

2023

# State Of The Beach Report





An aerial photograph of a tropical coastline. The top portion shows a dense line of palm trees and other greenery. Below this is a sandy dune area with sparse vegetation. The bottom portion shows a wide, sandy beach meeting the ocean, with gentle waves washing onto the shore. The lighting suggests a late afternoon or early morning setting, with long shadows cast across the sand.

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# Introduction

**“The climate time bomb is ticking. The Intergovernmental Panel on Climate Change’s report is a how-to guide to defuse the climate time bomb. It is a survival guide for humanity.”**

– United Nations Intergovernmental Panel on Climate Change

Between soaring ocean and atmosphere temperatures, 2023 was officially the hottest year on record. The [analysis](#) by the European Union’s Climate Change Service found global temperatures from 2023 were more than 1.4 degrees Celsius warmer than pre-industrial levels – close to the 1.5-degree threshold from the Paris Climate Agreement. For decades, scientists have warned that surpassing the 1.5-degree threshold will have severe impacts on planetary systems, such as climate and currents, and even human habitability.

Not only was 2023 the hottest on record, but over the course of the year, extreme weather events unleashed devastating impacts on local communities. In January, a series of [unrelenting atmospheric rivers](#) dropped copious amounts of rain along the California coast – flood waters damaged homes, businesses, and critical infrastructure, and left entire communities submerged for days. On the other side of the country, homes in Rodanthe, North Carolina, [continue to fall into the ocean](#) – with a total of four homes toppling into the sea within a year.

In August, ocean temperatures off the coast of the Florida Keys hit [101 Fahrenheit](#). The supercharged hurricane season of 2023 did not just impact the East Coast as usual, but the West Coast also experienced unprecedented tropical storms and hurricanes. [Tropical Storm Hilary](#) brought torrential rain to Southern California, with some areas receiving up to 600% of normal August rainfall. In October, category-5 Hurricane Otis made landfall near Acapulco, Mexico, with [winds of 165 mph](#).

As the Earth’s atmosphere heats up, it holds more rain, thereby increasing the potential and frequency of extreme weather events. New climate studies released in 2023 confirm this trend. This fall, the [Fifth National Climate Assessment](#) (NCA5) was published and shows that climate impacts on coastal cities are intensifying. In March, the U.N.’s Intergovernmental Panel on Climate Change ([IPCC](#)) published a sobering report summarizing

that humanity is woefully behind curbing climate change, with a lead author warning:

*“The IPCC’s report is a how-to guide to defuse the climate time bomb. It is a survival guide for humanity,” he said. “As it shows, the 1.5-degree limit is achievable. But it will take a quantum leap in climate action.”*

Without a quantum leap in action, our coastlines will increasingly suffer from major climate change impacts. Fortunately, some positive advancements were made in 2023 that will assist coastal states and communities to proactively address climate impacts.

In Washington, the state passed legislation that requires local land use plans to include sea level rise analysis. In New York, the state passed bills to plan for sea level rise and extreme weather events, including requirements of flood disclosure in a real estate transaction and a bill to incentivize nature-based solutions. In California, the state passed legislation that requires local land use plans to include sea level rise analysis by 2034.



The West Coast experienced unprecedented rain and more intense storms in 2023 as a result of climate change. © Anthony Martinez

At the federal level, great strides to mitigate and adapt to climate change impacts were made under President Biden's Administration and Congress. President Biden launched an [Ocean Climate Action Plan](#) that specifically focuses on working with local communities to proactively address climate change impacts locally. The plan calls for nature-based solutions that leverage the power of the ocean and coastlines to mitigate and adapt to climate change impacts.

In 2023, unprecedented funding from landmark legislation, the Inflation Reduction Act (IRA) and Bipartisan Infrastructure Law (BIL), became available for cities, states, and tribes to address climate change. Over the course of the year, Surfrider advocated that BIL and IRA funds go specifically toward coastal restoration and climate-resilience planning. In a major victory for our ocean and coasts, an impressive \$6 billion was earmarked for coastal resilience.

In March 2023, Surfrider was invited to meet with the Biden Administration at the White House where we discussed coastal resilience funding and ways to improve the implementation of coastal climate adaptation laws and policies.



Volunteers in Florida restore coastal dunes to better protect coastal communities from the impacts of climate change and rising sea levels.

**To help better educate the public about these funds, Surfrider published a guide that tribes, states, and cities can use to access funding for projects that:**

- Update land use plans in order to prepare for climate change impacts and sea level rise.
- Support community-driven relocation for vulnerable infrastructure such as transportation, homes, businesses, hospitals, etc.
- Advance nature-based solutions, including:
  - Assisting communities with protecting and restoring coastal dunes, wetlands, and “blue carbon” ecosystems, and implementing nature-based solutions in disaster recovery;
  - Expanding financing to frontline communities for nature-based solutions and habitat conservation easements; and
  - Partnering with communities, tribal, and state/local governments to establish habitat and blue carbon migration pathways to ensure landward space for sea level rise.
- Provide technical assistance for regional planning, with a focus on tribes, marginalized, underserved, and rural communities; and identify barriers and opportunities to integrate environmental justice principles into coastal resilience planning.

Surfrider is working on the ground to help states and local entities identify BIL and IRA funding opportunities and direct those funds to adaptation projects and policy implementation that overlaps with IRA and BIL funding goals. For example, in Washington, the state is currently receiving both BIL and IRA funding to improve coastal resilience. Surfrider is ensuring these funds go toward implementing new regulations that require local land use plans to include sea level analysis.

In California, Surfrider is helping communities and state agencies identify and acquire funds that will go toward coastal restoration and updating land use plans to adapt to sea level rise. In Florida, Surfrider is advocating that state and local municipalities apply for BIL and IRA funding to update sea level rise vulnerability assessments, per a recent state law that passed. In Hawai'i, Surfrider is working with local communities to plan for climate change impacts and chronic erosion, where we are working with stakeholders to identify funds for retrofitting and relocating vulnerable infrastructure.



## CASE STUDY

# A Tale of Two Coastlines

In 2023, two states, New Jersey and Washington, went in completely different coastal management directions. Washington passed some of the strongest sea level rise planning legislation in the country, bringing its grade from a B to an A. Whereas in New Jersey, the state took regressive steps to manage its coastlines and plan for climate change impacts, lowering its grade from a D to a F.

For over a decade, Surfrider has been actively working to address coastal hazards and climate change impacts in Washington. Focusing on [shoreline planning at the local level](#), addressing the effects of [ocean acidification](#), and raising awareness about the impacts of sea level rise through the documentation of [king tides](#). Through our work and previous State of the Beach reports, we identified a key weakness in the state's coastal management — Washington did not require local municipalities to plan for sea level rise and increasing storm severity.

Recognizing the need for improvements in coastal resiliency, Surfrider participated in the [Washington Coastal Marine Advisory Council's recommendations to address coastal hazards and economic resilience](#). Some of these recommendations were put into action when the Washington Legislature passed HB 1181, to update Washington's Growth Management Act to require local municipalities to incorporate sea level rise projections when updating local shoreline plans. The Washington Department of Ecology also led efforts to secure a budget package that will assist local communities in responding to climate change impacts. Washington is taking bold actions to address climate change, and as a state with thousands of miles of uniquely diverse coastline, they are at the forefront of feeling the impacts of climate change and providing a model that other states can follow to take significant steps toward a more resilient future.

