OREGON
Department of Land Conservation & Development

TO: Coastal Shoreline Stabilization Rulemaking Advisory Committee Members

FROM: Rhiannon Bezore, Ph.D., Coastal Shores Specialist, Meg Reed, Senior Coastal Policy Specialist, Amanda Macnab, Coastal Rule Coordinator

CC: Brenda Bateman, Ph.D., Commissioner Erin Skaar, Lisa Phipps, Alexis Hammer, Alyssa Bonini, Casaria Taylor, Matthew Hampton

RE: Materials for November 12, 2026 Rulemaking Advisory Committee Meeting

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Thank you for your continued commitment to the rulemaking effort around shoreline stabilization along Oregon's coastal shorelines. Enclosed please find the questions for discussion on the rules, and updated timeline for the rulemaking process, the meeting agenda, last meeting's summary, and the draft rules outline. Please review this packet before our third Rulemaking Advisory Committee (RAC) meeting on **Thursday, November 12th from 9am to 12pm**.

During RAC Meeting #3, we will briefly update RAC members on the rule terms and definitions that were discussed at the previous meeting and the survey feedback received from RAC members. Updated definitions will not be shared yet as we are still working through the feedback received. The remainder of the meeting will be dedicated to a structured brainstorm and discussion on how to develop rules that address various coastal shoreline stabilization techniques across coastal landscapes. DLCD staff and facilitation team will lead the group through a series of scenarios and questions to hear feedback and conversation from the RAC on what they would like to see the rules address. We hope this brainstorming process will stimulate collaboration and conversation that is not yet constrained by rule text. Based on the conversation, staff will further develop the draft rules for coastal shoreline stabilization and share that draft as homework between RAC meeting #3 and meeting #4. The draft rules will be accompanied by a feedback mechanism for RAC members to provide DLCD with comments between meetings. The draft rules will then be the focus of discussion during RAC meeting #4 in January 2027.

Prep work for RAC Meeting #3:
Please think about how you would answer the following questions in preparation for participating in the November meeting.

- How do local governments permit shoreline stabilization types now? What are current barriers or challenges in this process? Are some types of projects easier to permit than others? How could these rules improve this process?
- What elements of shoreline stabilization help to characterize a method as structural, nonstructural, or hybrid?
- If we want to see more nonstructural nature-based solutions and hybrid shoreline stabilization techniques on the landscape, what flexibility and incentives can the rules support to help realize this outcome?
- What benefits do local government reviews of shoreline stabilization bring? How can the local government role be maximized in coordination with state or federal permitting?
- What are the pivotal decision points in reviewing an application for shoreline stabilization? What types of tools or resources do you utilize in reviewing an application?
- What does success look like for various types of shoreline stabilization approaches?

Land Use Decisions

In Oregon land use, local governments typically categorize decisions into the following broad categories:

- Type I: Clear standards, staff decision, no public notice or hearing.
- Type II: Limited discretion, staff decision with public notice and a comment period.
- Type III: Discretionary review, staff recommendation, public hearing required.
- Type IV: Major policy or legislative action decided by the elected City Council or Board of Commissioners after multiple hearings.

This hierarchy will be our guide for how to fit shoreline stabilization into this existing framework for decisions at the local government level. Consider what types of projects should fall into each decision-making tier.

For more information on making land use decisions in Oregon, please review this training video and text: https://www.oregonlandusetraining.info/data/4_4.html. This link goes directly to Chapter 4 of the Oregon Land Use training program, but all chapters of the training are informative and may be of interest to RAC members to review.

Logistics

The November meeting will take place virtually on Zoom. Rulemaking Advisory Committee members should join Zoom using the link provided by DLCD – please do not share your Zoom link. Members of the public may watch the meeting live or recorded on the DLCD YouTube channel.

Additional Packet Contents:

1. Meeting agenda
2. RAC Meeting #2 Notes
3. Draft Rule Outline

Additional Information

The following resources were provided previously but are listed here again as a reminder:

- Video about the role of the RAC in rulemaking for DLCD
- RAC Meeting #1 recording
- RAC Meeting #2 recording
- DLCD rulemaking webpage.

Rulemaking Timeline

DLCD staff and leadership have decided to extend the rulemaking timeline for this effort to allow for further RAC discussion opportunities on the rules. Below is the timeline with updates and additions listed in blue font. We will discuss this further in the next meeting.

- ✓ June 2026: LCDC Initiates Rulemaking
- ✓ July 2026: RAC recruitment
- ✓ September 10, 2026: RAC 1: Introductions, review charge and operating principles, background materials, rulemaking timeline
- ✓ October 5, 2026: Optional RAC Office Hours
- ✓ October 15, 2026: RAC 2: Background presentations, review and discuss draft rule definitions
- ✓ October 21, 2026: Optional RAC Office Hours
- ✓ October 26, 2026: Optional RAC Office Hours
- November 12, 2026: RAC 3: Structured brainstorm to develop rules
- November 13, 2026: Field Trip around Newport to view various shoreline stabilization techniques (Optional)
- January 19, 2027: Oregon Legislative Session begins
- January 22, 2027: RAC 4: Review and discuss draft rules

Timeline Changes/Updates:

- March 5, 2027: RAC 5: Review fiscal, housing, and racial equity impact statement, review and discuss revised rules
- May 14, 2027: RAC 6: Prepare draft rules and impact statements for the public comment period

- June 1, 2027: Secretary of State Notice with Draft Rules and Impact Statements. Start of the public comment period.
- June 2027: Public Hearing with LCDC
- June/July 2027: Geographic Public Hearing on the Coast
- July 2027 (date TBD): RAC 7: Finalize draft rule based on public comments and LCDC directives
- July 2027: Close of public comment period
- August 2027: Adoption with LCDC

If you have any questions about the materials in this packet, please feel free to contact us via phone or email. Our information is listed below.

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Coastal Shoreline Stabilization Rulemaking Advisory Committee Meeting #3 Agenda

November 12, 2026

9:00 a.m.–12:00 p.m. | Online

Meeting Access and Materials

The meeting will be livestreamed on the Department of Land Conservation and Development (DLCD) YouTube page. The recording and meeting materials will be posted on DLCD's Rulemaking webpage.

Accessibility and Accommodations

To ensure the meeting is accessible, the department will make reasonable accommodation upon request. Please contact us at least 48 hours before the meeting. Contact the DLCD front desk by phone at 503-373-0050, by email at dlcd.info@dlcd.oregon.gov, or by TTY through Oregon Relay Services (800) 735-2900.

Topic 1: Welcome, Opening Remarks, and Agenda Review | 9:00–9:15 a.m.

