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THE PUBLIC TRUST DOCTRINE:

A Guiding Principle for Governing California's Coast Under Climate Change

PREPARED BY MEMBERS OF A WORKING GROUP
ON CALIFORNIA'S PUBLIC TRUST DOCTRINE AND COASTAL LAND MANAGEMENT

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ABOUT THE CENTER FOR OCEAN SOLUTIONS

The Center for Ocean Solutions (COS) works to sustain the health of the oceans in the face of a changing climate, and in particular to harness the innovations of the data revolution to help meet that challenge. A center within Stanford University's Woods Institute for the Environment, COS draws on a pool of scholars and experts across academic, governmental and non-governmental organizations to tackle interdisciplinary and multi-sectoral problems, bringing leading experts in marine science and policy together with decision-makers. To learn more, please visit centerforoceansolutions.org.

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California's policymakers, coastal managers, and communities increasingly recognize that the inevitable collision of sea level rise with certain coastal development trends—what some have termed the "coastal squeeze"—threatens California's coast. In addition to reducing the availability of highly valued coastal access and recreation areas, the coastal squeeze carries the potential to degrade, destroy, or privatize the state's shoreline and tidelands and the economic, cultural, and ecological benefits they provide.

These important public values and benefits associated with our coast are protected by the public trust doctrine, a legal doctrine that reflects the supreme importance of public values, resources, and uses in California's coastal tidelands and submerged lands.[1] Under the public trust doctrine, California has a duty to protect and sustain its coastal tidelands and submerged lands for public purposes ranging from navigation and commerce to recreation and conservation, as well as the authority to defend the public's interests when they are at risk.

The public trust doctrine can function as an important legal tool for adapting the use of California's coastal lands to ongoing changes. California will find strong legal support—rooted in long-standing precedents and principles of property law—for considering the anticipated effects of sea level rise and other climate change impacts on public trust resources and interests. The doctrine also provides a framework for effective adaptation of public and private activities in vulnerable areas. Yet complex and sometimes conflicting interpretations of the doctrine have limited its application.

To provide a clear interpretation of the public trust doctrine's potential role in climate change adaptation along California's coast, the Center for Ocean Solutions convened a working group of public trust and coastal land use experts in October 2016. The working group members jointly authored the following consensus statement, which describes California's duty and authority under the public trust doctrine and identifies opportunities for policymakers, coastal managers, and stakeholders to improve the governance and management of our coastal public trust resources and uses in light of sea level rise.

1 Although this document focuses on California's public trust doctrine as it relates to coastal lands and waters, the doctrine applies to all submerged lands and navigable waters.

CONSENSUS STATEMENT On the Public Trust Doctrine, Sea Level Rise, and Coastal Land Use in California

Prepared by law and policy experts to provide information and guidance on a fundamental doctrine of California law and its implications for coastal land use decisions throughout the state in light of sea level rise. For comprehensive background on issues explored in this consensus statement, please refer to the accompanying background document.

1 California's dynamic coastline is subject to natural changes as well as human influences, including sea level rise and coastal development. If not proactively and effectively managed, these changes and influences can impair public interests in the coast.

California's coast and shoreline are constantly changing because of natural processes. Geological and oceanographic processes including waves, currents, storms, land subsidence, and uplift affect the contours of California's coast, resulting in a constantly changing land-sea interface. While these processes and changes are common along all coasts, they are more prominent and intense in California than in many other areas.

Future change to the shoreline due to accelerating sea level rise will cause landward migration of beaches, bluffs, wetlands, and other coastal features in most parts of the California coast. The rate of sea level rise is increasing dramatically due to climate change and is projected to increase for the foreseeable future. In general, the anticipated vertical rise in sea level will cause gradual landward horizontal migration of the shoreline and may contribute to the loss or impairment of many existing coastal features to inundation or erosion.

If not proactively managed, coastal development may impede natural landward migration of these important coastal features and impair the public's ability to enjoy the social and economic benefits provided by the coast. Man-made structures such as seawalls, roads, and other developments may occupy physical space that would otherwise be available for the migrating shoreline. Without proactive management, this is likely to impair many of the benefits that California receives from its coast, including tourism, access, and recreation opportunities; economically productive habitats and ecosystems; and natural protection from storms, floods, and other hazards.

2 The public trust doctrine requires California to protect the public's interest in tidelands and submerged lands, including their use for navigation, commerce, fishing, public access, recreation, and conservation.

According to the California Supreme Court, the public trust doctrine includes California's duty "to protect the people's common heritage" in public trust resources, which include tidelands, submerged lands, and navigable waters, as well as the wildlife and natural resources associated with them. It also includes California's obligation to exercise "continuous supervision and control" over public trust resources. Generally, to maintain consistency with the public trust doctrine, California must ensure that uses of public trust resources are consistent with public trust needs, have a public purpose or benefit, and are water-dependent.[1]

1 Uses that directly promote trust uses or that accommodate the public's enjoyment of trust lands are also permitted. Merely increasing tax revenues is not a public purpose. Berkeley v. Superior Court, 26 Cal. 3d 515 (Cal. 1980).

California's obligations under the public trust doctrine apply to public decisionmakers that undertake, manage, or regulate activities that directly or indirectly affect public trust resources. The obligations extend, at a minimum, to state and local legislatures; to state and regional agencies including the State Lands Commission, San Francisco Bay Conservation and Development Commission, Coastal Commission, Department of Fish and Wildlife, Department of Transportation, Agricultural Districts, Department of Forestry and Fire Protection, State Water Resources Control Board, Regional Water Quality Control Boards, Coastal Conservancy, and Department of Parks and Recreation; and to cities, counties, ports, and special districts. The implications of the public trust doctrine in any specific case depend on the mission and mandate of the relevant decisionmaker, and on the type and location of the proposed use. State courts may review the actions of decision-makers to ensure they have fulfilled their public trust obligations.

The public trust doctrine should guide interpretation and application of existing laws and regulations. Many constitutional provisions and statutes—such as the California Coastal Act and McAteer-Petris Act—implement and prioritize aspects of the public trust doctrine; however, they do not eliminate or preempt it. Decisionmakers should interpret and implement their legal obligations in light of the public trust doctrine and resolve any gaps or ambiguities in favor of public trust resources.

The public trust doctrine is a background principle of state property law. Thus, regulations of property that constitute an exercise of the public trust doctrine—including but not limited to regulations that prevent the creation of nuisances that adversely affect public trust resources[2]—do not give rise to compensable "takings." Because the public trust doctrine is rooted in sovereign land ownership, it constitutes a background principle of property law and establishes limitations on private property interests. The "takings clause" of the Fifth Amendment of the United States Constitution, which states that private property may not be taken for public use without just compensation, does not apply to regulations that are consistent with background principles of property law.

3 The public trust doctrine limits the ability of decisionmakers to dispose of public trust resources or impair their use for public trust purposes.

Decisionmakers may not relinquish their public trust obligations or sell or dispose of public trust lands, except as consistent with the purposes of the public trust doctrine. California's legislature may authorize the conveyance of relatively small parcels of public trust lands to private interests only if the transfer furthers public trust purposes—or, in rare circumstances, if the lands are no longer useful for public trust purposes. Lands conveyed to private interests[3] remain subject to a public trust easement unless the legislature's intent to abandon the trust is clearly expressed or necessarily implied. A retained public trust easement provides the state with continuing authority to use or restrict the lands' use for public trust purposes.

2 Landowners do not have a right to create or maintain unreasonable interferences with the public's interests in and uses of tidelands and submerged lands. In this regard there is considerable overlap between the public trust doctrine and the law of public nuisance, another background principle of the law.

3 Sale of tidelands into private ownership occurred primarily during the 19th century. Current constitutional and statutory law in California generally forbid the alienation of tidelands to private parties. Cal. Const. art. X, § 3; Cal. Pub. Res. Code §§ 6307, 7991; Cal. Gov't Code § 56740.

Decisionmakers may not undertake or authorize uses of public trust lands that substantially impair or are inconsistent with public trust needs in those lands. Decisionmakers may only undertake or authorize a use of public trust lands after concluding that the use has direct public benefits, and is consistent with or does not significantly interfere with the public trust purposes for which those lands are held. Where multiple competing uses are consistent with public trust purposes, the state has broad discretion to balance them and may prefer one use over another.

Decisionmakers may not undertake or authorize uses of uplands without appropriate safeguards for nearby public trust resources and uses. Decisionmakers must minimize the foreseeable adverse effects of upland activities on public trust resources and uses, to the extent feasible. This includes the power to regulate and limit private upland activities.

4 The public trust doctrine requires decisionmakers to consider the effects of their actions on public trust resources and uses.

Decisionmakers must consider the immediate and foreseeable potential effects of their actions and decisions on public trust resources and uses and communicate their findings to the public. This obligation may, in appropriate circumstances, be satisfied as part of a decisionmaker's environmental impact review or functionally equivalent process under the California Environmental Quality Act if the process provides sufficient evidence to support the decisionmaker's specific analysis, consideration, and balancing of public trust resources and uses. This consideration should include anticipated future effects and cumulative effects, rather than viewing the effects of individual actions or decisions in isolation.

Decisionmakers must determine whether a proposed activity or use would substantially impair or be inconsistent with public trust needs in the area. In many cases, the legislature has prioritized appropriate trust uses for an area, such as commercial activities that facilitate or increase public access in highly developed urban areas, or conservation and public access in undeveloped open coast areas. However, whether a particular use is consistent with public trust needs often is a case- and location-specific analysis that must be undertaken by the relevant decisionmaker, in light of their legal authority.

Coordination among decisionmakers—especially when locating the shoreline property boundary—is essential to minimize conflict and avoid waste of resources. Because each state and local agency operates under different policies and sources of authority, they may at times disagree whether a particular use of tidelands is appropriate. Early coordination at all levels is necessary for decisionmakers to effectively protect and manage public trust resources and uses.

Decisionmakers may need to review past decisions in response to new evidence concerning effects on public trust resources and uses. No one can acquire a vested right to harm public trust resources and uses. California has a continuing duty to manage and protect public trust resources and uses, even as circumstances change. To fulfill this duty, decisionmakers may condition project approvals by providing for future re-evaluations of the approval based on new evidence. Under certain circumstances, where past decisions are found to substantially impair public trust needs, California has the power to revoke or amend the scope of previously granted rights.

5 The existing legal standards and technical methods for locating shoreline property boundaries are inadequate to deal with the dynamic environmental processes of the open coast, or with ongoing sea level rise. California should explore alternatives to these standards and methods in order to ensure protection of public trust resources and uses.

The current legal standard defining the shoreline property boundary is the ordinary high water mark, as located by the mean high tide line. The shoreline boundary between state-owned tidelands and privately- or publically-owned uplands in California is the ordinary high water mark. The current legal standard for defining and locating the ordinary high water mark—and thus the shoreline property boundary—is the mean high tide line, a standard first announced in the U.S. Supreme Court's 1935 *Borax* decision.

Sea level rise will continue to shift the location of the shoreline property boundary landward in most parts of California's coast. The mean high tide line is "ambulatory": it moves to the extent that the shoreline naturally accretes or erodes and to the extent the plane of mean high water rises or falls. As sea level rises and the shoreline moves inland, the coastal property boundary will generally move inland as well.

Other effects of climate change cause episodic, large-scale changes to the coast—such as increased intensity of storms that contribute to rapid erosion and bluff failure—and will result in changes to the shoreline property boundary. The common law doctrine of avulsion—developed to address property disputes arising when rivers suddenly shifted their courses—has not been applied to such changes on California's open coast and its future application would be inappropriate because large-scale changes to the shoreline are both natural and the norm.

