2026

State of the Beach Report

Rock Bottom: How Emergency Armoring Is Causing America's Beaches To Disappear

MediaNews Group / Orange County Register via Getty Images

SURFRIDER FOUNDATION

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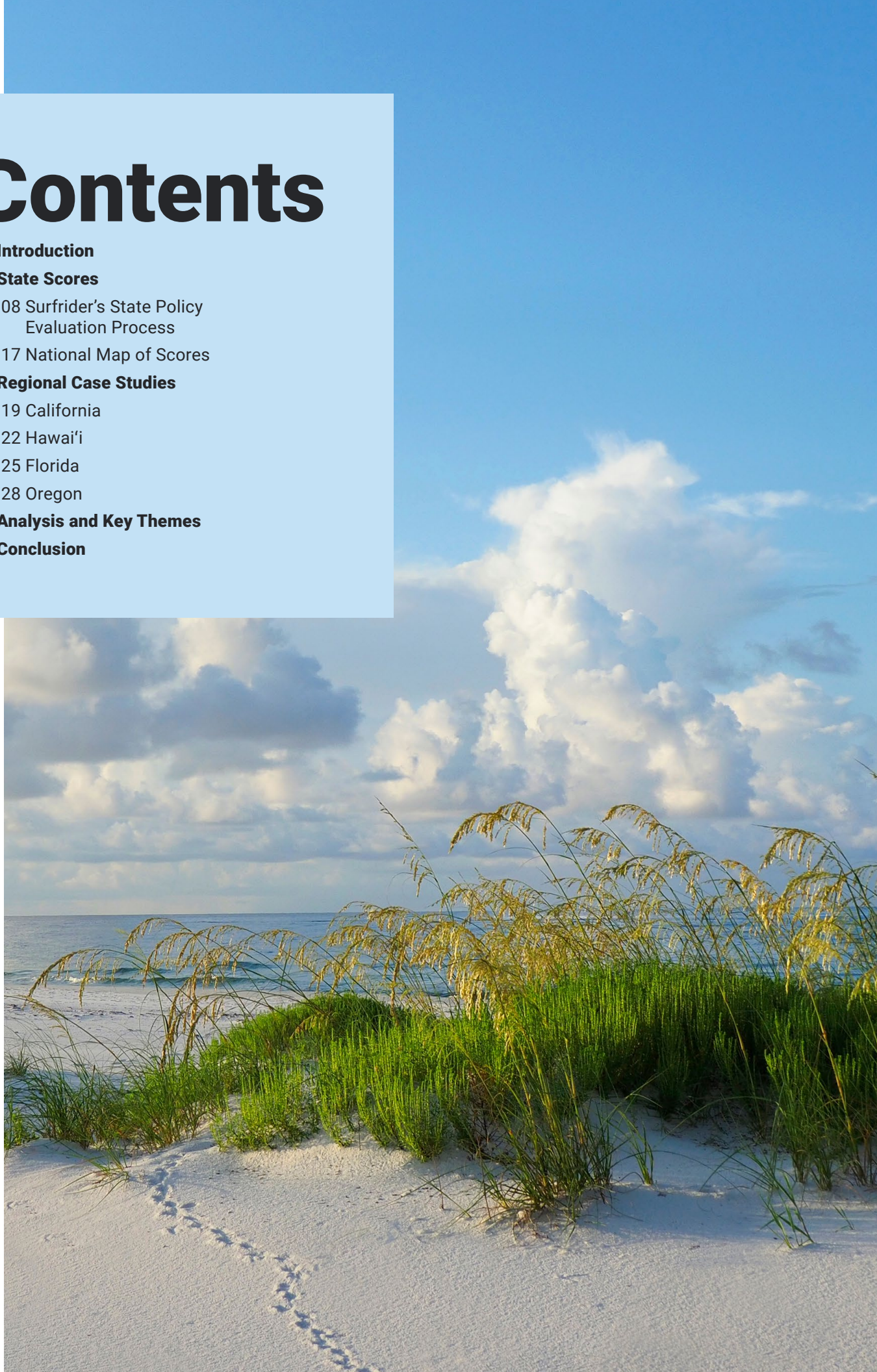


Introduction

America's beaches have been in the news a lot this year, but not for the reasons you might think. While U.S. beaches continue to serve as economic engines driving summer fun from coast to coast and contributing more than $520 billion in national economic output, this summer's headlines have been focused on the devastating impacts that erosion caused by the climate phenomenon known as El Niño is having on beaches, coastal access, homes, and infrastructure. Further compounding the emergencies along our coasts is an unprecedented Pacific marine heatwave that could intensify predicted impacts and is adding a new level of uncertainty for the winter ahead.

As climate-related emergencies increase around the world, the Surfrider Foundation believes it's essential to help coastal communities, agencies, and planners manage their coastlines sustainably, without doing further harm to our beaches or the public's ability to enjoy them.

In this analysis, Surfrider introduces a framework for achieving long-term coastal resilience while allowing short-term emergency shoreline armoring when coastal infrastructure and public safety face imminent risk from unforeseen coastal hazards.

90%

of states earned a grade of C or lower for their policies to protect their coasts from unnecessary permanent coastal armoring during or after an emergency

$520B

national economic output contributed by U.S. beaches

As climate-related emergencies increase around the world, the Surfrider Foundation believes it's essential to help coastal communities, agencies, and planners manage their coastlines sustainably, without doing further harm to our beaches or the public's ability to enjoy them.

A collapsed house on the coast in Buxton, North Carolina. (📷 Jenni Koontz / Epic Shutter Photography)

The Emergency Elephant in the Room

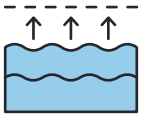
There is no shortage of hazards currently threatening our coastlines, and the habitats and infrastructure along them. 2026 has been a year of several long-predicted climate catastrophes realized. Soaring ocean temperatures stretching into the furthest reaches of the Arctic, massive wildfires, rising sea levels, glacial collapse, beaches lost, and extreme storms have sent shockwaves across inland and coastal communities throughout the globe. The ferocity and devastation of several of these disasters are shocking, marking a shift in the intensity, severity, and duration of climate-induced emergencies, all as the most recent United Nations report on climate tells us that we are barreling toward a world that is 1.5 degrees warmer than pre-industrialized times. In many ways, we are experiencing a preview of the climate and weather of the future.

On the West Coast of the United States, a "super" El Niño building since June has converged with a historic marine heatwave, king tides, and sea level rise to contribute to devastating beach loss and erosion. Hawai'i has been in the path of multiple hurricanes. Beaches from Hawai'i to Point Dume to Santa Cruz to Carlsbad are experiencing devastating erosion, while communities in the Pacific Northwest are preparing for the worst of flooding and erosion. On the East Coast of the United States, with extreme conditions and nor'easters forecasted to last through the winter, it raises the question of how we will respond and adapt to the new normal of these emergencies along our coasts, and when.

EL NIÑO EXPLAINED

Normally, steady trade winds push warm ocean water west across the Pacific.

During El Niño, the winds weaken and warm water spreads east.

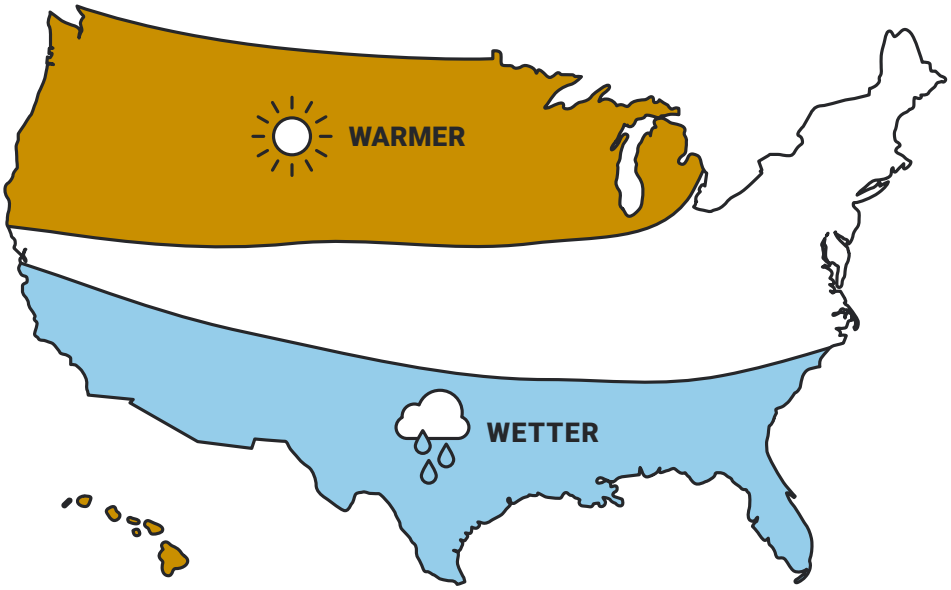


Warmer water expands, lifting West Coast tides 12–18 in. above normal levels.

The warmer ocean shifts the jet stream, steering storms along new paths.

Some regions get wetter, stormier winters, while other regions get drier.

REGIONAL IMPACTS OF A TYPICAL EL NIÑO WINTER



West Coast: Big swells erode beaches. California gets stormier; the Northwest stays warmer and drier.

Hawai'i: Drier winters, coral bleaching risk, and more hurricanes.

Great Lakes: Less winter ice leaves shorelines exposed to storm waves.

Northeast and Mid-Atlantic: Often milder, but nor'easters can still bring flooding and erosion.

Southeast, Florida, and Texas: Wetter, stormier winters and higher tides, but quieter hurricane seasons.

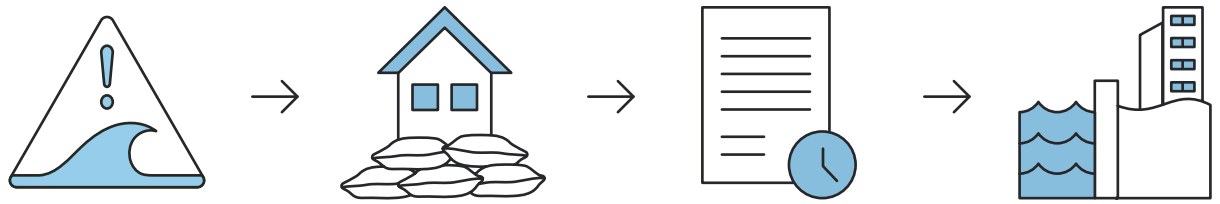
Responding to Coastal Hazards: Proactive Planning Versus Reacting to Imminent Threats

Many coastal communities, homeowners, businesses, utilities, and agencies are grappling with this culmination of climate-induced hazards firsthand. As developed shorelines are threatened, their structural vulnerabilities become exposed, along with the state policies for permitting coastal armoring when a true emergency exists. Surfrider's analysis found that 90% of states (27 out of 30) earned a grade of C or lower for their policies to protect their coasts from unnecessary permanent coastal armoring during or after an emergency.

