

October 2001

Climate Change and the Public Trust Doctrine: Using an Ancient Doctrine to Adapt to Rising Sea Levels in San Francisco Bay

Tim Eichenberg

Sean Bothwell

Darcy Vaughn

Follow this and additional works at: <http://digitalcommons.law.ggu.edu/gguelj>

 Part of the [Environmental Law Commons](#)

Recommended Citation

Tim Eichenberg, Sean Bothwell, and 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. (2001).
<http://digitalcommons.law.ggu.edu/gguelj/vol3/iss2/2>

This Article is brought to you for free and open access by the Academic Journals at GGU Law Digital Commons. It has been accepted for inclusion in Golden Gate University Environmental Law Journal by an authorized administrator of GGU Law Digital Commons. For more information, please contact jfischer@ggu.edu.

ARTICLE

CLIMATE CHANGE AND THE PUBLIC
TRUST DOCTRINE: USING AN
ANCIENT DOCTRINE TO ADAPT TO
RISING SEA LEVELS IN SAN
FRANCISCO BAY⁺

TIM EICHENBERG, * *SEAN BOTHWELL*** & *DARCY VAUGHN****

I. INTRODUCTION

A little-known artifact of the California Gold Rush was the filling of San Francisco Bay. Thousands of forty-niners steamed around Cape Horn and swarmed ashore in Yerba Buena Cove, abandoning their vessels in San Francisco's idyllic harbor to seek gold in the Sierra foothills.

Yerba Buena Cove became a forest of masts. Hundreds of hulks lay abandoned. Some of them were used as warehouses, offices, or public buildings. One became the city jail. Around others the land was filled

⁺ This article is based on a memorandum prepared for the San Francisco Bay Conservation and Development Commission in 2008. However, the views and opinions described herein are entirely those of the authors and not of the Commission or the State of California.

* Chief Counsel, San Francisco Bay Conservation and Development Commission, and Adjunct Professor of Law, Vermont Law School.

** Anticipated J.D., Vermont Law School (2010). Mr. Bothwell served as a legal intern at the San Francisco Bay Conservation and Development Commission and the Center for Ocean Solutions.

*** J.D., University of California Hastings College of the Law (2009). Ms. Vaughn served as a legal intern at the San Francisco Bay Conservation and Development Commission, the Law Offices of Stephan C. Volker, and the U.S. Department of Justice--Environment and Natural Resources Division.

244 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

in, and they became a permanent part of the city. . . . Eventually the cove was completely filled in.¹

Soon, the flood of fortune-seekers spread across San Francisco Bay. Towns like Oakland and Sausalito sprang up overnight, and the filling of San Francisco Bay began in earnest. By 1960, one-third of the Bay had been filled, and a plan was devised to reduce the Bay to a mere river.² To three dynamic women from Berkeley this was the final straw.³ They created a new organization called “Save the Bay” and in 1965 successfully lobbied for legislation that created the nation’s first coastal management agency – the San Francisco Bay Conservation and Development Commission (BCDC) – with its chief mission to prohibit Bay fill and provide for public access.

By all accounts, BCDC and its local, state and federal partners have been remarkably successful at reducing Bay fill and restoring Bay habitat. Prior to 1965, about 2,300 acres of San Francisco Bay were filled each year.⁴ Today, just a few acres are filled annually, and only for water-oriented uses, so that the Bay is more than 15,000 acres larger today than it was when BCDC was established.⁵

But the Bay is currently confronted with another, even more daunting problem: global climate change and sea level rise. A projected sixteen- to fifty-five-inch rise in sea level during the next century threatens 270,000 Bay Area residents and \$62 billion worth of shoreline development, including both international airports, Silicon Valley, much of the freeway system, and the Bay’s entire estuarine ecosystem.⁶

Since BCDC was created to stop the filling of the Bay, it is ill-

¹ HAROLD GILLIAM, SAN FRANCISCO BAY 62 (1957).

² Between 1850 and 1960 an average of four square miles of the Bay were filled each year, reducing the open Bay from 787 square miles from the days of the Gold Rush to 430 square miles a century later. RICE ODELL, THE SAVING OF SAN FRANCISCO BAY: A REPORT ON CITIZEN ACTION AND REGIONAL PLANNING, THE CONSERVATION FOUNDATION 8 (1972). Plans were proposed to fill another 325 square miles, which would have reduced the Bay to little more than a broad river. SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, HISTORY OF THE SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION, *available at* www.bcdc.ca.gov/history.shtml.

³ The three women were Mrs. Catherine Kerr, Mrs. Sylvia McLaughlin, and Mrs. Esther Gullick. Mrs. Kerr’s husband, Clark Kerr, was the president of the University of California. ODELL, *supra* note 2, at 10-11.

⁴ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, BCDC’S MISSION, www.bcdc.ca.gov/mission.shtml (last visited Nov. 12, 2009).

⁵ *Id.*; *see also* SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, 2009 ANNUAL STATISTICS (2009) (on file with authors).

⁶ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, LIVING WITH A RISING BAY: VULNERABILITY AND ADAPTATION IN SAN FRANCISCO BAY AND ON THE SHORELINE, DRAFT STAFF REPORT 59 (2009), *available at* www.bcdc.ca.gov/proposed_bay_plan/bp_1-08_cc_draft.pdf.

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 245

equipped to address the modern challenges presented by a bay expanding from rising sea levels and climate change. Moreover, recent judicial interpretations extending the Fifth Amendment of the United States Constitution – the so-called “Takings Clause” – to environmental and land-use regulations further restricts the ability of BCDC and other government agencies to mitigate the impacts of climate change and sea level rise.⁷

However, BCDC and other state coastal management agencies have at their disposal an ancient tool: the “public trust doctrine.” Dating back to Roman times, the public trust doctrine establishes a “public easement” over navigable waters and tidelands that can be used to help address modern challenges presented by rising sea levels caused by a warming climate.

The predicament faced in San Francisco Bay is confronted in bays and estuaries throughout the nation. Using BCDC as a case study, this Article examines the threats posed by climate change to San Francisco Bay, the relationship between the public trust doctrine and the Takings Clause, and how the public trust doctrine can help public agencies address the impacts of climate change and sea level rise by:

- Enhancing limited permit authority;
- Requiring fees to mitigate the impacts of climate change;
- Addressing the impacts of shoreline armoring;
- Utilizing rolling easements and other legal mechanisms;
- Protecting wetlands, marshes, and salt ponds;
- Implementing the California Environmental Quality Act and Coastal Zone Management Act; and
- Pursuing common law remedies to preserve open space and public access.

II. THE IMPACTS OF CLIMATE CHANGE ON COASTAL COMMUNITIES AND SAN FRANCISCO BAY

The impacts of climate change on San Francisco Bay during the next 100 years will dramatically change the Bay’s uses, boundaries, ecosystem, and infrastructure. The California Climate Change Center projects that by 2100, average temperatures in California could rise between three and 10.5 degrees Fahrenheit,⁸ raising water levels in the

⁷ “Takings” jurisprudence will be discussed at length throughout this Article.

⁸ CLIMATE ACTION TEAM, CAL. ENVTL. PROT. AGENCY, DRAFT BIENNIAL REPORT 1.5 (2009), available at www.energy.ca.gov/2009publications/CAT-1000-2009-003/CAT-1000-2009-003-D.PDF.

246 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

Bay as much as fifty-five inches, and drastically changing the Bay's shoreline.⁹ BCDC has shown how a one-meter rise in the level of the Bay will inundate 200 square miles of low-lying shoreline areas, including some of the region's most valuable infrastructure and economic centers such as San Francisco and Oakland International Airports, portions of Silicon Valley, and much of the area between Richmond and San Pablo.¹⁰ The far north and south ends of the Bay, the South Bay, San Pablo Bay, and the area surrounding the mouth of the Petaluma River are particularly vulnerable to flooding.¹¹

The combination of higher baseline mean sea level, changes in river flows, and weather effects may increase the frequency and duration of high sea level extremes. Extreme sea levels and storm surge will threaten existing flood-control structures and prompt some property owners to construct larger and more structurally sound levees and sea walls. In the past, maintaining and expanding the existing system of flood-control structures has come at the expense of the Bay's shoreline ecosystems. BCDC analysis shows that much existing public access to and along the shoreline is likely to flood by the year 2050.¹² The construction of seawalls and other erosion-control devices to protect existing development and low-lying areas may further exacerbate impacts on public access and unprotected areas of the Bay.¹³

This is not just a problem for the Bay Area. Many coastal communities will be faced with utilizing expensive and potentially damaging erosion and flood-control methods to combat sea level rise. Studies have shown that such methods may actually increase risks of erosion and dynamic coastal process, and also may generate a false sense of security that fosters development in flood-prone areas.¹⁴ In California alone, the cost of building static structures to protect against a fifty-five-inch rise in sea level would be \$14 billion.¹⁵ A sea level rise of fifty-five inches will inundate more than 25% of California's remaining 550 square miles of valuable wetlands.¹⁶ By 2060, coastal erosion nationwide may

⁹ *Id.* at 1.10.

¹⁰ See SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, *supra* note 6, at 59.

¹¹ See *id.* at 60, 82.

¹² *Id.* at 18.

¹³ See 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, 539-42 (2007).

¹⁴ Adam Parris & Leslie Lacko, *Climate Change Adaptation in the San Francisco Bay: A Case for Managed Realignment*, 77 *SHORE & BEACH* 46, 48 (2009).

¹⁵ *Id.*

¹⁶ Brief for Coastal States Organization as Amicus Curiae Supporting Respondents at 25, *Stop the Beach Renourishment, Inc. v. Fla. Dep't of Env'tl. Prot.*, No 08-1151 (Oct. 5, 2009) 2009 WL 6046172, available at www.coastalstates.org/uploads/CSO%20Amicus%20Brief_STBR_08-

threaten nearly 87,000 homes and other buildings.¹⁷ Even a twenty-inch rise in sea levels may cause an estimated \$23-170 billion in damage nationally by 2100 from increased storm intensity and frequency.¹⁸ Rapid erosion and increased coastal and inland flooding will have disastrous effects on beach habitats, wetlands, and coastal forests.¹⁹

III. THE PUBLIC TRUST DOCTRINE

The public trust doctrine dates back to Roman times and the Code of Justinian, which proclaimed that “the shores are not understood to be property of any man.”²⁰ The doctrine was imported to the American colonies from England, where navigable waters and underlying tidelands and submerged lands were owned by the Crown but remained subject to the public’s right to use such lands and waters for fishing, navigation, and commerce.²¹

The doctrine remained imbedded in American common law when the colonies declared their independence. Each state acquired ownership of the navigable waters, including the tidelands and submerged lands within its jurisdiction, when it joined the Union,²² and developed its own public trust doctrine and public trust uses.²³ Today the doctrine creates a duty for states to protect the common heritage of their coastal lands and waters for preservation and public use.²⁴ In effect, it establishes a “public

115.pdf (“In California . . . [a]n estimated 550 square miles, or 350,000 acres, of wetlands exist along the California coast, valued at approximately \$5,000-\$200,000 per acre. A sea level rise of 1.4 meters (55 inches), will flood approximately 150 square miles of land immediately adjacent to current wetlands.”) (footnote omitted).

¹⁷ *Id.* at 20.

¹⁸ *Id.* at 24.

¹⁹ *Id.* at 24-25.

²⁰ J. INST. 2.1.5 (THE INSTITUTES OF JUSTINIAN, Thomas Collett Sanders trans. 158 (1876), citing *Institutes of Justinian* 2.1.5 (AD 533). Section 2.1.1 of the code also states that, “[b]y the law of nature these things are common to all mankind – the air, running water, the sea and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments and the buildings, which are not, like the sea, subject only to the law of nations.” *Id.* 2.1.1.

²¹ Jack H. Archer & Terrance W. Stone, *The Interaction of the Public Trust and the “Takings” Doctrines: Protecting Wetlands and Critical Coastal Areas*, 20 VT. L. REV. 81, 83-84 (1995). In the United States, the state holds title as trustee of the public trust in place of the Crown. *Id.*

²² *Borax Consol., Ltd. v. City of Los Angeles*, 296 U.S. 10, 15-16 (1935).

²³ STEPHEN E. ROADY, *The Public Trust Doctrine*, in OCEAN AND COASTAL LAW AND POLICY 39, 41 (Donald C. Baur, Tim Eichenberg & Michael Sutton eds. 2008).

²⁴ *Nat’l Audubon Soc’y v. Superior Court of Alpine County*, 658 P.2d 709, 724 (Cal. 1983); see also *State v. Superior Ct. (Lyon)*, 29 Cal. 3d 210, 231 (Cal. 1981); *Marks v. Whitney*, 491 P.2d 374, 381 (Cal. 1971). Persuasive arguments also have been made that a federal public trust doctrine

248 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

easement” held by the state over tidelands and submerged lands, including those lands transferred to private ownership (unless the trust has been specifically terminated by legislation). Accordingly, even where it no longer has an ownership interest, the state has a duty to protect public uses.²⁵

A. GEOGRAPHIC SCOPE

The geographic scope of the public trust doctrine traditionally extends to lands under “navigable waters,” including rivers, streams, and lakes, as well as submerged lands and tidelands.²⁶ Submerged lands include all navigable riverbeds and lakebeds up to the ordinary low water mark, and lands underlying state ocean and estuarine waters. Tidelands include all areas subject to tidal influence up to the ordinary high water mark, as measured by the mean high tide line. The mean high tide line is determined by averaging the height of the all tides over an 18.6-year period reflecting the time it takes for the moon to complete a cycle during which its distance from the earth and sun varies.²⁷ In California, the public trust doctrine applies up to the mean high tide line. This stands in stark contrast to so-called “low tide” states where the sea boundary of privately owned oceanfront property is the mean low tide line, and public access in the intertidal zone is not considered a public trust right.²⁸ On

should exercise the same fiduciary responsibilities beyond state waters in the United States Exclusive Economic Zone. See Mary Turnipseed, Stephen E. Roady, Raphael Sagarin &, Larry B. Crowder, *The Silver Anniversary of the United States' Exclusive Economic Zone: Twenty-Five Years of Ocean Use and Abuse, and the Possibility of a Blue Water Public Trust Doctrine*, 36 *ECOLOGY L. Q.* 1, 40-50 (2009); ROADY, *supra* note 23, at 41.