Under certain circumstances, California may permanently "fix" the location of the legal shoreline boundary when in the public interest, but the placement of a physical structure does not itself "fix" the boundary. The State Lands Commission has authority to permanently fix the legal shoreline boundary by court order or formal agreement with the adjacent landowner. Additionally, state agencies and local tidelands trustees may authorize development of structures to prevent erosion, which may temporarily prevent the shoreline from migrating, when consistent with strict statutory requirements. Neither the legislature nor the courts have declared that such authorized structures permanently fix the legal shoreline property boundary, even if they are not subject to a time limit or other conditions for removal. Allowing such structures to fix the shoreline boundary in perpetuity to the detriment of the public would conflict with several well-established principles of law, including the ambulatory nature of the shoreline boundary, prohibitions on upland owners artificially moving the shoreline boundary to benefit themselves, and prohibitions on direct or indirect conveyance of public trust tidelands to private ownership. Thus, absent formal action by the State Lands Commission, actions to prevent erosion by the State, a local government, or a private landowner do not fix the shoreline boundary.[4]

4 Because both the upland and tideland owner have a right to expansion of their property by erosion, accretion, or other natural causes, neither may permanently fix the boundary with an armoring structure. *See* United States v. Milner, 583 F.3d 1174 (9th Cir. 2009).

Structures that come to lie seaward of the shoreline property boundary will be on public trust tidelands and subject to the authority of the State Lands Commission. If a survey indicates that structures once located on uplands are subsequently located seaward of the mean high tide line, those structures will be located on state trust property and subject to the authority of the State Lands Commission. The Commission may charge rent for such structures, or require their removal, and has an ongoing duty to consider their consistency with the public trust.

The current legal standards and technical methods for locating the shoreline boundary are challenging to apply, create uncertainty around the location of the boundary as it exists from time to time, and can undermine public interests. The mean high tide line is located by 1) calculating an average of California's twice-daily mean high water elevations over an 18.6-year period, and 2) surveying the precise location of the intersection between that average elevation and a particular point or stretch of the shoreline as it exists at the time of surveying. Application of this standard to California's dynamic open coast is problematic for several reasons including: the lack of tidal measurement stations on all parts of California's coast; disregard of wave run-up on the open coast, which was not a factor in the standard-setting *Borax* case;[5] and erosion and accretion of the shore over daily to annual timescales.[6] Application of this standard also fails to account for sea level rise due to the lack of a "rolling average" for calculating mean high tide, and the long periods between recalculation of mean high tide.[7]

California can explore innovations to make these standards and methods for locating shoreline property boundaries more rational, flexible, and protective of public trust resources. Possible innovations include: establishing additional tide gauge stations along the coast to ensure boundary surveyors have access to accurate local data; requiring project proponents to finance multiple surveys over a considerable period of time to account for seasonal erosion and accretion, allowing decisionmakers to base decisions on the range of surveyed locations where the mean high tide has intersected the shore; and encouraging the National Oceanic and Atmospheric Administration to calculate a rolling average of mean high tide (e.g., to ensure the previous year is included in an annually updated average) that more accurately reflects current sea level and incorporates ongoing sea level rise. Even with these innovations, however, uncertainty will remain regarding ownership and jurisdiction issues associated with the dynamic shoreline boundary.

6 The public trust doctrine obligates California to proactively manage and protect public trust resources and uses in light of sea level rise and upland land-use practices.

California must consider how sea level rise is likely to affect public trust resources and uses when evaluating proposed or existing activities and to ensure that public trust resources and uses are not damaged or destroyed. California is aware of the threats that sea level rise and certain types

5 Wave run-up, or uprush or swash, refer to water carried by momentum up onto a beach past the level water would reach in the absence of waves. In the *Borax* case, the court was determining the tideland boundary of an island in a bay protected by a breakwater, thus wave run-up was likely minimal. Borax Consol., Ltd. v. Los Angeles, 296 U.S. 10 (1935). On the open coast, wave run-up can extend many feet beyond the mean high tide line.

6 Because the slope and width of California's beaches vary throughout the year due to erosion and accretion, a static surveyed location of the boundary is not representative of where the boundary may be in a week, a month, or a year.

7 Prevailing practice in California uses mean high tide elevations calculated by the National Oceanic and Atmospheric Administration. The current published tidal epoch is based on calculations of the 18.6-year average of high tide elevations between the years 1983 and 2001. As a result, the legal location of the shoreline property boundary is currently calculated using sea level data that is between fifteen and thirty-four years old.

of coastal development pose to public trust resources and uses. To address these threats, decision-makers must consider and assert public interests in statewide policy making, project-level decision making, and long-term planning (e.g., creating or revising local coastal programs, local general plans, and other plans).

California can undertake a variety of sea level rise adaptation strategies that are consistent with the public trust doctrine. These include:

- Develop laws and policies that acknowledge the dynamic character of coastal property boundaries and avoid or minimize foreseeable threats to public trust resources and uses. Potentially valuable new state or local laws and policies could provide for rolling land use restrictions,[8] revise zoning laws to phase out development in hazardous areas, or require boundary determinations and projections of future boundary movements when development is anticipated to encroach on public land or be located within flood zones.

- Encourage community-level land use and adaptation planning. Such efforts are most necessary in developed areas with difficult tradeoffs between the sense of place cherished by visitors and coastal residents, vested economic interests in coastal development and redevelopment, and the significant economic and cultural benefits of coastal access for all as protected by the public trust doctrine and California Constitution.

- Increase or improve coordination between relevant agencies to ensure effective protection and management of public trust resources and uses.

- Reject or place conditions on proposed developments or uses that will foreseeably cause harm to public trust resources and uses. Appropriate conditions may include measures such as setbacks, time restrictions, restrictions on future protective structures, payment of fees to mitigate effects on trust resources, or requirements for future removal if substantial impairment of public trust resources and uses arise.

- Establish procedures for periodic review and, if necessary, reconsider past decisions that affect public trust resources and uses in light of new knowledge.

- Ensure that coastal structures on tidelands are consistent with public trust needs. Where appropriate, require removal or charge rent for such structures. Clarify that such rules apply to structures that come to be located on public tidelands because of movement of the coastal property boundary, even if those structures were originally located on private land and lawfully permitted.

8 A rolling land use restrictions is an "interest in land along the shore whose [landward] boundary migrates inland as the shore erodes." James G. Titus, United States Environmental Protection Agency, Rolling Easements 163 (2010). The ambulatory nature of the public trust boundary aligns with this concept. Recognition of this concept in statute—premised on the public trust doctrine—would be an appropriate exercise of the state's public trust authority. Rolling land use restrictions may also refer to a regulatory limitation on coastal upland property tied to the ambulatory public trust boundary.

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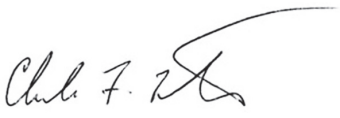

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THE PUBLIC TRUST DOCTRINE:
Background on Key Themes

> "The U.S. must develop a vision for the future that accepts the natural processes of a high-energy, rapidly evolving coastal system, and that seeks to live with the dynamics of change. This is essential in order to maintain sustainable coastal economies and preserve the natural resources upon which these economies are critically dependent."[1]

1 The Geological Society of America, Position Statement: Managing U.S. Coastal Hazards 3 (Oct. 2013) *available at* https://www.geosociety.org/documents/gsa/positions/pos22_CoastalHazards.pdf.

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I. INTRODUCTION

The confluence of land and sea in California is complex and dynamic. Disparate geologic formations exist and an array of natural processes are constantly at work changing the shape and structure of these coastal formations.[2] The state of the coast at any given time and location depends on what natural forces are at work and what geologic formations are present.[3] Based on these interactions, California's ever-changing coastline is a reliable law of nature.

Because of this coastal dynamism, and because of the high value of coastal living, California coastal land management is a complex and politically-charged issue. Current administration of the coast involves decisions that balance legitimate needs for public and private infrastructure and economic development with competing environmental and public use values,[4] all within a moving strip of land[5] and under a complex legal system that is evolving to manage these conflicts. The responsibility for making these challenging decisions falls upon the California legislature, key state agencies—including the State Lands Commission (SLC), Coastal Commission (CCC), and San Francisco Bay Conservation and Development Commission (BCDC)—and local governments.

New threats as a result of climate change promise to further complicate this dynamism and increase management challenges. In particular, the long-term warming of our global climate is anticipated to increase the variability and magnitude of natural coastal processes and result in long-term unidirectional landward movement of water boundaries.[6] Scientists have found that in the absence of human presence and development, beaches and other coastal environments are able to freely migrate in response to these changes.[7] However, in those areas of California's coast where extensive private and public infrastructure exist, we observe the loss of natural environments and attendant public values as they collide with coastal infrastructure.[8] These interactions also result in harmful economic consequences and public safety concerns as powerful winter storms—exacerbated by climate change—batter the built environment.

The resulting "coastal squeeze" on natural habitats and risks to the built environment present an enormous societal challenge.[9] California's coastal lands are highly valued for both public and private uses and coastal environments and beaches are important aspects of the state's economy and culture.

2 Gary Griggs, Introduction to California's Beaches and Coast 2-4 (University of California Press 2010).

3 Griggs, *supra* note 2, at 2-4.

4 *See e.g.,* Cal. Pub. Res. Code § 30001-30001.5.

5 *See infra* Section III.

6 Committee on Sea Level Rise in California, Oregon, and Washington, National Research Council, Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future 107-08, 135-36 (2012) [hereinafter Committee on SLR]; Ben Strauss et al., Climate Central, California, Oregon, Washington and the Surging Sea: A vulnerability assessment with projections for sea level rise and coastal flood risk 11 (2014) *available at* http://sealevel.climatecentral.org/uploads/ssrf/Report-CA-OR-WA.pdf.

7 Nicole Russell and Gary Griggs, Adapting to Sea Level Rise: A Guide for California's Coastal Communities 23 (2012) *available at* http://seymourcenter.ucsc.edu/OOB/Adapting%20to%20Sea%20Level%20Rise.pdf; California Coastal Commission Sea Level Rise Policy Guidance 27 (2015) [hereinafter CCC SLR Guidance] *available at* http://documents.coastal.ca.gov/assets/slr/guidance/August2015/0_Full_Adopted_Sea_Level_Rise_Policy_Guidance.pdf; Intergovernmental Panel on Climate Change, Climate Change 2014: Impacts, Adaptation, and Vulnerability 375 (2015) [hereinafter IPCC 2014].

8 Dan Cayan et al., Climate Change and Sea Level Rise Scenarios for California Vulnerability and Adaptation Assessment 23-24 (2012) *available at* http://www.energy.ca.gov/2012publications/CEC-500-2012-008/CEC-500-2012-008.pdf; CCC SLR Guidance, *supra* note 7, at 17, 26-27; Strauss et al., *supra* note 6, at 15-16.

9 *See* Little Hoover Commission, Governing California Through Climate Change 69–70 (2014) *available at* http://www.lhc.ca.gov/studies/221/Report221.pdf; IPCC 2014, *supra* note 7, at 375.

Likewise, substantial portions of the coast are held by private property owners, land that is highly valued for beachfront living.

A collision of these two well-recognized values—both supported by legal rights—is imminent and the potential for loss on both sides is high. This collision is characterized by disputes regarding the location of property boundaries along the shoreline and the appropriate use of public and private lands. In particular, state agencies and local governments are, and will continue to be, forced to make critical decisions regarding the uses of land areas that—because of sea level rise—come to lie seaward of the mean high tide line, are likely to become seaward of the mean high tide line in the future, or would become seaward of the mean high tide line if not for artificial alterations to the shoreline. Indeed, these conflicts have already begun to play out at several pinch points along the California coast.[10]

This document addresses several related issues that are essential to understanding these conflicts and potential solutions. First, part II introduces the dynamic nature of California's coastal boundary and how environmental change will increase or alter this dynamism. Parts III and IV discuss how this coastal dynamism is related to the common law public trust doctrine and legal boundaries that separate important public and private rights in the coastline. Part V explores the applicable legal standards that govern management of coastal public trust resources by relevant government entities. Finally, part VI explores how the state can leverage the public trust doctrine and its interplay with other coastal management laws to minimize harm to important public rights from climate change and coastal development.

While the public trust doctrine provides the state with several opportunities for progressive policy making, perplexing and occasionally conflicting court decisions may inhibit progress. In describing the current standards, this document highlights many of the legal questions that remain unanswered to date. Many of these questions have been addressed by a group of experts in the accompanying Consensus Statement, which attempts to shed light on this confusing area of law for the public, state agencies, courts, and the legislature.

