# Notice and Expectation Under Bounded Uncertainty: Defining Evolving Property Rights Boundaries Through the Public Trust and Takings 

Hannah J. Wiseman<br>Florida State University College of Law

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# Notice and Expectation Under Bounded <br> Uncertainty: Defining Evolving Property Rights Boundaries Through Public Trust and Takings 

Hannah Jacobs Wiseman ${ }^{\circ}$

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## I. Introduction

Legal views, court holdings, and legislative rules addressing property rights in the United States have varied substantially over time, as have the public's views on property, shifting between a presumption in favor of private property and a preference for substantial governmental involvement in property rights. There has been a recent shift back toward the "sacrosanct" view of private property rights ${ }^{2}$ in the realm of government regulation and physical use of land, as Americans continue to react to local and state governments' increasingly detailed land-use planning regimes. Oregon's controversial Measure 37, providing retroactive compensation for regulation affecting property values, for example, was in some respects a direct reaction to Oregon's urban growth boundaries and other contentious land-use planning measures ${ }^{3}$ that have been in place since the 1970s. ${ }^{4}$ Although recently replaced by Measure 49 , the new measure still allows compensation claims for land use regulations enacted in 2007 and beyond. ${ }^{5}$ Additionally, in November of 2006, Arizona voters approved a ballot proposition similar to Measure 37 , ${ }^{6}$ requiring government compensation of private owners for regulations that affect property values. Numerous other states have recently passed legislation limiting the government's power to use eminent domain to acquire private property.'

[^1]The positions taken by supporters and opponents of these measures illustrate the strikingly divergent views of private property in the United States. Proponents of strong private rights view the legal system as the protector of property rights that guards against coercive intrusions by government into the rights bundle. In stark contrast, others view the government as a manager of property for the benefit of the publicpreserving some resources as public commons, whether for environmental, historic, aesthetic, or recreational purposes. The back-and-forth debate over the meaning of property rights as well as laws that affect property through referenda, legislative action, or court interpretations, frequently change-even if only in appearance and not as applied-the legal boundary between the definition of private and public property. ${ }^{8}$

The strongly divergent philosophical views on public and private entitlement to property rights contribute to the shifting boundary between these rights and present distinct problems for both public users of property and for private property owners, including unclear expectations, insufficient notice to the public and individual owners of their rights in property, and inadequate remedies when property rights are wrongfully divested or encroached upon. Individuals and the public are unsure, ex ante, of the types of ownership and use rights they should reasonably expect to attach to certain property. If the public is not notified of its right to use a piece of property or to enjoy the aesthetic, recreational, and other benefits provided by that property, private individuals may establish claims to the property and develop it in a manner that prevents or interferes with public use. Similarly, lack of notice to private individuals can lead to inefficient investments when a court finds, for example, that the property that an owner believed to be her exclusive domain is partially burdened by public use rights. Although a court investigation of investment-backed expectations and the extent of compensation merited for losses from government action can benefit property owners and users ex post, these individuals would have been better off knowing from the start the limitations on their respective rights.

The definitional confusion over property rights boundaries arises largely because the current property rights doctrines have been insufficiently developed to meet the needs of property owners and users. There are two overarching legal principles that set the outer bounds of public and private property rights: the common law public trust doctrine

[^2]and Fifth Amendment takings analysis, both physical and regulatory. Currently, they provide guidance only in the most extreme cases. But if better defined and more consistently applied by courts, they could serve to steady the sometimes shifting boundary between private and public property rights and to provide more definition in the gray area between the extremes, where the boundaries of property rights frequently change.

This Article will propose one method to improve the public trust and takings doctrines by defining and clarifying the expectations of private and public users of property; by upholding these expectations once they have been defined; by providing notice to the public, landowners, and the government of how the courts will interpret and protect property rights; and, through takings analysis, by remedying harms that occur when property rights transfers violate legitimate public and private expectations in property rights.

This Article focuses on the public trust doctrine but recognizes the necessity of takings analysis as a complementary tool to the doctrine. While the public trust doctrine serves to define public and private rights and expectations ex ante through a purposive investigation of the types of public or private activities supported by property, the economicallybased takings analysis provides compensation when these reasonable expectations are usurped. U.S. property law relies upon these two doctrines to form a comprehensive defining structure of property rights - a structure that, if better defined and more consistently applied, could shape, clarify, and provide notice of the substance of property rights and public and private expectations grounded in those rights.

Parts I and II provide background: I discuss the underlying debate that has given rise to the unclear boundaries between private and public rights, including two divergent philosophical positions on the roots of property rights. While not often explicitly discussed in case law, these philosophical differences influence many of the presumptions that scholars, politicians, and the courts apply when defining public and private property rights.

Moving from the theoretical roots of the origin of property rights to the practical modern applications of these rights, Part III defines the public trust doctrine and takings analysis as the major "guideposts" that provide a framework for property rights-at least at the extreme

[^3]boundaries of the field. This Article discusses how, although these doctrines have some overlapping domain, they are not "mirror images"10 of each other. Rather, they stem from two very different concepts of property ownership and provide unique definitional anchors in two major areas of property rights law-one based in purpose, the other based in more traditional economic analysis. Following the general discussion of these doctrines, I describe their major applications in property rights law: determining whether or not public property should remain public, whether private property should be converted to public use, and whether acquisition or regulation of private property for the public requires the government to compensate the private property owner. Despite the complementary nature of the doctrines and their incorporation of different yet essential types of analyses, the Article will discuss their inadequacy for defining public and private rights where disputes arise between the most extreme boundaries of property rights.

In Part IV, I propose a four-pronged solution to remedy these inadequacies. First, the Article discusses how courts, and sometimes legislatures, should improve and more consistently apply the public trust and takings doctrines to construct a clearer framework of private and public expectations in property rights. Second, once the courts and other governing bodies have better defined expectations in property rights, they should uphold and preserve these expectations so that they are more than temporary definitional boundaries. Third, the Article discusses how courts, due to the unique nature of public property rights, need to provide better and more consistent ex ante notice to potential and existing property owners and users of their rights in property. The Article concludes by arguing that takings analysis is necessary to remedy situations where property owners' or users' ex ante expectations are frustrated.

## II. Clashing Philosophical Views over Original Property Entitlements

Opposing private and public property rights advocates often approach property rights issues with strong assumptions of who is originally entitled to property. These presumptions of "original disposition"-i.e., philosophical ideas regarding original ownership and use rights in property-significantly influence current views on property rights transfers and provide fuel for the ongoing debate over the proper

[^4]division of property rights between the public and private users. This Part discusses several of these theories of original entitlement and how they may influence modern property rights analysis.

## A. Theories of Original Entitlement: Ownership and Control

The original disposition of property rights, prior to transfers and limitations on these rights through physical appropriation or regulation, could be debated endlessly; a brief glance at their origin, however, is essential to any discussion of the public trust, because the doctrine suggests that some types of property were originally public and not intended to be privatized." This concept of an "original" disposition of property somewhat resembles a Lockean view, wherein humans originally "owned" all property in common and lacked the default ability to exclusively possess such commons. ${ }^{12}$ Locke asserted that individuals could privatize some types of property and exclude others from claiming rights to property by mixing their labor with the resource. ${ }^{13}$ This view could imply, therefore, that some property was never appropriate for privatization. Locke acknowledged two steps in the transition from public commons to private property, suggesting that resources such as water and wild game are common until captured. Thus, although privatization occurs through the capture of water in a pitcher or the slaying of a deer in Locke's world, the remaining uncaptured stocks of those resources remain common until captured. Although Locke asserts that one can catch and exclusively own a fish from the ocean, the ocean itself is "that great and still remaining Common of Mankind." ${ }^{14}$ Locke also suggests that in highly populated areas some land must be forever designated as a commons, for the benefit of all people in that area, although not for all of mankind. ${ }^{\text {' }}$

Locke's theory of the original commons does not answer, however, the question of who controls or manages these commons. Locke did not envision government ownership of property in common because Locke saw property, as it originally stood, in a state best described in modern terms as open access. But perhaps upon the emergence of a structure to

[^5]govern humans and their commons, the government became the natural original "owner" of property in commons, ${ }^{16}$ only ceding common property to individual ownership when an individual invested labor into property and put it to beneficial use. U.S. wildlife law has evolved to follow a similar theory under which the government holds game in trust for the benefit of the people. The government does not own the wildlife but protects it for the public benefit, allowing landowners under the common law of ratione soli to kill and capture game on their own land but also maintaining the "pool" of wildlife for the public in trust." The courts have found that the government, for purposes such as wildlife conservation, may restrict this right of capture through due process of law. ${ }^{18}$

A second view stemming from the original Lockean commons, taken to the extreme, could create a presumption of original private rights to property, which are fully established once labor has been mixed with property. Under this view, a government would own and manage only small portions of land (those that remained as a commons) within a larger structure of private ownership. The government, when attempting to seize private land for a public use, would be presumed to be the unrighteous aggressor unless it could prove that the use would clearly support a public benefit (under a stricter "public use" standard than has actually emerged) that was more valuable than the current private use. Although the government would still maintain a limited hand in property rights disputes because of its enforcement functions, informal enforcement norms would emerge even without a hierarchical government structure, thus lessening the need for government control of

[^6]property ${ }^{19}$ This view is similar to that of the property rights movement, which asserts that government has overstepped its bounds of power with respect to regulation, management, and acquisition of property. ${ }^{20}$

## B. Modern Philosophical Applications: Court Interpretations and Vocal Political Factions

Despite the growing private property rights movement, American courts have, to a significant extent, treated property rights as an inherently governmental function, granting the government wide discretion in determining the uses of property for public purposes. Although U.S. courts have also strongly supported private property rights, the courts have consistently refused to place a heavy burden of proof on the government when the government is: (1) maintaining historically public property in public ownership under the public trust doctrine or (2) moving property from private to public ownership under eminent domain. In some cases, as the Article will discuss, courts may favor the government in a third scenario, where a government transfers property from private to public ownership under the public trust doctrine, although they often require the government to compensate the affected private owner. ${ }^{21}$ The recent Kelo v. City of New London decision affirms that courts, absent state legislation to the contrary, defer to and favor governmental decisions over the disposition of property in a fourth category: when the government moves property from the private domain to another private entity to benefit the public. ${ }^{22}$ This deference does not suggest that courts always favor outright ownership by the government

[^7]22. 125 S. Ct. 2655, 2661 (2005).
but that they defer to governmental decisions regarding property's best use for public needs, whether the needs are fulfilled by private or governmental ownership.