²⁵ See SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, SAN FRANCISCO BAY PLAN 79 (2008), available at www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf.

²⁶ All tidelands subject to the ebb and flow of the tide are subject to the public trust doctrine regardless of whether the waters are navigable-in-fact. *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469, 481 (1988).

²⁷ *Borax Consol.*, 296 U.S. at 23-24; *People v. William Kent Estate Co.*, 51 Cal. Rptr. 215, 218 (Cal. Ct. App. 1966) (“The ‘high water mark’ is not ‘a physical mark made upon the ground by the waters; it means the line of high water as determined by the course of the tides’ . . . The ebb and flow of the tide, and the varying heights of the several tides, are largely caused by the gravity forces of moon and sun, the former exercising about double the effect of the latter. The varying positions of these two bodies, in relation to each other and to the particular point of the earth’s surface being considered, effect substantial differences in the height of the several high tides. The most commonly recognized variations follow the phases of the moon. But the lunar month is not a sufficient period to determine an average of high tides. Rather, the full range of astronomical variants affecting the height of tides is deemed covered only in 18.6 years.”).

²⁸ Five states allow private ownership to the mean low water mark: Maine, Massachusetts, Pennsylvania, Delaware and Virginia. In these states the trust applies below the mean low water line. Barbara A. Vestal, *Dueling with Boat Oars, Dragging Through Mooring Lines: Time for More Formal Resolution of Use Conflicts in States' Coastal Waters?*, 4 *OCEAN & COASTAL L.J.* 1, 26 n.87

the other hand, Texas asserts public trust rights beyond the mean high tide line to the first line of natural vegetation.²⁹ Areas landward of mean high tide are generally excluded from the public trust unless necessary to protect trust uses and resources.³⁰

In California, the geographic scope of the public trust doctrine extends to non-navigable tributaries of navigable waterways³¹ to debris fills impairing navigation and other uses of navigable waters,³² and to substantial diversions of non-navigable waters that feed navigable streams.³³ However, the public trust does not apply to tidelands perfected by federal patents pursuant to the Treaty of Guadalupe Hidalgo, which formally ended the Mexican-American war in 1848, because California failed to assert its public easement during the patent confirmation proceedings.³⁴ Though no case law speaks to patented inland parcels, California may also be precluded from asserting the public trust over nine million acres of patented lands.³⁵

B. PUBLIC TRUST USES

The public trust doctrine generally guarantees public rights to navigable waters, tidelands, and submerged lands for traditional uses of fishing, navigation, and commerce.³⁶ The California Constitution also

(1999); *see also* Bell v. Town of Wells, 557 A.2d 168, 176-77 (Me. 1989); *In re* Opinion of the Justices, 313 N.E.2d 561, 569-70 (Mass. 1974).

²⁹ TEX. NAT. RES. § 61.018 (a-1)(2),(3) (Westlaw 2010). *See infra* notes 195-204 and accompanying text for discussion of rolling easements.

³⁰ *See* Nat'l Audubon Soc'y v. Superior Court of Alpine County, 658 P.2d 709, 724 (Cal. 1983).

³¹ *Id.* at 721.

³² *See* People v. Gold Run Ditch & Mining Co., 66 Cal. 138, 147 (Cal. 1884). The fills at issue in that case were waste products from the use of water cannons to wash gold ore from hillsides, which dumped 600,000 cubic yards of sand and gravel annually into the north fork of the American River. *Id.* at 144.

³³ *See* People *ex rel.* Roberts v. Russ, 132 Cal. 102, 106 (Cal. 1901).

³⁴ *See* Summa Corp. v. California, 466 U.S. 198, 202, 209 (1984). Though a federal patent could not dispense with a state's sovereign rights, the deeds of Spanish and Mexican grantees were patented "pursuant to the authority reserved to the United States to enable it to discharge its international duty with respect to land which, although tideland, had not passed to the State." *Id.* at 205. Patent proceedings focusing on Spanish and Mexican law and custom might arguably attach a public trust easement to title, as public trust rights under Spanish and subsequently Mexican law, guaranteed by the Treaty of Guadalupe Hidalgo, serve as an independent basis for the public trust doctrine in California. Nat'l Audubon Soc'y v. Superior Court of Alpine County, 658 P.2d 709, 719 n.15 (Cal. 1983).

³⁵ *Summa Corp.*, 466 U.S. at 209; *see also* Christine A. Klein, *Treaties of Conquest: Property Rights, Indian Treaties and the Treaty of Guadalupe Hidalgo*, 26 N.M. L. REV. 201, 218 (1996).

³⁶ *See* Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 476 (1988).

250 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

guarantees basic trust rights of public access to navigable waters³⁷ and the right to fish on and from public lands and waters.³⁸ In addition, California courts have long recognized that trust uses on tidelands are sufficiently flexible to evolve over time based upon “changing public needs,” and that “in administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another.”³⁹

Consequently, the trust in California extends to recreational uses such as the right to use navigable waters “to fish, hunt, bathe, swim, to use for boating and general recreation purposes . . . and to use the bottom of the navigable waters for anchoring, standing, or other purposes.”⁴⁰ More significantly, the courts have defined the public trust doctrine to include “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.”⁴¹ A recent California ruling also found that the public could enforce the trust to protect birds and wildlife threatened by wind turbines at Altamont Pass, even though they were not located on tidelands or submerged lands.⁴² The trust can even prevent uses on non-trust lands and non-

³⁷ CAL. CONST. art. X, § 4 (“No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall be always attainable for the people thereof.”) Based upon this provision, a county ordinance was invalidated that prohibited rafting on the South Fork of the American River “because it denies the constitutional right of the public use and access to a navigable stream.” *People v. El Dorado County*, 96 Cal. App. 3d 403, 407 (Cal. Ct. App. 1980). The California Legislature has also enacted numerous statutes to provide such access (*E.g.*, CAL. GOV. CODE §§ 66602, 66632.4 (Westlaw 2010) (McAteer-Petris Act); CAL. PUB. RES. CODE §§ 30210-30212 (Westlaw 2010) (California Coastal Act); CAL. PUB. RES. CODE §§ 31400-31405 (Westlaw 2010) (authorizing California Coastal Conservancy to acquire, develop and operate coastal access-ways).

³⁸ CAL. CONST. art. I, § 25 (“The people shall have the right to fish upon and from the public lands of the State and in the waters thereof, . . . and no land owned by the State shall ever be sold or transferred without reserving in the people the absolute right to fish thereupon . . .”).

³⁹ *Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971).

⁴⁰ *Id.* at 380; *see also* *People ex rel. Baker v. Mack*, 19 Cal. App. 3d 1040, 1045 (Cal. Ct. App. 1971) (“With our ever-increasing population, its ever-increasing leisure time . . . and the ever-increasing need for recreational areas (witness the hundreds of camper vehicles carrying people to areas where boating, fishing, swimming and other water sports are available), it is extremely important that the public need not be denied use of recreational water . . . [t]he rule is that a navigable stream may be used by the public for boating, swimming, fishing, hunting and all recreational purposes.”).

⁴¹ *Whitney*, 491 P.2d at 380 (emphasis added).

⁴² *Ctr. for Biological Diversity, Inc. v. FPL Group, Inc.*, 83 Cal. Rptr. 3d 588, 595-96 (Cal.

navigable waters that harm navigable waters (e.g., diverting non-navigable waters that harm Mono Lake).⁴³

Thus, the public trust doctrine has evolved from permitting certain uses to protecting trust values⁴⁴ and therefore may support affirmative action to prevent harm to public trust lands and waters in a manner similar to abating a public nuisance.⁴⁵

C. CONVEYING PUBLIC TRUST LANDS

The U.S. Supreme Court has long recognized that states have the exclusive right to hold tidelands and submerged lands in trust for public benefit.⁴⁶ Although states may convey portions of such lands to public or private entities for trust purposes such as improving waterways by constructing ports, docks and wharves, the conveyance may not substantially impair public trust rights, and the lands conveyed generally remain subject to a public trust easement.⁴⁷

Conveyances that pass title to trust property do not extinguish trust rights or the public easement unless the trustee determines that the lands are no longer suitable for trust purposes.⁴⁸ When private owners receive title to trust lands, they do so subject to the paramount power of the state to exercise the public trust.⁴⁹ Therefore, public trust rights generally persist on privately owned trust lands and may be asserted by the state or

Ct. App. 2008). However, the court held that members of the public could enforce the trust against the government, not the private companies operating the windmills. *Id.* at 607. Only the government as trustee could enforce the trust against private parties. *Id.*

⁴³ See Nat'l Audubon Soc'y v. Superior Court of Alpine County, 658 P.2d 709, 711-12 (Cal. 1983).

⁴⁴ Archer & Stone, *supra* note 21, at 91. Thus, the state as administrator and controller of the public trust has the right "to enter upon and possess the same for the preservation and advancement of the public uses and to make such changes and improvements as may be deemed advisable for those purposes." *People v. Cal. Fish Co.*, 166 Cal. 576, 599 (Cal. 1913).

⁴⁵ Archer & Stone, *supra* note 21, at 93.

⁴⁶ *Ill. Cent. R. Co. v. Illinois*, 146 U.S. 387, 452 (1892) ("[T]he state holds title to soils under tide water, by the common law . . . and that title necessarily carries with it control over the waters above them, whenever the lands are subjected to use . . .").

⁴⁷ *Id.* at 453-54. ("The State can no more abdicate its trust over property in which the whole people are interested, like navigable waters and soils under them, . . . than it can abdicate its police powers."). The waters of the state are also a public trust resource that is held separately in trust by the state for the benefit of the people. *Id.* at 456. The waters of the state are owned and controlled by the state and cannot be privately owned, although a private individual may acquire a limited right to the use of such waters only. See, e.g., CAL. WATER CODE §§ 102, 1001 (Westlaw 2010); *Kidd v. Laird*, 15 Cal. 162, 180 (1860) (such use is heavily regulated by the State Water Resources Control Board).

⁴⁸ See *Cal. Fish Co.*, 166 Cal. at 597.

⁴⁹ *Id.* at 596. (the grantee of trust lands does not obtain absolute ownership but takes "title to the soil . . . subject to the public right of navigation.").

252 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

its designated trustee.⁵⁰

When California became a state in 1850, it assumed responsibility over nearly four million acres of public trust lands and waters, including San Francisco Bay.⁵¹ Shortly thereafter, the California Legislature conveyed nearly half of the Bay and San Francisco waterfront to local governments and private parties.⁵² Before this practice was curtailed, some submerged lands were filled and improved, including the Financial District of San Francisco, and were declared free of the public trust.⁵³ But virtually all unfilled tidelands and submerged lands, and even some filled tidelands, remain subject to the public trust.⁵⁴

⁵⁰ City of Berkeley v. Superior Court, 26 Cal. 3d 515, 521 (Cal. 1980).

⁵¹ Pollard's Lessee v. Hagan, 44 U.S. 212, 222 (1845) (California assumed ownership of its tidelands and submerged lands on equal footing with other states. The Equal Footing Doctrine provides that that whenever a state enters the Union, "such state shall be admitted . . . on an equal footing with the original states in all respects whatever.").

⁵² SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMM., SAN FRANCISCO BAY PLAN SUPPLEMENT 413-414 (January 1969) ("Not only has much of the Bay – perhaps as much as 22% -- been sold to private buyers, but the remainder of the Bay is also divided in ownership. The State in the past has granted about 23 % of the Bay to cities and counties, and now owns outright only about 50%. The remaining 5% is owned by the federal government."). The McAteer-Petris Act amended the terms of all existing legislative trust grants that conveyed tidelands and submerged lands to the following local governments: Alameda, Albany, City and County of San Francisco, Benicia, Oakland, City of San Mateo, County of San Mateo, Vallejo, Richmond, South San Francisco, Berkeley, Burlingame, Emeryville, Pittsburg, Redwood City, Sausalito, Antioch, Mill Valley, County of Marin, County of Sonoma, San Leandro, Peralta Junior College District, San Rafael, San Francisco Port District and East Bay Regional Park District. *See generally*, CAL. GOV'T. CODE § 66600, et. seq. (Westlaw 2010); *see also* People *ex rel.* San Francisco Bay Conservation & Development Comm'n v. Town of Emeryville, 69 Cal. 2d 533, 543 (Cal. 1968) (many of these grants specifically enumerate the types of uses that may be made of the granted lands by the grantees, but all are also subject to BCDC jurisdiction under the McAteer-Petris Act).

⁵³ City of Long Beach v. Mansell, 3 Cal. 3d 462, 479 (Cal. 1970); *see also* Marks v. Whitney, 491 P.2d 374 (Cal. 1971). These areas are generally filled former tidelands that no longer provide benefits to the public. However, the filling of trust lands in and of itself does not terminate the public trust. The Legislature must specifically terminate the trust. To prevent abuses from the indiscriminate conveyance of tidelands shortly after statehood, article X, section 3, of the California Constitution prohibited the sale of all tidelands within two miles of any incorporated city or city and county. In 1909, the Legislature prohibited all tideland sales to private parties. CAL. PUB. RES. CODE § 7991 (Westlaw 2010).

