Need For A Uniform Public-Private Boundary: Application Of The High Water Boundary To Inland Navigable Lakes

The authors advocate judicial and/or legislative recognition of a high-water mark boundary between privately owned riparian property and the state-owned beds of navigable lakes in California. The high water boundary must apply uniformly not only to lakes in which the water is at a natural level, but also to lakes where the water level is raised because of a dam or other means of artificial regulation.

California's many navigable lakes are an important source of aesthetic, recreational and economic wealth to its citizens. Demands on this limited resource of navigable lakes grow with the population. Tension between public and private interests centers around contentions by proponents of each group that the other's activity encroaches on respective property rights.

Private riparian owners and the state are feuding currently over the boundary separating state from private ownership. The state, as owner of the submerged lakebed,[1] asserts its title extends to the high water mark.[2] Private riparian owners, on the other hand,

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[1] CAL. CIV. CODE § 670 (West 1954) provides:

> The state is the owner of all land below tide water, and below ordinary high-water mark, bordering upon tidewater within the state; of all land below the water of a navigable lake or stream; of all property lawfully appropriated by it to its own use; of all property dedicated to the state; of all property of which there is no other owner.

See generally Packer v. Bird, 137 U.S. 661, 671-672 (1891) (Sacramento River); Barney v. Keokuk, 94 U.S. (4 Otto) 324, 338 (1876) (Mississippi River); Pollard's Lessee v. Hagan, 44 U.S. (3 How.) 212, 228-229 (1845) (tidelands in Alabama); Martin v. Waddell, 41 U.S. (16 Pet.) 367, 410 (1842) (tidelands in New Jersey); Bohn v. Albertson, 107 Cal. App. 2d 738, 752, 238 P.2d 128, 138 (1st Dist. 1951) (San Joaquin River).

[2] Along the coast, the state's sovereign title to tidelands extends to the line of ordinary high water, under common law principles. *See* CAL. CIV. CODE § 670

claim ownership down to the low water mark, pointing to certain sections of the California Civil Code enacted in 1872.[3] Thus far, neither the state legislature nor the judiciary have forthrightly addressed the issue of the disputed ownership of the foreshore strip between the high and low water marks.[4]

The legal confusion surrounding this boundary dispute translates into practical problems. For example, the certainty of title in the riparian owner for purposes of both sale and use of the foreshore suffers.[5] More importantly, the state's ability to maximally protect and preserve navigable lakes for the benefit of members of the public is jeopardized by the private claims on land which is physically part of the lakebed.[6]

The dispute over title to the foreshore is magnified where human intervention alters the water level of a navigable lake. For instance, where the state dams a lake and regulates the outflow of water, a question arises as to whether the public-private boundary shifts automatically to conform to the physical configuration of the lake, as it would if the water line changed because

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(West 1954), *set forth* in note 1 *supra*. The state claims the high water boundary applies also to navigable lakes.

[3] CAL. CIV. CODE § 830 (West 1954) provides in part: "Except where the grant under which the land is held indicates a different intent, . . . when [the land] borders upon a navigable lake or stream, where there is no tide, the [upland] owner takes to the edge of the lake or stream, at low-water mark . . . ."

[4] The term foreshore describes the area of shoreline between the line of ordinary high water and the line of ordinary low water. *See generally* 1 FARNHAM, THE LAW OF WATERS AND WATER RIGHTS § 39 (1904).

[5] *See* McKnight, *Title to Lands in the Coastal Zone: Their Complexities and Impact on Real Estate Transactions*, 47 CAL. ST. B. J. 408, 458-69 (1972). The author discusses the legal problems which landowners and title insurers must consider in ascertaining the location of water boundaries and the extent of sovereign ownership along California's navigable waterways.

[6] The public's beneficial use of navigable waterways in the state is constitutionally protected, and the state has a broad power to enforce the public's rights. CAL. CONST. art. 10, § 4 (West Cum. Supp. 1978) (formerly CAL. CONST. art. 15, § 3) provides:

> 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 the access to the navigable waters of this state shall always be attainable for the people thereof.

The state is in the best position to protect the public interest because it owns in fee the land below the navigable waters. *See* CAL. CIV. CODE § 670 (West 1954), *set forth in* note 1 *supra*.

of natural forces.[7] To date, the law on the legal boundary in artificially regulated lakes is unsettled.

This article proposes a resolution of the controversy over the public-private boundary in California's navigable lakes.[8] Part I asserts that the line of ordinary high water is the true and proper boundary. This part concludes that explicit adoption of a high water boundary would not result in a compensable taking of private property. Part II examines the effect of artificial regulation of the water level as it applies to the boundary question. The conclusion is that the legal boundary should follow the new high water mark, even though the state is responsible for the increased water level. Part II also considers the ramifications of a uniform high water boundary, including the issue of whether the state should compensate riparian property owners for frontage land which becomes submerged or flooded as a result of state action.

I. The True Public-Private Boundary: Line Of Ordinary High Water

If there were not a California statute which indicates otherwise,[9] the public-private boundary along navigable lakes would undoubtedly be the ordinary high water mark. At least four considerations support this assertion. First, California Civil Code section 22.2, enacted in 1850, provides that in the absence of statutory modification, the common law rule governs.[10] At common law, the boundary is the ordinary high water mark.[11] Second, California recognizes the high water mark as the boundary in tidal waters; this principle should extend to other waterways[12] and thus apply to lakes. Third, only the high water mark solution provides much-needed certainty in private title without impair-

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[7] *See generally* C. Brown, Boundary Control and Legal Principles, §§ 10.17, 10.19, 10.21 (2nd ed. 1969).

[8] This article is limited in scope to a discussion of navigable lakes. The common law principles, theories, and arguments articulated herein, however, apply equally to navigable streams and rivers to the extent that the public-private boundary in these waterways is not yet firmly fixed.

[9] Cal. Civ. Code § 830 (West 1954), *set forth in* note 3 *supra.*

[10] Cal. Civ. Code § 22.2 (West 1954) (originally contained in ch. 95, 1850 Cal. Stats. 219 (1850)). In 1951, the provision was formally codified to include the following language: "The common law of England, so far as it is not repugnant to or inconsistent with the Constitution of the United States, or the Constitution or laws of this State, is the rule of decision in all courts of this state." (An Act to Amend the Civil Code, ch. 655, 1951 Cal. Stats. 1833, § 1).

[11] *See* Barney v. Keokuk, 94 U.S. (4 Otto) 324, 336 (1876).

[12] *See* People *ex. rel.* Baker v. Mack, 19 Cal. App. 3d 1040, 1050, 97 Cal. Rptr. 448, 454 (3rd Dist. 1971).

ing the state's ability to protect the public's interest in navigable lakes. Fourth, no valid policy argument favors the low water mark as boundary.[13]

In 1872 the state legislature enacted certain statutes in contravention of common law principles which appear to adopt the low water mark as the boundary between state and private ownership along navigable lakes.[14] Notwithstanding the fact that this is not the most appropriate rule, the low water mark is established by statute as the legal boundary in California. It is likely, however, that these statutes, particularly Civil Code section 830, are either void or otherwise qualified so that they do not have the legal effect which their language would indicate.

The following discussion presents two lines of reasoning which indicate that section 830 and the similar statutes do not displace the common law rule favoring the high water mark. Under either analysis, the line of the ordinary high water must represent the true legal boundary in California's navigable lakes. First, however, it is necessary to briefly introduce the historical and common law concepts which serve as background to the arguments.

A. Background

1. *State Supervision of Navigable Waters*

The rights enjoyed by members of the public in California's inland lakes derive from the navigability of the waters.[15] In California, the legislature has determined that waterways, including lakes, are legally navigable if they have goods in commerce.[16] The

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[13] For a contrary view of the policy arguments with respect to the proper public-private boundary *see* Note, *California Civil Code Section 830: A Rule of Property Needed for the Protection of the Private Landowner*, 9 PAC. L.J. 1011 (1978).

[14] The most significant of these is CAL. CIV. CODE § 830 (West 1954), *set forth in* note 3 *supra*. *See also* CAL. CODE CIV. PROC. § 2077 (West 1954), *set forth in* note 38 *infra*.

[15] Nonnavigable lakes are usually owned privately and the public has no interest therein.

[16] CAL. HARB. & NAV. CODE § 100 (West Cum. Supp. 1978) (originally enacted in 1871 as CAL. POL. CODE § 2348) provides: "Navigable waters and all streams of sufficient capacity to transport the products of the country are public ways for the purposes of navigation and of such transportation." Section 100 was amended in 1972 to add the following clarification:

> However, the floodwaters of any navigable river, stream, slough, or other watercourse while temporarily flowing above the normal high-water mark over public or private lands outside any established banks of such river, stream, slough, or other watercourse are not navigable waters and nothing in this section shall be construed as

> permitting trespass on any such lands. For the purposes of this section, 'floodwaters' refers to that elevation of water which occurs at extraordinary times of flood and does not mean the water elevation of ordinary annual or recurring high waters resulting from normal runoff.

The state definition of navigability derives less from the English common law and more from the American federal concept. Under English common law, only ocean waters and rivers subject to the ebb and flow of the tide were legally recognized as navigable. 1 FARNHAM, *supra* note 4, § 50. This distinction between tidal and nontidal waters reflected the peculiar geographic features of that country; those waters navigable in fact were also substantially affected by the tides. J. POMEROY, THE LAW OF WATER RIGHTS 458 § 216 (1873). The author observes that in England, "[n]o waters are navigable in fact, or at least to any considerable extent, which are not subject to the tide, and from this circumstance tidewater and navigable water there signify substantially the same thing."

In the United States, however, the presence of major nontidal waterways in the early American states necessitated a modification of the common law definition of navigability. *Id.* at 458. Tides have an insignificant effect, if any, on many of the navigable rivers in the United States. "Some of our rivers are as navigable for many hundreds of miles above as they are below the limits of tidewater, and some of them are navigable for great distances by large vessels, which are not even affected by the tide at any point during their entire length." *Id.* Similarly, freshwater inland lakes are not subject to tidal influences. *Id.*

American federal courts have held that both tidal and nontidal waterways may be classified as legally navigable for purposes of determining a state's title to wholly intrastate waters which are navigable in fact at the time of accession to statehood and for ascertaining those waters which Congress may regulate under the commerce clause. Under the federal "title test" of navigability, those waters, either wholly or partially within state boundaries, which are navigable in fact on the day a state is admitted to the Union, are legally recognized as navigable waters of the United States which Congress may regulate. As first articulated in *The Daniel Ball,* such waters are navigable in fact ". . . when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water." The Daniel Ball, 77 U.S. (10 Wall.) 557, 563 (1870). Each state holds these waters and the lands submerged beneath them in trust for the people of the state. Pollard v. Hagan, 44 U.S. (3 How.) 212 (1845); Martin v. Waddell, 41 U.S. (16 Pet.) 234, 262-263 (1842). *See generally* MacGrady, *The Navigability Concept in the Civil and Common Law: Historical Development, Current Importance and Some Doctrines That Don't Hold Water,* 3 FLA. ST. U. L. REV. 511, 591-593 (1975).

The Constitution is also a source for the American concept of navigability. U.S. CONST. art. I, § 8, cl. 3 provides in part that the "Congress shall have power . . . to regulate commerce . . . among the several states . . . ." The United States Supreme Court held that Congressional regulation of navigable waterways was necessary to effectuate Congress's commerce clause powers. Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1, 190-191 (1824). The identity of "navigable waters of the United States" is determined according to the federal "commerce clause" test of navigability. This test relies substantially on the definition of navigability in *The Daniel Ball,* 77 U.S. (10 Wall.) at 563 (1870). Under this test, the waterway need not be navigable in its natural condition; it is sufficient that

California judiciary expanded the criteria for determining navigability to include public use of a waterway by the public for boating, fishing and other activities incidental to navigation.[17] At present, therefore, a lake is legally navigable if in its natural condition it is capable of floating any type of craft, including commercial vessels and pleasure boats.[18]

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it can be made navigable in fact by reasonable improvement. Furthermore, the determination of navigability is not made at the time of admission to the union, but may be made at any time subsequent. United States v. Appalachian Electric Power Co., 311 U.S. 377, 408 (1940). *See generally* MacGrady, *supra* at 593-595; POMEROY, *supra* at 458; GOULD, LAW OF WATERS, 137-138, § 67 (3rd ed. 1900).

