

Public Trust Guiding Principles and Action Plan

Carrying out the California Coastal Act
and Public Trust Doctrine in an era of
climate change and sea level rise



May 2023

California Coastal Commission

Introduction

The California Coastal Act and the public trust doctrine are both central to the protection of public interests on the coast of California. The California Coastal Commission's enabling legislation is the California Coastal Act, which guides the agency's work to preserve and protect the shoreline and to prioritize certain public uses and values on the coast. The public trust doctrine, meanwhile, is a common law principle that establishes that certain lands are held in trust by the state for the benefit and use of the public, and is a fundamental underpinning of the Commission's work. With climate change and sea level rise threatening the future of public resources, it is becoming ever more important to understand how the public trust doctrine interfaces with the work of the Coastal Commission as it endeavors to advance sea level rise adaptation planning statewide.

The goal of this document is to describe how the public trust doctrine relates to the Coastal Commission's and local governments' work on sea level rise planning under the Coastal Act. Section 1 presents a series of principles that guide the Commission's and local governments' work on this subject, and Section 2 sets forth next steps and research priorities for the Commission.¹

The California Coastal Act & the public trust doctrine

Under the public trust doctrine, the state's tidelands, submerged lands, and navigable lakes, rivers, and streams are held in trust by the state for the benefit of the public. On the coast, the public trust is generally located on current tidelands – lands covered and uncovered by the ebb and flow of the tides. It also includes submerged lands and lands that were historically tidelands at the time California became a state in 1850 but have since been artificially drained and/or filled. Uses and interests that are considered consistent with the public trust include water-related commerce, navigation, fishing, bathing, swimming, and boating, as well as public access, recreational uses, and preservation of lands in their natural state for scientific study and as open space and wildlife habitat. The California State Lands Commission has exclusive jurisdiction to lease and manage most public trust lands, and it must ensure that any such leases are consistent with, or at least do not significantly impair, public trust resources, uses, and needs. Over the years the Legislature has granted certain sovereign lands to more than 80 local entities. Those lands, commonly referred to as “granted lands,” are sovereign in

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character, remain impressed with the public trust, are managed by the public agency holding the grant, and are subject to the residual review authority of the State Lands Commission.²

The Coastal Act is an exercise of the Legislature's public trust authority and responsibility and, as such, aligns with and implements aspects of the public trust doctrine, including through its emphasis on public access, ocean-related recreation, and coastal-dependent uses like ports and fishing. Among other public access provisions, the Coastal Act recognizes the public's constitutional right of access to tidelands and other navigable waters pursuant to Section 4 of Article X of the California Constitution. Since Local Coastal Programs (LCPs) developed by coastal cities and counties must be consistent with the Coastal Act, they align with public trust doctrine principles in the same manner as the Coastal Act. The Coastal Act applies in the coastal zone, which includes both public trust tidelands and additional public and private upland areas.

Coastal public trust lands and adjacent uplands support a variety of ecological, socioeconomic, and cultural values. The various beaches and wetlands that constitute public tidelands support public access and coastal recreational activities like surfing, sunbathing, birdwatching, and fishing. Coastal wetlands and beaches support biodiversity and perform a variety of important ecosystem services, like buffering wave energy, filtering water, recycling nutrients, and serving as nursery habitat for fish species that not only fit into larger coastal ecosystems and food chains, but also support commercial and recreational fisheries offshore. Unlike much upland coastal property, tidelands are generally open to all visitors at no or low cost and are thus critical from an environmental justice standpoint as an important resource providing equitable access to coastal and marine resources. Public trust lands and related uplands support maritime trade and commerce, including certain water-dependent industrial, commercial, and tourism related uses essential for coastal economies, which in turn support jobs and economies at all scales.

- ² The Coastal Commission's regulatory jurisdiction over public trust lands includes tidelands, submerged lands, the beds of navigable lakes and rivers, and historic tidelands and submerged lands that are presently filled or reclaimed, and which were subject to the public trust at any time (Title 14, Cal. Code of Regs § 13577(f); Coastal Act §§ 30601(2), 30603(a)(2), 30519(b)), and is not determined by the identity of the trustee agency.

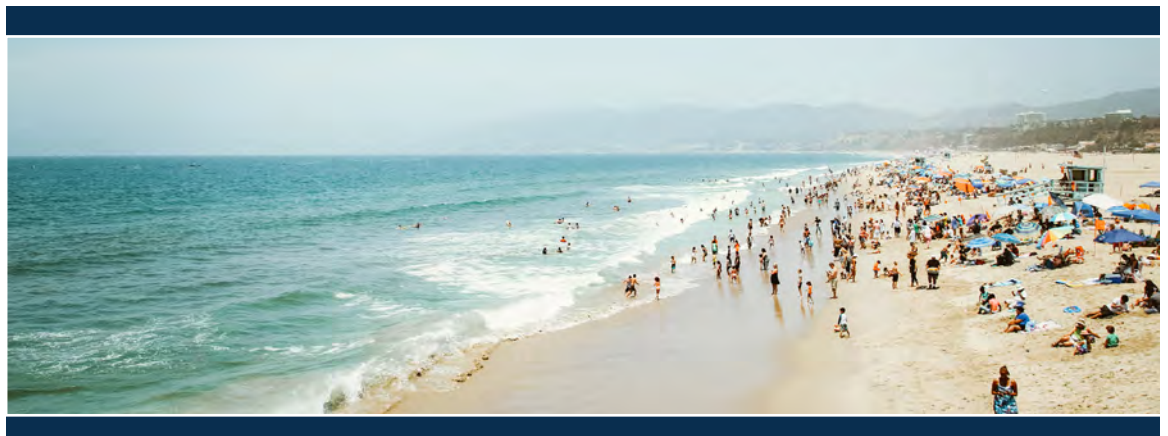


Photo by Johnny Chau

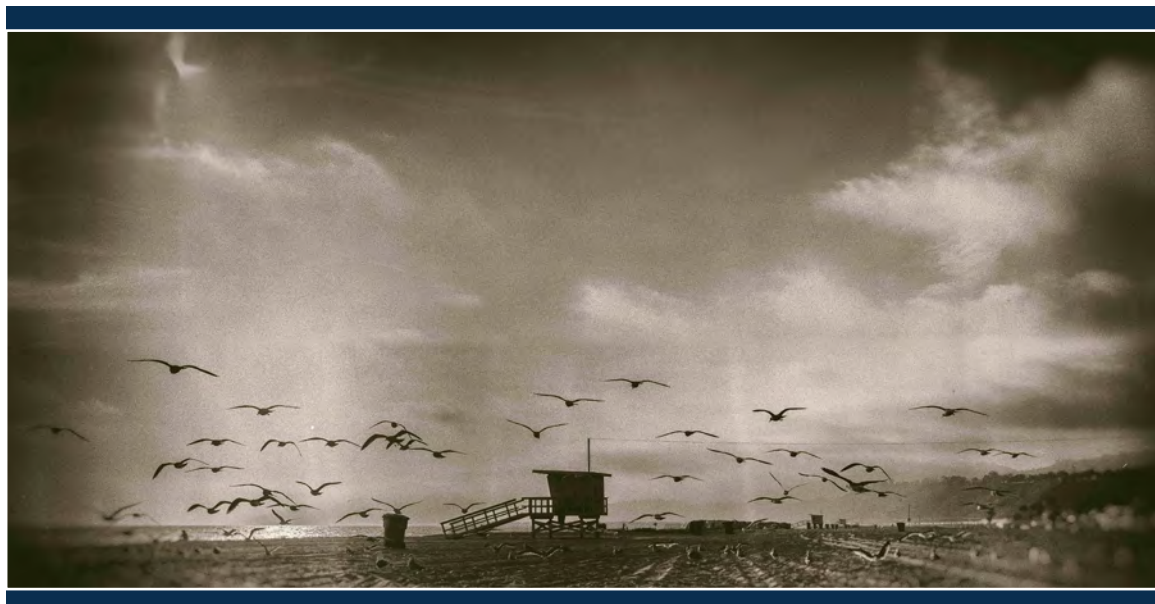
Public trust lands are also significant areas for coastal-affiliated tribes, as sovereign nations with unique treaty and legal rights associated with the ocean and coast, and as stewards of these lands since time immemorial. Prior to colonization, these places had significance to the local tribal communities that used the area as their territorial and ancestral lands. Public trust lands continue to be used today by California Native American Tribes for practices such as traditional gathering, spiritual practices, harvesting, and fishing. California Native American Tribes never ceded their stewardship of traditional use areas, including tidelands, and continue to act as stewards today through their co-management, use, and protection of ancestral coastal lands.