**Washington passed some of the [strongest sea level rise planning legislation in the country](#), bringing its grade from a B to an A. Whereas in New Jersey, the state took regressive steps to manage its coastlines and plan for climate change impacts, lowering its grade from a D to a F.**



Hurricane damage to beach homes on the New Jersey shore.

Across the country in New Jersey, the state has been struggling to implement laws that require analyzing climate change impacts and planning for sea level rise. For example, the state has yet to implement a 2020 gubernatorial executive order that requires developers to take into account climate change impacts in building plans. In addition, the state has not implemented legislation that would require local land use plans to analyze sea level rise. While the state passed legislation in 2023 that requires sea level rise disclosures in a real estate transaction, the law needs to be stronger by using higher rates of projected sea level rise. Moreover, the sea level rise disclosure is moot if the state continues to allow new development in areas prone to sea level rise and is not implementing climate change laws on the books.

A huge component of the State of the Beach Report is analyzing the *effective implementation of existing laws and policies*. Even if the state passes legislation, but state and local agencies are not implementing the laws, the state's grade will drop. Over the years, New Jersey has embodied this trend of passing strong climate change impact laws, but never actually implementing them. Oftentimes, deadlines are missed or extended, and the actual rulemaking for regulations completely languishes. That is precisely why we do this report every year — to ensure states are not only passing important legislation to protect our coastlines, especially in light of climate change, but are also properly implementing the laws and policies on the books.



# Surfrider's Efforts to Improve Coastal Management

The Surfrider Foundation is a nonprofit environmental organization dedicated to the protection and enjoyment of our world's ocean, waves, and beaches for all people through a powerful activist network. For 40 years, Surfrider has helped to improve coastal management and protect important ocean and coastal resources. With more than 200 chapters and student clubs nationwide, Surfrider is working at the local, state, and national levels to protect our shorelines. Surfrider proactively addresses threats, such as coastal development, shoreline armoring, seawalls, and beach 'dredge and fill' projects, to support the protection of our coasts. At the national level, Surfrider's environmental science, policy, and legal experts work with decision-makers to plan for the future of our coasts.



In 2023, 150 Surfrider advocates from 26 states gathered in D.C. and met with more than 140 congressional representatives to urge stronger leadership to solve the climate crisis.

**With more than 200 chapters and student clubs nationwide, Surfrider is working at the local, state, and national levels to protect our shorelines.**

Surfrider has been intentionally increasing our work on climate change mitigation and adaptation to help provide solutions to this crisis. We constantly examine new scientific research and provide in-depth policy analysis to inform and enable decision-makers to implement pragmatic solutions for the long-term health of our coastal resources. While the climate crisis is daunting, Surfrider is working around the country every day to protect our communities, ecological resources, and recreational access.

## **The Surfrider Foundation is implementing a multipronged approach to:**

- Educate our supporters, the general public, and decision-makers about how the climate crisis is impacting our ocean and coasts.
- Help communities to adapt to climate change impacts by working directly with decision-makers in 30+ localities across the country to draft and pass climate legislation, as well as at the state and federal levels.
- Lobby members of Congress, including through our Coastal Recreation Hill Day. In 2023, 150 Surfrider advocates from 26 states met with more than 140 congressional representatives to urge stronger leadership to solve the climate crisis.
- Help improve coastal management and planning for sea level rise by publishing this annual State of the Beach Report.
- Protect and restore coastal dunes, create 'living shorelines,' and conserve blue carbon ecosystems.
- Fight offshore oil drilling that exacerbates climate change and puts our marine ecosystems at risk.
- Plant Ocean Friendly Gardens to create 'living soils' that trap greenhouse gasses and prevent the use of emission-intensive fertilizers.

For more information on Surfrider's Coast and Climate campaigns and victories, visit [surfrider.org](https://www.surfrider.org). We encourage you to join your nearest chapter and become a member to get connected and involved in the protection of your local coastline and favorite beach.



## COASTAL EROSION IS THREATENING BEACHES

Our nation's beaches are under extreme threat from coastal erosion. According to U.S. Geological Survey [studies](#), about 50% of surveyed U.S. coastlines are either at 'high' or 'very high' risk of coastal erosion. This alarming statistic underscores the importance of strong coastal management to protect these vital resources for the future.

'Coastal erosion' is the loss of both sandy beaches and land area. It occurs due to several factors, including geological changes in the landscape, sea level rise, high-intensity storms, drought, and the disruption of natural sand supply. Developments, such as the paving of watersheds, damming of rivers, and construction of shoreline structures that interrupt sand transport block the flow of sediment to the coastline and prohibit the natural replenishment of sand on our coasts.

Part of the problem is that the allure of the coasts has prompted individuals and communities to build infrastructure too close to our ocean and waterways. After coastal erosion and storm surge threaten properties, many homeowners and land managers conduct expensive protection projects. These short-sighted approaches include the addition of sand through mechanized 'sand replenishment' and the construction of hard stabilization structures with 'coastal armoring.' While applied as a quick fix, scientists have found that sand replenishment projects can cause environmental damage and unsafe,

**Our nation's beaches are under extreme threat from coastal erosion.**

# 50%

Of Surveyed U.S. Coastlines in the Nation Are Either at 'High' or 'Very High' Risk of Coastal Erosion



heavy surf beach breaks. Shoreline armoring actually exacerbates erosion by blocking the natural flow of sand and effectively starving beaches. Additionally, sand is a finite resource, formed from the weathering and erosion of rocks over thousands to millions of years. As the world's demand for sand continues to rise for cement, glass, asphalt, fracking, and beach replenishment, to name just a few, the global supply of sand, and especially beach grade sand, is dwindling.

To compound the issues related to beach erosion and sand scarcity, more than 80,000 acres of coastal wetlands are lost annually in the United States — which is the equivalent of about seven football fields of wetland lost every hour of every day. Over the past 200 years, more than half of the wetlands in the U.S. have disappeared due to a combination of natural processes and human engineering. The erosion of coastlines, loss of wetlands, and development of watersheds are also taking place in conjunction with rising sea levels and the escalating effects of climate change.



Armoring to protect ill-conceived coastal development is a primary contributing cause to coastal erosion and shrinking beaches, as it fixes once dynamic shorelines, and cuts off a replenishing sand supply.



## CLIMATE CHANGE AND SEA LEVEL RISE

Climate change is here and happening now. Many empirical examples of climate change impacts can be seen and felt along our coastlines around the country. Areas in [Florida](#) are increasingly experiencing ‘sunny day flooding,’ in which the ocean regularly rises into streets through storm drains. In the [Pacific Northwest](#), the shellfish industry has undergone major efforts to curb acidic ocean water from impacting hatcheries. Ocean acidification is the result of too much atmospheric carbon dioxide interacting with the surface of the ocean, to the extent that it actually changes the ocean’s chemistry by making it more acidic. The Pacific Ocean off the West Coast experienced its second-largest marine heat wave ever recorded, and the Atlantic continues to be plagued with more frequent and severe hurricanes that devastate coastal communities.