As a corollary to the federal test for navigability, however, the United States Supreme Court ruled that each state may adopt, for purposes of internal regulation its own test for determining which waters within its borders are navigable. *See* Oregon State Land Board v. Corvallis Sand & Gravel Co., 429 U.S. 363, 378-379 (1977); McGilvra v. Ross, 215 U.S. 70, 79 (1909); Shirley v. Bowlby, 152 U.S. 1, 58 (1894); Hardin v. Jordan, 140 U.S. 371, 382 (1891); Packer v. Bird, 137 U.S. 661, 669 (1891); Barney v. Keokuk, 94 U.S. (4 Otto) 324, 338 (1876); and cases cited therein with respect to tidewaters. Each state's power to regulate navigation within its territorial borders is subject to Congress's paramount power over navigable waters of the United States for purposes of interstate commerce. A state test of navigability was necessary for California because neither the common law nor the federal tests were of sufficient scope to include many lakes and rivers which were actually used for navigational purposes. Many of California's large waterways, both lakes and rivers, are nontidal and are located wholly within the state's boundaries. As a result, they did not satisfy either the common law or federal commerce clause prerequisites for navigability. Additionally, many lakes and rivers were undiscovered and were not known to be navigable in fact at the time of California's admission to the Union.

[17] People *ex. rel.* Baker v. Mack, 19 Cal. App. 3d 1040, 1047-1048, 97 Cal. Rptr. 448, 453 (3rd Dist. 1971). The California Court of Appeals rejected actual use for commercial purposes as the sole criteria for determining whether a waterway is navigable. The Court conducted an extensive review of California decisions on navigability and concluded:

> The modern determinations of the California courts, as well as those of several of the states, as to the test of navigability can well be restated as follows: members of the public have the right to navigate and to exercise the incidents of navigation in a lawful manner at any point below high water mark on waters of this state which are capable of being navigated by oar or motor-propelled small craft.

Id. at 1050, 97 Cal. Rptr. at 454. This test is commonly known as the "pleasure-boating" or "recreational boating test of navigability". Hitchings v. Del Rio Woods Recreation & Park Dist., 55 Cal. App. 3d 560, 568, 127 Cal. Rptr. 830, 835 (1st Dist. 1976).

[18] Hitchings v. Del Rio Woods Recreation & Park Dist., 55 Cal. App. 3d 560, 568, 127 Cal. Rptr. 830, 835 (1st Dist. 1976). Navigability under the California test is not determined solely as of the date of statehood but may arise at some later point in time. *Id.* Furthermore, a lake need not be navigable year round to qualify under the state's test of navigability; the waterway need only be

The state's present posture in the boundary conflict stems from its function as protector of the public interest in navigable waters. Once the legislature defines a body of water as navigable, California owns the underlying lands.[19] Title of tidelands and to lands beneath other navigable waters vested in the state upon its admission to the Union in 1850.[20] By analogy to the common law, sovereign title obliges the state to act as trustee on behalf of the public interest.[21] As protector of the public interest, California may use and regulate its navigable waterways in any manner consistent with the improvement of navigation, whether commer-

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navigable in fact nine months of the year. In *Hitchings,* the Court of Appeals was required to determine whether the Russian River was navigable. On the evidence submitted, the trial court found that in its natural condition the river was navigable in fact only nine months of the year. After reviewing the case law evaluating the characteristics of a waterway which render it navigable, the Court of Appeals held:

> The Russian River from Alexander Valley Bridge to the Del Rio Dam is navigable in fact for approximately nine months every year (under the recreational boating test of navigability). This is a sufficient period to make it suitable, useful and valuable as a public recreational highway for most of the year, and therefore it is navigable in law.

Id. at 570-571, 127 Cal. Rptr. at 837. Although the California courts have not had an occasion to decide the issue as applied to lakes, arguably an inland lake which was navigable in fact for nine months of the year and which satisfied the *Hitchings* criteria for utility as a public recreational highway would be legally navigable.

[19] CAL. CIV. CODE § 670 (West 1954) provides in pertinent part: "The State is the owner of all land below tide water, and . . . below the water of a navigable lake or stream . . . ." *See* note 1 *supra.*

[20] An Act for the Admission of the State of California, ch. 50, 9 Stat. 452 (September 9, 1850). Congress placed California, on its admission to the Union, on an "equal footing" with the thirteen original colonies with respect to ownership of lands submerged beneath navigable waters. *See* Knight v. United States Land Association, 142 U.S. 161 (1891), in which the United States Supreme Court explained:

> It is the settled rule of law in this court that absolute property in, and dominion and sovereignty over, the soils under the tide waters in the original States were reserved to the several States, and that the new States since admitted have the same rights, sovereignty and jurisdiction in that behalf as the States possess within their respective borders.

Id. at 183. At the time of admission, California recognized private property rights that had been granted by the Spanish and Mexican governments. The United States, under the Treaty of Guadalupe Hidalgo, did the same. (*See* BROWN, *supra* note 7, § 10.3).

[21] Colberg, Inc. v. State *ex. rel.* Dep't of Public Works, 67 Cal. 2d 408, 416, 406, 432 P.2d 3, 8, 62 Cal. Rptr. 401 (1967), *cert. denied* 390 U.S. 949 (1969).

cial or otherwise.[22] As beneficiaries of the common law trust over navigable waters, members of the public may use navigable waterways, including navigable lakes, for commerce, fisheries, and other incidental navigational purposes.[23]

The scope of the state's interest in lands underlying navigable waters is as yet not fully defined. In *Marks v. Whitney,* the California Supreme Court broadly upheld the state's title, as trustee for the public, to tidelands.[24] It is unclear whether the public trust extends fully to navigable lakes. Consistent application of the common law principles suggests characterization of the beds of navigable lakes as public trust lands is appropriate.

2. *Movable Freehold*

A second basic concept is the notion that a body of water is not fixed either legally or physically. As noted previously, under common law principles as developed in America, sovereign ownership of all lands covered by tidal waters extended to the line of ordinary high water.[25] A corollary to this rule is that the public-private boundary shifts with any gradual change in that line.[26]

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[22] Colberg, Inc. v. State *ex. rel.* Dep't of Public Works, 67 Cal. 2d 408, 420, 432 P.2d 3, 9, 62 Cal. Rptr. 401, 407 (1967), *cert. denied* 390 U.S. 949 (1969); *see also* Hitchings v. Del Rio Woods Recreation & Park Dist., 55 Cal. App. 3d 560, 567, 127 Cal. Rptr. 830, 834 (1st Dist. 1976); Marks v. Whitney, 6 Cal. 3d 251, 260, 491 P.2d 374, 380, 98 Cal. Rptr. 790, 796 (1971).

[23] At common law, the public was entitled to use the waters of navigable waterways for purposes of navigation and fishing. Martin v. Waddell, 41 U.S. (16 Pet.) 367, 413 (1842). These same public rights in navigable waterways were recognized in the United States and were extended to include use of such waterways for commercial purposes. Illinois Central R.R. v. Illinois, 146 U.S. 387, 452 (1892) (as applied to the Great Lakes); Pollard's Lessee v. Hagan, 44 U.S. (3 How.) 212, 228-229 (1845). Public use of navigable waterways for navigation, commerce, and fisheries was recognized early in California. Weber v. Harbor Comm'rs, 85 U.S. (18 Wall.) 57, 65-66 (1873); People v. California Fish Co., 166 Cal. 576, 584, 138 P. 79, 82 (1913). The right of public use was expanded to include public enjoyment of navigable waters for bathing, hunting, recreation, People *ex. rel.* Baker v. Mack, 19 Cal. App. 3d 1040, 1045, 97 Cal. Rptr. 448, 451 (3rd Dist. 1971); Bohn v. Albertson, 107 Cal. App. 2d 738, 749, 238 P.2d 128, 136 (1st Dist. 1951), and for preservation as scientific study areas and open space, Marks v. Whitney, 6 Cal. 3d 251, 259-260, 491 P.2d 374, 380, 98 Cal. Rptr. 790, 796 (1971).

[24] 6 Cal. 3d 251, 257-261, 491 P.2d 374, 379-381, 98 Cal. Rptr. 790, 794-797 (1971).

[25] *See* note 11 *supra* and accompanying text. The expression "common law" designates the English common law both as interpreted in the English courts and in the courts of American states which have adopted the English common law. Lux v. Haggin, 69 Cal. 255, 384, 10 P. 674, 749 (1886).

[26] Barney v. Keokuk, 94 U.S. (4 Otto) 324, 337-338 (1876).

Under common law principles, erosion, the slow and imperceptible carrying away of soil particles, shifts the public-private boundary landward in favor of the sovereign. Similarly, submergence, the gradual encroachment of water over exposed beach, results in a landward extension of sovereign ownership. Conversely, any accretion, the gradual deposit of soil and alluvium along the shoreline of the upland owner's property, belongs to the upland owner. Reliction, the slow subsidence of the water level resulting in permanent exposure of previously submerged lands, extends private ownership waterward to include exposed bed up to the new lower line of high water. Only avulsion, the sudden tearing away of a portion of a lakeshore or streambed through violent wave action or storm, has no effect on the public-private boundary.

California has adopted the common law concept that a water boundary fluctuates.[27] With respect to navigable rivers the common law is codified. For example, California Civil Code section 1014 provides that the natural and imperceptible formation of land along the bank of a river, either by accretion or reliction, belongs to the upland owner.[28] Although the statutory laws do not explicitly apply the common law rules to navigable waters other than rivers, the California courts have generally followed the common law, as for example, by extension of section 1014 to other types of navigable waterways.[29] Furthermore, consistent with the common law concept, the California Supreme Court has characterized the state's ownership interest in the beds of its navigable waterways in general as a movable freehold.[30] If the notion of a movable freehold applies specifically to navigable lakes, the

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[27] *See* note 25 for a definition of common law as used here.

[28] CAL. CIV. CODE § 1014 (West 1954) provides:

> 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.

[29] *See, e.g.*, Colberg, Inc. v. State *ex. rel.* Dep't of Public Works, 67 Cal. 2d 708, 432 P.2d 13, 62 Cal. Rptr. 401 (1967), *cert. denied* 390 U.S. 949 (1969), in which the California Supreme Court said: "We are neither advised of, nor can we conceive of, any reason why rules relating to one kind of navigable waters, to wit, tidewaters, should not be applied with equal reason to similar situations involving other kinds of navigable waters (discussing riparian owner's right of access to water.) *Id.* at 423, 432 P.2d at 13, 62 Cal. Rptr. at 411 (1967). *See also* People v. Hecker, 179 Cal. App. 2d 823, 4 Cal. Rptr. 334 (2nd Dist. 1960), and cases cited therein.

[30] For an example of the concept of fluctuating water boundary, *see* Oakland v. Buteau, 180 Cal. 83, 87, 179 P. 170, 172 (1919) (tidelands).

boundary between the state-owned lakebed and the riparian property should shift as it is altered by accretion, erosion, reliction and submergence. Although no cases are directly on point, there is no reason to believe California follows any other rule.

3. *The Common Law vs. Civil Code Section 830*

Although the public-private boundary would reflect physical changes under the common law notion of the movable freehold, the California legislature has not chosen to fully incorporate the common law with respect to the legal boundaries in lakes. On the contrary, certain statutory provisions, if read literally, directly contravene the common law. They confine state ownership of lakebeds to the low water mark, regardless of the physical configuration of the lake and regardless of any consideration of the public interest in navigation.[31]

Before discussing the terms of these statutory provisions more specifically, it is important to consider briefly the historical development prior to their enactment. As noted earlier, the State of California obtained sovereign title to all lands underlying navigable waters within its boundaries in 1850.[32] At that time, in Civil Code section 22.2, the California legislature formally adopted the common law as the judicial rule of decision.[33] Thus, under common law principles, the state of California owned the bed of its navigable lakes up to the ordinary high water mark as of 1850.

The California Legislature subsequently adopted several statutes describing the nature of state ownership of lands underlying navigable waters. Some of these statutory provisions preserve the scope of the state's common law public trust. For example, Civil Code section 670 specifies that the state owns all land submerged by the waters of a navigable lake.[34] As noted previously, Civil Code section 1014 also follows the common law by vesting title in a riparian along a navigable river to all accretions and relic-

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[31] *See, e.g.*, CAL. CIV. CODE § 830 (West 1954), *set forth in* note 3 *supra*.

[32] *See* note 20 *supra* and accompanying text.

[33] CAL. CIV. CODE § 22.2 (West 1954), *history set forth in* note 10 *supra*.