- *Ben Duncan, Kearns & West Facilitation Team*
- *Commissioner Erin Skaar, Tillamook County Commissioner and Land Conservation and Development Commissioner*

Topic 2: Definitions: Brief Updates and Next Steps | 9:15–9:30 a.m.

- *Rhiannon Bezore, DLCD Coastal Shores Specialist*
- *Meg Reed, DLCD Senior Coastal Policy Specialist*

Topic 3: Shoreline Stabilization Scenarios and Discussion | 9:30–11:45 a.m. (includes break)

- *Ben Duncan, Kearns & West Facilitation Team*
- *Rhiannon Bezore, DLCD Coastal Shores Specialist*
- *Meg Reed, DLCD Senior Coastal Policy Specialist*
- *All RAC members*

Topic 4: Field Trip, Rulemaking Schedule, Office Hours, and Next Steps | 11:45–11:55 a.m.

- *Ben Duncan, Kearns & West Facilitation Team*
- *Rhiannon Bezore, DLCD Coastal Shores Specialist*
- *Meg Reed, DLCD Senior Coastal Policy Specialist*

Topic 5: Closing Comments and Adjournment | 11:55 a.m.–12:00 p.m.

- *Commissioner Erin Skaar, Tillamook County Commissioner and Land Conservation and Development Commissioner*

Department of Land Conservation and Development (DLCD) Coastal Shoreline Stabilization Rulemaking Advisory Committee (RAC) Meeting Summary

Thursday, October 15, 2026, RAC Meeting #2
Location: Virtual (Zoom)

This meeting was livestreamed, recorded, and is available for viewing at https://www.youtube.com/Oregondlcd. The following is a high-level summary and meeting overview. Please review the recording and archived meeting packet for details and presentation slides.

Meeting Attendees

RAC Member Attendees:

- Commissioner Erin Skaar, Tillamook County Commissioner and LCDC Liaison
- Anthony Pagano, City of Gold Beach
- Brendan Lynch, Emergency Management Professional
- Brock Nation, Oregon Realtors
- Charlie Plybon, Oregon Surfrider Foundation
- Denise Lofman, Columbia Estuary Study Taskforce
- Guy Sievert, Coastal Property Owner, Watershed Council
- Jacqui Boyer, Certerra Northwest, LLC
- John O'Leary, Lincoln County
- Mark Hopman, Coastal Business Manager
- Mary Redfield, Coastal Property Owner
- Max Bordal, HG Schlicker and Associates
- Max Derenoncourt, Youth Representative
- Meagan Wengrove, Oregon State University
- Ralph Dunham, North Bend
- Sara Palmer, Coquille Indian Tribe
- Selwyn Heminway, Youth Representative
- Weston Fritz, City of Lincoln City

State Agency Representatives:

- Charles Redon, Oregon Dept. of State Lands
- Jonathan Allan, Oregon Dept. of Geology and Mineral Industries
- Kevin Herkamp, Oregon Parks and Recreation Dept.
- Scott Marion, Oregon Dept. of Fish and Wildlife

- Tom Jenkins, Oregon Dept. of Emergency Management

DLCD Staff Attendees:

- Lisa Phipps, Ocean and Coastal Services Division Manager
- Rhiannon Bezore, Coastal Shores Specialist
- Meg Reed, Senior Coastal Policy Specialist
- Amanda Macnab, Coastal Rules Coordinator
- Matthew Hampton, Rules Coordinator
- Casaria Taylor, Senior Rules Coordinator
- Hui Rodomsky, South Coast Regional Representative

Other Attendees:

- Kris Wall, NOAA Office for Coastal Management

Facilitation Team:

- Jamie Damon, Kearns & West
- Ruby Gonzales, Kearns & West

Welcome, Opening Remarks, and Agenda Review

Jamie Damon, Kearns & West, welcomed RAC members and reviewed Zoom guidelines and meeting expectations.

Commissioner Erin Skaar, Tillamook County Commissioner and Land Conservation and Development Commission (LCDC) liaison to the RAC, introduced herself and provided opening remarks. She shared that she has served as a Tillamook County Commissioner for five and a half years and serves as the liaison to the county's Department of Community Development. Commissioner Skaar shared that her first land use appeal as a commissioner involved riprap in Rockaway Beach, where she learned quickly about shoreline stabilization. Commissioner Skaar encouraged all members to speak up, recognizing the range of professional and personal experience in the RAC. She reminded members that this is an iterative process and that this meeting is not the only opportunity to provide input. She noted that members hold a continuum of philosophies and perspectives and that the group will learn from one another.

Jamie then reviewed the agenda and the contents of the Meeting #2 packet. She also conducted a roll call of the facilitation team, DLCD staff, RAC members, and state agency representatives.

Nature Based Solutions Presentation

Jamie shared that during the convening interviews, many RAC members asked to hear from local experts. DLCD staff worked with RAC members Dr. Jonathan Allan, Oregon Department of Geology and Mineral Industries (DOGAMI), and Dr. Meagan Wengrove, Oregon State University (OSU), to provide a presentation on erosion control options on the Oregon coast.

Jonathan provided background on Oregon coastal geology, geomorphology, and hazards. The Oregon coast is about 365 miles long and is made up of three main geomorphic units: dune-backed beaches, bluff-backed beaches, and cliffs or rocky shore, with the remainder made up of mixed gravel or cobble beaches. Dune-backed beaches make up much of Tillamook, northern Clatsop, Douglas, southern Lane, and Coos counties; bluff-backed beaches are concentrated on the central coast; and plunging cliffs characterize the southern coast in Curry County. Areas with existing coastal hazards are concentrated in the northern half of the coast, where communities are built on foredunes or atop coastal bluffs, with additional areas near Gold Beach and on the North Spit of Coos Bay. Jonathan explained that wave height, period, and direction are the major factors driving coastal hazards, including large waves, water levels rising, and large storms, the combination that drives much of the erosion along the coast. Jonathan reviewed types of hazards, including overtopping, high total water levels that saturate the beach and cause flooding, and major storm erosion, with examples from Neskowin, Lincoln City, and Siletz Spit.

Meagan reviewed several working terms used for the purposes of the presentation, noting that the RAC will likely define some of these terms through the rulemaking. Structural features have rigid elements that are not intended to move under wave or wind loading. Nature-based features are often designed with nature and inspired by natural elements in the system local to the project site. Nonstructural features remain dynamic and are able to adjust under wave and/or wind loading. Hybrid features use multiple strategies that could include both nonstructural and structural elements, while hybrid nature-based features use only nature-based strategies. These approaches range from "hard" to "soft" engineering.