Over the past few years, the United Nations Intergovernmental Panel on Climate Change released its [2018](#), [2019](#), [2021](#), and [2023](#) reports, concluding that drastic climate change impacts are now estimated to occur much faster than previously predicted — as soon as 2040. Even if humans manage to keep the Earth’s temperature from increasing by 2 degrees Celsius, major impacts are expected to happen due to the amount of greenhouse gasses that have already been released into the ocean and atmosphere. However, these impacts will be much more severe if we don’t begin to immediately curb our global greenhouse gas emissions significantly.

As the effects of extreme weather events and climate change become more consistent and materially evident, it is increasingly important for our nation’s decision-makers to take decisive action and proactively plan for climate change impacts. After destructive environmental disasters, the sentiment is often to rebuild in the same place and begin armoring the coast. However, armoring is just a short-term solution. This approach often leads to the overdevelopment of the coast, putting people and homes in increasingly dangerous, high-risk areas, while affecting down-coast beaches with eroding shorelines. Alternatively, through strategic restoration and planning, shorelines can recover and regenerate to mitigate or even avoid erosion. Homes can also be engineered to withstand these impacts and located in areas that do not put people in harm’s way.

We need to proactively and strategically turn the tide now to avoid the loss of beaches, homes, communities, public access, recreation, and ecosystems. In terms of coastal erosion, this is not just about the loss of beaches, it is also about the increasing loss of livable land for our communities. Once these unique and special places are gone, they’re gone for good — permanently lost for current populations and future generations.



Before and after Phase I of the Surfers’ Point Managed Shoreline Retreat project in Ventura. The restoration demonstrates the power of community-driven initiatives and the success of nature-based solutions over short-term armoring.



# Key Findings

Many states have model programs in place to protect our coastal resources. However, this year's report reveals once again that the majority of coastal and Great Lakes states, in addition to Puerto Rico, are doing a mediocre to poor job of responding to coastal erosion and planning for sea level rise. A noticeable and troubling trend is that the states most vulnerable to extreme weather events, including destructive hurricanes, are also the least prepared, in terms of state policy, to handle coastal erosion and the increasing impacts of climate change.

The overarching results of Surfrider's analyses indicate that the majority of coastal managers and state agencies need to take greater steps to ensure that our nation's beaches and coastlines will be protected for future generations. This report makes the case that states will greatly benefit from more consistent policy and financial support from the federal government.

*Given the severity of coastal erosion and impending sea level rise, the State of the Beach Report criteria checklist is ambitious and the standards are intentionally set high. This report is intended to be used as a tool to highlight the areas that need the most work and provide potential solutions that can be implemented to protect our coasts and coastal communities for the future. For states to aim for and achieve the ambitious standards set in this report, it is imperative to increase adaptive capacity and address each of the four areas assessed in a holistic manner.*

The majority of coastal and Great Lakes states and territories are doing a mediocre to poor job of responding to coastal erosion and planning for sea level rise.



## AVERAGE GRADES

● West	B
● Northeast	B
● Mid-Atlantic	C
● Islands	C
● Southeast	C
● Great Lakes	D
● Gulf	D

**A noticeable and troubling trend is that the states most vulnerable to extreme weather events, including destructive hurricanes, are also the least prepared, in terms of state policy, to handle coastal erosion and the increasing impacts of climate change.**



A home in North Carolina collapses into the sea due to coastal erosion and rising sea levels. © Cape Hatteras NPS / National Park Service



# Methodology

Surfrider’s State of the Beach Report evaluates the performance of each state’s management of coastal resources and planning for sea level rise. Each state or territory is graded on a set of 12 criteria, separated into four major categories: sediment management, development, coastal armoring, and sea level rise (Appendix 1). The scoring scale for the four categories is qualitative, based on each state’s ability to meet the key criteria.

This set of criteria encapsulates the state’s efforts to meet expectations established in the Coastal Zone Management Act (CZMA). Specifically, states were evaluated on their current laws and policies, in addition to the actual implementation of these policies. States

were also evaluated on recently passed legislation, the ‘assessments and strategies form’ under Section 309 of the CZMA, communication with coastal zone management agencies, and on-the-ground monitoring through Surfrider’s network.

For each category, states received a numerical score, from 1 (bad) to 3 (good), based on the presence and strength of their policies. The score for each state was calculated by totaling points from every category and then translating these scores into letter grades, described in greater detail below. We aimed to provide holistic grades, balancing the point system with the state’s policies overall, including the quality of policies and how well they are implemented.

**The scoring scale for the four categories is qualitative, based on each state’s ability to meet the key criteria.**

## GRADING SCALE

The report utilizes a standard five-letter grading system, from A to F; however, a few states did receive either a plus (+) or minus (-). This supplemental descriptor was assigned to only a few states because their grade was at an interval after calculating their criteria points. For further context, a minus can indicate that a state has strayed from enforcing strong policies that are already in place, or it can indicate that although the state improved a policy, that improvement did not earn a full letter grade improvement. In contrast, a plus can indicate that while a state is lacking certain criteria, exceptional efforts are being made to improve coastal management.

### **BAD = 1 POINT**

Insufficient. Does not provide adequate protection of coastal resources.

### **OK = 2 POINTS**

Some robust policies are in place, but need improving to adequately protect the coastline.

### **GOOD = 3 POINTS**

Nice work! Sufficiently protects the coastline.

### **A = 11-12 POINTS**

Excellent policies and implementation.

### **B = 9-10 POINTS**

Good policies but can be improved.

### **C = 7-8 POINTS**

Mediocre policies.

### **D = 5-6 POINTS**

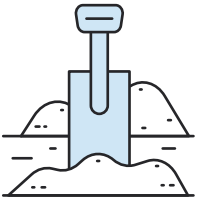
Fairly poor policies, lacking.

### **F = 4 POINTS**

Inadequate protection of coastal communities and resources.



## CATEGORIES OF CRITERIA



**Sediment Management:** Coastal states are encouraged to manage sediment and preserve upland sediment sources to ensure habitats for wildlife and healthy beaches for recreation, tourism, and economic opportunities. Adequate sediment management includes protecting and restoring the natural flow of sediment to the coast and along the beach. If necessary, it also includes carefully planning for beach replenishment by establishing clear monitoring requirements before and after sediment projects, and a permitting process to ensure proposed projects meet regional requirements.



**Coastal Armoring:** As a result of significant coastal development, many states have permitted methods of coastal armoring to protect structures from hazards, such as extreme tides, storm surge, and sea level rise. Coastal armoring is a form of ‘structural shoreline stabilization’ which prioritizes the short-term protection of developments rather than the long-term health and functional resilience of the coast. This quick-fix approach is intended to reinforce unstable coastlines and create a physical buffer between developments and the waterline. Methods of armoring include the construction of jetties, vertical seawalls, and riprap or revetments, which are large rocks, boulders, or artificial counterparts placed on the beach. Unfortunately, these armoring techniques are costly, provide only short-term protection, result in the loss of natural coastline, and exacerbate the rate of erosion. Adequate coastal armoring policies prevent the use of hard armoring, restrict inappropriate construction and repair, prevent or have strict limitations on emergency permitting directly after storms, and promote soft stabilization mechanisms that increase coastal resiliency, such as living shorelines that use native vegetation to protect wetlands and coastal areas.