[34] CAL. CIV. CODE § 670 (West 1954), *set forth in pertinent part in* note 19 *supra*. As originally enacted in 1872, section 670 provided in part: "The State is the owner of all land below high water mark bordering upon tidewater; of all land below the water of a lake or stream which constitutes an exterior boundary of the State . . . ." The legislature amended this section in 1874 to read in its current form. (An Act to Amend the Civil Code, ch. 612, 1873-1874 Cal. Code Am. 217, § 99).

tions which are gradual, imperceptible, and naturally caused.[35] Wherever the statutes are silent with respect to riparian ownership rights, Civil Code section 22.2 calls for the application of the common law.[36]

Other statutory provisions, however, are inconsistent with the common law. Specifically, Civil Code section 830 provides that a grantee of land bordering on a navigable lake takes to the edge of the lake at low water mark unless the grant indicates a different intent.[37] Similarly, under Code of Civil Procedure section 2077, when the language of a conveyance is doubtful and a non-

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[35] CAL. CIV. CODE § 1014 (West 1954), *set forth in* note 28 *supra*. Section 1014 was enacted in 1872. The Revision Act of March 16, 1901 amended it (An Act to Revise the Civil Code of the State of California, c. 157, 1900 Cal. Stats. 395, § 232) to read: "Where from natural causes, land forms by imperceptible degrees upon the bank of a river, stream, or other water, navigable or not navigable, either by accumulation of material or recession of the stream, such land belongs to the owner of the bank, subject to any existing right of way over the bank." Thus, this amendment would have extended the artificial/natural accretion distinction to tidelands and navigable inland lakes. The 1901 Revision Act was declared unconstitutional and void, however, in *Lewis v. Dunne*, 134 Cal. 291, 299, 66 P. 478, 482 (1801). As a result, this section currently reads as it was originally enacted.

[36] CAL. CIV. CODE § 22.2 (West 1954), *set forth in* note 10 *supra*.

[37] CAL. CIV. CODE § 830 (West 1954), *set forth in pertinent part in* note 3 *supra*. Enacted in 1872, section 830 read as follows in its original form:

> When land borders upon tide water, or upon water which constitutes an exterior boundary of the State, the owner of the upland takes to high water mark; when it borders upon a navigable lake where there is no tide, the owner takes to the edge of the lake at low water mark; when it borders upon any other water, the owner takes to the middle of the lake or stream.

Like section 670, section 830 was amended in 1874 to read in its present form (*set forth in* note 3 *supra*) (An Act to Amend the Civil Code, c. 612, 1873-1874 Cal. Code Am. 220, § 111 (1874).) The Revision Act of March 16, 1901, amended this section again changing the last phrase to read: ". . . when it borders upon any other water, or upon a tidal or navigable lake or stream, where the grantor has title to the middle thereof, the owner takes to the middle of the lake or other water." (An Act to Revise the Civil Code of the State of California, ch. 157, 1900 Cal. Stats. 393, § 224 (1901).) The 1901 Revision Act was declared unconstitutional and void, however, in Lewis v. Dunne, 134 Cal. 291, 299, 66 P. 478, 482 (1801).

One commentator notes that sections 670 and 830 were modeled after New York's statutes which followed the common law. He suggests that the rapid amendment of both sections reflected either a realization by the California legislature that it was mistaken in literally following the common law, or a change in policy to preserve the state's public trust interest in the beds of its inland navigable waterways. *See* McKnight, 47 CAL. ST. B. J., *supra* note 5, at 462-463.

tidal lake is indicated as one of the boundaries, the conveyance extends to the low water mark.[38]

The statute with the widest impact and which has generated the most confusion is section 830. As applied to navigable lakes, section 830 is susceptible of two conflicting interpretations. First, a number of California decisions have treated section 830 as a substantive rule of property and an active grant[39] of the state's common law title to the foreshore of lakes. These decisions have applied section 830 to conclude that the low water mark is the limit of riparian ownership.[40]

The second interpretation of section 830, as asserted by the California State Lands Commission, reaches the opposite conclusion.[41] Emphasizing that section 830 must be interpreted consistently with the common law, the Lands Commission argues that

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[38] CAL. CODE CIV. PROC. § 2077(5) (West 1954) provides: "When tide water is the boundary, the rights of the grantor to ordinary high water mark are included in the conveyance. When a navigable lake, where there is no tide, is the boundary, the rights of the grantor to low water mark are included in the conveyance." As originally enacted in 1872, section 2077(5) read: "When tide water is the boundary, the rights of the grantor to low water mark are included in the conveyance." Subdivision (5) was amended in 1873-1874 to refer to "ordinary high water mark" instead of "ordinary low water mark" in the case of tidewater and to add the sentence relating to navigable lakes. (An Act to Amend the Code of Civil Procedure, ch. 383, 1873-1874 Cal. Code Am. 390, § 244.)

[39] In California, "A transfer in writing is called a grant . . . ." CAL. CIV. CODE § 1053 (West 1954).

[40] *See, e.g.*, Los Angeles v. Aitken, 10 Cal. App. 2d 460, 467, 52 P.2d 585, 588 (3rd Dist. 1935). *See* note 67 *infra.*

[41] *See, e.g.*, Brandenberger v. State, No. 21847 (Super. Court, Nevada County, 1977); Fogerty v. State, No. 48281 (Super. Court, Placer County, 1977); Lyon v. State, No. 13925 (Super. Court, Lake County, 1977). *See also* Notice of Reexamination of Statements of Assumptions in Prior Opinions, 60 OP. CAL. ATT'Y GEN. 93 (1977), in which the California Attorney General explained:

> The office of the Attorney General has reexamined the question of what line constitutes the landward boundary of the State of California's sovereign lands underlying navigable lakes and nontidal, navigable rivers.
>
> . . .
>
> In pending litigation involving the boundary question, this office is taking a position contrary to statements of assumptions, with respect thereto contained in various prior opinions . . . (citations omitted).
>
> . . .
>
> In general, since 1970, the State of California has been asserting sovereign ownership of the beds of such navigable lakes and nontidal, navigable rivers landward to the ordinary high-water mark rather than the ordinary *low*-water mark . . . (citations omitted).

Id. at 93 (emphasis in original).

this provision is merely a rule of construction and not a rule of substantive law.[42] Under this analysis, therefore, section 830 would be limited to those situations in which a grant of land is ambiguous; under normal circumstances, a grantee of riparian property would take only to the high water mark.[43]

B. Section 830: Failure To Grant Substantive Property Rights

An analysis of California's common law foundation suggests that the Lands Commission provides the better interpretation. The Commission's position is predicated on two separate arguments.[44] First, the Commission argues that section 830 is ineffective as a grant.[45] The Commission contends that section 830 is inoperative to transfer land held in trust for the public because it lacks the necessary prerequisites for a valid grant, namely: 1) express granting language, 2) a provision for compensation to the state by private individuals, and 3) a provision for the issuance of a patent describing the lands.[46] Absent these elements of a grant, the Commission argues that section 830 is not intended to and does not operate to convey the strip of sovereign lands between high and low water mark to private parties.[47]

The Lands Commission's contention that section 830 fails as a grant of sovereign lands is legally sound for two reasons. First, the California courts have repeatedly articulated a rule of statutory construction which states that laws in derogation of sovereignty are to be construed strictly in favor of the state.[48] By attempting

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[42] *See* Opinion letter from Evelle J. Younger, Attorney General of California, to William F. Northrop, State Lands Commission (March 8, 1977) (on file at U.C. Davis L. Rev.).

[43] For example, where an instrument conveying real property merely names a navigable lake as one of the boundaries of the property instead of describing the boundary precisely, a court would construe the boundary description to mean the low water mark.

[44] Opinion letter from Evelle J. Younger, Attorney General of California, to William F. Northrop, State Lands Commission (March 8, 1977) at 8, 11 (on file at U.C. Davis L. Rev.).

[45] *Id.* at 7.

[46] *Id.* at 7-8.

[47] *Id.*

[48] CAL. CIV. CODE § 1069 (West 1954), enacted in 1872, provides in pertinent part: ". . . [E]very grant by a public officer or body, as such, to a private party, is to be interpreted in favor of "the grantor." *See also* People v. Centr-O-Mart, 34 Cal. 2d 702, 703, 214 P.2d 378, 379 (1950); Los Angeles v. San Pedro, etc. R.R. Co., 182 Cal. 652, 655, 89 P. 449, 450 (1920); People v. California Fish Co., 166 Cal. 576. 592-593, 138 P. 79, 86-87 (1913); White v. State of California, 21 Cal. App. 3d 738, 766-767, 99 Cal. Rptr. 58, 78 (1st Dist. 1971); Eden Memo-

to reduce the extent of the state's ownership under common law principles, section 830 is arguably such a statute. Hence to the extent that section 830's effect is uncertain, it should be construed against the conclusion that it grants state-owned land to private citizens. As a corollary, the state cannot be presumed to divest itself of the incidents of sovereignty, such as title to public lands, unless an intention to grant away these incidents is explicit in a statute.[49] Section 830 contains no such granting language, and therefore its provisions should not be read as a disposal of sovereign lands between ordinary high and low water.

The second reason is that the California legislature, through the state constitution and statutory provisions, has repeatedly expressed its public policy encouraging public access to and use of navigable waters.[50] A grant of sovereign lands which would impair the state's ability to protect the public's right to use navigable waters is inconsistent with the legislative solicitude for the public's interest in navigable lakes.

The Commission's alternative argument is that even if section 830 contains sufficient granting language for an ordinary land grant, such grant is void because it is beyond the power of the legislature to effectuate.[51] Basically the Commission asserts that the foreshore is held by the state subject to the public trust in navigable waterways.[52] As trustee, the state is subject to greater constraints on alienation of trust land than on land held by the

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rial Park Assoc. v. Superior Court, 189 Cal. App. 2d 421, 423-424, 11 Cal. Rptr. 189, 191 (2d Dist. 1961).

[49] *See* People v. California Fish Co., 166 Cal. 576, 592-593, 138 P. 79, 86-87 (1913).

[50] *See* CAL. CONST. art. 10, § 4 (West Cum. Supp. 1978), *set forth in* note 6 *supra;* CAL. CIV. CODE § 3479 (West 1954) ("Anything which . . . obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal or basic, . . . is a nuisance."); CAL. PENAL CODE § 370 (West 1970) ("Anything which . . . unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin . . . is a public nuisance."); CAL. HARB. & NAV. CODE § 131 (West Cum. Supp. 1978) ("Every person who unlawfully obstructs the navigation of any navigable waters, is guilty of a misdemeanor.").

[51] Opinion letter, *supra* note 53, at 11. *See also* Illinois Central R.R. v. Illinois, 146 U.S. 387, 460 (1892), in which the United States Supreme Court invalidated a grant of lands submerged by navigable waters in Chicago harbor from the State of Illinois to the Illinois Central Railroad Company.

[52] There is some precedent for expanding the scope of the public trust from tidal to nontidal waterways. *See, e.g.,* Illinois Central R.R. v. Illinois, 146 U.S. 387, 460 (1892). In California, the state expressly holds title to tidelands as trustee for the public trust. Marks v. Whitney, 6 Cal. 3d 251, 257-261, 491 P.2d 374, 379-381, 98 Cal. Rptr. 790, 794-797 (1971).

state in its proprietary capacity.

By analogy to constraints on the alienability of tidelands, which are public trust lands,[53] the purported legislative grant of the foreshore fails on two counts. First, the legislature has never explicitly found that the subject land is no longer either necessary or useful for public purposes.[54] Second, the legislature failed to express an intent to withdraw the land from the public trust.[55] In order to fully implement the purposes of the public trust, the legislature must not be allowed to lightly reduce the public's bundle of rights, without a sufficient reason and clear intent.

If California's public trust includes the beds of navigable lakes, as it logically should, both conditions must be satisfied to effectively divest the state of title to any part of these lands. Section 830 fails to find that the foreshore is no longer useful to the public. Furthermore, it is devoid of any language expressing an intent to grant away the foreshore strip. Therefore, as argued by the Commission, section 830 is ineffective as a substantive grant of property rights. It is viable at best as a rule of construction.

Independent judicial support exists for abrogating section 830 as a substantive rule of property. In *Churchill Company v. Kingsbury,* decided in 1918, the California Supreme Court held that the Little Klamath Lake, a navigable lake, consisted of the body of water contained within the banks as they existed at the stage of ordinary high water.[56] At issue in *Churchill* was the petitioner's right to a patent of certain lands below the lake's ordinary high water mark.[57] The California Supreme Court observed that the lands were covered by the lake waters during the greater part of the year and agreed with respondent, the State Surveyor General, that the land below the high water mark was inalienable sovereign land of the state.[58] Section 830 notwithstanding, the court stated that a lake consists of water contained within its

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[53] Marks v. Whitney, 6 Cal. 3d 251, 257-261, 491 P.2d 374, 379-381, 98 Cal. Rptr. 790, 794-797 (1971).

