

**CALIFORNIA COASTAL COMMISSION**

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**FAQ****The California Coastal Commission and Sea Level Rise**

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Climate change page: <https://www.coastal.ca.gov/climate/slr/>

Sea level rise story map:

<https://storymaps.arcgis.com/stories/d0c1df224a97418bb4dad129ea4c6d17>

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**What is the California Coastal Commission doing about sea level rise?**

Sea level rise is a statewide challenge that is going to require a coordinated and well-resourced response. The Commission is at the forefront of this effort, coordinating with federal, state, regional, and local partners. In particular, the Commission staff works closely with and so far has provided over \$8 million in grants to 40 different local governments to support efforts to assess vulnerabilities, plan to adapt, and update long-term development plans or Local Coastal Programs (LCP). The Commission's grant criteria include consideration of environmental justice and opportunities for underserved communities to engage in the planning process. The Commission also works with permit applicants whose development could potentially be impacted by sea level rise.

To help guide these efforts the Commission published in 2015, and has since updated, a statewide Sea Level Rise Guidance that includes the best available science and recommendations to help communities plan for sea level rise. Several years ago, the Commission released a companion draft Residential Adaptation Guidance at the request of coastal cities and counties that wanted sample language for their long-range planning documents. This document provides accessible information on sea level rise adaptation and a suite of practical land use policy tools to help facilitate planning for resilient shorelines while protecting coastal resources. The agency is developing similar planning guidance for critical infrastructure and plans to bring both guidance documents to the Commission for adoption in the future.

**What are some examples of sea level rise impacts in California?**

Sea level rise has and will continue to cause beach and bluff erosion and flooding in coastal areas. Some of the more dramatic examples of this have been in northern California. In Pacifica, storms and erosion from sea level rise resulted in a two-story apartment building teetering on the edge of a bluff (330 Esplanade Ave). The complex was evacuated and eventually demolished. In Sonoma County, several homes at Gleason's Beach were red tagged and fell onto the beach. Federal, state and city agencies spent a decade developing a managed retreat plan to move that section of Pacific Coast Highway inland.

One way to see a preview of what sea level rise will look like is to go to a local beach during a King Tide, which is an extremely high tide that occurs several times a year on a full moon and causes ocean levels to rise up to 18 inches higher than normal tides. Within the younger

generation's lifetime, today's King Tides will become the new normal for a low tide. The California King Tides Project helps people visualize future sea level by observing the highest high tides of today. Citizen scientists are creating a record of the changes to our coast from sea level rise at <https://www.coastal.ca.gov/kingtides/>

### **Why is it important to prepare now?**

Unlike earthquakes and wildfires which are less predictable, with sea level rise we do have some understanding of which parts of the coast are under threat. Also, while the problem is statewide, many of the solutions will need to be local but this kind of planning takes time. What works on the sandy beaches of San Diego is not going to work in the cliffs outside Crescent City because there is no one-size-fits-all approach. Many studies show that proactively preparing for sea level rise is far more cost effective than waiting until the impacts of sea level rise get worse. Also, if we fail to prepare, we may lose resources that are integral to California's identity and coastal economy. One study by USGS showed that if we don't take action, two-thirds of beaches in southern California could be lost to sea level rise by the end of this century.

### **What are the various residential adaptation strategies?**

These are some of the broad adaptation strategies that can be carried out to help build a barrier against rising seas, to ensure development can withstand periodic flooding or, in some cases, to eventually move development out of harm's way allowing natural habitats like beaches and wetlands to migrate inland.

**NOURISHMENT** – Beach nourishment can build up beaches using sand dredged from harbors and marinas.

**NATURAL INFRASTRUCTURE** – Enhancing dunes and wetlands can provide buffers from floods and wave action.

**ACCOMMODATION** - Modify existing developments or design new developments to decrease hazard risks and increase the resiliency of development. For example, elevate or flood-proof structures so they can withstand periodic flooding.

**SITING and DESIGN** – New development can be sited and designed so it is safe from anticipated sea level rise impacts. For blufftop areas, this typically means setting development back from the bluff edge far enough to account for long-term erosion. In low-lying areas near beaches or wetlands, this could mean setbacks and elevating structures to minimize risks from flooding and storms.