The Coastal Commission will continue to consult and coordinate with California Native American Tribes and seek tribal input on development and planning relating to the protection of public trust resources that may impact tribal interests, consistent with the Commission's Tribal Consultation Policy. In addition, both the Coastal Commission and State Lands Commission, along with many other federal, state, and local organizations, have worked and will continue to work to protect and preserve public trust resources along the California coast in the course of carrying out their respective mandates. Due to the critical importance of these public coastal resources, it is becoming ever more important to carefully address looming threats to these resources from issues such as sea level rise.

Box 1: Additional resources and references

The following resources provide more information on the public trust doctrine and the California Coastal Act, the roles of the California Coastal Commission and California State Lands Commission, and related analyses of sea level rise:


- [Protecting Public Trust Resources as Sea Level Rises](#): a 3-page summary of key definitions and agency roles and responsibilities drafted as part of a Coastal Commission and State Lands Commission joint coordination project
- [Protecting Public Trust Shoreline Resources in the Face of Sea Level Rise](#) (Lester 2021): a detailed report and analysis by the U.C. Santa Barbara Ocean & Coastal Policy Center on sea level rise and the public trust doctrine with recommendations for the Coastal Commission's program
- [The Public Trust Doctrine: A Guiding Principle for Governing California's Coast Under Climate Change](#) (Center for Ocean Solutions 2017): a consensus statement by the Center for Ocean Solutions and public trust and coastal land use experts on California's duties under the public trust doctrine and opportunities to improve coastal governance and management



The challenges of sea level rise

Sea level rise is presenting unprecedented challenges for the California coast, and these challenges will only increase as sea level rise accelerates in the future. In the past century, the average global temperature has increased by about 0.8°C and global sea levels have increased by 7 to 8 inches. In addition, sea level rise has been accelerating in recent decades, with the rate tripling since 1971.³ There is scientific consensus that sea level rise will continue into the future, which means agencies like the Coastal Commission must anticipate and proactively plan for its foreseeable effects. Sea level rise will cause new areas of the shoreline to be regularly inundated by the tides, increased erosion of the shoreline, increased storm flood extents, rising groundwater tables, and saltwater intrusion into coastal aquifers. These increasing hazards will put both development and coastal resources like public recreational areas and coastal habitats at risk. Assessments of the sea level rise vulnerability of granted public trust lands show that damages and replacement costs for vulnerable assets in these areas alone could top \$19 billion by 2100, and natural resources and recreational amenities in these areas could lose over \$5 billion in value.⁴ Rising sea levels also threaten tribal cultural resources located on tidelands, such as sacred sites, archaeological resources, and native plant and animal communities associated with tidelands that are significant for traditional practices.

- 3 Intergovernmental Panel on Climate Change (IPCC). 2021. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press.
- 4 State Lands Commission. 2022. AB 691 Synthesis Report: Proactively Planning for Sea Level Rise Impacts on Granted Public Trust Lands. <https://slcprdwordpressstorage.blob.core.windows.net/wordpressdata/2022/08/AB691-Synthesis-Report.pdf>.



The impacts of climate change and sea level rise may be disproportionately felt by environmental justice communities, including low-income communities, communities of color, and other populations that have a higher exposure and/or sensitivity to climate change due to historical marginalization and environmental racism, as well as a lower capacity and fewer resources to adapt to or recover from adverse impacts. Sea level rise threatens the health and safety of communities located near sites that contain contaminated soils due to currently operating or legacy industrial operations and where rising tides and elevated groundwater tables are projected to occur. Hundreds of hazardous facilities along the California coast including power plants, refineries, industrial facilities, and current and legacy hazardous waste sites may experience flooding by 2100 due to sea level rise.⁵ Flooding and rising groundwater table elevations at these hazardous sites could cause hazardous materials to spread, thereby exposing nearby residents to those substances. In California, many of the hazardous sites vulnerable to sea level rise are located in low-income communities and communities of color, potentially exposing these residents to additional risks as sea levels rise.⁶ Sea level rise may also decrease the functionality of transportation networks and critical water infrastructure. While impacts to these assets have the potential to disrupt transportation, commerce, public safety, and economies at many scales, environmental justice communities may experience an even greater burden from these impacts because these communities often have less access to financial aid and back up resources that other communities may have.

Sea level rise will also further exacerbate inequalities in coastal access as a result of discriminatory land use practices. In the coastal zone, historical exclusionary public policies and private practices such as refusing to finance home purchases for households of color and imposing deed restrictions that restricted sales of homes to certain groups based on race, creed, or color have excluded households of color and low-income households from owning and renting property on the coast.⁷ Access to cooler coastal temperatures will increasingly become a public

5 University of California (UC), Berkeley Sustainability and Healthy Equity Laboratory. “Flood Risk & Demographics,” Toxic Tides Project. <https://sites.google.com/berkeley.edu/toxictides/flood-risk-demographics>. See also United States Environmental Protection Agency. 2022. EJScreen. <https://ejscreen.epa.gov/mapper/>.

6 “Flood Risk & Demographics,” Toxic Tides Project. <https://sites.google.com/berkeley.edu/toxictides/flood-risk-demographics>. See also California Sea Level Rise Team. 2022. State Agency Sea Level Rise Action Plan for California. https://www.opc.ca.gov/webmaster/media_library/2022/02/Item-7_Exhibit-A_SLR-Action-Plan-Final.pdf (principles stating that DTSC will inventory and prioritize the allocation of resources to address contaminated sites vulnerable to SLR in tribal communities and communities that are under-resourced and overburdened with pollution).

7 Coastal Commission. 2022. Report on the Historical Roots of Housing Inequity and Impacts on Coastal Zone Demographic Patterns. <https://documents.coastal.ca.gov/reports/2022/6/TH6d/Th6d-6-2022-report.pdf>.




Photo by Paul Priebe

health imperative for inland residents as average temperatures in California increase. As sea levels rise, the potential for public trust lands and their associated upland public spaces to be subject to coastal squeeze against private upland development will only increase, exacerbating existing inequalities in coastal access and tipping the scales further toward injustice, particularly for lower income residents living inland.

Sea level rise will push the public trust boundary inland in many locations. In most places, the current landward boundary of public trust tidelands is the mean high tide line. This boundary ambulates as both the mean high water elevation changes and as the shore erodes and accretes. Seasonal accretion and erosion of the shore shifts the mean high tide line throughout the year. For example, in most places in California, beaches erode in the winter and accrete in the summer, which generally causes the mean high tide line to shift landward with erosion and seaward with accretion. As sea levels rise, the mean high tide line will move landward over time as the elevation of the average high tide rises. The extent and rate of this landward movement will depend on several factors, including the rate of sea level rise, changes in shoreline sediment supply, and erosion of the shore.