Compensation in takings cases, especially for regulatory takings, is often an exception to courts' assumption that the government, provided it is regulating property for a public purpose, is not taking all sticks of the bundle of rights away from the owner and that compensation to the owner is not necessary. The court presumes that no regulatory taking has occurred if the owner can still gain some economic benefit from the land. Courts give slightly less deference to the government under the Penn Central Transportation Co. v. New York City ${ }^{3}$ balancing test, which looks to the expectations and economic value associated with the beneficial uses that remain in property and those that have been curtailed. Additionally, the courts may be more likely to find a complete deprivation of all economically beneficial use to private individuals in cases involving water rights-a common public trust issue-because the rights themselves are quite narrow and, if curtailed, likely deprive the owner of most economic benefit. ${ }^{24}$

Although courts often begin with a presumption in favor of the government under the public trust and regulatory takings analyses, courts are suspicious of unusual private benefits that can result from government acquisition of land under both doctrines. Dissenting in Phillips Petroleum Co. v. Mississippi, Justice O'Connor worried that the government, although asserting retroactive public trust rights, was actually using the trust to benefit private interests in natural resource leases for private parties. ${ }^{25}$ The Court also addressed this concern in the Kelo case, finding that a transfer of property to the government is impermissible if completed under the guise of a public purpose but with a true purpose of private benefit. ${ }^{26}$

It is important to note that despite courts' presumption in favor of government interests under property transfers for the public good, courts generally favor private property as the optimal property management strategy in America. ${ }^{27}$ Private property allows owners to exclude

[^8]unwanted users who would deplete resources, to invest in and improve their acquisition and pass it on to future users, and forces internalization of the costs associated with property use. ${ }^{28}$ Thus, courts often favor governmental rights over private rights in cases addressing the legitimacy of property transfers between the government and private owners, not as applied to the rightful owners of property in general.

Political groups have reacted with increasing force to courts' presumption in favor of government ownership-mainly through political referenda urging government payment whenever a regulation decreases the value of private property, and by encouraging states to tighten the definitions of "public use" for which the government may use its eminent domain powers. ${ }^{29}$ Other groups have registered their support for the government-oriented, planning-based side of the property rights debate, arguing that public control is needed to preserve valuable environmental resources, to plan and zone neighborhoods as populations increase, and to manage unwanted industrial and uses of property that could amount to nuisances, ${ }^{30}$ which they argue could-without adequate governmental control over property regulation-start developing in residential areas. These factions only increase the confusion over the actual status of property rights when rights transfers occur between the public and private domain.

The original presumption of property rights ownership currently employed by courts, whether for the government or private owners, insufficiently defines the expectations of both public users of property and private owners. Even if the theoretical presumptions of original rights to property help us define expectations in rights, they fail to address the core definitional issue of what constitutes private or public property. The following Part describes the doctrines-the interpretation of which is often influenced by the philosophical views of property

[^9]entitlement addressed in this Part-that currently provide the outer definitional bounds of property rights.

## III. Current Practical Manifestations of Property Rights <br> Under the Public Trust and Takings: Definitions, Inherent Differences, AND LIMITATIONS

Just as the philosophical origins of property rights embody differing views of the nature of property, whether inherently private or held in common for the benefit of public use, their modern manifestations in property law have emerged in two distinct doctrines. This Part describes the doctrines of public trust and takings that currently define the outer boundaries of property rights. After briefly defining the two doctrines generally, this Part discusses their most common practical applications to disputes over property rights transfers: retaining public rights in currently public properties (the "status quo" public trust ${ }^{31}$ ), placing public burdens on property that was historically public but has been privatized for a discrete period (retroactive public trust ${ }^{32}$ ), and placing public burdens on private property by regulating or acquiring part of the property for public use (the typical takings analysis). Finally, this Part discusses how these doctrines diverge: the public trust doctrine is grounded in the purpose of property rights and the uses defined by those property rights, and takings are defined by principles based in economic compensation. Rather than being mirror images of each other, as Epstein suggests, the doctrines serve as independent yet necessary legal complements and provide a basic framework for property rights.

[^10]
## A. A Definitional Framework Rooted in Expectations

The public trust and takings doctrines provide the outer definitional boundaries of property rights expectations by defining when the public is entitled to use property, when private individuals are entitled to exclude the public from property, and who bears the burden of sharing or giving up use rights when both public and private entities claim rights in property. The public trust doctrine requires that governments hold some property for the use and enjoyment of the public-i.e., the beneficiaries of this trust. Just as a trustee is bound by certain ethical and legal duties in managing a trust corpus, the government must not wrongfully damage public trust resources by allowing privatization that would result in more limited access rights for the public. If a court finds that a resource is public trust property, and the government has attempted to divest this property in a way that damages the public's use of the property, the court prevents the divestment or reverses it if it has already occurred.

Takings cases, on the other hand, arise when the government acquires or limits some or all of a private owner's bundle of property rights in order to benefit the public, either through physical acquisition, physical occupation, or regulation. Here, courts ask whether the government must compensate the owner for this taking (in the case of regulatory takings challenges) and, if so, whether the compensation provided was adequate. When the government physically acquires or occupies property through eminent domain, the occurrence of a taking is clear, but the amount of compensation required is often disputed by the owner. The standard for compensation under eminent domain is, as generally stated, that the owner is entitled to compensation equal to the fair market value of the property taken at the time of the taking. ${ }^{33}$

## 1. The Public Trust Doctrine: Maintaining or Designating Resources for Public Use

The public trust doctrine addresses whether property or certain uses of property should remain public or be converted to private ownership, and to what extent private property or usufructuary rights that are part of privately owned property must remain public to allow citizens to effectively use and enjoy the property. Under this latter scenario, where property is divided between private and public trust uses, the public

[^11]rights are defined as the jus publicum ${ }^{34}$ and the private rights reserved on the property fall under the jus privatum.

The public trust doctrine as defined by the Supreme Court's watershed Illinois Central Railroad v. Illinois decision assumes that some forms of property have always been held for the common benefit of citizens and should be presumed to be public: the Court's proposition that the state's title is "held in trust for the people of the State that they may enjoy . . . the [public use of] waters . . . freed from the obstruction or interference of private parties ${ }^{1,35}$ is the central element of the doctrine. Illinois Centra/s interpretation has remained strong despite criticism from all sides by courts, legal scholars, and legislatures alike. ${ }^{36}$ Courts frequently rely upon Illinois Central when public trust questions arise, ${ }^{37}$ numerous state legislatures have upheld the principle by inserting trust language into their constitutions and statutes, ${ }^{38}$ and state executives have enforced public trust provisions and faced legal repercussions when they have failed to fulfill their fiduciary duties under the doctrine. ${ }^{39}$ This Article identifies two types of property transfers that occur under the public trust doctrine-- "status quo" and "retroactive" public trust transactions.
34. See, e.g., Appleby v. New York, 271 U.S. 364,384 (1926) (defining the jus publicum as "the power to preserve and regulate navigation"); Shively v. Bowlby, 152 U.S. 1, 12 (1892) ("[T]he people have a public interest, a jus publicum, of passage and repassage with their goods by water, and must not be obstructed by nuisances." (internal quotations and citations omitted)).
35. 146 U.S. 387, 452 (1892).
36. See, e.g., Richard Lazarus, Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine, 71 Iowa L. Rev. 631 (1986) (criticizing the doctrine for numerous reasons, including its overlap with the police power and other mechanisms for natural resource protection); Tracey Dickman Zobenica, The Public Trust Doctrine in Arizona's Streambeds, 38 Ariz. L. Rev. 1053, 1059-60 (1996) (discussing the Arizona legislature's attempt to alienate most streambeds).
37. See, e.g., Lazarus, supra note 36, at 640 (discussing the doctrine as the "lodestar" of the modern public trust doctrine and courts' use of the doctrine).
38. See, e.g., PA. Const. art. I, $\S 27$ (discussing natural resources and the public estate as the common property of all people); ORS 390.720 (describing Oregon's public trust ownership of the shore); Washington Shoreline Management Act, RCW 90.58 (1971); Aquatic Lands Act, RCW 79.105 (2005); Water Resources Act, RCW 90.54 (1971); Ralph W. Johnson, Craighton Goeppele, David Jansen \& Rachael Paschal, The Public Trust Doctrine and Coastal Zone Management in Washington State, 67 Wash. L. Rev. 521, 546 (1992) (describing Washington's Seashore Management Act, requiring the shore to remain "forever open to the use of the public").
39. See, e.g., U.S. Plainsmen v. N.D. State Water Conservation Ass'n, 247 N.W.2d 457, 463 (N.D. 1976) (discussing how the Environmental Law Enforcement Act requires state agencies to plan for allocation of public water resources under the public trust doctrine).
a. Status Quo Public Trust: Maintaining Public Ownership through Prevention of Public-Private Transfers
Many public trust cases ask whether or not a government may relinquish ownership rights in a historically public resource to private interests. This Article will refer to such cases as the "status quo" public trust because in these situations the court decides whether or not the property in question may remain in the public status quo of government ownership or alternatively, enter private hands. Under the status quo public trust there is a strong presumption in favor of governmental management of property, particularly for traditional public trust resources that serve commercial and navigational interests. This presumption is highlighted most strongly in Illinois Central, ${ }^{40}$ where, although the legislature temporarily deeded the bed of Lake Michigan to private buyers, the court found that such privatization should never have occurred and that some resources are to remain indefinitely under government ownership for the benefit of the public. ${ }^{41}$ For resources traditionally falling under the doctrine, like the lakebed in Illinois Central, the government is likely to have a low bar to hurdle in court. In many states, the parties arguing for the public trust must only prove that the resource supports one of the "traditional triad" of public uses (navigation, commerce, and fishing) ${ }^{42}$ for the public trust to attach. The courts in these cases often establish the required facts from very basic knowledge of the area in question; the court in Illinois Central, for example, found that the uses of Lake Michigan were widely known and had been occurring for years. ${ }^{43}$ Further, courts have determined that uses of a resource connected to the traditional triad of uses may also support a public trust finding. ${ }^{44}$

National Audubon Society v. Superior Court of California (Mono Lake), also a status quo public trust case, exemplifies this expansion of a public trust finding to uses connected to the traditional triad. Here, the court expanded the doctrine beyond the status quo public trust

[^12]characteristic of navigability to uses of nonnavigable water that affect navigability. ${ }^{45}$ The resource at issue was historically public and managed by the state of California, as evidenced by the fact that the Los Angeles Department of Water and Power had to apply to the Division of Water Resources (later the California Water Resources Board) for use of the water from tributaries of Mono Lake. ${ }^{46}$ I define the City of Los Angeles as a "private" entity asserting "private" rights over the public trust property because the city had obtained drinking water for its citizens at the expense of other uses enjoyed by the general public.