⁵⁴ SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, *supra* note 25, at 79. The McAteer-Petris Act makes legislatively granted tidelands in the Bay subject to BCDC jurisdiction. *Town of Emeryville*, 69 Cal. 2d at 549. Courts have held that legislatively granted tidelands must be used for statewide public purposes. *See* Mallon v. City of Long Beach, 44 Cal. 2d 199, 211 (Cal. 1955); *Haggerty v. City of Oakland*, 161 Cal. App. 2d 407, 415 (Cal. Ct. App. 1958). This would support Commission efforts to address impacts from climate change and sea level rise.

D. STEWARDSHIP OF THE PUBLIC TRUST IN SAN FRANCISCO BAY

States generally delegate the management of trust lands and waters to a specific agency. In California, the Legislature has granted stewardship of its public trust lands to the State Lands Commission, which can lease and convey trust lands, but only for trust purposes.⁵⁵ Uses inconsistent with the public trust (i.e., non-trust-related uses) are generally those that do not require waterfront locations, like residential and non-water-related commercial office uses.⁵⁶

The management of trust lands and waters generally involves monitoring the activities of grantees to ensure compliance with the terms of the statutory grants under the public trust doctrine,⁵⁷ acquiring and condemning lands needed for access to navigable waters,⁵⁸ exchanging trust lands no longer useful for trust purposes,⁵⁹ and purchasing lands usable for trust purposes.⁶⁰ Agencies like the California State Lands Commission also can prevent activities on trust lands inconsistent with trust needs, sue for ejectment, trespass, and damages,⁶¹ and allow trust uses without compensating private property owners.⁶²

⁵⁵ CAL. PUB. RES. CODE §§ 6216, 6301 (Westlaw 2010). The State Lands Commission is not the only state-designated trustee agency. The State Water Board has trustee authority over the state's fresh water resources under CAL. WATER CODE § 1200 et seq. (Westlaw 2010), and the Department of Fish and Game has trustee authority over the state's fish and wildlife resources under CAL. FISH & G. CODE § 700 et seq. (Westlaw 2010). Other state agencies, such as the California Coastal Commission, Department of Forestry and Regional Water Quality Control Boards, while not designated state trustee agencies, exercise legislative common law trust powers. Moreover, every other state agency has the duty to consider and protect public trust resources in the administration of its statutory mandate. Donna Sheehan Fitzgerald, *Extending Public Trust Duties to Vermont's Agencies: A Logical Interpretation of the Common Law Public Trust Doctrine*, 19 VT. L. REV. 509, 530 (1995) (“[A]gencies have common law public trust duties despite the absence of an express legislative delegation of such duties.”).

⁵⁶ State Lands Commission 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. While trust lands cannot generally be alienated from public ownership, uses of trust lands can be carried out by public or private entities by lease from this Commission or a local agency grantee. In some cases, such as some industrial leases, the public may be excluded from public trust lands in order to accomplish a proper trust use.” California State Lands Commission, Public Trust Policy for the California State Lands Commission 2, available at www.slc.ca.gov/policy_statements/public_trust/public_trust_policy.pdf.

⁵⁷ CAL. PUB. RES. CODE § 6306 (Westlaw 2010).

⁵⁸ CAL. PUB. RES. CODE § 6210.9.

⁵⁹ CAL. PUB. RES. CODE § 6307(a)(5).

⁶⁰ CAL. PUB. RES. CODE §§ 8610-8633.

⁶¹ CAL. PUB. RES. CODE §§ 6216.1, 6224.1, 6302.

⁶² See *Newcomb v. City of Newport Beach*, 7 Cal. 2d 393, 400-02 (Cal. 1936); *Oakland v. Oakland Water Front Co.*, 118 Cal. 160, 163 (Cal. 1897) (state must pay for the use or removal of

254 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

Agencies that manage state trust lands may share their public trust responsibilities with other state agencies. In California, BCDC is authorized to coordinate and implement trust uses in the Bay “in the state’s capacity as trustee of the tidelands.”⁶³ BCDC does not have the right to convey or lease trust lands; that authority remains with the California State Lands Commission.⁶⁴ But both BCDC and the State Lands Commission share authority to limit public and private uses of trust lands in San Francisco Bay.⁶⁵

BCDC exercises its public trust responsibilities through its statutory authority under the McAteer-Petris Act “to issue or deny permits for any proposed project that involves placing fill, extracting materials or making any substantial change in use of water, land or structure within the area of the commission’s jurisdiction.”⁶⁶ The California State Lands Commission is guided by BCDC’s enabling laws, which require “maximum feasible public access,”⁶⁷ ensure that the public benefits of fill in the Bay clearly exceed public detriments,⁶⁸ and preserve water-oriented uses.⁶⁹ Similar trust authority is provided to BCDC in the Suisun Marsh.⁷⁰

BCDC has been charged with developing policies under the San Francisco Bay Plan to implement its statutory authority under the McAteer-Petris Act, and it may amend portions of the Bay Plan as conditions warrant, so long as the changes are consistent with the Act.⁷¹ In exercising its authority under the Act and the Bay Plan, courts have held, BCDC must err on the side of the public trust principles and ecological quality.⁷²

The Bay Plan calls upon the Commission to ensure that Bay fill is

lawful improvements on trust lands made in good faith); *see also* CAL. PUB. RES. CODE § 6312 (Westlaw 2010).

⁶³ *City of Berkeley v. Superior Court*, 26 Cal. 3d 515, 531-32 (Cal. 1980).

⁶⁴ CAL. PUB. RES. CODE § 6301.

⁶⁵ CAL. PUB. RES. CODE § 6302.

⁶⁶ CAL. GOV’T CODE § 66604 (Westlaw 2010).

⁶⁷ CAL. GOV’T CODE §§ 66602, 66632.4.

⁶⁸ CAL. GOV’T CODE § 66605(a).

⁶⁹ CAL. GOV’T CODE §§ 66602, 66605, 66611.

⁷⁰ CAL. PUB. RES. CODE § 29002 (Westlaw 2010) (Marsh preservation); § 29009 (public use); § 29011 (public access); §§ 29113, § 29202 (Suisun Marsh Protection Plan); § 29506 (permit authority).

⁷¹ CAL. GOV’T CODE §§ 66651, 66652 (Westlaw 2010). BCDC also has developed policies in the Suisun Marsh Protection Plan to implement the Suisun Marsh Preservation Act. *See* CAL. PUB. RES. CODE § 29008 (Westlaw 2010).

⁷² *See People ex. rel. San Francisco Bay Conservation & Dev. Comm’n v. Town of Emeryville*, 69 Cal. 2d 533, 545-47 (Cal. 1968); *see also* *Candlestick Properties, Inc. v. San Francisco Bay Conservation & Development Comm’n*, 11 Cal. App. 3d 557 (Cal. Ct. App. 1970).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 255

consistent with public trust uses⁷³ and that its actions are “consistent with the public trust needs for the area.”⁷⁴ The Bay Plan describes trust uses “such as commerce, navigation, fisheries, wildlife habitat, recreation and open space.”⁷⁵ However, as noted above, California courts have recognized that trust uses also include “the preservation of those lands in their natural state . . . 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.”⁷⁶ While these trust uses do not provide any additional legal authority, they may be used in support of BCDC’s existing authority under the McAteer–Petris Act, the Bay Plan, and its other laws and policies to protect public trust uses.⁷⁷ These laws are direct legislative expressions of the common law public trust doctrine,⁷⁸ and BCDC exercises its trust responsibilities whenever it acts on a permit, adopts a Bay Plan or Marsh Plan amendment, adopts a Special Area Plan, or changes a regulation.

IV. THE TAKINGS CLAUSE

Government agencies may confront constitutional limitations on the “taking” of private property when they seek to address the impacts of climate change and rising sea levels by preserving vulnerable tidelands or wetlands, restricting development in hazardous areas, or limiting certain uses in and along water bodies like San Francisco Bay. However, government actions asserting a public trust easement on trust lands generally do not constitute a taking.

The Fifth Amendment’s “Takings Clause” provides that private property may not be taken for public use without just compensation.⁷⁹ The Takings Clause does not prohibit government from taking private property; it requires that property owners be compensated for the value of the property taken. According to the U. S. Supreme Court, the Takings Clause “was designed to bar Government from forcing some people

⁷³ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, *supra* note 25, at 75.

⁷⁴ *Id.* at 79.

⁷⁵ *Id.*

⁷⁶ Marks v. Whitney, 491 P.2d 374, 380 (Cal. 1971).

⁷⁷ Informal Advice from California Department of Justice to Michael Wilmar, Executive Director of San Francisco Bay Conservation and Development Commission, Apr. 28, 1982 at 26, 38.

⁷⁸ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, *supra* note 25, at 79.

⁷⁹ U.S. CONST. amend. V (“No person shall be deprived of life, liberty, or property, without due process of law; *nor shall private property be taken for public use, without just compensation.*” (emphasis added). This provision is made applicable to the states through the Fourteenth Amendment, U.S. Const. amend. XIV. California has a similar provision in its state constitution, CAL. CONST. art. I, § 19.

256 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.”⁸⁰ Much has been written about the Takings Clause, and a comprehensive review is not intended here except as it relates to the public trust doctrine.

Government can take private property in a number of ways: by direct appropriation, by physical occupation or invasion, or by regulation.⁸¹ A taking by direct appropriation occurs when government condemns property by eminent domain for a highway, public works project, or other public purpose.⁸² In such cases the property owner must be compensated.⁸³ Government may also require or authorize property to be physically occupied or invaded for a public purpose, such as causing property to be flooded or allowing the installation of cable TV equipment.⁸⁴ Taking property by permanent physical occupation or invasion is considered a “per se” or categorical taking,⁸⁵ and compensation must be provided regardless of the economic impact or the amount of property taken.⁸⁶

A. TOTAL TAKING

The Supreme Court has established a per se or categorical taking rule when government regulation renders property essentially valueless. In *Lucas v. South Carolina Coastal Council*,⁸⁷ South Carolina denied a permit to build a residence seaward of a setback line on an eroding beach. Since no alternative beneficial uses were viable on the property and the property was essentially rendered valueless, the Court

⁸⁰ *Armstrong v. United States*, 364 U.S. 40, 49 (1960).

⁸¹ 26 AM. JUR. 2D *Eminent Domain* § 10 (Westlaw 2010).

⁸² See *Kelo v. City of New London*, 545 U.S. 469 (2005). In *Kelo*, the Supreme Court upheld the use of eminent domain to take private property for economic redevelopment. *Id.* at 489. The Court held that “without exception, our cases have defined [public use] broadly, reflecting our longstanding policy of deference to legislative judgments in this field.” *Id.* at 480.

⁸³ BCDC does not have condemnation authority and therefore cannot directly appropriate private property. See Jonathan Smith & Alan Pendleton, *San Francisco Bay Conservation and Development Commission: Challenge and Response After 30 Years*, 28 GOLDEN GATE U. L. REV. 269, 274-280 (1998) (discussing BCDC’s jurisdiction and authority).

⁸⁴ See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U. S. 419, 426-27 (1982).

⁸⁵ A physical occupation is “a permanent and exclusive occupation by the government that destroys the owner’s right to possession, use and disposal of . . . property.” *Boise Cascade Corp. v. United States*, 296 F.3d 1339, 1353 (Fed. Cir. 2002).

⁸⁶ See *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 323 (2002) (A permanent physical occupation occurs “when the government appropriates part of a rooftop in order to provide cable TV access for apartment tenants [and] it is required to pay for that share no matter how small.”).

⁸⁷ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 257

determined that government action denied “all economically beneficial or productive use of land.”⁸⁸ This kind of total taking generally requires compensation to the landowner unless the restrictions “inhere in the title itself” and in background principles of property law and nuisance (this important exception is discussed further below).⁸⁹ Subsequent Court decisions have clarified that the availability of other beneficial uses on the property, such as development on an upland portion of coastal wetlands, would preclude a finding that there is a total taking.⁹⁰

B. REGULATORY TAKING

A taking is less clear however, when a permit or regulation reduces allowable uses, diminishes private property values, or requires the owner to provide a public benefit such as public access. State law sometimes specifically prohibits an agency from issuing or denying a permit in a manner that takes private property without just compensation.⁹¹ Nevertheless, takings issues may arise whenever an agency denies a permit, imposes a permit condition, or otherwise restricts the use of private property that would impede efforts to address the impacts of climate change and sea level rise.

Not every permit or regulation that diminishes property values is a regulatory taking. Indeed, the U. S. Supreme Court recognized that “government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law.”⁹² Even government regulations that require the physical invasion or occupation of private property are not a taking if

⁸⁸ *Id.* at 1015. The ruling is narrow and applies only “in the extraordinary circumstance when no productive or economically beneficial use of land is permitted” or the property is rendered “valueless.” *Id.* at 1017, 1020.

⁸⁹ *Id.* at 1029.

⁹⁰ See *Palazzolo v. Rhode Island*, 533 U.S. 606, 630-01 (2001).