Sea level rise and the Coastal Commission's mandate

Advancing sea level rise adaptation planning is a central goal of the Coastal Commission in fulfilling its mandate to protect, conserve, restore, and enhance the state's coastal resources under the Coastal Act. The Coastal Commission has long integrated considerations about sea level rise and other coastal hazards into its regulatory and planning programs. In 2022, the Coastal Act was amended to explicitly require the Coastal Commission to “take into account the effects of sea level rise in coastal resources planning and management policies and activities



in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise” (Coastal Act § 30270). The Commission has also developed a number of specific resources to facilitate sea level rise adaptation planning statewide, including the [Sea Level Rise Policy Guidance](#) (2018) and [Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California’s Coastal Zone](#) (2021). In addition, the Commission has been working closely with other state agencies to advance sea level rise planning, including through efforts such as the development and adoption of the interagency document [Making California’s Coast Resilient to Sea Level Rise: Principles for Aligned State Action](#), and through agency-specific work such as coordination with the State Lands Commission and the Ocean Protection Council. This work on sea level rise requires one to shift from thinking of the coast as a relatively static environment where seasonal and other oceanographic cycles oscillate over a rough equilibrium, to an understanding that sea level rise will make the coast an ever-changing place for the foreseeable future.

An overarching goal of the Coastal Commission’s program articulated in Section 30001.5 of the Coastal Act is to provide coastal resource protection in a manner that is consistent with the constitutionally protected rights of private property owners and the social and economic needs of the people of the state. Several sections of the Coastal Act (such as 30001.5, 30210, and 30214) recognize the need to protect the rights of private property owners while carrying out the Act’s mandate to protect coastal resources and provide maximum public access. Even on a relatively unchanging shoreline, it can be challenging to balance coastal resource protection and the rights of private property owners. However, sea level rise will cause the boundary between public tidelands and private uplands to move landward, resulting in increasing conflict between public and private interests as public tidelands make their way inexorably landward and encounter fixed structures on private property. Resolving the ensuing conflict between public and private property rights – and continuing to assure an appropriate balance of interests – will be a far more challenging endeavor. It is clear that without action, the public trust resources on the front lines of sea level rise will be impacted first, and losing these resources is not consistent with the goals and intent of the Coastal Act nor the public trust doctrine.

Box 2: “Coastal Act decisions”

The phrase “Coastal Act decisions” in the Guiding Principles refers to all planning and regulatory decisions made by the Coastal Commission or Local Governments pursuant to the Coastal Act.

Section 1. Guiding Principles

The California Coastal Commission adopts the following Guiding Principles:⁸

1 Climate change and sea level rise are moving the public trust landward

Sea level rise is one of the most significant challenges facing the California coast. Not only is sea level rise impacting coastal resources and development, it is also raising a host of jurisdictional and legal questions, including those related to the public trust doctrine and the location of public tidelands.


In coastal areas, the landward boundary of the state's public trust lands is generally defined by the "ordinary high water mark," the area covered and uncovered by the ebb and flow of the tides, as measured by the mean high tide line.⁹ Because the shoreline is dynamic, accreting and eroding seasonally as well as in response to long-term trends such as sea level rise, the location of the mean high tide line changes over time. Thus, the boundary between private and public land along the coast is also ambulatory.¹⁰

In most places, sea level rise is expected to drive the mean high tide line further landward over time. As sea levels rise, the mean high water elevation will also rise, intersecting the dynamic shoreline at a higher and higher plane. Thus, the Coastal Commission recognizes that in many locations, publicly owned tidelands will shift landward. The Coastal

8 The Commission adopts these Guiding Principles as interpretive guidance pursuant to Section 30620(a)(3) of the Coastal Act. The Guiding Principles are meant to provide assistance to local governments, the Commission, and others subject to the Coastal Act in determining how the Commission will apply Coastal Act policies in a manner consistent with the public trust doctrine.

9 The California Supreme Court and the Civil Code define the landward tidelands boundary as the "ordinary high water mark." (Civil Code § 670; *Teschemacher v. Thompson* (1861) 18 Cal. 11.) The California Supreme Court has defined the "ordinary high water mark" as the mean high tide line. (*City of Long Beach v. Mansell* (1970) 3 Cal.3d 462; *Marks v. Whitney* (1971) 6 Cal. 3d 251.) The mean high tide line is located at the point where the mean high water elevation intersects with the shore.

10 The landward boundary of the public trust tidelands is ambulatory except where there has been fill or artificial accretion, a court judgment, a boundary agreement with the state, or in certain cases where the land title derives from a Mexican land grant. In areas where there has been fill or artificial accretion, the ordinary high water mark (and the state's public trust ownership) is generally defined as the location of the mean high tide line just prior to the fill or artificial influence.



Commission's permitting and appeal jurisdiction is based in part on the location of public trust tidelands and the mean high tide line.¹¹ Seaward of the mean high tide line, the Commission generally issues Coastal Development Permits (CDPs), whereas landward of the mean high tide line, local governments with certified LCPs generally issue CDPs, and the Coastal Commission has appeal jurisdiction for projects near the shoreline. Thus, although the Commission will maintain some type of jurisdiction regardless of the exact location of the mean high tide line, the nature of the Coastal Commission's authority over a particular piece of land may change as the boundary of public trust tidelands shifts landward.

2 Development decisions and sea level rise will impact public trust lands, uses, and resources

As described above, as sea levels rise, the ambulatory boundary between public trust lands and private uplands is expected to move landward. If unhindered, many shoreline habitats such as beaches, dunes, and wetlands will migrate landward due to natural shoreline processes. If these habitats instead encounter fixed structures such as shoreline protective devices, the tidelands normally accessible to the public will be inundated with deeper and deeper water as sea levels rise, in a process commonly called "coastal squeeze." Eventually, many tidelands could be lost altogether due to coastal squeeze.

The physical loss of tideland resources like beaches and wetlands will equate to a loss of the various functions and values that they provide, such as recreation, flooding protection, and access to vulnerable tribal cultural resources. Decisions made by the Coastal Commission and local governments, including those that may impact the potential for coastal squeeze to occur, will directly influence whether public trust lands, resources, and waters, and their public benefits, can persist over time as sea levels rise.

11 The current public trust boundary is one of several criteria that define the Commission's regulatory jurisdiction, as the Commission's jurisdiction extends beyond current public trust lands. See Coastal Act §§ 30601(2), 30603(a)(2), 30519(b); Title 14, Cal. Code of Regs § 13577(f).

3 The Coastal Act aligns with and implements aspects of the public trust doctrine

The value of public trust lands, including coastal tidelands, is deeply rooted in common law. Upon its admission to the United States in 1850, the State of California acquired sovereign ownership of all tidelands, submerged lands, and beds of natural, navigable waterways. The modern public trust doctrine refers to the principle that the government must protect these lands for public use on behalf of the people. This affirmative duty extends to the state's various governmental agencies, including the Coastal Commission. The public trust doctrine is not static but is continuously evolving to reflect the needs and values of Californians. Uses that may be considered consistent with the public trust include maritime commerce, navigation, fishing, boating, water-oriented recreation, public access, and environmental preservation and restoration. Case law recognizes that the public trust doctrine prioritizes public uses and interests over private ones.¹²

The California Coastal Act is an exercise of the Legislature's public trust authority and responsibility and, as such, aligns with and implements aspects of the public trust doctrine, including through its emphasis on public access, ocean-related recreation, and coastal dependent uses like ports and fishing. The Coastal Act delegates to local governments with certified LCPs the authority to permit development in much of the coastal zone consistent with the Act.¹³ As a result, local governments' certified LCPs must protect public trust-related resources such as public access and recreation in the manner required by the Coastal Act.