Although private entities often battled for and won use rights to the waters of Mono Lake, ${ }^{47}$ the historic public rights to the resource were clear under a 1921 amendment to the Water Commission Act of 1913, authorizing the water board to reject applications for water rights "when in its judgment the proposed appropriation would not best conserve the public interest. ${ }^{\text {*8 }}$. The court upheld the public's continued right to these waters based on this historic publicness and the state government's role in preserving the resource for public use. ${ }^{49}$

In Arizona Center for Law in the Public Interest v. Hassell, the court similarly granted broad power to the government in its control of status quo public waters. ${ }^{50}$ Here, the Arizona legislature passed a statute declaring the navigable waters of the state to be owned by the government. Subsequently, the legislature attempted to divest ownership of almost all navigable watercourses to private users. The court, similar to the Illinois Central decision, invalidated Arizona's attempt to alienate public land under the public trust doctrine. ${ }^{\text {.1 }}$ Although the state had not asserted its equal footing powers over navigable waters prior to the legislature's divestiture of the waters to private interests, ${ }^{32}$ the court found that public trust duties had attached to the waters since the state's entry into the union. ${ }^{53}$

Illinois Central, Hassell, and Mono Lake all exhibit courts' typical position under the status quo public trust, finding limited historic private ownership rights in certain public resources and voiding attempts by the government, as trustee, to expand private rights in violation of their

[^13]public trust duties. In Hassell and Mono Lake, although private parties historically exerted rights to the resources, the parties were aware, or perhaps should have been aware, that their rights were limited by competing public rights. ${ }^{54}$ In Hassell, the Arizona government had failed to sufficiently uphold or clarify its duties, which passed to it under the equal footing doctrine. ${ }^{\text {s5 }}$ In Mono Lake, the parties were aware that all rights-private and public-were to some extent limited by California's historic management of the waters. The private parties were unaware of the scope of the limitation, however, until the court clarified the government's public trust responsibilities.

## b. Retroactive Public Trust: Moving from Private to Public Ownership Under the Public Trust Doctrine

Many public trust cases address land that, unlike the property in Illinois Central that had been alienated for a short time and remained undeveloped during private ownership, has remained private for long periods of time during which it has hosted nearly exclusive private uses. ${ }^{\text {s6 }}$ I label these cases as applications of a "retroactive" public trust theory.s" They typically involve government reclamation of private land that the government considers to have always been in the public trust and only relinquished to private interests for a discrete period of time, although the period may have been long. In more extreme retroactive cases, the government asserts public rights to land that has been historically private, with no public history. If the court finds that the property in question is public trust property, there is, similar to the status quo public trust, a

[^14]presumption in favor of the government. Although a takings claim may arise in retroactive public trust cases (unlike status quo circumstances, where a private owner attempts to acquire historically public property), the court may hold that the owner never held the public trust rights to the land. ${ }^{88}$ Thus, the owner fails to merit compensation for those rights. ${ }^{59}$ In many retroactive cases, however, particularly those involving historically private lands, the court may find a taking and require compensation.

Retroactive public trust cases are so similar to eminent domain actions in theory and in practice that the two doctrines, in the context of private to public transfer of property, could merge. In fact, some have questioned whether the two separate doctrines of takings and the public trust are necessary in such cases. ${ }^{\text {.0 }}$ Retroactive public trust cases are also at times difficult to distinguish from status quo public trust cases. The distinction is important under the classifications discussed in this Article, however: as I later argue, retroactive public trust cases, particularly when the public trust is applied to a private property in an evolutionary "burst" of the doctrine (i.e., where the owner could not have reasonably predicted that the public trust would apply), require application of both the public trust and takings doctrines in fairness to the private owner. ${ }^{61}$

The Hassell case, although I have categorized it as an example of the statute quo public trust, falls close to the line between retroactive and status quo cases. In Hassell, private owners had been using navigable lakebeds for years. ${ }^{62}$ Although thirty-eight states had defined navigable waters as part of the public trust ${ }^{63}$ at the time the case was decided, thus potentially limiting private owners' expectations in their private rights to the beds of navigable waters, the Arizona courts had used the public trust

[^15]63. Az. Ctr. for Law, 837 P.2d at 166 n. 13.
sparsely and the doctrine was relatively undeveloped in the state prior to Hassell. ${ }^{64}$ Private owners in Arizona were not fully on notice that they were claiming rights to public trust resources and that these rights could be substantially limited if their use impaired public use. Many of the riverbeds claimed by private owners had dried up as a result of damming and other activities, and owners were likely not aware that state control over watercourses arises from navigability that existed at the inception of statehood rather than current navigability. ${ }^{65}$ The Hassell court found, however, that the lack of full notice to the owners did not permit divestiture of the riverbeds to private interests, finding that the fact " $[t]$ hat generations of trustees have slept on public rights does not foreclose their successors from awakening.,"66

The Hassell case on its bare facts looks more like a retroactive than a status quo case, since individuals had exercised nearly exclusive private rights to the use of water resources for generations, ${ }^{67}$ Arizona had not previously asserted public trust rights to the resources, ${ }^{68}$ and the Arizona courts and legislatures had not clearly defined the public trust for the riverbeds that private owners were claiming. ${ }^{69}$ But owners claiming rights to riverbeds should have been aware of a potential navigational servitude limiting these rights - a servitude that had existed since Arizona's entry into the union. ${ }^{70}$

Mono Lake, although also a status quo case, has retroactive public trust characteristics similar to Hassell. In Mono Lake, private entities had to apply to California's Water Board to obtain water rights from the state. These entities still held a strong expectation that if they put waters to beneficial and continuous use before other private individuals appropriated the water, as was typically allowed under California's prior appropriation doctrine; they could legitimately acquire these waters for private use. However, Los Angeles's "private" ownership of the water rights was highly disputed even before the court determined that Mono Lake and its tributaries fell under the public trust. Additionally, when the Water Board granted the private rights to Los Angeles it had done so

[^16]grudgingly, admitting that such a grant was likely at the expense of public trust values." Thus, Mono Lake is not strictly retroactive. Los Angeles had some notice that it was infringing on public trust rights. The timing of events within the case also shows its dominant status quo public trust characteristics. Like Illinois Central, the public trust resource at issue in Mono Lake had been alienated to private interests for a relatively short period of time: the Water Board's grant of two permanent licenses to the city did not occur until 1974."

## 2. Takings: Acquisition or Regulation of Private Property for Public Benefit

Like the public trust doctrine, Fifth Amendment takings analysis focuses on expectations, but as currently applied concentrates on the expectations of private rather than public owners. Many takings questions arise under eminent domain disputes. A city or state, for example, may establish a public park or beach by acquiring formerly private property. In such cases, private owners argue that the government acquired their land without properly compensating them, or that the government exceeded its authority in using eminent domain. Other takings questions under the "regulatory takings" doctrine address government regulation that burdens landowners by decreasing the value of their land through, for example, development limitations to benefit the aesthetics of an area or to protect a natural resource, or, in the case of the public trust, regulations requiring a private owner to accommodate public uses on her property. In Lucas v. South Carolina Coastal Counci- the quintessential regulatory takings case-the government of South Carolina prohibited certain beachside developments in order to mitigate coastal erosion, thus preventing Lucas from constructing homes on his beachfront property. ${ }^{73}$

Takings analysis is narrower than many questions under public trust cases, and, unlike the public trust, nearly always addresses a proposed transfer from private to public property, or private property that will be developed or used for a public benefit. In physical takings cases, the court begins with the understanding that the property, or many sticks in the property bundle, are in private hands. The court then determines: (1) whether the government's taking of the property under eminent

[^17]domain is for a public purpose ${ }^{74}$ (if not, the government will have exceeded the bounds of its authority); (2) whether such taking requires compensation; and (3) if so, whether the compensation provided was adequate. When an individual argues that her property has been unfairly burdened by a regulation or physical government action and has been taken without sufficient compensation, the court under the Penn Central balancing test looks to the owner's reasonable, investment-backed expectations in the property, as well as the worth of the owner's desired uses on the property, the character of the government regulation, and the extent to which the property value has declined. ${ }^{35}$ This analysis only occurs, however, in the absence of an actual physical invasion of the property ${ }^{76}$ or destruction of all economic value of the property, ${ }^{17}$ where the court finds a per se taking.