[54] *See* People v. California Fish Co., 166 Cal. 576, 590, 138 P. 79, 82-83 (1913).

[55] *See* People v. California Fish Co., 166 Cal. 576, 592-594, 138 P. 79, 85-88 (1913).

[56] Churchill Co. v. Kingsbury, 178 Cal. 554, 559, 174 P. 329, 331 (1918).

[57] The State Land Office sold petitioner land bordering Little Klamath Lake as swamp and overflowed lands. When the petitioner presented his certificate of purchase and attempted to obtain a state patent to the lands, he was refused a patent on the ground that the lands were sovereign lands and were not within the class of lands inalienable by the state under the Swamp and Overflow Act.

[58] Churchill Co. v. Kingsbury, 178 Cal. 554, 560-561, 174 P. 329, 331-332 (1918).

banks as they exist at the stage of ordinary high water.[59]

Similarly, in *People ex. rel. Department of Public Works v. Shasta Pipe & Supply Co.*, the trial court, on remand from the Court of Appeals, held that the ordinary high water mark is the boundary separating state and upland ownership along a navigable nontidal portion of the Feather River.[60] The trial court[61] denied the defendant's claim of title to the low water mark of the Feather River, although it never discussed the conflict with section 830.[62] The Court of Appeals expressly rejected the reasoning of a 1964 California Attorney General opinion[63] which suggested that riparian ownership along the Lake Tahoe shoreline extended to the last natural low water mark.[64] How this particular court would have resolved the issue of section 830 is unclear. Dicta in other cases, all rendered after the adoption of section 830 in 1872, however, state or clearly imply that the ordinary high water mark constitutes the public-private boundary along navigable lakes.[65]

Admittedly, the Commission's position is assailable in several respects. Notable among its weaknesses is the fact that the state never disputed the low water boundary articulated in section 830 until 1970.[66] By that time, section 830 had at least nominally been a part of California's statutory framework governing property rights for almost one hundred years. Those courts which relied on

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[59] Churchill Co. v. Kingsbury, 178 Cal. 554, 559, 174 P. 329, 331 (1918).

[60] On the retrial of condemnation actions concerning the Feather River, People v. Shasta Pipe & Supply Co., No. 37390 (Super. Ct., Butte County, filed March 24, 1971), the trial court held that the ordinary high water mark is the boundary along a navigable portion of the Feather River. The retrial was conducted pursuant to instructions from the Court of Appeals in People *ex. rel.* Dep't of Public Works v. Shasta Pipe & Supply Co., 264 Cal. App. 2d 520, 70 Cal. Rptr. 618 (3rd Dist. 1968).

[61] People v. Shasta Pipe & Supply Co., No. 37390 (Super. Ct., Butte County, filed March 24, 1971).

[62] The court was presumably aware, however, of section 830's provisions. CAL. CIV. CODE § 830 (West 1954). *Cf.* Bishop v. City of San Jose, 1 Cal. 3d 56, 65, 460 P.2d 137, 141, 81 Cal. Rptr. 465, 469 (1969) (legislature presumed to be aware of judicial decisions.).

[63] 43 OP. CAL. ATT'Y GEN. 291, 292 (1964).

[64] People v. Shasta Pipe & Supply Co., No. 37390 (Super. Ct., Butte County, filed March 24, 1971).

[65] Heckman v. Swett, 99 Cal. 303, 307-308, 33 P. 1099, 1101 (1893), *aff'd* 107 Cal. 276, 280, 40 P. 420, 420-21 (1895) (state patent to swamp lands along Eel River extends to ordinary high water mark); Packer v. Bird, 71 Cal. 134, 135, 11 P. 873, 874 (1886), *aff'd*, 137 U.S. 661, 673 (1891) (patent to lands along Sacramento River, which described a boundary as the edge of the stream, extended only to high water mark).

[66] *See* 60 OP. CAL. ATT'Y GEN. 93 (1977), *set forth in* note 41 *supra.*

this provision as an apparent rule of substantive property law never saw the need to clarify its ambiguities nor to treat it as a rule of construction.[67] Another argument against the Commission's position is that California law already contains one rule of construction expressly applicable to doubtful conveyances of land bordering on navigable waters in Code of Civil Procedure section 2077.[68] It makes no sense for the legislature to have enacted two rules to cover a single situation.

In defense of the Commission's position, however, there are several explanations for the long acceptance of section 830. Only recently has the pressure to develop valuable lakeshore property brought the state and riparian landowners into sharp conflict, focusing specific attention on section 830 for the first time. The Commission is attacking a statute which has hitherto received only cursory scrutiny at most. The language of section 830 appears absolute, and California courts have never analyzed section 830's provisions in terms of the legislature's intent and power to grant away public trust lands. The legal argument that section 830 is ambiguous at best and probably invalid is no less viable because the Commission is motivated by pragmatic pressures.

Furthermore, the seeming improbability of duplicate rules contained in different code sections is not an insurmountable obstacle to viewing section 830 as a duplicate of section 2077. Given the legislature's imperfect adaptation of common law principles governing navigable waterways, it is not surprising that two rules

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[67] In Crews v. Johnson, 202 Cal. App. 2d 256, 258, 21 Cal. Rptr. 37, 39 (1st Dist. 1962), the court described the low water mark as the limit of riparian ownership along the shore of Clear Lake, a navigable lake. Similarly, the court in Los Angeles v. Aitken, 10 Cal. App. 2d 460, 467, 52 P.2d 585, 588 (3rd Dist. 1935), stated that the title of various littoral owners along Mono Lake, a navigable lake, extended to the low water mark. Applying the above decisions to navigable rivers, the Ninth Circuit Court of Appeals flatly held that California's ownership of the bed of the Colorado River was limited by the low water mark in the companion cases of the United States v. Gossett and United States v. Williams, 277 F. Supp. 11, 13 (C.D. Cal. 1967), *aff'd,* 416 F. 2d 565, 569 (9th Cir. 1969), *cert. denied,* 397 U.S. 961 (1970).

Although these decisions appear to limit the state's sovereign ownership to the ordinary low water mark, they do not support the treatment of section 830 as a rule of substantive law. The court in *Crews v. Johnson* never reached the issue of whether the state's title extended to high or low water. The only issue on appeal in *Los Angeles v. Aitken* was whether a municipal condemnor was required to pay nominal damages or substantial damages for the destruction of littoral rights. The Court of Appeals in *Aitken* assumed, as did the Ninth Circuit in *United States v. Gossett,* that section 830 expressed a substantive rule of property law. Neither court clarified the basis for this assumption.

[68] CAL. CODE CIV. PROC. § 2077(5), *set forth in* note 38 *supra.*

for construing questionable grants of riparian land exist in California codes.

The most important weakness in the Commission's analysis is that it does not go far enough. It stops short of the inevitable conclusion, namely, that section 830 and the similar statutes are simply void and always have been. Understandably, the Commission's analysis is geared toward ultimate success in litigation. Given the general reluctance of courts, especially trial courts, to overturn seemingly settled law, the Commission believes, and probably rightfully so, that a modification of the effect of section 830 will be more palatable to courts than an outright rejection of a century-old statute.

Although pragmatic, the Commission's argument is incomplete. Carrying the Commission's argument that section 830 fails as a grant of substantive rights to its logical end, the statute must be void rather than merely transformed into a rule of construction. The Commission argues that section 830 does not fulfill certain technical prerequisites of a grant of sovereign lands in which the public has a substantial interest. These requirements were formulated to protect that public interest. In this case, there is a public interest in unfettered use of navigable waters, free of conflicting private claims. To retain section 830 even as a rule of construction is to hamper the state in its protection of the public's interest in unobstructed navigation below the high water mark. It is important to remember that the foreshore is a physical part of the lakebed covered by navigable waters during a significant portion of the year.

The Commission presents a sound analysis of the public's interest in the foreshore and the state's corresponding duty to protect that interest. In contrast, its claim that section 830 is void as a grant but valid as a rule of construction, which it does not purport to be under its own terms, is unsound. The reason for the strict technical prerequisites of the grant of sovereign lands is to prevent the legislature from lightly abrogating the public interest in those lands. The judiciary must reject section 830 and similar statutes insofar as they purport to grant land below the ordinary high water mark, if the legislature does not act first to correct the invalid provisions.[69]

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[69] The best alternative, of course, is legislative modification of the problem code sections. The California Legislature could easily resolve the present boundary confusion by amending CAL. CIV. CODE § 670 to read:

> The State is the owner of all land below tide water, and below ordinary high-water mark, bordering upon tide water within the

C. No Compensable Taking in Recognition Of A High Water Boundary

The recognition of a high water boundary raises the issue of whether such recognition constitutes a taking of private property and, if so, whether compensation is appropriate or even possible. The terms of section 830 and similar statutes have permitted the inference that the foreshore is privately owned property. However, as argued above, section 830 is void and thus has never vested substantive property rights in any riparian owner. Even if section 830 did operate as a valid grant of property, the private interest in the foreshore is so insubstantial that it would have no value for purposes of compensation.

The terms of section 830 seem absolute. However, if it fails as a grant of lands held by the sovereign at common law, as argued above, no property rights in the foreshore are vested in the adjacent riparian owner. Unless section 830 is valid, the foreshore has always belonged to the state. Thus, the state, in asserting a high water boundary, is demanding formal recognition of a boundary which has legally existed since 1850 despite the intervening confusion engendered by the enactment of section 830 and like statutes. Because section 830 is void, the formal recognition of a high water boundary does not constitute a taking of private property.

Even if the language and intent of section 830 satisfied the requisite elements of a grant of sovereign lands, the grant is arguably revocable at the state's instigation because of the strong public interest in these lands. In *Illinois Central Railroad v. Illinois,*[70] the state conveyed lands in the Chicago harbor, which

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State; of all land below *ordinary high water mark bordering upon the water of a navigable lake or stream;* of all property dedicated to the State; and of all property of which there is no other owner. (proposed amendment emphasized).

Similarly, CAL. CIV. CODE § 830 could be amended as follows:

Except where the grant under which the land is held indicates a different intent, the owner of the upland, when it borders on tidewater takes to the ordinary high-water mark; when it borders upon a navigable lake or stream, where there is no tide, the owner takes to the edge of the lake or stream at *high-water* mark; when it borders upon any other water, the owner takes to the middle of the lake or stream. (proposed amendment emphasized).

CAL. CODE CIV. PROC. § 2077(5) could also be amended to specify:

When tide-water is the boundary, the rights of the grantor to ordinary high-water mark are included in the conveyance. When a navigable lake, where there is no tide, is the boundary, the rights of the grantor to *high-water* mark are included in the conveyance. (proposed amendment emphasized).

[70] 146 U.S. 435 (1892).

were impressed with the public trust, to a private party. The United States Supreme Court held that since the grant impaired the ability of the state to administer the public trust, it was revocable at the election of the state, based on its duty to protect the public interest.[71] Similarly, in *Forestier v. Johnson,*[72] the California Supreme Court cited *People v. Morrill*[73] with approval as permitting subsequent reinterpretation of statutory grants to avoid impairment of the public trust.[74] Thus it appears that even an effective grant of land which the state holds on behalf of the public interest, rather than in its proprietary capacity, is subject to inherent limitations and therefore is revocable.[75] A taking would not occur where the state exercises its reserved right to revoke a conveyance of property.[76]

Even if section 830 is valid and irrevocable, the state probably incurs no meaningful risk of liability for compensation in asserting and recognizing a high water boundary. In order for the state to become liable, the property taken must have an ascertainable value.[77] The strip of land in question has no such value because it is extensively, if not totally, burdened by the public navigational easement.

The public has the right to use not only California's navigable waters, regardless of ownership of the underlying fee,[78] but also the submerged lands as incident to navigation.[79] The state's authority to regulate its navigable waterways on behalf of the public

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[71] "Any grant of this kind is necessarily revocable, and the exercise of the trust . . . can be resumed [by the State] at any time . . . . The power to resume the trust whenever the State judges best is incontrovertible." Illinois Central R.R. v. Illinois, 146 U.S. 435, 455 (1892).