Meagan then described conventional hard engineering, such as riprap and seawalls like those that can be found in Neskowin, Nelscott, and Rockaway Beach. These structures reflect wave energy, which can cause scour at the toe and move sediment offshore or elsewhere in the system. She shared examples of riprap and seawall failures from toe scour and wave impact at Neskowin, Lincoln Beach, and Lincoln City.

Meagan described natural features that provide protection, such as dunes and composite beaches, and questioned how these natural elements can be replicated and engineered. She shared five nature-based scenarios from the Coastal Erosion Control Snapshots, developed at OSU by graduate students in partnership with a working group of state agency and NGO representatives:

- **Dune enhancement:** increasing dune size for better erosion and flood protection through sand nourishment or promoting sand accretion with vegetation or sand fences.
- **Dynamic revetment:** an engineered berm of mobile cobbles placed in the backshore to replicate the function of a natural cobble or composite beach by dissipating wave energy.
- **Vegetated slope stabilization:** an engineered method in the backshore in which vegetation is planted on biodegradable or synthetic geotextile fabric or tubes filled with soil or sand. Where only natural materials are used, such as willow plantings, it could be considered a completely nature-based solution.

- **Large wood:** an engineered method in which large wood is placed, buried, or anchored on a beach and/or backshore area. Meagan noted that, as an engineer, she would typically recommend pinning so that wood is not set adrift in a storm and become a safety hazard.
- **Beach nourishment:** adding a large volume of sand to an eroding beach, dredged offshore or brought from a beach with a large sand supply. It is not commonly used in Oregon at this point.

Jonathan reviewed hybrid nature-based options, including at Cape Lookout State Park, where a reinforced artificial dune was built in the late 1990s using geotextile fabric, one-cubic-yard sandbags, sand, biodegradable jute and coconut fiber cloth, plantings, and cobble placed on the front, with the goal of mitigating wave runup and overtopping. Other hybrid approaches include willows planted among sandbags or riprap, like at Cannon Beach, and various combinations such as a dynamic revetment with an artificial dune, plantings, sand fencing, or woody debris. Jonathan noted that any of these solutions needs an adaptive management approach. Twenty-two years after construction, the Cape Lookout dune has eroded, exposing geotextile fabric, collapsing sandbags, and stripping much of the cobble.

Meagan and Jonathan closed by stating that nature-based solutions are designed to reduce sand loss, that approaches can be combined, that not every solution works at every site, and that all options require ongoing maintenance and an adaptive management plan. The group had the following questions and comment

- **RAC Member Question:** How should erosion be understood across coastal regions? Is it the same on the north, central, and south coast, or are some parts of the coast eroding faster than others?
    - **Jonathan's Response:** Erosion is very geologically specific and varies dramatically along the coast. Basalt cliffs erode at imperceptible rates, while dune-backed beaches, such as those in Tillamook County, respond quickly to episodic storm events. On the central coast, bluffs in Lincoln County can have large slumping failures due to high water levels and waves. Erosion data is available for different regions and time spans.
- **RAC Member Question:** Do some areas of the coast tend to always be erosive or accretive, or do some switch over time, either seasonally or over multiple decades?
    - **Jonathan's Response:** Yes, to both. The Neskowin area was accreting through the 1980s and early 1990s. During the 1997 to 1998 El Niño, much of that sand and foredune eroded away, and today the area has no foredune and is armored with riprap. Recent science shows areas reorienting themselves to the prevailing wave climate, which can change from season to season and over time.
- **RAC Member Question:** The sand in Seaside is now higher than it was 20 years ago. Steps that once led down from the promenade to the sand are buried, and in some places the sand is level with the promenade or up to the second floor of buildings. At what point is

there too much sand? Currently no sand can be removed, and even if the sand eroded, the seawall would still be there.

    - **Jonathan's Response:** There has since been a massive accumulation of sand extending almost two-thirds of the way to Clatsop Plains, driven by changes associated with the Columbia River jetties, and there is very good data on it. How much to lower dunes is a grading question and lowering dunes increases exposure to hazards. A broad sand beach in front of a property is better than a narrow beach or no beach, because it mitigates the hazard farther from infrastructure.

- **RAC Member Question:** The examples did not include natural or softscape solutions for steep, cliff-like bluffs where the water reaches the base, such as the sandstone bluffs on the central coast. Are there stabilization options for those areas?
    - **Jonathan's Response:** This is something being considered carefully at various sites. One nature-based approach is beach nourishment, which is used extensively on the East Coast and in California, but it requires large volumes of sand and a sand source. A hybrid approach with cobble beaches and sand nourishment could also be considered.
    - **Meagan's Response:** The visualizations started from a steeper scarp, and the options shown turned it into a gentler slope. Vegetated slope stabilization, dynamic revetment, and large wood placement have been discussed for bluffs like these, but any approach would be site specific.

Definitions Overview

Meg Reed, DLCD, presented on the role of definitions in rulemaking. She shared that shoreline stabilization terms are used in engineering, policy and regulatory, and casual senses, and the rule definitions may not perfectly match engineering usage. In Oregon rulemaking, definitions determine how terms are applied in permitting, appeals to the Land Use Board of Appeals, future rulemaking, and local comprehensive plans and implementing ordinances.

Meg explained that there are two types of definitions in this rulemaking. Existing definitions are already defined in statute, rule, or the statewide planning goals, or have established scientific or common definitions, and will not change. New terms for discussion offer an opportunity to create definitions specific to Oregon's coastal conditions. Meg shared that the proposed language for the new terms is a starting point drawn from DLCD staff experience, input from Jonathan, Meagan, and others over many years, and research on what other coastal states have done, including on nature-based solutions.

Discussion on Draft Coastal Shoreline Stabilizations Definitions

Jamie explained that the group would discuss the 13 proposed new definitions one by one. She noted that this is not members' only opportunity to weigh in, and that the team would send a post-meeting survey to gather additional input, with the goal of wrapping up the definitions conversation at the next meeting.

Rhiannon Bezore, DLCD, explained how the definitions are grouped. The first three terms relate to how techniques might be permitted or viable on the landscape. The remaining terms fall under the overarching term "shoreline stabilization," which includes nonstructural nature-based solutions, hybrid nature-based solutions, and structural shoreline stabilization. Rhiannon introduced each term before the group asked questions and discussed each one.

1. Hazard Avoidance Measure

"Hazard Avoidance Measure" means a land use practice or requirement designed to prevent, reduce, or eliminate exposure of development and infrastructure to coastal hazards such as erosion and flooding. Examples of Hazard Avoidance Measures include construction setbacks, zoning, easements, development limitations, stormwater and groundwater management, and vegetation protection.