⁹¹ The McAteer-Petris Act states that “[t]he Legislature hereby finds and declares that this title is not intended, and shall not be construed, as authorizing the commission to exercise its power to grant or deny a permit in a manner which will take or damage private property for public use, without the payment of just compensation therefor.” CAL. GOV CODE § 66606 (Westlaw 2010). A similar provision is contained in the Suisun Marsh Preservation Act. CAL. PUB. RES. CODE § 29013 (Westlaw 2010). However, no BCDC decision has ever been held to constitute a taking. See, e.g., *Navajo Terminals, Inc. v. San Francisco Bay Conservation Comm’n*, 46 Cal. App. 3d 1 (Cal. Ct. App. 1975) (holding that the adoption of a BCDC resolution “fixing and establishing within the shoreline band the boundaries of the water-oriented priority land uses” did not constitute a taking); *Candlestick Props., Inc. v. San Francisco Bay Conservation & Dev. Comm’n*, 11 Cal. App. 3d 557 (Cal. Ct. App. 1970) (holding BCDC’s denial of property owners request to fill his land was not a taking).

⁹² *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).

258 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

necessary to abate a threat to public health and safety, because no one “has a right to use his property so as to create a nuisance or otherwise harm others.”⁹³ However, the Court noted long ago: that while property may be regulated to a certain extent, “if regulation goes *too far* it will be recognized as a taking.”⁹⁴ It then spent the next eighty years trying to articulate a clear test to determine when a particular regulation goes “too far.”

Until recently, the Court relied on ad hoc (some say confusing) factual inquiries.⁹⁵ Much has been written on the efficacy of these tests, but for this analysis we examine four tests: the “total loss of all beneficial use” test used in *Lucas v. South Carolina Coastal Council*, the three-factor test used in *Penn Central Transportation Co. v. City of New York*, the “essential nexus” test used in *Nollan v. California Coastal Commission*, and the “rough proportionality” test used in *Dolan v. City of Tigard*.

C. PENN CENTRAL FACTORS

In *Penn Central Transportation Co. v. City of New York*,⁹⁶ the Supreme Court established the principal guidance for “resolving regulatory takings claims that do not fall within the physical takings or *Lucas* [total taking] rules.”⁹⁷ Although unable to fashion a “set formula” for evaluating takings claims,⁹⁸ the Court set forth three factors to determine whether a taking occurs: the economic impact of the regulation, the character of the government action, and the degree of interference with the owner’s “reasonable investment-backed

⁹³ *Keystone Bituminous Coal Ass’n v. DeBenedictis*, 480 U.S. 470, 491 n.20 (1987).

⁹⁴ *Id.* at 508 (citing *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922)) (emphasis added).

⁹⁵ The Court’s recent ruling in *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528 (2005), finding that a Hawaii statute that limited the rent that oil companies charge dealers that lease company-owned service stations was not a taking, provides some much-needed clarity to takings jurisprudence. The Court noted that regulatory takings exist when government requires an owner to suffer a permanent physical invasion of property – however minor – or where regulations completely deprive an owner of all economically beneficial use. *Id.* at 538. It then stated that, “[o]utside these two relatively narrow categories (and the special context of land-use exactions discussed below [e.g., in *Nollan* and *Dolan*]), regulatory takings challenges are governed by the standards set forth in *Penn Central*. . . . Primary among those factors are ‘[t]he economic impact of the regulation . . . on the claimant and, particularly, the extent to which the government has interfered with distinct investment-backed . . . expectations’ . . . [and] . . . the ‘character of the governmental action . . .’” *Id.* at 538-39 (quoting *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978)).

⁹⁶ *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

⁹⁷ *Lingle v. Chevron U.S.A., Inc.*, 544 U.S. 528, 539 (2005).

⁹⁸ *Penn Cent. Transp. Co.*, 438 U.S. at 124.

expectations.”⁹⁹ The economic impact of the regulation factor refers to the *Lucas* ruling under which the elimination of all value of the property will generally result in a taking.¹⁰⁰ The character of the government regulation factor examines whether the regulation is for a public purpose.¹⁰¹ The reasonable investment-backed expectation factor examines whether a buyer knows that that an existing law or regulation prohibits or restricts development on the property when the land is purchased.¹⁰² Thus, for example, an owner would normally not have reasonable investment-backed expectations for filling tidelands for non-trust private residential or agricultural uses under the public trust doctrine,¹⁰³ and consequently prohibiting those uses generally would not constitute a taking.¹⁰⁴

The Court also fashioned two additional takings tests to be used when development exactions or conditions require the dedication of land for public uses: the “essential nexus” test, and the “rough proportionality” test.

D. ESSENTIAL NEXUS

In *Nollan v. California Coastal Commission*,¹⁰⁵ the Court ruled that a taking occurred when the Coastal Commission required a property owner to dedicate a public access easement along a private portion of the

⁹⁹ *Id.*

¹⁰⁰ The mere diminution in the value of property alone, or the denial of the highest and best use or most profitable use of property, does not constitute a taking. See *Concrete Pipe & Prods., Inc. v. Constr. Laborers Pension Trust*, 508 U.S. 602, 645 (1993); *Hadacheck v. Sebastian*, 239 U.S. 394, 405 (1915) (reduction in value from \$800,000 to \$60,000 was held not a taking); *Florida Rock Indus., Inc. v. United States*, 791 F.2d 893, 901-02 (Fed. Cir. 1986).

¹⁰¹ See *Lingle*, 544 U.S. at 539. In *Lingle*, the Court concluded that the “character of the government action” factor in *Penn Central* examines whether a regulation “amounts to a physical invasion or instead merely affects property interests through ‘some public program adjusting the benefits and burdens of economic life to promote the common good.’” *Id.* The Court in *Lingle* also essentially eliminated consideration of whether a regulation “substantially advance[s] a legitimate state interest” under the Takings Clause. *Id.* at 540. It concluded that this test “prescribes an inquiry in the nature of a due process, not a takings, test, and that it has no proper place in our takings jurisprudence.” *Id.*

¹⁰² *Creppel v. United States*, 41 F.3d 627, 632 (Fed. Cir. 1994) (“One who buys with knowledge of a restraint assumes the risk of economic loss. In such a case, the owner presumably paid a discounted price for the property. Compensating him for a taking would confer a windfall.”) (citations omitted).

¹⁰³ *Orion Corp. v. State*, 747 P.2d 1062, 1083-84 (Wash. 1987). Since tidelands are also subject to the public trust doctrine, the owner would also lack sufficient property interest to claim a taking. *Id.*

¹⁰⁴ *Archer & Stone*, *supra* note 21, at 111.

¹⁰⁵ *Nollan v. Cal. Coastal Comm’n*, 483 U.S. 825 (1987).

260 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

beach behind his house as a permit condition for enlarging his home.¹⁰⁶ Although providing and protecting public access was a legitimate public purpose, the exaction was not sufficiently related to the project's stated impacts – blocking ocean views.¹⁰⁷ The public access easement therefore lacked an “essential nexus . . . between the condition and the original purpose of the building restriction.”¹⁰⁸ Under *Nollan*, public access to or along the Bay may be required as a permit condition to developing private property so long as it addresses the adverse effects caused by the project on public access. But without a “nexus,” the exaction is a taking.¹⁰⁹

E. ROUGH PROPORTIONALITY

In *Dolan v. City of Tigard*,¹¹⁰ the Court added to the *Nollan* “essential nexus” test the requirement that an exaction must also be “rough[ly] proportional . . . both in nature and extent to the impact of the proposed development.”¹¹¹ In *Dolan*, the Court struck down the dedication of a bike path as a permit condition to authorize the construction of a hardware store.¹¹² The Court found that although there was a nexus between the increased traffic caused by the store and the requirement for a bike path, the City did not establish the extent to which the bike path would mitigate the increased traffic or show that it was roughly proportional to the traffic impacts.¹¹³

Dolan therefore requires “some sort of individualized determination” that the dedication is “roughly proportional” to the impacts of the development.¹¹⁴ The Court noted that “government may not require a person to give up a constitutional right – here the right to receive just compensation when property is taken for a public use – in exchange for a discretionary benefit conferred by the government where the benefit has little or no relationship to the property.”¹¹⁵

¹⁰⁶ *Id.* at 827.

¹⁰⁷ *Id.* at 828.

¹⁰⁸ *Id.* at 837.

¹⁰⁹ *Id.*

¹¹⁰ *Dolan v. City of Tigard*, 512 U. S. 374 (1994).

¹¹¹ *Id.* at 391.

¹¹² *Id.* at 377-78.

¹¹³ *Id.* at 395-96. The Court held that “[n]o precise mathematical calculation is required, but the city must make some effort to quantify its findings in support of the dedication for the pedestrian/bicycle pathway beyond the conclusory statement that it could offset some of the traffic demand generated.” *Id.*

¹¹⁴ *Id.* at 391.

¹¹⁵ *Id.* at 385.

V. “TAKINGS” AND THE PUBLIC TRUST DOCTRINE

As noted above, the Takings Clause constrains government regulations and permit actions on private property. However, actions on public trust lands and waters are protected from takings claims in a number of ways.

The state’s public trust interest in tidelands and submerged lands is a dominant property interest, whether the state owns tidelands and submerged lands in fee, or has conveyed those lands to private parties and retains a public trust easement.¹¹⁶ The retained public trust easement protects government action from takings claims because the easement establishes allowable uses on trust property and therefore the state cannot take something it already owns. For example, the State of Washington’s denial of a permit to build homes on platforms and pilings in tidal waters was held not a taking because the public trust doctrine precluded residential shoreline development.¹¹⁷ The denial of a fill permit was upheld in South Carolina because public trust tidelands “effected a restriction on [the owner’s] property rights inherent in the ownership of property bordering tidal water . . . [and] ownership rights do not include the right to backfill or place bulkheads on public trust land and the State need not compensate him for the denial of permits to do what he cannot otherwise do.”¹¹⁸ In California, dredging privately owned tidelands to improve navigation was held not a taking because the city, as the state’s trustee, retained a public trust easement over patented tidelands that enabled it “to make improvements and changes in the administration of this easement without the exercise of eminent domain.”¹¹⁹ California courts have also held that blocking access to private tidelands by constructing a bridge is not a taking.¹²⁰

Lucas also creates an exception to the takings doctrine where “background principles” of nuisance and property law prohibit the uses that the state regulates, even if the regulation leaves a property with no beneficial uses. This is because the regulation or restriction “inheres in the title itself, [and] in the restrictions that background principles of the State’s law of property and nuisance already place upon land

¹¹⁶ See *Newcomb v. City of Newport Beach*, 7 Cal. 2d 393, 401-02 (Cal. 1936); *People v. Cal. Fish Co.*, 166 Cal. 576, 596-99 (Cal. 1913); *Oakland v. Oakland Water Front Co.*, 118 Cal. 160, 183 (Cal. 1897); *Western Oil & Gas Ass’n v. State Lands Comm’n*, 105 Cal. App. 3d 554, 566 (Cal. Ct. App. 1980).

¹¹⁷ *Esplanade Props., LLC v. City of Seattle*, 307 F.3d 978, 985 (9th Cir. 2002).

¹¹⁸ *McQueen v. South Carolina Coastal Council*, 580 S.E.2d 116, 120 (S.C. 2003).

¹¹⁹ *City of Newport Beach*, 7 Cal. 2d at 403.

¹²⁰ See *Colberg, Inc. v. State ex rel. Dep’t of Pub. Works*, 67 Cal. 2d 408, 416 (Cal. 1967).

262 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

ownership.”¹²¹ As a background principle of state property law, the public trust doctrine may result in the application of the *Lucas* exception.

This issue is being tested in *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*, argued before the United States Supreme Court in December, 2009.¹²² The case involves the application of the Florida Beach and Shoreline Preservation Act, enacted in 1965 to replenish sand on critically eroding beaches.¹²³ The Act requires the state to establish a permanent mean high tide line prior to depositing new sand at public expense below the new line.¹²⁴

A group of private beachfront property owners claimed that fixing the mean high tide line took their common law property rights of accretion and contact with the water.¹²⁵ The Florida Supreme Court upheld the state’s action pursuant to the state’s constitutional duty to protect state beaches held in trust for the public from future storm damage and erosion.¹²⁶ It found that the Act did not substantially impair the littoral property right to contact with the water because it specifically preserved the right to access, views, boating, bathing and fishing.¹²⁷ It also found that the right to accretion under Florida common law is a contingent right that appropriately balances public and private interests under the Shoreline Preservation and Protection Act.¹²⁸

The U.S. Supreme Court granted a writ of certiorari to determine if the Florida Supreme Court decision constituted a “judicial taking” of beachfront property rights. Aside from the novel issue of judicial takings and the effect of such claims on the federal judiciary, the Court’s decision could profoundly affect a state’s right to interpret its own common law and public trust doctrine, the circumstances under which the public trust doctrine can be utilized as a “background principle” of property law under *Lucas*, and the viability of beach nourishment as a tool used by coastal communities to address coastal erosion exacerbated by climate change and sea level rise.

¹²¹ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1029 (1992).

¹²² *Stop the Beach Renourishment, Inc. v. Fla. Dep’t of Env’tl. Prot.*, 129 S. Ct. 2792 (2009). Oral argument was held on December 2, 2009. *See Stop the Beach Renourishment, Inc., v. Fla. Dep’t of Env’tl. Prot.*, No. 08-1151, 2009 WL 4323938 (Dec. 2, 2009). The U.S. Supreme Court’s decision was rendered after this Article went to press.

¹²³ *Walton County v. Stop the Beach Renourishment, Inc.*, 998 So.2d 1102, 1105 (Fla. 2008).

¹²⁴ *Id.* at 1106.

¹²⁵ *Id.* at 1105.

¹²⁶ *Id.* at 1120.