In most states, the process looks similar. An emergency occurs, or an impending emergency is declared. Homeowners take action to protect life and property with or without advance authorization, placing materials on the beach that function as a seawall or other erosion-protection structure. Sometimes there are guardrails that limit the size or type of structure and define how long it can stay on the property; sometimes not. Most states require or encourage property owners to remove their emergency structure or work it into a permanent structure under normal permitting requirements. While permits can be denied and work is often subject to enforcement, a general lack of enforcement often results in emergency structures becoming permanent coastal armoring where none existed prior to the emergency or disaster event.

A general lack of enforcement often results in emergency structures becoming permanent coastal armoring where none existed prior to the emergency or disaster event.

EMERGENCY TO PERMANENT PERMIT PIPELINE



An emergency occurs or is declared. Owners act to protect life and property.

Rock, sandbags, or concrete go on the beach with weak guardrails on size, type, and duration.

Enforcement lags, "temporary" structure stays, or a permanent permit is sought.

The beach is pinned in place, sand is blocked, erosion accelerates, and the beach is squeezed.

Large sandbags placed on the beach to stop erosion during high tide and stormy conditions. (Michael Sheehan / Shutterstock)

A Maladaptive Approach with Erosive Consequences

The "Emergency to Permanent Permit Pipeline" is at the crux of the problem with mainstream responses to coastal erosion: what is intended to immediately alleviate an acute erosion threat and protect life and property temporarily becomes a long-term erosion and coastal management response, and a maladaptive one at that. Permanent armoring along beaches will always inevitably contribute to the permanent loss of sand and beach slope through a phenomenon known as **coastal squeeze**.

When a hard structure is installed in a dynamic coastal environment, the beach is effectively pinned in place. Sand upland of the structure is blocked from reaching the coast, effectively lost forever, and erosion accelerates on beaches adjacent to the structure (flanking erosion). In an undeveloped environment, the beach would otherwise experience seasonal sediment changes and eventually migrate inland as water levels rose.

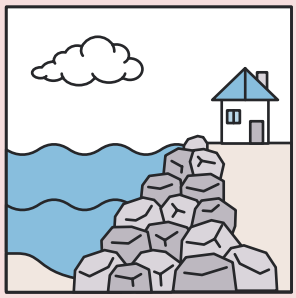
In an emergency context, the structure installed to protect coastal areas from acute erosion during an emergency contributes to chronic erosion upland and adjacent to the structure. This chronic erosion may be considered an emergency in itself or contribute to one in the future, and our once healthy, sandy beaches are converted to piles of rocks and concrete as the cumulative effects of ongoing permanent armoring and beach loss occur along the coast.

The Current Approach: A Framework for Exploitation

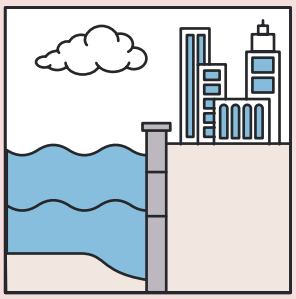
The current framework for emergency permitting in most states provides perverse incentives for coastal property owners to exploit an often vague and undefined process. Rather than working through the standard procedure to apply for an erosion response structure when there is no emergency, they apply for emergency permits when many standard rules and regulations do not apply. With accelerating coastal erosion and more climate change impacts being realized, there will be more declared "emergencies" in coastal areas. More emergencies mean more opportunities for our beaches to be systematically and permanently armored — and ultimately lost completely where inadequate laws and regulations fail to govern and check the process.

That's why the Surfrider Foundation assessed coastal states' current regulations on emergency permitting and armoring. The goal was to identify where policies fall short, so states can better protect their treasured coastal resources from further erosion and loss during and after climate-induced emergencies. At the same time, those policies must still allow community members to protect their property and safety during unforeseen emergencies.

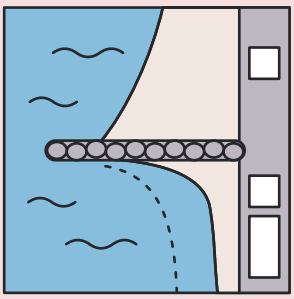
COASTAL ARMORING METHODS



Riprap
Large boulders piled on shore. They absorb some energy, but bounce heavy waves downward, scouring the beach.



Seawall
A concrete or steel wall at the back of the beach. Waves bounce off it and scour away the sand until the beach in front disappears.



Jetty
A rock structure built out into the ocean, often at an inlet. It traps drifting sand on one side and starves beaches downdrift.

NATURE-BASED

Living Shoreline
Restored beach slopes with native plants dissipate waves naturally, keeping the beach intact and free to shift seasonally.

State Scores

Guru Khalsa

Surfrider's State Policy Evaluation Process

This State of the Beach Report evaluates all coastal and Great Lakes states for their respective laws and rules for coastal armoring under an emergency, and the extent to which they avoid new hard permanent armoring through those policies.

The report finds that just over half of states have enacted minimum safeguards to protect beaches in the event of an emergency, particularly as both unanticipated emergencies and chronic hazards along our coasts and beaches increase.

The assessment evaluated states across seven distinct criteria for policies related to permitting emergency coastal armoring (see Table 1). States were evaluated for their policies enacted in state law. The grading rubric does not consider or incorporate implementation. However, implementation is discussed in the regional case studies.

The report evaluates laws and rules related to emergency permitting for coastal armoring on private property only. While many states have laws specific to public property, they were not included in this analysis.

TABLE 1

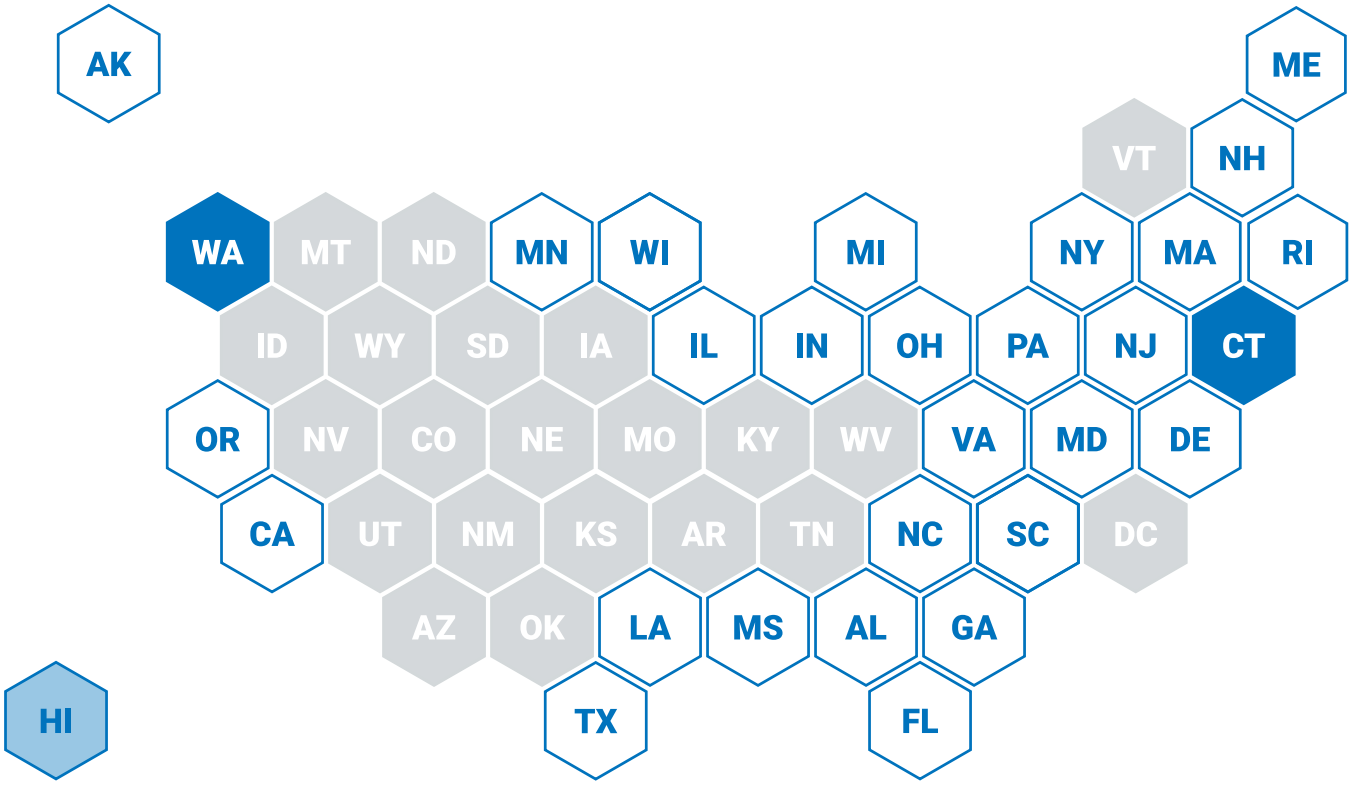
Surfrider's Criteria to Evaluate Emergency Coastal Armoring Policies

01	**Provides Emergency Definition That Excludes Long-Predicted Hazards:** Emergencies or disasters that would qualify for an emergency coastal protective structure are narrowly defined and intended to provide protection from the immediate emergency or imminent hazard from a previously unpredicted threat. For example, the definition or code excludes predictable weather or flooding events. Failure to adequately maintain an existing permitted structure is also excluded and would require private property owners to follow general permitting requirements.
02	**Requires Advanced Written Authorization:** The state requires private property owners to request and obtain written authorization before emergency coastal armoring work commences.
03	**Establishes Explicit Time Frame or Duration for Work To Occur:** The state clearly defines a time frame for the commencement, duration, and completion of emergency work to occur from the date of written authorization.
04	**Authorizes Temporary Coastal Structures Only:** The state only permits emergency projects that are temporary, with clear requirements for removal of emergency structure(s) by a certain date or within two years maximum, provided a permanent permit is not obtained prior to the deadline.
05	**Restricts Emergency Coastal Armoring Permits To Repair or Replacement Only:** The state only permits the repair or replacement of existing erosion control structures in an emergency, as long as it remains within the same physical footprint.
06	**Has Strict Limits on Type of Structures Approved for Emergency Permitting:** The state has limitations on the type of structure permitted in an emergency, either through explicit restrictions on the type of structure (seawall, riprap), construction materials, and/or thresholds on the cost or footprint of the structure.
07	**Has Clear Enforcement Protocols To Ensure Requirements Are Met:** Failure to meet the state's emergency authorized structure requirements or permit terms (e.g., monitoring, mitigation, removal, restoration, etc.) results in a stated recourse, such as: penalty fees, removal of structure and restoration of coastal area, liability for costs associated with emergency action or removal, or bond requirements to ensure applicants can remove emergency work.