- **RAC Member Question:** Realignment or managed retreat, such as moving an existing structure out of the way of the hazard, is not included. Was that intentional?
    - **DLCD Response:** No. Realignment and managed retreat are hazard avoidance measures that DLCD would usually use as examples, and there have been good examples of this happening on the coast.
- **OPRD Comment:** Consider tying in engineering solutions and resilience tactics used for other hazards, such as elevation or resilient building practices.
- **RAC Member Comment:** It would be helpful to define "practice" and "requirement." "Erosion and flooding" is repeated in many places. If there are other hazards, consider expanding the list or not listing examples. If the definition lists examples, state that the list is not limiting.

2. Geologic Hazards Report

"Geologic Hazards Report" means an analysis conducted by a qualified professional that includes a site description, hazard analysis, evaluation of alternatives, mitigation, design specifications, and recommendations for development on the applicable site. Geologic hazards reports are prepared by qualified professional engineers or geologists who have professional expertise in the regional and local shoreline geology and processes.

Rhiannon noted that DLCD, in collaboration with OPRD, has published guidelines for geologic hazards reports, including reports addressing oceanfront protective structures, and that these reports are already required in many jurisdictions for properties in high hazard areas.

- **RAC Member Comment:** A geologic hazards report, or engineering geologic report, should be prepared by a certified engineering geologist licensed by the Oregon State Board of Geologist Examiners. As written, the definition appears to allow non-geologists to prepare these reports. There is some overlap between geotechnical engineers and certified engineering geologists, with a memorandum of understanding between them, so there is nuance.

- **RAC Member Comment:** In Oregon, some professionals producing these reports have a coastal processes background and others do not. It is unclear why coastal engineers would be excluded. The definition should be more specific about the background needed to produce the report.
- **RAC Member Comment:** The definition of "qualified professional" is broad, and the right expertise may depend on the case. Coastal or geotechnical engineers may need to be involved, for example where slope stability requires engineering analysis. A separate definition for "qualified professional" could be added.
- **RAC Member Comment:** Geologists are not necessarily trained in structural elements, and engineers are not necessarily trained in geology. The term "geologic" implies a geologist, but what is really being addressed here is a coastal or shoreland hazards report.
- **RAC Member Comment:** At the county level, when code allows a "qualified professional" to submit a report, the applicant asserts the professional's qualifications. The county can challenge it, but usually only by bringing in a comparable professional, so reports are generally accepted, and there have been cases of reports prepared by unrelated types of engineers. The current language sets the bar at the lowest possible hurdle. Having "certified engineering geologist" in the criteria for what will be accepted is very helpful at the permit counter.
- **RAC Member Comment:** I agree with the earlier points about engineering geologists and how things work at the county level. I encourage DLCD to look at what is currently required in code and statute, since the requirements commonly seen do not cite statute, and provide clarity on statute and code requirements for geologic hazards reports at a future meeting. Local experience is critical. Out-of-state firms, while capable, have designed projects that were archaeologically inappropriate and not feasible locally, and local jurisdictions sometimes have to challenge imported experts. This is especially prevalent on the South Coast, which faces constant local technical capacity issues.
- **RAC Member Comment:** Be more specific about the knowledge base needed. The phrase "regional and local shoreline geology and processes" could be revised to include geomorphology and name specific processes, such as wave, wind, and water level interactions with sediment.
- **RAC Member Comment:** Consider replacing “qualified" with "licensed".
- **RAC Member Comment:** Both professions often contribute to these reports. If a geologic analysis is needed, it should be done by a geologist or engineering geologist. However, where the basis is erosion and flooding, many practicing engineers have more extensive knowledge of hydraulics, hydrology, and general soils, and some have ocean engineering experience. If the definition is intended to address shoreline stabilization related to sediment transport and hydraulics, engineers should not be excluded.

3. Shoreline Construction Setback Line

"Shoreline Construction Setback Line" means the minimum required horizontal distance that buildings and structures be constructed from a body of water or coastal feature such as Mean Higher High Water or line of established upland vegetation.

- **RAC Member Comment:** Specify who sets the requirement in "minimum required," either by referencing the applicable rule or naming the entity.
    - **RAC Member Comment:** That minimum distance is likely set by local governments. If there is no uniform statewide standard, it may not make sense to reference it in the definition.
    - **DLCD Response:** It is usually set locally and often views-based. DLCD chose a different term from the commonly used oceanfront setback line to make clear that this is not the view-based setback most jurisdictions use, but a line based on factors such as erosion rates. The rules may address specifications later and the definition can be amended.
- **OPRD Comment:** Prioritizing which reference line is used would help with consistency, since every jurisdiction uses a different line. Having everyone work from the same standard would help with permitting, review, and application of the rules up and down the coast.

Overview: Shoreline Stabilization

Rhiannon then shared a slide illustrating how the remaining definitions fit under the overarching term "shoreline stabilization": nonstructural nature-based solutions (such as cobble berms, dune enhancement, and willow plantings); hybrid nature-based solutions (such as artificial dunes with a cobble revetment, and anchored large wood with cobble and sand); and structural shoreline stabilization (such as beachfront protective structures, riprap, and seawalls). She noted the examples are not exhaustive.

- **RAC Member Comment:** There are definitions for nonstructural nature-based solutions and hybrid nature-based solutions, but no definition for nature-based solutions, a term used often. Are hybrid nature-based solutions both structural and nonstructural, or clearly one or the other? That has important Goal 18 implications.
    - **KW Response:** We will discuss this further with the individual definitions, and this points to a potential gap: there may be a need for a definition of nature-based solutions.
- **ODFW Comment:** Where would a project fall that is a standard structure, such as riprap with willow plantings added? The definitions should avoid creating an ability to make a standard structural solution look "green" by adding a small nonstructural element.
    - **DLCD Response:** That is an important point and will likely be one of the biggest areas of focus in the rules. The definitions can include elements of what something is and is not, but how these are regulated, and where, will be addressed in the rules.

- **RAC Member Comment:** It was surprising to see riprap and seawalls under shoreline stabilization. Stabilization is often thought of as a nature-based approach, while riprap and seawalls are shoreline armoring. Could the two be separated?
    - **DLCD Response:** It is possible, but the current categorization is more in line with the existing policy framework and how practitioners use the term.

4. Shoreline Stabilization

"Shoreline Stabilization" means a project or practice that seeks to address impacts from coastal erosion and flooding. Shoreline stabilization includes nonstructural nature-based solutions, hybrid nature-based solutions, and structural shoreline stabilization, including beachfront protective structures.