¹²⁷ *Id.* at 1111 (citing *Ferry Pass Inspectors’ & Shippers’ Ass’n v. White’s River Inspectors’ & Shippers’ Ass’n*, 48 So. 643, 645 (Fla. 1909)).

¹²⁸ *Id.* at 1118-1119.

VI. SEA LEVEL RISE AND THE PUBLIC TRUST DOCTRINE

Under the Submerged Lands Act,¹²⁹ states hold title to navigable waters, tidelands (to mean high tide), and submerged lands (generally to three miles offshore, except in the Gulf Coast of Florida and Texas).¹³⁰ The Act codified the general common law principle that “[t]he state owns all tidelands below the ordinary high water mark, and holds such lands in trust for the public . . .”¹³¹ As noted earlier, notwithstanding this grant under the Submerged Lands Act, five states allow private ownership to the mean low water mark: Maine, Massachusetts, Pennsylvania, Delaware and Virginia.¹³²

California is not a “low tide” state, so public ownership extends to the mean high tide line. In San Francisco Bay, the McAteer-Petris Act grants regulatory jurisdiction to BCDC over “all areas that are subject to tidal action” to mean high tide,¹³³ and areas within the “shoreline band” (100 feet landward of the mean high tide line).¹³⁴ Therefore, BCDC jurisdiction moves landward as sea level rises.¹³⁵ California courts recognized that BCDC jurisdiction was ambulatory in 1994: “If the sea level does rise [due to global warming], so will the level of mean high tide. BCDC’s jurisdictional limit might in the future move *marginally*

¹²⁹ 43 U.S.C.A. § 1301 et seq. (Westlaw 2010).

¹³⁰ 43 U.S.C.A. § 1301(a)(1)-(3), (b). The Submerged Lands Act resolved a dispute between California and the federal government over the right to lease offshore waters for oil and gas wells that resulted in a Supreme Court ruling that the federal government had paramount rights and power over the three-mile territorial sea. *United States v. California*, 332 U.S. 19, 22-23 (1947). The Act relinquished title to the three-mile territorial sea to the states and allowed a state ownership rights beyond three miles if so provided by its constitution or laws prior to the time the state joined the Union (under the so-called “equal-footing” doctrine). 43 U.S.C.A. § 1312. Only Texas and the West Coast of Florida have secured ownership rights beyond three miles under these provisions (to three marine leagues or approximately ten miles), although many other states have made claims.

¹³¹ See *Lechuza Villas W. v. Cal. Coastal Comm’n*, 70 Cal. Rptr. 2d 399, 410 (Cal. Ct. App. 1997). The Submerged Lands Act resolved disputes over jurisdiction of the open ocean, not state ownership of tidelands. See, e.g., *Oregon ex rel. State Land Board v. Corvallis Sand & Gravel Co.*, 429 U.S. 363, 370, 372-74 (1977); *People v. Cal. Fish Co.*, 166 Cal. 576, 584 (Cal. 1913); *City of Berkeley v. Superior Court*, 26 Cal. 3d 515, 521 (Cal. 1980); *Marks v. Whitney*, 491 P.2d 374, 379 n.5 (Cal. 1971).

¹³² Vestal, *supra* note 28, at 26 n.87.

¹³³ *Littoral Dev. Co. v. San Francisco Bay Conservation & Dev. Comm’n*, 24 Cal. App. 4th 1050, 1057 (Cal. Ct. App. 1994).

¹³⁴ CAL. GOV’T CODE § 66610(a),(b) (Westlaw 2010). BCDC also has jurisdiction over certain specified waterways and marshlands lying up to five feet above mean sea level. CAL. GOV’T CODE § 66610(a).

¹³⁵ BCDC’s jurisdiction is different from that of its sister coastal management agency, the California Coastal Commission, whose jurisdiction is geographically prescribed in different areas along the California coast. See CAL. PUB. RES. CODE § 30103(a) (California Coastal Act).

264 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

landward.”¹³⁶ It now appears that over the next century sea levels may rise far more than “marginally.” Nevertheless, BCDC’s jurisdiction will advance with the mean high tide line regardless of the ownership of tidelands and submerged lands.¹³⁷

Both the mean high tide line and the public trust doctrine are ambulatory.¹³⁸ Therefore, rising sea levels advance not only agency jurisdiction but also public trust rights over newly submerged lands.¹³⁹ Thus, the inundation of private lands brings the public trust to bear on such lands to mean high water, unless specifically terminated.¹⁴⁰ The

¹³⁶ *Littoral Dev. Co.*, 24 Cal. App. 4th at 1066 n.5 (emphasis added). The court held that BCDC’s Bay jurisdiction extends to the mean high tide line, but not to the line of highest tidal action. *Id.* at 1066.

¹³⁷ *Id.* at 1066. The issue of ownership of tidal and submerged lands is more complicated. Under common law, the gradual natural “erosion” (or loss) of the shoreline or banks of navigable waters reduces riparian ownership rights, whereas gradual natural “accretion” (or gain) of shoreline (called “reliction” when the sea recedes) increases riparian ownership rights. *City of Los Angeles v. Anderson*, 206 Cal. 662, 666-68 (1929); *see also City of Oakland v. Buteau*, 180 Cal. 83, 87 (Cal. 1919); CAL. CIV. CODE § 1014 (Westlaw 2010). However, artificial erosion in California, such as where a public works project interrupts the flow of sand transport along the coast, results in loss to the beachfront property owner. *See Miramar Co. v. City of Santa Barbara*, 23 Cal. 2d 170, 176 (Cal. 1943). Likewise, artificial or man-made accretion does not accrue to littoral or riparian property owners. *See State ex rel. State Lands Comm’n v. Superior Court*, 11 Cal. 4th 50, 71-2 (Cal. 1995); *see also California ex rel. State Lands Comm’n v. United States*, 457 U.S. 273, 277 (1982). On the other hand, under common law, violent or sudden changes in the shoreline from “avulsion,” either loss or gain, generally do not affect property rights. *See Bohn v. Albertson*, 107 Cal. App. 2d 738, 748 (Cal. Ct. App. 1951).

¹³⁸ *See Lechuza Villas W. v. Cal. Coastal Comm’n*, 70 Cal. Rptr. 2d 399 (Cal. Ct. App. 1997). Under common law “[t]he state owns all tidelands below the ordinary high water mark and holds such lands in trust for the public . . . [and] as the land along a body of water gradually builds up or erodes, the ordinary high water mark necessarily moves, and thus the mark or line of mean high tide, i.e., the legal boundary, also moves.” *Id.* at 411.

¹³⁹ James G. Titus, *Rising Seas, Coastal Erosion and the Takings Clause: How To Save Wetlands and Beaches Without Hurting Property Owners*, 57 MD. L. REV. 1279, 1368 (1998). (“As shorelines erode, the public trust doctrine follows the eroding shoreline.”).

¹⁴⁰ *See Lechuza*, 70 Cal. Rptr. 2d at 417 (“Such navigable waters are public ways for the purposes of navigation and transportation of products, and are held in trust by the state for the benefit of the public’s recreational use as well, *even when the underlying land is privately owned.*”). (emphasis added; citations omitted). “The Constitution and the decisions applying it make it abundantly clear that [a private party’s] ownership interest in the land underlying [navigable waters] . . . could not encompass any interest in the waters themselves which would interfere with the public trust.” *Pac. Gas & Elec. Co. v. Superior Court*, 145 Cal. App. 3d 253, 257-58 (Cal. Ct. App. 1983), *overruled on other grounds*, *Hubbard v. Brown*, 50 Cal. 3d 189, 197 (Cal. 1990). “Although, where the shore recedes as the result of avulsion, the boundary of the littoral proprietor may not change, the public has the same right of passage over the new foreshore as it had over the old—else an avulsion might cut off the public right of passage altogether.” *People v. Steeplechase Park Co.*, 143 N.Y.S. 503, 509 (1913), *aff’d*, 151 N.Y.S. 157 (N.Y. App. Div. 1914), *modified on other grounds*, 218 N.Y. 459 (1916). An exception may exist for temporarily flooded private lands under California Harbor and Navigation Code section 100 where public rights may be limited to a recreational and navigational easement over navigable waters above the mean high tide line. CAL. HARB. & NAV.

termination of public trust rights is not granted lightly and must be clearly expressed by the Legislature, courts or government agency with delegated authority over trust lands.¹⁴¹ Therefore, inundated private lands are likely to be subject to the public trust doctrine and the preservation of trust uses, and development that harms trust uses on such lands could be denied,¹⁴² if denial is supported by appropriate statutory and regulatory authority.¹⁴³

Another artifact of sea level rise undoubtedly will be an increase in the construction of sea walls and other shoreline protection devices. Since shoreline protection stops water levels and the mean high tide line from advancing landward, it could also prevent the landward movement of the public trust. However, a recent federal-court ruling in *United States v. Milner* held that the mean high tide line is measured in its unobstructed state as if shoreline protection did not exist.¹⁴⁴ *Milner* cited as authority the seminal case of *Leslie Salt Co. v. Froehlke*,¹⁴⁵ in which the Ninth Circuit held that navigable waters of the United States, as used in the River and Harbors Act, extend to all places covered by the ebb and flow of the tide to the mean high water mark in its unobstructed, natural state.¹⁴⁶ Therefore, the mean high tide line under certain federal laws is measured in its natural and unobstructed state.¹⁴⁷

In *Milner*, littoral property owners erected shoreline protection on the dry sandy portion of their property that intersected the mean high tide line when the beach eroded.¹⁴⁸ As trustees for the Lummi Nation, the federal government brought claims against the property owners for trespass and violations of the Rivers and Harbors Act and Clean Water Act.¹⁴⁹ The court held that while littoral owners “cannot be faulted for wanting to prevent their land from eroding away, we conclude that

CODE § 100 (Westlaw 2010); see also *People ex rel. Baker v. Mack*, 19 Cal. App. 3d 1040, 1044-51 (Cal. Ct. App. 1971) (public trust inheres in navigable waters over submerged lands owned in fee by private parties); *Bohn v. Albertson*, 107 Cal. App. 2d 738, 749 (Cal. Ct. App. 1951) (suggesting right to reclaim).

¹⁴¹ See *People v. Cal. Fish Co.*, 166 Cal 576, 586, 591-92 (Cal. 1913).

¹⁴² See *Caldwell & Segall*, *supra* note 13, at 554.

¹⁴³ Informal Advice from California Department of Justice, *supra* note 77, at 4, 15, 41, 48.

¹⁴⁴ *United States v. Milner*, 583 F.3d 1174, 1197 (9th Cir. 2009). A petition for a writ of certiorari for *Milner* was being reviewed by the U.S. Supreme Court when this Article went to press. *Petition for Writ of Certiorari, Sharp v. United States* (No. 09-820).

¹⁴⁵ *Leslie Salt Co. v. Froehlke*, 578 F.2d 742 (9th Cir. 1978).

¹⁴⁶ *Id.* at 753.

¹⁴⁷ *Milner*, 583 F.3d at 1181 (“Under federal law, the upper boundary of any tidelands is the mean high water (MHW) line, which is determined by projecting onto the shore the average of all high tides over a period of 18.6 years.”).

¹⁴⁸ *Id.* at 1181.

¹⁴⁹ *Id.* at 1180.

266 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

because both the upland and tideland owner have a vested right to gains from the ambulation of the boundary,” the littoral owners cannot permanently fix the property boundary.¹⁵⁰ The court reasoned that, “an owner of riparian or littoral property must accept that the property boundary is ambulatory, subject to gradual loss or gain depending on the whims of the sea.”¹⁵¹ Consequently, the mean high tide line should be measured as if the shoreline protection did not exist for purposes of trespass and the Rivers and Harbors Act (but not the Clean Water Act).¹⁵²

Leslie Salt and *Milner* interpret federal law and therefore do not address the question of whether state jurisdiction and authority are subject to a similar rule. However, littoral and tideland owners in California may have statutory and common law rights to accretion and erosion.¹⁵³ Since California courts have held that the mean high tide line is ambulatory,¹⁵⁴ it could be argued under the rationale in *Milner* that shoreline protection that fixes the mean high tide line extinguishes the public’s right to erosion and constitutes a trespass upon public trust lands. Moreover, it could also be argued that shoreline protection obstructs public trust rights to navigation, public access, and recreation, and that measuring the mean high tide line as if the shoreline protection did not exist would preserve those rights.¹⁵⁵ Finally, California’s

¹⁵⁰ *Id.* at 1187.

¹⁵¹ *Id.* at 1186; *see also* County of St. Clair v. Lovington, 90 U.S. 46, 68-69 (1874).

¹⁵² *Milner* did not find that a violation of the Clean Water Act occurred, because the Act was intended to restore and maintain the integrity of the nation’s waters by limiting the discharge of pollutants into the waters of the United States. United States v. Milner, 583 F.3d 1174, 1194 (9th Cir. 2009); *see also* 33 U.S.C.A. § 1251(a) (Westlaw 2010). Since the defendant’s bulkhead was constructed on dry land, there was never any discharge of materials into the waters of the United States, and thus the court held there was no violation of the Clean Water Act. *Milner*, 583 F.3d at 1195.

¹⁵³ *See* CAL. CIV. CODE § 1014 (Westlaw 2010) (“Where, from natural causes, land forms by imperceptible degrees upon the bank of a river or stream, navigable or not navigable, either by accumulation of material or by the recession of the stream, such land belongs to the owner of the bank, subject to any existing right of way over the bank.”); *Curtis v. Upton*, 175 Cal. 322, 334 (Cal. 1917); *Strand Improvement Co. v. City of Long Beach*, 173 Cal. 765, 772-73 (Cal. 1916); *Carpenter v. City of Santa Monica*, 63 Cal. App. 2d 772, 788 (Cal. Ct. App. 1944).