CRITERIA 01

Provides Emergency Definition That Excludes Long-Predicted Hazards

Emergencies or disasters that would qualify for an emergency coastal protective structure are narrowly defined and intended to provide protection from the immediate emergency or imminent hazard from a previously unpredicted threat. For example, the definition or code excludes predictable weather or flooding events. Failure to adequately maintain an existing permitted structure is also excluded and would require private property owners to follow general permitting requirements.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

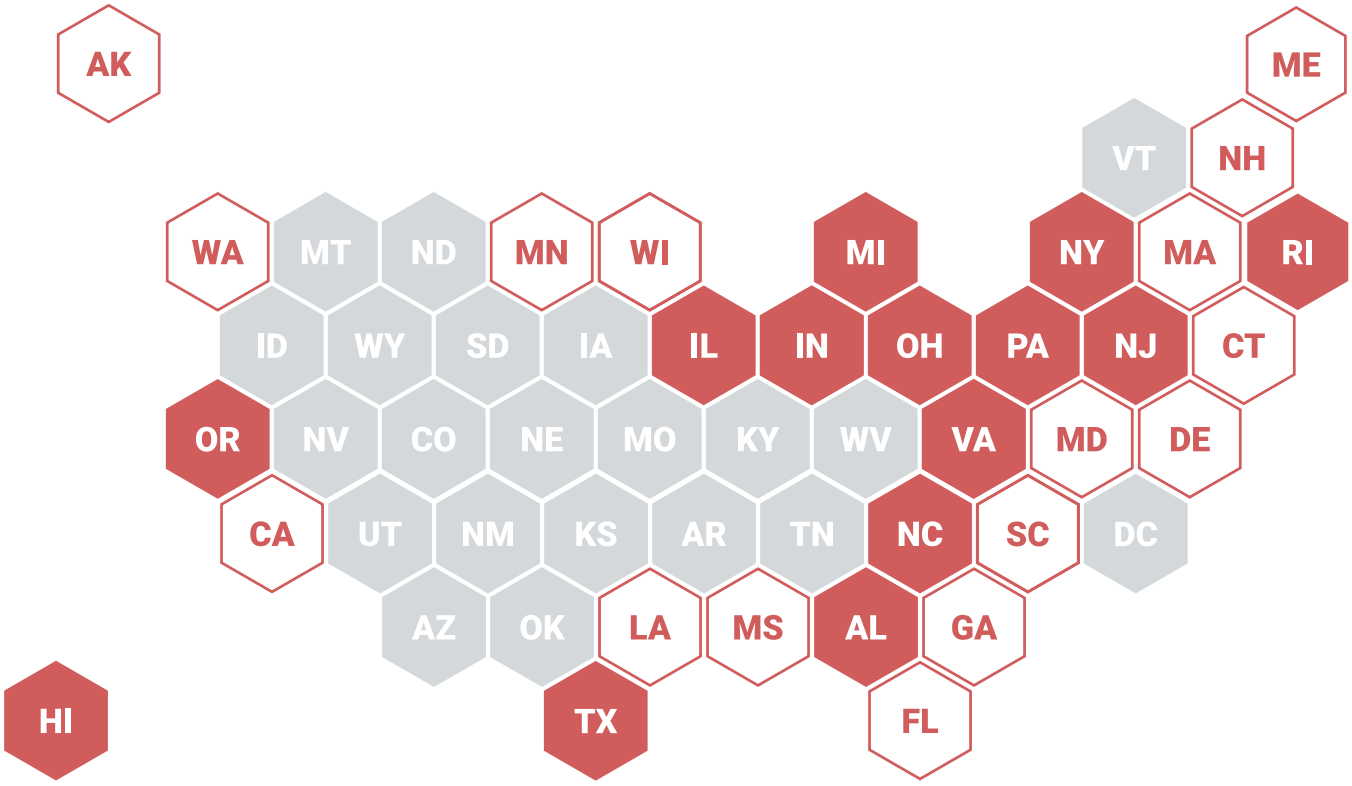
In **Washington,** flooding and seasonal weather events that are predicted or anticipated are not defined as an emergency.

In **Connecticut,** failure to continuously maintain a structure, fill, obstruction, or encroachment along the shore is not grounds for an emergency authorization.

CRITERIA 02

Requires Advanced Written Authorization

The state requires private property owners to request and obtain written authorization before emergency coastal armoring work commences.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

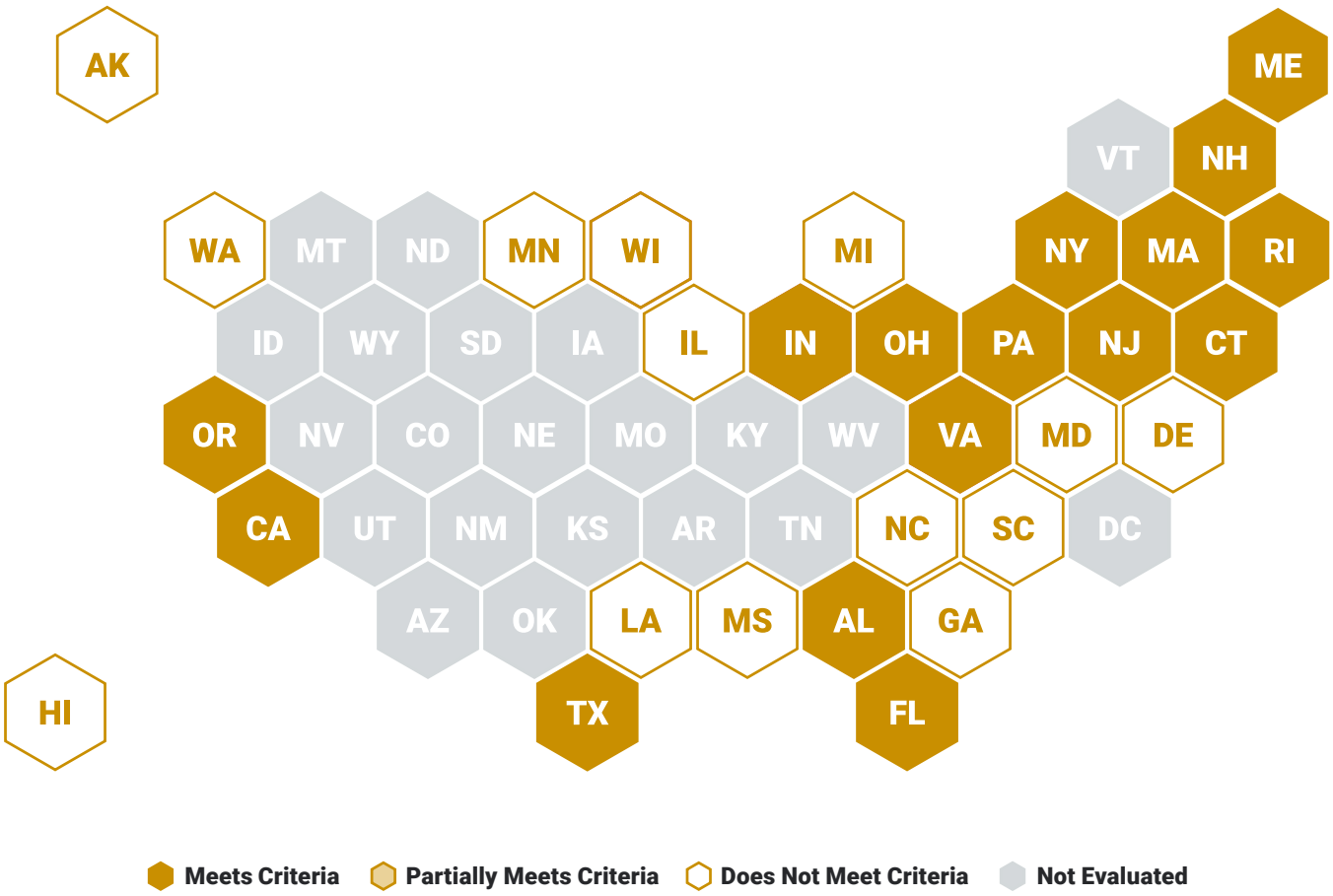
In **Oregon,** designated state agency staff must inspect the site and then issue a permit in writing or verbally, with written permits produced within 10 days of issuance.

In **Indiana,** state agency staff conduct an on-site inspection and, following assessment, may approve an emergency authorization, either written or verbally, but it must be written and recorded.

CRITERIA 03

Establishes Explicit Time Frame or Duration for Work To Occur

The state clearly defines a time frame for the commencement, duration, and completion of emergency work to occur from the date of written authorization.