**Development:** Much of our nation’s coastline is already developed. Waterfront residences, tourism opportunities and public infrastructure, such as roads, wastewater treatment plants and power plants, line our coasts. In addition, coastal development in a time of climate change exacerbates impacts on wildlife, habitats and coastal recreation, which all depend on healthy coasts. Adequate coastal development management includes implementing strong building codes to ensure that developments can withstand severe storms, restrictions on the repair or development of new structures in high hazard areas, ample ‘setback’ buffers that require developments to be built a certain distance from the coast (either from the mean high tide line or first line of vegetation) and clear protection for environmentally-sensitive habitat areas.



**Sea Level Rise:** Previous and ongoing greenhouse gas emissions have altered the chemical composition of the Earth’s atmosphere and ocean, causing the phenomenon known as climate change. Many expected impacts are already evident from this change in global processes, with coastal effects becoming more evident. There is a strong scientific consensus that climate change will result in more frequent and severe storms, increased sea levels from warming water molecules and melting continental ice sheets, and exacerbated erosion of the shoreline. Coastal states must be proactive in increasing the resilience of their communities and coastlines. Adequate sea level rise policies include conducting thorough sea level rise vulnerability assessments, directing ample outreach to coastal communities and jurisdictions, and developing comprehensive adaptation plans to prepare for and respond to sea level rise.



# West Coast

Alaska

California

Oregon

Washington

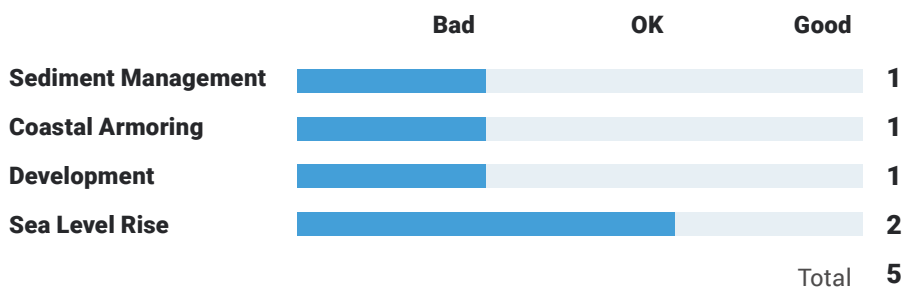






WEST COAST  
**Alaska**

Alaska is home to the country’s longest coastline, amassing 6,640 miles of mountainous shores that are home to many Native Alaskan communities. Abundant wildlife and natural resources draw visitors from near and far as they search for remote adventures, plentiful fishing, and wildlife watching. With such a vast coastline to protect, it is surprising that Alaska has opted out of NOAA’s CZMA Enhancement Grant funding, which could provide necessary resources to protect this spectacular shoreline.



**BEACH GRADE**

**D**

Fairly poor policies, lacking.





**BAD**

**Sediment Management:** Alaska lacks sand replenishment policies and regional sediment management plans. While some municipalities have their own sediment management plans, it's not a common practice. Although beach fill projects are rather uncommon, there is no identified policy overseeing or guiding those that do occur. In lieu of any state regulations, dredge and fill efforts are only required to meet federal standards; however, large-scale construction projects, such as natural gas pipelines, are required to submit an erosion and sedimentation control plan with their development application.



**BAD**

**Coastal Armoring:** While Alaska lacks concrete policies regarding coastal armoring, agencies are encouraged to consider alternatives prior to constructing hard structures. Unfortunately, there are no restrictions on the use of hard shoreline structures on private property, and grants are even available for constructing and repairing hard stabilization structures. Instead of the state taking the lead on managing erosion, many federal agencies are involved in various aspects of erosion management.



**BAD**

**Development:** Development standards are largely created at the municipal level and are relatively lackluster. Alaska does not have a statewide setback policy and does not place restrictions on the rebuilding of structures near the coast, even after they have been damaged by flooding. According to Alaska's Coastal Assessment and Strategy document, only six coastal districts and five communities have approved state comprehensive management plans. However, the state does protect certain sensitive habitats from development, including 32 established critical habitat areas, wildlife sanctuaries, and game refuges along the coast.



**OK**

**Sea Level Rise:** Alaska continues to make some progress in planning for climate change. In 2020, Alaska and federal agencies announced plans for extensive mapping of the coastline and nearshore bathymetry. The Climate Change Impact Mitigation Program provides technical assistance and funding to communities imminently threatened by climate-related natural hazards, such as erosion, flooding, storm surge, and thawing permafrost. In 2019, the program also released a Threat Assessment that includes mapping. Alaska has codified protections for riparian areas, and the Department of Natural Resources frequently advances stream and land restoration efforts. There are, however, conflicting actions at play – with the state's recognition of climate change, coastal hazards, and the need for sensitive habitat protection at odds with the state's ongoing support of oil and gas drilling, even in the Arctic National Wildlife Refuge.

## RECOMMENDATIONS

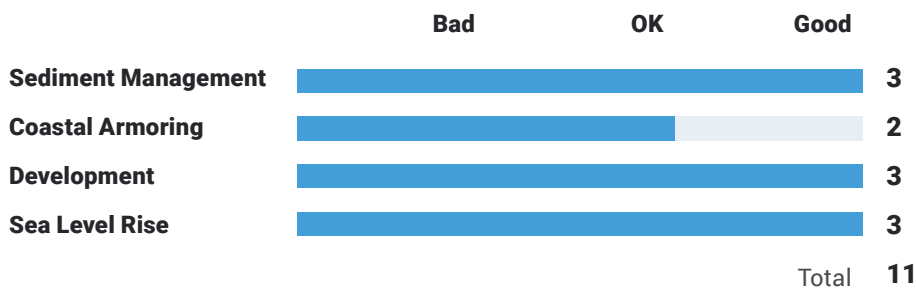
- **Develop coastal zone management enhancement plans and rejoin the Coastal Zone Management Program, which works with states to address coastal issues.**
- **Develop and/or require the local development of adaptation plans for coastal communities.**
- **Establish more thorough policies on relocation and managed retreat of structures endangered by erosion and sea level rise.**
- **Develop strategies that limit or prohibit shoreline armoring.**
- **Create regional sediment management and replenishment plans that require the consideration of environmental impacts and extensive monitoring.**
- **Prohibit drilling and fossil fuel extraction in National Wildlife Refuges.**
- **Establish coastal development setback policies.**



## WEST COAST

# California

California’s coastline extends nearly 1,100 miles— adorned with iconic surf breaks, rugged cliffs, seal-dotted beaches, and historic coastal communities. Demanding powerful policies that match the magnitude of its stunning coastline, the state’s commitment to coastal management is unparalleled due to California voters passing the California Coastal Act in 1976. In 2023, the state passed legislation that requires local land use plans to include sea level rise analysis by 2034.



