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I. Introduction

California will likely see a 16-inch sea level rise by 2050 and a 55-inch level rise by the end of the century.[1] In the Bay Area alone, 213,000 acres will be vulnerable to flooding by year 2100.[2] Those 213,000 acres include major airports, ports, roads and residential neighborhoods.[3] The Public Trust Doctrine holds that navigable waters and tidal lands are the property of the state, and must be protected and kept accessible for the general public. On the California coast, the line between private lots and public land is drawn along the mean high tide line—and as the Pacific Ocean rises, that line will encroach on land that is currently held privately.

What happens when this movement occurs? Do littoral landholders lose property or does the public? And when the State attempts to implement regional sea level rise mitigation plans, can it forbid individuals from building seawalls to protect their homes when those seawalls contradict regional plans? Or require them to abandon their lots as part of a strategy of managed retreat and wetlands restoration? If the State so significantly restricts what a landowner can do, or not do, to protect their property, do such regulations constitute takings under the Fifth Amendment?

Because the California State Legislature has yet to adopt new regulations to guide sea level rise adaption, the California Coastal Commission is left modifying or adapting existing regulatory mechanisms in its effort to address and mitigate the effects sea level rise.[4] The Commission currently uses its standing authority to require setbacks on new developments and to apply assumption of risk clauses to new development

1. S.F. PLANNING AND URBAN RESEARCH ASS'N [hereinafter SPUR], SPUR Report: Climate Change Hits Home 9 (2011), *available at* http://www.spur.org/publications/library/report/climate-change-hits-home.

2. S.F. BAY CONSERVATION AND DEV. COMM'N [hereinafter BCDC], LIVING WITH A RISING BAY: VULNERABILITY AND ADAPTATION IN S.F. BAY AND ON ITS SHORELINE, 26 (2011), *available at* http://www.bcdc.ca.gov/BPA/LivingWithRisingBay.pdf.

3. *Id*. at 2-4.

4. CAL. COASTAL COMM'N, OVERVIEW OF SEA LEVEL RISE AND SOME IMPLICATIONS FOR COASTAL CALIFORNIA: 25 (2001), *available at* http://www.coastal.ca.gov/climate/SeaLevelRise2001.pdf.

permits that prohibit the future construction of seawalls.[5] The problem is that the Commission's ability to restrict seawall construction on the part of existing permit-holders whose permits do not include assumption of risk clauses is less clear. This is where the Public Trust Doctrine comes into play.

In this note I explore the interplay between the Public Trust Doctrine and the encroachment of the Pacific Ocean onto privately held coastal property in California. I will attempt to synthesize the Public Trust Doctrine, Fifth Amendment takings, implications of sea level rise in California, and explain how the Public Trust can be used to justify the drastic measures the State will be forced to take to deal with those implications. Lastly, I will show that because the Public Trust Doctrine holds that the State must protect the coastline for and make it available and accessible to the general public, the State can utilize the doctrine to prevent private property owners from arming the coast to protect their land from sea level rise without those regulations succumbing to takings claims.

II. The Public Trust Doctrine

A. The Basics of the Public Trust Doctrine

"By the law of nature these things are common to all mankind, the air, running water, the sea and consequently the shores of the sea."[6] In America's early years as a nation, the states adopted this ancient Roman doctrine as part of their own common law.[7] *Illinois Central Railroad Co. v. State of Illinois*,[8] is the fundamental U.S. Public Trust case. There the Supreme Court upheld the revocation of a grant of most of Chicago's lakefront to the Illinois Central Railroad Co.[9] on the grounds that Public Trust lands cannot be transferred entirely outside the control of the state.[10] The Court explained that:

> It is the settled law of this country that the ownership of and dominion and sovereignty over lands covered by tide waters, within the limits of the several states, belong to the respective states within which they are found, with the consequent right to use or dispose of any portion thereof, when that can be done

5. *Id.*

6. David Takacs, *The Public Trust Doctrine, Environmental Human Rights, and the Future of Private Property*, 16 N.Y.U. ENVTL. L.J. 711, 713 (2008), quoting Justinian.

7. *Id.* at 713.

8. 146 U.S. 387 (1892).

9. *Illinois Central* at 462.

10. *Id.* at 454.

> without substantial impairment of the interest of the public in the waters, and subject always to the paramount right of congress to control their navigation so far as may be necessary for the regulation of commerce with foreign nations and among the states.[11]

With *Illinois Central*, the Supreme Court established that tidal lands are the property of the

State in which they lie, and that those lands can only be transferred out of state hands when such a transfer is not adverse to the public interest in those lands and waters.

In California, the legislature codified the Public Trust principles upheld in *Illinois Central* with the passage of Article X, section 4 of the California Constitution. The Article holds:

> 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 always be attainable for the people thereof.[12]

Article X, section 4 statutorily protects the coast for the public. It precludes landholders from developing so as to exclude the general public from the use of navigable waters and tidal lands.

In 1970, then University of Michigan law professor Joseph Sax revived the use of the Public Trust Doctrine in environmental litigation with his article *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*.[13] Sax wrote that "certain interests are so particularly the gifts of nature's bounty that they ought to be reserved for the whole of the populace."[14] He further wrote that public accessibility to those interests is what distinguishes society "as one of citizens rather than of serfs," and that no privileged minority of the population can be permitted to maintain exclusive control of those interests.[15] In considering Sax's take on the Public

11. *Id*. at 435.
12. CAL. CONST. art. X, § 4.
13. 68 MICH. L. REV. 471 (1970).
14. *Id*. at 484.
15. Takacs, *supra* note 6, at 716 (discussing Sax, *supra* note 13).