**MANAGED RETREAT** – Moving structures away from hazardous coastal areas. This can happen over the short term in areas with high near-term vulnerabilities, but more often, it is something that would occur over longer period of time. Even so, it is important to plan ahead to understand when impacts are likely to occur because the cost of inaction is higher than proactive adaptation planning.

SEAWALLS – In limited circumstances, shoreline armoring including seawalls may be an appropriate adaptation tool to protect communities, infrastructure and public access facilities. However, for every seawall, the public can lose a public beach, dunes, wetlands and other coastal resources. In the long term, seawalls may only be a temporary fix given the anticipated exponential rise in sea levels.

BREAKWATERS & ARTIFICIAL REEFS – Carefully engineered breakwaters and artificial reefs can help preserve sand supply and lessen erosion effects of waves

**Is the Commission forcing communities to adopt managed retreat and does this mean abandoning coastal communities to sea level rise?**

No – this is exactly the scenario the Commission is trying to avoid. The Commission wants communities to consider a range of approaches to help protect them from sea level rise. These include managed retreat, living shorelines, beach nourishment and, when appropriate, sea walls.

Managed retreat involves relocating development away from coastal locations threatened by sea level rise. In most places throughout California, managed retreat will not be necessary for many decades but there are cases when communities may need to consider this option sooner. In the near or medium term there are other adaptation measures that can be utilized to protect coastal resources and development. However, over the long term, there are coastal locations where flooding and erosion will become so extreme that there will be no other feasible adaptation option except relocation or removal of development.

It is important to start considering the possibility that retreat may be necessary in certain cases and prepare for phased adaptation measures that can be implemented as certain triggers are reached. Phased adaptation is critical to ensuring our state, regional and local governments are prepared for future sea level rise. These measures will help avoid large scale damage to development, coastal resources, public beaches and ultimately our economy and way of life.

**Why is it important to save public beaches?**

The California Coastal Act requires the Commission maximize public access to the shoreline and protect recreational areas along the coast. In other words, the law requires the Commission to consider how its regulatory actions will affect the public's beaches, especially considering what we know about sea level rise. The coast is part of who we are as Californians, so much so that beach access is a constitutional right for all Californians regardless of zip code. The coast is one of the few places inland residents can go to escape the heat without spending a lot of money.

Seawalls can provide some temporary protection for a structure, but in the long-term, the trade-off is the public can lose a beach. They increase erosion for downcoast properties, disrupt the natural sand flow and shrink beaches until they disappear. If much of the coastline is lined with sea walls, Californians all lose beaches, public access, wildlife habitat and the associated economic benefits. California's more than \$44 billion coastal economy is also at risk if the state loses its beaches.

**Will the Commission need to approve each plan?**

Yes. In order for LCP updates to become effective, they must be officially certified by the Coastal Commission. That's why our staff works closely with local governments to ensure they address the issues necessary to inform an LCP update. Many local governments are in the process of updating their LCPs to address sea level rise. These often include sea level rise vulnerability assessments and/or adaptation plans to understand what sea level rise might mean for their community and coastline.

**Have many communities adopted plans for sea-level rise adaptation?**

Yes, many jurisdictions statewide have developed plans to adapt to sea level rise. Some certified LCPs have already incorporated sea level rise adaptation measures. Others have recently brought forward complex components of LCP amendments to the Commission for certification. These include the City of Half Moon Bay (2021), the City of San Francisco (2018), the City of Pacific Grove (2019), the City of Santa Barbara (2019), the City of San Clemente (2018), and the County of San Diego (2017). And many communities have developed sea level rise vulnerability assessments and/or adaptation plans and have started developing LCP updates to carry out their adaptation approach.

See "Status of Grantees" box at: <https://www.coastal.ca.gov/lcp/grants/>

This box summarizes the local governments that are preparing plans with support from Coastal Commission grant funding. Other work is going on statewide to plan for sea level rise, including work initiated by local governments, regional groups, or individual entities, as well as work required by legislation.