4 Coastal Act decisions must incorporate protections for the public trust

As sea levels continue to rise, the potential for development decisions made by the Commission and local governments to impact public trust tidelands will become more likely and ever more critical to address. Consistent with its affirmative duty to uphold the public trust doctrine, the Coastal Commission will continue to incorporate considerations of public trust

12 *Colberg, Inc. v. State of Cal. ex rel. Dep't of Pub. Works* (1967) 67 Cal. 2d 408, 416-19; *Marks v. Whitney* (1971) 6 Cal. 3d 251, 261.

13 Coastal Act §§ 30519(a), 30600(b)(1). The Coastal Act generally does not delegate to local governments the authority to permit development on tidelands, submerged lands, or public trust lands, whether filled or unfilled, Coastal Act §§ 30519(b), 30600(b)(2).


resources, uses, and needs into its decision-making, including its actions on CDPs and appeals, LCPs, federal consistency determinations, and other relevant actions and plans. Likewise, local governments' LCPs must be consistent with the policies of the Coastal Act that require protection of public trust-related resources.

Because the Coastal Act requires protection of public access, coastal habitats, recreation, and other public trust-related resources, analysis of a project's consistency with the Coastal Act (and, by extension, an LCP) may satisfy the Commission's and local governments' duty to evaluate a project's possible adverse impacts on public trust resources, uses, and needs. Still, the public trust doctrine should inform the interpretation of Coastal Act and LCP provisions to ensure that they are carried out in a manner that fully protects the public trust. Therefore, the Commission will adopt findings that appropriately describe public trust topics at issue and incorporate appropriate special conditions and modifications that ensure protection of public trust uses, resources, and needs in a manner consistent with the Coastal Act and relevant LCPs.¹⁴ The Commission and its staff will consider the public trust findings made by the State Lands Commission, which can be determined by coordination or consultation with State Lands Commission staff and official actions of the State Lands Commission. Consistent with its [Sea Level Rise Policy Guidance \(2018\)](#), the Coastal Commission will

14 See *San Francisco Baykeeper v. California State Lands Commission* (2015) 242 Cal. App.4th 202.



Photo by King Tides Initiative



consider the impacts of sea level rise over the full lifetime of each proposed project and plan, using a precautionary approach and the current best available science, and will consider impacts upon all Coastal Act and public trust resources. Local governments must ensure that their LCPs protect public trust-related resources in the manner required by the Coastal Act and should consider adopting policies that specifically protect public trust resources, uses, and lands.

5 Coastal Act decisions must be guided by the anticipated impacts of development on current and future public tidelands

To account for the anticipated direct and cumulative effects of development on public trust resources as sea levels rise, the Coastal Commission, in consultation with the State Lands Commission, will use the best available science and information to identify the area between the current mean high tide line and the most landward projected location of public trust tidelands during the expected lifetime of proposed development. This information would generally include sea level rise projections and a range of shoreline surveys that account for seasonal and interannual fluctuations of the mean high tide line. When appropriate, the Commission will consider impacts to public trust resources, such as public access and other coastal resources, within this area when deciding whether to authorize development near public trust lands, in both undeveloped areas and built out areas. The Commission may limit uses and development within or too close to this area as necessary to achieve Coastal Act or LCP consistency and to protect coastal resources and public trust land. For example, when appropriate, the Commission has required shoreline setbacks, removal of development when certain criteria are met, and deed restrictions to ensure that development allows for the continuance of habitat and recreation areas and does not encroach on public tidelands or harm public trust resources over the course of its lifetime. The Commission encourages local governments to incorporate policies into their LCPs that account for the anticipated direct and cumulative effects of development on public trust resources as sea levels rise, including using the best available science and information to identify the area between the current mean high tide line and the most landward projected location of public trust tidelands during the expected lifetime of proposed development.

6 Coastal Act decisions must be guided by the principle that owners of shorefront property may not unilaterally and permanently prevent the landward migration of public trust lands

The Coastal Commission is guided by the principle articulated in *United States v. Milner* that an upland owner cannot unilaterally and permanently fix the tidelands boundary with a shoreline device such as a seawall or revetment. California case law does not specifically address how shoreline structures such as seawalls that artificially fix the shoreline and prevent landward movement of the mean high tide line affect property boundaries, if at all. However, longstanding federal and California common law principles dictate that tideland owners—typically the state—and upland owners both have a right to ambulation of the tideland boundary from natural erosion and accretion. As a result of this reciprocal right, a federal appellate court, *United States v. Milner*, 583 F.3d 1174 (9th Cir. 2009), held that an upland owner cannot unilaterally and permanently fix the ambulatory tidelands boundary with a fixed structure such as a revetment. This case is persuasive under California law because the common law right that the *Milner* court relied on—the reciprocal right to an ambulatory tideland boundary—also applies under California common law.¹⁵ Shoreline protective devices that unilaterally prevent the mean high tide line from ambulating landward privilege the upland owner at the expense of the public by attempting to fix the tideland boundary that would otherwise ambulate landward over time. In carrying out Coastal Act provisions relating to protection of public access and other coastal resources, the Commission’s decisions will be guided by the *Milner* principle that such shoreline protective devices cannot unilaterally and permanently stop the public trust tidelands boundary from migrating landward.

15 *Lechuza Villas West v. California Coastal Com’n* (1997) 60 Cal.App.4th 218; *Strand Imp. Co. v. City of Long Beach* (1916) 173 Cal. 765.

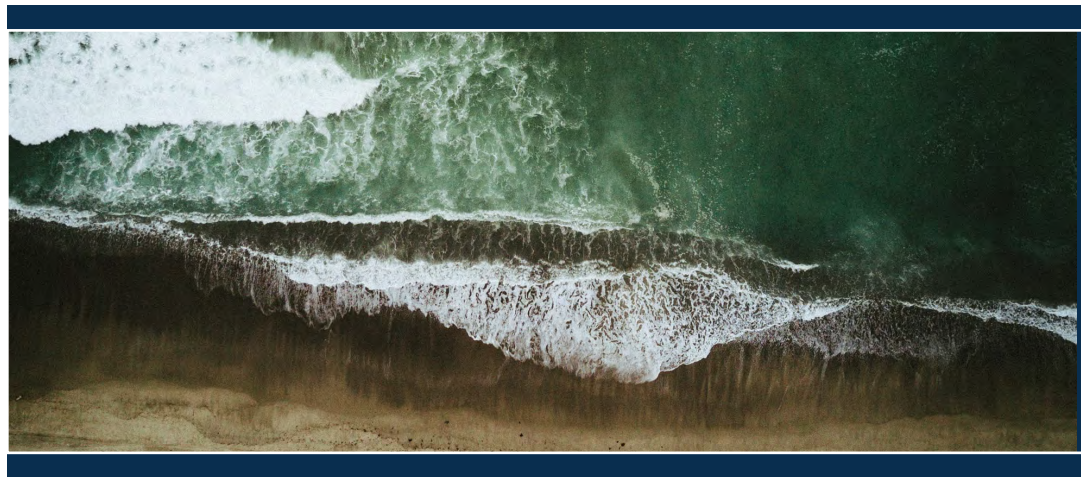



Photo by Derek Liang




Shoreline protective devices located on or seaward of the mean high tide line are generally located on public trust land and require a lease from the State Lands Commission or other trustee agency. Such leases may require the lessee to pay rent for occupation of sovereign lands and are issued for a limited term as the State Lands Commission cannot permanently restrict sovereign lands for a private purpose. Absent formal action by the trustee agency, as well as a permit from the Coastal Commission, an upland landowner or other actor may not unilaterally stop the landward progression of tidelands with a fixed structure such as a revetment or seawall on public trust lands. Where a shoreline protective device prevents the tidelands from moving landward, Coastal Commission findings and decisions on CDPs and appeals, LCPs, and other matters may, in appropriate cases, be informed by where the mean high tide line would have been or will be located without the intervening effect of the device.¹⁶

7 Coastal Commission findings will be informed by interagency coordination

Coastal Commission actions will be informed by coordination with the State Lands Commission and other state agency partners. The State Lands Commission manages public trust lands and resources on behalf of the people and is the state's primary agency tasked with determining the boundaries of public trust lands and issuing leases on those lands for development that does not substantially impair public rights and is in the state's best interest.