- **RAC Member Comment:** Strike "seeks to" so the definition reads "a project or practice that addresses." Define "project." Earlier definitions use "practice or requirement," and this one uses "project or practice"; if these are terms of art, they may need to be defined. Listing makes the rule more restrictive, so beachfront protective structures may not need to be listed, or may need a separate sentence.
- **OPRD Comment:** "Coastal erosion" and "flooding" may need to be defined. Washington, for example, defines coastal erosion as the action of waves, tides, and water. Flooding is more preventive than stabilization, so consider splitting this into erosion control and flood control.
- **ODFW Comment:** A structure that addresses flooding without directly addressing erosion is a levee, which this rulemaking is not addressing. The only flooding impact being discussed is flooding that results from erosion, so consider striking "flooding" throughout and addressing erosion, with flooding as a downstream consequence.
    - **DLCD Response:** These definitions also apply to estuaries, where nature-based solutions are commonly used to address flooding, for example by creating wetlands or removing levees. Shoreline stabilization covers nonstructural, hybrid, and structural approaches and flooding is very much part of it.
    - **DOGAMI Response:** Shoreline stabilization can be built to mitigate that flooding. At Cape Lookout, an artificial dune was built because a cobble berm would have required infeasible amounts of cobble and rock, and similar hybrid approaches could be taken elsewhere.
    - **ODFW Comment:** The dynamic aspect of water running up and over the top had not been considered.
- **DSL Comment:** The terms "structural" and "nonstructural" are not ideal and merit discussion; however, the RAC is likely required to use them as they appear in law. They could be refined in the definitions or later in the rule. Does DLCD have guidance on how to address this?
    - **DLCD Response:** Goal 17 uses both terms: "Land-use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions."

- **RAC Member Comment:** I suggest "flexible" rather than "nonstructural."
- **RAC Member Comment:** I suggest "strategy" as an alternative to "practice."

5. Nonstructural Nature-Based Solution

"Nonstructural Nature-Based Solution" means a project or practice that uses, restores, or mimics natural coastal processes to address impacts from erosion or flooding. Nonstructural Nature-Based Solutions use dynamic natural elements designed to absorb wave energy and mimic, enhance, or integrate with natural functions and processes for long-term resilience.

- *Nonstructural nature-based shoreline stabilization methods include the use of natural materials, vegetation, and natural processes to absorb wave energy, stabilize soil, slow water, manage stormwater and reduce runoff, build up dunes, restore or enhance natural ecology and functions, or otherwise reduce erosion and flooding*.
- *Examples of nonstructural nature-based shoreline stabilization methods include but are not limited to bank recontouring, vegetative stabilization, cobble berms, sand nourishment, dune enhancement, wetland restoration, floodplain reconnection, oyster shell, logs, and similar non-structural or non-fixed erosion or flooding mitigation measures*.

Rhiannon noted that some components of this definition are directed by Senate Bill 504 and need to remain, while other parts are flexible.

- **RAC Member Comment:** Define "natural coastal processes," or reference a definition if one exists elsewhere. Use consistent language.
- **RAC Member Question:** What does "restore" mean? Is the intent to restore to a baseline or ideal setting, or to mimic a textbook picture?
    - **DLCD Response:** That part may apply more to estuarine environments and restoration projects than to the open coast, but it is a good point to clarify.
    - **DSL Comment:** "Restore" and "restoration" mean very different things to different people, and different in context. Within removal-fill law, for example, there are at least two distinct uses: improving habitat, and returning a historically filled wetland that was converted to upland back to a wetland condition for compensatory mitigation.
- **RAC Member Comment:** If the nonstructural nature-based solution definition has two parts, it would be helpful to break up the hybrid nature-based solution definition similarly. Several definitions say, "absorb wave energy," but rocks and vegetation do not absorb wave energy, they dissipate it. Several definitions also include lists of elements, such as vegetative stabilization, cobble berms, and sand nourishment.
- **RAC Member Comment:** If "dissipate" and "absorb" are both used, define both, and only use both if they mean different things.
- **RAC Member Comment:** Consider "or" instead of "and" in the list of functions, since a nonstructural nature-based method may do one or two of these things but not all of them. The RAC may want to be more specific given how these terms are used under Goals 17 and 18, which may mean breaking hybrids into two definitions. Materials matter, including

where they come from and how they are defined. Rock is not just rock and can be cobble or large boulders.

- **OPRD Comment:** From a regulatory perspective, "nature-based" should be separated out as an umbrella term, with nonstructural, structural, and hybrid (a combination of structural and nonstructural) defined separately. Whether a project is nature-based or not would then be a separate question. Some nonstructural techniques are not nature-based, and some structural techniques may be nature-based. As written, the definitions confound that and artificially restrict the options available.
- **RAC Member Comment:** Agreed with the OPRD comment. As the RAC moves from the ocean front into estuaries, it will need to discuss the distinctions between working in the estuary and working on the outer shoreline.
    - **DLCD Response:** The rules separate out the different environments. Some provisions apply everywhere, some only to estuarine environments, and some only to the ocean shore.
    - **RAC Member Question:** Will the RAC also be able to discuss areas where these environments overlap?
        - **DLCD Response:** Yes. Those areas will need provisions that apply everywhere.
- **ODFW Comment:** I suggest alternative language such as: "Nonstructural Nature-Based Solution" means a project that uses, restores, or mimics coastal processes promoting sediment retention and wave dispersion to reduce impacts from erosion or flooding. NNB Solutions use dynamic natural elements designed to disperse wave energy and mimic, enhance, or integrate with coastal processes."
- **DOGAMI Comment:** I suggest alternative language such as: "Nonstructural Nature-Based Solution," a form of "soft" coastal engineering, means a project or practice that uses, restores, or imitates physical coastal processes and geomorphology to address impacts from erosion or flooding. Nonstructural Nature-Based Solutions strive to emulate natural coastal environments through the use of dynamic natural elements designed to dissipate wave energy and imitate, enhance, or integrate with natural functions and processes to reduce risk from coastal hazards.

6. Hybrid Nature-Based Solution

"Hybrid Nature-Based Solution" means practices that combine vegetation, biodegradable materials, and rock to absorb wave energy or otherwise reduce erosion and flooding. For a practice to be considered hybrid nature-based solution, rock may only be used for toe-of-slope protection where the stabilization solution meets the substrate or to create an intertidal sill for salt marsh creation. Hybrid nature-based solutions are usually constructed of a mix of rock, logs, and vegetation. Biodegradable sandbags or burritos are considered hybrid nature-based solutions.

Meg noted that DLCD is trying to create flexibility that has not existed in the past, including the ability to anchor or pin elements, which many nature-based solutions need to succeed in Oregon's wave environment. The intent is not to allow riprap covered in sand.