**BEACH GRADE**

**A**

Excellent policies and implementation.





**Sediment Management:** While California does a better job than most states with efforts to avoid unnecessary beach fill, expensive beach fill projects still occur frequently and are on the rise. Fortunately, these projects are strictly reviewed under the Coastal Act and stringent permit conditions require extensive environmental analysis and monitoring plans; including monitoring to mitigate impacts on surf resources. The state considers progressive measures, such as the reuse of dredged sand, and is analyzing the removal of obsolete dams. Multiple agencies also provide extensive resources and studies related to sediment.



**Coastal Armoring:** Advancing coastal resilience is a priority for California, with the state's recently approving 15 grant projects that prioritize 'nature-based' adaptation efforts. Local Coastal Programs approved by the California Coastal Commission (CCC) also put restrictions on new armoring and the repair of existing seawalls. Unfortunately, the CCC continues to administer emergency permits for temporary stabilization structures, and many become permanent. Fortunately, California agencies and local municipalities have increased efforts to fund and implement living shorelines and other natural mechanisms. In 2023, the Coastal Commission adopted the Public Trust Guiding Principles and Action Plan which notably acknowledges the need to incorporate public trust impacts in decision-making around armoring.



**Development:** When compared to many other coastal states and urban areas, California has managed to limit unnecessary development, leaving the coastline less impacted in most locations (except for large metropolitan areas). The Coastal Act has clear requirements for development and redevelopment. The state also does a good job of protecting environmentally sensitive areas and often applies additional protections to prevent degradation, both onshore and offshore. In addition, the state has sought to increase tribal-led management of the coastline and has dedicated \$3.6 million to support the tribal-led Ocean Protection Council. California's housing shortage is propelling new considerations around housing development in the coastal zone.



**Sea Level Rise:** Every year, the state reflects seriously on its sea level rise laws and policies. A total of 16 state agencies contributed to a joint sea level rise action plan detailing their plans to work together on various tasks. While already leading in sea level rise response, the state passed even more pieces of proactive legislation in 2023 to require local land use plans to be updated by 2034 and include sea level rise planning. In addition, the state requires agencies to conduct a sea level rise analysis before approving public funds for new or expanded infrastructure projects along the coast – providing a fiscally prudent investment in the long-term protection and vitality of California's coast while enhancing the CCC's ability to better enforce the Coastal Act and penalize violations.

## RECOMMENDATIONS

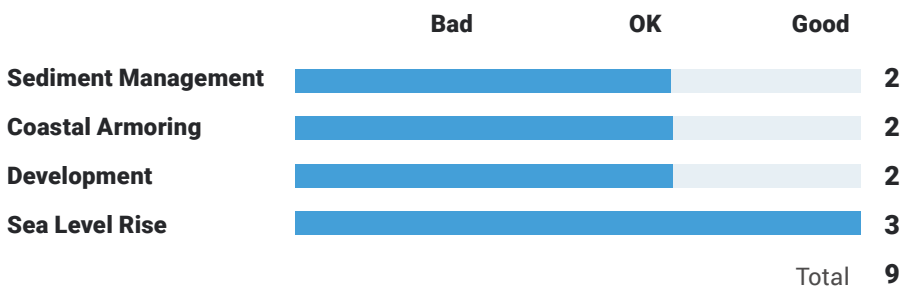
- Prohibit the use of emergency seawalls and hard stabilization devices.
- Prohibit the concept of 'carving out' areas where otherwise illegal armoring is allowed.
- If hard stabilization is found necessary and consistent with the Coastal Act, only offer emergency permitting with strict time limits for removal, in addition to a legal commitment by the property owner to remove the seawall and implement an alternative stabilization method, or conduct managed retreat.
- Establish firm requirements to prioritize soft stabilization methods, such as 'living shorelines' and managed retreat, before allowing hard stabilization devices or sand replenishment.
- Increase efforts to restore natural sediment flows to the coastline.
- Leverage the emergency permitting system to support nature-based solutions.
- Offer local municipalities and homeowners legal advice on managed retreat that maintains and protects public access through rolling easements and incentivizes rezoning in light of sea level rise.
- Bolster efforts of the California Sediment Management Workgroup to revamp regional sediment management plans.
- Include sandy beaches as an ecosystem to be monitored and preserved through the state's 30x30 process.



WEST COAST

# Oregon

Oregon’s 362 miles of coastline are lined with more than 80 state parks, gorgeous green landscapes, and fierce currents. For well over 100 years, Oregonians have fought to maintain public access to their coast, highlighting their unwavering love for the beach. The Oregon Beach Bill of 1967 ultimately secured public access along the shore, allowing Oregonians to freely enjoy beach recreation, permanent access, and countless coastal adventures. Recently, the state passed several bills that protect sensitive habitats and increase efforts to combat climate change impacts and ocean acidification. In 2023, the state created a new toolkit to help communities assess and address sea level rise impacts, including a Sea Level Rise Impact Explorer Map, Sea Level Rise Impact Assessment Tool, and Sea Level Rise Planning Guide for Coastal Oregon.

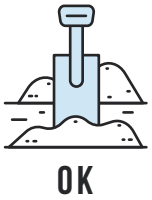


**BEACH GRADE**

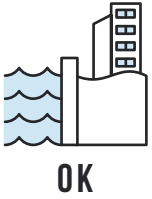
**B-**

Good policies but can be improved.





**Sediment Management:** Oregon has permitting requirements for beach fill projects under the Oregon Parks and Recreation Department but the state is lacking in monitoring processes and plans. Fortunately, unlike some East Coast states, Oregon doesn't rely on beach fill for erosion control. However, Statewide Planning Goal 18, which is designed to protect beaches and dunes, mistakenly allows for 'dune grading' for 'view enhancement,' among other sand management activities, which are provided for by local management plans.



**Coastal Armoring:** Goal 18, established in 1977, bans the construction of seawalls if the home was built after 1977. This is a strong measure that's effective at limiting armoring on the majority of Oregon's shoreline. Under the Ocean Shore Permit Application Review Process, Oregon requires alternative analyses for protective structures that includes "an analysis of hazard avoidance alternatives, including relocation of existing buildings or other infrastructure." The state also maintains a geospatial inventory of coastal armoring. Over the years, the trend for approving armoring has declined; however, similar to other states, Oregon could improve its 'emergency' permit requirements, in addition to its definitions and standards for approved structures and nature-based alternatives.



**Development:** Oregon does not have a standardized setback system for development and recently removed some important restrictions on new development in high-hazard areas. While the state does provide a model development policy and has established beneficial restrictions on repair and redevelopment, it is left to local governments to fully establish, implement, and enforce interpretations of Goal 18 to protect beaches and sand dunes. Over the past few years, the Department of Land Conservation and Development (DLCD) began convening stakeholders to explore ways to further fine-tune language within Goal 18. That process has resulted in several recommendations; and in 2021, the DLCD launched a rule advisory committee to address oceanfront road infrastructure related to those recommendations.