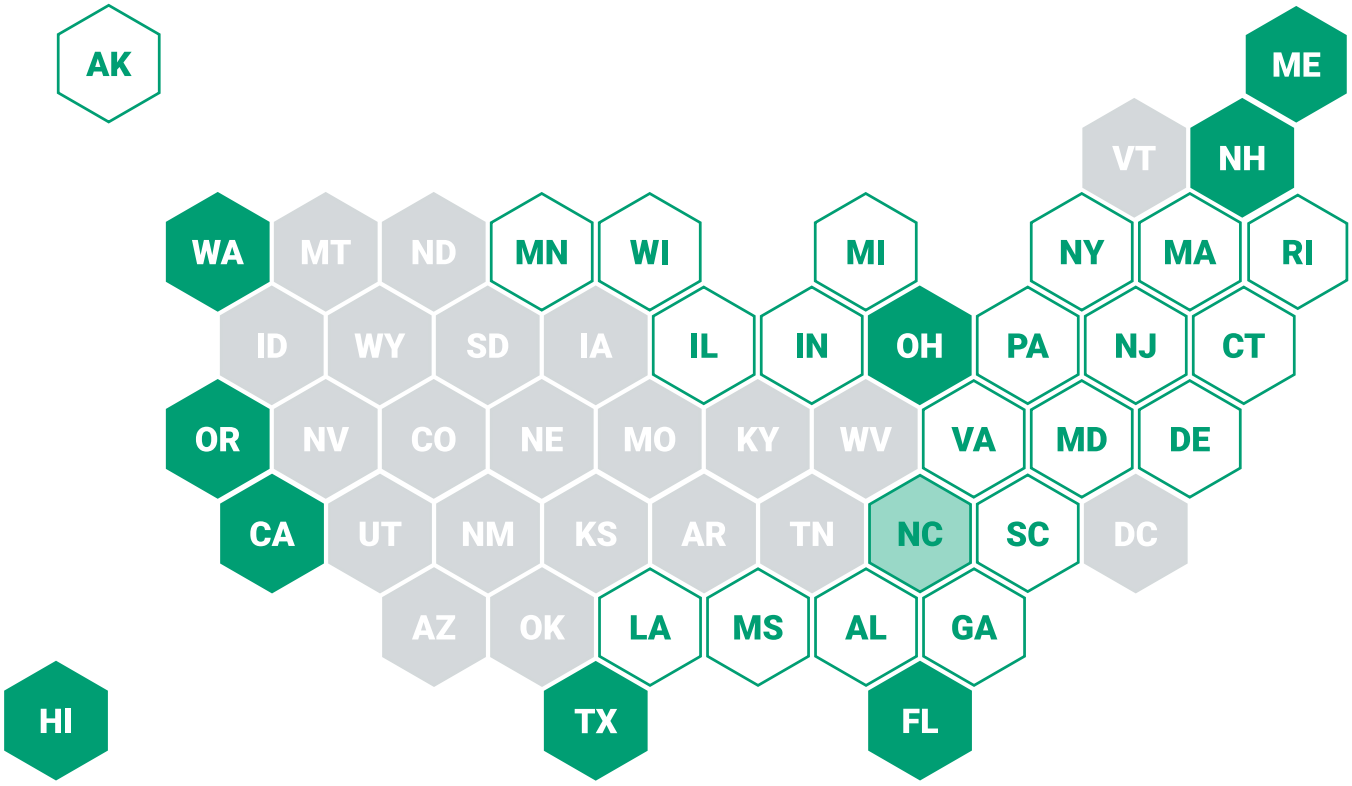


In **California** and **Massachusetts,** emergency work must be completed within 30 days, unless otherwise authorized.

CRITERIA 04

Authorizes Temporary Coastal Structures Only

The state only permits emergency projects that are temporary, with clear requirements for removal of emergency structure(s) by a certain date or within two years maximum, provided a permanent permit is not obtained prior to the deadline.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

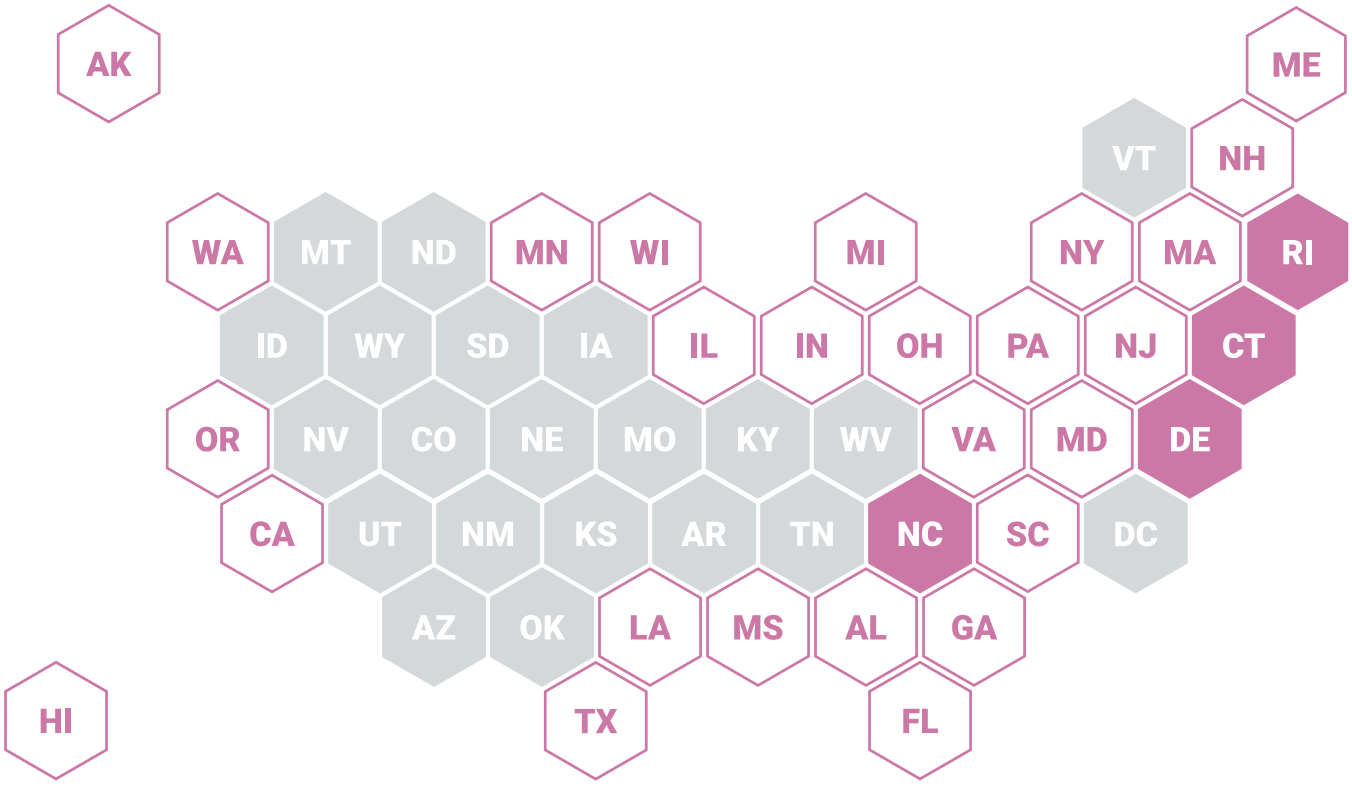
In **Florida,** permitted emergency structures must be temporary and are required to be removed within 60 days of installation, unless a complete permanent permit application is submitted.

In **Hawai'i,** emergency actions must be temporary and may include requirements for removal, estimates for how long the activity will remain in place, and plans for responding to future hazards.

CRITERIA 05

Restricts Emergency Coastal Armoring Permits To Repair or Replacement Only

The state only permits the repair or replacement of existing erosion control structures in an emergency, as long as it remains within the same physical footprint.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

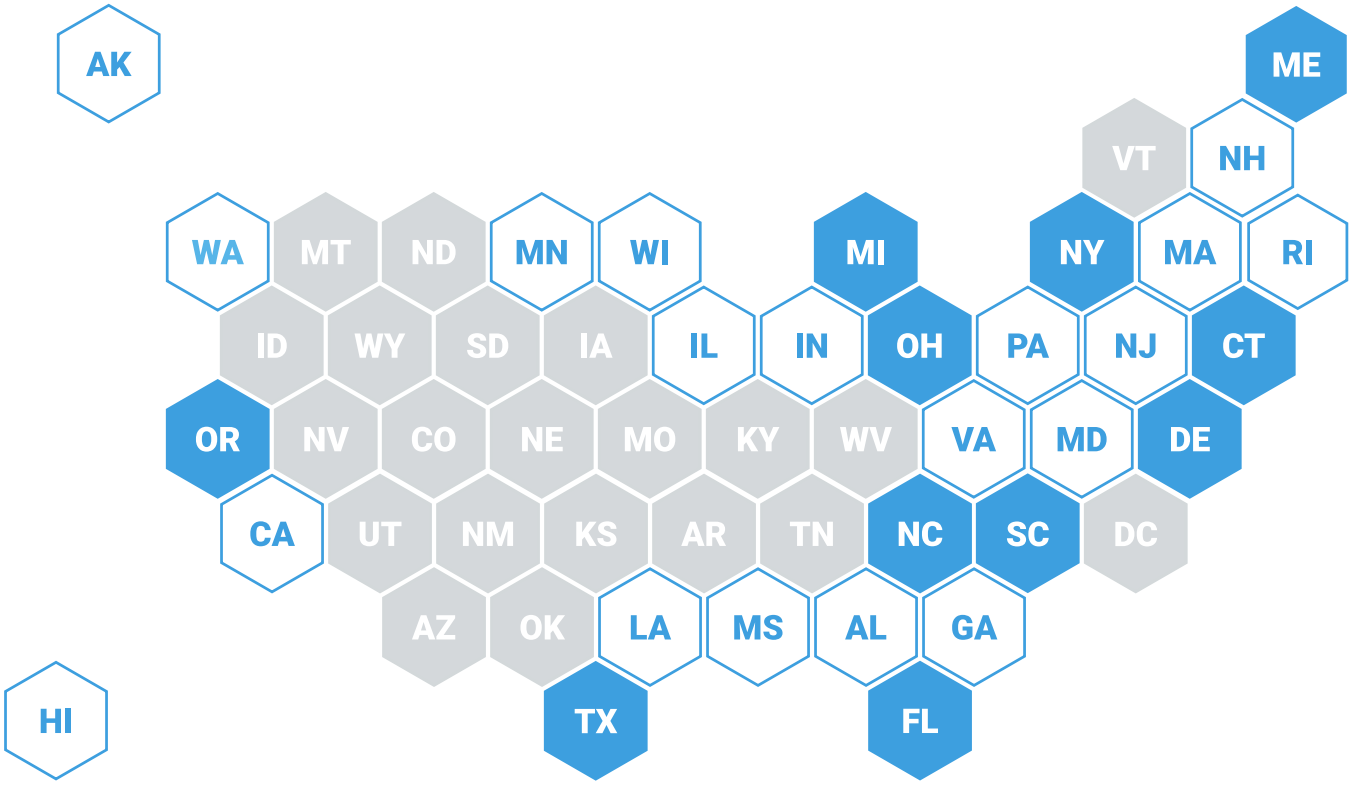
In **Rhode Island,** emergency permits are issued for repair and maintenance of existing structures only; any new construction requests may be deferred.

In **Delaware,** private property owners may apply for emergency permits to repair existing structures only.