- **RAC Member Comment:** Like the nonstructural definition, it would help to include a non-exhaustive list of examples, such as mixed rock or pinned logs, to give context for this complex term.
- **DOGAMI Comment:** "Rock" is very generic and should be more explicit, for example cobble or gravel. Gravel covers granular material up to large cobble, about 10 inches across; anything larger is boulders, which is akin to riprap. The definition should also reference artificial dunes.
- **RAC Member Comment:** Being explicit about materials is important. Hybrid could be perceived as a loophole. It avoids the words "structural" and "nonstructural," which are the defining characteristics of what is and is not allowed, so a black-and-white distinction may be necessary, possibly with two different hybrid approaches. My biggest concern is effectively redefining riprap as a hybrid nature-based solution. "Biodegradable" is also problematic without a definition, given the proliferation of materials marketed as biodegradable, particularly plastics.
- **RAC Member Comment:** If the definition is too specific, it will eliminate reasonable, layered solutions. Like a house with flexible walls tied to a rigid foundation, shoreline stabilization may have a relatively rigid buried base, such as rock or riprap, beneath elements that absorb and dissipate energy. Defining rock too narrowly, such as grain size, takes away from practitioners designing a well-thought-out system and eliminates innovative solutions.
- **RAC Member Comment:** There is an assumption that nature-based or hybrid nature-based solutions have fewer environmental impacts than seawalls or riprap. That may be true, but for cultural resources, it makes no difference whether a hole is dug for a root wad or a hard structure. These approaches may be preferable for other reasons, but they are not without impacts, and categorically exempting them from other reviews would be a mistake.
- **RAC Member Comment:** I echo the need to define rock and sizes, noting that stone is also used in the living shoreline definition, so there is no way to differentiate between the two. The definition should use the terms nonstructural and structural, since a hybrid nature-based solution differs from a hybrid solution and still excludes structural solutions. The Coastal Erosion Control Snapshots tried to move away from the term "burritos," settling on "vegetative slope stabilization".
- **RAC Member Comment:** An alternative to “burritos” could be “fabric-wrapped soil”.
- **RAC Member Comment:** As written, this definition should not capture riprap, since riprap revetment is defined separately as a structural shoreline stabilization method, which the definitions differentiate from hybrid nature-based solutions.
- **DOGAMI Comment:** These applications are very site specific and depend on local geology, geomorphology, and coastal processes. Narrowing "rock" to gravel and cobble could exclude areas dominated by rocky coastlines and boulder and cobble beaches, such as much of the southern Oregon coast, where placing boulders would be consistent with the natural environment.

- **DSL Comment/Question:** It may help to address how much of the regulatory effect is tied to the definition versus addressed later in the rule. Will later sessions look at the definitions in tandem with the regulations they affect?
    - **DLCD Response:** Yes.

7. Toe Protection

"Toe protection" or "toe stabilization" means the use of shoreline stabilization solutions at the toe of slope to minimize erosion, scouring and undermining and to provide additional upland stabilization.

Rhiannon noted that this term is tied to hybrid nature-based solutions, for example to give vegetative stabilization extra protection or time to establish.

- **RAC Member Comment/Question:** This sentence is hard to read and understand. Does it mean shoreline stabilization at the toe and also additional upland stabilization, or either one? If there are two definitions, how would someone know which applies?
- **RAC Member Comment:** "Toe" is defined in the existing definitions. Based on work on coastal dunes, consider using "change of slope" instead of "toe of slope."
- **RAC Member Comment:** On the ocean front, toe stabilization would typically be a buried base element or foundation, while in a riverine environment it is more commonly used to resist scour. If the goal is nature-based solutions, this element needs more thought.
- **OPRD Comment/Question:** Define what toe protection means and its purpose. Should it be defined by flood elevation, percent of slope, or the intent of the structure? There is a risk of a full revetment covered with sand and plantings being described as toe protection. Defining it by a 50-year flood event or similar standard would help regulators.

8. Living Shoreline

"Living Shoreline" means a nature-based solution, most commonly used in low-energy environments such as estuaries and coastal lakes, that provides erosion control and water quality benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other organic materials, such as rock, concrete, wood fiber, oyster shells, and geotextiles. A living shoreline must meet the definition of either a nonstructural or hybrid nature-based solution depending on its specific design and cannot be a structural shoreline stabilization method.

Rhiannon noted that living shorelines are likely best suited to Goal 16 areas rather than the open coast.

- **RAC Member Comment:** This definition says, "provides erosion control," while others say, "reduce erosion and flooding" or "protecting shorelines from storms." Use consistent terms across definitions for what these solutions do, aligned with the draft rule purpose to mitigate the impacts of erosion and flooding.
    - KW Response: Some of this will be refined in the rule language and the RAC will need to return to the definitions to make sure they are in sync.

- **RAC Member Comment:** The last sentence, "A living shoreline must meet the definition...," sounds regulatory. I think it is in the wrong place.
- **RAC Member Comment:** The last sentence is confusing because the hybrid nature-based solution definition includes structural elements, while this definition says a living shoreline cannot be structural. It is hard to tell the difference between a structural shoreline stabilization method and a hybrid nature-based solution that includes a structure. This definition also includes materials, such as concrete, wood fiber, and geotextiles, which do not appear in the definitions it must meet.
- **RAC Member Comment:** Shorten "oyster shells" to "shells," since it is an example and other shells, such as clam shells, can be used.

9. Cobble Berm

"Cobble berm" means an engineered mound of cobble-sized rocks placed at the back of a beach or at the toe of a dune or bluff designed to absorb, dissipate, and shift with incoming wave energy, protecting shorelines from storms and erosion. Cobble berms imitate naturally occurring shorelines, are dynamic, and consist of stones between 2.5 to 10.1 inches in diameter.

Rhiannon noted that the size parameters come from the scientifically used Udden-Wentworth grain size classification.

- **RAC Member Comment:** Consider not using "mound," since many cobble berms have an alongshore component. "Elongated mound" or "ridge of cobble" may be more accurate.
- **RAC Member Comment:** Consider placing the size range after "cobble-sized rocks."
- **RAC Member Question/Comment:** "Engineered" is good here, but why does it not appear in any other definition? Is this the only type of shoreline stabilization expected to be engineered? If that is the expectation, add it to the other definitions.
- **RAC Member Comment:** The cobble size range is very definitive. Consider "average stone size" or "90 percent of stones between 2.5 and 10.1 inches". Rather than "engineered," consider "designed gradation" or "designed system". Other techniques may require an engineer or engineering geologist.
- **RAC Member Comment:** Of all these strategies, cobble berms are the most heavily emphasized on the engineering side, with substantial academic work developing engineering guidance, so including "engineered" in this definition is important. The Coastal Erosion Control Snapshots included "engineered" in many definitions.
- **DSL Comment/Question:** "Living shoreline" and "cobble berm" are examples where it is difficult to comment without the context of how the term will be used in the rule. Does "back of a beach" need to be defined more specifically here, or later in the rule?
- **RAC Member Comment:** I support "engineered" and would like to see it in other definitions. Engineering might have saved some of the riprap that is falling apart today.