**Sea Level Rise:** Oregon continues to be a leader in climate change adaptation planning, encouraging local communities to proactively plan for climate change impacts through its Climate Ready Communities program. Oregon is far ahead of other states in protecting public access in light of future sea level rise and has even established a rolling easement policy. In 2021, the state began working on a sea level rise guidance document for local planners and municipalities to ensure proper sea level rise analysis and subsequent planning. In 2023, the state created a new toolkit to help communities assess and address sea level rise impacts, including a Sea Level Rise Impact Explorer Map, Sea Level Rise Impact Assessment Tool, and Sea Level Rise Planning Guide for Coastal Oregon.

## RECOMMENDATIONS

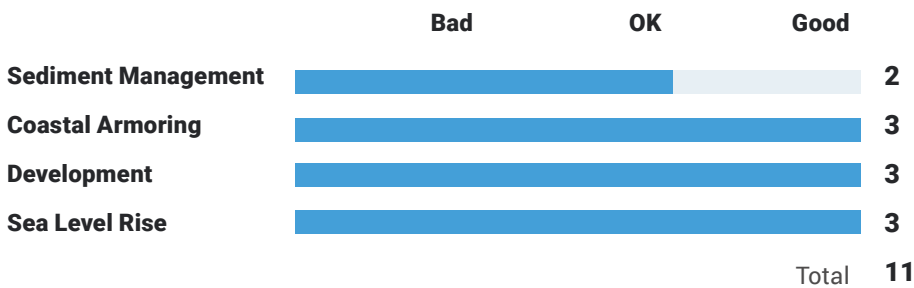
- Ensure language changes to Goal 18 further protect coastal resources by limiting development in hazardous and sensitive areas, requiring 'soft' alternatives to coastal armoring, and setting a robust development setback policy.
- If hard stabilization is absolutely necessary, only offer emergency permitting with strict time limits for removal and restoration. In addition, it would be beneficial to require a legal commitment by the property owner to remove the seawall and implement an alternative stabilization method.
- Ensure local governments analyze environmental impacts prior to removal fill projects by improving permitting requirements. Also, the state should institute a monitoring program that reviews the long-term effectiveness of replenishment projects.
- Ensure that local agencies and coastal managers communicate with community members about climate change issues and guidance.
- Close loopholes for preemptive armoring and adhere consistently to coastal preservation and erosion policies.



WEST COAST

# Washington

Washington’s shorelines are rich in geological features and vast bodies of water. The beautifully rugged Pacific Coast is home to the world-renowned Olympic National Park, many diverse ecosystems, and several sovereign tribal reservations. Nearly 70% of Washingtonians live along or near the state’s 3,026 miles of coastline. In 2023, Washington took impressive steps toward improving how the state and local communities respond and adapt to climate change. In addition to passing a bill that requires sea level rise analysis be incorporated into local land use plans, Governor Inslee also set aside \$3.9 million for coastal hazards planning. Washington also received \$74.4 million through the Bipartisan Infrastructure Law and Inflation Reduction Act to fund the state’s climate resilience planning and projects. The combination of these efforts improved the state’s grade to an A.



**BEACH GRADE**

**A**

Excellent policies and implementation.





**OK**

**Sediment Management:** Washington’s statewide sediment management policy is lacking a holistic approach because it narrowly focuses on dredging and does not explicitly provide beach fill regulations. As an important note, however, the state does not heavily rely on beach fill and even has a decent permitting process for replenishment projects.



**GOOD**

**Coastal Armoring:** Similar to California, Washington has established local plans, known as Shoreline Master Programs. These plans provide clear policies to avoid the installation of new shoreline armoring unless determined necessary under highly specific conditions. Washington has also made concerted efforts to remove coastal armoring projects to help restore ecological functions. In addition, Washington is ahead of other West Coast states in terms of implementing living shorelines and restoration projects.



**GOOD**

**Development:** The Shoreline Management Act, passed in 1971, requires local municipalities to establish robust development standards. These include setback requirements, limitations on new development and redevelopment, and the protection of public access related to development. Washington also does a good job of protecting sensitive habitats, such as wetlands and dunes, from poorly planned development.



**GOOD**

**Sea Level Rise:** In 2023, the state passed legislation that would require analysis of sea level rise in local planning efforts. The Department of Ecology is a strong agency that continues to work with academia and other stakeholders to evaluate the latest sea level rise data. In the Quinault Indian Nation, plans are underway for relocating the villages of Taholah and Queets, where more than a thousand people face increased tsunami risk as the sea rises inch by inch, year by year.

## RECOMMENDATIONS

- **The state legislature should bolster financial support to local communities to plan for sea level rise and other climate change impacts.**
- **Develop a coastal resiliency plan to comprehensively address the challenges of coastal erosion, sediment management, and sea level rise.**
- **Establish explicit regulations for beach dredge and fill projects to ensure coastal resource protection.**
- **Explore mechanisms for managed retreat and infrastructure relocation.**

# Conclusion

Recent climate change reports, including the [Fifth National Climate Assessment \(NCA5\)](#) and the U.N.'s Intergovernmental Panel on Climate Change ([IPCC Administration](#)), highlight the need for stronger and more proactive coastal resiliency initiatives to protect coastal infrastructure, vulnerable communities, coastal habitats, and marine life. These resiliency efforts go hand-in-hand with the policies sought after and recommended by the Surfrider Foundation's State of the Beach Report. One of the report's goals is for our nation's state and federal leaders to double down on commitments to reduce greenhouse gas emissions and bolster coastal adaptation mechanisms in the upcoming year. After all, time is of the essence and we can no longer idly sit by as climate impacts barrel down on our coastal communities.

Surfrider's State of the Beach Report brings to light the essential need for improved coastal management practices at the state level to mitigate and reduce the impacts of erosion and sea level rise. This report is intended to help states identify gaps in their current coastal management policies and provide clear, actionable recommendations for policy changes that can be taken to better protect coastal

**This report is intended to help states identify gaps in their current coastal management policies and provide clear recommendations for policy changes that can be taken to better protect coastal resources.**

resources. Surfrider's findings indicate that many states are not addressing these important issues adequately enough to sufficiently protect our nation's coasts.

The policy criteria that prove to be the most difficult for coastal states to achieve include avoiding emergency permits for hard armoring, restricting the repair of hard armoring structures, and avoiding beach fill by restoring the natural flow of sediment to the coastline. Alternatively, proactive policies, or essentially the 'low-hanging fruit' that seems to be the most frequently accomplished by state agencies, include encouraging the use of living shorelines and coordinating with municipalities to develop local plans and community outreach. Below is a summary of a few problematic trends and highlighted approaches that coastal communities can adopt to improve shoreline management.



In Puerto Rico, Surfrider is leading efforts to implement nature-based solutions by restoring mangrove forests to will protect the coast and coastal communities from future impacts of climate change.