Trust Doctrine, Professor David Takacs explained that "Sax is concerned with . . . 'a diffuse majority [being] made subject to the will of a concerted minority.' That 'concerted minority' is private property owners whose private economic interests lead them to arrogate ecological resources, which, by right, belong to the public."[16]

As *Illinois Central*, Sax, and Takacs emphasize, private rights held in coastal Public Trust land are not as sacredly protected as traditional real property rights. Instead they are usufructuary, existing only relative to the rights of others. Takacs contends that Public Trust property rights are like water rights in that they are regulated and subject to limitation or revocation.[17] In the case of California's coast therefore, owners of beachfront lots do not have unrestricted leeway to build seawalls or otherwise arm the coast to protect their individual parcels. The Public Trust provides for the protection and preservation of coastal lands in their natural state for public use; and even where Trust lands are privately owned, such ownership rights are subordinate to Trust interests. An owner of beachfront land therefore, may not build a seawall or other armoring structure that will negatively alter beaches and undermine the public's right to enjoy and access those beaches under the Public Trust Doctrine.

B. The California Coastal Act as the State's Recognition and Codification of the Public Trust

The California Legislature passed the Coastal Act in 1976,[18] codifying five basic policy objectives that include preserving coastal ecosystems and ensuring public access to the shoreline.[19] Although voters established the California Coastal Commission by initiative in 1972, the Coastal Act ("Act") made the Commission permanent[20] and charged it with "protecting and enhancing coastal resources, ensuring balanced resource use, maximizing public access, ensuring priority of coastal-dependent uses, and encouraging coordinated planning."[21] The Coastal Commission maintains jurisdiction over the coastal zone, an area designated by the legislature that extends from three miles into the ocean to between a few hundred feet to five miles

16. *Id.* at 716 (quoting Sax, *supra* note 13).

17. *Id.* at 721.

18. *Program Overview*, California Coastal Cmm'n, http://www.coastal.ca.gov/whoweare.html (Last visited Nov. 17, 2011).

19. Meg Caldwell & Craig H. Segall, *No Day at the Beach: Sea Level Rise, Ecosystem Loss, and Public Access Along the California Coast*, 34 ECOLOGY L.Q. 533, 544 (2007).

20. Cal. Coastal Comm'n, *supra* note 18.

21. Caldwell & Segall, *supra* note 19, at 544.

inland.[22] All development within this zone must comply with a permit from either the Coastal Commission (or the Bay Conservation and Development Commission ("BCDC") in the San Francisco Bay) or a local government acting under a Commission-certified Local Coastal Program.[23] The Commission's issuance and denial of development permits, as prescribed by the Act, must be in accordance with the Commission's stated policy goals—to protect the coastal environment, to assure "balanced utilization and conservation of coastal zone resources [and to] . . . maximize public access to and along the coast."[24]

Not only does the Coastal Act broadly call for protection of the coastal zone and public accessibility to it, provisions throughout the Act explicitly enforce Public Trust principles. Section 30001.5 is one of these provisions—the basic goals of state management of the coastal zone are to "[m]aximize public access to and along the coast and maximize public recreational opportunities in the coastal zone . . . ."[25] This provision is a straightforward recognition of the State's intent to uphold the Public Trust by ensuring that the shoreline is available for public use and enjoyment.

Section 30609.5 is also particularly illustrative of the Act's recognition of the Public Trust Doctrine:

> [N]o state land that is located between the first public road and the sea . . . shall be transferred or sold by the state to any private entity *unless the state retains a permanent property interest in the land adequate to provide public access to or along the sea*. In any transfer or sale of real property by a state agency to a private entity or person pursuant to this section, the instrument of conveyance created by the state shall require that the private entity or person or the entity or person's successors or assigns manage the property in such a way as to ensure that existing or potential public access is not diminished. The instrument of conveyance shall further require that *any violation of this management requirement shall result in the reversion of the real property to the state*.[26]

This section codifies the Public Trust principle that the State holds the coastline in trust for the public.[27] It asserts that in instances where land is transferred into private hands the State retains an interest in the property so

22. Cal. Coastal Comm'n, *supra* note 18.

23. I*d*.

24. CAL. COASTAL ACT, § 30001.5 (West 2012).

25. CAL. COASTAL ACT, § 30001.5(c).

26. I*d*. at § 30609.5(a) (emphasis added).

27. I*d*. at § 30609.5

as to assure public access to the shoreline.[28] In its final clause, section 30609.5(a) states that if a property owner who has agreed to provide for public beach access fails to do so, the property in question will revert to the State.[29] By providing for reversion of private property into the State's hands when a property owner violates Trust principles, the legislature demonstrated that it holds Public Trust principles in the highest regard, and that not even private littoral landowners have the leeway to infringe on those principles.

The overall goals of the Coastal Act and sections[30] including 30001.5 and 30609.5, make clear that the State considers protection and preservation of, and public accessibility to the coast priorities of coastal management. Furthermore, in codifying these Trust values, the Coastal Act provides grounds for enforcing those principles apart from and independent of the Public Trust Doctrine common law. Additionally, the limited California case law on this topic reinforces the Coastal Commission's power under the Coastal Act to limit private property rights in accordance with Trust priorities of access and preservation.

1. Coastal Act Conflict Between Protecting Existing Structures and Protecting the Natural Coastline

While Coastal Act sections 30001.5 and 30609.5 demand that the Commission prioritize coastal access and shoreline protection, property owners contend that section 30235 guarantees shoreline armoring when a home faces imminent danger.[31] Section 30235 states:

> Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes *shall be permitted* when required to serve coastal-dependent uses *or to protect existing structures* or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply (emphasis added) . . . .[32]

28. I*d*. at § 30609.5(c)

29. I*d*.

30. Sections 30210, 30211 and 30212 all also explicitly seek to ensure that public access to the shore remains the highest priority of California coastal development.

31. Todd T. Cardiff, *Conflict in the California Coastal Act: Sand and Seawalls*, 38 CAL. W. L. REV. 255, 257 (Fall 2001).

32. CAL. COASTAL ACT § 30235.

This section pitches the Act's overarching goals of coastal preservation and access against section 30235's specific mandate to protect existing structures. However, the meaning of "existing structures" is a source of debate—some contend that the phrase refers to any standing structure, regardless of when it was built, while others argue that "existing" applies only to development completed prior to when the Coastal Act became effective.[33]

The legislative history of the Act, and its undeniable conservationist overtones, support the position that the legislature intended section 30235 to only protect structures in existence prior to the enactment of the Coastal Act in 1976.[34] Analysis of section 30235's legislative history reveals the fact that the word "existing" was not present in earlier versions of the Act but was included in the final version in order to distinguish between structures existing prior to the Act's passage and those that would be constructed in the future.[35] Additionally, section 30253(b)—which prohibits new development from "contribut[ing] significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices . . ." [36]—would be superfluous if "existing" in section 30235 did not distinguish between pre-Coastal Act and post-Coastal Act development.