10. Structural Shoreline Stabilization

"Structural Shoreline Stabilization" means methods placed within coastal shorelands or coastal waters that are intended to remain in a fixed position with the purpose of resisting or redirecting

wave energy and minimizing coastal erosion impacts. Structural shoreline stabilization methods are designed to incorporate non-deformable, static, or other hardened elements composed of wood, metal, rock, concrete or other materials that are intended to maintain a specific form over time. Structural shoreline stabilization includes shore parallel and shore perpendicular methods. Examples of structural shoreline stabilization methods include but are not limited to beachfront protective structures, riprap revetments, seawalls, bulkheads, gabions, jetties, groins, and breakwaters.

- **ODFW Comment/Question:** A pinned large wood project would be natural but not dynamic; it would be a fixed structure. Is pinned large wood intended to be structural? This illustrates the challenge of conflating dynamic versus non-dynamic with nature-based.
- **RAC Member Comment:** Consider using "constructed" to differentiate something designed and built as a single uniform structure, such as a jetty, from multiple pinned logs placed in a fixed position.
    - **DLCD Response:** There is nuance here that may need further clarification.
- **OPRD Comment:** The definitions jump from hybrid nature-based to fully structural. Goal 18 and the rules aim for the fewest structural elements and least impact. A project should be considered based on how many elements are designed to be static or non-deformable. Because "nature-based" is part of the hybrid term, a project that cannot qualify as a hybrid nature-based solution defaults to fully structural. There is a gradation, from green to gray, and a "green-gray" approach that is primarily structural but includes softer elements.
- **RAC Member Question:** What kind of shoreline stabilization would occur in coastal waters? When Neskowin looked at ways to reduce wave energy, there were proposals for structures within coastal waters.
    - **DLCD Response:** Breakwaters are one example. They are more typical in estuarine environments. For purposes of the goals, shoreline stabilization generally occurs at the juncture between coastal shorelands and coastal waters, at mean higher high water.
    - **RAC Member Question:** Would proposals such as sinking barges offshore fall under this rule?
    - **DLCD Response:** No. Local governments do not have jurisdiction there, and these rules are primarily directive of local governments. That would be more like reef building, and DSL would be the permitting authority within the territorial sea.

11. Beachfront Protective Structure

"Beachfront Protective Structure" means a static shore parallel structure constructed on the ocean shore and is intended to remain in a fixed position to minimize or eliminate coastal erosion risk to development as defined by Goal 18. Beachfront Protective Structures are designed to resist or redirect wave energy. This includes, but is not limited to, riprap revetments, seawalls, bulkheads, concrete or mortar reinforcement such as shotcrete that extend onto the ocean shore, and gabions.

Rhiannon noted that this term is used in Goal 18 but is not defined there.

- **RAC Member Comment:** All of these have structural elements; "non-deformable" or "rigid" is the key distinction between nonstructural and hybrid.
- **ODFW Comment/Question:** Flooding is not mentioned in this definition. Do these structures have the purpose of resisting flooding?
- **RAC Member Comment/Question:** It is difficult to reconcile the existing guidebook, the presentation, and these definitions on non-biodegradable elements. For example, Cannon Beach projects use geotextile that is not biodegradable and is not meant to go away under natural conditions. Is that a beachfront protective structure, a static structure, or a structural solution? This needs clarification.
- **RAC Member Comment:** A Goal 18 focus group previously developed a working definition for this term; how does this compare? The word "beachfront" is also a challenge, since these structures protect what is behind the beach and often further erode the beach itself.
    - **DLCD Response:** This definition differs from the working definition, and it may be worth looking back at the guidebook and notes. DLCD is constrained by this term and cannot change it because it is used in the goal.
- **RAC Member Question:** Why is this limited to rigid structures, when a beachfront protective structure could be any of these types?
    - **DLCD Response:** The term is used specifically in Goal 18, which already sets specific parameters that cannot be changed. The definition is intended to apply only to areas covered by Goal 18.

12. Riprap Revetment

"Riprap revetment" means a structural shoreline stabilization method located within coastal shorelands or coastal waters, constructed of boulders placed on a slope to mitigate the impacts of coastal erosion. Riprap revetments are typically constructed on a sloped embankment with a layer of large, angular boulders placed over a filter or bedding layer. Riprap revetments are designed to redirect or resist wave energy.

- **RAC Member Comment:** Add "engineered" to this definition. For recreational users, these structures create hazardous situations, and it seems unwise not to require them to be engineered.
- **RAC Member Comment:** Include a gradation or minimum size to define the difference between cobble and riprap.
- **OPRD Comment/Question:** The riprap revetment and seawall definitions are good. Why are some techniques given their own definitions while others are not? The approach should be more holistic. The beachfront protective structure definition could refer directly to specific techniques, such as riprap revetments and seawalls, rather than being a broader new definition.

13. Seawall

"Seawall" means a structural shoreline stabilization method located within coastal shorelands or coastal waters, constructed to address impacts from coastal erosion or flooding, composed of a vertical or near vertical structure. Seawalls are built from non-deformable materials including stone, brick, wood, gabions, concrete, or steel sheet pile. Seawalls are designed to reflect or resist wave energy.

The RAC had no questions or comments on this definition.

Field Trip, Rulemaking Schedule, Office Hours, and Next Steps

Meg shared that DLCD will send RAC members a post-meeting survey. The survey will include a rating scale and an open comment box where members can suggest revisions, rework the definition, or add comments. The survey will also include an RSVP for the optional field trip, with more details to follow, and a question about availability for the next RAC meeting.

The next steps slide included:

- Optional RAC office hours:
  - Tuesday, October 20, 10:00 a.m. to 11:00 a.m.
  - Monday, October 26, 1:00 p.m. to 2:00 p.m.
- RAC #3: Thursday, November 12, 2026, 9:00 a.m. to 12:00 p.m. Discussion of draft rules.
- Optional field trip: Friday, November 13, 2026, meeting at Ona Beach State Park. This is not a RAC meeting; there will be no discussion of the rules and no decisions made at this optional event.
- RAC #4: January 22, 2027, 9:00 a.m. to 12:00 p.m.
- RAC #5: March 5, 2027, 9:00 a.m. to 12:00 p.m.
- RAC #6: May 14, 2027, 9:00 a.m. to 12:00 p.m.

