the Ferry Beach site would supplement the toe protection provided by a coir log installation. Dune grasses trap wind-blown grains of sand that naturally build up a dune system over time. This process can be used for cost-effective sand dune restoration by simply planting dune vegetation in the desired dune area, and allowing the sand dune structures to build itself naturally.

Invasive Species Management:

Ferry Beach is the site of ongoing invasive species management. Shoreline stabilization strategies and invasive species management plans should be designed so they are complementary, not detrimental. Best practices include protecting newly created areas of bare or disturbed soil from colonization by invasive species and installing temporary and long-term stabilization of soil previously vegetated by invasive species. It is also important to evaluate whether plants used in NbS will successfully establish in competition with invasive species on the site and choose appropriate plants and planting strategies. A phased management approach integrating components of invasive species management and shoreline stabilization is recommended.

At Ferry Beach, the primary species of concern are Japanese knotweed and Asiatic bittersweet. While Asiatic bittersweet does provide some benefits for erosion control and slope stability, Japanese knotweed has been found to increase shoreline erosion. Therefore, a more aggressive approach to knotweed management may increase erosion over the short term by exposing bare soil but will benefit the system overall by replacing knotweed rhizomes with native root systems

that provide soil stability. However, a gradual approach focusing on slowly replacing native vegetation may be more suitable for Asiatic bittersweet, so the bank is not suddenly destabilized by the loss of the bittersweet's root systems.

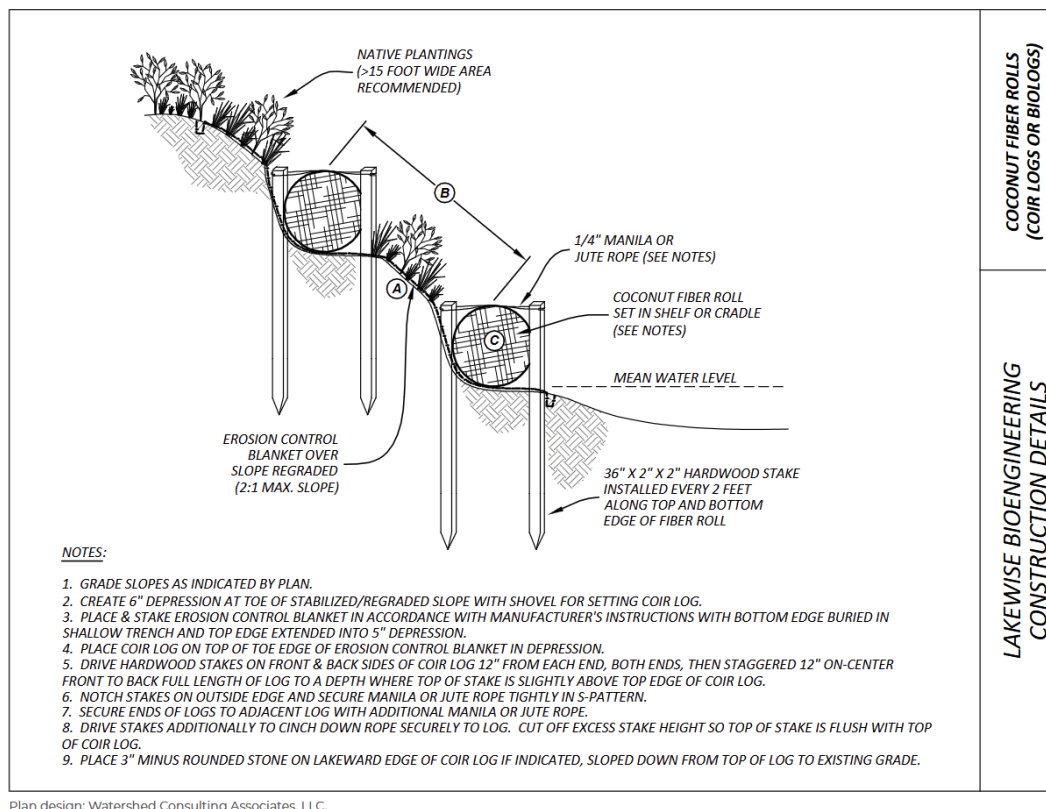


Figure 7: Example coir log plan for slope interruption from the Vermont Bioengineering Manual.