## COMMONLY USED INEFFECTIVE POLICIES AND PROGRAMS

### **Emergency Permits for Coastal Armoring and Redevelopment:**

Emergency permits are problematic because ‘temporary’ seawalls often become permanent and rushed redevelopment permits allow for poor development standards. Many local and state agencies hand out ‘emergency’ permits without any requirement for removal and restoration. Even California, with one of the best grades in the report, has indiscriminately given away emergency permits when these situations are the result of a lack of advance planning. While some emergency permits may be needed in the future, they must only be allowed temporarily, with strict requirements for removal after an established time frame (such as six months, or a definitive length of time).

In addition, requirements should include restoration of the area after removal and a longer-term, proactive effort by the landowner to prevent the need for future armoring projects — either through the use of living shorelines or managed retreat. Instead of being used solely as a tool to incentivize properties to stay in harm’s way, emergency permitting should be used for immediate protection against storms and as a mechanism to advance longer-term, proactive action to enhance coastal resilience. If only short-term approaches continue, these developments will continually be threatened by coastal hazards and our natural coasts will disappear under perpetual armoring and increased rates of erosion.

### **Improvement of Guidance for Local Municipalities:**

Ideally, the best type of governance comes from the local level, which is ultimately where shoreline planning should take place. Local communities and agencies know how to best protect their coastlines and implement policies most effectively; however, it is also imperative that statewide policies are created and applied locally (this is especially true with development and coastal armoring standards). The ultimate goal for coastal preservation should be to have statewide policies that are implemented and adapted at the local level, as currently modeled by the states of California and Washington. Without proper policies, and most importantly, guidance from state agencies, local decision-makers appear to not always adhere to core statewide policies.

**If only short-term approaches continue, these developments will continually be threatened by coastal hazards and our natural coasts will disappear under perpetual armoring and increased rates of erosion.**



Extreme weather threatens properties along the coast of Montauk, NY, demonstrating the negative effects of using short-term armoring as a long-term solution. © James Katsipis

## EXAMPLES OF EFFECTIVE POLICIES AND PROGRAMS

### **Going It Alone – the Flip Side of Delegating Local Authority:**

As some states have not codified important statewide policies, resourceful and determined local municipalities have taken it into their own hands to better protect their coastlines. This is especially true for climate change and sea level rise in states such as Florida and Illinois. For example, five counties in Florida have joined forces to create the *Southeast Florida Regional Climate Change Compact* to address and prepare for climate change impacts and sea level rise. Chicago is similarly taking the initiative to respond to climate change erosion, despite the lack of statewide planning. Without clear statewide policies in place, local jurisdictions establish their own, creating a patchwork of policies that is not beneficial to the state as a whole.

### **Specific Legislation That Bolsters Coastal Protection:**

Oregon, Washington, and California each have clear laws that were established to protect coastal resources and guide shoreline management. In 1976, California passed the Coastal Act. This state law explicitly spells out how local communities should implement coastal policies, set development standards, respond to coastal hazards, and

improve public access, among many other progressive policies. The Coastal Act is regarded as one of the strongest environmental laws in the nation and has captured international attention for effectively protecting California's coastline. This type of comprehensive, proactive legislation would bolster the ability of many other coastal states to take action and protect coastal resources.

### **The Need for Consistent Federal Policies and Financial**

**Support:** As mentioned in the introduction, many states would likely be further along in establishing effective coastal management policies if they received consistent policy and financial support from the federal government.

**The Coastal Act is regarded as one of the strongest environmental laws in the nation and has captured international attention for effectively protecting California's coastline.**





## GENERAL RECOMMENDATIONS

The following recommendations will increase our coastlines' natural resilience to coastal hazards, better protect coastal developments, and help to ensure that future generations have access to our nation's favorite beaches. These recommendations will benefit all states, regardless of their current score. They focus on the importance of long-term planning and the need to avoid short-term fixes for larger, pervasive problems.

- Coastal and Great Lakes states must create a uniform minimum 'setback' development policy that allows for future sea level rise. Coastal managers need to adapt and implement those setback policies based on current and projected local erosion rates.
- All permits for new developments should include building restrictions in coastal hazard areas and sensitive habitats.
- Coastal armoring projects should have limitations on repairs and be restricted, especially in sensitive habitats; they should also be removed after an established time period and restored to the prior state after removal. When sand is lost due to erosion from a private armoring project, a 'mitigation fee' should be charged to the landowner.
- States should encourage the use of soft approaches to erosion, such as living shorelines and strategic sand replenishment paired with the restoration of natural sediment flows. Armoring should only be allowed as a last-resort option. In addition, states should invest in 'Blue Carbon' projects by protecting, restoring, and planting mangroves, seagrass, and kelp to help absorb greenhouse gases and provide a natural buffer against coastal hazards.
- As sea levels are projected to rise by six feet or more by 2100, states should establish statewide managed retreat policies that provide guidance on relocating infrastructure out of harm's way, especially for coastal properties that are frequently damaged or flooded.
- Considering that sea level rise will inevitably be an issue for all coastal states, it is imperative that statewide policies are crafted to explicitly instruct local municipalities to plan ahead and develop climate change adaptation measures.
- States should research cutting-edge climate change adaptation measures, including 'buyout' programs where local and state governments purchase at-risk homes, leaving the land vacant or restored to coastal wetlands (if applicable) to accommodate rising seas. 'Leaseback' programs are other innovative adaptation approaches where at-risk properties are acquired by local governments and then leased back to the homeowner until the property is no longer habitable and must be removed. In addition, communities can pass local taxes to establish a fund to purchase homes in harm's way. Because extreme weather events and sea level rise are more prevalent, local planners and governments are eager to explore new mechanisms to help local homeowners.
- To protect coastal resources and taxpayers, states should establish clear procedures and policies about how to prepare for and respond to 'extreme weather events.'
- The granting of 'emergency' permits for areas and structures subject to coastal hazards and flooding needs to be curtailed. If a permit must be granted, it should require plans to remove armoring in the future and stringent conditions should be placed on how long the armoring is allowed to stay in place and what monitoring and reporting will need to occur. Any approval for an emergency armoring project should also require a longer-term, proactive effort by the landowner to prevent the need for future armoring projects, either by using living shorelines or managed retreat.
- The federal government needs to provide more consistent financial and policy support to states. It is abundantly clear that many states would be further along with coastal management programs if federal partners strategically committed more time and resources to assisting local efforts, and to establishing mandated climate change and coastal resilience policies.