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II. THE DYNAMIC COASTLINE

In the winter of 1997-98, California's coastline experienced heavy rainfall, high winds, and rough seas as a result of a strong El Niño event. As many coastal residents will remember, storms influenced by the El Niño event caused severe flooding and erosion, costing public and private property owners hundreds of millions of dollars in damage and costing several people their lives.[11] Likewise, an El Niño event in the winter of 2015-16 brought

10 *See e.g.*, California Coastal Commission Staff Report: Broad Beach Geologic Hazard Abatement District (2014) *available at* http://documents.coastal.ca.gov/reports/2014/12/Th17a-12-2014.pdf; California Coastal Commission Staff Report and Recommendations Regarding Permit Application No. 2-10-039 (Land's End Seawall, Pacifica) (2012) *available at* http://documents.coastal.ca.gov/reports/2012/6/F20a-6-2012.pdf.

11 National Climatic Data Center, Technical Report 98-02, The El Niño Winter of '97-'98, at 12 (Apr. 1998) *available at* http://www1.ncdc.noaa.gov/pub/data/techrpts/tr9802/tr9802.pdf.

historically high winter wave energy, beach erosion, and shoreline retreat to California's coast.[12] These El Niño events result in substantial changes to the coastline, magnifying the natural processes that affect the coast on a daily basis. The types of change visible to the naked eye during El Niño events are occurring over longer time scales in the background of everyday life.

The interaction between natural forces and the various geologic formations along the California coast results in a dynamic and ever-changing boundary between land and sea.[13] Natural forces such as waves, tides, wind, storms, rain, and runoff combine to build up, wear down, and continually reshape the interface of land and sea, creating a boundary that shifts daily, seasonally, and on longer-term scales.[14] These natural processes are constantly at work shaping our coasts, changing the elevation, slope, and stability of land adjacent to and beneath coastal water bodies.[15]

Each of these forces affects the land-sea interface in different ways. For example, waves and currents suspend and move sediments in shallow water and are responsible for seasonal erosion and accretion patterns.[16] These patterns also vary over time and depend on local geologic features. Thus, waves can cause erosion in one area and accretion in another or cause erosion at one time of year and accretion at other times of the year in the same place.[17] Adding another variable to this process, tides dictate the extent of beach exposure or inundation throughout the day, thus influencing the extent of wave and current effects.[18] In addition, wind erosion and damming of rivers alter the amount and timing of sediment delivery to replenish beaches.[19] Any disruption to this constant cycling of sand material can leave one area devoid of sand replenishment while causing buildup in another area. Additional long-term geologic changes, such as subsidence or uplift from plate tectonics or groundwater withdrawal, are also at play.[20] Frequently these forces interact with each other, magnifying or neutralizing effects. In sum, the seasonal rise and fall of the ocean coupled with localized erosion or accretion result in a dynamic coastline that, in the absence of human intervention, is constantly changing.[21] While these issues are common throughout the United States and world, the landforms and physical processes at work on California's coastline are more dynamic than those in many other areas.[22]

The geology of California's coast is beautifully diverse. Driving down California's Highway 1, visitors experience wide sandy beaches, rocky shores, high bluffs and cliffs, river deltas, wetlands, and bays all within a matter of hours.[23] The type of coastal landform that exists in a given area depends on the long-term effects of the natural processes outlined above, as well as other long-term geologic processes such as plate tectonics.[24] Each coastal environment is unique in how it responds to natural forces. For example, sandy beaches can expand or contract by hundreds of feet over the course of a year

12 Patrick L. Barnard et al., *Extreme Oceanographic Forcing and Coastal Response Due to the 2015–2016 El Niño*, 8 Nature Communications 14365 (Feb. 2017).

13 Griggs, *supra* note 2, at 10.

14 Griggs, *supra* note 2, at 3-4.

15 Griggs, *supra* note 2, at 3-4.

16 Cheryl J. Hapke et al., National Assessment of Shoreline Change Part 3: Historical Shoreline Change and Associated Coastal Land Loss Along Sandy Shorelines of the California Coast 20 (2006) [hereinafter Shoreline Change] *available at* http://pubs.usgs.gov/of/2006/1219/of2006-1219.pdf.

17 Griggs, *supra* note 2, at 161-71.

18 Shoreline Change, *supra* note 16, at 21.

19 *Id.* at 22–23. *See also* Griggs, *supra* note 2, at 177-78.

20 Griggs, *supra* note 2, at 16-23.

21 *Id.* at 3-4.

22 *Id.* at 2.

23 *Id.* at 1.

24 *Id.* ch. 1.

due to the effects of wind and waves.[25] Conversely, rocky shores are relatively stable for long periods of time, but may be subject to sudden change due to landslides, earthquakes, or other abrupt geologic hazards.[26]

Over the past several decades, Californians have heavily developed the coast despite the various dynamic natural processes that threaten valuable coastal infrastructure. In response to threats, public and private property owners make efforts to protect their investments by undertaking various public or private works, such as nourishing beaches or building jetties or seawalls.[27] These structures intentionally alter coastal dynamics in an effort to provide stability in a particular location.[28] For example, jetties were frequently built to prevent sediment from filling in a dredged shipping channel.[29] However, these structures disrupt the natural flow of the sediment transport system, leaving some areas devoid of sand replenishment while causing buildup in other areas.[30]

The interactions between natural processes and coastal landforms lead to several possible outcomes. Which outcome occurs depends on the exact nature and magnitude of the natural processes and the character and stability of the coastal landform with which they interact. Box 1 defines five possible outcomes that are recognized by the law. Regardless of the outcome, the interaction results in a land-sea boundary that shifts daily, seasonally, and over longer-term scales.

BOX 1

Five Dynamic Processes with Examples

1. EROSION The gradual eating away of soil by the operation of wind and water.

- Beach erosion – Erosion that occurs on sandy beaches and fluctuates with accretion as the tides and seasons change.
- Coastal erosion – Landward retreat of the coast that is not recoverable by natural processes. For example, bluffs comprising weaker rocks may be eroded by the constant battering of waves. Bluff erosion in California is usually episodic and irregular (i.e., bluff erosion is not gradual and usually occurs suddenly but is not always the direct result of an avulsive event).

2. ACCRETION The gradual accumulation of soil, clay, or other material deposited by water. This is the opposite of erosion.

- Accretion may occur on sandy beaches due to longshore currents that deposit sediment

3. SUBMERGENCE The gradual disappearance of land beneath a waterbody.

- Wetlands may submerge due to rising sea-levels or land subsidence.

4. RELICTION The gradual increase of land caused by the receding of a sea from its usual watermark. This is the opposite of submergence.

- Newly dry land is exposed by the evaporation of water from a lake due to drought.

5. AVULSION Violent removal or addition of land due to the action of water, or a sudden change in the physical location of a water boundary.

- A hurricane or violent winter storm rapidly erodes a beach.

25 Shoreline Change, *supra* note 16, at 24–26 (sandy beaches comprise more than meets the eye. In addition to the visible dry sand area, the sandy beach includes a submerged plateau that can extend several hundred feet offshore. The contours of submerged areas can limit or exacerbate the intensity of waves and storm surges).

26 Griggs, *supra* note 2, at 27, 232-38.

27 Molly Loughney Melius & Meg Caldwell, 2015 California Coastal Armoring Report: Managing Coastal Armoring and Climate Change Adaptation in the 21st Century 3 (2015) [hereinafter Coastal Armoring Report] *available at* http://law.stanford.edu/wp-content/uploads/2015/07/CalCoastArmor-FULL-REPORT-6.17.15.pdf.

28 Griggs, *supra* note 2, at 144-46.

29 *Id.* at 144-46.

30 *Id.* at 144-46.

Adding to this complexity is research that predicts California's shoreline is likely to be more dynamic in the future due to climate change.[31] Thermal expansion of surface waters and melting of land-based ice are causing sea levels to rise.[32] Storm patterns are also changing, increasing the intensity or frequency of storm surges and large waves that threaten coastal infrastructure.[33] Existing or foreseeable property damage from these events is increasing the use of shoreline protective structures that affect erosion and sediment transport in nearby areas.[34] Loss of precipitation or damming of rivers to ensure freshwater supply is also reducing the sediment transport from rivers that is essential to beach nourishment.[35] Above all, scientists expect the future dynamic movement of the coastline to be characterized by long-term landward migration due to rising sea levels.[36] While scientists have found that pristine beaches and other coastal environments are able to freely migrate in response to these changes,[37] the extensive private and public coastal infrastructure in many parts of California will impede natural landward migration. The loss of natural environments and attendant public values as they collide with coastal infrastructure is expected to follow.[38]

III. COASTAL PROPERTY BOUNDARIES

The natural processes that interact with California's dynamic coastline do more than alter the physical location of where water meets land. The coastline is also an important property boundary that separates tidelands from uplands and the application of a suite of laws that recognize different public and private rights in these areas. Specifically, the state owns all tide and submerged lands and must hold and manage them for the benefit of the public while uplands may be privately owned. Early common law in England and the United States established the boundary between uplands and state-owned tide and submerged lands as the ordinary high water mark.[39] In 1872, California codified the ordinary high water mark as the location of the landward extent of state land ownership.[40]

A property boundary that follows a constantly changing shoreline is a difficult boundary to locate with any degree of certainty. In an effort to define the location of this boundary more concretely, the Supreme Court in 1935 declared that the ordinary high water mark is equated to the mean high tide line, a plane of reference for elevations developed and measured by the U.S. federal government.[41] This mean high tide line has two components: the long-term average elevation of high tides at a nearby tide station[42] and the precise

31 IPCC 2014, *supra* note 7, at 375–76; Committee on SLR, *supra* note 6, at 107–08, 135–36; Strauss et al., *supra* note 6, at 11; Cayan et al., *supra* note 8, at 23–24; CCC SLR Guidance, *supra* note 7, at 17, 26–27.

32 Sea level rise is not a new phenomenon and has been occurring since the last glacial maximum over 20,000 years ago. However, while sea level has been rising relatively slowly for the past several centuries, the rate of sea level rise is now increasing due to climate change. Vivien Gornitz, The Great Ice Meltdown and Rising Seas: Lessons for Tomorrow, National Aeronautics and Space Administration (June 2012) *available at* http://www.giss.nasa.gov/research/briefs/gornitz_10/. See *also* Griggs, *supra* note 2, at 83; Committee on SLR, *supra* note 6, at 14, 107-08, 135-36.

33 Gordon McGranahan et al., *The Rising Tide: Assessing the Risks of Climate Change and Human Settlements in Low Elevation Coastal Zones*, 19 Environment & Urbanization 17, 18 (2007).

34 Coastal Armoring Report, *supra* note 27, at 3-4.

35 Griggs, *supra* note 2, at 177-78.

36 Griggs, *supra* note 2, at 226; IPCC 2014, *supra* note 7, at 375-76.

37 Russell and Griggs, *supra* note 7, at 23; CCC SLR Guidance, *supra* note 7, at 27; IPCC 2014, *supra* note 7, at 375.

38 Cayan et al., *supra* note 8, at 23-24; CCC SLR Guidance, *supra* note 7, at 17, 26-27; Strauss et al., *supra* note 6, at 15-16.

39 Borax Consol., Ltd. v. Los Angeles, 296 U.S. 10, 26–27 (1935).

40 Cal. Civil Code § 670.

41 Borax Consol., Ltd. v. Los Angeles, 296 U.S. 10, 22–23 (1935). *See also* H.A. Marmer, U.S. Dep't of Commerce, Coast and Geodetic Survey, Special Publication No. 135, Tidal Datum Planes (Rev. 1951) *available at* http://docs.lib.noaa.gov/rescue/cgs_specpubs/QB275U35no135RevEd1951.pdf.