If section 30235 requires seawall protection of structures no matter when the structures were built, then the requirements of 30253(b) are effectively meaningless.[37] Section 30253(b) prohibits new structures from being built in places where they will require the construction of protective devices such as seawalls. Section 30235 requires the Commission to permit protective devices to protect "existing structures." If "existing structures" in 30235 referred to both pre and post Coastal Act development, then section 30253(b)'s requirement that new development be set far back enough to not require shoreline protection in the future would be without purpose. Therefore, the most logical interpretation of these two sections is that 30235 requires the Commission to permit seawalls when necessary to protect pre-Coastal Act development, and 30253(b) requires that all development constructed since the Act's passage be set far back enough from the coast so as not to require shoreline armoring in the future.

This conclusion drawn from the legislative history and textual analysis of sections 30235 and 30253; coupled with the overall environmentalist tone

33. Surfrider Found. v. Cal. Coastal Comm'n, 2006 WL 1530224 at 2 (Cal. Ct. App. June 5, 2006).

34. Cardiff, *supra* note 31, at 262-63.

35. I*d*. at 267.

36. CAL. COASTAL ACT § 30253(b).

37. Cardiff, *supra* note 31, at 269.

of the Coastal Act and sections 30001.5 and 30609.5, which prioritize coastal preservation; are further evidence of the legislative intent that the Act be used primarily to preserve the natural shoreline and ensure public accessibility to it. And, as I discuss throughout the remainder of this paper, the Public Trust Doctrine, which both reinforces and is reinforced by the Coastal Act, requires above all else, the State protect the coastline for public use.

III. Fifth Amendment Takings

The final clause of the Fifth Amendment holds: "nor shall private property be taken for public use, without just compensation."[38] The takings provision does not prevent the government from claiming private property for public use. Instead it requires the government to compensate an owner for property when State action or regulation is found to be a taking that wholly deprives property of its value. The takings doctrine pertains to the discussion of sea level rise and coastal armoring in that if a private property owner is prohibited from arming their land from rising oceans, those owners are likely to claim that the prohibition against seawall construction is a regulatory taking.

A regulatory taking differs from a physical taking in that it occurs when the government regulates so as to render a landowner's property valueless. In *Lucas v. South Carolina Coastal Council*,[39] the Supreme Court considered the constitutionality of the Beachfront Management Act; which effectively barred Lucas from building homes on his two beachfront parcels.[40] Lucas argued that the ban imposed by the Beachfront Management Act was a regulatory taking—the Court agreed.[41] The opinion in *Lucas* explains that there are two kinds of takings—those in which there is a physical invasion of private property and those in which a regulation "denies all economically beneficial or productive use of land."[42] The Court writes that the second category, regulatory takings, is justified on the grounds that a regulation denying all economically beneficial use of land "is, from the landowner's point of view, the equivalent of a physical appropriation."[43] However, where the "State 'reasonably concludes that 'the health, safety, morals, or general welfare' [of the public] would be promoted by prohibiting particular contemplated uses of land,' compensation need

38. U.S. CONST. amend. V.

39. 505 U.S. 1003 (1992).

40. *Lucas* at 1007.

41. *Id.* at 1009.

42. *Id.* at 1015.

43. *Id.* at 1017.

not accompany prohibition."[44] In this particular case, the Court found that the Beachfront Management Act did deny Lucas all economically beneficial use of his land, and was therefore an unconstitutional taking.[45]

The paramount takings case is *Penn Central Transportation Co. v. City of New York*.[46]

The Court there explained that the "Fifth Amendment's guarantee . . . [is] designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole."[47] This proclamation holds that when the government "takes" private property to accomplish a greater public good (such as construct a highway, remake a blighted neighborhood, etc.), the owner of the taken property cannot be forced to alone bear the cost of losing property that will go to benefit the general public. However, the takings clause does *not* imply that the general public must bear the burdens of a select few. While the takings doctrine prohibits an individual property owner from bearing the costs of the general public, the doctrine does not support the inverse theory. That is, it does *not* hold that the public must pay the costs of protecting the interests of a select few.

With *Penn Central* the Supreme Court found that there is no clear test for determining when government action effectuates a taking. Instead, the Court held that takings analyses are based on a three-factor ad hoc evaluation of the particular set of circumstances.[48] This ad hoc evaluation consists of the following elements: (1) the economic impact of the regulation; (2) the extent to which the regulation has interfered with distinct, investment-backed expectations; and (3) the character of the action (e.g., whether the action is a physical invasion, or whether it affects a single property owner or property owners generally).[49]

Nollan v. California Coastal Commission[50] is another seminal takings case. There the Supreme Court found that the Coastal Commission's grant of a building permit conditioned upon a public easement to cross the plaintiff's beachfront property was an unconstitutional taking.[51] The Court added to the standard takings analysis here in holding that there must be a substantial nexus between a permit condition imposed and the justification

44. *Id.* at 1014 (citing Penn Cent. Transportation Co. v. City of New York, 438 U.S. 104 (1978)).

45. *Id.* at 1031-32.

46. 438 U.S. 104 (1978).

47. *Id.* at 123 (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)).

48. *Penn Central* at 124.

49. *Id.* at 124, 134.

50. 483 U.S. 825 (1987).