¹⁵⁴ *See, e.g., Lechuza Villas W. v. Cal. Coastal Comm’n*, 60 Cal. App.4th 218, 239 (Cal. Ct. App. 1997); *see also* *City of Oakland v. Buteau*, 180 Cal. 83, 87 (Cal. 1919).

¹⁵⁵ *See* *Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971) (“The public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. . . . There is a growing public recognition that one of the most important public uses of the tidelands—a 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. . . . (T)he state in its proper administration of the trust may find it necessary or advisable to cut off certain tidelands from water access and render them useless for trust purposes.”) (quoting *City of Long Beach v. Mansell*, 3 Cal. 3d 462, 482 (Cal. 1970)).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 267

artificial-accretion rule holds that an upland or littoral property owner does not gain alluvion from unnatural conditions,¹⁵⁶ and California treats common law rights to erosion and accretion similarly.¹⁵⁷ Therefore, a court could hold that artificial shoreline protection should not deprive the public of rights to land that would be tidelands in its natural state.

As noted earlier, public trust uses in California and other states now extend beyond fishing, navigation and commerce, to the protection of recreation, wildlife, open space and the environment. Therefore, new actions and strategies supported by the public trust doctrine may be considered to address the impacts of climate change and sea level rise. These strategies are examined below.

VII. USING THE PUBLIC TRUST TO ADDRESS CLIMATE CHANGE AND SEA LEVEL RISE

A. ENHANCING PERMIT AUTHORITY

Within San Francisco Bay and certain waterways,¹⁵⁸ below mean high tide, BCDC has considerable discretion and authority to address the impacts of climate change and sea level rise. For example, projects within the Bay and certain waterways must demonstrate that “public benefits . . . clearly exceed public detriment,” and no alternative upland locations are available; that any Bay fill is the “minimum necessary;” that harmful effects are “minimized” on water quality and circulation, the fertility of marshes, fish or wildlife resources, and “other conditions impacting the environment;” and that “sound safety standards . . . afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters.”¹⁵⁹

These provisions provide authority to mitigate a wide array of impacts from climate change and sea level rise for projects located in the Bay and below mean high tide. For example, BCDC could require projects built on tidelands and submerged lands to be designed so they are protected from rising sea levels; it could require dredging or Bay fill to minimize impacts on climate change and sea level rise; and it could require water-oriented uses to be designed to protect persons and

¹⁵⁶ See *State ex rel. State Lands Comm'n v. Superior Court*, 11 Cal.4th 50, 56 (Cal. 1995).

¹⁵⁷ See, e.g., *Carpenter v. City of Santa Monica*, 63 Cal. App. 2d 772, 774 (Cal. Ct. App. 1944).

¹⁵⁸ See CAL. GOV'T CODE § 66610(e) (Westlaw 2010) (listing certain waterways, including areas subject to tidal action and marshlands up to five feet above mean sea level.).

¹⁵⁹ CAL. GOV'T CODE § 66605(a)-(e) (Westlaw 2010).

268 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

property from flooding. Moreover, the public trust doctrine provides additional support to protect recreation, navigation, commerce, open space, and the environment from the impacts of climate change and sea level-rise within the Bay.

However, projects within the 100-foot shoreline band pose significantly greater challenges for BCDC. The McAteer-Petris Act provides that a permit may be denied only if it “fails to provide maximum feasible public access, consistent with the proposed project, to the bay and its shoreline.”¹⁶⁰ This limitation makes it difficult to require projects to address impacts of sea level rise and climate change on development within the shoreline band except to ensure that accessways are constructed to accommodate projected sea level rise, require alternative access if accessways are inundated, deny permits where projected sea level rise would destroy or harm public access, or require fees to mitigate impacts on public access. Moreover, because projects located in the shoreline band are above mean high tide, they are generally not subject to the public trust doctrine and must meet the *Lucas*, *Penn Central*, *Nollan*, and *Dolan* takings tests if they are located on private property.

To more effectively address the impacts of sea level rise and climate change, agencies like BCDC with limited shoreline authority may need to seek legislation either to expand their jurisdiction landward or increase their land-use authority, or both. However, in urban bays and estuaries with multiple local government jurisdictions, like San Francisco Bay, expanding regional land-use authority in this way is especially challenging politically.

To address this dilemma, BCDC is currently considering new Bay Plan climate change policies to take sea level rise into account. The draft policies would require the preparation of risk assessments based on the 100-year flood level, including future sea level rise.¹⁶¹ The draft policies also direct BCDC to formulate a regional climate change adaptation strategy with other regional, state and federal agencies, local governments, and the general public to identify the areas around the Bay that should be protected, areas where development should be removed, and areas where sea level should be allowed to migrate inland.¹⁶² During

¹⁶⁰ CAL. GOV'T CODE § 66632.4. The Commission can also deny a project that is inconsistent with a priority use designation. CAL. GOV'T CODE § 66611.

¹⁶¹ WILL TRAVIS & JOSEPH LACLAIR, SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, DRAFT STAFF REPORT AND REVISED PRELIMINARY RECOMMENDATION FOR PROPOSED BAY PLAN AMENDMENT 1-08 CONCERNING CLIMATE CHANGE 9 (October 1, 2009), available at www.bcdc.ca.gov/proposed_bay_plan/bpa_1-08_cc_staff-rpt_11-05.pdf.

¹⁶² *Id.* at 9.

the time it will take to develop such a regional strategy, the draft policies propose that BCDC take a precautionary approach to planning and regulating any new development in areas vulnerable to flooding.¹⁶³

B. MITIGATION FEES

When on-site mitigation is infeasible, and project denial is inappropriate, offsite fee-based mitigation may be an attractive alternative. As noted earlier, the U.S. Supreme Court's takings jurisprudence focuses heightened scrutiny on government actions that result in the "physical occupation" of property (e.g., requiring the dedication of public access on private property).¹⁶⁴ Although California courts recognize that the Takings Clause is especially protective against physical occupation or invasion of private property,¹⁶⁵ they also note that

government generally has greater leeway with respect to noninvasive forms of land-use regulation, where the courts have for the most part given greater deference to its power to impose broadly applicable fees, whether in the form of taxes, assessments, user or development fees.¹⁶⁶

Although the U.S. Supreme Court has not addressed the effect of the Takings Clause on mitigation fees directly, generally fees are viewed more favorably than land-use exactions because they do not result in a physical occupation or eliminate the value of property.¹⁶⁷ California courts give agencies deference to impose fees, unless they are applied in an ad hoc fashion and thus bear "special potential for government

¹⁶³ *Id.* at 11.

¹⁶⁴ See *Dolan v. City of Tigard*, 512 U.S. 374 (1994); *Nollan v. Cal. Coastal Comm'n*, 483 U.S. 825 831, 831 (1987).

¹⁶⁵ *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 875-76 (Cal. 1996).

¹⁶⁶ *Id.* at 876. The court also stated that "[f]ees of this nature may indeed be subject to a lesser standard of judicial scrutiny than that formulated by the court in *Nollan* and *Dolan* because the heightened risk of the 'extortionate' use of the police power to exact unconstitutional conditions is not present." *Id.*

¹⁶⁷ The Supreme Court has noted that "we have not extended the rough-proportionality test of *Dolan* beyond the special context of exactions-land-use decisions conditioning approval of development on the dedication of property to public use." *City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687, 702 (1999). In fact, the *Nollan* and *Dolan* heightened scrutiny does not apply at all to monetary exactions in most jurisdictions. See Daniel J. Curtin & W. Andrew Gowder, *Exactions Update: When and How Do the Dolan/Nollan Rules Apply?*, 35 URB. LAW. 729, 733-38 (2003); see, e.g., *N. Ill. Home Builders Ass'n v. County of DuPage*, 649 N.E.2d 384, 388-89 (Ill. 1995); *Home Builders Ass'n v. City of Beavercreek*, 729 N.E.2d 349, 356 (Ohio 2000); *Rogers Mach., Inc. v. Washington County*, 45 P.3d 966, 979-80 (Or. Ct. App. 2002); *Benchmark Land Co. v. City of Battle Ground*, 14 P.3d 172, 175 (Wash. Ct. App. 2000).

270 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

abuse.”¹⁶⁸ A vast array of fee-related actions have been upheld, including school development fees,¹⁶⁹ rent-control fees,¹⁷⁰ fees on rents charged to daily users rather than long-term residents,¹⁷¹ and in-lieu fees imposed by the California Coastal Commission for the construction of sea walls.¹⁷²

Fees assessed by a set or general formula are viewed more favorably than fees that rely on government discretion or target a particular individual. The California Supreme Court has noted that “individualized fees warrant a type of review akin to the conditional conveyances at issue in *Nollan* and *Dolan*.” Therefore, a regulatory agency should ensure that an individual fee demonstrates “a factually sustainable proportionality between the effects of a proposed land use and a given exaction.”¹⁷³

Generalized fees established by legislative mandate or formula typically are subject to the more favorable *Penn Central* balancing analysis¹⁷⁴ and the reasonable relationship standard, because ministerial actions based on a legislatively imposed general mandate are less subject to abuse. In such a case, a government agency would need to show a “reasonable relationship between the monetary exaction and the public impact of the development,”¹⁷⁵ rather than satisfy the more rigorous and particularized *Nollan/Dolan* nexus and rough proportionality tests. Therefore, fee-based mitigation may be used to address impacts on public access to take into account how such access may be affected by climate change and sea level rise. Because set formula fees are viewed more favorably than discretionary fees by the courts, a formula to establish a fee could be considered to offset the impacts of seawalls or

¹⁶⁸ *San Remo Hotel L.P. v. City & County of San Francisco*, 27 Cal. 4th 643, 672 (Cal. 2002). The California Supreme Court articulated a very deferential standard, stating that only “the arbitrary and extortionate use of purported mitigation fees, even where legislatively mandated, will not pass constitutional muster.” *Id.* at 671.

¹⁶⁹ *Loyola Marymount Univ. v. L.A. Unified Sch. Dist.*, 45 Cal. App. 4th 1256, 1271 (Cal. Ct. App. 1999).

¹⁷⁰ *Santa Monica Beach, Ltd. v. Superior Court*, 19 Cal. 4th 952, 974 (Cal. 1999).

¹⁷¹ *San Remo Hotel*, 27 Cal. 4th at 670-72.

¹⁷² *Ocean Harbor House Homeowners Ass’n v. Cal. Coastal Comm’n*, 163 Cal. App. 4th 215, 245 (Cal. Ct. App. 2008).

¹⁷³ *San Remo Hotel*, 27 Cal. 4th at 666 (quoting *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 880 (Cal. 1996)). California courts are reluctant to categorize monetary fees as exactions under *Nollan* and *Dolan*. Therefore, fees applied generally on a ministerial basis, and not ad hoc, are likely to be subject to lower scrutiny and upheld. Fees must also bear a rational relationship to the damaging effects of sea level rise on the Bay or public access. As long as fees are used to study or address the effects of sea level rise on the Bay rather than to raise general revenue, these monetary exactions are unlikely to be considered a taking under these cases.

¹⁷⁴ See *McClung v. City of Summer*, 548 F.3d 1219 (9th Cir. 2008).

¹⁷⁵ *Ehrlich v. City of Culver City*, 12 Cal. 4th 854 (Cal. 1996).

coastal armoring projects along the shoreline based upon its length, location or height to mitigate or study the effects of climate change and sea level rise (seawalls and coastal armoring are discussed in more detail below). Legislation could specifically authorize the use of fees to address sea level rise and climate change since legislatively imposed fees are generally more favorably viewed.

C. COASTAL ARMORING

Seawalls, revetments, and other shoreline protection devices along the coast are often constructed to protect existing development and public infrastructure. In San Francisco Bay, 66% of the shoreline is already armored in some fashion.¹⁷⁶ However, armoring in the wrong location can have significant adverse impacts. It can impede public access to and along the shore, destroy beaches and important habitat, reduce sediment inputs, reduce shoreline resiliency, prevent the inland migration of wetlands, increase erosion on adjacent properties, impede the flood-control functions of natural systems, increase flooding in unprotected areas, and visually impair coastal areas.¹⁷⁷ For this reason, many states have banned or restricted the construction of seawalls and other coastal armoring devices, to protect beaches and other public trust uses.¹⁷⁸

¹⁷⁶ Titus, *supra* note 139, at 1302.

¹⁷⁷ See Caldwell & Segall, *supra* note 13, at 539-42 (“Californians have responded [to increased erosion] by armoring their coast with defense structures; at present, at least 10.2 percent of the state’s Pacific coast is armored and a third of the Southern California coast sits behind some armoring structure. . . . A fortified coast comes with major financial, social, and ecological costs. These range from aesthetic losses to new barriers to public access to, critically, the physical losses of the beaches themselves—both to large erosion control structures and, most importantly, to the ocean as armoring leaves beaches unable to retreat before the rising sea. . . . [T]hese structures can also directly occupy the beach; a rock revetment may cover thirty to forty feet of beach width, as it must slope outward from the cliff top, typically at a 2:1 or 1.75:1 (horizontal to vertical) slope, replacing public beach with a boulder field. Seawalls, however, will normally occupy much less beach area. Armoring covers sandy beach that otherwise could be used for access and recreation. Armored walls also diminish, or destroy altogether, coastal access. Rather than being able to scramble down bluffs and dunes, beach-goers encounter vertical concrete walls or riprap fields, cutting them off from the sand below.”); Todd T. Cardiff, *Conflicts in the California Coastal Act: Sand and Seawalls*, 38 CAL. W. L. REV. 255, 258-61 (2001) (shoreline armoring destroys the beach in three main ways: occupation loss, passive erosion, and active erosion).