CRITERIA 06

Has Strict Limits on Type of Structures Approved for Emergency Permitting

The state has limitations on the type of structure permitted in an emergency, either through explicit restrictions on the type of structure (seawall, riprap), construction materials, and/or thresholds on the cost or footprint of the structure.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

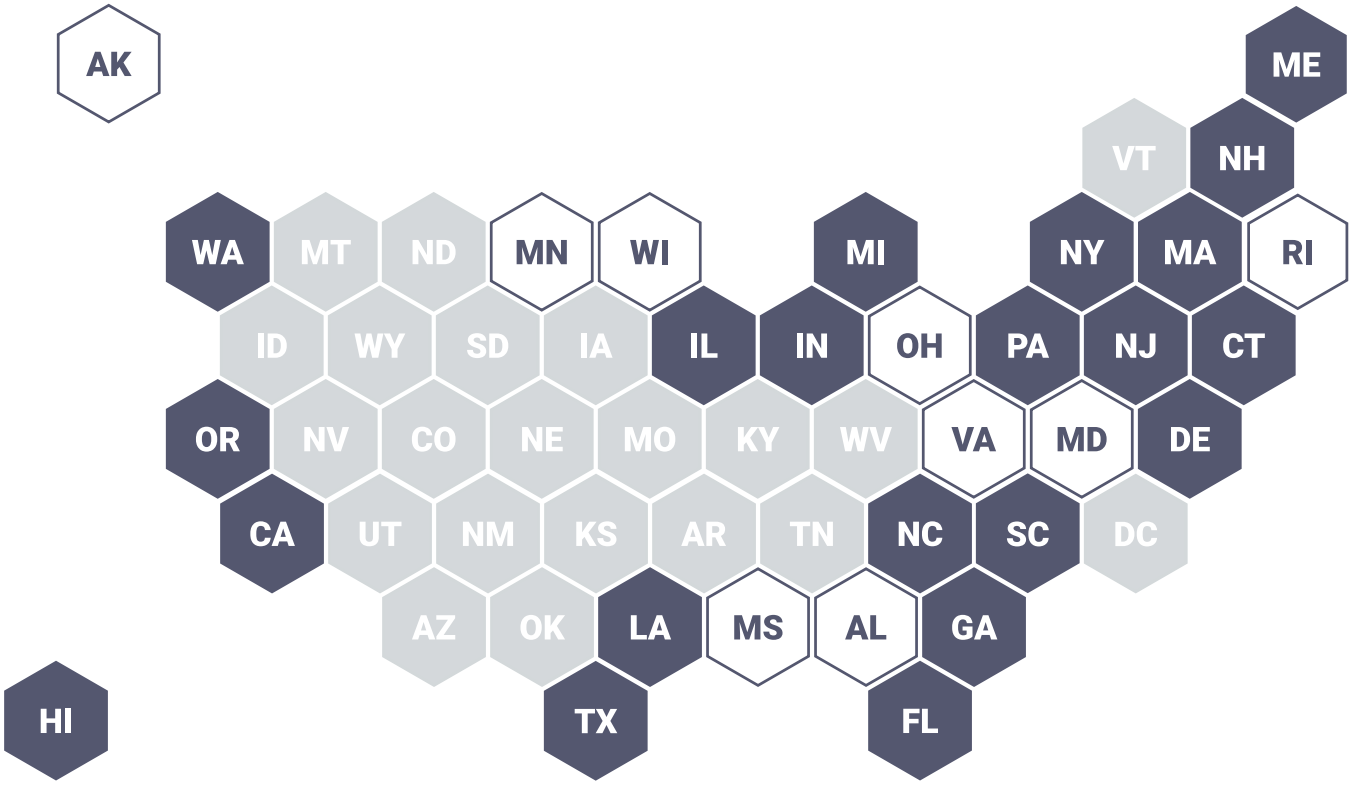
In **North Carolina,** permissible emergency erosion control structures are limited to sandbags placed landward of the mean high water line.

Texas prohibits bulkheads, riprap, concrete, asphalt rubble, building construction materials, and certain types of sediment from use in an emergency shoreline stabilization project.

CRITERIA 07

Has Clear Enforcement Protocols To Ensure Requirements Are Met

Failure to meet the state's emergency authorized structure requirements or permit terms (e.g., monitoring, mitigation, removal, restoration, etc.) results in a stated recourse, such as: penalty fees, removal of structure and restoration of coastal area, liability for costs associated with emergency action or removal, or bond requirements to ensure applicants can remove emergency work.



Meets Criteria | Partially Meets Criteria | Does Not Meet Criteria | Not Evaluated

In **South Carolina,** bonds must be supplied to cover the estimated cost of removal for any structure installed in an emergency, including sandbags.

In **New York,** the state is authorized to issue an order summarily suspending work that began before the grant of an emergency authorization, if it finds no emergency authorization exists. Any person who violates any provision of the code or condition of their authorization is liable for any costs to remediate damage as determined by the department.

TABLE 2

Evaluation Results Summary

STATE	CRITERIA							TOTAL SCORE	GRADE
	Emergency Definition	Advance Auth	Timeframe	Temporary	Repair / Replace	Limitation	Enforcement		
AK								0	F
AL		✓	✓					2	D+
CA			✓	✓			✓	3	C
CT	✓		✓		✓	✓	✓	5	B
DE					✓	✓	✓	3	C
FL			✓	✓		✓	✓	4	C+
GA							✓	1	D
HI	X	✓		✓			✓	3	C
IL		✓					✓	2	D+
IN		✓	✓				✓	3	C
LA							✓	1	D
MA			✓				✓	2	D+
MD								0	F
ME			✓	✓		✓	✓	4	C+
MI		✓				✓	✓	3	C
MN								0	F
MS								0	F
NC		✓		X	✓	✓	✓	4	C+
NH			✓	✓			✓	3	C
NJ		✓	✓				✓	3	C
NY		✓	✓			✓	✓	4	C+
OH		✓	✓	✓		✓		4	C+
OR		✓	✓	✓		✓	✓	5	B
PA		✓	✓				✓	3	C
RI		✓	✓		✓	✓		4	C+
SC						✓	✓	2	D+
TX		✓	✓	✓		✓	✓	5	B
VA		✓	✓					2	D+
WA	✓			✓			✓	3	C
WI								0	F