51. *Id.* at 841-42.

for such a condition.[52] The Court found in this situation that the required nexus did not exist. It held that the Coastal Commission required the easement across Nollan's property because the proposed development would block the public's view of the beach, but that an easement across the property did not actually solve the problem of houses blocking visual access to the beach from the road.[53]

Seven years after N*ollan*, the Supreme Court again added an element to the takings analysis. In D*olan v. City of Tigard*,[54] the Court held that there must be "rough proportionality" between the condition placed on a permit and the reason for the imposition of the condition.[55] The Court explained that "[n]o precise mathematical calculation is required, but [one] must make some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development."[56] In this instance the Court found that, while requiring a greenway for flood control was a valid condition on the plaintiff's building permit, requiring such a greenway to be made available for public use was not roughly proportional to flood control.[57]

According to P*enn Central*, finding an unconstitutional taking requires that a government action has a severe economic impact, interferes with the property owner's distinct investment backed expectations, and has a discriminatory character. L*ucas* further requires that, for an action to be a regulatory taking, the regulation in question must deny an owner all economic use of their land and not be in furtherance of the general welfare. Additionally, if the takings analysis involves conditions placed on building permits, N*ollan* and D*olan* require such a condition to be substantially related and roughly proportional to the goal sought to be achieved by the condition.

In addition to informing the analysis due a takings claim, these cases illuminate the ever-present struggle between protection of private property rights, environmental land management, and the greater public good. The American legal system is based on a deep-seeded regard for private property; yet in this day and age, where open land is increasingly less plentiful, the greater public good is often sacrificed to the exercise of a single landholder's own property interests. L*ucas*, P*enn Central*, N*ollan*, and D*olan* all face these conflicting interests, and while the Court's opinions in these cases reveal a willingness to cut into private property rights under very particular circumstances, it exhibits a strong proclivity towards protecting

52. I*d*. at 837.

53. I*d*. at 838-39.

54. 512 U.S. 374 (1994).

55. I*d*. at 391.

56. I*d*.

57. I*d*. at 393-94.

against such intrusions. That hesitancy means that private property owners will often have the upper hand when it comes to litigating seawall prohibitions.

IV. California Sea Level Rise and the Public Trust

A. The Basics of Rising Ocean Levels in California

Ocean levels are rising globally because of thermal expansion and melting glaciers and ice sheets.[58] As the temperature on earth increases, the ocean retains more land-generated and atmospheric heat and thereby expands up onto shore.[59] The oceans' absorption of melted ice coming off of land-based glaciers and ice sheets, particularly those that have historically occupied extensive areas of Greenland and Antarctica, are also contributing to rising sea levels.[60] This combination of heat absorption and melting land-based ice is predicted to cause a 16-inch increase in ocean levels by 2050 and a 55-inch increase by 2100.[61]

The 2007 climate change report published by the Intergovernmental Panel on Climate Change ("IPCC") explains that while oceans have experienced yearly rises since the end of the ice age, the rate has increased in the last two decades.[62] Twentieth century estimates show that sea levels typically rose at a rate of around 1.7 mm yr^{-1}; but satellite data and coastal gauge information collected between 1993 and 2003 demonstrate that sea level rise has accelerated to an average of 3 mm yr^{-1}.[63] Furthermore, the IPCC estimates under certain emissions scenarios, the rate of sea level rise could increase to 4 mm yr^{-1}.[64]

According to a 2011 report published by BCDC, 180,000 acres of San Francisco Bay shoreline will be vulnerable to flooding by 2050, and another 33,000 acres will be vulnerable by the end of the century.[65] As the BCDC report explains, the 180,000 Bay Area acres correspond to the 100-year floodplain,[66] and are most likely to see sea-level-rise-related flooding with

58. SPUR, *supra* note 1, at 9.

59. Id.

60. Id.

61. Id.

62. IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007, WORKING GROUP I: THE PHYSICAL SCIENCE BASIS, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-5-1.html (last visited Feb. 3, 2012).

63. Id.

64. Id.

65. BCDC, *supra* note 2, at 45.

66. Id. at 26.

extreme storm events—which could become more likely as global temperature increases and whether patterns change.[67] Along with airports, businesses, ports, roads, and railroads, the 100-year floodplain in the Bay Area alone includes 66,000 acres of residential development.[68] A football field is about one acre; so an area of Bay Area land equivalent to about 213,000 football fields could be under water in a major storm event by year 2100—the entire California coast will face a similar situation.

B. Seawalls and Coastal Armoring as Options to Protect Coastline Development

Along California's over 2,000 miles of tidal coastline (including bays and inlets) around 1,100 miles of new or modified seawalls or other protection structures would be needed to protect development from flooding.[69] A May 2009 report from the California Climate Change Center estimates that building or upgrading 1,100 miles of seawalls would cost $14 billion in year 2000 dollars, and that those structures would then require $1.4 billion (in year 2000 dollars) a year in maintenance.[70]

Not only are structures designed to arm the coast incredibly cost-prohibitive on as large a scale as considered here, they are also incredibly environmentally detrimental. Coastal armoring structures include seawalls, revetments, and bulkheads.[71] "Seawalls are designed to resist the forces of storm waves; bulkheads are to retain the fill; and revetments are to protect the shoreline against the erosion associated with light waves."[72] Each of these structures designed to protect coastal development fix the position of the coastline.[73] This fixation results in a loss of beach due both to the footprint of the structure itself and to passive erosion—a process in which the beach drowns because the armoring structure prevents the rising ocean from moving inland and creating new beach.[74]

Imagine that a city, in an effort to protect a coastal road, builds a wall on the beach along the coastal roadway. With the construction of the wall the public has already lost a few feet of usable beach to the footprint of the

67. *Id.* at 45.

68. *Id.* at 48.

69. MATTHEW HEBERGER, HEATHER COOLEY, PABLO HERRERA, PETER H. GLEICK & ELI MOORE, CAL. CLIMATE CHANGE CENTER, THE IMPACTS OF SEA LEVEL RISE ON THE CALIFORNIA COAST 3 (2009).

70. *Id.* at 3.

71. *Id.* at 34.

72. *Id.*

73. HEBERGER ET AL., *supra* note 69, at 34.

74. *Id.*

structure. Now picture an extreme winter storm season with waves coming further inland than in the past due to higher than normal sea levels. On an unaltered beach, this intense wave activity would push sand further inland, essentially pushing the entire beach further inland. However, where there is a seawall, this inland movement of the beach is stopped short. Instead of waves pushing the beach inland, the movement is frozen at the seawall. As the ocean continues to rise up against the wall, it drowns the sandy beach, prohibited from inland migration by the wall.