[72] 164 Cal. 24, 127 P. 156 (1912) (upheld the application of the public navigational easement to tidelands conveyed into private ownership, despite the lack of express language in the patent which would impose such a servitude on the conveyance.

[73] 26 Cal. 336 (1864).

[74] Forestier v. Johnson, 164 Cal. 24, 35, 127 P. 156, 160 (1912).

[75] "There can be no irrepealable contract in a conveyance of property by a grantor in disregard of a public trust . . . ." Illinois Central R.R. v. Illinois, 146 U.S. 435, 460 (1892). *See also* People v. California Fish Co., 166 Cal. 576, 593, 138 P. 79, 86 (1913).

[76] *See* Illinois Central R.R. v. Illinois, 146 U.S. 435, 460-464 (1892).

[77] Los Angeles v. Aitken, 10 Cal. App. 2d 460, 467-468, 52 P.2d 585, 588-589 (3rd Dist. 1935); *see generally* Wilbour v. Gallagher, 77 Wash. 2d 306, 462 P.2d 232 (1969), *cert. denied* 400 U.S. 878.

[78] People v. California Fish Co., 166 Cal. 576, 584, 587, 138 P. 79 (1913).

[79] Marks v. Whitney, 6 Cal. 3d 251, 254, 796, 491 P.2d 374, 380, 98 Cal. Rptr. 790 (1971); Bohn v. Alberston, 107 Cal. App. 2d 738, 744-750, 238 P.2d 128, 135-136 (1st Dist. 1951).

interest is virtually unrestricted.[80] Riparian owners may not construct structures along the foreshore which impair the public navigational easement, and the state may remove such obstructions.[81] The public interest in navigation, and the state's corresponding authority, extends to the high water mark in navigable waterways.[82]

Private title to the foreshore is presently so burdened by the public easement that the riparian owner's interest in the foreshore strip is no different in quality from the owner's interest in the navigable waterway itself, which is enjoyed in common with members of the public.[83] Despite the probable expectations of riparian owners as to the extent of their rights, if the foreshore is in fact privately owned, the sole right which these owners possess is that of preventing trespass between the high and low water marks while the waters are receded.[84] The value of this property right for purposes of compensation would be impossible to assess. Thus, even if the recognition of the high water boundary results in a taking of private property, the nature and extent of the public navigational servitude render the value of the foreshore unascertainable for purposes of compensation.

D. Physical Location Of The Ordinary High Water Mark

As argued, the term "ordinary high water mark" properly defines the legal boundary between state and private ownership.

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[80] The State's power to regulate its navigable waters is limited only by the paramount federal regulatory power and by the constitutional requirement of just compensation for a taking. Colberg, Inc. v. State *ex. rel.* Dept. of Public Works, 67 Cal. 2d 408, 416, 424-425, 432 P.2d 3, 9 (1967), 62 Cal. Rptr. 401, 407; *cert. denied*, 390 U.S. 949 (1969).

[81] Marks v. Whitney, 3 Cal. 3d 251, 261-263, 98 Cal. Rptr. 790, 797-799, 491 P.2d 374, 381-383 (1971); Woods v. Johnson, 241 Cal. App. 2d 278, 281, 50 Cal. Rptr. 515, 516-517 (1st Dist. 1966); *see generally* Wilbour v. Gallagher, 77 Wash. 2d 306, 462 P.2d 232 (1969), *cert. denied* 400 U.S. 878.

[82] People *ex. rel.* Baker v. Mack, 19 Cal. App. 3d 1040, 1051, 97 Cal. Rptr. 448, 454 (3rd Dist. 1971) (defined the public's right of navigation and fishing up to the high water mark of navigable waters, regardless of title to the underlying fee).

[83] Marks v. Whitney, 6 Cal. 3d 251, 263, 491 P.2d 374, 382, 98 Cal. Rptr. 790, 798 (1971).

[84] Wilbour v. Gallagher, 77 Wash. 2d 306, 462 P.2d 232, 239 (1969). The Washington Supreme Court upheld the state's right to remove fill placed by the defendant in an attempt to remove the region between the high and low water marks from the scope of navigability, and suggested that the only private interest in the foreshore of the inland lake was the right to prevent trespassers while water was receded and the land exposed.

The actual physical location of that line along the lakeshore, however, remains an open question. A lake constantly fluctuates, accumulating water through precipitation, runoff, and filtration, and losing water to evaporation, human consumption and outflow through natural river outlets.[85] Hydrological patterns change seasonally and annually, and an accurate definition of ordinary high water must realistically reflect these natural variations.

In an attempt to describe clearly the limits of riparian ownership in a reliable fashion, many states define ordinary high water in terms of readily observable physical characteristics of the navigable waterway. The high water boundary is variously described as the extreme high water level historically attained by a lake or river,[86] the line of vegetation,[87] or, where human improvements have altered historic lake levels, the last naturally occurring high water level.[88]

None of the above definitions suit conditions in California. Although an extreme high water mark is easily located, it is inappropriate to California's climate, which is subject to periodic droughts. During periods of dry weather, a lake level declines, exposing portions of the lakebed. If the state's ownership extends to a high water mark described by flood conditions, the riparian owner will be denied access to the lakeshore by the strip of state land interposed between the owner's property and the water during subsequent drought years.[89]

Similar difficulties arise with the use of an ordinary high water

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[85] TRELEASE, WATER LAW 50-51 (2nd ed. 1974).

[86] *See* Peoria v. Central National Bank, 224 Ill. 43, 79 N.E. 296 (1906); Anderson v. Ray, 37 S.D. 17, 156 N.W. 591, 594 (1916); State v. Edwards, 188 Wash. 467, 62 P.2d 1094, 1096 (1936).

[87] Driesbach v. Lynch, 71 Idaho 501, 234 P.2d 446, 448 (1951). *See also* Anderson v. Reames, 204 Ark. 216, 161 S.W. 2d 957, 959 (1942); Tilden v. Smith, 94 Fla. 502, 113 So. 708, 712 (1927); State *ex. rel.* O'Connor v. Sorenson, 222 Iowa 1248, 271 N.W. 234, 236 (1937); Carpenter v. Board of Comm'rs, 56 Minn. 513, 58 N.W. 295, 297 (1894); State *ex. rel.* Citizens' Electric Lighting & Power Co. v. Longfellow, 169 Mo. 109, 69 S.W. 374, 377 (1902); Dow v. Electric Co., 69 N.H. 492, 45 A. 350, 351 (1899); Rutten v. State, 93 N.W. 2d 796, 799 (N.D. 1958); City of Tulsa v. Peacock, 181 Okl. 383, 74 P.2d 359, 360 (1937); Sun Dial Ranch v. Mayland Co., 61 Or. 205, 119 P. 758 (1912); Provo City v. Jacobsen, 111 Utah 39, 176 P.2d 130, 132 (1947); Carpenter v. Ohio River Sand & Gravel Corp., 134 W. Va. 587, 60 S.E. 2d 212, 216 (1950); Diana Shooting Club v. Hustings, 156 Wis. 261, 145 N.W. 816, 820 (1914).

[88] *See* 43 OP. CAL. ATT'Y GEN. 291 (1964) and cases cited therein.

[89] Furthermore, a reliance on an extreme high water mark renders the boundary vulnerable to a sudden drastic change during one year which may reflect a unique condition but which would determine the boundary for all succeeding years, regardless of whether the water ever reached that level again.

mark described as the "line of vegetation". Many of California's lakeshores are vegetated only in part or in areas that are well removed from the water. If attempts were made to trace the high water mark following the line of vegetation, a very uneven, straggling boundary would result.[90] Further, in marshy areas of a lakeshore, vegetation often extends well into the lake. The inadequacy of the definitions suggested illustrates the necessity for a legal description of the high water mark which translates easily into a marked line and accounts for the seasonal water levels of a navigable lake.

Two proposed tests for isolating the line of ordinary high water exist in California. One rule, representing the "conventional wisdom" of legal practitioners and a published opinion of the California Attorney General, places the public-private boundary at the last natural high water mark.[91] However, in cases where the water level of a navigable lake has been artificially regulated by a dam or levee, such a definition ignores the physical reality of the water level and would thus impair the state in its protection of the public navigational easement.[92]

A better definition of the high water boundary for navigable inland waters, adopted by the California judiciary, is based on seasonal fluctuations in water levels. Reflecting actual hydrological patterns, the ordinary high water mark for a river or stream is "the average level of the water attained by such a river in its annual seasonal flow."[93] This rule has been adopted by several other states[94] and by the federal courts,[95] and should be equally

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[90] In many cases, neighboring riparians might receive widely differing lakeshore frontages according to vegetation line which bears little resemblance to the actual water levels.

[91] Although a 1964 opinion issued by the California Attorney General, 43 OP. CAL. ATT'Y GEN. 291, 292 (1964), described a low water boundary for Lake Tahoe in terms of a "last natural" water level, such a position finds no support in the California case law. No California court has adopted a "last natural" definition of either high or low water mark for any navigable waterway during the fourteen years since the opinion was issued. Such a position was expressly rejected with respect to tidelands in Long Beach v. Mansell, 3 Cal. 3d 462, 479, n. 15, 476 P.2d 423, 435, 91 Cal. Rptr. 23, 25 (1970). Logically, a last natural high water mark presents many problems for artificially regulated lakes in which any evidence of naturally occurring water levels disappeared with submergence.

[92] The public navigational easement is discussed in notes 78-83 and accompanying text *supra*.

[93] People v. Ward Redwood Co., 225 Cal. App. 2d 385, 390, 37 Cal. Rptr. 397, 401 (1st Dist. 1964) (Klamath River); Mammoth Gold Dredging Co. v. Forbes, 39 Cal. App. 2d 739, 752, 104 P.2d 131, 138 (3rd Dist. 1940) (Yuba River).

[94] Appeal of York Haven Water & Power Co., 212 Pa. 622, 62 A. 97 (1905); McBurney v. Young, 67 Vt. 574, 32 A. 492 (1895); Diana Shooting Club v.

applicable to inland lakes. Like rivers and streams, lakes are subjected to annual seasonal fluctuations in water level, the amount of change depending on precipitation, snow melt, evaporation and other sources of inflow and outflow.

Recognizing the difficulty of pinpointing and locating the high water mark boundary between state and private ownership of the lakeshore, many courts accept all pertinent data for consideration.[96] California courts appear willing to evaluate any type of evidence that is probative to an accurate determination of high and low water levels, including maps, historical data, eye-witness testimony of residents in the area, official government publications, vegetation lines or other physical marks on the banks, and certainly, pertinent hydrological data.[97]

Hustings, 156 Wis. 261, 145 N.W. 816 (1914).

[95] *E.g.*, Oklahoma v. Texas, 260 U.S. 606, 632 (1922).

[96] *See, e.g.*, Martin v. Busch, 93 Fla. 535, 112 So. 274, 283 (1927). In a suit to adjudicate the boundaries of certain grants of swamp and overflowed lands along Lake Okeechobee, a navigable nontidal lake, the Florida Supreme Court described the proper methodology for ascertaining the location of the ordinary high water mark as follows:

> The best evidence attainable and the best methods available should be utilized in determining and establishing the line of true and ordinary high-water mark, whether it is done by general or special meandering or by particular surveys of adjacent land. Marks upon the ground or upon local objects that are more or less permanent may be considered in connection with competent testimony and other evidence in determining the true line of ordinary high water mark.

Id. at 283. Similarly, in Flisrand v. Madson, 35 S.D. 457, 152 N.W. 796, (1915) the South Dakota Supreme Court articulated the method for determining water levels along a navigable lake as follows: "Neither high nor low water mark means the highest or lowest point reached by the waters of a lake during periods of extreme and continued freshets, or periods of extreme and continued drought, but does mean the high and low points of variation of such waters under ordinary conditions, unaffected by either extreme." 152 N.W. at 800-801.

[97] *See, e.g.*, Mammoth Gold Dredging Co. v. Forbes, 39 Cal. App. 2d 739, 745-750, 104 P.2d 131, 134-137 (3rd Dist. 1940). In establishing the high water mark, the court considered testimony as to the existence of vegetation surrounding the water, government water measures, the visible line washed on the shore, the contour of the river bed, soil composition, and the testimony of a resident of the area. *See also* 43 OP. CAL. ATT'Y GEN. 291 (1964) in which the Attorney General noted that:

> In establishing the elevation of low water mark of a nontidal navigable lake or stream, any competent evidence may be used. This includes but is not limited to maps, historical data, testimony of residents or other eye-witnesses, and the physical characteristics of the bed of the lake or stream, together with the characteristics of the adjacent terrain.