Although a takings analysis places the private property owner in a stronger starting position than do the status quo and retroactive public trust scenarios discussed above, the court's initial stance regarding the balance of private and public often lies in favor of the government. The government can easily prove that its acquisition of the land is for a public purpose because of the court's broad interpretation of this standard under takings analyses. ${ }^{78}$ When determining whether or not the government action requires compensation of the private owner, the court in regulatory takings cases typically begins with the presumption that it does not, and only finds exceptions to this rule in limited cases. ${ }^{79}$ The owner in an eminent domain case of course has a stronger position, unless the owner argues that no amount of compensation can justify the government's acquiring her land; the central dispute typically lies in how much compensation is due-not whether compensation is due.

## B. Inherent Differences Between the Two Doctrines: Compensation and Purpose-Based Analysis

The public trust and takings doctrines are similar in their presumptions in favor of the government when property rights are transferred to public use, as well their basis in public and private expectations-asking whether a private owner should have anticipated

[^18]that the government retained some rights for the public benefit (the jus publicum) in property that the private owner purchased; whether the government should compensate a private party when government brings property from private ownership back to the public domain; and whether the public has historically treated some property as a shared resource, thus creating continuing expectations of public access to that resource and preventing privatization in the first place.

The public trust doctrine is unique, however, because of its necessary focus on the type of resource and resource use, and thus the purpose of the resource ${ }^{80}$ at issue. ${ }^{81}$ Courts have recognized this uniqueness, finding that "public trust land is not like other property"" and "is different in character from that which the state holds in lands intended for sale. ${ }^{183}$ Traditionally, the public trust doctrine covered beds of navigable waterways and lands underlying tidal waters and thus protected the public activities associated with these resources. ${ }^{\text {s4 }}$ Legislatures and courts have expanded the doctrine to cover additional resources, but they have often done so based on these traditional categories of public trust resources. For example, although the court in Mono Lake interpreted the doctrine to cover activities affecting the public's enjoyment of nonnavigable waters, it did so only after finding that these activities were harming traditionally public navigable waters and public enjoyment of navigable waters. ${ }^{35}$ The court focused on the fact that the public trust in the United States "encompasses all navigable lakes and streams" and that Mono Lake is a navigable waterway ${ }^{86}$ therefore, over-use of nonnavigable waters that directly interrupted the use of navigable resources was a legitimate public trust issue in the eyes of the court.

[^19]Takings cases differ substantially from public trust cases because, with the exception of the application of the public trust doctrine as a background principle, they rarely look to the type of resource or the purpose of the resource as a determining factor in the case. Unlike the public trust doctrine, if the existence of a taking is clear (as is the case under eminent domain), the courts focus on the fair market value that the owner has lost. ${ }^{87}$ If the courts must first determine whether a taking has occurred under a regulatory takings analysis, they look to the ways in which that owner's uses have been limited but retain an overarching focus on economic loss. ${ }^{88}$

Of course, under takings analyses that address public trust issues, the public trust's purpose and use-based analysis applies: courts will sometimes compare public and private uses of the property and find that a proposed private development would require unusual changes to property and would needlessly destroy public assets of the property. ${ }^{89}$ In such cases, the courts may look to the social value of proposed private uses of the disputed property as well as the impacts of such uses on public land when determining whether or not a denial of all economically beneficial use has occurred. ${ }^{90}$ Based on the type of resource in question and the comparative value of the private and public use, the courts often find that no taking has occurred when the government prevents certain private uses, and that the government need not compensate the private owner who has brought the takings claims, provided the owner still retains some economic benefit. But the type of property at issue is not a final determining factor in the court's decision in of takings cases. Rather, it aids the court in determining the extent to which the private owner has been harmed by government action.

In some scenarios of property transfer, a proposed transfer requires a "public-type" and "takings-type" analysis under both doctrines. Property disputes involving beaches, for example, unlike other public resources discussed in this Article, often address small tracts of highly-

[^20]90. Lucas, 505 U.S. at 1030-31.
disputed and well-delineated land. They are at the core of the conflict between public users and development interests. ${ }^{91}$ In the public trust context, small portions of the beach are often designated for public use through easements over private land to allow for access to and enjoyment of public trust resources, ${ }^{92}$ while several preeminent takings issues have involved private owners of shoreline property challenging environmental regulations and similar laws. These laws aimed at public benefit, thus limiting private owners' development of their land. ${ }^{33}$ Both takings and the public trust are essential to address these types of property disputes, where the interests of the public and private owners frequently collide. The public trust doctrine informs private owners of the jus publicum rights attached to their lands ex ante based on an analysis of the use and purpose of the property. The takings doctrine allows private owners to challenge this finding ex post (or, just prior to a government's proposed implementation of public rights on land, provided she can establish standing) and argue that the public did not sufficiently establish adverse use of the property-if the right was established by easement-or that the government imposed a public right on the property without sufficient compensation to the private owner, thus applying a market-based focus.

The public trust, by focusing on the use of property, explicitly recognizes the purpose-based values in property rights that the public receives from trust protection. I define purpose-based values broadly as characteristics and uses of property that cannot be easily "priced" in the common market. To this extent, they could be described as "noneconomic" values - noneconomic as compared to traditional economic valuation. ${ }^{94}$ When states have intervened in a property dispute to protect their public trust land, courts have found that noneconomic injury to the public trust resources constituted a "legally protectable interest" required for intervention." And under western water law and definitions of beneficial use of waters held in trust for the public, some states explicitly define both economic (transportation and commerce)

[^21]and noneconomic (e.g., scenic beauty and recreational) uses as beneficial. ${ }^{96}$

Conversely, takings cases, with the exception of "permanent physical occupation" cases," focus nearly exclusively on economic, compensation-based interests. ${ }^{98}$ Courts nevertheless sometimes rely heavily on the type of property use (such as the proposed public use of the property under government regulation when evaluated under Penn Centra/s balancing test) and other values not based in commerce ${ }^{99}$ that would be impaired by a governmental act in takings cases. But takings analysis still overwhelmingly addresses the economic loss to the private owner resulting from government regulation. ${ }^{100}$

One reason for the noticeable lack of strictly "economic" valuation of public trust resources is that, while a single or discrete number of owners using one piece of property for a specific period of time can be easily identified in a takings analysis, the court cannot often accurately or comprehensively identify all types of uses, the number of users, or the actual value of a public trust resource, especially if it is historically public. Although economists attempt to value public resources using metrics such as contingent valuation or the travel cost method, ${ }^{101}$ these are blunt tools that often produce differing results. A court is unaware of the value, in monetized terms, that would be lost if a public trust resource reverted to private hands.

Richard Epstein argues that a public trust analysis should (and does inherently) involve questions of economics and compensation because it

[^22]is a mirror image of takings. ${ }^{102}$ Under this view, a takings analysis addresses a landowner's losses when private rights are transferred to the public for public use, whereas a public trust analysis applies when land is transferred from public to private use-i.e., a finding for the private claimant in a status quo public trust case. Just as a takings analysis asks whether and how much the private owner should be compensated when the government acquires some of her rights, under the public trust doctrine, Epstein suggests that the courts should ask how the public should be compensated when a government divests public trust resources to private ownership. ${ }^{103}$ Grounding the doctrine in the equal protection clause, he argues that some individuals benefit disproportionately when a government alienates public trust resources. ${ }^{104}$

Thus, the question of constitutionality of the proposed alienation of public trust property is, according to Epstein, determined by whether or not the individuals of the public who lost as a result of the transfer received compensation for this loss. ${ }^{105}$ To describe how this public compensation could occur, Epstein uses the example of a highway acquired through eminent domain, which the government now holds in trust for the public. If the government attempted to grant private users special access to the highway, the public trust would likely obligate the government to sell licenses for this private use in the competitive market and to retain the profits for a public purpose. ${ }^{106}$

Although I adopt and apply part of Epstein's analysis in Part IV, where I discuss how the public should be compensated when the government wrongfully and irreversibly divests public trust resources, I argue that the public trust doctrine is not simply a mirror image of takings because it is not at its core rooted in compensation but rather the purpose of property, including determination of the public needs served by public trust property, the types of uses that the property will support, and the evolving needs of the public and their relative importance. The public trust doctrine, ex ante, helps to define attributes of property that could not be fully captured by a traditional compensatory economic analysis.

[^23]Although applying takings-type compensation analysis under the public trust doctrine would be beneficial to members of the public who have permanently lost the use of public property, a compensation-based analysis is insufficient to address all of the issues that arise under the public trust doctrine. Courts, perhaps recognizing the inability of an inquiry rooted in monetary terms to fully capture the value of the recreational enjoyment of a beautiful landscape, for example, have instead applied a purposive analysis. The Idaho Supreme Court has described how a proposed private development of property may impact "the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited $\ldots$ and the degree to which broad public uses are set aside in favor of more limited private ones. ${ }^{1107}$

Given the many types of property transfers and values associated with these transfers, courts need the public trust doctrine and takings analysis to successfully address property transfer disputes. While takings analysis focuses on the aspects of loss that can be valued monetarily and compensated for, the public trust doctrine provides a basic structure for identifying property and use values that are more difficult to capture in monetary terms. Yet current definitions of property rights under the public trust and takings doctrines, as defined by legislatures and courts alike, are insufficient. The following Subpart discusses how these doctrines, as currently construed, fail to provide answers in property rights disputes that fall between the clearer extremes of the doctrines.

## C. Definitions at the Extremes: The Inadequacies of Current Property Rights Laws

The public trust and takings doctrines, as applied to the major types of property transfer disputes that arise in the United States, serve as guideposts-creating an initial framework for defining the boundaries of property rights-but only at the extreme edges of these boundaries. These extreme edges are the "easy" cases, such as eminent domain where the government physically appropriates property and the court determines how much compensation is required for the private owner, and Illinois Central-type public trust cases, where a resource has been historically and openly public and has traditional public trust characteristics that courts have recognized since early common law cases, such as navigable waters and the lands underlying these waters. Even these "easy" extremes present some interpretational difficulties,

[^24]however, and they are by far not the most common cases that arise. ${ }^{108}$ Under eminent domain, for example, fair market value at the time of the taking is a broad term that requires specific case-by-case interpretation. Similarly, in status quo cases like Illinois Central, although the "publicness" of the resource is relatively clear, the extent to which private uses would impair or enhance public use may be difficult to determine.