Less expensive and environmentally detrimental options are to either bolster beaches with foliage or other nourishment or to implement plans of managed coastline retreat and let nature take its course.[75] Beach nourishment is a process in which sand is brought in and added to a drowning beach to restore dry sand beach and act as a buffer between seaside development and the ocean. Managed retreat involves abandoning vulnerable coastal development and infrastructure or moving those structures further inland. The logic behind managed retreat is that because coastal armoring damages the natural coastal environment, and because such structures are not economically feasible on a massive scale, some coastal development will need to be sacrificed in order to allow for the natural advancement of the shoreline.[76]

C. The Intersection of Coastal Armoring and the Public Trust Doctrine

1. Government Violation of the Public Trust Doctrine

If the State decided to address sea level rise by armoring the 1,100 miles of coast that would need armoring, the Coastal Commission and the local and federal agencies with jurisdiction throughout the state's coastal zone would oversee such a plan. However, in our already debt-ridden state, executing a fourteen billion dollar coastal armoring plan is impractical and unrealistic. Furthermore, the Public Trust Doctrine and the Coastal Act's reinforcement of it prohibit the State from doing or allowing anything that would destroy or eliminate public access to the shore—and large scale coastal armoring would do just that.

Clearly a government sea level rise adaptation strategy involving the widespread construction of seawalls is problematic. However, it must be conceded that the State's failure to build coastal protective structures would

75. Associated Press, *Economists Say Sea Level Rise would Be Costly*, CBSNEWS (Sep. 14, 2011), http://www.cbsnews.com/2100-501369_162-20106389.html.

76. U.S. DEP'T OF COMMERCE, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., OCEAN AND COASTAL RES. MGMT., http://coastalmanagement.noaa.gov/initiatives/shoreline_ ppr_ retreat.html (last visited Nov. 18, 2011).

result in adverse consequences as well. Where protective structures are not built, coastal property will be vulnerable to flooding, and as the ocean rises that vulnerable property is going to face damage or destruction. Even lands the Public Trust currently serves to protect could be lost to unimpeded rising seas (though note that as the mean high tide line migrates inland, so too do lands protected by the Public Trust). Property damage is not something to take lightly; but as discussed, a 1,100-mile seawall is simply not a feasible or acceptable solution.

2. Private Violation of the Public Trust Doctrine

While the Public Trust and the Coastal Act prohibit the Coastal Commission and local governments from constructing seawalls up and down the coast to the detriment of the state's beaches and public access to those beaches, whether or not those prohibitions apply to private actors is somewhat less clear. On the face of the issue, one would assume that a private property owner has a right to protect his home from flood damage, and that such a right to protect one's property includes building a seawall to protect the property from flooding. However, there are several issues with a littoral landowner building a seawall to arm his land against sea level rise, even if that wall is entirely within the limits of that landowner's lot: such walls may divert wave energy so as to more seriously accelerate the erosion of neighboring lots,[77, 78] may conflict with a state-wide sea level rise adaptation plan, and will most certainly damage Public Trust interests in the beaches on which such walls are constructed.

Herein lies the tension to be explored in the remainder of this paper: how do we square private property rights, and a landowner's right to protect their property from flooding, with the Public Trust and the State's obligation to protect the shoreline environment and maintain public access to it.

77. Monterey Bay Nat'l Marine Sanctuary, MBNMS RESOURCE MANAGEMENT ISSUES: COASTAL ARMORING, http://montereybay.noaa.gov/resourcepro/resmanissues/coastal.html (last visited Jan. 12, 2012).

78. In addition to constituting Public Trust violations against the general public, a littoral landowner's construction of a seawall is also a Public Trust violation, a nuisance, and an infringement of property rights against the seawall builder's neighbors. This however, is another issue to be explored in another paper.

V. How the Public Trust Doctrine Can be Used to Restrict Coastal Armoring on Private Property

A. Overview of Using the Public Trust to Restrict Armoring Measures Utilized by Littoral Property Holders

As discussed above, large-scale coastal armoring along the California shoreline is cost prohibitive, environmentally detrimental, and a violation of Public Trust principles. On the other hand, private property rights are among the most fundamental rights recognized and adamantly protected in the United States. One can only expect that as sea level rise becomes more imminent and threatening, property owners are going to do whatever they can to protect their coastal homes. And one of the actions those property owners are likely to take is to build seawalls and otherwise arm their coastal lots. Even if such structures are built entirely within the limits of one's private property, their effects, especially when multiplied by a large number of landholders, are Public Trust violations.

In California, the Coastal Act mandates that development activities, which include "construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters," must comply with a coastal development permit.[79] According to the Coastal Act, those seeking to develop must obtain a permit from either the local government or the California Coastal Commission,[80] or BCDC in the Bay Area. As discussed earlier in the paper, the Coastal Commission is obligated to issue or deny permits in accordance with the Public Trust principles codified in the Coastal Act—including preservation of the natural shoreline for public use and enjoyment.

As sea level rise related flood events become more likely, one can expect the Coastal Commission to begin working with local governments to develop both regional and statewide adaptation and protection plans. At the same time, private property owners are going to begin armoring the coast along their lots in an effort to protect their homes. When the Coastal Commission either denies such coastal armoring permits, or brings enforcement actions against those who build without permits in violation of the Coastal Act, landowners are likely to bring takings claims against the State.

Perhaps unfortunately for those property owners, Public Trust principles, as codified by the Coastal Act, the California Constitution, and ascribed to by case law, vest in the State the authority to deny permits for destructive armoring structures in the name of environmental protection and coastal accessibility.