II. A Consistent Boundary: The Line Of Ordinary High Water Applies To Dammed Lakes

Assuming the high water mark is the true boundary between private riparian property and the state-owned lakebed of natural navigable lakes, this boundary should apply equally to artificially regulated lakes. Many lakes in California are dammed at their natural outlets to enhance their economic and recreational utility. In the cases of two major navigable lakes, Clear Lake[98] and Lake Tahoe,[99] dams permanently raised the surface of the lake above the natural water level. As a result, the backed-up lake waters have flooded portions of the previously exposed lakeshore, causing an essentially permanent physical expansion of the lakebeds. The public's interest in unobstructed navigation up to the ordinary high water mark exists with respect to *all* navigable lakes, regardless of whether they are in a natural or improved condition.

In a real sense, the need for unimproved navigation is greater in dammed lakes because these lakes constitute many of the large, accessible recreational sites in California. Artificial regulation of a navigable body frequently enhances its commercial and recreational uses and may result in greater public demands. Since the ordinary high water mark along a navigable lake is determined according to existing water levels,[100] common sense dictates that the same method should be used consistently to locate the high water mark along both natural and artificially regulated lakes.

Two doctrines, artificial erosion and prescription, permit the state's ownership interest in the beds of dammed lakes to move landward with the water line. Under both theories, the state's title includes lands between the pre-dam natural high water mark and the post-dam artificially imposed high water mark. The state may also acquire title to portions of a lakeshore which are submerged after formal condemnation proceedings. Howver, in extending the high water mark uniformly to all navigable lakes, natural and regulated, the state becomes potentially liable for the taking of property between the natural high water mark and the artificially established high water mark.

Id. at 299. Similar evidence would be applicable to establishing the high water mark along navigable lakes.

[98] Grigsby v. Clear Lake Water Co., 40 Cal. 396, 396-397 (1870).

[99] People v. Truckee Lumber Co., 116 Cal. 397, 401, 48 P. 374, 375 (1897); *see* 30 Op. Cal. Att'y Gen. 262, 267 (1957).

[100] *See* text accompanying notes 85-97 *supra.*

A. Need for a Uniform Application of the High Water Boundary

At issue is whether the state should acquire title to submerged lands between the pre-dam natural high water mark and the post-dam artificially imposed high water mark. Riparian owners may argue that the state's ownership of navigable lakebeds should not extend beyond the natural high water level, on the grounds that the judicially recognized navigational easement adequately protects the public right in navigable waterways. Under this easement, members of the public may navigate and exercise the incidents of navigation for commercial or recreational purposes at any point landward of the ordinary high water mark on navigable waters of the state.[101] Thus, the public has a right to use of navigable waters not only over the foreshore, but over all lands which have been artificially submerged.

The courts should not accept this argument, however, since the protection offered by the navigational easement is insufficient on dammed navigable waterways. The public's interest in unob-

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[101] The public navigational easement over tidelands is well established. In Marks v. Whitney, 6 Cal. 3d 251, 491 P.2d 374, 98 Cal. Rptr. 790 (1971), the California Supreme Court recognized that a littoral owner's interest in the foreshore is expressly burdened with a servitude in favor of the state in its exercise of the public trust. *Id.* at 261, 491 P.2d at 381, 98 Cal. Rptr. at 797. Under this servitude, the foreshore remains subject to public use even if it is conveyed by the state to a private party and the conveyance contains no express reservation by the state of the public's right to navigate along the foreshore. People v. California Fish Co., 166 Cal. 576, 598-599, 138 P. 79, 88 (1913). The navigational easement operates on: (*a*) the actual navigable waters, regardless of ownership of the underlying fee, People v. California Fish Co., 166 Cal. 576, 584, 587, 138 P. 79, 82, 83 (1913), (*b*) on uses of the submerged soil incident to navigation, Bohn v. Albertson, 107 Cal. App. 2d 738, 749-750, 238 P.2d 128, 136 (1st Dist. 1951), and (*c*) on certain associated riparian rights such as access to navigable waters, Colberg, Inc. v. State of California *ex. rel.* Dep't of Pub. Works, 67 Cal. 2d 408, 421, 432 P.2d 3, 11-12, 62 Cal. Rptr. 401, 409-410 (1967), *cert. denied* 390 U.S. 949 (1969).

The public navigational easement, by extension, must also burden the beds of navigable lakes up to the high water mark. California courts have tacitly extended the public servitude in lands submerged beneath navigable waterways to nontidal waterways. In Bohn v. Albertson, 107 Cal. App. 2d 738, 238 P.2d 128 (1st Dist. 1951), the California Court of Appeals determined that the flooding of a tract of privately owned land by the San Joaquin River created a public easement for navigation and fisheries in the waters over the tract. Specifically, the court concluded: "[T]he waters of Frank's Tract are navigable until reclamation is made. The title is subject to the right in the public of navigation and fishing, because, by the sudden flooding of the tract by the San Joaquin River the rights of the public in the river are transferred to the waters of the tract." *Id.* at 757, 238 P.2d at 140-41. *See also*, People *ex. rel.* Baker v. Mack, 19 Cal. App. 3d 1040, 1047-1049, 97 Cal. Rptr. 448, 452-453 (3rd Dist. 1971).

structed navigation is well recognized with respect to natural lakes.[102] As noted, this interest is identical if not superior, in regulated lakes. A differentiation in the legal boundary between natural and artificially regulated lakes permits the inference that the public recreational easement applies with less than full force to dammed lakes.[103] In other words, the inevitable inference is that the scope of the state's control is reduced where the courts define the lakebed by an artificially determined water line.

In fact, however, whether a lake is artificially regulated or is in its natural condition, the recreational easement in California acts as a de facto limitation of private ownership to the high water mark. Consequently, the retention of title to submerged lands between the natural and artificial high water marks in private hands confers little or no beneficial use upon the riparian owner because of the extent of the public servitude. Further, it renders vulnerable the state's ability to fully protect public use of navigable waters.

Even an implied limitation on the public's right to swim, boat, fish and engage in other water-oriented activities to the "last natural" high water level on regulated lakes would impair full use and enjoyment of some of California's most desirable recreational and commercial waterways. Not only is such a result logically inconsistent but it also contravenes California's policy of protecting the public's right to use all navigable waterways to the greatest extent possible.[104]

The state's ability to administer its ownership interest in lakebeds would be hampered if it was unable to acquire title to all permanently submerged lands including those submerged artificially. To limit the state's title to the "last natural" high water level would in effect allow private riparian ownership to include submerged lands which are physically part of the lakebed. This result would be anomalous, since by statute the state has title to the lands underlying all navigable waters in California.[105] Any

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[102] *See* note 50 *supra.*

[103] If California's interest in navigable lakes varied according to whether the lake was in a natural state or was regulated, the following might result: state ownership of the beds of natural lakes would extend to the ordinary high water mark, but would be limited to the "last natural" high water mark or the low water mark in artificially regulated lakes. The inevitable inference that could be drawn from such a situation is that the scope of the state's control is reduced where the lakebed is defined by an artificially determined waterline. As a result, the state's power to protect effectively the public's exercise of its navigational easement would be diminished on dammed lakes.

[104] CAL. CONST. art. 10, § 4 (West Cum. Supp. 1978), *set forth in* note 6 *supra.*

[105] *See* CAL. CIV. CODE § 670 (West 1954), *set forth in* note 1 *supra.*

judicial limitation on this statutory scheme of ownership would result in a differentiation in degree of state control over various parts of the lake. Such a policy, based solely on whether the underlying lands were formerly part of the exposed shoreline, would contravene the needs of the public.

B. State Acquisition of Title to Artificially Submerged Lands

The mechanisms which may result in the state acquiring title up to the artificial high water mark include condemnation of property by the state, gradual physical alteration of the shoreline through physical processes such as erosion and submergence, and a combination of condemnation and physical processes. Under the power of eminent domain, the state may condemn riparian property interest, including lands fronting on navigable waterways[106] and any submerged lands,[107] for public use. Rights associated with the use of the water are also subject to condemnation and taking,[108] as is the right of access to the navigable waterway.[109] Formal condemnation proceedings fix the value of land which will be flooded and submerged as a result of a public project.[110]

Even without the benefit of formal proceedings, the state may annex private riparian land to the state-owned lakebed by setting in motion physical processes which cause land to be submerged. The state's construction of a dam often results in flooding of property which is indistinguishable in physical operation and impact from a natural submergence of riparian land. The rate at which a dam causes the water level to rise may affect the legal

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[106] *See* CAL. CONST. art. 10, § 1 (West Cum. Supp. 1978) (formerly CAL. CONST. art. 15, § 1) which provides: "The right of eminent domain is hereby declared to exist in the State to all frontages on the navigable waters of this State."

[107] CAL. CODE CIV. PROC. § 1240.110(a) (West Cum. Supp. 1978) also provides in pertinent part:

> Except to the extent limited by the statute, any person authorized to acquire property for a particular use by eminent domain may exercise the power of eminent domain to acquire any interest in property necessary for that use including, but not limited to, submerged lands, rights of any nature in water . . . flowage or flooding easements . . . .

See Northern Light and Power Co. v. Stacher, 13 Cal. App. 404, 409, 421-22, 109 P. 896, 903, 900-901 (3rd Dist. 1910).

[108] *See* Shirley v. Bishop, 67 Cal. 543, 545, 8 P. 82, 83 (1885).

[109] *See* Los Angeles v. Aitken, 10 Cal. App. 2d 460, 470, 52 P.2d 585, 590 (3rd Dist. 1935).

[110] *See, e.g.*, Yolo Water & Power Co. v. Hudson, 182 Cal. 48, 186 P. 772 (1920). The compensability of property interest in the foreshore is more fully discussed in text accompanying notes 70-84 *supra*.

characterization of the resulting submergence of property. On a large lake, the accumulation of water behind a dam may occur very slowly, gradually inundating parts of the shoreline. Such an increase may be classified as erosion or submergence, and under common law principles the state's sovereign title may extend further landward.[111] Flooding of the shoreline may occur more rapidly on a small lake. In the converse situation, a sudden surge in the water levels may be characterized as avulsion, freezing the public-private boundary at pre-dam levels.[112]

Variables affecting the rate of increase include the width and depth of the stream outlet from the lake, the height of the lake's natural rim, and hydrological patterns for a given geographical area. The California courts have not addressed the issue of when the rise in water level attributable to a dam is considered submergence and when it is avulsion.[113]

The California decisions suggest that navigable lakes subject to permanent regulation should be treated as natural lakes,[114] and that the state's title should extend landward to include lands submerged by the dam. The California judiciary has not yet applied this doctrine directly to dammed navigable lakes. State acquisition of the submerged land to the new high water boundary, however, is supportable under two distinct theories.

1. Artificial Erosion

One foundation for California's claim to a high water boundary along dammed navigable lakes is the common law doctrine of erosion. The effect on the shoreline of a dam or other man-made structure across the natural outlet of a navigable lake can be characterized as "artificial erosion" or "artificial submergence".

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[111] *See* text accompanying notes 25-30 *supra* for discussion of the effect of erosion, submergence and other physical phenomena on the public-private water boundary.

[112] *See* text accompanying notes 25-27 *supra*. At common law, avulsion described the sudden tearing away of a portion of a lakeshore or streambed through violent wave action or storm. Such a change did not affect the public-private boundary; it remained fixed in the location as determined prior to the avulsive activity.

[113] However, the California Supreme Court implicitly rejected the avulsive characterization in those cases in which it held that a sufficiently long continued artificial condition which is permanent in character is the functional equivalent of a natural condition. *See* notes 139-150 and accompanying text *infra*.

[114] *See* notes 139-150 and accompanying text *infra*. *See generally* 30 OP. CAL. ATT'Y GEN. 262, 273 (1957).

Both erosion[115] and submergence[116] involve the gradual, imperceptible encroachment of water on land. The common law test for determining whether a shift in water levels was erosive in character focused on the visibility of the change. If an observer sitting on the shoreline could have noticed the rise in lake levels from time to time, but could not perceive the process while it was happening, then erosion had occurred.[117]

The common law treated erosion and submergence as similar phenomena.[118] Erosion caused by either natural or artificial forces shifted the high water mark landward.[119] The natural wind and wave action diminished the riparian shoreline. Similarly, a breakwater or other man-made structure which altered the tidal currents in such a way as to accelerate the carrying away of soil particles also decreased the size of a riparian parcel. The process of erosion, however caused, enlarged sovereign ownership of navigable tidal waterways.