The residual middle gray area, where many property rights disputes arise, remains more murky and undefined. These gray areas include retroactive public trust cases; status quo public trust cases where historic public use has not been continuous and/or clear; and regulatory takings cases, with the exceptions of the rare Lucas-type case where the loss of all economic value is (arguably ${ }^{109}$ ) apparent. When the government places limitations on private property by enacting regulation for the public benefit, a private owner is only certain to be compensated for the impacts of this taking if the government physically appropriates all or part of her land, or regulates the property to the extent that no economic value remains - both relatively extreme scenarios. In between, the courts apply a tenuous balancing test.

The public trust doctrine, as currently applied by courts, also fails to adequately define the boundaries of either public or private property rights. The courts sometimes apply the doctrine to clearly public areas, such as beaches or waters that have been historically and openly public. Yet in other circumstances, courts or legislatures may justify a retroactive acquisition of historically private property by applying the public trust doctrine, thus surprising private landowners who had no notice of potential public burdens on their property. This Part discusses the limitations of the two doctrines and their failure, as currently interpreted and applied by courts and addressed by legislatures, to fill in the large gray area in property rights law that exists between the extremes. More specifically, these doctrines fail to adequately define public and private expectations in property rights, to consistently uphold those expectations once they are developed, and to notify individuals of these expectations-a necessity that is unique to public trust resources. Finally, the doctrines fail to sufficiently remedy damages caused when

[^25]reasonable expectations are limited or eliminated by certain types of property rights transfers.

## 1. Inadequate Definition of Expectations and Resulting Inefficient Investments in Property

Both the public trust doctrine and takings analysis fail to adequately define the reasonable expectations that public users and private owners should hold with respect to property rights. Although courts have found that public trust resources are defined by the physical characteristics of the resource, the public purpose of the resource, and public uses that the resource supports, ${ }^{110}$ courts often fail to more specifically define these characteristics. Potentially public users of private property are left wondering what exact physical characteristics actually create "publicness," and which uses are defined as public. Private owners are unsure, when they attempt to purchase property, whether the courts will hold that the government must hold the property in trust and may not divest it. Furthermore, they may not be fully aware of the jus publicum rights that attach to that property that may require the private owner to accommodate certain public uses of the property.

Scholars have lamented that takings cases are equally unpredictable ${ }^{111}$ in defining expectations. The courts have developed several defining tests under takings, including a per se finding of a taking when the government physically appropriates property ${ }^{112}$ and when a regulation denies all economically beneficial uses of the property, ${ }^{113}$ as discussed above. However, a landowner will still have difficulty predicting the outcome of these takings cases, and even more so in those that do not fall under the per se rules and require a Penn Central balancing test. ${ }^{1 / 4}$ The investment-backed expectations prong of the Penn Central test allows for a broad range of interpretations, and courts have

[^26]failed to define fully background principles that exempt the government from compensation duty when it has deprived an owner of all economically valuable use of land; often, the courts blur background principles and investment-backed expectations in a confusing manner. ${ }^{115}$

With the unclear expectations that arise under doctrines that provide only tenuous definitions between the extreme cases, a private landowner may avoid investing in future improvements to his or her land for fear that such development will be blocked without adequate compensation under a takings claim. A similar effect will result if a landowner fears retroactive application of the doctrine without adequate compensation ${ }^{116}$ when a court requires that the private owner recognize some jus publicum rights in the land; that the owner allow public users to cross his or her property to access a public trust resource; or when a court or legislature expands public trust rights or narrows private rights that attach to the property. ${ }^{117}$ Prospectively, the uncertainty of the public trust doctrine may also prevent private investment because certain resources are assumed to be held in trust, and the breadth of the public trust is not tested until the government attempts to alienate such resources.

Just as unclear expectations in property rights can lead to inefficient investments by private property owners, the public's awareness of its right to use public trust property will be incomplete, and public trust resources will fail to meet their purpose of providing a space for an unlimited number of individuals to enjoy recreational and other public activities, as well as to provide environmental services to the larger public.

## 2. Failure To Uphold Expectations and Associated Rights

Unclear or inconsistent definitions of expectations under the public trust and takings doctrines also lead to inadequate enforcement of these doctrines, thus preventing existing and potential landowners and property users from holding a consistent set of rights in property. Without clearly defined expectations and the knowledge that rights will remain stable once acquired, landowners are unlikely to invest in property and public users will not take full advantage of resources that are held in trust for their benefit. Additionally, courts, in failing to follow a clear line of

[^27]analysis and to uphold rights in property to their full extent, may reach unjust solutions in takings and public trust cases, thus harming private landowners and/or the public. If the courts fail to recognize that a resource requires trust protection, a government official could sell a public trust resource to benefit a favored individual in direct contravention of her duties to the public. ${ }^{118}$

## 3. Failure To Provide Clear and Consistent Notice of Property Rights

Although both takings and the public trust doctrine rely upon a clear and consistent definition of the boundaries of property rights to inform public and private expectations, the public trust doctrine is unique in requiring notice of these expectations once they are established. The "public" that a public trust resource benefits is a constantly-changing entity as individuals travel, as new generations are born, and as recreational and commercial uses of property change. This fluctuation means that the existence of a public trust benefit alone is insufficient: there must be some form of relatively constant notice alerting the public to this benefit. And if courts and legislatures fail to define and uphold consistent rights in public trust property, this notice will be deficient.

The failure of the current system to define fully public expectations in property rights creates ongoing notice problems and resulting underutilization of public property. With this underutilization runs the danger of privatization of resources that should be held in the public trust. While public use would typically place potential private owners investigating the property on notice of existing public burdens on the property, ${ }^{119}$ underuse will impede buyer awareness of these burdens. As a result, governments may wrongfully divest the resources to private owners. Following divestment, reacquisition of the property for the public will be more difficult, because the government may have to compensate the private owner or at least bring a costly lawsuit to determine whether the transfer was proper.

It is impossible to create a fully defined framework for property rights-as these rights, like all other rights rooted in the common law and constitutional analysis-will inevitably change. But a more solid definitional foundation would provide an anchor for this oftenfluctuating field of law.

[^28]
## IV. Improving Existing Doctrine: Creating and Upholding Expectations, Notifying Parties of Property Rights <br> Boundaries, and Remedying Damaged Expectations

Under the murky areas that remain in property rights law, potential and existing property owners and users-both public and private-are forced to rely upon two doctrines that provide guidance at the very edges of disputes but not in the moderate cases, where many disputes arise. This Part discusses how courts, and at times the legislature, could solidify these existing doctrines to better define and uphold user expectations, to provide better notice as to the existence of certain rights in property, and to remedy situations of unfair damage to owner expectations.

## A. Public Expectations: Type and Length of Public Use as Defining Characteristics

The central defining aspect of the public trust doctrine is its requirement that property, to be protected under the doctrine, be inherently public. The characteristics that create this inherent "publicness," however, must be better defined by courts in order to shape the confines of public and private expectations in property. The publicness that attaches to all public trust lands and helps to inform courts, governments, the public, and private owners of the boundary between private and public property rights arises from two general principles that could be further refined and improved: (1) the type of property at issue and (2) whether such property is used by the public. The courts should (and often do) investigate the type of property and should focus more clearly on the concept of public use and the characteristics that make a use inherently public. Many courts already follow this framework, requiring both the type of resource and the type of resource use to be public to support a public trust finding.

In Mono Lake, for example, the court found that activities in nonpublic trust areas (nonnavigable waters) that harmed specific public trust resources (navigable waters) could be enjoined as a nuisance because they affected the public's use and enjoyment of the public trust resources. ${ }^{120}$ But the existing definitional framework is not sufficiently consistent to be predictable. Furthermore, the public trust doctrine naturally varies from state to state, since some state legislatures and constitutions provide a more specific definition of public trust resources

[^29]than a court that applies broader common law principles. A clearer common law doctrine is nevertheless essential to provide guidance to state courts and to fill the void in cases where public trust precedent is lacking.

Inherently public property, which supports inherently public uses, has four specific characteristics to define the physical aspects of public trust property and the types of use that occur on the property. First, the resource must have supported public use historically, or must have had the potential to support this type of use. ${ }^{21}$ Historic use places potential buyers and users of the resource on notice as to its public attributes, and provides evidence of the likely future public uses and the necessity of trust protections for the resource. Second, the property must currently support public activities that require a specific type of resource and a relatively large amount of space or, alternatively, a small and valuable space that is subject to strong private pressures. Similarly, because a significant amount of space is often required, the property must typically be susceptible to hold-out problems. ${ }^{122}$ Third, privatization of the property must create a substantial, prolonged obstacle to public enjoyment of the property, and sufficient alternative venues for similar types of public use in the general geographic area of the public trust resource must not exist. Finally, the property must not be easily created or recreated by human technology-in other words, the property must have some broadly defined environmental value that supports public use and/or enjoyment of that property.

Courts' First Amendment analysis of the sufficiency of opportunities for expression within public fora provides useful guiding standards for analyzing the "publicness" of public trust property, which are somewhat similar to the four standards for the public trust that I have just proposed. Public forum analysis focuses on the amenability of a space to public discussion (i.e., whether the space provides a sufficient forum for public discourse), whether or not the public has historically used the space for discourse, and whether or not there are sufficient alternative channels available for discussion if the forum is privatized. ${ }^{123}$ Finally, public forum analysis has its own "traditional triad" of clearly public uses (sidewalks, streets, and parks). ${ }^{124}$ Note, however, that similar to the public trust doctrine, courts have taken a variety of approaches to

[^30]define public fora ${ }^{125}$ and it is therefore not a "foolproof" reference doctrine.