Closing Remarks

Commissioner Skaar provided closing remarks. She shared that the presentations and photographs helped bring the terms together. She noted that the conversation highlighted the complexity of this work and that the RAC is well put together, with academic, engineering, on-the-ground, local implementation, and regulatory voices all speaking up. She thanked members for their work and encouraged them to complete the survey as a way to continue the conversation, since members will likely leave with thoughts they wish they had shared.

Meeting Adjourn

The meeting adjourned at 12:03 pm.

Chapter 660

Division 49

Coastal Shoreline Stabilization

Draft Rule Outline

As of 10/07/2026

Purpose

The purpose of this division is to establish definitions and requirements for managing the impacts of erosion and flooding along Oregon's coastal shorelines through hazard avoidance measures and shoreline stabilization methods. This division carries out the requirements of Goal 16 Estuarine Resources (OAR 660-015-0010(1)), Goal 17 Coastal Shorelands (OAR 660-015-0010(2)), and Goal 18: Beaches and Dunes (OAR 660-015-0010(3)) regarding coastal shoreline stabilization.

Policy

(1) The Land Conservation and Development Commission (LCDC) recognizes that coastal shoreline stabilization methods are used throughout Oregon's estuaries, coastal shorelands, and beach and dune environments to mitigate the impacts of erosion and flooding to coastal shoreline development, infrastructure, and coastal resources. Therefore, it is important to provide for and direct the use of shoreline stabilization methods within coastal resource areas.

(2) Hazard avoidance measures and nature-based solutions shall be prioritized over structural shoreline stabilization methods within estuaries, coastal shorelands, and beaches and dunes. In addition to providing shoreline stabilization, nature-based solutions provide habitat for wildlife, improve water quality, protect cultural resources, and provide public access, as appropriate.

(4) Coastal shoreline stabilization methods shall be designed to minimize adverse impacts to the natural and built environments.

Definitions

For purposes of Division 049, the definitions contained in ORS 197.015 and the Statewide Planning Goals (OAR chapter 660, division 015) apply. In addition, the following definitions apply:
See "Definitions for RAC Consideration" document and Post-meeting RAC Survey.

Applicability

(1) The requirements of this division apply to areas subject to Goals 16, 17, and 18, which include estuaries, coastal shorelands, and beaches and dunes.
(2) For coastal shoreland areas immediately adjacent to coastal lakes, the requirements of OAR 660-049-XYZ (Shoreline Stabilization General Requirements) apply.
(3) OAR 660-049-ABC etc. apply to estuaries and coastal shorelands immediately adjacent to estuaries.
(4) OAR 660-049-DEF etc.* apply to:
    a. Beach and dune areas covered by Goal 18;
    b. Coastal shoreland areas covered by Goal 17 that border the ocean shore; and
    c. Any combination thereof.
(5) This division does not negate the need for entities to obtain any applicable local, state, or federal permits related to the construction, repair, or modification of new or existing shoreline stabilization projects.

**Highlighted text will be filled in later in the rule drafting process.*

Hazard Avoidance Measures

The purpose of this section is to manage and direct new development and redevelopment in high hazard areas that are prone to impacts from waves, erosion, flooding, landslide, tsunamis, and sea level rise, amongst other hazards. Under Goal 17, "Land-use management practices and non-structural solutions to problems of erosion and flooding shall be preferred to structural solutions." DLCD is drafting this section of the rules under that existing goal framework by detailing strategies that:

- Mitigate the need for future shoreline stabilization,
- Provide space for non-structural nature-based solutions to work effectively; and
- Decrease risk for those coastal shoreline properties where the rules apply.

Shoreline Stabilization

General Requirements

This section is meant to provide general requirements for shoreline stabilization techniques across all coastal landscapes. This will include any commonalities in

requirements or processes. Such approaches may include what is required in a local government permit for shoreline stabilization, coordination across permitting entities, and monitoring and maintenance of techniques. An expedited review pathway for nonstructural nature-based solutions and emergency permitting of shoreline stabilization may also be addressed.

Waivers

This section addresses certain hazard avoidance measures and nature-based solutions that can occur without a permit or with the approval of a waiver to incentivize their use. This section may cover exempted activities and standards to qualify for a waiver. Such activities and standards may include providing a beneficial use to the ecosystem or public, not surpassing a size limit, having minimal impact on the landscape, or infilling nature-based solutions on adjacent properties.

Estuaries

General Requirements for Shoreline Stabilization in Estuaries:

This section will only apply to coastal shorelines within estuaries and subject to Goals 16 and 17. It will require that any shoreline stabilization project be consistent with the purposes of the estuary management unit and adjacent coastal shorelands zoning as adopted in the jurisdiction's estuary management plan.

Natural Estuaries and Natural Management Units:

This section is applicable to the types of shoreline stabilization methods allowable and prohibited within estuaries classified as natural or within designated natural management units and their adjacent coastal shoreland areas. Riprap under certain conditions is the only structural shoreline stabilization method allowable in natural estuaries and natural management units (as already stated in Statewide Planning Goal 16).

Conservation Estuaries and Conservation Management Units:

This section is applicable to the types of shoreline stabilization methods allowable and prohibited within estuaries classified as conservation or within designated conservation management units and their adjacent coastal shoreland areas.

Development Estuaries and Development Management Units:

This section is applicable to the types of shoreline stabilization methods that are allowable and prohibited within estuaries classified as deep-draft development, shallow-draft

development or within designated development management units and their adjacent coastal shoreland areas.

Outer Coast

Requirements for Shoreline Stabilization in Coastal Shorelands adjacent to the Ocean Shore:

This section is applicable to the types of shoreline stabilization methods that are allowable and prohibited on the outer coast (adjacent to the ocean shore) and subject to Goals 17, 18, or both.

Mitigation

This section will address the requirements of mitigation for the impacts of structural shoreline stabilization methods related to wildlife habitat, water quality, cultural and recreational resources, and public access.

Regional and Multi-Property Planning Incentives for Nature-Based Solutions

This section addresses incentives to encourage collaborative, regional planning efforts between neighboring property owners to design, permit, and implement nonstructural nature-based shoreline stabilization projects across multiple contiguous or hydrologically connected properties. Adjacent or functionally connected properties can be any mix of private, city, county, state, Tribal, or federally owned lands.

Monitoring, Maintenance, Repair, and Removal

This section addresses the requirements and responsibilities of the landowner(s) for monitoring, maintaining, repairing, and in some cases removing shoreline stabilization on their land. Projects may require regular monitoring reports be submitted to the applicable permitting authorities.