42 A tidal datum is a vertical plane of reference (i.e., elevation) that is based on observations and measurements of tides. Bruce S. Flushman, Water Boundaries: Demystifying Land Boundaries Adjacent to Tidal or Navigable Waters 117 (John Wiley & Sons, Inc. 2002). The "long-term average" referred to is designated as an 18.6-year average, determined by the United States Coast and Geodetic Survey to be the time it takes for a complete "tidal cycle," thereby encompassing all natural variations in tidal height that result from the varying positions of the moon relative to earth and sun. *See* Borax, 296 U.S. 10, at 26–27; Marmer, *supra* note 41, at 86. California's tidal regime is characterized as mixed semi-diurnal, meaning that the coast experiences "two high and two low tides per day, with successive highs or lows having different elevations." These tidal heights are termed higher high water, lower high water, higher low water, and lower low water. The heights vary over the course of each month and also geographically along the coast. See Griggs, *supra* note 2, at 77–79.

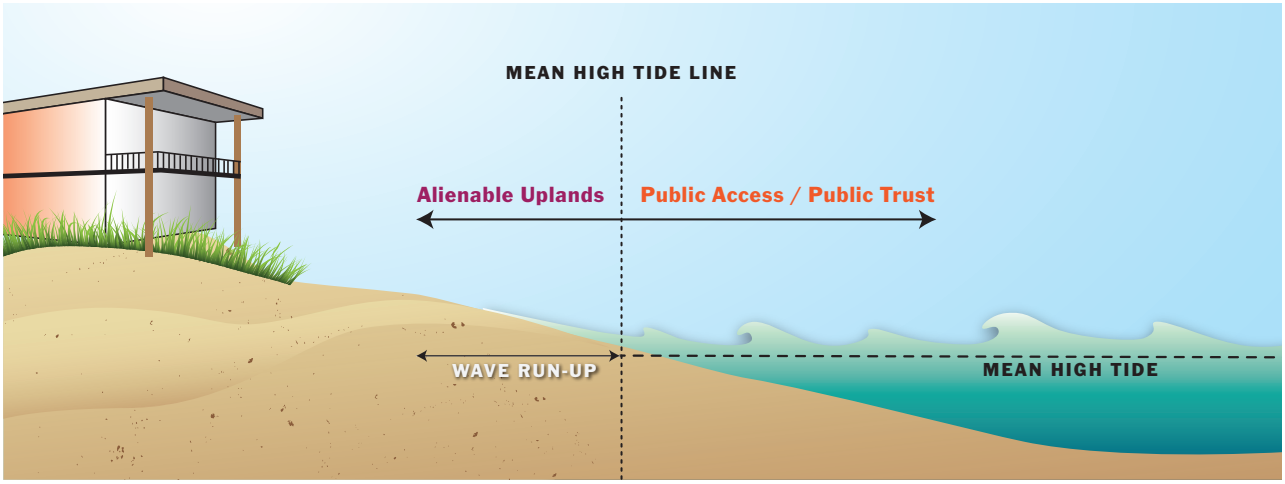


FIGURE 1 Important coastal boundaries. The mean high water line, or mean high tide line, is the boundary between public tidelands and uplands in California.

surveyed location of where that elevation intersects a shoreline as it exists at the time of surveying.[43] California courts and agencies continue to apply this standard today.[44]

While the mean high tide line enables a more precise and scientifically-based location to establish a property boundary at any given time, the line is not fixed in perpetuity, but rather is constantly changing. Indeed, the two components of the line are both based on aspects of the dynamic coastline. Referring back to the dynamic processes outlined in Box 1, submergence and reliction relate to the former component of the mean high tide line (long-term average elevation of tidal datums) while erosion and accretion relate to the latter component (surveying the elevation and slope of the shore).

It is settled law that the mean high tide line property boundary is mobile in response to these dynamic processes[45]—a sharp contrast to the presumed permanence of property boundaries that has engendered legal disputes. Government and private parties alike have litigated the precise location of boundaries between water bodies and uplands for decades and the California courts have held that a coastal landowner's property boundary continues to change as the result of changes in the location of the mean high tide line from erosion and natural accretion.[46] California courts have not reported cases specifically addressing the legal effect of permanent submergence on open ocean coastlines, which is a relevant concept in terms of sea level rise. Despite a lack of case law relating the movement of the mean high tide line as the result of sea level rise, the concept is a logical extension of the mean high tide line as an ambulatory boundary.[47]

43 Borax Consol., Ltd. v. Los Angeles, 296 U.S. 10, 26–27 (1935); Lechuza Villas West v. Cal. Coastal Comm'n, 60 Cal. App. 4th 218, 236–37 (1997).

44 While California courts appear sometimes to have confused themselves regarding the exact method of calculating the mean high tide line (*See e.g.*, People v. Wm. Kent Estate, 242 Cal. App. 2d 156, 161 (Cal. 1966) (discussing the use of neap tides to establish a mean high tide line)), modern California courts seem to adopt the mean high tide line without further discussion. *See e.g.*, Lechuza Villas West v. Cal. Coastal Comm'n, 60 Cal. App. 4th 218, 236–37 (1997); Aptos Seascape Corp. v. County of Santa Cruz, 138 Cal. App. 3d 484, 505 (Cal. Ct. App. 1982).

45 *See e.g.*, Strand Improv. Co. v. Long Beach, 173 Cal. 765, 772–73 (Cal. 1916); City of Oakland v. Buteau, 180 Cal. 83, 87 (Cal. 1919); Lechuza Villas West v. Cal. Coastal Comm'n, 60 Cal. App. 4th 218, 238–39 (1997). For a magnificent treatise on legal disputes over water boundaries *see generally* Flushman, *supra* note 42.

46 Strand Improv. Co. v. Long Beach, 173 Cal. 765, 772–73 (Cal. 1916); City of Oakland v. Buteau, 180 Cal. 83, 87 (Cal. 1919); Lechuza Villas West v. Cal. Coastal Comm'n, 60 Cal. App. 4th 218, 238–39 (1997).

47 One California court decision, in dicta, stated "if the sea level does rise, so will the level of mean high tide" and with it, the public's trust rights in the shore. Littoral Development Co. v. S.F. Bay Conservation & Dev. Comm'n, 29 Cal. Rptr. 2d 518 (Cal. Ct. App. 1994).

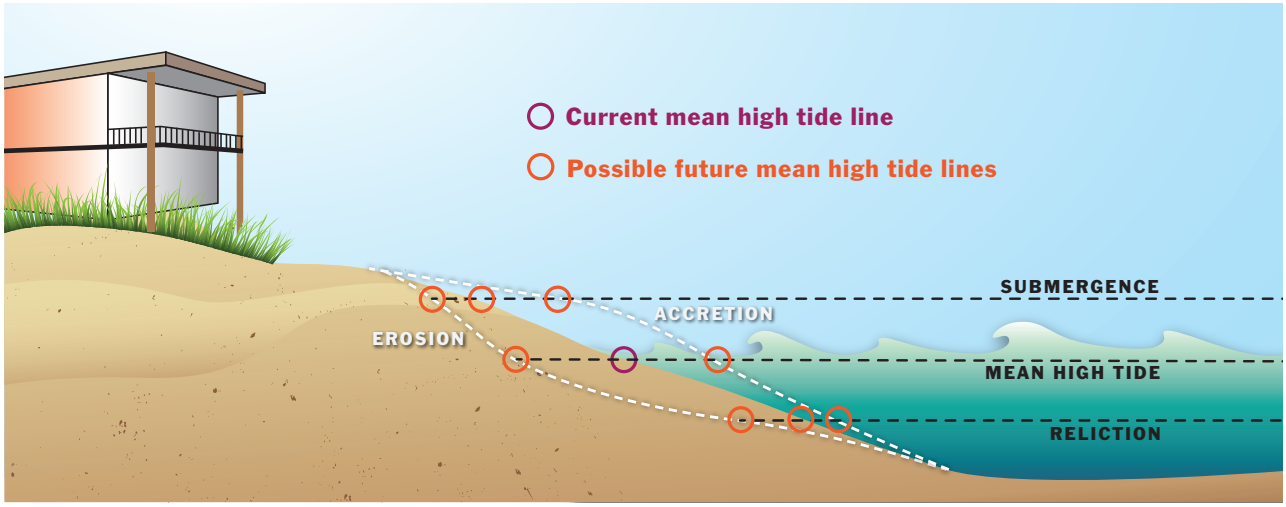


FIGURE 2 Diagram of four dynamic processes and how they may change the location of the mean high tide line.

Figure 2 explores how the dynamic processes outlined in Box 1 may affect the location of the mean high tide line.

Two limitations on the mobility of the mean high tide line exist: California courts have held that under certain circumstances the property boundary does not move when changes to the mean high tide line result from either avulsion (sudden changes) or accretion due to the works of man.[48]

1. AVULSION: California case law establishes that avulsive (sudden) changes to inland riparian water boundaries (e.g., massive erosion caused by a levee break on an island) do not move the legal boundary,[49] although this has not been explicitly applied to the open coast.[50] This exception does not apply to gradual sea-level rise, but is undetermined whether it would apply to sudden changes that result from increased or intensified storm surges from the ocean.

2. ARTIFICIAL ACCRETION: California case law establishes that accretions attributable to artificial or human induced changes to the coastline do not move the legal boundary.[51] However, courts have deemed that some man-made changes to a water boundary are too far removed in time and distance to be considered a proximal cause to the change.[52]

While the mean high tide line exhibits moderate flexibility, experts have explored the practicability of this standard for determining the boundary of tidelands, concluding it is imperfect at best and ill-conceived at

48 As an additional caveat to these caveats, when a boundary dispute involves the federal government as a landowner, federal standards relating to man-made or avulsive changes—that frequently differ from California law—may be applied. In cases regarding artificial accretions to coastal property, California state law dictates the water boundary does not move. Conversely, federal law dictates that if federal land is at stake and federal law is applied, different legal standards will affect the outcome. *See e.g.*, State of Cal. ex rel. State Lands Comm'n v. United States, 457 U.S. 273, 278 (1982); State of Cal. ex rel. State Lands Comm'n v. United States, 805 F.2d 857 (1986).

49 Bohn v. Albertson, 107 Cal. App. 2d 738, 748–50.

50 The doctrine of avulsion has been applied to the open coast in other states. *See e.g.*, Severance v. Patterson, 370 S.W.3d 705 (Tex. 2012).

51 Carpenter v. Santa Monica, 63 Cal. App. 2d 772, 794 (1944). Examples of man-made changes to the location of the mean high tide line include the construction of a seawall or jetty that results in accretion of land. Other states follow the federal rule that accretion attributable to human activities is awarded to the upland owner. Flushman, *supra* note 42, at 131–32. However, no state will allow the upland owner to extend her property by filling in submerged lands unless so authorized by the owner of the submerged lands. *Id.*

52 State of Cal ex rel. State Lands Comm'n v. Superior Court (Lovelace), 11 Cal. 4th 50, 76–78 (Cal. 1995). In such circumstances, the water boundary does move along with the change in course.

worst.[53] Tidal datums are offshore elevation measurements used to aid navigation in the open ocean that discount the influences of ocean waves and swells. When measured against a shoreline, the mean high tide line may be underwater even at low tide.[54] Additionally, significant erosion and accretion of the shoreline occurs seasonally and over longer terms. Surveyed measurements of the property boundary can change drastically depending on the time of year they are taken. As a result, while surveyors can precisely measure the mean high tide line at a single point in time, that measured location may bear no resemblance to the line as it exists in a day, month, six months, or a year.[55] Without frequent and regular surveys—an immense cost and burden—the mean high tide line is inadequate as a boundary delineating public and private rights.

The mean high tide line standard presents additional challenges in light of sea level rise. The boundary does have some flexibility to incorporate sea level rise, as the elevation of mean high water is periodically recalculated. However, the passive and delayed reactionary nature of recalculations of long-term tidal datums may not keep pace with projected changes to the coastline. For example, the most recent 18.6-year tidal epoch ended in 2001. Thus, only past measurements of tidal elevation are included in ongoing measurements of the line, ignoring the accelerating rise in sea levels and the significant projected future changes. Although adopting a new standard for locating the ordinary high water mark—or updating the methods for locating the mean high tide line—would present a challenge, common law evolves to changing circumstances and societal needs over time. With regard to the use of the current standard, three circumstances have changed substantially since the *Borax* decision: the emergence of new technology and science that enables more up-to-date and forward-looking understanding of our dynamic coastline; the establishment of climate science that demonstrates the increasing rate of sea level rise; and the recognition of changing public needs and uses of the shore, specifically the increased importance of coastal access, recreation, and aesthetic enjoyment of the coastline to California's people, culture, and economy. Thus, states looking to proactively manage coastal land use may wish to explore new methods for locating shoreline property boundaries.