**These recommendations will benefit all states, regardless of their current score.**

Planning for coastal erosion and sea level rise not only makes sense in terms of land-use planning, but it also saves taxpayers' money in the long run. According to the National Institute of Building Sciences, every dollar invested in preparedness and resilience saves four dollars in costs down the road. American taxpayers and our valuable coastlines deserve conscious decisions to be made to proactively preserve our coasts — which inevitably protects

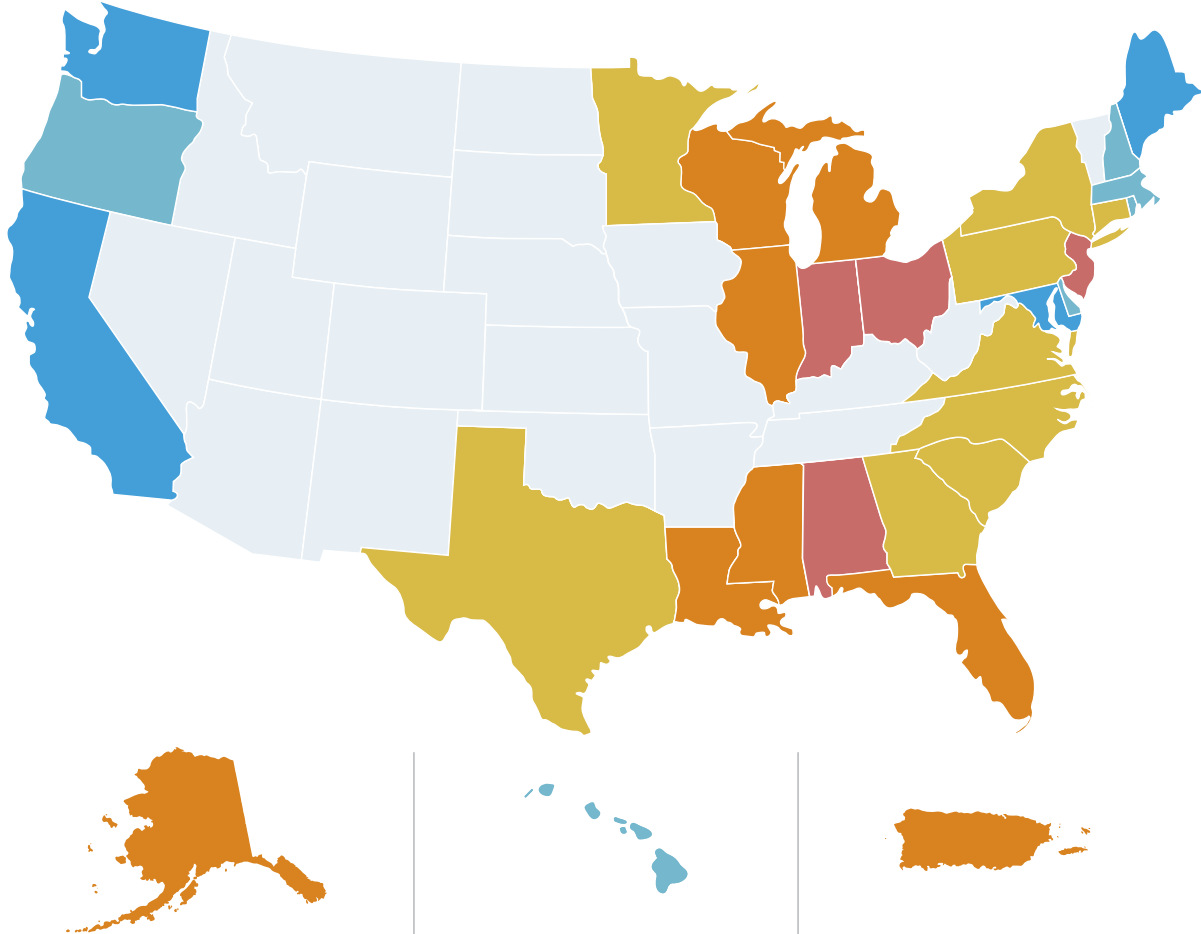
our communities, ecosystems, habitats, and natural landscapes. With the results and recommendations provided by Surfrider's State of the Beach Report, we must work together to increase awareness of the increasing challenges facing our nation's coasts. Ultimately, our combined efforts can lead to improved local, state, and federal government responses to erosion and sea level rise to protect our ocean, waves, and beaches for all people.

**Ultimately, our combined efforts can lead to improved local, state and federal government responses to erosion and sea level rise to protect our ocean, waves and beaches for the future.**





# 2023 Grade Summary



## GRADING SCALE

- **A** 11-12 points
- **B** 9-10 points
- **C** 7-8 points
- **D** 5-6 points
- **F** 4 points

## WEST COAST

● Alaska	5	D
● California	11	A
● Oregon	9	B-
● Washington	10	A
● <b>Average</b>	<b>B</b>	

## GULF STATES

● Alabama	4	F
● Louisiana	6	D
● Mississippi	5	D
● Texas	6	C-
● <b>Average</b>	<b>D</b>	

## MID-ATLANTIC

● Delaware	9	B
● Maryland	11	A
● New Jersey	5	F
● New York	7	C
● Virginia	8	C
● <b>Average</b>	<b>C</b>	

## SOUTHEAST

● Florida	6	D-
● Georgia	7	C-
● North Carolina	7	C
● South Carolina	7	C
● <b>Average</b>	<b>C</b>	

## NORTHEAST

● Connecticut	8	C+
● Maine	11	A
● Massachusetts	10	B
● New Hampshire	9	B
● Rhode Island	10	B
● <b>Average</b>	<b>B</b>	

## GREAT LAKES

● Illinois	6	D
● Indiana	4	F
● Michigan	6	D
● Minnesota	7	C
● Ohio	4	F
● Pennsylvania	8	C
● Wisconsin	5	D
● <b>Average</b>	<b>D</b>	

## ISLANDS

● Hawai'i	9	B
● Puerto Rico	5	D
● <b>Average</b>	<b>C</b>	

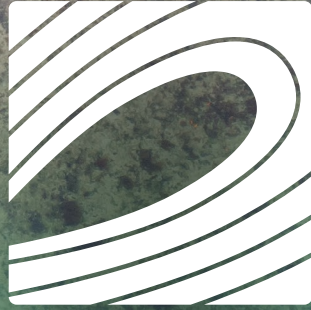
APPENDIX 1.

# 2023 State Criteria Checklist

MANAGEMENT POLICY AND PLAN CRITERIA	Y   N	NOTES
<b>Sediment Management</b>		
1. State encourages regional sediment and inlet management plans.		
2. State avoids beach fill projects by promoting and protecting natural sediment flow.		
3. State has sand replenishment policies that thoroughly analyze impacts to coastal resources and efficacy of replenishment.		
4. State requires permits for replenishment, dredge and fill projects.		
<b>Coastal Armoring</b>		
1. State restricts or prohibits construction of hard stabilization structures.		
2. State restricts repair and encourages removal of hard stabilization structures.		
3. State encourages non-structural shoreline stabilization alternatives.		
4. State avoids emergency permitting of hard stabilization structures.		
<b>Development</b>		
1. State has effective development setback policies.		
2. State restricts new developments in coastal hazard areas.		
3. State restricts repairing developments in coastal hazard areas.		
4. State has policies that protect natural resources that provide coastal hazard mitigation benefits (e.g. dunes, wetlands, reefs).		
<b>Sea Level Rise and Coastal Hazard</b>		
1. State encourages regional and/or local SLR vulnerability assessment with mapping.		
2. State encourages regional and/or local SLR adaptation plan and implementation plan.		
3. State protects habitat that provide landward creep for wildlife (e.g. riparian areas, habitat connectivity).		
4. State coordinates with municipalities and encourages community outreach.		

[Click Here For The Scorecard Of Each State](#)





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