The following Subparts discuss the four physical and use-based factors that help to better define the public trust doctrine in cases where the public trust property is not clearly within the traditional triad of public trust resources and uses or is otherwise difficult to recognizewhether due to sporadic use by the public, past divestment of the resource to private owners, or characteristics of the property that are similar to the traditional triad of public trust categories but do not fall strictly within the framework of navigation, commerce, or fishing.

## 1. Actual Historic Use of Public Property

Although the types of public uses of property change over time, actual use is one of the best indicators of the public activities supported by the resource and the public's need for that resource. This actual, historic public use need not, however, be physical. If this public use were limited to physical use, many public trust resources that provide important ecological services to the public would be excluded from the public trust definition. Rather, the definition of historic use should be broad and should cover those resources that have played a vital role in either supporting public activities and quality of life or providing a space for physical enjoyment and use of the property, whether for public recreation, commerce, protection of resources that provide essential services to the public, or otherwise.

Of course, an overly broad definition of public use would be inefficient and would likely prevent privatization of resources that do not provide much value to the public. A useful analogy to place limits on the bounds of actual public "use" is courts' determination of standing in environmental cases. Just as theoretical observation of foreign species in the future was insufficient to establish standing in Lujan v. Defenders of Wildlife, where the court emphasized that "a plaintiff claiming injury from environmental damage must use the area affected by the challenged activity and not an area roughly 'in the vicinity' of it," ${ }^{126}$ a public trust resource must have supported some actual use of the area in question, even if the use consisted of purely aesthetic enjoyment or an environmental service that is not readily and physically apparent.

[^31]The courts' reliance on historic use under doctrines similar to the public trust shows the value of a use-based analysis for determining the current functions of property-whether public or private. In prescriptive easement cases, for example, courts investigate the past use of a resource and the length of that use to determine whether or not the public has established an easement on the property. ${ }^{127}$ Similarly, courts look to the length of time the public has historically relied on a place for public discourse in determining whether a property is a traditional public forum for speech. In International Society for Krishna Consciousness v. Walter Lee, the Supreme Court found that airport terminals had only recently emerged and were thus not property that "immemorially . . . time out of mind" had been held in public trust to allow for free expression. ${ }^{128}$ Similar analyses apply in public trust cases: if the public has failed to use the resource for a long period of time, it is less likely to fall under the doctrine. The Court in Kaiser Aetna v. United States, for example, required compensation for a government regulation allowing public access to a private marina (not historically public) that a landowner had constructed and connected to a public bay. ${ }^{129}$ And where courts find that beaches have been used by the public for years, they tend to hold them in the public trust. ${ }^{130}$ The historic uses of a public trust resource indicate that the public has consistently valued the availability of the resource, has taken advantage of this value, and will continue to use the resource in the future, whether for similar or substantially different activities.

## 2. Sufficiency of the Resource for Public Use: Size and the Potential for Monopolization, Collective Action Problems, and Hold-Out

Although historic public use will generally indicate the existence of property that may require public trust protection, the use will at times be sporadic or nonobvious and will fail to provide its typical notice function. The courts therefore need to look to current characteristics of the property for further clues. For a piece of physical property-whether land or water or air-to be inherently public, its size must be sufficient to support the typical uses enjoyed by the public on that property. This size must arise from the connection of parcels of property that, if individually

[^32]privatized, would prevent public enjoyment of the property. In the simplest example, members of the public wishing to enjoy a boating trip require a river or other unobstructed water body. ${ }^{131}$ The public, because of collective action problems, would have difficulty organizing and purchasing contiguous pieces of property (the many segments of a winding river or access points to a lake, for example) to ensure the necessary size and type of property for their desired activity. If private entities all owned pieces of the water body, it would be difficult to bring these pieces together by buying them up, particularly if one owner realized the potential profits that could be gained by holding out and refusing to sell.

In addition to exhibiting hold-out problems related to the need for contiguous pieces of property, monopolization of the resource by one private individual must threaten to interfere with other uses of the resource. A private owner along a lake, for example, could build a large dock on the only accessible portion of the shoreline, and put up a "no trespassing" sign. This private action would effectively block public access to the resource.

Carol Rose observes that hold-out and monopolization problems do not answer all puzzles related to publicness. ${ }^{132}$ Courts have traditionally protected fishing under the public trust doctrine, for example, yet it is not typically subject to hold-out or monopolization problems. As Rose explains, private individuals cannot generally prevent others from capturing fish in rivers, and in situations where they can, fishing has been treated as a public utility. ${ }^{133}$ Nor do public squares-a classic public space-typically require acquisition of multiple blocks of land that could be subject to hold-out. Yet the courts still find that the protection of the resource for the public through a trust-like arrangement is necessary in these cases. ${ }^{134}$

Although fishing and similar recreational rights are not independently indicative of hold-out problems and thus fail to fully explain the need for the public trust, the resources that make these rights possible are subject to hold-out problems. Assuming that public trust resources, particularly water resources, had been privatized in the past, the difficulty of reacquiring these resources and assembling sufficient

[^33]contiguous property to allow for uses such as fishing would be nearly insurmountable. Even with government assistance in reacquisition of the property for the public, the government is likely to face hold-out landowners demanding high prices.

Public squares do not require much physical space but are subject to potential monopolization problems. If not maintained for the public, a private owner could easily acquire a square and exclude the public from enjoying it. Although a government could subsequently use eminent domain to designate another area as a public square, two problems would emerge. First, the square would not necessarily be in a convenient location for the public. Historic squares tend to be in highly populated areas where individuals have a heightened need for open space, no matter how small the space. If relocated to a more remote area, the square would lose its primary advantage of providing aesthetic and recreational space in the midst of a crowded area. Second, as discussed in more detail in Part IV.D below, many public trust resources are unique because the public has used or appreciated them historically, thus providing a constant form of notice to subsequent generations regarding the public trust property's availability for public uses. If a historic square were privatized and the government developed a square in a new location, even if the location were convenient, much of the public would likely be unaware of its existence. ${ }^{135}$

The public trust doctrine relies on the principle that certain resources should be open to all-to the vague, as yet undetermined public-including individuals who do not own property yet still wish to enjoy the types of recreational pursuits allowed by public property. Thus, larger spaces are required to provide the opportunities for activities that, although themselves not subject to hold-out or monopolization, rely upon a resource that is threatened by these problems.

## 3. Interference of Privatization with Public Use, and Insufficient Alternative Public Resources

Just as hold-out and monopolization of a public resource by private individuals could endanger public access to property, the privatization of a public trust resource (even if it does not amount to all-out monopolization) must directly, negatively impact public use of the resource and must leave open insufficient alternatives for similar public

[^34]use on other pieces of property. The Hassell court applied this type of "alternative channels" analysis in a public trust case, investigating "the impact of the individual [privatization] project on the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited""136 and when "examined cumulatively with existing impediments to full use of the public trust resource., ${ }^{1137}$

Given, courts will have difficulty determining the negative effects of privatization under the public trust; the extent to which private use of property will actually block public use is often unclear ex ante. In Lake Michigan Federation v. United States Army Corps of Engineers, the impact of lakefill activities by Loyola University on public access to the lake would not have been fully apparent until lakefill actually occurred. ${ }^{1.88}$ While filling twenty acres of the lake and replacing it with "coastline," as Loyola proposed, would have marginally reduced public access to the submerged water, ${ }^{139}$ Loyola had promised that it would provide bike paths and other public use areas along the newly created coastline. ${ }^{140}$ Whether these artificially constructed areas would provide sufficient "alternative channels" for public uses existing before the proposed development was not certain, but the court appeared more concerned with the legislature's grant of a public trust resource for private benefit than the actual physical property restrictions caused by the proposed development. ${ }^{141}$ Similarly, courts must often guess at the impacts of private docks on public commercial and recreational boating. The Wisconsin Supreme Court, for example, has puzzled over the difficulty of reconciling the public benefits of private wharves that provide access to the water with their negative impacts of blocking public navigational traffic. ${ }^{142}$ In some cases, privatization may enhance the public trust resource, in which case the courts generally approve the transfer from public to private ownership. ${ }^{143}$

The determination of future impacts of any proposed action are inherently tenuous, and courts must make the best determinations

[^35]possible given the facts at hand. In the Loyola case, for example, if the facts indicated that the public used the shoreline only for swimming-not biking or walking - then filling part of the lake and replacing the lost water with paths may have left open insufficient alternatives for public shoreline access for swimming. Just as courts under a public forum analysis look to the opportunities for alternative venues for expression, under the public trust they should identify the historic and existing public uses on the property and investigate the alternative areas where those same uses are feasible.

## 4. Environmental Value of Property

A final characteristic necessary for defining public trust resources is their possession of unique "environmental value." Several limited exceptions to this principle exist, including technological commons that have emerged and are decidedly part of the public trust, ${ }^{144}$ as well as public streets and thoroughfares. ${ }^{145}$ But the requirement that a public trust resource should typically originate from nonhuman sources captures courts' growing recognition that public trust resources are protected not only to preserve resources for use by current generations but also to guarantee the existence of such resources for future use, whether for the sole purpose of ecological preservation or for scientific research and recreational enjoyment. ${ }^{146}$ Public trust resources would have no unique need for trust protection if human technology could easily recreate them. This technological argument only goes so far, of course. With dams, reservoirs, and other large construction achievements creating quasi "natural" areas for enjoyment, humans have proven their ability to reshape and even create "natural" resources to their personal needs. However, for those members of the public who appreciate a long, winding creek that has meandered through their community for generations, which changes with the seasons rather than when the power company upstream chooses to release waters from the dam, there is great value in the preservation of some natural resources. Technological alternatives fail to capture much of this value.