In 2019, the State Lands Commission's Executive Officer and the Coastal Commission's Executive Director signed a joint Memorandum of Understanding on behalf of their agencies recognizing the need for coordination on a variety of issues, including property ownership determinations and the alignment of CDP and State Lands Commission lease requirements. It also outlined processes for early and thorough communication between staffs and committed staffs to working together to understand the expected impacts of sea level rise upon public trust resources and to ensure protection and restoration of, and mitigation for impacts on, those resources.

¹⁶ See *United States v. Milner* (9th Cir. 2009) 583 F.3d 1174.



The Coastal Commission's actions will reflect these commitments; will ensure protection of public trust resources, uses, and needs as sea levels rise; and will also provide appropriate, legally required protections for private property interests. In taking actions, the Coastal Commission will also consider coordinating CDP and State Lands Commission lease authorization periods to allow for future, coordinated reconsideration of the impacts of sea level rise, as well as coordinated lease and permit conditions requiring mitigation for impacts to resources. Additionally, as discussed in the Action Plan below, the Commission will participate in efforts to coordinate with state agency partners to develop a set of principles to guide the state's implementation of the public trust doctrine.

8 Public trust principles support the requirement that Coastal Act decisions advance environmental justice and access for all

Due to its inherent emphasis on protecting public uses and resources with wide-reaching public benefits, the public trust doctrine can further environmental justice, or the equitable distribution of environmental benefits and burdens. Likewise, the Coastal Act is grounded in principles of public inclusion and protection of coastal resource benefits for the public. The Coastal Act's mandates to provide maximum access and recreational opportunities for all, and to protect, encourage, and provide lower-cost visitor and recreational opportunities embody fundamental principles of environmental justice.¹⁷ The Commission has a long-standing commitment to identifying and eliminating barriers to equitable access, including those related to public trust lands. However, despite decades of successful implementation, the Coastal Act's vision of coastal protection and access for all people is not fully realized. California Native American Tribes, communities of color, low-income communities and other historically

¹⁷ Coastal Act § 30604(h) describes environmental justice as "the equitable distribution of environmental benefits throughout the state." Coastal Act § 30013 further declares that in order to advance the principles of environmental justice and equality, subdivision (a) of Section 11135 of the Government Code and subdivision (e) of Section 65040.12 of the Government Code apply to the Commission and all public agencies implementing the provisions of this division. Government Code § 65040.12(e) defines environmental justice as "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies," including, at a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions, among other actions.

marginalized populations often experience greater burdens and barriers in accessing the California coast and remain unable to enjoy the full benefits that shoreline and coastal access provide. Additionally, future climate change and sea level rise hazards will likely have disproportionate impacts on communities with the least capacity to adapt and may exacerbate existing environmental injustices.

The public trust doctrine creates an imperative for state agencies with an affirmative duty to carry out the doctrine, including the Coastal Commission, to preserve public interests on the coast of California. The Coastal Commission will continue working toward appropriately balancing the public's interest in ambulating public lands and waters with private property rights, even as sea level rise pushes the public-private boundary landward. The Coastal Commission will implement and uphold the public trust doctrine consistent with its [Environmental Justice Policy](#) (2019) to advance environmental justice on the California coast. Consistent with this Policy, the Coastal Commission will ensure that coastal development on and near public trust lands is inclusive for all who work, live, and visit California's coast and provides equitable benefits for communities that have historically been excluded, marginalized, or harmed by coastal development. Tribal consultation and meaningful engagement with affected communities has not always been realized in past Coastal Commission decision making and going forward will be part of the Commission's implementation of the public trust doctrine through the Coastal Act to prevent the same injustices from happening moving forward, as discussed in Action Item 2.



Photo by King Tides Initiative

9 Coastal Act decisions must consider the adverse impacts of shoreline protective devices on public trust-related resources

Coastal Commission actions and LCPs should consider the impacts that shoreline protective devices have on public trust lands and resources, as well as whether such devices are consistent with the Coastal Act and LCPs. Hard shoreline armoring, such as seawalls, revetments, and bulkheads, impact beach areas and local shoreline sand supply in a variety of ways. Hard shoreline protective devices often physically encroach on the beach and displace the sand and beach area that the device occupies. These protective devices also generally fix the back beach, prevent new beach formation in areas where the bluff or shoreline would have otherwise naturally eroded, and trap sand and beach compatible sediments that would otherwise have entered the sand supply system. Because hard shoreline protection structures form barriers that often impede the ability of beaches and coastal habitats to naturally migrate landward over time, they may cause beaches and coastal habitats to be partially or completely drowned under rising seas. The loss of these beaches and habitats will mean the loss or destruction of the important ecosystem services that they provide and the loss of the public's ability to use these spaces.

If no action is taken as sea levels rise, shoreline protective devices may contribute to widespread coastal squeeze, resulting in the partial or total loss of many beach and coastal areas along the California coast that are currently accessible for public trust uses. As a result, a variety of public trust resources and uses may be lost or diminished, such as public access, fishing, water-oriented recreation, general recreation on public trust lands, and environmental preservation and restoration. In some cases, protective devices serve public uses that are consistent with the Coastal Act and the public trust, such as bulkheads in ports and harbors that increase opportunities for fishing, boating, water-dependent commerce, and public access. The Commission's [Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone](#) (2021) provides additional information on the interplay between shoreline protection devices, the public trust doctrine, and protection of critical infrastructure such as ports.¹⁸

18 The State Lands Commission [AB 691 Synthesis Report: Proactively Planning for Sea Level Rise Impacts on Granted Public Trust Lands](#) (2022) also provides additional information on the sea level rise vulnerability of granted public trust lands, many of which include critical infrastructure such as ports and transportation infrastructure.



Photo by Jay Huang

The Coastal Commission Local Government Sea Level Rise Working Group has recognized that innovative approaches to adaptation will be necessary to protect communities and coastal resources over time.¹⁹ These approaches could include, for example, phased adaptation that considers short- and long-term planning horizons and neighborhood-scale planning that considers the unique characteristics and coastal resources of a particular place. As described above, hard shoreline armoring often adversely impacts public trust resources, uses, and needs and is often inconsistent with the Coastal Act. However, Section 30235 of the Coastal Act authorizes the construction of shoreline armoring that is otherwise inconsistent with the Coastal Act if the armoring is required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, when designed to eliminate or mitigate adverse impacts on local shoreline sand supply and when other impacts of the shoreline armoring are eliminated or mitigated. There may also be situations where shoreline protection strategies conflict with a Coastal Act policy but are permissible because, on balance, they are most protective of significant coastal and public trust resources like public access and recreation.²⁰ These situations are most likely to arise when temporary armoring is necessary to protect coastal resources (e.g., public roads providing coastal access); the armoring would have limited impacts on coastal or public trust resources; there are no other feasible alternatives;

19 See the Sea Level Rise Local Government Working Group Work 2021 Work Products (December 3, 2021), available at <https://documents.coastal.ca.gov/reports/2021/12/W7d/W7d-12-2021-exhibits.pdf>; and the Sea Level Rise Local Government Working Group Work Joint Statement on Adaptation Planning (November 4, 2020), available at <https://documents.coastal.ca.gov/reports/2020/11/W6d/w6d-11-2020-exhibits.pdf>.