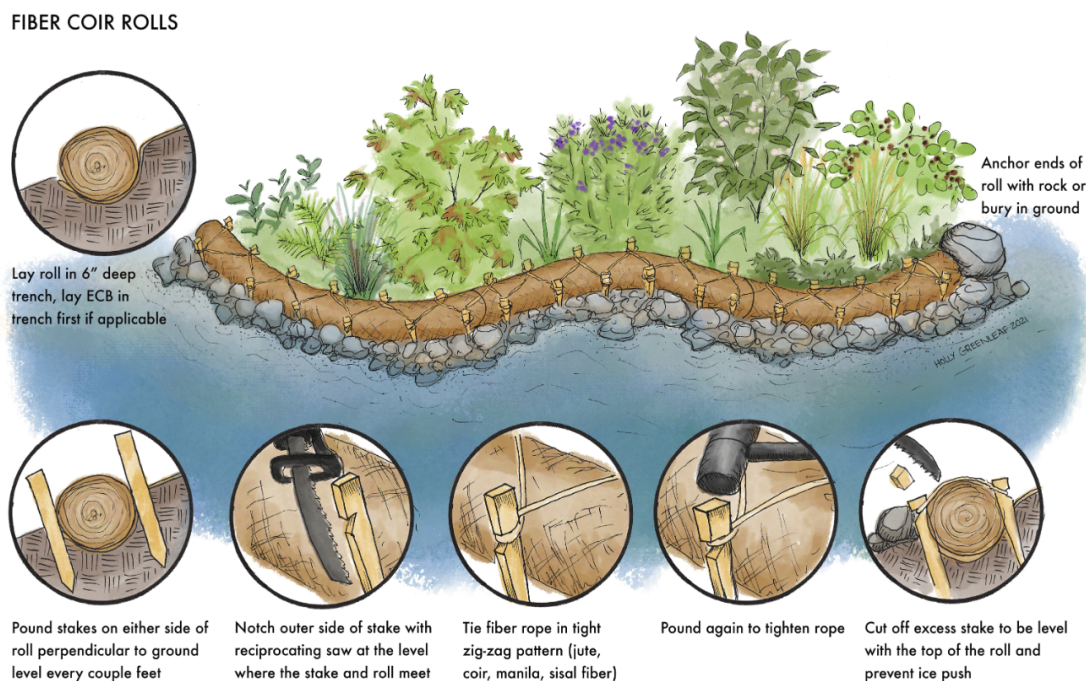


Figure 8: Illustration of coir log installation for toe protection from the Vermont Bioengineering Manual.

OURSHORE Quick Assessment: Sandy Beach
Torrington Ave, Peaks Island, ME

Existing Site Conditions:

Location:

Sandy Beach is a public beach on the south side of Peaks Island. The beach is accessed from Torrington Ave by a set of wooden stairs. The site assessment and report describe an approximately 200 ft stretch of shoreline to the west of the access stairs.

Environmental Characteristics:

Sandy Beach is wide and gently sloping. Boulders and sections of bedrock are exposed across the length of the beach. The inland beach edge transitions to ledge. To the western end of the assessed section of Sandy Beach, this ledge makes up most of the bank, with a 1-2 ft layer of soil on top of the bedrock. Near the stairs, the ledge is lower, with 6-10 ft of steeply sloped sediment above.

Sea scallop beds and moderate value Tidal Waterfowl and Wading Bird habitat are mapped in the nearby intertidal areas. The intertidal zone of Sandy Beach is also included in the National Wetland Inventory. Seagrass beds are also present in adjacent nearshore areas.

Erosion:

Waves do not reach the sediment portions of the bank at Sandy Beach under normal tidal and weather conditions. In large storms, waves can reach and erode the upper bank. Signs of erosion are visible, including areas of bare soil and undercutting.



Figure 1: Photograph of Sandy Beach facing east, including the Torrington Ave access stairs.



Figure 2: Photograph of the bank of the focus area of Sandy Beach. Undercutting of the soil layer above the bedrock is visible.



Figure 3: Beginning with Habitat map of Sandy Beach showing Tidal Waterfowl and Wading Bird habitat (dark blue) and sea scallop beds (gray).