79. Cal. Coastal Comm'n, *supra* note 18.

80. I*d*.

1. Case Law Reinforcing that the Coastal Act Provides for State Enforcement of Public Trust Principles

Since the Coastal Act was passed in 1976, California courts have continually recognized that the Act broadly serves to ensure public access to the state's beaches and that the State can restrict littoral property rights under the Coastal Act in furtherance of that prescribed public access. In *Sea Ranch Association v. California Coastal Commission*[81] a California court held that "[m]aximum access is to be provided and developments [are] not to interfere with the public's right to access to the sea."[82] The opinion then stated that "public access and aesthetic considerations constitute areas that legitimately fall within the Commission's regulatory power."[83] In other words, the court in *Sea Ranch* recognized that advancing Public Trust interests, including those interests in public access to and aesthetic enjoyment of the coast, are within the Coastal Commission's statutorily bestowed authority.

In addition to the Coastal Act's broad directive to ensure public beach access, several provisions in the Act specifically serve to uphold and make enforceable Public Trust principles; and those provisions create statutory grounds upon which the State can restrict a private property owner's claimed right to arm their coastal property despite the environmental effects such armoring has. Case law addressing the topic of coastal armoring further reinforces the State's authority. In *Whaler's Village v. California Coastal Commission*,[84] the California Court of Appeals addressed a dispute over whether the Commission had the authority to place certain conditions on an after-the-fact development permit allowing the homeowners of Whaler's Village in Ventura to keep a rock revetment constructed to protect their homes from wave activity during a heavy storm season.[85] The permit conditions included an unconditional waiver of any liability on the part of the Commission for any future erosion damage and a dedication of a public easement along the beach fronting the Whaler's Village properties.[86]

The court agreed with the Coastal Commission's argument that "a fundamental right to protect one's property under the Constitution is not the equivalent of a vested right to protect property in a particular manner . . . ."[87] The court further stated:

81. 527 F. Supp. 390 (1981) (vacated because of mootness).

82. *Id.* at 392.

83. *Id.* at 393.

84. 173 Cal. App. 3d 240 (1985).

85. *Id.* at 249.

86. *Id.* at 248.

87. *Id.* at 252-53.

> [P]roperty ownership rights, reserved to the individual by constitutional provision, must be subordinated to the rights of society. It is now a fundamental axiom in the law that one may not do with his property as he pleases; his use is subject to reasonable restraints to avoid societal detriment . . . .[88]

This proclamation, and the *Whaler's* opinion generally, serves as an example of the court's willingness to uphold the Coastal Commission's power to restrict littoral property rights, based on its power under the Coastal Act to do so, in order to preserve public access to the state's beaches in accordance with the Public Trust.

Furthermore, *Whaler's Village* demonstrates the court's broad acceptance of the principle that property rights do not entitle a landowner to unbounded development rights—as the court there held, such rights are subject to "reasonable restraints."[89] Of course the meaning of the word "reasonable" in legal contexts is a never-ending source of debate. The beach-going public may think that it is quite reasonable to prohibit seawall construction where construction will eventually cause the elimination of a favorite beach. On the other hand, the homeowners seeking approval of a seawall necessary to save their home from flooding or erosion will quite certainly find prohibition of the seawall on the basis of beach preservation entirely unreasonable. However, one cannot deny that protecting a beach provides the most benefit to the most people—the entire public can enjoy a beautiful beach, but only a single homeowner (and perhaps his friends and family) benefits from a single beachfront house.

B. California Water Law and How the Usufructuary Nature of Water Rights Applies to Rights in Public Trust Lands

1. *National Audubon Society v. Superior Court of Alpine County*

National Audubon Society v. Superior Court of Alpine County,[90] a case regarding the City of Los Angeles's appropriation of water from the tributaries of Mono Lake, represents a drastic shift in the court's understanding and use of the Public Trust Doctrine. Mono Lake, like the California Coast, is an ecological and scenic asset.[91] The lake is filled with freshwater from mountain streams, and because there are no outlets it

88. *Id.* at 253 (quoting People v. Byers, 90 Cal. App. 3d 140, 147-48 (1979)).

89. 173 Cal. App. 3d at 253.

90. 33 Cal. 3d 419 (1983).

91. *Id.* at 425.

maintains a delicate salt, saline, and alkaline balance.[92] The Los Angeles Department of Water and Power ("DWP") received permission in 1940 from the California State Water Resources Control Board to divert water from the streams and creeks that feed Mono Lake.[93] At the time the plaintiffs brought suit, DWP's diversions had caused a severe drop in the lake's surface area and volume, the transformation of an island seagull rookery into an easily accessible and unprotected peninsula, and general destruction of the ecosystem.[94]

Recognizing that the Public Trust, aside from ensuring navigability and public access, serves to protect the ecological and aesthetic benefits of Trust lands, the court found that the Public Trust was a sound basis on which to restrict DWP's appropriations of water from the Mono Lake tributaries.[95] The California Supreme Court here held that regardless of DWP's existing appropriative water rights, the State was obligated under the Public Trust to protect the lake as far as feasible.[96] Furthermore, the court wrote that the State has authority to reevaluate existing allocations of water even where those allocations were originally granted in consideration of and despite their effect on the Public Trust.[97]

While California water rights have never enjoyed the same level of absoluteness typically attributed to rights in land, the court's logic in all but revoking DWP's water rights based on the damage the exercise of those rights imposed on Trust resources applies to littoral property rights as well. In A*udubon* the court understood that allowing DWP to continue diverting as much water as it was would result in total, irreparable destruction of the Mono Lake ecosystem; and because the lake is protected by the Public Trust, that destruction was in violation of the principles of the doctrine. In accordance with the Public Trust, the court was forced to take drastic action—temporarily revoking DWP's water rights—in order to halt and reverse the lake's decline.

The Mono Lake case was one in which an ecological emergency called for a drastic legal response. If the court had not limited DWP's diversions, Mono Lake, and the unique ecosystem it supported, would have been lost forever. The situation occurring on the California coast is no different. If not considered one already, it will soon be an emergency—not only in terms of potential damage to property and infrastructure, but to the state's vulnerable coastline. If we allow panicked construction of seawalls all along

92. I*d*. at 429.

93. I*d*. at 424.

94. I*d*. at 424-25.

95. I*d*. at 445.

96. N*at'l* A*udubon* S*oc'y*, 33 Cal 3d at 446-47.

97. I*d*. at 447.

the coast, we will drown our beaches and destroy the complex ecosystem that makes the California coast such a treasure.