20 Coastal Act § 30007.5.


and the project is paired with other coastal resource protection measures, such as managed retreat and nature-based adaptation strategies, and with identified longer-term adaptation solutions. When permitted, shoreline armoring must mitigate its adverse impacts on the public trust uses and resources protected by the Coastal Act, such as beach recreation and access. Adverse impacts may be mitigated in a variety of ways, including through imposition of beach recreation use and access fees. Coastal Commission decisions relating to the impacts of shoreline protective devices on public trust resources and their consistency with the Coastal Act and LCPs will, as always, be specific to the facts and characteristics of the particular development or LCP policies proposed.

10 Encouraging the use of nature-based adaptation strategies can better support public trust uses and values

A variety of adaptation strategies will be necessary to address the impacts associated with sea level rise, all of which will have different benefits and impacts. Of the available sea level rise adaptation strategies, nature-based adaptation strategies are often more aligned with the public trust doctrine than hard shoreline armoring because, in many circumstances, these strategies better protect public trust uses and values like habitat preservation, access to the shore and waterways, and recreational opportunities.



Photo courtesy of Army Corps of Engineers



Nature-based adaptation strategies are approaches that use natural (or mostly natural) elements to help protect inshore areas. By using natural elements, these approaches seek to mimic and enhance natural systems and processes to address erosion and other related hazards while at the same time supporting the ecological and other benefits provided by natural habitats. Examples of nature-based adaptation solutions include dune and wetland restoration or enhancement, beach replenishment, vegetative planting, restoration or creation of oyster and eelgrass beds, and use of artificial reefs. These strategies generally help to dissipate wave energy, trap sediment, and attenuate storm flooding, while at the same time creating, enhancing, and/or helping to preserve natural habitat areas that are critical for supporting a variety of species. By helping to preserve natural habitat, these strategies may also help provide continued access to natural shorelines and the recreational opportunities they provide. Additionally, nature-based adaptation strategies present an opportunity to advance social equity for under-resourced communities and California Native American Tribes who have experienced a legacy of discrimination in land use planning and development by, for example, encouraging projects that improve access and stewardship for Tribes and under-resourced communities.²¹

As such, these strategies are often well suited to supporting public trust resources, uses, and needs. However, nature-based adaptation strategies are not appropriate in all places or contexts and will be considered on a case-by-case basis. As sea levels continue to rise and coastal communities implement adaptation strategies to minimize impacts, the Coastal Commission will continue to work with local governments and asset managers to support and encourage the use of nature-based adaptation solutions as alternatives to hard armoring and other engineered structures, as appropriate and feasible. Widespread use of nature-based adaptation on a neighborhood or regional scale has the potential to minimize the adverse impacts of shoreline protection and development on local shoreline sand supply, natural habitats, and public access and recreation. In encouraging the use of nature-based adaptation solutions, the Coastal Commission can continue to carry out its duty to protect public interests in the coast while helping coastal communities remain resilient to sea level rise and climate change.

21 California Ocean Science Trust. July 2022. Toward More Equitable Nature-based Coastal Adaptation in California: Recommendations for Improving Social Equity in Funding, Policy, and Research. <https://www.oceansciencetrust.org/wp-content/uploads/2022/07/OST-Equitable-Living-Shorelines-FinalWeb.pdf>.

Section 2. Action Plan

Adhering to the Guiding Principles in Section 1 will require a series of next steps to be carried out by the Coastal Commission in collaboration with partner agencies. This section provides a high-level roadmap of the next steps and research and policy questions that the Coastal Commission will prioritize over the next five years. These steps align with and help carry out the Commission's [2021 to 2025 Strategic Plan](#). The Coastal Commission recognizes that to meaningfully accomplish these steps, the Coastal Commission and partner agencies will need sufficient staff resources and funding to do so.

1 Participate in the development of interagency principles on sea level rise and the public trust doctrine

The Coastal Commission will participate in coordination with state agency partners to develop a set of principles to guide the state's implementation of the public trust doctrine considering sea level rise, and will pursue other opportunities to further coordinate on this issue. This action is called for in the [State Agency Sea-Level Rise Action Plan for California](#) (Principle 5.5). Such interagency principles would focus on the public trust doctrine and sea level rise and could be proposed for adoption across all relevant agencies. They could be based on the Guiding Principles above, but be broadened to encompass all state agency work rather than focusing on Coastal Commission-specific issues, and build on the 2020 principles entitled, [Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action](#).

2 Consult and coordinate with California Native American Tribes

California Native American Tribes have long served as stewards of the state's important coastal resources, including tidelands, and possess unique and valuable knowledge and practices for conserving and managing these resources in a sustainable manner, and in a manner consistent with the spirit and intent of the Coastal Act. The entirety of the California coastal zone was originally territory of California Native American Tribes and each coastal area had significance to the local tribal communities long before these areas were colonized by European settlers. Public trust lands today


include Tribal Cultural Resources,²² such as archaeological resources and sacred sites, and are places that California Native American Tribes continue to steward, co-manage, and access for practices such as traditional gathering, spiritual practices, harvesting, and fishing. The effects of climate change, including sea level rise, are already and will continue to impact the sovereignty and self-determination, culture, health, livelihood and economies of California Native American Tribes.²³ Cultural resources and traditional uses associated with tidelands are at risk as sea levels rise. Tribal Cultural Resources located on or just upland of current tidelands, such as shell middens, may be submerged as sea levels rise, thereby causing the loss or damage of cultural artifacts. Ethnobotanical resources such as culturally significant native plant and animal communities associated with tidelands (e.g., eelgrass, oysters) may be drowned or irreversibly altered as sea levels rise. Likewise, access to tidelands for California Native American Tribes for stewardship and traditional practices may be threatened in areas where development and other barriers prevent tidelands from migrating landward, potentially leading to the partial or total loss of tidelands for these uses.

22 Tribal Cultural Resources are defined in the Coastal Commission's [Tribal Consultation Policy](#).

23 Norton-Smith, Kathryn, et al. 2016. Climate Change and Indigenous Peoples: A Synthesis of Current Impacts and Experiences. Gen. Tech. Rep. PNW-GTR-944. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 136 p.; Goode, Ron, et al. 2018. Summary Report from Tribal and Indigenous Communities within California. California Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-010_TribalCommunitySummary_ADA.pdf.



Photo by Kathy McGaffigan




In recent years, the State of California and the federal government have adopted a number of executive orders, statutes, guidance documents, and other policy directives intended to improve communications between public agencies and California Native American Tribes and to protect tribal cultural resources. On September 25, 2020, Governor Newsom issued [Executive Order N-15-19](#), which acknowledged and apologized on behalf of the state for the historical violence, exploitation, dispossession and the attempted destruction of tribal communities that dislocated California Native Americans from their ancestral land and sacred practices. The Executive Order also reaffirmed the principles of government-to-government engagement between state agencies and tribal governments established by the earlier [Executive Order B-10-11](#). Consistent with these Executive Orders and pursuant to its [Tribal Consultation Policy](#) (2018), the Coastal Commission will coordinate and consult with California Native American Tribes as early as possible in the review process on relevant public trust issues, including those involving access to public trust lands for traditional gatherings, uses and other practices.²⁴ The Commission will consult with Tribes to assess the potential impact of proposed actions relating to public trust lands and resources on Tribal Interests²⁵ and ensure, to the maximum extent feasible, that tribal concerns are considered before such actions are taken, such that impacts are avoided, minimized, or mitigated in conformity with Coastal Act and other applicable legal requirements. The Commission will also encourage local governments to consider the impacts of sea level rise on Tribal Interests by, for example, recommending that local governments coordinate with Tribes and consider impacts to Tribal Cultural Resources in sea level rise vulnerability assessments and adaptation plans funded by the Commission’s LCP Grant Program.