Often the presence of a dam raises the water level of a lake over time, very gradually inundating previously exposed riparian land. Such a change would satisfy the common law prerequisites for erosive activity,[120] and can be characterized as "artificial erosion" or "artificial submergence". Gradual artificial erosion operates to move the state's title landward, just as if the land had been submerged naturally.

The legal effect of an artificially induced erosion or submergence should be distinguishable from naturally occurring physical activities. Such a distinction appears with respect to the process of accretion described in Civil Code section 1014 and the line of cases applying it. Civil Code section 1014 itself speaks of alluvium

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[115] *See* text accompanying notes 26-27 *supra.*

[116] *See* text accompanying notes 26-27 *supra.*

[117] *See* County of St. Clair v. Lovingston, 90 U.S. (23 Wall.) 46 (1874). In a dispute between Illinois and Mississippi over land which accreted along the bank of the Mississippi River, the Supreme Court articulated the test as follows:

> [A]lluvium may be defined as an addition to riparian land, gradually and imperceptibly made by the water to which the land is contiguous. The test as to what is gradual and imperceptible in the sense of the rule, is that though the witnesses may see from time to time that progress has been made, they could not perceive it while the process was going on.

Id. at 68. The same test applies equally to erosion.

[118] *See* text accompanying notes 26-27 *supra.*

[119] *See generally* Carpenter v. Santa Monica, 63 Cal. App. 2d 772, 787, 147 P.2d 964, 972 (1st Dist. 1944); Forgeus v. Santa Cruz, 24 Cal. App. 193, 199, 140 P. 1092, 1094-1095 (3rd Dist. 1914).

[120] *See* text accompanying notes 25-30 *supra.*

resulting solely from natural causes and provides that land formed gradually and imperceptibly upon the bank of a stream or river belongs to the upland owner.[121] The deposit of alluvium on the shoreline caused wholly by such artificial means as the construction of a pier or breakwater belongs to the state or its grantees.[122] Conversely, accretions resulting entirely from natural forces become the property of the upland owner.[123]

Despite extensive judicial interpretation, the ramifications and scope of section 1014 remain ambiguous. The courts have not extended the artificial/natural accretions distinction developed for tidelands to other navigable waterways, even though the statute applies by its own terms to streams and rivers. Furthermore, it is questionable whether the statutory provisions imply the same artificial/natural rule for the converse processes of erosion and submergence, and, if so, whether such a distinction would be applicable to all navigable waterways in California. Finally, section 1014 leaves unclear whether a combination of natural and artificial forces which hasten the accretion or deposition of soil along a navigable lake would operate to alter the upland boundary.[124] Section 1014 speaks only to naturally induced accretions

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[121] CAL. CIV. CODE § 1014 (West 1954), *set forth in* note 28 *supra.*

[122] *Id.*

[123] This is apparent from the language of CAL. CIV. CODE § 1014, which speaks specifically of land formed "from natural causes," and from the rigid dichotomy between natural and artificial accretions which the California judiciary developed in the context of tidelands. As explained by the California Supreme Court in *Los Angeles v. Anderson,* 206 Cal. 662, 275 P. 789 (1929),

> [F]or the owner of the upland to be entitled to the accretions thereto, such accretions must have resulted from natural causes and been of gradual and imperceptible formation . . . where, however, the accretions have resulted, not from natural causes, but from artificial means, such as the erection of a structure below the line of ordinary high water, there is made out a case of purpresture, or encroachment, and the deposit of alluvion caused by such structure does not inure to the benefit of the littoral or upland owner, but the right to recover possession thereof is in the state or its successor in interest, as the case may be.

Id. at 667, 275 P. at 791. *See generally,* Hamilton, *Surf, Sand, Tide & Title,* 35 L.A. B. BULL. 389 (1960) and cases discussed therein. These are the only cases which have, explicitly or implicitly, discussed CAL. CIV. CODE § 1014 and have developed the artificial/natural accretion distinction.

[124] *See* Hamilton, *Surf, Sand, Tide & Title,* 35 L.A. B. BULL. 389 (1960). The author discusses one tidelands case in which the Court of Appeals ruled that accretions which were the result of combined natural and artificial forces inured to the upland owner. Abbot Kinney Co. v. Los Angeles, 170 Cal. App. 817, 339 P.2d 968 (1st Dist. 1959), *overturned on other grounds,* 53 Cal. 2d 52 (1959). This

and relictions and probably does not abrogate the common law with respect to erosion.

In the absence of any legislative declaration concerning erosion or submergence along a navigable lake, the common law rules would prevail.[125] Accordingly, any gradual and imperceptible force which raises the water level of a navigable lake in California results in a landward extension of the state's title and the public trust. Consequently, title to the newly submerged lands up to the high water mark vests in the state.

2. *Prescription*

The second legal basis for California's claim to lands submerged by dammed navigable lakes is the doctine of title to acquisition by prescription.[126] Many jurisdictions apply principles of prescription, both directly and in directly, to effectively treat artificial lakes as natural lakes. For instance, some jurisdictions label the right to partially flood property along a lakeshore as a prescriptive right.[127] In others, a dam owner who constructs a dam across the outlet of a navigable lake acquires an easement over time to maintain the resultingly higher water levels. In either case, the physically observable change is the same: the land sub-

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trend was not followed in subsequent tidelands decisions, but is endorsed by the author as consistent with the common law rule.

[125] CAL. CIV. CODE § 22.2 (West 1954), *set forth in* note 10 *supra*.

[126] Qualitatively, the method of increasing state ownership discussed in this section resembles inverse condemnation more than it does simple adverse possession. As in inverse condemnation, the burden is on the private property owner to take the initiative and bring an action to prevent his property from being taken for a public use. However, the characterization of this doctrine as prescription has been maintained through the article, since this is the characterization which the state and federal judiciary have adopted. In effect, the state is attempting to justify its expanded ownership long after the fact. Whatever rights the original riparian owner had are long since extinguished by the passage of time.

[127] "At common law, prescription was a method of acquiring easements or other incorporeal hereditaments by long-continued enjoyment, whereas adverse possession related to acquisition of title to land itself." 1 A. BOWMAN, OGDEN'S REVISED CALIFORNIA REAL PROPERTY LAW 120, § 4.6 (Cal. Cont. Ed. Bar 1974). In California, little distinction is made between the terms and both require satisfaction of the same elements. *Id.* Possession must be: (*a*) actual and open, (*b*) hostile, (*c*) under claim of right or color of title, (*d*) continuous and uninterrupted for a period of five years before litigation is initiated; furthermore the adverse claimant must pay all taxes levied and assessed on the property during the period of possession. *Id.* at 120-122, § 4.7. The title acquired is denoted a "title by prescription" and is good against all persons, except a public utility, the state or any public entity. CAL. CIV. CODE § 1007 (West Cum. Supp. 1978).

merged by the action of the dam becomes part of the bed of a navigable lake.

Several jurisdictions[128] recognize that when portions of the lakeshore are submerged without objection by riparian owners for the prescriptive period, the lands become part of the lakebed and the sovereign property of the state. Under these circumstances, the state is entitled to claim ownership of the lakebed to the ordinary high water mark. Two states, Wisconsin[129] and Michigan,[130] recognize that a prescriptive right may be acquired to maintain the existing high water levels created by a dam across a navigable lake's natural outlet.

A recent Washington Supreme Court decision supports prescriptive rights theory to maintain artificial lake levels, although the case turned on a different point. In *Wilbour v. Gallagher*[131] a dam across the outlet of Lake Chelan caused the water level to fluctuate from 1,079 feet to 1,100 feet above sea level. At its highest point, the lake water almost entirely submerged the majority of defendant's lakeshore property. Thirty-five years after the dam was built, in an attempt to render their property useful on a year-round basis, defendants placed fill on their land to raise it above the 1,100 foot level and erected high rise structures on the fill. The Washington Supreme Court ordered the defendants to remove the fill and the structures. The court based its judgment on the grounds that the fill constituted an obstruction to navigation.[132] However, the court recognized the potential applic-

[128] Wilbour v. Gallagher, 77 Wash. 2d 306, 462 P.2d 232 (1969), *cert. denied*, 400 U.S. 878 (1970); State v. Parker, 132 Ark. 316, 200 S.W. 1014 (1917).

[129] *See, e.g.*, Smith v. Youmans, 96 Wis. 103, 70 N.W. 1115 (1897), in which defendant's lessors built a series of dams across the outlets of Lake Beulah between 1838 and 1848, raising the water level of the lake by a total of seven and one half feet. The lessors maintained the increased water level until 1891, when defendants leased the water and power rights to the dam. Defendants then proceeded to raise and lower the lake level at will. The Wisconsin Supreme Court held that defendants acquired a prescriptive right to flood plaintiff's land up to the artificially established water level, viewing it as the new natural water level. 70 N.W. at 1117-1118. In addition, the court ruled that an artificial outlet which had been maintained for twenty years had become the legally recognized natural outlet of the lake. *Id.*

[130] The Michigan Supreme Court reasoned similarly to the Wisconsin Supreme Court in Brockway v. Hydraulic Power & Light Co., 175 Mich. 339, 141 N.W. 693 (1913). In this case, a new dam was constructed to replace an old dam across the natural outlet of a lake. The court ruled that the dam owners had acquired a prescriptive right to flood lakeshore property, but only to the water level created by the old dam. 141 N.W. at 695.

[131] 77 Wash. 2d 306, 462 P.2d 232 (1969), *cert. denied* 400 U.S. 878 (1970).

[132] Wilbour v. Gallagher, 77 Wash. 2d 306, 462 P.2d 232, 237 (1970), *cert.*

ability of the prescriptive doctrine. The court stated explicitly that if the lake were maintained at the 1,100 foot level for the prescriptive period, that level would become the new natural lake boundary.[133] Consequently, the submerged lands would be converted into part of the lakebed and would be state-owned.[134] The court concluded that the artificial fluctuation of the water level should be considered the equivalent of natural fluctuations.[135]

In *State v. Parker,*[136] the Arkansas Supreme Court explained the theoretical basis for claiming state ownership of submerged lands up to the existing high water mark in cases where the water level is artificially maintained. In this case, a dam across the natural outlet of a navigable lake raised the water level of the lake and submerged 1,000 acres of land. In a suit brought by the owner of the inundated property, the Arkansas Supreme Court held that the flooding was continued for a sufficient period of time to satisfy the statutory prescriptive period and to produce a new high water mark. Furthermore, the flooding was sufficiently adverse, open, notorious, and continuous to vest title in the state by prescription.[137] The court ruled that the artificial level of the lake to high water mark became the natural high water level of the lake and the new boundary between state and private riparian ownership.[138]

California courts have never considered whether the prescriptive theory applies to artificially regulated navigable lakes. Judicial support exists, however, for the uniform application of the high water boundary to both natural and artificial water levels. In several opinions, the California Supreme Court has held that an artificial condition in a waterway is the functional equivalent of the natural state, where the condition is both sufficiently long-continued and permanent in character. The court first articulated this position in *Chowchilla Farms, Inc. v. Martin,* holding that an artificial channel had acquired all the legal incidents of a natural river.[139] Similarly, in *Natural Soda Products Co. v. Los Angeles,* the Court treated the artificial diversion of a river as a natural condition,[140] and in *Clement v. State Reclamation Board,*

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denied 400 U.S. 878 (1970).

[133] *Id.*

[134] *Id.*

[135] *Id.*

[136] 132 Ark. 316, 200 S.W. 1014 (1917).

[137] State v. Parker, 132 Ark. 316, 200 S.W. 1014, 1015-1016 (1917).

[138] *Id.*

[139] Chowchilla Farms, Inc. v. Martin, 219 Cal. 1, 18, 25 P.2d 435, 442 (1933).

[140] Natural Soda Products Co. v. Los Angeles, 23 Cal. 2d 193, 197, 143 P.2d 12, 16 (1943).

it held that man-made levees possessed the attributes of natural banks.[141]

Under the criteria outlined in *Chowchilla Farms v. Martin*[142] and *Natural Soda Products v. Los Angeles,*[143] the artificial condition may become a natural condition only if the following elements are established: (1) the artificial condition has existed for a long period of time,[144] (2) the riparian owners have acquiesced to the artificial condition and have relied upon it in constructing homes, piers, docks or other structures,[145] and (3) the artificial condition is permanent in character.[146] The critical factor, from the court's viewpoint, was the reliance placed by neighboring riparian owners on the seemingly permanent nature of the artificial condition.