[^36]Courts and legislatures have expressly recognized that public trust resources possess unique natural qualities. The Morse v. Oregon Division of State Lands court determined that the legislature, through landfill legislation designed to protect the "natural values" of Oregon waterways, had codified public trust principles. ${ }^{147}$ In its introduction to the bill, the legislature found that rivers and estuaries were "suffering severe and permanent damage from landfills made for various purposes including development of industrial, residential, and commercial sites," and that such loss was "extremely significant since they [the tidelands] are the most productive part of an estuary to coastal fish and wildlife resources. ${ }^{, 148}$ Similarly, the Washington legislature has recognized the need to protect both diversionary water uses and in-stream "natural values" associated with the state's lakes and streams. ${ }^{149}$

By analyzing public resources based on four defining factors: historic public use, size and contiguity of the physical property, privatization's negative impact on that use, and natural value, courts can provide the public with clearer expectations of its right to public trust properties. This definition could also clarify private expectations for the purchase or use of potentially public properties through its application as a background principle in takings analyses.

## B. Defining Private Rights through the Public Trust

When a private property owner argues that the government has taken her property without just compensation, the court, among other factors, looks to the background principles associated with the property-the laws that "inhere in the [property] title itself ... [and] do no more than duplicate the result that could have been achieved by the courts ... or by the State under its . . . power to abate nuisances that affect the public generally."150 Courts do not expect the government to compensate private owners for economic limitations on property that arise as a result of these background principles; rather, they view these principles as public burdens that each private owner must shoulder. Although nuisance laws are the most common background principle, the

[^37]public trust is a sufficiently anchored principle in the common law to be part of this limited category. ${ }^{151}$

The Lucas Court and subsequent cases addressing that Court's initial analysis further defined and limited the background principles for which private owners should not expect compensation in regulatory takings cases. In Lucas, the Court defined nuisance and existing state property law as background principles. ${ }^{152}$ The Court in Palazzolo v. Rhode Island determined, however that even existing state law may not necessarily constitute a background principle. The legislature could not, said the Court, subject private landowners to noncompensable burdens simply by passing a law prior to the owners' acquisition of their property. ${ }^{153}$ But following Palazzolo, courts have continued to define the public trust doctrine, as codified in state laws and state constitutions, as a background principle that prevents owners from prevailing in regulatory takings cases. ${ }^{154}$

Takings analysis would therefore benefit from a clearer, more structured definition of background principles such as the public trust doctrine. A better-defined public trust doctrine would allow courts to determine whether the private landowner had a reasonable expectation in the publicness of a resource (if the public trust existed as a background principle), and, if not, to grant the private owner relief in the form of compensation-this would be particularly useful in retroactive public trust cases where the court expands the public trust doctrine beyond the expected bounds of the doctrine.

Although nuisance is also an important background principle, and as argued by scholars such as Lazarus ${ }^{155}$ could theoretically obviate the need for the public trust as a background principle, nuisance alone is insufficient to guide court determinations of the public-private boundary in takings cases. Nuisance, in fact, blends with the public trust at times and is an important tool to protect public trust resources. Just as the public trust doctrine limits public rights to a discrete sphere by defining these rights, nuisance limits the extent to which private owners may expect to exercise their exclusive rights to property. If private owners exceed these limits, they create a nuisance to the public and have

[^38]overstepped their private rights in property. Indeed, nuisance has been tied to the earliest public trust cases. ${ }^{156}$ In Arnold v. Mundy, where the New Jersey court found that navigable waters "are common to all people, and that each has a right to use them according to his pleasure subject only to the laws [that] regulate that use,, ${ }^{1157}$ the court also investigated whether an individual's use of water for oyster beds constituted a nuisance to other public users of that water. ${ }^{158}$ Nuisance as a background principle is additionally useful in defining changing property rights boundaries because, like the public trust doctrine, it evolves as human needs change. ${ }^{159}$

Palazzolo demonstrates the Court's recognition of nuisance as an evolving background principle and its connection to public trust-like principles. In Palazzolo, the Superior Court of Rhode Island determined that a developer's filling of a salt marsh would harm fish populations, the pollutant filtering ability of the marsh, and public health and was thus a public nuisance. ${ }^{60}$ Although the Supreme Court partially reversed the lower court's holding for the public, ${ }^{\text {, } 61}$ courts have found public nuisance within other public trust cases. In Mono Lake, for example, a California state court held that "directly diverting waters in material quantities from a navigable stream [a public trust resource] may be enjoined as a public nuisance. ${ }^{162}$ However, the definition of nuisance remains tenuous ${ }^{163}$ and, although useful in limiting the extent to which private use rights may encroach on neighboring property owners' rights (whether public or private), is insufficient without the support of the public trust doctrine.

Nuisance focuses largely on private rights-assuming these rights to be valid unless they are found to "overreach" into the public domain. ${ }^{164}$

[^39]Courts lacking the tools provided by the public trust doctrine would therefore be limited to the question, under background principle analyses, of whether a private owner's use of property wrongfully infringed upon public rights under a nuisance theory. Without a definition of the public rights to the property in question, this is a difficult analysis.

## C. Upholding Expectations Defined by the Public Trust

Once courts have established a more consistent definition of public trust resources, thus better defining public and private expectations of rights that will attach to those resources, it is equally important that courts uphold those expectations. The public trust provides a framework to ensure continued protection of expectations defined by the public trust through its incorporation of the precautionary principle, prevention of divestment of public lands by rent-seeking governments, its ability to tailor the public trust to changing needs over time, and its assurance of continued access to public trust resources.

## 1. Preserving Expectations: The Public Trust Doctrine's Precautionary Principle

The public trust doctrine ensures continued rights to public use by holding resources in trust indefinitely for future use by the public and thus incorporates several key facets of the precautionary principle. The precautionary principle, although having no unified definition, generally assumes that while waiting to determine the costs and benefits associated with a proposed activity that poses potentially high risks, it is best to assume high costs and err on the side of inaction until better determinations of risk are made. ${ }^{165}$ Although defined by the EPA, ${ }^{166}$ the

[^40]principle is not explicitly recognized in regulation or law ${ }^{167}$ within the United States. At least one appellate case, however, has suggested a definition and potential implicit use of the principle within U.S. regulatory action:


#### Abstract

[R]equiring EPA to wait until it can conclusively demonstrate that a particular effect is adverse to health before it acts is inconsistent both with the [Clean Air] Act's precautionary and preventative orientation and the nature of the Administrator's statutory responsibilities ... as we read the statutory provisions and the legislative history, Congress directed the Administrator to err on the side of caution in making the necessary decisions. ${ }^{168}$


As Wood and his coauthors argue, the principle, although not explicitly followed by U.S. decisionmakers, plays a strong implicit role in much of U.S. policy-particularly environmental policy. ${ }^{169}$ The public trust doctrine, although not widely considered as incorporating the precautionary principle, ${ }^{170}$ is a prime example of this implicit reliance on precautionary measures in certain statutory and legal decisions.

Courts' incorporation of the precautionary principle into public trust doctrine analysis guarantees the opportunity for future public use of a resource by assuring that private development does not damage the resource irreversibly. The doctrine's ability to define the publicness of a resource before a potential transfer to private owners assures this preservation. A common explanation for the necessity of the public trust doctrine is that some public resources are meant to remain intact in a relatively natural state..$^{171}$

[^41]Courts under the public trust doctrine must guess at the needs of the future public and, given the limited number of natural resources, whether sufficient resources will exist to support desired public activities. Some scholars describe the doctrine as a requirement that the courts, similar to the standards of the National Environmental Protection Act, take a "hard look" before permitting the destruction of valuable resources. ${ }^{12}$ Following a similar principle, North Dakota courts require planning for water use under the public trust doctrine to ensure that sufficient resources remain available for future generations and that resources are allocated "without detriment to the public interest in the lands and waters remaining. ${ }^{11 / 3}$

Holding resources in trust to preserve public use opportunities allows the public to maintain reasonable expectations under the public trust. Without a precautionary principle, these expectations would have little merit because individuals would have no guarantee of the continued availability of the resource. Particularly in status quo public trust cases, courts find that property historically held in trust for the public shall not be privatized even without proof of actual public use. ${ }^{174}$ This tactic is a precautionary approach based on the inability to predict how future uses will change and the fear that privatization will allow development that would be difficult to remove if future public needs outweigh the benefits of privatization. As the demands and needs of the public change, so too does the desire to recreate and enjoy public spaces in a variety of ways, beyond the purely commerce- or subsistence-centric activities of navigation and fishing. As the Lucas court and others have held, the public trust is not limited to protecting purely commercial uses. ${ }^{175}$

[^42]If the court is concerned that the public, now or in the future, will not have a convenient, accessible place in which to participate in public trust activities, it is likely to hold in a precautionary manner that the government shall maintain the resource indefinitely in trust for the people. This likelihood is true even if the people have not used the resource for years, suggesting that the courts wish to guarantee the public the opportunity for future use. The court in Boone v. United States, for example, cited the Economy Light \& Power Co. v. United States case, where there was no actual memory of the river having been navigated since it had been obstructed by dams (illegally) and several natural events. ${ }^{176}$ The Economy Light Court held that despite this, the river was subject to the navigational servitude because it still had "navigational capacity." ${ }^{177}$ Unlike a regulatory takings case where a regulation's impairment of private use can be limited to a reasonable scope, an unlimited number of potential future uses exists. Public needs for the property in question could expand under a variety of scenarios, such as future regulations limiting public use of property that was formerly open to the public.

There are alternatives to the precautionary principle that could also assure the preservation of public trust resources. Legislatures could designate certain areas as indefinitely available for the public, as they have already done with state parks, specially protected natural resource lands, and recreation areas. But the statutory approach may unnecessarily limit the creation of such areas as public needs evolve. Dernbach, for example, points to Pennsylvania's fear that creating an exclusive list of public trust resources would "freeze" the trust corpus and prevent future designations of new public property as public needs changed. ${ }^{178}$ Additionally, legislatures captured by interest groups ${ }^{179}$ on either side of the issue could diminish the availability of public trust properties.