✓ = Meets criteria X = Partially meets criteria

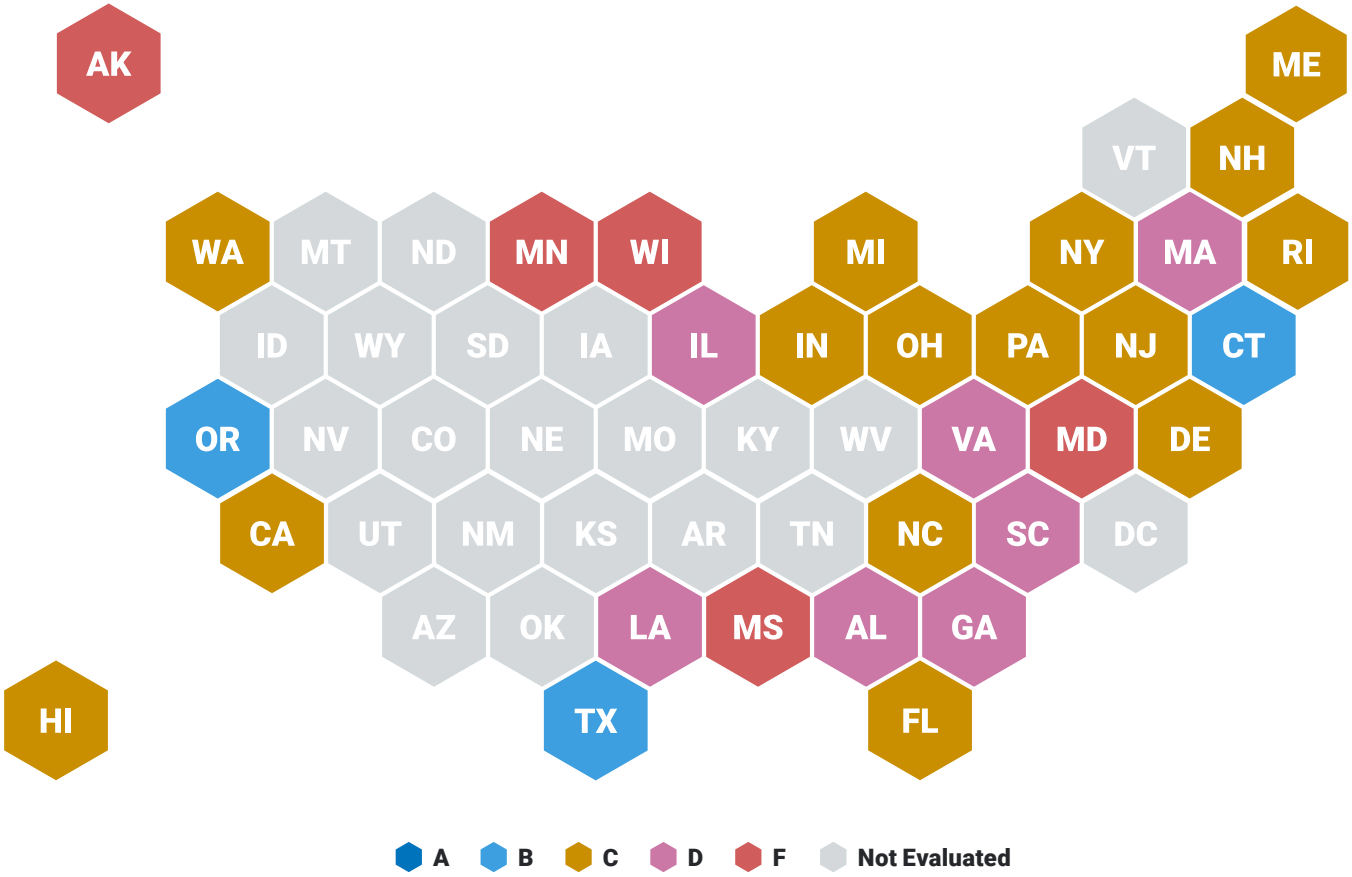
RESULTS

National Map of Scores

7
Total criteria used to evaluate each state's policies

30
Coastal and Great Lakes states evaluated

90%
States received a C grade or lower

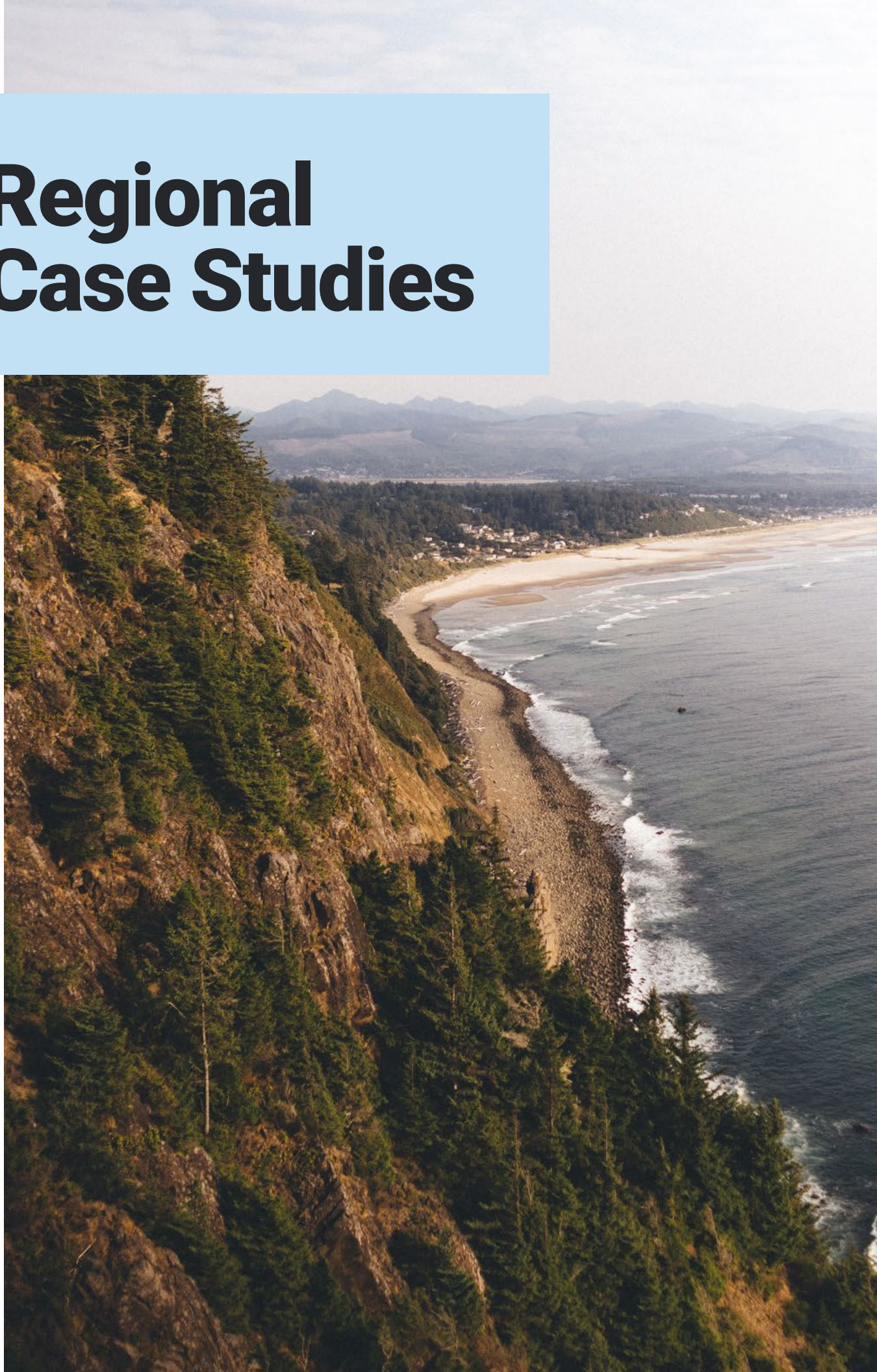


An "A" grade means a state:

- has an emergency definition that excludes long-term or chronic coastal hazards;
- requires written authorization for work to commence;
- has clear requirements that work is temporary and to be completed within a specific amount of time;
- limits the type or size of structure;
- only allows for the repair or replacement of existing structures; and
- has clear enforcement protocols to ensure requirements are met.

GRADE	COUNT
A	0
B	3
C	15
D	7
F	5

Regional Case Studies



CALIFORNIA

The Rocky Reality of California's Emergency Armoring Problem

14%
of California's coastline has been armored as of 2018

1/3+
of the Southern California coast is armored

27,000 tons
of riprap are placed across the San Clemente coast

High tides and heavy ocean waves crash against a seawall protecting beachfront homes in Pacifica, California. (📷 JasonDoiy / Shutterstock)

Along the California coast, 2026 delivered the most severe combination of ocean conditions on record. At the same moment, the use of emergency armoring — the state's oldest method for "protecting" the shoreline — is growing. As a result, beaches are shrinking as the gap widens between what the California Coastal Act was written to prevent and what is actually happening to the sand.

El Niño and a Marine Heatwave: A Record-Setting Threat

A super-charged El Niño paired with above-average sea-surface temperature is strengthening to record-breaking levels. Several factors are converging heading into the winter: thermal expansion of warming water (coastal Kelvin wave), expected elevated rainfall as a result of the El Niño event (particularly in Southern California), and king tides. Meteorologists predict that winds from storms during a significant El Niño will elevate the sea even more, potentially resulting in dangerous rises of two to three feet or more near the California coast. In 2025 and 2026, Governor Newsom issued multiple statewide "severe weather" emergency proclamations covering coastal counties. If predictions hold, the entire California coastline is likely to experience record-level storm surge and flooding heading into 2027.

The State of Emergency Armoring in California

Under California state code, shoreline armoring, which includes seawalls, revetments, cliff retaining walls, etc., "shall be permitted when required... to protect existing structures or public beaches in danger from erosion." That standard was written narrowly. But the emergency route around normal California Coastal Commission review has become the standard, not the exception. The commission's executive director is authorized to issue an emergency permit without public notice or hearing, deferring any mitigation for lost sand supply and public access to a follow-up permit that is often delayed and sometimes never filed. In practice, "temporary" armoring stays in place for years, with the expectation that emergency work will be followed by a permit for permanent armoring along the coast.

Storm damage associated with strong El Niño winters, like the 2026-2027 season, predictably brings a new wave of emergency armoring, and conditions will grow more severe as climate impacts intensify. The baseline is already high: as of 2018, roughly 14 percent of California's 1,100-mile coastline had been armored — **including more than a third of the Southern California coast** — with each new structure narrowing beaches and degrading public access. Given that the science around sea level rise, king tides, and increased storm activity is established, Surfrider rejects the concept that expected erosion should qualify as an "emergency" and instead advocates for long-term, nature-based solutions to sea level rise and shrinking beaches.

Emergency Permitting in Practice: OCTA and San Clemente

The clearest current example is the Orange County Transportation Authority's (OCTA) rail corridor through San Clemente. Since September 2021, OCTA has obtained a series of emergency coastal development permits from the Coastal Commission to place roughly 27,000 tons of riprap along about 1,250 linear feet of beach, plus a separate emergency permit for bluff tieback stabilization. Passenger service was halted in spring 2025 for further emergency reinforcement work, and did not resume until June of the same year. Each emergency permit is legally required to be followed by a full Coastal Development Permit review. In practice, the armoring goes in first, and the comprehensive Coastal Act review happens after the fact, for a beach that has already been altered.

In this case, emergency armoring has reduced the stretch that connects the world-famous Trestles surf breaks to the rest of San Clemente's beaches to an impassable pile of boulders. Surfrider's South Orange County Chapter is actively campaigning against this cycle, calling on OCTA to commit to relocating the tracks and restoring the beach rather than repeating the emergency armoring cycle after every storm season.

Orange County Transportation Authority's (OCTA) existing rock riprap along the San Clemente coastline. (📷 CameronCreatives / Shutterstock)

The Legislative Opening

The 2026 state legislative session in California presented both a threat and an opportunity for better coastal management. Assembly Bill 2373 would have added a "neighborhood-scale adaptation" provision to the Coastal Act, creating a mechanism for new construction to attach to armoring intended for older, existing structures, eroding not only our beaches, but also Section 30235's core limitation. Surfrider opposed it, and the bill was held in the Assembly Appropriations Committee's suspense file in May, effectively killing it for the session. Meanwhile, SB 1229, supported by Surfrider, would bar post-disaster reconstruction by new owners from encroaching on public access easements, sensitive habitat, bluff setbacks, or state tidelands, while preserving streamlined permitting for disaster victims rebuilding their own homes.

Both bills sit inside Surfrider's broader California Beaches Forever campaign, which combines monthly Coastal Commission engagement, site-specific advocacy, nature-based adaptation (such as dune restoration and living shorelines) as an alternative to hard armoring, and pushes for legislation that supports long-term solutions that protect California's beaches. As record El Niño conditions collide with a shoreline that is developed and already significantly armored, we must make disaster-driven armoring the last resort, as the Coastal Act intends.

Left: A restored coastline with native plants at Surfers' Point, Ventura. **Right:** Volunteers remove invasive plants from San Onofre State Beach.
Bottom: Chapter and student club members in Sacramento on California Ocean Day.

HAWAIʻI

When Temporary Becomes Permanent: Hawaiʻi's Emergency Armoring Problem

13+
miles of beach lost statewide to shoreline armoring

29%
of Oʻahu's sandy shoreline is already armored

20 years
Hololani's sandbags, authorized as a three-year fix in 2007, are still in place

For decades, Hawaiʻi's emergency armoring regulations allowed temporary fixes to become anything but temporary. Emergency authorizations meant to address immediate erosion threats allowed sandbags, erosion skirts, and other shoreline protection structures to remain in place for years, while long-term adaptation was deferred.

The consequences have extended well beyond individual properties. Shoreline armoring has contributed to the loss of more than 13 miles of beach statewide, including 5.4 miles on Oʻahu, where nearly 29% of sandy shoreline is already armored. A 2020 University of Hawaiʻi study found that emergency permitting has become a primary pathway for shoreline hardening as chronic and acute erosion threatens development.

The problem was not that Hawaiʻi's rules intended emergency structures to become permanent. Under the state's administrative rules, the Department of Land and Natural Resources (DLNR) may authorize emergency actions to address threats to public health, safety and welfare, natural resources, or land uses imminently threatened by natural hazards. Those actions are explicitly required to be temporary and include contingencies for removal and estimates of their duration.

Collapsed home, tarps, and other temporary erosion control measures impair beach access between Rocky Point and Sunset Beach Park, North Shore, Oʻahu. (📷 Shellie Habel, Sea Grant / DLNR)

The gap between intention and enactment largely occurs when the emergency does not end. The existing rules do not define when an immediate emergency becomes a chronic erosion problem or establish a clear pathway for transitioning temporary shoreline protection out of emergency status. While future response plans may be required by DLNR, the rules do not require property owners to demonstrate progress toward a long-term solution that will ultimately allow the temporary structure to be removed. That gap has allowed emergency protection to persist far beyond what should be considered temporary.

Hololani Resort Condominiums on West Maui illustrates just how consequential that gap can be. In 2007, Hololani received emergency authorization for geotextile sandbags intended to provide temporary erosion protection for three years while it pursued a long-term solution. Three years came and went. The authorization was repeatedly extended while Hololani pursued permanent shoreline protection, and the temporary sandbags became the de facto shoreline. Nearly two decades later, they remain in place, with no enforcement action ultimately compelling their removal, or any other action to restore the beach.

A more recent case on Oʻahu's North Shore illustrates the enforcement challenge from another angle. Temporary geotextile erosion-control structures authorized for one year were explicitly required to be removed by May 2025. When they remained after the permit expired, DLNR issued repeated notices and ultimately initiated enforcement action in 2026 seeking their removal.

Mantokuji: A Shift?

These examples at Hololani and on the North Shore of Oʻahu represent the consequences of a system that has lacked a clear off-ramp from emergency protection. More recently, however, Hawaiʻi has begun to take a different approach.