In the case of a dammed navigable lake, such as Lake Tahoe, all three of the *Natural Soda* criteria are satisfied and operate to protect the reliance interest of riparian property owners.[147] Com-

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[141] Clement v. State Reclamation Board, 35 Cal. 2d 628, 220 P.2d 897 (1950).

[142] 219 Cal. 1, 25 P.2d 435 (1933).

[143] 23 Cal. 2d 193, 143 P.2d 12 (1943).

[144] Chowchilla Farms, Inc. v. Martin, 219 Cal. 1, 12, 25 P.2d 435 (1933) (artificial channel used by riparian owner for 40 years); Natural Soda Products v. Los Angeles, 23 Cal. 2d 193, 196, 143 P.2d 12, 15 (1943) (artificial diversion used for 18 years).

[145] Natural Soda Products Co. v. Los Angeles, 23 Cal. 2d 193, 197, 143 P.2d 12, 16 (1943). In upholding the treatment of an artificial diversion from a river as a natural condition, the California Supreme Court observed: "It is generally recognized that one who makes substantial expenditures in reliance on long-continued diversion of water by another has the right to have the diversion continued if his investment would otherwise be destroyed." *Id.* at 197, 143 P.2d at 16.

[146] Chowchilla Farms, Inc. v. Martin, 219 Cal. 1, 23, 25 P.2d 435, 443-444 (1933). In holding that an artificial channel was the legal equivalent of a natural channel, the court emphasized "the element of permanency as an important feature in the formation of a watercourse." The court cited with approval the case of Blackburne v. Somers, 5 L. R. (Ireland), in which, on similar facts, the court ruled:

> If the watercourse was of a permanent nature, and constructed for lasting purposes, and especially for the general benefit of the parties in its vicinity, and not merely with the temporary and private object of benefitting the property of those by whom it was constructed . . . riparian rights may be acquired in its water, just as in a natural stream.

Chowchilla Farms, Inc. v. Martin, 219 Cal. 1, 23, 25 P.2d 435, 443-444 (1933).

[147] 30 OP. CAL. ATT'Y GEN. 262 (1957). After citing the reasoning of Natural Soda Products Co. v. Los Angeles, 23 Cal. 2d 193, 143 P.2d 12 (1943), the Attorney General observed: "Although there is no reported California case which has applied this rule to long-established changes in the natural levels of

pleted in 1912, the present dam across the Truckee River outlet of Lake Tahoe gradually raised and stabilized the water level at six feet above the lake's natural water level.[148] Present for over seventy-five years, the artificial water level existed for a sufficiently long period of time to be considered the natural lake level.[149] Both the state and riparian owners relied upon the higher lake level in regulating and building piers, homes, and other improvements.[150] By extension of the *Chowchilla Farms* and *Natural Soda* holdings, under such circumstances the heightened water levels of a regulated lake should be the equivalent of the natural lake levels. State ownership of the lakebed would therefore extend to the new high water mark. Thus, the California judiciary's willingness to treat long-continued artificial conditions on navigable rivers as natural suggests that the California courts would be receptive to applying the prescriptive theory to artificially regulated lakes.[151]

3. Consequence of a Uniform High Water Boundary: Compensation for Lands Flooded

The justification for the theories of both artificial erosion/submergence and prescription is that the public's right to swim, boat, fish, and exercise all rights incidental to navigation in navigable lakes can only be protected by vesting title to all submerged lands in the state. When a navigable lake is dammed, the water level rises to a permanently higher level. Under either theory, there is no reason to treat artificially regulated lakes differently from natural lakes for purposes of recognizing the high water boundary.

Dammed lakes are different from natural lakes, however, in one important respect: the rise in water levels is the direct result of human intervention and visibly diminishes the amount of property possessed by a riparian owner. Flooding of lakeshore property between the natural high water mark and the artificial high water mark results in a taking of private property for public use.[152] The

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a lake, we have no doubt that the rule is applicable." 30 OP. CAL. ATT'Y GEN. at 273 (1957).

[148] 30 OP. CAL. ATT'Y GEN. 262, 264, 273 (1957).

[149] *Id.* at 273.

[150] *Id.* at 273-274.

[151] *See* notes 139-150 *supra.*

[152] Although temporary, albeit extensive, flooding of property may not constitute a taking, Gray v. Reclamation District, 174 Cal. 622, 639, 163 P. 1024, 1031-1032 (1917), it is clear that permanent submergence of property is a taking in the constitutional sense. *Id.* at 639, 163 P. at 1031-1032. *See also* CAL. CONST.

lakeshore owner whose property is partially submerged is unable to use the flooded portion for a home, recreational facilities, or any other dry land purpose.

As noted previously, the public navigational and recreational easements so heavily burden all lands submerged by navigable waters that an owner's ability to build a pier, wharf, or dock over the land submerged by flood is severely restricted.[153] The only rights an owner enjoys in the newly submerged lands are indistinguishable from the rights already enjoyed by the public in navigable waterways. Therefore, where the action of a dam causes flooding or submergence of lakeshore property above the natural high water mark, the state has effectively taken the property.

Riparian owners are entitled to compensation for property which the state has thus taken.[154] The doctrines of artificial erosion and prescription both provide a theoretical foundation for vesting title in the state to artificially submerged lands, and both allow the state to obtain riparian property in a manner which provides minimal notice to the lakeshore owner. In terms of recognizing the compensability of lakeshore property flooded by action of a dam, however, the theories are not coextensive. Because artificial erosion does not adequately recognize the existence of riparian rights, prescription has a potentially more just application. Artificial erosion permits the state to flood private lakeshore property without incurring any liability for compensation, provided the land is submerged gradually and imperceptibly. This creates a rule which heavily favors the state, as owner of the beds of navigable lakes.[155]

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art. 10, § 1, *set forth in* note 106 *supra*, describing the right of eminent domain to all frontages on California's navigable waters. Flooding or submergence of property entitles the owner to compensation in most cases. *See, e.g.*, Weisshand v. Petaluma, 37 Cal. App. 296, 306-307, 174 P. 955, 959 (3rd Dist. 1918), and cases cited therein.

A taking of private property is an appropriation of the property by the state or public entity to public use, entitling the property owner to receive compensation for the fair market value of the property. CAL. CODE CIV. PROC. § 1240.010, § 1245.260 (West Cum. Supp. 1978).

[153] *See* notes 101-104 *supra* and accompanying text.

[154] Where compensation is appropriate for property taken, the award must reflect the fair market value of the property. CAL. CODE CIV. PROC. § 1263.310 (West Cum. Supp. 1978). Fair market value is statutorily defined as the highest price on the date of valuation which a willing seller would accept from a willing buyer. CAL. CODE CIV. PROC. § 1263.320(a) (West Cum. Supp. 1978). The property owner is entitled to compensation not only for the value of lands taken, but also for the total diminution in property interests sustained.

[155] The one-sided nature of the rule is apparent from the terms of CAL. CIV. CODE § 1014. As interpreted by the California courts, section 1014 permits a

As indicated earlier, because the California Legislature has not spoken with respect to the effect of erosion on riparian boundaries, common law rules presumably apply.[156] Since natural erosion and artificially induced erosion always move the public-private boundary landward in favor of the sovereign, the stability of riparian titles along a dammed navigable lake depends solely on the stability of the artificially regulated water level. If and when the lake level is further increased, riparian titles would be jeopardized again.

The artificial erosion doctrine disregards the riparian owner's property interest in the lakeshore above the natural high water mark. The gradual rise in the water level immediately converts submerged lands from private ownership to sovereign ownership. Under common law principles, this loss might be tolerable because at common law a riparian has an equal opportunity to regain any property subsequently exposed thorough accretion or reliction.

Civil Code section 1014,[157] however, negates that balance achieved at common law. Section 1014 prevents a riparian owner from acquiring title to any alluvium, unless it accumulates as a result of natural forces.[158] In the unlikely event that the water level of an artificially regulated lake is lowered by operation of a dam, it is doubtful that land subsequently exposed would be considered natural accretion. Thus, artificial erosion exposes a riparian to a continual risk of uncompensated loss in all but the most limited circumstances.

Similar to the doctrine of artificial erosion, the prescription theory places a burden upon riparian owners to notice the gradually rising water level in front of their property and to seek an immediate legal remedy before the statute of limitations runs. Where the prescriptive period is lengthy, a riparian may be able

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riparian landowner to gain land only through accretion and only if the accretion is the result of wholly natural forces. If the state's title extends landward through both artificial and natural erosion, then the state acquires land in every situation *except* where accretion is naturally caused. This does not comport with common law principles. Traditionally, a landowner gained land through accretion and lost land through erosion, regardless of the cause. Thus, the risk of gain and loss was roughly equivalent for both the sovereign and an owner of land fronting navigable waters. The artificial erosion doctrine, however, tips the balance in favor of the state; consequently, a landowner always loses land to the sovereign in all but the most limited circumstances.

[156] *See* CAL. CIV. CODE § 22.2 (West 1954), *set forth in* note 10 *supra*. *See also* notes 115-125 *supra* and accompanying text.

[157] CAL. CIV. CODE § 1014 (West 1954), *set forth in* note 28 *supra*.

[158] *See* notes 118-125 *supra* and accompanying text.

to ascertain that a physical change has occurred. The likelihood that lakeshore owners will fail to notice the change or realize their status as a potential plaintiff is greater if the prescriptive period is shorter. Another weakness in the theory is that the mere increase in water levels may not be sufficiently adverse to satisfy the prescription doctrine.[159]

Despite the potential for disregard of riparian owners' rights, the doctrine of prescription is probably more just. It recognizes that at one time the riparian owner had some type of property rights capable of protection, but that the passage of time has extinguished such rights. The implication is that where the state causes submergence of property in the future, even where the physical effect is akin to a natural process, alert riparian owners may successfully protect property interests. The prescription doctrine provides a time during which riparian owners have property rights capable of protection, but does not permanently delay expansion of the state's title. It achieves a relatively successful balance between the state's interest in protecting its navigable waterways and the private interest in a compensable riparian property right.

CONCLUSION

Clearly defining the boundary between public and private ownership of submerged lakebeds as the ordinary high water mark would provide much needed certainty to California law regarding navigable waterways. As owner and protector of the public's interest in all lands beneath navigable waterways, the State of California must ensure that the people of the state enjoy full access to all of its navigable lakes. State sovereign ownership of

[159] The argument that the increase in the water level of Clear Lake, the result of a dam across Cache Creek, was sufficiently adverse and entitled defendant to maintain the higher water levels was rejected by the California Supreme Court in *Grigsby v. Clear Lake Water Co.*, 40 Cal. 396 (1870). The Court observed that in order for the defendant to acquire a prescriptive right:

> There must have been an actual occupation by the flow of water, to the knowledge of the plaintiff, and such as to occasion damage and give him a right of action. There must have been such a use of the premises, and such damage, as will raise a presumption that plaintiff would not have submitted to it, unless the defendant had acquired a right so to use it. Such a state of facts is not likely to be found where the actual issue tried is, whether the defendant has caused the lands to be overflowed or not.

Id. at 406. The Court concluded that defendants' activities and the resulting overflow of water onto plaintiffs' land were insufficiently adverse to give the plaintiff a right of action under the circumstances.

lakebeds up to the high water mark maximally protects the public's right to use the waters for boating, swimming, fishing, and navigation. This definition of the boundary also recognizes the de facto state control of the lakeshore between ordinary high and low water, a strip of land which has minimal value to a riparian owner because of the heavy navigational easement. Furthermore, in the interests of consistency, adoption of a high water boundary for inland lakes creates a uniform public-private boundary for all navigable waterways in California.

The high water boundary should apply equally to navigable lakes in a natural state and to those which are dammed. The public's interest in use of artificially regulated lakes is identical to its interest in use of natural lakes. The doctrines of artificial erosion and prescription operate to vest title to the artificially submerged lands in the state, thus enabling the sovereign to protect the public's interest in all navigable waterways up to the line of private ownership.

Judicial acceptance of the high water mark as the public-private boundary in inland navigable lakes is the most immediate means to eliminate the legal confusion. Although the State Lands Commission advocates treatment of section 830 as a rule of construction, legislative repeal of section 830 as an ambiguous, invalid grant of sovereign lands would be the most appropriate and legally consistent course to follow. Where the state's act in regulating the water level results in submergence and erosion of previously fixed dry land above the natural high water mark, and where riparian owners assert their rights in a timely manner, however, compensation by the state for lost property is necessary.

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