3 Continue working with local governments to update Local Coastal Programs to address sea level rise, and include considerations for public trust lands and resources

LCPs carry out the Coastal Act at the local jurisdictional level and must be certified by the Coastal Commission. Many LCPs were developed and certified several decades ago and have not been substantially updated since. Therefore, many LCPs do not address emerging challenges and

24 Commission staff will follow the consultation requirements in the Commission’s Tribal Consultation Policy including as it may be updated in the future.

25 The Coastal Commission Tribal Consultation Policy defines Tribal Interests to include, but not be limited to: (a) Tribal Cultural Resources; or (b) fish, wildlife, plant, water, or similar natural resources.



updated scientific information on subjects like sea level rise. In recent years, the Coastal Commission has strategically prioritized LCP updates to address sea level rise hazards and incorporate plans for coastal resiliency and resource protection.

Importantly, local governments have a responsibility to protect public trust resources associated with tidelands, consistent with the Coastal Act, and they must carry out this responsibility when drafting LCPs and considering CDP applications. Although the Coastal Commission generally retains the authority to issue CDPs for development located on current and historic tidelands, local governments are obligated to have policies that regulate development on adjacent uplands in a manner that protects tidelands, consistent with the Coastal Act. Local governments also play a critical role in protecting uplands that will likely become tidelands in the future due to sea level rise.

Thus, LCPs should be updated to include policies that address the need to protect public trust resources, uses, and needs, consistent with the Guiding Principles in Section 1 of this document. For example, policies could require that new development avoid being located on lands impressed with a public trust interest and interfering with the natural migration of the public trust boundary. Policies could also require property owners to acknowledge that the boundary between public and private land may shift with rising seas and that the development approval does not permit any development to be located on lands impressed with a public trust interest. Other policies could require periodic surveys of the mean high tide line to monitor development's location relative to public trust land. Policies could also address the need to either remove development or have the Coastal Commission authorize development that comes to be located on public trust lands when tidelands migrate landward. Still other policies could address the need to consider impacts to public trust lands, resources, and values in mitigation requirements and decisions around actions like land divisions.

Finally, LCPs should consider sea level rise resilience and protection of public trust lands, resources, and uses in a holistic manner that addresses changing impacts over time and competing resource needs at different scales. Sea level rise impacts will not be confined by parcel or jurisdictional boundaries, so adaptation strategies will need to be implemented on a variety of spatial scales and phased over time to ensure that public trust resources can be appropriately protected. Such an approach can help balance various resource needs across a site, neighborhood, community, and so on, and may provide more benefits than would otherwise be possible on a solely parcel by parcel scale.


In addition to these policy considerations, the Commission will coordinate with the State Lands Commission to review LCP updates relating to public trust lands, resources and uses, consistent with Section 30416 of the Coastal Act.



Photo by State Lands Commission

4 Conduct coordinated outreach, engagement, and public education

Given the public nature of public tidelands, it is critical to effectively and clearly communicate the purpose and role of the public trust doctrine in the management of California’s lands and natural resources, and to communicate the role of the various state agencies in protecting public trust resources, including when addressing sea level rise. Outreach materials and strategies should be tailored for specific audiences, be accessible (*e.g.*, ADA compliant, available in multiple languages, accessible online and in print), and consistent. Public education and outreach should use simple language to explain concepts such as the location and ambulatory nature of public trust lands and resources, trust-consistent uses of public trust lands and resources, the public’s rights regarding trust lands, and strategies for protection of the public trust now and in the future under sea level rise. Consistent with its [Environmental Justice Policy](#), the Commission will meaningfully engage with environmental justice communities to ensure they can reach and enjoy public trust lands as sea levels rise.



The Commission will work with the State Lands Commission and other partner agencies and organizations to continue public outreach efforts regarding the public trust doctrine. These efforts may include activities such as presentations and webinars, and informational and website materials such as storymaps and videos. Materials will be designed for specific audiences and recognize the context in which each audience interfaces with the public trust.

5 Continue to analyze the impacts of residential-related development on public trust resources, uses, and needs

In the past, both the Coastal Commission and State Lands Commission have authorized private residential-related development on tidelands, often through findings that the incursion onto tidelands is minimal or will not have a significant impact on tidelands. As sea levels rise, the impacts of such development upon the public trust resources and values, both at the individual parcel scale and larger cumulative scale, will increase.

Common law is clear that the public trust doctrine does not allow the state to alienate or give up public trust lands for private residential-related use, with the exception that some private use might be appropriate as long as there is no substantial impairment of the public trust. As stated by the U.S. Supreme Court in *Illinois Central*: “[t]he control of the state for the purposes of the trust can never be lost, except as to such parcels as are used in promoting the interests of the public therein, or can be disposed of without any substantial impairment of the public interest in the lands and waters remaining.” For this reason, the State Lands Commission only issues leases for private uses on sovereign lands for limited terms and under very unique, case-by-case circumstances.

Therefore, when considering proposals for new residential-related development and redevelopment, and when considering whether authorized development is in compliance with all special conditions of approval, the Coastal Commission will analyze the impacts to public trust resources in light of sea level rise, including through coordination with the State Lands Commission. When analyzing redevelopment on tidelands, it will reevaluate impacts to public trust resources and values, including in the context of sea level rise and cumulative regional impacts.



Photo by Mary Matella

6 Identify development and decisions, such as boundary line agreements, that result in “coastal squeeze” leading to the loss of public trust lands

Some development along the California shoreline is regularly impacted by waves and may at times be located seaward of the mean high tide line. The fact that the development is seaward of the mean high tide line demonstrates that, at those times, the development may occupy public trust lands. The Coastal Commission will work with the State Lands Commission, other trustee agencies and other partners, as staff resources and funding allow, to identify such development and understand how it may be impacting public trust lands and resources now and in the future.

Relatedly, the State Lands Commission has entered into many Boundary Line and Title Settlement Agreements that define and “fix” the boundary between public and private lands, although more recent agreements typically reserve an easement for commerce, navigation, fisheries, and other recognized public trust purposes in the event the upland parcel becomes submerged or subject to the ebb and flow of the tide.²⁶ Commission staffs will work together to determine whether and where these public trust easements have ambulated and consider how such easements should influence future uses and regulation of relevant upland parcels.

Finally, Coastal Commission and State Lands Commission staffs will work together to monitor and track existing CDPs and their associated State Lands Commission leases along with their expiration dates and lease and/or CDP conditions to ensure that leases are being renewed after their expiration dates with full consideration of impacts related to sea level rise, and that conditions of approval are being met.

26 Additionally, in some places this boundary has been fixed by court judgments, artificial accretion, and certain types of land grants, as noted in Footnote 6.

7 Consider updates to Coastal Commission regulations relating to mitigation of the adverse effects of sea level rise on public trust lands

Effective January 1, 2022, the Coastal Act was amended to require the Coastal Commission to take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.²⁷ While the Coastal Commission has long considered the effects of sea level rise in its activities, this new section of the Coastal Act emphasizes the importance of prioritizing adaptation and mitigation solutions for sea level rise. The Coastal Commission will explore potential regulation amendments relating to mitigation of the adverse effects of sea level rise on public trust lands, including regulations to clarify the definition of the mean high tide line.²⁸

27 Coastal Act § 30270.

28 Although Section 13577(c)(1) of the Commission's regulations purports to define the mean high tide line it actually describes the mean high water elevation. Clarification of these terms in the Commission's regulations could help facilitate Action Items 8 and 9.