Additional future concerns exist regarding whether existing structures (e.g., seawalls or revetments) will inhibit landward movement of the mean high tide line in some areas. California courts have not addressed the outcome of a seawall halting significant erosion to the benefit of the upland owner. However, the law of water boundaries generally recognizes that coastal properties are subject to gain and loss by natural processes and that the upland owner may not benefit his or her position by artificially influencing the boundaries natural movements.[56] Federal courts have directly addressed the unauthorized artificial prevention of erosion or submergence and held that the mean high tide line property boundary is measured in its unobstructed state, as if protective structures

53 *See* Curtis L. Fossum, *From Here to Eternity – Were They Trespassing?*, Proceedings of the Conference American Society of Civil Engineers (1997). *See also* D. E. Hughes and Otto Van Geldern, *The Determination of Ordinary High Water Plane on the Pacific Coast of the United States*, 44 Journal of the Association of Engineering Societies 215, 223, 234–35 (April 1910) (debating the appropriate method for locating the ordinary high water mark on the Pacific coast prior to the *Borax* decision.).

54 Fossum, *supra* note 53, at 1187.

55 *Id.*

56 State of Cal. ex rel. State Lands Comm'n, 11 Cal. 4th 50, 73 (Cal. 1995) ("California's artificial accretion rule was premised on, and is consistent with, the public trust doctrine and the inalienability of trust lands. . . . The state has no control over nature; allowing private parties to gain by natural accretion does no harm to the public trust doctrine. But to allow accretion caused by artificial means to deprive the state of trust lands would effectively alienate what may not be alienated. . . . This, we believe, was the driving force behind the California doctrine, and the reason it remains vital today.")

had not been built. The Ninth Circuit in *United States v. Milner*[57] held that because both the upland and tideland owner have a vested right to expansion of their property by erosion, accretion, or other natural causes, the upland owner cannot permanently fix the boundary with an armoring structure. While *Milner* dealt with distinct property owners and legal questions,[58] California common law recognizes the same ambulatory property boundary of the mean high tide line and the benefits and consequences discussed in *Milner* that flow to tideland and upland owners.[59] Relevant California agencies have also recognized the persuasive authority of *Milner* in sea level rise policy guidance.[60]

IV. THE PUBLIC TRUST DOCTRINE AND COMMON LAW PROPERTY RIGHTS

The previous discussion is important because the shoreline property boundary (i.e., mean high tide line) separates publicly owned tidelands from uplands and the distinct property rights that attach to each. Specifically, the mean high tide line establishes the boundary of a powerful common law doctrine that protects the public's interest in tidelands: the public trust doctrine.

The public trust doctrine is rooted in ancient principles of law. Scholars have traced the doctrine back to the Roman emperor Justinian who declared that the air, running water, sea, and sea-shore are all common property.[61] From these roots emerged the English common law principle that the sovereign owns all navigable waters and submerged lands as trustee for the benefit of the public.[62] Inherited by the United States upon independence, the doctrine is an established component of U.S. common law.[63] The most well-known statement of the public trust doctrine is found in the U.S. Supreme Court decision in *Illinois Central*: "The State holds the title to the lands under the navigable waters . . . in trust for the people of the State that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties."[64] Elements of California's common law public trust have also been traced to Spanish and Mexican laws and early pueblo land use categories and rights.[65]

The public trust doctrine in the United States is primarily a state common law doctrine, meaning that California courts are the ultimate interpreter of the scope of the public trust in California.[66] While the extent of the doctrine's past and present coverage has evolved in the courts and remains subject to debate in academic circles, California case law firmly establishes that the public trust

57 United States v. Milner, 583 F.3d 1174 (9th Cir. 2009).

58 *Milner* was a trespass action by the federal government on behalf of a native American tribe against a private landowner. The court also held that the boundary of navigable waters under the Rivers and Harbors Act is "mean high water mark in its unobstructed, natural state." *Id.* at 1191 (*citing* Leslie Salt Co. v. Froehlke, 578 F.2d 742 (9th Cir. 1978)).

59 Lechuza Villas West v. Cal. Coastal Comm'n, 60 Cal. App. 4th 218, 235 note 13 (1997).

60 CCC SLR Guidance, *supra* note 7, at 169–70.

61 Institutes of Justinian 2.1.1.

62 *See* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. Chi. L. Rev. 711, 727-30 (1986).

63 Martin v. Lessee of Waddell, 41 U.S. 367, 394, 395-96 (1842). (the Court held: "…the prerogative rights of the king to rivers, in which the tide ebbs and flows, to the bays and inlets from the sea, to the soil under the rivers, and to the fisheries, are held by him in trust for the use of all his subjects…. By the revolution, the state acquired all the rights which belonged to the crown…[i]f the king held all the rights upon the trusts mentioned, the state must hold them upon the same trusts"). *See also* Shively v. Bowlby, 152 U.S. 1, 49 (1894) (affirming the substance of the common law doctrine and holding that, with regard to the territories acquired by Congress, "the title and dominion of the tide waters and the lands under them are held by the United States for the benefit of the whole people, and, as this court has often said, in cases above cited, 'in trust for the future States.'").

64 Illinois Central R.R. Co. v. Illinois, 146 U.S. 387, 452 (1892).

65 Hart v. Burnett, 15 Cal. 530 (Cal. 1860); Randal David Orton, Inventing the Public Trust Doctrine: California Water Law and the Mono Lake Controversy, 66–77 (1992).

66 *See* PPL Mont. v. Mont., 132 S. Ct. 1215, 1235 (2012) (clarifying that "the public trust doctrine remains a matter of state law" and "the States retain residual power to determine the scope of the public trust over waters within their borders"). At a minimum, the trust protects resources associated with tide and submerged lands. *See* Ill. Cent. R.R. Co. v. Illinois (Illinois Central), 146 U.S. 387, 453 (1892). The public trust doctrine has also been held to protect wildlife, groundwater resources, atmospheric resources, and potentially groundwater tributaries of navigable waters. Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419 (Cal. 1983).

doctrine grants the state authority to manage tidelands and an *obligation* to protect the public's interest in those tidelands.[67] This obligation places several explicit limitations on the state's authority to manage tidelands: requiring the state to hold and protect tidelands for the public,[68] prohibiting the state from disposing of the public's interest in tidelands,[69] and requiring the state to consider the public's interest when making decisions that affect tidelands.[70] Recognized public interests in California's tidelands include navigation, commerce, fishing, public access, recreation, and conservation.[71] Case law sets no specific hierarchy among the aforementioned range of public interests, but emphasizes a clear preference for public trust uses over non-public trust uses.[72] Other provisions of California law recognize that public access is a protected right for all citizens and an important component of environmental justice.[73]

BOX 2

Exceptions to the Public Trust Doctrine

Under certain circumstances, the public trust authorities and obligations of the state do not exist in tide and submerged lands due to judicial proceedings or have been extinguished by legislative authority.

- The U.S. Supreme Court has held that the public trust doctrine does not apply to tidelands that fall within the fixed boundaries[74] of a federally confirmed Mexican land grant unless the public trust was asserted by the state during patent proceedings.[75]
- Under very limited circumstances the public trust has been extinguished entirely by legislative authority on certain tidelands that were reclaimed (i.e., filled) as part of a program to promote navigation and commerce and that no longer provide value for trust purposes.[76]

67 Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419 (Cal. 1983). According to *National Audubon*, the core tenet of the doctrine is "the state's authority as sovereign to exercise a continuous supervision and control over the navigable waters of the state and the lands underlying those waters." *Id.* at 425. In addition to broad authority over trust resources, the state also has a *duty* "to protect the people's common heritage of . . . tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust." *Id.* at 441.

68 Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 441 (Cal. 1983).

69 The public trust may only be extinguished when the State cuts off tidelands from public channels as part of a program to promote navigation and commerce. Any other patent to tidelands conveys only the jus privatum (or title to the soil) "subject to the public right of navigation, and in subordination to the right of the state to take possession and use and improve it for that purpose, as it may deem necessary. In this way the public right will be preserved and the private right of the purchaser will be given as full effect as the public interests will permit." People v. California Fish Co., 166 Cal. 576 (Cal. 1913). Subsequent disposition of tidelands was limited by the California constitution and by statute. Cal. Const. art. X, § 3; Cal. Pub Res. Code § 7991.

70 *See e.g.*, San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202 (Cal. Ct. App. 2015)

71 The traditional public trust doctrine protected the public interests of navigation, commerce, and fishing in tidelands. California courts have held that the traditional triumvirate does not limit the public's interest and that the doctrine is sufficiently flexible to encompass changing public needs. Applying this reasoning, the California Supreme Court has held that an important use encompassed within the tidelands trust is the "preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area." Marks v. Whitney, 6 Cal. 3d 251 (Cal. 1971).

72 Colberg, Inc. v. State of Cal. ex rel. Dep't of Pub. Works, 67 Cal. 2d 408, 419 (Cal. 1967); National Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 440 (Cal. 1983).

73 Cal. Const. art. X, § 4; Cal. Pub. Res. Code § 30013; 2016 Cal. Stat. Ch. 578 (A.B. 2616).

74 Where surveys and patents of confirmed Mexican land grants—as well as other lands—have the shoreline as a boundary, the meander survey and description in the patent is not a fixed line, but an approximation of the true boundary at the mean high tide line. In these circumstances the public trust doctrine still attaches to the tidelands seaward of the meander and mean high tide lines. McLeod v. Reyes, 4 Cal. App. 2d 143 (Cal. Ct. App. 1935); Den v. Spalding, 39 Cal. App. 2d 623 (Cal. Ct. App. 1940).

75 Summa Corp. v. California, 466 U.S. 198 (1984). Identifying tidelands free of the public trust requires identifying the lands owned by Mexican nationals at the time of execution of the Treaty of Guadalupe Hidalgo, as described in the federal patent confirming the land grant. Article VIII of the Treaty reserved the property rights and interests of Mexicans then living on lands ceded to the United States via the Treaty and states that the property "shall be inviolably respected." Treaty of Guadalupe Hidalgo, art. VIII, Feb. 2, 1848, 9 Stat. 929. To implement this Treaty provision and to assist the determination of boundaries established by Mexican grants, Congress created a commission and outlined a procedure to ascertain and settle private land claims. Act of March 3, 1851, § 8, ch. 41, 9 Stat. 632; *See also* Summa Corp. v. California, 466 U.S. 198, 202–204 (1984). All claimants were required to present their claims within two years of the commission's establishment. Act of March 3, 1851, § 13. The United States Surveyor General for California provides an index of Mexican land grants from 1855 to 1875 that likely catalogues most of these claims. http://www.sos.ca.gov/archives/collections/ussg/. However, no comprehensive resource exists that catalogues all *tidelands* falling within Mexican land grants. The State Lands Commission staff is an important resource to assist in identifying and assessing whether any particular property is located within a Mexican land grant.

76 Atwood v. Hammond, 4 Cal. 2d 31 (Cal. 1935); City of Long Beach v. Mansell, 3 Cal. 3d 462 (Cal. 1970); Cal. Pub. Res. Code § 6307.