In 2021, DLNR authorized temporary shoreline protection that included 112 linear feet of geotextile bags at Pāʻia Mantokuji Soto Zen Mission on Maui through an Emergency Conservation District Use Permit. The permit included stronger conditions designed to connect the temporary structure to a long-term solution, including a requirement to explore relocation and a removal bond to ensure removal of the structure.

But as the years passed, relocation was deprioritized while increasingly complex shoreline engineering concepts were explored, and the temporary structure remained. When Mantokuji sought another three-year extension in 2026, the Board of Land and Natural Resources (BLNR), the governing body of the DLNR, set an important precedent signaling a shift away from using emergency permits to manage chronic hazards.

Rather than granting the requested three years, BLNR approved only a one-year extension, required Mantokuji to return within 180 days to report on compliance with its permit conditions, and required environmental review if another extension is sought. The decision marked an important shift toward greater scrutiny of repeated emergency extensions and stronger accountability for what happens while temporary protection is in place. But Hawaiʻi's beaches cannot depend on strong permit conditions and Board intervention one project at a time.

Left: Aerial view of sandbags armoring the beach in front of Hololani Resort. (Vexcel Imaging US, Inc. / Google Earth) **Right:** Shoreline view of Elcorock geotextile bags.

An Administrative Shift to Systemic Reform

Current rulemaking updates provide an opportunity to codify this novel approach. The proposed amendments would define an "emergency" as an imminently dangerous situation and explicitly classify situations lasting more than one year as "ongoing hazardous conditions."

Most importantly, when temporary shoreline armoring persists beyond the emergency period, continued use would require BLNR approval, providing greater public scrutiny, an opportunity for public input, and evidence that the property owner is actively pursuing a long-term solution that will enable the temporary structure to be removed. The proposed rule specifically identifies relocation or abandonment, beach restoration, or other forms of shoreline management as potential long-term solutions and allows a surety bond or other legal or financial assurance to guarantee removal of temporary structures.

An emergency permit should buy time for adaptation — not become a substitute for it.

The proposed rule changes represent a fundamental shift from the current framework: instead of allowing a chronic erosion problem to remain under emergency status, the rules would create a defined transition from emergency response to long-term adaptation.

While emergency shoreline protections may sometimes be necessary, we cannot address chronic erosion as a permanent state of emergency. An emergency permit should buy time for adaptation — not become a substitute for it. Surfrider and coastal advocates throughout the islands will continue to campaign for these proactive changes to emergency rules to put a stop to temporary shoreline protections that harm our beaches from being allowed to become permanent.

Sunset Beach, North Shore, O'ahu, Hawai'i. (📷 Natalie Hora / Shutterstock)

FLORIDA

Florida Charts a New Course for Its Coasts: Key Gains, Work Remains

$50M

Surfrider succeeded in ending the Hurricane Restoration Reimbursement Grant Program in 2026, which used taxpayer funds to build seawalls on private property.

$150K

of taxpayer funding was made available to eligible beachfront private property owners to build seawalls. Surfrider succeeded in ending this program.

SB302

Surfrider worked for years to pass the Coastal Resiliency law, which will invest in nature-based solutions to protect Florida's coasts.

Sandy pathway leading through dunes to Miami Beach. (📷 Randy Pr / Shutterstock)

Florida's coasts and communities face mounting threats from rising sea level, increasingly intense storms, and recurring flood events. The need for effective and ecologically sound resilience solutions has never been greater. Over the past year, the state has made important strides toward dynamic and resilient coasts through nature-based solutions — strengthening Florida's potential to harness the power of nature to protect our coasts, communities, and invaluable marine ecosystems.

And yet, hard armoring remains the default option in state regulatory processes, emergency or not. It is imperative that Florida continue to build on its momentum for nature-based solutions and embrace this moment as a key opportunity to effectively scale and replicate these methods across the state.

In 2026, a landmark nature-based solutions bill, Senate Bill 302 Coastal Resiliency, became state law. The passage of this law reflects a multi-year effort by Surfrider and state partners to address regulatory gaps and insufficient state-level guidance for nature-based resilience projects. The law provides an opportunity for statewide focus and investment in green infrastructure, rather than defaulting to hard armoring options, when preparing for, weathering, and recovering from storm emergencies and changing coastal conditions.

The new law requires the Florida Department of Environmental Protection to develop rules, permits, and regulatory guidance supporting the implementation of dune and wetland restoration, mangrove plantings and protection, and native vegetation as key resilience methods. It also promotes local government awareness and public education, reflecting the importance of delivering the knowledge and tools needed for communities across Florida to take action.

Surfrider's Florida network has long advocated for scaling and replicating nature-based solutions in coastal communities across Florida. Surfrider's chapters and clubs lead on-the-ground projects, including dune restoration and coastal buffer gardens. They build community awareness and work with local leaders on dynamic coastal resilience policies. For years, Surfrider advocates have championed nature-based resilience legislation at Florida Healthy Beaches Day, Surfrider's annual state-level advocacy event in Tallahassee. Healthy and thriving mangroves, dunes, native vegetation, wetlands, and living shorelines are among Florida's most valuable and effective resilience strategies. Now that nature-based solutions are officially part of Florida law, attention turns to the rulemaking process to ensure that nature-based solutions are properly addressed and elevated as effective resilience options for communities across the state.

Also, 2026 marks the end of a controversial state grant program that used public taxpayer dollars for hard armoring projects on private property. Created during a special session in 2022, the Hurricane Restoration Reimbursement Grant Program was part of a larger recovery package following a devastating hurricane season with impacts from Hurricanes Ian and Nicole. The $50 million grant program provided $150,000 per eligible beachfront private property owner for "hurricane restoration" projects, which included sand placement and *temporary or permanent coastal armoring*. Designating public dollars for private property armoring projects compounds critical erosion and mismanagement challenges on Florida beaches.

Healthy and thriving mangroves, dunes, native vegetation, wetlands, and living shorelines are among Florida's most valuable and effective resilience strategies.

Volunteers plant native sea oats and dune grasses along Miami's shores. (📷 Kilby Photo)

Originally slated to expire in 2023, the program was expanded to additional counties and extended through 2025 despite vocal opposition from Surfrider and coastal advocates statewide. Surfrider's Florida network remained steadfast in opposition to this program and worked to educate state decision-makers about the harms of hard armoring for our beaches and the benefits of nature-based solutions. The termination of this grant program in 2026 marks an important inflection point for state resilience planning. Looking ahead, it is crucial that this program is not a model for future coastal management and hurricane response in Florida.

Although Florida made key legislative advances for nature-based coastal resilience, the Florida Department of Environmental Protection unfortunately finalized a new state rule for coastal construction and excavation that continues to position hard coastal armoring as a go-to resilience option. Surfrider engaged throughout the rulemaking process by submitting public comments, leading coalition efforts, and providing testimony about drawbacks in the proposed rule. The coastal construction and excavation rule expands structure eligibility for hard armoring, creates new armoring definitions that allow greater encroachment on the beach, and reduces oversight on certain armoring projects. While Surfrider efforts contributed to clarifying language and revisions, the final rule ultimately supports the expansion and utilization of hard armoring statewide.

Florida's policy action in 2026 illustrates both the promise and persistent challenges of dynamic coastal resilience reform. The new coastal resiliency state law and the end of the hard armoring grant program show that momentum for nature-based solutions can translate into meaningful policy change, even in a state where development pressure is prevalent. But the final coastal construction and excavation rule is a reminder that entrenched resilience approaches still take time to reform, in Florida and in all coastal states. Sustained progress for nature-based coastal resilience will require dedicated advocacy and community action. Surfrider is committed to achieving this goal for thriving Florida coasts and communities for generations to come.

Volunteers remove invasive species along Florida's coast. (📷 Alexandra Fisher)

OREGON

Getting Ahead of It: Oregon's Window to Fix Loopholes Before the Next Coastal Erosion Crisis

29
emergency armoring permits issued in Oregon in the last 10 years

20
emergency armoring permits issued during one major erosion event in 2021

'26-'27
winter forecast to bring a powerful El Niño to the Oregon coast

View of Cannon Beach from Ecola State Park in Oregon. (📷 Victoria Ditkovsky / Shutterstock)

Compared to the more developed shorelines of many states across the U.S., the Oregon coast remains far less armored, with extensive swaths of wild and scenic coastal beaches and habitats worthy of protection. Backed by extensive dunes, undeveloped headlands, coastal forests, and many non-industrialized estuaries and tidal swamps, these intact natural ecosystems have limited the need for and extent of emergency armoring along the state's coastline when compared to other states.

But Oregon's relatively low level of shoreline armoring should not be mistaken for proof that our emergency rules are ready for the challenges ahead. The real test comes where Oregon's limited coastal development meets a changing coastline and decadal-scale erosion events like those in a strong El Niño, which we'll be experiencing during the 2026-27 winter season.

The Oregon coast is not immune to development. Where roads, highways, and coastal communities have been built along the ocean shore, emergency armoring laws are being put to the test and, in some cases, have already been compromised. As sea levels rise and powerful storm-related erosion events become more frequent and severe, more homes, roads, and public infrastructure will face immediate threats. Oregon's experience already shows that major erosion events trigger clusters of emergency armoring permits, and sometimes, exceptions to otherwise strong state policies. For example, of the 29 emergency armoring permits issued in the state in the last 10 years, the majority of them (20) were issued during a major erosion event in 2021. Hard armoring and riprap are also often the only type of "temporary" emergency response during such severe erosion events, yet in every case we've analyzed, these have acted as a bridge to a permit for a permanent hard structure.

As coastal erosion and development pressures grow, Oregon has an opportunity to strengthen its emergency armoring rules before another crisis forces decisions to be made one property at a time. Now is a critical time for Oregon to take action to get ahead of the problem. The Oregon Parks and Recreation Department is in the process of updating the state's rules for ocean shore alteration permits, which includes provisions for emergency armoring. As part of Surfrider's Oregon Beaches Forever effort, the organization both advocated for this process through legislation and has been an active participant in the rule advisory committee that is supporting the state's rules update.

Surfrider is advocating for the state to strengthen these rules to ensure that emergency armoring is truly a last resort — not a shortcut for permanent riprap. Specifically, this could include definitions and limits on exactly when emergency armoring is appropriate versus long-term hazard planning, requirements to consider nature-based and other non-armoring solutions that could address the immediate threat, and clearer temporary timelines with explicit deadlines for removal. These small rule updates alone could significantly change some of the knee-jerk emergency measures for armoring that have proliferated into permanent riprap clusters along the Oregon coast. Central Coast residents along the Salishan Spit, Lincoln, and Gleneden Beaches have met this fate already and lost significant stretches of walkable beaches to emergency riprap under special rule exceptions.