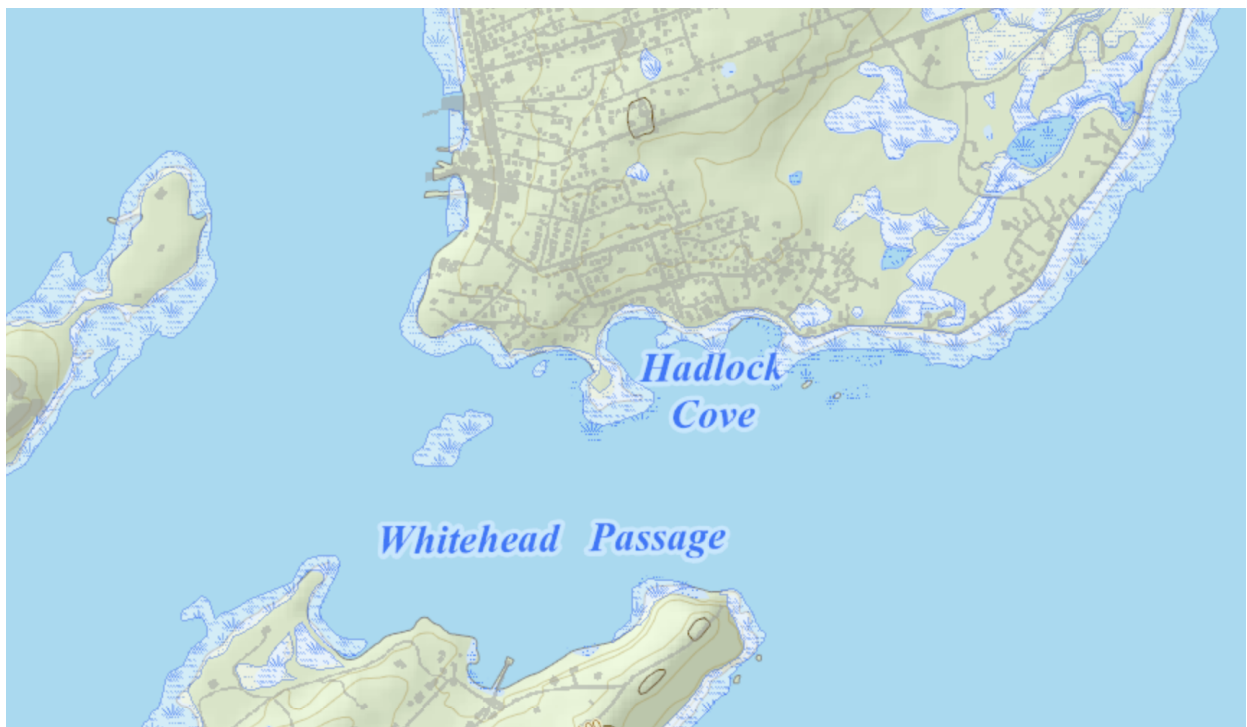


Figure 4: Beginning with Habitat map of Sandy Beach showing National Wetland Inventory areas (blue and white pattern).



Figure 5: Mapped seagrass beds near Sandy Beach showing percent coverage by seagrass (Maine DEP).



Figure 6: Coastal Bluff map of Sandy Beach from the Maine Geological Survey. The yellow line indicates areas of bluff mapped as Unstable from erosion.

OUR SHORE Quick Assessment:

Source & Severity of Erosion:

Overland Erosion	Low - No recent bank erosion or loss from overland flows
Groundwater	Low - No evidence of groundwater seepage
Toe Erosion	Toe erosion in limited areas or none
Wave Erosion	Moderate - Site receives some wave action, but only large storms cause erosion. Only toe is affected

Height & Slope Risk:

Bank Height	Moderate Bank (3-6 feet)
Slope Severity	High Slope (> 1L:1V)
Current Slope	Moderate - More than half of surface has vegetation and duff layer
Soils	Low - Soils contain mix of sediments and stone; fairly stable soil condition

Overland Water from Land Use:

Surface Water Flow to Bank	Low - No concentrated or channelized flow from adjacent land use
Lawn or Bare Ground Near Bank	High - Lawn area or bare ground is located within 25 feet of the shoreline
Impervious Surface Near Bank	Moderate - No roads, driveways, houses, or other impervious surfaces are within 25 feet of shoreline
Overall Impact of Surface Flow	Low - Very limited impacts from surface flows, surface flows properly managed

Revegetate/Reconnect Shoreline Buffer:

Vegetation Within 250 Feet	Average vegetation (20-70% coverage)
Vegetation Within 25 Feet	Average vegetation (20-70% coverage)
How Natural is the Shoreline Habitat	High - Bank and vegetation are not altered. No riprap or hardened structures installed.