California's legislature has codified legal obligations and authorities consistent with both the public trust doctrine and the state's broader police powers through legal instruments such as constitutional provisions and statutes. In many cases, courts have looked to these statutes to define the state's duty and obligation to protect public trust resources.[77] However, full reliance on statute to outline the public trust responsibility is improper. For example, statutory provisions that would lead the state to dispose of all public trust uses in an area are subject to qualification or void on their face.[78] Additionally, where gaps or ambiguities in statute exist, the public trust doctrine requires the state to act in a manner most protective of public trust resources and uses.[79]

The public trust doctrine also plays an important role in governing private uses of tidelands, submerged lands, and uplands that affect public trust resources and uses. The "takings clause" of the Fifth Amendment of the United States Constitution states that private property shall not be taken for public use without just compensation.[80] In the context of regulations of private property, federal courts have held the takings clause does not apply to regulations that are consistent with limitations on private property inherent in background principles of property law.[81] The public trust doctrine is a background principle of California property law for tidelands and submerged lands. The public trust doctrine grants the state broad discretion in limiting private uses of such lands, even where the lands have been granted to private parties.[82] Arguably, the public trust doctrine also grants the state the ability and the duty to regulate or limit any uses of private lands that would substantially impair public interests in nearby trust lands.[83] Because the public trust doctrine is a reflection of sovereign land ownership and an established limitation on private property interests, many states have identified the doctrine as a background principle of property law.[84] As a result, state action that is consistent with the public trust doctrine's limitations on private property interests should not lead to a compensable taking.[85]

V. ADMINISTRATION OF PUBLIC TRUST TIDELANDS AND ADJACENT UPLANDS

Responsibility for protecting public trust resources begins with the California legislature. The legislature has broad authority to create new laws outlining implementation of the state's public trust responsibilities and

77 *See e.g.*, Envt'l Protection Info. Ctr. v. Cal. Dep't of Forestry & Fire Protection, 44 Cal. 4th 459 (Cal. 2008); Jan Stevens, *EPIC v. Department of Forestry & Fire Protection: Is the California Supreme Court Putting the Public Trust Genie Back Into the Bottle*, 21 Envtl. L. News 12 (Winter 2013–2014).

78 *See e.g.*, City of Berkeley v. Superior Court, 26 Cal. 3d 515 (Cal. 1980).

79 California's Supreme Court has provided conflicting guidance on how the common law doctrine should be reconciled with statutory law, implying that the common law trust regarding wildlife has been replaced by statute and constitution (Envt'l Protection Info. Ctr. v. Cal. Dep't of Forestry & Fire Protection, 44 Cal. 4th 459 (Cal. 2008)), but rejecting the argument that California's statutory appropriative water rights system subsumed the public trust doctrine (Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 440, 447 (Cal. 1983)).

80 U.S. Const. amend. V. This prohibition has been applied to both physical takings and regulatory takings, where the government deprives property owners of reasonable beneficial use of their property. *See e.g.*, Loretto v. Teleprompter Manhattan CATV Corp., 458 U. S. 419, 426 (1982) (physical taking); Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992) (regulatory taking). The takings clause does not apply on state owned tidelands, where the state has full authority as landowner.

81 Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

82 Marks v. Whitney, 6 Cal 3d 251 (Cal. 1971); Newcomb v. City of Newport Beach, 7 Cal. 2d 393 (Cal. 1936). However, the state must pay compensation for lawfully permitted structures. Cal. Pub. Res. Code § 6312; City of Berkeley v. Superior Court, 26 Cal. 3d 515 (Cal. 1980).

83 Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 440, 447 (Cal. 1983).

84 *See e.g.*, Esplanade Properties, LLC v. City of Seattle, 307 F.3d 978, 985 (9th Cir. 2002); McQueen v. S.C. Coastal Council, 354 S.C. 142 (2003), cert denied 124 S. Ct. 466 (2003). *See also* Bill Higgins, Institute for Local Gov't, Regulatory Takings and Land Use Regulation: A primer for Public Agency Staff 14 (arguing that California's public trust doctrine is also an established background principle of property law in the state). Nuisance law is another background principle of law that aligns with the intent of the public trust doctrine. Nuisance law states that landowners have no right to create or maintain public nuisances on their property. A public nuisance is an unreasonable interference with the general rights of the public. The state has the duty to protect public trust interests that are or may be affected by the creation or maintenance of public nuisances on private property. Judicial decisions in California have confirmed the power of municipalities to legislatively declare private infrastructure that encroaches on public lands a nuisance. Scott v. City of Del Mar, 68 Cal. Rptr. 2d 317 (Cal. Ct. App. 1997).

85 For further discussion of the public trust doctrine as a background principle of property law, *see* Sean B. Hecht, Taking Background Principles Seriously in the Context of Sea Level Rise, 39 Vermont L. Rev. 781,784-788 (2015).

delegating them to administrative agencies and local governments. The legislature has explicitly delegated authority over tidelands and government decisions that affect tidelands to several government entities in California. Past legislative action has provided that all public trust tidelands in California are held in trust either by local trustees such as municipalities and counties, or by the State Lands Commission (SLC). SLC has "exclusive jurisdiction over all ungranted tidelands and submerged lands owned by the State."[86] The legislature also granted the SLC residual jurisdiction and authority over tidelands granted to local trustees.[87] Thus, even when public trust lands have been granted to local governments or private parties, the SLC retains whatever authority was reserved to the state by the Legislative grant.

The legislature has also granted management, planning, regulatory, and permitting authority over trust lands to a host of other state agencies. The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory and permitting authority over tidelands and submerged lands in San Francisco Bay and connected inland waters pursuant to the McAteer-Petris Act.[88] Similarly, the California Coastal Commission (CCC) has regulatory and planning authority along California's 1,271-mile open coast shoreline[89] pursuant to the California Coastal Act of 1976 (Coastal Act).[90]

The CCC exercises either original regulatory or appellate jurisdiction over applications for development permits on or adjacent to open coast tidelands.[91] Counties, cities, ports, harbors, the Coastal Conservancy,[92] and the Department of Parks and Recreation,[93] among others, also exercise police powers or other regulatory authority over certain areas or activities on California's public trust tidelands. Each of these administrative agencies and governing bodies has law-making or decision-making functions—or both—that are relevant to coastal land use management and planning and administration of the state's public trust resources.

The public trust doctrine guides and supports the lawmaking and management activities of each of the aforementioned government entities. The precise public trust doctrine authorities and obligations that apply in a given circumstance depend on the relevant agency or governing entity, the types of activities proposed or considered (i.e., public or private), and the location of the proposed activity, whether on ungranted tidelands, granted tidelands, or uplands.

86 Cal. Pub. Res. Code § 6301; Cal. Pub. Res. Code § 6305. *See also* Newcomb v. City of Newport Beach, 7 Cal. 2d 393 (Cal. 1936).

87 State of Cal. ex rel. State Lands Com. v. County of Orange, 134 Cal. App. 3d 20 (Cal. Ct. App. 1982).

88 Cal. Gov't Code §§ 66610, 66632. The Act authorizes BCDC to ensure that the public benefits of fill in the Bay clearly exceed public detriments, preserve water oriented uses, and regulate public and private uses of trust lands in the Bay by requiring projects provide "maximum feasible public access." Cal. Gov't Code §§ 66602, 66605, 66632.4.

89 *Coastal Access Program*, California Coastal Commission, https://www.coastal.ca.gov/access/accessguide.html (last visited Oct. 31, 2016). The inland extent of the CCC's jurisdiction varies along the coastline, but is generally limited to 1,000 yards. Cal. Pub. Res. Code § 30103(a). The coastal zone may be smaller in certain areas (e.g., cities) or larger (e.g., areas with significant coastal resources).

90 Cal. Pub. Res. Code § 30330.

91 The CCC has full permitting authority over development on public trust lands (Cal. Pub. Res. Code §§ 30519, 30600-01), reviews and approves the local coastal programs created by counties to administer development planning and permitting on uplands (Cal. Pub. Res. Code § 30108.6), and has appellate jurisdiction over particular local government decisions, including approvals of development between the sea and the first public road paralleling the sea (Cal. Pub. Res. Code § 30601).

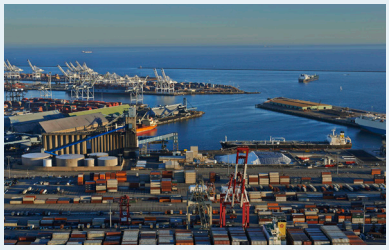
92 The Coastal Conservancy has an ownership authority, but unlike the SLC, cannot lease or dispose of the lands under its purview. The Coastal Conservancy purchases property or property interests to meet the policies and objectives of the Coastal Act. Cal. Pub. Res. Code §§ 31104.1, 31105.

93 The Department of Parks and Recreation and the State Parks Commission manage coastal resources, including near-shore marine reserves and many state beaches and coastal state parks. Cal. Pub. Res. Code §§ 501, 530. The Department of Parks and Recreation holds the authority to maintain and conserve the integrity of the resources under its jurisdiction but does not have the authority to dispose of lands designated as state parks or resources.

To provide some context, it is helpful to understand what types of lands fall into each of these categories.

Gordon / Flickr Creative Commons

UNGRANTED TIDELANDS comprise most tidelands in the state. In particular, the tidelands that abut California's open coast remain almost entirely in full state ownership and are generally undeveloped.



Courtesy of the Port of Long Beach

GRANTED TIDELANDS—which constitute a small portion of tidelands in the state—refer to tidelands either owned by private parties or held by local municipalities for public purposes. Private parties own a small fraction of California's tidelands, as alienation of tidelands to private parties has been illegal since the early 1900's.[94] Private ownership of tidelands is most prevalent in San Francisco Bay, where about 22% has been sold to private buyers.[95] In many urban areas of California, the state has conveyed title to tidelands to local governments to create ports, harbors, and commercial waterfront areas for the benefit of the public.[96] Well-known examples include the ports of Los Angeles, Long Beach, San Diego, Oakland, and San Francisco. While these granted tidelands comprise a small percentage of tidelands in the state, they have high public value as centers of commerce, navigation, and trade. On all tidelands, the public trust doctrine prioritizes public uses and interests over private ones.

UPLANDS are lands above mean high tide line. Considering how uses of uplands may affect tidelands is relevant for both ungranted and granted tidelands; however, the issues are not likely to be uniform. Upland parcels on California's open coast that abut ungranted tidelands are frequently occupied by private residences, roads, or state or federal parks. Conversely, uplands that abut granted tidelands in urban areas are frequently a continuation of publicly important commercial or industrial waterfront areas.

94 Cal. Gov't Code §56740, Cal. Pub. Res. Code § 7991.

95 Tim Eichenberg, Sean Bothwell, & Darcy Vaughn, *Climate Change and the Public Trust Doctrine: Using an Ancient Doctrine to Adapt to Rising Sea Levels in San Francisco Bay*, 3 Golden Gate U. Envtl. L. J. 243, note 52 and accompanying text.

96 *See e.g.*, *Granted Lands Statutes*, California State Lands Commission (last visited Sept. 26, 2016) http://www.slc.ca.gov/Programs/Grantee_Regions.html.

FIGURE 3 Example images of the three categories of lands explored in this section.

A. Protecting Public Interests on Ungranted Tidelands

The California legislature has granted full authority over ungranted trust tidelands to the SLC. SLC may lease, exchange, acquire, and convey lands for purposes consistent with the trust.[97] As a result, SLC has authority to allow private or public use of tidelands, subject to the limitation requiring consistency with the trust. Generally, this limitation requires that any use of tidelands is water dependent and that the public's interest in tidelands is maintained.[98] The California legislature also retains trustee authority over tidelands and can enact new laws for their protection, management, or use consistent with the public trust doctrine.

A critical question in how the state must balance uses on tide and submerged lands is whether proposed uses are consistent with public trust needs and competing public trust

97 Cal. Pub. Res. Code §§ 6216, 6301. This includes the power to permanently fix the boundary between tidelands and uplands by agreement when deemed expedient or necessary (Cal. Pub. Res. Code § 6357) and the power to grant mineral extraction leases that will not interfere with or impair public trust resources and uses (Cal. Pub. Res. Code § 6900).