Audubon shows "that water 'rights' are not property, but a kind of revocable, usufruct privilege that [are] and always [have] been subject to government redefinition to reflect the changing needs of the citizenry—to reflect changing notions of progress."[98] Rights in coastal Public Trust lands are also revocable, usufruct privileges. Such rights exist only so far as they do not interfere with the public's right to enjoy those lands in their natural state. And just as the government's sense of changing public needs has resulted in redefining the water rights system, changing needs and environmental circumstances are grounds for redefining the traditional notion of property rights along the California coast.

2. *Joslin v. Marin Municipal Water District*

In *Joslin v. Marin Municipal Water District*,[99] the Joslins sued the Marin Water District for building a dam upstream of their property that diminished the flow of the stream that ran through the Joslins' riparian lot.[100] The Joslins were in the business of selling rock and gravel deposited on their land by the stream, and the construction of the dam restricted the stream's flow so as to damage the Joslins' business and decrease the value of their land.[101] The issue before the court in this case was whether or not Marin Municipal was liable to the Joslins for appropriating water upstream of the Joslins' riparian property and thereby limiting the Joslins' exercise of their riparian rights.[102]

The court's analysis of the Joslins' claim in this case revolves around the California water law principles of reasonable and beneficial use—doctrines beyond the scope of this paper. However, quite relevant here is the court's holding that "[w]hile plaintiffs correctly argue that a property right cannot be taken or damaged without just compensation, they ignore the necessity of first establishing the legal existence of a compensable property interest."[103] The court explained that a property right in water is dependent on the use of water conforming to principles of reasonable and beneficial use, and that where, as in this case, a use is unreasonable, there is no protectable right.[104] The court established "that since there was and is no property right in an unreasonable use, there has been no taking or damaging of property by the deprivation of such use and,

98. Takacs, *supra* note 6, at 762.

99. 67 Cal. 2d 132 (1967).

100. *Id.* at 134.

101. *Id.* at 134-35.

102. *Id.* at 136.

103. *Id.* at 143.

104. *Id.* at 144.

accordingly, the deprivation is not compensable."[105] Because in this case the Joslins' use of water was unreasonable, they did not hold a protectable interest in that use of the water running through their lot, and therefore Marin's appropriation of that water was not an unconstitutional taking against the Joslins.[106]

The court's logic in finding for Marin Municipal is applicable to the issue of whether littoral property owners in California have a right to build seawalls in violation of the Public Trust Doctrine. Just as a riparian property owner's use of water becomes unreasonable in light of more important competing uses, a seawall justified by a homeowner's littoral property rights is unreasonable in light of the public's right to enjoy the state's beaches under the Public Trust. In other words, because private property rights to Trust lands are subordinate to the public's Trust interests in those lands, a landowner does not have free and clear property rights to a littoral lot. Therefore, where a littoral landholder does something that violates the Public Trust, he no longer can claim a valid property interest that justifies the violative action.

C. Takings Case Law and Why Prohibitions on Coastal Armoring Are not Unconstitutional Takings

As Joesph Sax wrote in one of his many widely cited articles on the Public Trust Doctrine, "[i]t makes economic sense to prevent the government from taking the property of an individual owner, but it is difficult to understand why the government should be prevented from taking property which is owned by the public as a whole."[107] As discussed above, where *Penn Central* recognized that the Fifth Amendment protects individuals from alone bearing burdens that should be borne by the general public,[108] such a principle does not apply inversely—the public as a whole cannot be held responsible for bearing the burdens of a select few who own vulnerable littoral property. Regardless of the unfortunate losses that private property owners face, they cannot be allowed to protect their property at such a high cost to the environment, the public, and the public's right to enjoy Trust lands.

105. *Id.* at 145.

106. *Id.* at 145-46.

107. Sax, *supra* note 13, at 479.

108. *Penn Central* at 123 (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)).

1. The State's Authority Under the Public Trust Doctrine Expands with Evolving Public Needs

In 1894, the Supreme Court held in *Shively v. Bowlby*[109] that improvement by individuals to tidal lands is subordinate to public rights, and that the rights of littoral owners to their properties are subject to the authority of the government to protect Public Trust lands.[110] California reinforced the *Shively* holding in *Marks v. Whitney*.[111] There the court held that an owner of Tomales Bay tidal property had no right to violate the Public Trust by developing that property.[112] The *Marks* court wrote that one of the most important Trust uses is preservation of tidelands in their natural state, serving as ecological units for study, open space, habitat for wildlife, and as contributing to the aesthetics and climate of an area.[113] The court further held that Public Trust uses are "sufficiently flexible to encompass changing public needs,"[114] and that the State's authority to regulate tidelands is absolute so long as the State acts within the terms of the Public Trust.[115]

The *Shively* and *Marks* opinions establish that the State's authority to regulate private property rights expands as the need to regulate expands. Perhaps 50 years ago the State would not have had the occasion to prohibit a landowner from building a seawall to reinforce a landowner's beachfront lot—though the State would have had then, as it does now, the power to restrict that action. But today, in the face of global warming and imminent sea level rise, the State's ability to prohibit the construction of such seawalls is necessary, and justified on the basis of not only the common law Public Trust Doctrine, but also the Coastal Act and the Article X, section 4 of the California Constitution. Because littoral landowners have been and are on notice that their rights to Public Trust lands are subject to limitation, those property owners cannot successfully make takings claims against the State's exercise of its power to limit those coastal property rights.

2. The Potential Benefits of Protecting Existing Coastal Development Must Be Weighed Against the Adverse Effects on the Natural Environment and Public Access

Nollan v. California Coastal Commission is one of the textbook California takings cases. As mentioned in the takings section above, the case involved

109. 152 U.S. 1 (1894).

110. *Id.* at 57-58.

111. 6 Cal. 3d 251 (1971).

112. *Id.* at 261.

113. *Id.* at 259-60.

114. *Id.* at 259.