Proposed Management Actions:

Revegetating Exposed Soil:

Areas of bare soil that were exposed during storms are more vulnerable to future erosion by waves and surface runoff. A protective cover of vegetation should be restored to mitigate further erosion. Plants that are resilient to storm damage can be selected to create a “self-healing” system that will be able to more quickly recover from future storms. Cumberland County Soil and Water Conservation District’s Coastal Planting Guide indicates which of the listed plants are most resilient to varying and extreme weather and water conditions.

Live staking is a planting technique useful for establishing vegetation on areas of the site where slopes are too steep to install vegetation using other methods. This method uses cuttings of quickly rooting native shrub species, such as willows and dogwoods, which are planted into the bank and allowed to reroot and grow into new plants. Live stakes installed horizontally into the face of the eroding bank will help establish plant cover and root systems to protect these areas.

Biodegradable Slope Protection:

Since most of the eroding areas only receive wave action during storms, planted vegetation will likely have enough time to successfully establish before it needs to resist wave energy. However, there is some risk that if a large storm hits during the first few growing seasons, the new plantings will be damaged. While not necessary, if additional short-term protection is desired, a biodegradable fiber roll, such as coconut coir, can be installed on the bank just above the ledge to protect the soil and support newly planted vegetation. The coir log should be anchored in place against the soil using stakes and biodegradable rope. For secure placement and enhanced vegetation, using a combination of standard hardwood stakes and live stakes is recommended (Fig. 7).

Regulatory Considerations:

Planting vegetation in the shoreland zone for shoreline stabilization does not require a permit unless more than one cubic yard of soil will be overturned during the planting process. This is considered the equivalent soil disturbance of installing 25 one-gallon potted plants. Techniques like live staking that do not cause soil to be overturned are not restricted by the one cubic yard limit.

Shoreline stabilization activities that add fill or new structures to the shoreland zone, including the coir log stabilization described in this report, require a municipal and state permit. Most projects using only biodegradable materials like coir logs and native vegetation can be permitted through the Permit by Rule pathway at the state level, which has a shorter 20 day review period.

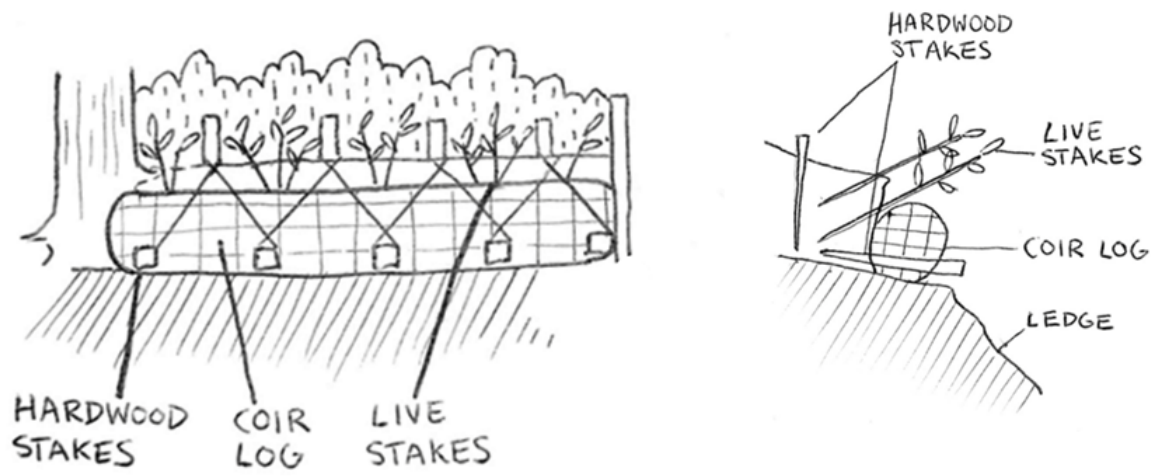


Figure 7: Example placement and installation of coir logs for soil stabilization above ledge.

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