98 SLC policy provides that: "[u]ses that are generally not permitted on public trust lands are those that are not trust use related, do not serve a public purpose, and can be located on non-waterfront property, such as residential and non-maritime related commercial and office uses." California State Lands Commission, Public Trust policy for the California State Lands Commission, *available at* http://www.slc.ca.gov/About_The_CSLC/Public_Trust/Public_Trust_Policy.pdf.

uses or result in significant interference with or impairment of public trust resources, uses, and needs. When competing uses are both considered public trust uses, the state may prefer one trust use over the other with minimal limitation.[99] Generally, a use is considered a public trust use if it has a public purpose and is water dependent.[100] If a proposed use is not a public trust use, it may still be allowed if the state establishes that the use will not harm the public's interests or is otherwise not inconsistent with the trust.[101] If uses of trust tidelands are inconsistent with the trust, SLC has authority to deny leases or permits for proposed uses and to eject any existing uses and structures.[102]

The CCC and BCDC have regulatory authority over the uses of public trust tidelands.[103] Pursuant to the Coastal Act, the CCC is the lead regulatory and permitting agency in the coastal zone, reviewing applications for development on tidelands. In approving or denying coastal development permits, the Commission must consider effects to public interests in trust resources such as coastal access, habitats, and scenic values.[104] Principles of environmental justice and equality must inform these considerations.[105] Similarly, the McAteer-Petris Act grants regulatory and permitting authority over tidelands in San Francisco Bay to BCDC. Specifically, the Act grants BCDC the power to approve or deny permits for public or private uses of tidelands based on a consideration of public access, public benefits, and preservation of water oriented uses.[106] BCDC's Bay Plan explicitly adopts the public trust doctrine as a guiding policy.[107]

For proposed activities on ungranted trust tidelands—or for permit renewals for activities currently on trust tidelands—both the agency representing the public's interest as landowner (i.e., SLC) and the relevant regulatory agency (i.e., CCC or BCDC) must consider the effects of the proposed activity on trust resources and both have discretion to approve or deny the activity based on this consideration and their statutory authorities. Courts have not fully clarified the interplay between the power of SLC as landowner and the regulatory power of the CCC and BCDC. However, any development on public trust tidelands would require approval from both the SLC as landowner and the relevant regulatory agency. Thus, coordination between the relevant agencies on an activity or use that may take place on state-owned tidelands is important to protect both interagency working relationships and public interests.

B. Protecting Public Interests on Granted Tidelands

The legislature has granted public trust tidelands to local government or private parties in many areas of the state for various purposes, including developing water-dependent commercial areas such as harbors and ports. Where the legislature has granted tidelands to local trustees, the public trust doctrine

99 Colberg, Inc. v. State of Cal. ex rel. Dep't of Pub. Works, 67 Cal. 2d 408 (Cal. 1967); Carstens v. California Coastal Comm'n, 227 Cal. Rptr. 135 (Cal. Ct. App. 1986). However, the State and Courts should strive to reconcile competing trust uses and authorize multiple uses wherever feasible. State of California v. San Luis Obispo Sportsman's Assn., 22 Cal. 3d 440 (Cal. 1978).

100 A use is not considered a public trust use simply because it would serve "some public purpose, such as increasing tax revenues, or because the grantee might put the property to a commercial use." Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419 (Cal. 1983). Rather a public trust use should "facilitate[] public access, public enjoyment, or public use of trust land." San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202 (Cal. Ct. App. 2015) (private residential uses are generally not considered a public trust use).

101 San Francisco Baykeeper, Inc. v. State Lands Com., 242 Cal. App. 4th 202 (Cal. Ct. App. 2015).

102 Cal. Pub. Res. Code §§ 6216.1, 6302, & 6312. *See also* County of Marin v. Roberts, 4 Cal. App. 3d 480 (Cal. Ct. App. 1970) (holding that private landowners of upland parcels have no right to "wharf out" onto trust lands without a proper permit, which must be granted by the SLC). However, the state must pay for the removal if those existing structures were lawful and good faith improvements. Oakland v. Oakland Water Front Co., 118 Cal. 160, 183 (Cal. 1897).

103 Cal. Pub. Res. Code § 30601.

104 Cal. Pub. Res. Code § 30251-53.

105 Cal. Pub. Res. Code § 30013; 2016 Cal. Stat. Ch. 578 (A.B. 2616).

106 Cal. Govt. Code §§ 66632(f), 66602, 66605, 66632.4.

107 San Francisco Bay Conservation and Development Commission, San Francisco Bay Plan 88 (2008) *available at* http://www.bcdc.ca.gov/pdf/bayplan/bayplan.pdf.

and the individual statutory grant to the local trustee define the extent of the rights taken by the local trustee.[108] Statutory grants frequently delegate power to the local trustee to lease trust lands for purposes consistent with the public trust such as harbors, wharfs, and other navigation or commerce purposes.[109] However, any lease from the local trustee that attempts to enlarge the terms of the statutory grant is void.[110] In addition to oversight by the state legislature and courts, the SLC retains whatever authority was reserved to the state by each legislative grant and also has oversight authority to ensure local trustees comply with their grants.[111] Granted tidelands that are used for ports are also subject to CCC jurisdiction, which has review and approval authority over Port Master Plans and has appellate jurisdiction over certain port district coastal permit actions under the California Coastal Act.[112]

In areas where trust tidelands have been granted directly to private parties, public rights have a different status. Legislatively authorized conveyances of tide or submerged lands to private parties are read narrowly to determine whether the legislature intended to terminate the public trust.[113] Only in very rare circumstances will a court find that the public trust is fully terminated.[114] Unless legislative intent to terminate the trust is clearly expressed or necessarily implied, courts will find that legislatively authorized conveyances conveyed fee title to the soil lying underneath tidal or navigable waters, subject to a state retained public property interest, which includes the public right of use and the state's right to take possession and improve upon the land as necessary.[115] These retained public rights—termed the public trust easement—are a dominant property interest and allow the state to limit private uses by the landowner.[116] The state may also take control and make significant improvements on privately held trust lands where necessary to further the public trust.[117] If these granted tidelands have been filled, the boundary of the public trust easement is defined as the location of the mean high tide line prior to the filling.

C. Protecting Public Interests in Tidelands from the Adverse Effects of Upland Activities

Development on uplands may affect public trust interests in a variety of ways. For example, private development can limit access to tidelands for recreation. The construction of armoring structures may impede the movement of the shore and mean high tide line, depriving the public of tidelands and drowning beaches. Additionally, development can destroy important coastal habitats essential for providing protection from storm surges and rising seas.

The Coastal Act and McAteer-Petris Act grant planning and permitting authority to CCC and BCDC over activities on private land that may affect public trust tidelands within

108 Board of Port Comm'rs v. Williams, 9 Cal. 2d 381 (Cal. 1937). *See also* California State Lands Commission, Public Trust policy for the California State Lands Commission 3.

109 *See e.g.*, Statutes of 1923, Chapter 174, An act granting certain lands, tidelands and submerged lands of the State of California to the city of Oakland and regulating the management, use and control thereof (1923) (transferring tidelands to the city of Oakland and providing that the city "may lease said lands … for limited periods (but in no event exceeding fifty years), for purposes consistent with the trusts upon which said lands are held by the State of California, and with the requirements of commerce or navigation at said harbor.") *available at* http://www.slc.ca.gov/Programs/Granted_Lands/G01_Alameda/G01-05_City_of_Oakland/S1923_Ch174.pdf.

110 Board of Port Comm'rs v. Williams, 9 Cal. 2d 381 (Cal. 1937).

111 Cal. Pub. Res. Code § 6301

112 Cal. Pub. Res. Code §§ 30771, 30715.

113 People v. Cal. Fish Co., 166 Cal. 576 (Cal. 1913).

114 People v. Cal. Fish Co., 166 Cal. 576 (Cal. 1913); Atwood v. Hammond, 4 Cal. 2d 31 (1935); City of Long Beach v. Mansell, 3 Cal. 3d 462 (1970); Cal. Pub. Res. Code § 6307.

115 People v. Cal. Fish Co., 166 Cal. 576 (Cal. 1913).

116 Marks v. Whitney, 6 Cal. 3d 251 (Cal. 1971).

117 *See e.g.*, Newcomb v. City of Newport Beach, 7 Cal. 2d 393 (Cal. 1936) (holding that the State was authorized to dredge and deepen the water over private lands for the purpose of "making changes and improvements in the interest of commerce and navigation.").

their jurisdictional areas along the coast and bay. This authority reflects both the state's police power and public trust principles, and is intended to protect public trust resources and uses. Various provisions of the Coastal Act require the consideration of the effects of development on the environment, public access, and other public values.[118] Likewise, the McAteer-Petris Act requires consideration of effects on public access from development in the shoreline band.[119]

On California's open coast, the Coastal Act grants authority to local governments to create local coastal programs and take over development permitting authority on uplands along their coastlines. The CCC must review and approve all local coastal programs for consistency with the provisions of the Coastal Act. Like the role of the CCC in permitting development on tidelands, local government permitting of coastal development must consider the effects of proposed development on access, recreation, environmental values, and flood risk. In San Francisco Bay, BCDC has permitting authority over development within a shoreline band—100 feet landward of the mean high tide line.[120] However, BCDC may only deny permits for development within their shoreline band if a proposed project fails to provide maximum public access.[121] As a result, BCDC's police power authority in the shoreline band is more constrained.

In addition to these statutory authorities, the common law public trust doctrine requires agencies that regulate activities with the potential to affect down-stream—or adjacent—public trust resources to consider the effect of their decisions on those resources,

118 Cal. Pub. Res. Code § 30001.5.

119 Cal. Gov't Code § 66632.4.

120 Cal. Gov't Code § 66610(b).

121 Cal. Gov't Code § 66632.4.

BOX 3

The Public Trust Doctrine "Spectrum of Authority"

The spectrum of authority outlined in Sections V(A)–V(C) is summarized as follows:

- On ungranted trust tidelands, the state is land owner and has authority to determine allowable uses that are consistent with protection of public trust interests.
- On tidelands owned by private parties, the state has similarly broad authority to limit uses or improve the land in furtherance of public trust interests, but as a holder of a public trust easement rather than as owner of the underlying fee title.
- On tidelands granted by the Legislature to local government entities (e.g., cities and ports), the local government entity must comply with their granting statute and the public trust doctrine. Additionally, the state holds whatever ownership interest was retained by the legislative grant or lease and has oversight authority to ensure that the local entity manages its granted tidelands in accordance with its grant and the trust.
- The state also acts as a regulator on any publicly or privately owned tideland.
- Finally, when uses of adjacent private lands will affect trust tidelands, the common law public trust doctrine supplements the statutory authorities granted to the governing land management agency (e.g., CCC, BCDC, local planning agency) to consider the effect of the private use on public interests, and to protect those interests whenever feasible. The limits on how far into the future, or how far down the causal chain the requirement to consider effects to trust resources from activities on adjacent lands extends, are not clearly defined.

and protect them whenever feasible.[122] The limits on how far into the future, or how far down the causal chain the requirement to consider effects to trust resources from activities on adjacent lands extends, are not clearly defined. This standard as applied to BCDC or CCC requires those agencies to consider effects to public trust resources from development activities on privately owned uplands, a similar requirement to the types of analyses already required by agency statutory mandates.[123] While the regulatory agencies have final permitting authority for projects and uses of uplands, as an adjacent property holder the SLC plays a consulting role on the potential effects of upland activities on adjacent public trust tidelands.[124]

VI. CONSIDERING AND PROTECTING PUBLIC INTERESTS IN PLANNING AND DECISION MAKING

The public trust doctrine requires decision-makers to consider the potential effects of their actions on public trust resources and uses and protect the public trust. This obligation may arise when a government agency is undertaking, permitting, or funding an activity. While case law provides some guidance for considering and protecting the public trust, the specific steps a government agency should take to meet this standard—and the remedies a court can impose if consideration or protection of the public trust is found lacking—remain ill-defined.

To ensure appropriate uses are allowed, decisionmakers must first consider the effect of any proposed use on public interests in their decisions. In some scenarios, the activity or use in question may be so clearly a public trust use, or so clearly consistent with the public trust doctrine, that only a cursory consideration is necessary.[125] However, a more in depth review is required where consistency with the trust is debated. Courts have explored the relationship between other laws requiring a consideration of project effects on environmental resources to help clarify the consideration requirement, but have declined to fashion step-wise procedural requirements for "considering" the public trust doctrine.[126] These cases establish that environmental impact review under the California Environmental Quality Act is not sufficient in itself, but that a full consideration of public trust effects in an impact review may be sufficient.[127] These cases also indicate that the extent of consideration required depends on whether the proposed or challenged use of land is a private use, a public trust use, or continuation of an existing use.[128] In most cases, courts indicate that the consideration must include the effects of a proposed activity on access, recreation, commerce, navigation, fishing, and environmental values.