115. *Id.* at 261.

the Coastal Commission's grant of a building permit conditioned on Nollan's agreement to a public easement across his property to allow for beach access.[116] The Coastal Commission defended the permit condition on the grounds that Nollan's construction of a new house would create a wall of houses that would prevent the public from realizing the existence of a public beach beyond.[117] The Supreme Court found the condition was an unconstitutional taking because there was not a sufficient nexus between the required easement and preventing a visual barrier to the beach.[118]

While the N*ollan* Court's substantial nexus test remains good law, Justice Brennan's dissent presents a very compelling argument for why the Coastal Commission's action in the case was in fact not a taking. Brennan contends that the (federal) Coastal Zone Management Act and the Public Trust bind the Coastal Commission to ensure public access to the state's beaches.[119] In this case, the Commission's imposition of the easement on Nollan's building permit was the manifestation of the agency's effort to exercise its duties flexibly, and to find balance between public and private interests.[120] Brennan also points to Article X, section 4 of the California Constitution in arguing that the Commission has a duty to condition coastline development on provisions that protect public coastal access.[121] Finally, Brennan reminds us that California coastal development has been strictly regulated since the passage of the Coastal Act, and that littoral owners are on notice that development will be sanctioned only so long as it does not impede public beach access.[122]

Brennan's N*ollan* dissent reads like a general coastal development balancing test. While private property rights exist, they must be exercised in accordance with the principles espoused by the Coastal Act, the California Constitution, and the Public Trust Doctrine. Those principles require the State to act in furtherance of environmental protection and the people's right to use and enjoy Trust lands. In considering development permits, the State should weigh the applicant's property rights and the impact of the proposed project with the effects that the development will have on the coastal ecosystem and the public's right and ability to access and make use of that coastal land. This opinion serves as further evidence of the fact that littoral property rights are usufructuary and cannot be exercised in a vacuum. A property owner can exercise his right to develop his beachfront

116. N*ollan v. California Coastal Commission*, 483 U.S. 825, at 828 (1987).

117. I*d.*

118. I*d.* at 838-39.

119. I*d.* at 846-47.

120. I*d.* at 847.

121. I*d.* at 857-58.

122. I*d.* at 859-60.

lot only where that right is not outweighed by the adverse impact of the development on Public Trust lands and the general public's interests in those lands.

VI. State Regulation of Coastal Property Rights to Protect Public Trust Interests in the Shoreline is Not an Unconstitutional Taking

Penn Central, *Lucas*, *Nollan*, and *Dolan* established that an unconstitutional regulatory taking occurs when a state regulation is not in furtherance of the public interest and entirely deprives land of its economic value, and where conditions placed on land use permits are not substantially related and roughly proportional to the goals sought to be achieved by the conditions. The caveat to the traditional understanding of takings doctrine is that the Public Trust, a doctrine that has been recognized and applied since long before the U.S. Constitution was written, prevents owners of Public Trust lands from ever obtaining property rights that are free and clear of State regulation and limitation. So while a regulation prohibiting a littoral landowner from arming their property against sea level rise could possibly result in a total loss of economic value under *Lucas*, the availability of such a claim is limited by California's codification of the Public Trust.

As detailed previously, *Penn Central*'s ad-hoc takings analysis of whether a regulation has deprived an owner of economically viable use of their property includes considering whether or not a landowner's investment-backed expectations have been foiled. But as Takacs explains in his consideration of *Penn Central*, "[t]he Public Trust Doctrine supports the notion that 'private' 'property' 'owners' 'investment-backed expectations' should always include the idea that certain resources are and always have been within the public's provenance."[123] More broadly, private property rights and landowners' expectations are limited by the Public Trust provision that property rights in Trust lands are, and always have been, limited by Trust principles. Therefore, a State limitation on a landowner's exercise of property rights that conflicts with the State's duty to uphold the Public Trust is not a taking because private property rights in Trust lands extend only as far as they do not conflict with the Public Trust.

More particularly, because the construction of seawalls on and to protect private lots destroys and blocks public access to California's beaches, such an exercise is violative of the Public Trust; and therefore can be prohibited by the State within the bounds of its authority under not only the Public Trust Doctrine itself, but the Coastal Act's codification of that doctrine. Sax illustrates this point in his reference to a California Attorney General Opinion: "[t]he owner of lands subject to the public trust may use

123. Takacs, *supra* note 6, at 762.

the property as he sees fit, subject to the power of the State to abate (prevent or remove) any nuisance or illegal obstruction he may create thereon, and to reoccupy the lands in the event such occupation becomes necessary for trust purposes."[124] The Attorney General Opinion Sax mentions further reinforces the point made here: that private rights simply do not exist beyond the scope of the Public Trust Doctrine; and where a landowner acts so as to encroach on Trust interests, the State has the authority, and is obligated by the Coastal Act, to push back against the private action in protection of Trust lands.

VII. Conclusion

As the mean high tide line—which generally separates privately held coastal land from public land—moves inland with rising sea levels, private property owners will want to armor the coastline along their lots in order to protect their beachfront homes. On as large a scale as would be necessary to protect all of California's coastal development, such seawalls would drown beaches, destroy tidal ecosystems, and violate the Public Trust Doctrine. While a policy of forbidding coastal armoring to protect private property is not without its adverse effects, allowing such widespread armoring—at the cost of destroying the shorelines and beaches that the Public Trust exists to protect—is an unacceptable alternative.

As established by cases such as N*ational* A*udubon* S*ociety* and M*arks v*. W*hitney*, preserving a natural asset so as to allow the public to enjoy ecosystems in their natural state is a valid protectable use under the Public Trust Doctrine. Furthermore, among others, these cases recognize that protectable Public Trust uses change with evolving public needs and that the State's authority to act in furtherance of the Public Trust is absolute. The articles and cases explored in this paper, and the codification of the Public Trust in California by Article X, section 4 and the Coastal Act, demonstrate that owners of coastal property only have property rights insofar as those rights do not run afoul of the Public Trust. Construction of seawalls that not only block public access to beaches, but drown and destroy those beaches, are clear violations of the modern understanding of the Public Trust Doctrine in California. Therefore, the State can prohibit coastal armoring where it is adverse to Trust interests.

124. Sax, *supra* note 13, at 529 (FN 177).

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