¹⁷⁸ The California Coastal Act prohibits shoreline protective devices for *new* development and requires new development to be designed so that it does not require the construction of armoring devices. CAL. PUB. RES. CODE § 30253(b) (Westlaw 2010). But it also allows shoreline protective devices to protect *existing* development from erosion if designed to mitigate adverse impacts on shoreline sand supply. CAL. PUB. RES. CODE § 30235. Maine and North and South Carolina prohibit seawalls and the construction of permanent erosion control devices on coastal dunes or areas seaward of a setback line based upon erosion rates and sea level rise projections. Maine Coastal

272 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3]

State laws banning or restricting seawalls and coastal armoring are not considered takings if they do not eliminate all beneficial uses of the property, or the seawalls are located on public trust lands.¹⁷⁹ North Carolina courts have found there is no legal basis for the premise that “the protection of property from erosion is an essential right of property owners,”¹⁸⁰ because erosion and migration are natural acts that may divest owners of their property.¹⁸¹ Oregon has declared the dry sand areas of their beaches to be protected by the public trust under the doctrine of custom, precluding a riparian or littoral owner from asserting use of such areas as a recognized, exclusive property right.¹⁸² Government actions restricting seawall construction have also been upheld on other grounds.¹⁸³

States may also require mitigation fees for the construction of seawalls, or require the creation of new wetland areas inland of levees and armoring projects. Where these strategies require property owners to dedicate portions of their property above mean high tide, they must meet the *Nollan/Dolan* tests. They should also identify areas that need protection, such as essential public and industrial infrastructure, high-value commercial and residential development in flood-prone areas, and important wetland habitat or low-lying marshes and saltponds that could provide flood-control buffers. As noted earlier, strategies that involve

Sand Dunes Rules 38 ME. REV. STAT. ANN. § 480-AA (Westlaw 2010); see Maine Bureau of Land & Water Quality, Sand Dune System rules, available at www.maine.gov/dep/blwq/docstand/nrpapage.htm; S.C. CODE ANN. § 48-39-290 (Westlaw 2010); N.C. GEN. STAT. §§ 113A-115.1 (Westlaw 2010). Rhode Island bans erosion control devices along its entire oceanfront to protect public trust uses and allow wetlands and beaches to adapt to sea level rise. Rhode Island Coastal Resources Management Program § 300.7(D)(1)(2008), available at www.crmc.ri.gov/regulations.html. Oregon bans coastal armoring altogether. OR. ADMIN. R. 736-020-0010(6) (2005) (barring all permits for shoreline armoring for all development built after Jan. 1, 1977).

¹⁷⁹ See *Stevens v. City of Cannon Beach*, 854 P.2d 449, 459-60 (Or. 1993). Oregon’s law banning armoring for shoreline development built after 1977 was upheld on the grounds that it did not deny all economic use of the property. *Id.* at 460. See also *Shell Island Homeowners Ass’n, Inc., v. Tomlinson*, 517 S.E.2d 406, 417-18 (N.C. Ct. App. 1999) (holding North Carolina’s ban on hardened structures constitutional).

¹⁸⁰ *Shell Island Homeowners Ass’n*, 517 S.E.2d at 414.

¹⁸¹ *Carolina Beach Fishing Pier, Inc. v. Town of Carolina Beach*, 177 S.E.2d 513, 517 (N.C. 1970).

¹⁸² *City of Cannon Beach*, 854 P.2d at 456-57.

¹⁸³ *Scott v. City of Del Mar*, 58 Cal. App. 4th 1296, 1305-06 (Cal. Ct. App. 1997) (armoring that encroached on public lands was a nuisance); *Barrie v. Cal. Coastal Comm’n*, 196 Cal. App. 3d 8, 17 (Cal. Ct. App. 1987) (no vested right to construct sea wall under an emergency permit); *Whaler’s Vill. Club v. Cal. Coastal Comm’n*, 173 Cal. App. 3d 240, 261 (Cal. Ct. App. 1985) (Coastal Commission’s conditions were reasonable); *McQueen v. South Carolina Coastal Council*, 580 S.E.2d 116, 120 (S.C. 2003) (ownership rights do not include the right to construct bulkheads on public trust land, therefore no compensation due for the denial of permits).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 273

general or legislatively imposed fees are not subject to strict judicial scrutiny.

Shoreline protection policies in San Francisco Bay are more permissive than in many other coastal states, some of which ban the construction of seawalls altogether.¹⁸⁴ BCDC policies allow the construction of seawalls and coastal armoring if “necessary to protect the shoreline from erosion,” and if “properly designed and constructed.”¹⁸⁵ Nonstructural methods are required where feasible. The Bay Plan provides that “[a]long shorelines that support marsh vegetation or where marsh establishment has a reasonable chance of success, the Commission should require that the design of authorized protective projects include provisions for establishing marsh and transitional upland vegetation as part of the protective structure, wherever practicable.”¹⁸⁶

These policies were adopted twenty years ago, before the imminent threat of sea level rise from global climate change became apparent. Currently, shoreline protection devices constructed within the Bay (below mean high tide, or below five feet above mean sea level in marshlands) must be designed with sound safety standards able to “afford reasonable protection . . . against . . . flood or storm waters.”¹⁸⁷ The Bay Plan also provides that “structures on fill or near the shoreline should have adequate flood protection including consideration of future relative sea level rise as determined by competent engineers.”¹⁸⁸ These provisions allow BCDC some discretion to require shoreline protective devices constructed in the Bay to take into account projected sea level rise. However, within the 100-foot shoreline band, BCDC’s authority is limited to deny a project only if it “fails to provide maximum feasible public access . . . to the bay and its shoreline.”¹⁸⁹

These policies make it difficult to prevent coastal armoring from harming Bay resources or addressing impacts from climate change and sea-level rise. Consequently, BCDC is currently considering new Bay Plan policies that would limit new development that would require structural shoreline protection for the life of the project, or that would not be set back from the edge of the shore above the 100-year flood level, taking into account future sea level rise for the expected life of the

¹⁸⁴ See *supra* note 178 and accompanying text.

¹⁸⁵ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, *supra* note 25, at 34.

¹⁸⁶ *Id.* at 34-35.

¹⁸⁷ CAL. GOV’T CODE § 66605(e) (Westlaw 2010).

¹⁸⁸ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, *supra* note 25, at 33.

¹⁸⁹ CAL. GOV’T CODE § 66632.4 (Westlaw 2010).

274 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

project.¹⁹⁰ The draft policies would also require adverse impacts to natural resources and public access from shoreline protection to be avoided and mitigated or alternative access provided,¹⁹¹ that shoreline protection prevent significant impediments to physical and visual public access, and that shoreline protection be integrated with adjacent shoreline protection measures.¹⁹² BCDC is likely to vote on these new policies during the summer of 2010.

To further address adverse impacts to Bay resources from shoreline protection, amendments to the McAteer-Petris Act could also be sought to authorize the approval the shoreline protection only if necessary to protect physical improvements, not to protect undeveloped or vacant land. Similar provisions are currently provided in the California Coastal Act.¹⁹³ This would help preserve undeveloped properties that absorb flood waters caused by sea level rise and reduce the need to protect developed areas elsewhere. In-lieu fees could also be considered to mitigate impacts of shoreline protection devices on public access or to purchase comparable beach access or tidelands.¹⁹⁴

D. ROLLING EASEMENTS

The Texas Open Beaches Act authorizes the State of Texas to enforce a pre-existing public easement over the dry sandy beach from the mean high tide line to the first line of natural vegetation.¹⁹⁵ This easement expands and contracts – or “rolls” – with the natural migration of the beach vegetation line and therefore is called a “rolling easement.”¹⁹⁶ New construction on the beach is prohibited, and existing

¹⁹⁰ TRAVIS & LACLAIR, *supra* note 161, at 11.

¹⁹¹ *Id.* at 15.

¹⁹² *Id.* at 14.

¹⁹³ The California Coastal Act prohibits shoreline protective devices for *new* development and requires new development to be designed so that it does not require the construction of armoring devices. CAL. PUB. RES. CODE § 30253(b) (Westlaw 2010). But it also allows shoreline protective devices to protect *existing* development from erosion if designed to mitigate adverse impacts on shoreline sand supply. CAL. PUB. RES. CODE § 30235.

¹⁹⁴ Such fees were upheld in *Ocean Harbor House Homeowners Ass'n v. Cal. Coastal Comm'n*, 163 Cal. App.4th 215, 245 (Cal. Ct. App. 2008).

¹⁹⁵ TEX. ANN. § 61.018(a-1),(a-2) (Westlaw 2010). The Act declares that it is public policy of the State to secure “the free and unrestricted right of ingress and egress to and from the state-owned beaches bordering on the seaward shore of the Gulf of Mexico,” and to protect other beach areas in which the public had independently acquired property rights under common law by prescription, dedication, or continuous use by the public. *Id.* § 61.011(a).

¹⁹⁶ *See* Titus, *supra* note 139, at 1313. The term “rolling easement” refers to a “broad collection of arrangements under which human activities are required to yield the right of way to naturally migrating shores.” *Id.*

structures that encroach on public beaches due to erosion or storms may be removed by petition.¹⁹⁷

A beachfront property owner brought an action challenging the constitutionality of the Open Beaches Act after being informed that her house was on public property and subject to removal after Hurricane Rita struck the Texas coast in 2005.¹⁹⁸ The federal district court held that the Act did not effect a taking because the claim was not ripe and, under Texas common law, the public rolling easement over the dry sandy beach was a background principle of property law that pre-existed and was superior to the plaintiff's ownership rights.¹⁹⁹ The Fifth Circuit unanimously affirmed the district court's ruling on ripeness and dismissed the takings claim, but split on the issue of "unreasonable seizure" of the plaintiff's property and certified a series of questions to the Texas Supreme Court.²⁰⁰ In November 2009, the Texas Supreme Court heard oral arguments to determine whether the state recognizes a rolling easement under the Open Beaches Act or common law, and if so whether a landowner is due compensation for a "taking" of property by imposition of the easement.²⁰¹ During the same month, voters passed an amendment to the Texas Constitution essentially incorporating the Act.²⁰² The Texas Supreme Court's ruling will impact the state's ability to apply its public trust doctrine, and will determine the efficacy of rolling easements to preserve common law public access rights and protect beaches from storms and sea level rise induced by climate change.

A rolling easement is possible in states like Texas with a common law public easement above mean high tide.²⁰³ However, California and many other states have no public easement over the dry sandy beach above mean high tide, and such states will therefore need to seek other strategies. These strategies could include requiring deed restrictions as permit conditions to require applicants to remove structures that end up

¹⁹⁷ See *Feinman v. State*, 717 S.W.2d 106, 109 (Tex. App. 1986); *Severance v. Patterson*, 485 F. Supp. 2d 793, 796-97 (S. D. Tex. 2007).

¹⁹⁸ *Id.* at 797.

¹⁹⁹ *Id.* at 803-04. The court also held that the takings claim was not ripe because the state had not taken any enforcement action against the property owner. *Id.* at 801.

²⁰⁰ *Severance v. Patterson*, 566 F.3d 490, 504 (5th Cir. 2009).

²⁰¹ Joint Answering Brief for Defendant-Appellees at xiii, *Severance v. Patterson*, No. 09-0387 (Tex. Sept. 4, 2009), available at www.supreme.courts.state.tx.us/ebriefs//09/09038702.pdf.

²⁰² See TEXAS. CONST. art. I, § 33(b) (Westlaw 2010).

²⁰³ New Jersey and Oregon common law also provide for public access to the dry sandy beach above mean high tide. See *Matthews v. Bay Head Improvement Ass'n*, 471 A.2d 355, 358 (N.J. 1984); *Borough of Neptune City v. Borough of Avon-by-the-Sea*, 294 A.2d 47, 51-54 (N.J. 1972); *State ex rel. Thornton v. Hay*, 462 P.2d 671, 673 (Or. 1969).

276 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

on state property because of sea level rise, or to prevent activities that interfere with public trust uses, such as blocking public access, constructing sea walls, or damaging public trust resources such as wetlands or marshes.²⁰⁴

E. PRESERVING WETLANDS, MARSHES AND SALTPONDS

Wetlands, marshes, and saltponds will likely to play a critical role in how bays and estuaries like San Francisco Bay respond to sea level rise and climate change. Bay wetlands, including natural subtidal areas and tidal marshes, as well as managed wetlands such as diked marshes, saltponds, and agricultural baylands, absorb floodwaters, sequester greenhouse gases, and trap sediments and pollutants.²⁰⁵ Wetlands also can adapt to rising sea levels by migrating inland and continuing to provide flood protection, and key habitat and feeding grounds for a wide variety of aquatic and terrestrial species.²⁰⁶

Most of San Francisco Bay's wetlands vanished long ago, making the conservation of remaining wetland areas even more critical.²⁰⁷ BCDC's jurisdiction over areas below mean high tide, certain waterways, marshlands to five feet above mean sea level, and diked saltponds and managed wetlands²⁰⁸ allows use of the public trust doctrine to support its permit and regulatory actions within tidal wetlands below mean high tide. However, in marshlands, salt ponds and managed wetlands above mean high tide, the public trust doctrine can be used only where necessary to protect trust resources.

As noted earlier, the public trust doctrine in California supports the preservation of trust 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,

²⁰⁴ Titus, *supra* note 139, at 1313-14.