122 Nat'l Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 446 (Cal. 1983); San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202, 234 (Cal. Ct. App. 2015); People v. Russ, 132 Cal. 102 (1901) (dams on non-navigable streams are a nuisance because they result in obstruction of the river as a navigable stream); David D. Caron, *Time and the Public Trust Doctrine: Law's Knowledge of Climate Change*, 35 Univ. Hawai'i L. Rev. 441 (2013).

123 *See e.g.*, Cal. Pub. Res. Code § 30001.5 (declaring state policy to protect coastal habitats, public access, and recreation opportunities, and prioritizing public and water-dependent uses.)

124 Cal. Pub. Res. Code § 30416.

125 San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202, 242–43 (Cal. Ct. App. 2015).

126 Citizens for East Shore Parks v. State Lands Comm'n, 202 Cal. App. 4th 549 (Cal. Ct. App. 2011) (Plaintiffs' claimed the agency "was required to (a) identify "other" public trust uses, (b) analyze the impact of maintaining the existing public trust use on those other uses, and (c) … mitigate those impacts to the greatest extent possible." The court refused to impress this type of procedural matrix into the public trust doctrine.).

127 *Compare* Citizens for East Shore Parks v. State Lands Comm'n, 202 Cal. App. 4th 549 (Cal. Ct. App. 2011) (holding that a consideration of the public trust through a CEQA document satisfies the public trust "consideration" requirement.) *with* San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202 (Cal. Ct. App. 2015) (holding that complying with CEQA does not conform with this requirement if the analysis of effects on public trust resources is in some way deficient). This is further complicated by the fact that certain programs of the CCC and BCDC are considered functionally equivalent documents under the California Environmental Quality Act (CEQA). 14 Cal. Code Regs. §15251. While functionally equivalent programs are exempt from many of CEQA's procedural requirements, they are generally considered substantively similar to a full CEQA review. *See* Prahler et al., *supra* note 129, at 101, 104–05.

128 East Shore Parks v. State Lands Comm'n, 202 Cal. App. 4th 549 (Cal. Ct. App. 2011); San Francisco Baykeeper, Inc. v. State Lands Comm'n, 242 Cal. App. 4th 202 (Cal. Ct. App. 2015).

Because aggregate coastal development is likely to have greater effects on public trust resources than individual projects, any consideration must also include an analysis of cumulative effects.[129] Additionally, the consideration must include foreseeable future harm to public trust resources and uses.[130] This consideration conducted by the relevant agency will enable them to identify whether a proposed or challenged use will negatively affect public trust resources and uses and whether the use is consistent with public trust needs.

Following this consideration, the state must protect public trust resources and uses that may be affected. As with the consideration of the public trust, case-specific factors—mainly the location and type of proposed or challenged activities—may have some bearing on agency discretion and influence how public interests are protected. The bookends of agency discretion are most easily defined. Where competing uses or activities are both public trust uses or consistent with the trust, the state has broad discretion to balance them and may prefer one trust use over another.[131] Conversely, the state lacks the power to allow an activity that would substantially impair public trust needs in the project area.[132] Between these bookends state discretion is more nuanced. In developed and commercialized urban areas, allowable uses are much broader and may seem less clearly to fall under a traditional concept of public trust interests.[133] Along most of the open coast, the importance of public access and recreation is paramount.[134] Protection of these public trust uses may involve new regulation, denial of incompatible uses, or conditions or mitigation measures that alleviate negative effects of projects on public trust interests.[135] The state must also consider the effect of existing uses on public interests and change course if necessary,[136] possibly going so far as to prohibit continuation of existing uses and require removal of any structures where public trust needs will be substantially impaired. Above all, the state must ensure that the decisions made today do not limit adaptive capacity to changing environments or changing public trust needs.[137]

129 Pursuant to the requirements of the California Environmental Quality Act, any project that requires an environmental impact review must consider the cumulative and aggregate effects of many decisions along the coast on public trust interests. Cal. Pub. Res. Code §§ 21100(e), 15130. Similarly, the Coastal Act requires the siting of new development to avoid "significant adverse effects, either individually or cumulatively, on coastal resources." Cal. Pub. Res. Code § 30250. Other functionally equivalent programs should be substantively similar to a full CEQA review, and generally must include analyses of the cumulative or aggregate effects of the action. *See* Erin E. Prahler et al., *A Note about Cumulative Impact Analysis under Functionally Equivalent Programs*, 33 Stanford Envtl. L. J. 101, 104–05 (*citing* Environmental Protection Information Center v. Johnson, 216 Cal. Rptr. 502, 515–16 (Cal. Ct. App. 1985) and Laupheimer v. State of Cal., 246 Cal. Rptr. 82, 93-96 (Cal. Ct. App. 1988)).

130 National Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 429–30, 446 (Cal. 1983).

131 Boone v. Kingsbury 206 Cal. 148, 181–82 (Cal. 1928); Colberg, Inc. v. State of Cal. ex rel. Dep't of Pub. Works, 67 Cal. 2d 408, 416 (Cal. 1967); Carstens v. Cal. Coastal Comm'n, 182 Cal. App. 3d 277, 288–291 (Cal. Ct. App. 1986).

132 Ill. Central R.R. Co. v. Illinois, 146 U.S. 387, 453–54 (1892) (the state may grant tidelands and submerged lands for the improvement of the public interest or for private uses which "do not substantially impair the public interest in the lands and waters remaining." But legislation that grants all the public's interest in lands under navigable waters is void on its face or subject to revocation.); People ex rel. Webb v. Cal. Fish Co., 166 Cal. 576, 597–98 (Cal. 1913) (the state's sovereign public trust interest in tidelands "cannot be irrevocably alienated or materially impaired.").

133 Martin v. Smith, 184 Cal. App. 2d 571 (Cal. Ct. App. 1960) (recognizing that appropriate uses of trust lands may include visitor serving facilities such as restaurants, gas stations, and parking lots).

134 Cal. Pub. Res. Code § 30001. *But see* Cal. Pub. Res. Code § 30212 (outlining exceptions to access requirements for new development); Carstens v. Cal. Coastal Comm'n, 182 Cal. App. 3d 277, 288–291 (Cal. Ct. App. 1986) (allowing destruction of public access and recreation over 12 acres of coastal lands based on public safety concerns).

135 Carstens v. Cal. Coastal Comm'n, 182 Cal. App. 3d 277, 288–291 (Cal. Ct. App. 1986); Whaler's Village Club v. Cal. Coastal Comm'n, 220 Cal. Rptr. 2 (Cal. Ct. App. 1985).

136 National Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 440, 447 (Cal. 1983) (recognizing that the State's power extends to the "revocation of previously granted rights or to the enforcement of the trust against lands long thought free of the trust" and to the reconsideration of "allocation decisions even though those decisions were made after due consideration of their effect on the public trust.").

137 Boone v. Kingsbury 206 Cal. 148 (Cal. 1928) (upholding a legislative decision to allow oil drilling and prospecting in tide and submerged lands to the exclusion of other public trust uses because the licenses granted by the State remain subject to the trust and the State may require removal of the structures "if it subsequently determines them to be purprestures or finds that they substantially interfere with navigation or commerce.").

VII. INCORPORATING THE EMERGING THREAT OF SEA LEVEL RISE

Addressing the "coastal squeeze" and protecting societal interests in privately owned uplands and public trust tidelands requires a balancing of appropriate uses, development, and conservation of coastal resources. Maintaining sustainable coastal economies and communities depends on societal acceptance of our dynamic, high-energy, and rapidly evolving coastal system. The common law public trust doctrine provides a legal mechanism for doing so, while ensuring the protection of public interests in the coastline.

The state of California is aware of the threats posed to public trust resources and uses by sea level rise and certain coastal development trends.[138] The essence of the state's public trust doctrine responsibility will not change: the state must continue to protect public trust resources and uses from interference by proposed or existing public and private activities. However, the effects of climate change will complicate the roles and responsibilities of various state entities outlined above. Those entities must recognize that sea level rise will play a compelling role in how a variety of coastal activities and uses affect public trust resources and uses.

A range of scholars and state and federal agencies have proposed many strategies for minimizing current and future threats to the public trust. Realized through new state or local lawmaking or through existing agency decision making processes, these strategies include engaging in comprehensive local coastal land use planning, preserving and restoring important coastal habitats, implementing rolling easements, and restricting or mitigating the effects of activities or uses that may negatively affect public trust resources, particularly excessive coastal development and armoring.[139] Additionally, projections of ongoing sea level rise indicate that some uplands currently in private ownership are likely to fall below the mean high tide line in the future. Strategies to protect the public's interest in future tidelands have also been suggested.

These groups agree that the public trust doctrine can function as an effective legal tool supporting adaptation strategies that protect tidelands in California from ongoing changes. Currently, effects of climate change, such as sea level rise, in concert with continued development of the coastline pose the most severe risks to California's public trust tidelands. These dual threats are encroaching on valued public lands from multiple sides. By considering the expected effects of sea level rise and coastal development trends on recognized public trust resources and interests, the state will find strong legal support —rooted in long-standing principles of property law—for limiting inappropriate activities in the most vulnerable or hazardous of areas.

However, several legal questions remain in the interpretation of the public trust doctrine and its relationship to contemporary coastal land management in light of sea level rise. These include:

- How will the location of the coastal property boundary (i.e., the mean high tide

138 *See e.g.*, CCC SLR Guidance, *supra* note 7, at 14–16; California State Lands Commission, A Report on Sea Level Rise Preparedness 1–3(2009); San Francisco Bay Conservation and Development Commission, Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline 1–9 (2011); Marin County Climate Action Plan § 8.2.2.3 (2015); Assembly Bill (AB) 691 (Muratsuchi), Chapter 592, Statutes of 2013 (requiring local trustees—whose public trust revenues exceed $250,000—to prepare and submit to the SLC an assessment of their sea-level rise adaption strategies, including effects on existing facilities and future development.).

139 *See supra* note 149; Meg Caldwell & Craig Holt Segall, *No Day at the Beach: Sea Level Rise, Ecosystem Loss, and Public Access Along the California Coast*, 34 Ecology L.Q. 533 (2007); Eichenberg et al., *supra* note 95, at 243; Megan M. Herzog & Sean B. Hecht, *Combating Sea-Level Rise in Southern California: How Governments Can Seize Adaptation Opportunities While Minimizing Legal Risk*, 19 Hastings West Northwest J. Envtl. L. & Pol'y 463 (2013); Chloe Angelis, *The Public Trust Doctrine and Sea Level Rise in California: Using the Public Trust to Restrict Coastal Armoring*, 19 Hastings West Northwest J. Envtl. L. & Pol'y 249 (2013).

line) change in the future due to sea level rise and will coastal development affect movement of the coastal property boundary? Can new technologies or scientific information help reduce the complexity and resources currently necessary to identify the tidelands boundary?

- What requirements does the public trust doctrine place on the state of California to protect public trust resources and uses in light of sea level rise?
- What is the relationship and interplay between the common law public trust doctrine and statutory law? What should happen if statutory law conflicts or is inconsistent with protecting public trust resources and uses from sea level rise?
- How proactive can California be in protecting public trust resources and uses from the predicted future effects of sea level rise?

The accompanying consensus statement seeks to answer many of these practical and legal questions. Developed by a group of coastal land use law and policy experts based on discussions around these key questions and issues, the statement sets forth an agreed upon interpretation of what the public trust doctrine requires and how California can utilize the public trust doctrine to protect valuable public interests in the coastline from the threats of sea level rise and poorly managed coastal development.

THE PUBLIC TRUST DOCTRINE:

A Guiding Principle for Governing California's Coast Under Climate Change

CENTER FOR OCEAN SOLUTIONS