With a spectacular ocean shore that is still in many places undeveloped, allowing beaches, dunes, and coastal ecosystems to be dynamic and move naturally, Surfrider launched the Oregon Beaches Forever campaign, recognizing there is a lot left to protect. Preventing emergency riprap means keeping many of these special ecosystems protected from development. Where infrastructure and development cannot be moved in the short term, Surfrider is working to develop nature-based solutions as alternatives that better protect beaches and provide greater resiliency by allowing natural coastal processes to happen. In the long term, it's critical to ensure that emergency hard armoring measures are temporary, allowing Oregon's relatively natural coastline to stay that way.

With this '26-'27 winter season forecast to be a powerful El Niño impacting the Oregon coast, Surfrider is focused heavily on the rulemaking process underway. Now is the best time to strengthen Oregon's shoreline rules, before the next major erosion emergency, not in the middle of one.

In the long term, it's critical to ensure that emergency hard armoring measures are temporary, allowing Oregon's relatively natural coastline to stay that way.

Extensive riprap placed on the beach in Neskowin, Oregon, makes stretches of beach impassable. (📷 Rena Olson)

Analysis and Key Themes

Key Findings and Policy

40% of states are failing to legislate minimum safeguards to protect their coasts in and after an emergency. The future outlook for our beaches is grim without a dramatic shift in how states approach emergency armoring. While each state's framework, circumstances, and section of the American coast is unique, several patterns emerged where states fell short, or where follow-up study is needed.

90%

of coastal states may be enabling or even encouraging unnecessary shoreline armoring during and after an emergency

Implementation and Enforcement

As noted in the introduction, for the purposes of this report, the state assessments did not evaluate the practical implementation of these policies by state agencies. However, the best-laid plans and policies are absolutely undermined by weak or lacking implementation. Simply because a state agency or agency official has the authority to take enforcement action does not mandate enforcement action. They must exercise that authority when appropriate. Even if the law states that a structure must be temporary and removed after a specified period of time, if no one is there to determine whether a homeowner is compliant, that structure may remain unpermitted and out of compliance for months to years. Anecdotally, this is a common occurrence that renders many states' laws ineffective, and the same will be true of any future policy made more robust. Without both proper implementation and enforcement, the status quo of temporary, emergency armoring becoming permanent, and causing permanent damage to our beaches, will remain.

Loopholes

Like implementation, an otherwise robust state policy can be derailed by exceptions and exemptions in its codes. For example, in Maine, the administrative code has a strong requirement that a licensed geologist or designated agency official inspect the property where emergency work is proposed and issue the permit. This safeguard for review by a licensed professional to confirm that both emergency conditions exist and that the work is the minimum necessary to abate the emergency temporarily is excellent policy. However, that code also states that there is a six-hour window for that inspection to happen; otherwise, property owners may proceed with emergency work. While the flexibility to take immediate action is understandable given the nature of a true emergency, it also creates flexibility for bad actors to exploit the expedited or condensed permitting process, or to forgo the emergency permitting process altogether.

Another example is New Hampshire, where advance authorization for emergency work is required. But that same section of code also gives private property owners clear authority and rules to undertake emergency work without a permit. It raises the question: why even legislate a pathway for an emergency permit at all if there is a defined pathway to commence work without a permit?

A rock seawall protects homes from erosion in Pacifica, California. (📷 JasonDoiy / Shutterstock)

Stopping the Emergency to Permanent Permit Pipeline

One of the biggest threats emergency permits pose to our coasts is the ever-present risk that structures will become permanent, and the consequences of that permanence. Emergency permits should be temporary and limited to the minimum necessary to abate the emergency. In an ideal scenario, states would mandate that those structures be removed within a period of time not to exceed two years and that the beach be restored to its prior condition.

Instead, many states guide or even require property owners to apply for a permanent development permit for emergency work. If the general development permit is approved, as it often is, then the hard structure becomes legally permanent. That hard structure then further squeezes the beach, contributing to shoreline loss and chronic erosion on neighboring properties adjacent to the shore. Those property owners may then apply for a permit to armor their stretch of shore, perhaps during the next "emergency." Then they enter the permanent permit pipeline until the places that were once sandy beaches that belonged to all of us are a series of rock piles and concrete walls protecting private property, not public beaches.

California is one such state. Emergency work is considered temporary, and a Coastal Development Permit is required for permanent armoring. However, there is no definitive time frame for the application for the general permit. That means temporary work could remain in place far longer than what would reasonably be considered temporary, adversely impacting the beach, and the alternative is that a permanent permit is applied for, or even obtained. California could instead stop this pipeline, require removal of temporary work, and restoration of the beach. The current state framework incentivizes the permanent armoring that leads to beaches being permanently lost, instead of facilitating long-term hazard planning and adaptation.

Long-term Erosion Response and Nature-based Solutions

Every emergency ends. The storm passes. The swell subsides. What comes after informs how the coast recovers and adapts before the next event. Emergency permitting frameworks across most states are incredibly shortsighted and maladaptive. They do not consider how short-term actions can contribute to chronic erosion and beach loss over time, or what a one-time emergency permit can tell us about the vulnerability of our shores. Rather than facilitating permanent hard armoring, state emergency policies should instead facilitate dune restoration and shoreline stabilization using nonstructural methods, as well as long-term planning for relocation.

While some states explicitly prohibit the use of some hard materials such as concrete or riprap in favor of softer methods and structures, many states have not modernized their emergency permitting laws to reflect our growing understanding of the efficacy of nature-based methods for erosion control. Centering these methods in both the emergency action and long-term erosion response is a proactive approach to bolster resilience and work with the natural dynamics of coastal ecosystems, rather than against them, as with hard armoring.

Left: Erosion threatens infrastructure at Surfers' Point in Ventura. **Right:** A restored coastline, featuring native plants, at Surfers' Point.

State Policy that Prepares Coastal Communities for Emergencies of the Future

The goal of an emergency permitting policy and process should be to provide flexibility beyond the regularly established process to protect life and property when unanticipated, severe hazards or emergencies occur along our coasts. This is a lofty goal for many states.

No single law or series of administrative procedures in any coastal state adequately protects sandy beaches and coastal areas from reckless emergency armoring against coastal hazards, let alone against the increasing and uncertain hazards of the future. As states reconsider their readiness to protect their investments in coastal economies and communities, there are several policy concepts that the Surfrider Foundation believes should be included or expanded to avoid emergency permitting or armoring. They include:

Redefining emergencies: As the impacts of a warming planet continue to make severe storm events more frequent, accelerate sea level rise, and intensify tidal and flooding events, coastal emergencies will be inevitable. Defunding weather and storm forecasting technology and cutting federal staffing will compound the issue. However, states classify many events as emergencies even when meteorologists and climate scientists can readily predict them. Simply because something is a hazard does not make it an emergency. States should redefine emergency or disaster declaration thresholds to carefully consider when emergency permitting procedures apply. Definitions should either exclude chronic hazards, including anticipated or forecasted flooding, sea level rise, storm, or tidal events, or define and address them through a separate permitting process for chronic or long-term hazards.

Requiring written permitting in advance: In an emergency, property owners should be able to act swiftly, and states should require property owners to apply for and obtain permits before work begins, ideally issued on-site after inspection or investigation by state agency staff. This would encourage applicant accountability and allow professional staff to: 1) verify or determine that emergency conditions exist; 2) verify that the proposed work is the minimum required to remediate the emergency; and 3) assign appropriate permit conditions. While initial correspondence may be appropriate over the phone, with adequate and responsive agency staffing, on-site issuance of an emergency permit alleviates concerns of inadequate review or unnecessary work occurring without a permit.

Prioritizing removal and restoration first, not replacement: Emergencies are temporary in nature, and their responses should be, too. Structures permitted in an emergency should be temporary, or permitted for a maximum of two years. Removal of the structure and restoration of the beach or coastal habitat to pre-construction conditions should be mandatory. Many state laws provide clear pathways to convert a temporary emergency permit into a permanent permit and structure. While this pathway should exist, guardrails need to discourage the temporary-to-permanent permit pipeline. States must encourage applicants to remove temporary measures, restore the beach, and prioritize nature-based, nonstructural erosion mitigation responses before permitting permanent hard structures where temporary emergency work was permitted.

Triggering long-term erosion response: Along with redefining what an emergency is or is not to inform how to permit emergency structures along the coast, states should consider that a property's vulnerability during one emergency may not be a standalone event. If someone applies for an emergency permit to armor a site temporarily, that should require a nonstructural long-term erosion response or plan. In Rhode Island, homeowners are informed that post-emergency lot assessments inform the property's buildable footprint moving forward. We should expect that, with climate change, more coastal properties will be susceptible to chronic hazards, and obtaining an emergency permit is a strong indicator that further planning for future site conditions is warranted, if not required. Whether restoring coastal dunes, installing living shorelines, or planned relocation, property owners who obtain emergency permits should consider long-term responses.

Conclusion

To protect the future of our beaches from the growing challenges posed by climate change, including more emergency conditions, states must reimagine their current emergency laws and rules for permitting erosion control structures.

As climate change increases the frequency and intensity of severe weather, heavy surf, extreme tidal events, rising seas, flooding, and erosion, what we have built along our coasts will be exposed to chronic, recurring, and increasingly hazardous conditions. While climate change increases the risk of sudden, unpredictable weather events and emergencies along our coasts, we can, and do, forecast much of it.

We have sea level rise projections. We know when to expect El Niño conditions. Is it really an emergency that should merit more coastal armoring if we expect and accept that a certain amount of sea level rise will occur in the coming decades, know that ocean temperatures will climb, and can predict when tidal events will be the most extreme? Particularly when we know that further development will only increase hazards in the immediate and long term?

Hazards exist because we have built our homes, public infrastructure, and entire communities too close to the edge of the ocean. Without development, our coastal dunes, beaches, mangroves, and wetlands move and migrate by design in the dynamic environment that exists at the confluence of water, waves, and wind. They naturally fluctuate. Unfortunately, our built communities do not.

We must consider that the places where we have built our lives and communities may not be safe from chronic and acute hazards, and that we must plan for the dangers of an increasingly unstable and uncertain future. Instead of relying on hard structures that only increase vulnerability and hazards along the shore, states must consider nonstructural, nature-based strategies to mitigate hazards and protect beaches and property in the short term. In the long term, states must fund and support planning that helps move at-risk communities and infrastructure out of harm's way. It is imperative that we move beyond responding to one emergency at a time, and instead toward proactive sea level rise and climate adaptation. **The state of our beaches does not have to be a state of emergency.**

To learn more, visit **surfrider.org/initiatives/coasts-climate**

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SURFRIDER FOUNDATION

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