²⁰⁵ See SAN FRANCISCO BAY CONSERVATION & DEV. COMM'N, *supra* note 25, at 7.

²⁰⁶ *Id.*

²⁰⁷ The 200,000 original acres of tidal marsh in the Bay have been reduced to 40,000 acres, and 6,000 miles of tidal channels have been reduced to 1,000. MICHAEL MONROE & PEGGY R. OLOFSON, SAN FRANCISCO BAY AREA WETLANDS ECOSYSTEM GOALS PROJECT, BAYLANDS ECOSYSTEM HABITAT GOALS 1 (1999), available at www.sfei.org/sfbaygoals/docs/goals1999/final031799/pdf/sfbaygoals031799.pdf.

²⁰⁸ CAL. GOV'T CODE § 66610(a)-(g) (Westlaw 2010). BCDC's authority over saltponds and managed wetlands, diked off and used three years immediately preceding 1969, is prescribed by CAL. GOV'T CODE § 66605(c)-(g); BCDC's authority over tidelands and submerged lands below mean high tide, marshlands below mean sea level, and certain waterways is prescribed by CAL. GOV'T CODE § 66605(a)-(g).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 277

and which favorably affect the scenery and *climate* of the area.”²⁰⁹ The trust can also be enforced by the public to protect wildlife not located on trust lands,²¹⁰ and can prevent uses on non-trust lands and non-navigable waters if they harm navigable waters.²¹¹ However, BCDC and other state agencies may not enforce the trust outside its statutory and regulatory authority. Thus, for example, because BCDC lacks permit authority landward of the 100-foot shoreline band, it cannot rely upon the public trust doctrine to protect low-lying shoreline areas affected by sea level rise outside its jurisdiction.

The Coastal Barrier Resources System (System) is another approach that could be utilized to protect wetlands and marshes. The System was created in 1982 to discourage development in hazardous coastal areas by prohibiting federal flood insurance and other federal subsidies for new development on coastal barrier islands vulnerable to flooding and storms.²¹² The System was expanded to barrier islands and coastal wetlands in the Florida Keys, Puerto Rico and the Great Lakes in 1990,²¹³ and the Department of the Interior was directed to map and recommend areas along the Pacific Coast for inclusion into the System.²¹⁴ However, this effort was never undertaken.²¹⁵ Although the System does not foreclose development, it removes federal incentives for new development in vulnerable coastal areas. Expansion of the System to the West Coast to include coastal wetlands and low-lying areas vulnerable to sea level rise, and the adoption of a similar system under state law, would help remove perverse market incentives for developing flood-prone areas vulnerable to sea level rise and reduce the need for regulatory measures that risk takings claims.

F. IMPLEMENTING THE CZMA AND CEQA

BCDC and other state coastal management agencies may also use the public trust doctrine to address sea level rise and climate change issues under the Coastal Zone Management Act (CZMA). BCDC

²⁰⁹ Marks v. Whitney, 491 P.2d 374, 380 (Cal. 1971) (emphasis added).

²¹⁰ Ctr. for Biological Diversity v. FPL Group, Inc., 83 Cal. Rptr. 3d 588, 595-96 (Cal. Ct. App. 2008).

²¹¹ Nat'l Audubon Soc'ty v. Superior Court of Alpine County, 658 P.2d 709, 721 (Cal. 1983) (“We conclude that the public trust doctrine, as recognized and developed in California decisions, protects navigable waters from harm caused by diversion of nonnavigable tributaries.”).

²¹² See 16 U.S.C.A. §§ 3501 (Westlaw 2010).

²¹³ Elise Jones, *The Coastal Barrier Resources Act: A Common Cents Approach to Coastal Protection*, 21 ENVTL. L. 1015, 1020-21 (1991).

²¹⁴ See *id.* at 1039.

²¹⁵ *Id.* at 1039-40 (1991).

278 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

implements the San Francisco Bay Segment of the California Coastal Management Program (CCMP) under the CZMA. This gives BCDC the authority to determine if federal agency activities and federally-permitted activities that affect the land and water uses or natural resources of the Bay are conducted in a manner “consistent” with the enforceable policies of the CCMP.²¹⁶ The enforceable policies of the CCMP include the McAteer-Petris Act, Suisun Marsh Preservation Act, the Bay Plan, and BCDC’s other laws, regulations and policies.²¹⁷ The Bay Plan requires BCDC to assure that actions affecting trust lands are “consistent with the public trust needs for the area.”²¹⁸ Therefore, under the CZMA, BCDC may require federal and federally-permitted activities that affect the Bay, such as federal highways, airports, dredging, and levees, as well as EPA discharge permits and Corps wetland permits, to be consistent with the public trust doctrine. Similar authority applies to other state coastal management programs.

BCDC also reviews projects under the California Environmental Quality Act (CEQA).²¹⁹ Like many other state environmental impact assessment laws, CEQA requires the identification and prevention of significant environmental effects.²²⁰ A “significant effect on the environment” is defined as a “substantial adverse change in the physical conditions which exist in the area affected by the proposed project.”²²¹ Under CEQA, a lead agency prepares an Initial Study to determine whether a project may have a significant effect on the environment.²²² A Negative Declaration is prepared if the lead agency determines a project has no significant effects,²²³ and an Environmental Impact Report (EIR) is prepared if the project will have a significant effect on the environment.²²⁴

Once an EIR has been prepared and certified as complete, public agencies must make certain findings pertaining to each significant environmental effect identified in the EIR.²²⁵ An agency may require modifications to the project to avoid or substantially lessen the

²¹⁶ 16 U.S.C.A. § 1456(c).

²¹⁷ SAN FRANCISCO BAY CONSERVATION & DEV. COMM’N, *supra* note 25, at 9.

²¹⁸ *Id.* at 79.

²¹⁹ CAL. CODE REGS. tit. 14, § 11500 et seq. (Westlaw 2010) (CEQA Guidelines).

²²⁰ CAL. CODE REGS. tit. 14, § 15002(a)(1)-(3).

²²¹ CAL. CODE REGS. tit. 14, § 15002(g).

²²² CAL. CODE REGS. tit. 14, § 15002(k)(2).

²²³ CAL. CODE REGS. tit. 14, § 15070(a).

²²⁴ CAL. CODE REGS. tit. 14, § 15002(k)(3).

²²⁵ CAL. CODE REGS. tit. 14, § 15091(a).

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 279

significant environmental impacts;²²⁶ it may find that the responsibility to lessen a significant environmental impact lies with another public agency;²²⁷ or it may find that specific economic, legal, social, technological, or other considerations make it infeasible to mitigate the significant effects of the project.²²⁸ If mitigation is deemed infeasible, the lead agency writes a statement of overriding considerations explaining why the economic, legal, social, technological, or other benefits outweigh the unavoidable environmental risks.²²⁹ Once a finding is made for each significant effect, an agency may approve the project.

The California Office of Planning and Research (OPR) recently developed guidelines to mitigate greenhouse gas (GHG) emissions under CEQA.²³⁰ The new guidelines, among other things, require lead agencies to quantify GHG emissions when determining significant impacts²³¹ and allow lead agencies to use thresholds of significance, developed by other agencies, to determine when GHG emissions constitute a significant effect.²³²

The guidelines also require cumulative impact analyses for GHG emissions, allow general plans containing summaries of GHG projects to be used for the analysis, and clarify what types of land-use plans may be used when analyzing GHG emissions.²³³ These amendments to the CEQA guidelines will play a critical role in a lead agency's review, and also will help shape the policies of responsible agencies.

An agency like BCDC may prepare an environmental assessment or EIR when it acts as the lead agency,²³⁴ or comment on an EIR when it is a responsible agency.²³⁵ BCDC may also comment on the impacts of

²²⁶ CAL. CODE REGS. tit. 14, § 15091(a)(1).

²²⁷ CAL. CODE REGS. tit. 14, § 15091(a)(2).

²²⁸ CAL. CODE REGS. tit. 14, § 15091(a)(3).

²²⁹ CAL. CODE REGS. tit. 14, § 15093(a)-(c).

²³⁰ See CAL. NATURAL RES. AGENCY, ADOPTED TEXT OF THE CEQA GUIDELINE AMENDMENTS (2009), available at http://ceres.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf. These amendments became effective on March 18, 2010. *Id.*

²³¹ CAL. CODE REGS. tit. 14, § 15064.4(a) (Westlaw 2010).

²³² CAL. CODE REGS. tit. 14, § 15064.7(a), (c).

²³³ CAL. CODE REGS. tit. 14, § 15130(a), (d).

²³⁴ CAL. CODE REGS. tit. 14, § 11520. BCDC is not required to prepare an EIR under CEQA because it has a Certified Equivalent Program that considers comparable environmental considerations as an EIR. To reduce delay and paperwork, BCDC is authorized to perform its certified equivalent program in lieu of an EIR when it acts as a lead agency. CAL. PUB. RES. CODE § 21080.5(a) (Westlaw 2010).

²³⁵ CAL. PUB. RES. CODE § 21002.1(d) (Westlaw 2010). The California Department of Justice has prepared a fact sheet listing various mitigation measures that can be implemented by local agencies under CEQA. Cal. Attorney Gen.'s Office, Addressing Climate Change at the Project Level

280 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3

federal actions on the Bay under the National Environmental Policy Act (NEPA).²³⁶ Thus, CEQA and NEPA provide an opportunity to recommend measures to mitigate impacts of state and federal actions on public trust uses, including public access and the preservation of open space and natural areas needed to protect the Bay against the impacts of climate change and sea level rise.

G. PURSUING COMMON LAW REMEDIES

Common law doctrines provide a number of affirmative remedies to protect public trust uses in ways that can address the impacts of sea level rise and climate change. Doctrines like dedication, custom and prescription provide a legal mechanism to preserve public rights to beaches or other areas traditionally used by the public. Privately owned beaches and adjacent uplands that offer access to beaches may be impliedly “dedicated” for public use if members of the public use the beaches or adjacent uplands for five years, as if they were public recreation areas, without objection by the private owner.²³⁷ The common law in some states also recognizes that the long and uninterrupted past use of a beach above mean high tide can create a legally protected right by “custom” to continue to such use.²³⁸ Public rights may also be gained by “prescription,” if public use is open, notorious and continuous for a statutory period of time.

Activities that endanger public life or health, obstruct the free use of property, interfere with the enjoyment of life or property, or unlawfully obstruct the free passage or use of navigable waters also may constitute public nuisances.²³⁹ For example, coastal armoring that encroaches on public land has been held a public nuisance in California, justifying removal without the payment of compensation.²⁴⁰ In Florida,

(2010), http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf. However some of these measures are not within BCDC’s statutory and regulatory authority.

²³⁶ 43 U.S.C.A. § 4321 et seq. (Westlaw 2010).

²³⁷ See *Gion v. City of Santa Cruz*, 2 Cal. 3d 29, 38-41 (Cal. 1970); *County of Los Angeles v. Berkeley*, 605 P. 2d 381, 227 (Cal. 1980); *City of Long Beach v. Daugherty*, 142 Cal. Rptr. 593, 597 (Cal. Ct. App. 1977).

²³⁸ *State ex rel. Thornton v. Hay*, 462 P.2d 671, 677-78 (Or. 1969).

²³⁹ See CAL. CIV. CODE § 3479 (Westlaw 2010); see also *People ex rel. Baker v. Mack*, 19 Cal. App. 3d 1040, 1050 (Cal. Ct. App. 1971).

²⁴⁰ *Scott v. City of Del Mar*, 58 Cal. App. 4th 1296, 1305-06 (Cal. Ct. App. 1997). The court held that the city’s removal of the seawall did not constitute inverse condemnation because the “Legislature has the power to declare certain uses of property a nuisance and such use thereupon becomes a nuisance *per se*.” *Id.* at 1305. In this case, the City declared that the obstruction of a public right-of-way is an abatable nuisance. *Id.* at 1306.

2010] *CLIMATE CHANGE AND THE PUBLIC TRUST* 281

construction seaward of an established control line fifty feet from mean high tide is prohibited as a public nuisance under the Beach and Shore Preservation Act.²⁴¹ Bulkheads or sea walls that flood adjacent properties or cause public beaches to disappear may also be considered public nuisances.²⁴²

As sea levels rise, development may encroach on public lands, harm other properties, or impede the protection of bays and estuaries from the effects of climate change. In proper cases, public agencies may be able use their police powers to remove structures that constitute public nuisances, or pursue other common law remedies to preserve open space, protect habitat, and provide buffers to accommodate rising sea levels or storm surge. In such cases, agencies may need to seek additional legislative authority, or work with state attorneys general, state lands commissions and other government agencies.

VIII. CONCLUSION

Government agencies like BCDC face a tremendous challenge to address the impacts of climate change and sea level rise. The public easement created by the public trust doctrine is not a panacea and does not provide additional authority not already provided under existing agency laws and policies.²⁴³ However, the trust can be used to support decisions promoting public uses and preserving lands in their natural state that might otherwise be held takings under the U. S. and state Constitutions. The public trust doctrine can also support the implementation of common law remedies to protect areas vulnerable to sea level rise and to prevent activities that impede efforts to address the impacts of climate change. Some of these actions can be implemented under existing authority, but other actions may require new legislation, regulatory authority or partnerships with other agencies and organizations.

²⁴¹ West's FLA. STAT. ANN. § 161.052(1) (Westlaw 2010).

²⁴² Titus, *supra* note 139, at 1372 note 392.

²⁴³ Informal Advice from California Department of Justice, *supra* note 77, at 26, 38.

282 GOLDEN GATE UNIV. ENVIRONMENTAL LAW J. [Vol. 3