Photo by Carlos Bastias

8 Complete a GIS inventory of public tidelands


While most lands that are currently – or historically were – covered by the ebb and flow of the tides are public tidelands subject to the public trust doctrine and managed by the State Lands Commission, there are some additional land classifications that impact how tidelands are managed. These additional land types include recognized Rancho, Pueblo, and Presidio Lands that are not subject to State Lands Commission management or oversight; and lands that were sold off to private ownership. In addition, the Legislature has granted certain public trust lands to other entities, such as local governments and port districts, to manage. In still other cases, some lands may be subject to boundary line agreements and other adjudications that “fixed” the location of the tidelands boundary but that may have associated ambulatory easements for public uses.

To make the status of coastal tidelands clear, the Coastal Commission will work with the State Lands Commission, subject to adequate funding and new staffing resources being appropriated to both agencies, to explore options to create a publicly available geographic information system (GIS) map that depicts land type and status where feasible. This platform could also help show the location of tidelands by showing the results of various mean high tide line surveys and/or projections of where the mean high water elevation intersects the shoreline as the shoreline changes over annual or interannual timescales. Further, it could project the future location of the mean high tide line with sea level rise using various models of sea level rise and shoreline evolution.

Such a GIS platform could be used to analyze and understand a number of issues that impact public interests on the California coast. For example, these maps could help identify locations or hotspots where development may be encroaching onto tidelands without a required lease or permit authorization. It could also be overlaid with maps of public access easements to determine how the public’s ability to use those easements may be impacted by sea level rise, or to analyze how sea level rise may be impacting the location of the shoreline relative to existing boundary line agreements.

9 Explore alternatives for determining the mean high water elevation

Currently, the Coastal Commission, State Lands Commission, and other agencies and organizations generally use the mean high water elevation defined by the National Oceanic and Atmospheric Administration (NOAA) to determine the mean high tide line. NOAA’s mean high water elevation is an average of high tides over an approximately 19-year period to reflect



tides over a complete lunar nodal cycle. NOAA typically updates this mean high water elevation every 20-25 years, and therefore it reflects the average of 19 years' worth of high tides from a much older period. For example, NOAA's current mean high water elevation from the National Tidal Datum Epoch (NTDE) is based on an average of high tides from 1983-2001. This backward-looking average presents a challenge in the context of accelerating sea level rise. The NOAA NTDE data used to determine the mean high tide line today is two to four decades old, and in most areas of California, relative mean sea level has risen by approximately 2 to 10 centimeters since 2001.²⁹ This amount of sea level rise is significant. In some areas, the difference between using data from the 1983-2001 NTDE and data from the last 19 years could result in the mean high tide line being identified in a significantly more landward location.³⁰ As sea level rise accelerates, using an average based on data from past years will be less and less reflective of present-day high tides.

The Commission will work with the State Lands Commission, NOAA, the land surveying industry, legal experts, and other partners to explore opportunities for determining and using a more current mean high water elevation using NOAA data, such as an 18.6-year moving average or more frequent updates to the mean high water elevation. For example, in some areas of the country with anomalous rates of sea level rise, NOAA updates its mean high water elevation every 5 years instead of every 20-25 years. The Commission may explore whether it would be feasible to use similar or other methods for determining and using a more current mean high water elevation. This effort will be informed by the legal rules governing property determinations and by the best available science; will use NOAA data; and will account for the impact of the lunar nodal cycle on the tides.

29 See NOAA Center for Operational Oceanographic Products and Services. "Tides and Currents, Sea Level Trends." <https://tidesandcurrents.noaa.gov/sltrends/> (identifying local relative sea level trends in average millimeters per year for tide gauges in California).

30 Lester, Charles. 2021. Protecting Public Trust Shoreline Resources in the Face of Sea Level Rise. Ocean and Coastal Policy Center, Marine Science Institute, University of California, Santa Barbara, California. <https://documents.coastal.ca.gov/assets/slr/Lester%20Prot%20Public%20Trust%20Res%20Face%20of%20SLR.pdf>.

10 Evaluate new technologies for locating the boundary between public tidelands and private uplands

In coastal areas, the landward boundary of the state's public trust lands is generally defined by the ordinary high water mark, as measured by the mean high tide line. The State Lands Commission is the recognized authority for determining the location of the ordinary high water mark in California. Generally, this process involves surveying the precise location of the intersection between the mean high water elevation and a particular point or stretch of the shore as it exists at the time of surveying, which does not account for dynamic changes to the shoreline over annual or interannual time scales.

Because the Coastal Commission's general practice is to consider impacts of proposed development over its full lifetime, relying on a single boundary determination from one point in time will not capture the potential for sea level rise or other shoreline dynamics to alter the location of the mean high tide line over time. Determining the location of the mean high tide line over time is important to understanding the Commission's jurisdiction, the impacts that projects have on public trust lands, and for carrying out adaptive management of development on the shoreline. However, obtaining repeated surveys of the mean high tide line can be time consuming and costly. Therefore, the Commission, in close coordination and consultation with the State Lands Commission, will explore alternative methods for locating the mean high tide line for Coastal Act regulatory purposes, and not for land ownership purposes, such as regular Light Detection and Ranging (LiDAR) surveys of the shoreline. The Commission will also explore methods for locating the future mean high tide line that reflect the impacts of sea level rise, such as sea level rise models and using the best available science on sea level rise.

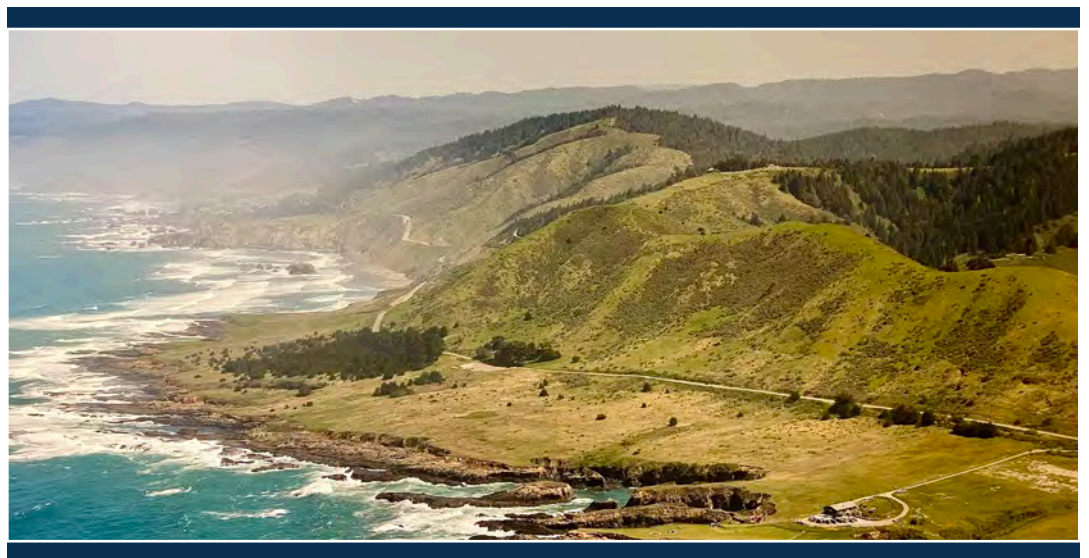


Photo by the Californai Coastal Commission

Conclusion ---

As sea level rise places public trust lands and resources along the coast at risk, it is increasingly imperative to consider the impacts of development on public trust resources. Without action, public trust resources on the front lines of sea level rise may be diminished or even lost entirely, depriving current and future generations of their constitutional right to use and access the coast. This would directly conflict with the goals and intent of the Coastal Act and the public trust doctrine. The Coastal Act is an exercise of the Legislature's public trust authority and responsibility, and the Coastal Commission has long considered the impacts of its decisions on public trust resources. The Commission adopts these guiding principles and action steps to further its commitment to proactively protect public trust resources, consistent with the Coastal Act, as sea levels rise.

Cover Photo by Devon Wilson | Bolinas Beach, Marin County, CA



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