Decisionmakers could also conduct more detailed analyses of current demands for public resources and could predict future needs as

[^43]an alternative to a more broad precautionary approach. The question of who would adequately and reliably perform such analyses, however, is an important one. Courts do not have the time or resources to conduct a thorough analysis of each and every resource in each and every public trust case. At times, government agencies and other public institutions have invested in surveys of the existence of and need for public trust resources, such as the United States Geological Survey, ${ }^{180}$ Congressional hearings on public lands, ${ }^{181}$ and California's "public trust land mapping." ${ }^{182}$ Given the limited existence of these identification techniques for public lands, however, the courts' use of the precautionary principle through the public trust doctrine better ensures that the public resources that risk irreversible effects from privatization will be protected for current and future use.

## 2. Preventing Rent-Seeking and Divestment

Just as the public trust doctrine's precautionary nature may prevent irreversible harm to a public trust resource, the doctrine also preserves expectations by preventing divestment of public trust resources to private interests where divestment should not legitimately occur. Without a clearly defined public trust doctrine, local or state governments could sell a public trust resource to benefit an individual or interest group in order to gain votes. ${ }^{183}$ This action would amount to both a "reverse" taking (from the public) and a regulatory "giving," i.e., a government's use of its power to unjustly enrich a small group of individuals rather than the public as a whole. ${ }^{184}$

The public trust is necessary to protect against this type of capture of valuable public property by private interests ${ }^{185}$ and to avoid public

[^44]choice failures associated with commonly shared property. ${ }^{186}$ While private developers often possess strong participatory and financial resources to influence zoning decisions and purchase land that was once inherently public, the diffuse, unorganized public that uses such a resource faces collective action problems. Joseph Sax has elaborated upon these concerns, citing the inability of the democratic process to adequately capture the public's interest in certain resources. ${ }^{187}$

Richard Epstein suggests that private property rights, not the public trust, prevent public choice failure by constraining government action to a limited realm. ${ }^{188}$ Although this is true, private property rights, in the absence of any public trust, would fail to address fully public choice failures. Diffuse public users lack resources to hold the government, as trustee, accountable and thus fail to delineate the acceptable realm of government action in support of trust resources.

A combination of takings law and the public trust could mitigate public choice problems associated with public trust resources. A takings analysis that occurs after a government has transferred property may not sufficiently constrain decisionmakers, ${ }^{189}$ and the courts do not typically find a taking when a government divests public trust resources. They simply find that the transfer should not have occurred, or that it was legitimate. Thus, takings analysis alone is insufficient to prevent wrongful divestment of public trust resources or to preserve the public's expectations in rights to those resources.

## 3. Preserving Evolving Expectations Through Bounded Uncertainty

Although I have discussed uncertainty in a negative context up to this point, arguing that uncertain property rights boundaries have created unclear expectations and inconsistent notice, a limited amount of

[^45]uncertainty is necessary to permit flexibility ${ }^{190}$ in the law as public needs change. ${ }^{19}$ By allowing the definition of publicness (including public resources and public use) to evolve as needs change, ${ }^{192}$ the public trust doctrine's bounded uncertainty provides an evolving definition of expectations under the public trust doctrine to capture changing public needs.

The uncertainty of the public trust doctrine arises in several contexts. First, uncertainty arises when courts or legislatures expand the doctrine to cover resources and uses not formerly traditionally held in trust for the public-i.e., that were not part of the original "traditional triad ${ }^{1933}$ of commerce, navigation, and fishing, ${ }^{194}$ - such as recreation, ${ }^{195}$ water ${ }^{196}$ (as opposed to land beneath water), wetlands, ${ }^{197}$ and access to public trust resources. ${ }^{198}$ The public trust has perhaps expanded most significantly in the realm of water resources. ${ }^{199}$
190. See, e.g., Matthews v. Bay Head Improvements, 471 A.2d 355, 365 (N.J. 1984) ("[W]e perceive the public trust doctrine not to be 'fixed or static,' but one to be 'molded and extended to meet changing conditions and needs of the public it was created to benefit.'" (quoting Borough of Neptune City v. Borough of Avon-by-the-Sea, 294 A.2d 47, 52 (N.J. 1972)).
191. See, e.g., Marc R. Poirier, The Virtue of Vagueness in Takings Doctrine, 24 Cardozo L. Rev. 93, 108 (2002) (arguing generally in favor of vagueness); see also Kearney \& Merrill, supra note 40 , at 803 (discussing the "multiple doctrinal uncertainties" of the public trust).
192. Laura Underkuffler-Freund, Takings and the Nature of Property, 9 CAN. J.L. \& Juris. 161, 179 (1996) (asserting that values, science, and human conditions and needs change over time).
193. See, e.g., Ill. Cent. R.R. v. Illinois, 146 U.S. 387,457 (1892) (discussing the public uses of navigation, commerce, and fishing).
194. See, e.g., Kootenai Envtl. Alliance, Inc. v. Panhandle Yacht Club, Inc., 671 P.2d 1085, 1088 (Idaho 1983).
195. Borough of Neptune City v. Borough of Avon-by-the Sea, 294 A. 2 d 47 , 55 (N.J. 1972) (finding public trust rights in "recreational uses, including bathing, swimming, and other shore activities"). But see Bell v. Town of Wells, 557 A.2d 168, 176 (Me. 1989) (finding "no basis in law or history" that recreation fell under the public trust and limiting recreational public trust uses to those specifically defined by the legislature).
196. City of Los Angeles v. Pomeroy, 124 Cal. 597, 640 (Cal. 1899); Watuppa Reservoir Co. v. City of Fall River, 18 N.E. 465, 472 (Mass. 1888) (finding a public trust in municipal water supplies).
197. Just v. Marinette County, 201 N.W.2d 761, 766-68 (Wis. 1972).
198. See, e.g., Gion v. City of Santa Cruz, 464 P.2d 50 (Cal. 1970); see also Dietz v. King, 80 Cal . Rptr. 234, 238 (Cal. Ct. App. 1970) (requiring public access to a public beach through implied dedication); Alice Gibbon Carmichael, Comment, Sunbathers Versus Property Owners: Public Access to North Carolina Beaches, 64 N.C. L. Rev. 159, 191 (1985) (affirming that at least six North Carolina jurisdictions have legislated public access rights to beaches); Seaway v. Texas, 375 S.W.2d 923, 937 (Tex. Civ. App. 1964) (holding that the public has a right of way across the beach through easement by prescription).
199. Although the Arnold and Illinois Central courts referred to the public trust doctrine as including submerged lands and the water over the lands; the reference to public trust ownership of the water was dicta. The North Dakota Supreme Court first applied the public trust to water (not the land underlying the water) in 1976, requiring the state to plan for water needs before it could grant permits for new appropriations of water. Courts have since further expanded the doctrine to

The Mono Lake case is the quintessential example of recent expansion of the public trust doctrine and resulting debate over its uncertainty. The court made several revolutionary changes to the public trust doctrine, finding that nonnavigable streams that are tributaries to navigable waters are part of the public trust, ${ }^{200}$ private appropriative water rights may be limited by public trust needs, ${ }^{201}$ and that the public trust doctrine applies to "recreational and ecological values." ${ }^{\text {"202 }}$ The court in Phillips Petroleum Co. v. Mississippi similarly recognized that the public trust is not limited to commerce and navigability and extends to a diverse array of other uses. ${ }^{203}$

Second, the definition of the public and the benefits that the public receives under the doctrine also remain somewhat flexible and uncertain under both short-and long-term horizons. The individuals taking advantage of a given public trust resource vary over time: while the public may predominantly use a river for recreational fishing during certain years or seasons, for example, these uses may evolve to become primarily navigational, thus supporting the activities of public groups that engage in commerce rather than recreation. Over a longer time horizon, while navigation by river was previously essential in some areas, these uses have been replaced with public recreational activities. This decline in navigation or commerce does not mean that the public no longer values or uses a water resource, and if courts insist upon a strict interpretation of the doctrine under the "traditional triad" approach that allows for little flexibility in the doctrine, they will fail to adequately accommodate changing public needs.

However, too much uncertainty could encourage constant debate over the theoretical private-public property rights boundary, thus potentially frustrating and confounding expectations formed under the

[^46]doctrine. ${ }^{204}$ A landowner who faces potential retroactive application of the public trust doctrine, for example-whether through a court's finding jus publicum rights that attach to the property or expansion of public rights already determined to exist on the property-will be unlikely to invest in property, absent clear assurance of compensation. ${ }^{205}$ The courts, in applying the public trust doctrine, must reasonably bound the scope of its uncertainty.

Some states have limited uncertainty under the public trust doctrine by clearly defining the nature of the public trust doctrine and establishing a consistent body of law directing courts to favor the jus privatum or jus publicum for certain public and nonpublic resources. ${ }^{206}$ Others have, through legislation, listed the types of property covered by the public trust. ${ }^{207}$ And some courts have strictly limited the public trust to the trust defined by state constitutions or ordinances. ${ }^{208}$

Another method for a state legislature to better define the public trust in a bounded yet flexible way is to incorporate public trust values, rather than specific properties, into its statutes. If these values are accompanied by guidelines that do not unduly restrict the trust but provide guiding standards, this promotes effective planning by state governments and private landowners. Washington's Shoreline Management Act, for example, incorporates general public trust values but also provides for detailed planning of future shoreline management. ${ }^{209}$ Vermont's Act 250 also specifies permit requirements for shorelines that allow private development but also provide "continued access to the waters and recreational opportunities provided by the waters."210

[^47]209. WASH. Rev. Code §§ 90.58.020, 90.58.130-90.58.170; Johnson, Goeppele, Jansen \& Paschal, supra note 38, at 539.
210. Vt. Stat. Ann. tit. $10, \S 6086$ (1969).

Although state regulations help to clarify the public trust doctrine and provide better notice to private owners purchasing land, their application as a background principle has recently been questioned by the courts. ${ }^{21}$ Thus, the regulations may only serve as a supplement to common law public trust analyses. A clearer and more consistent definition of rights under the doctrine will likely emerge with a combination of more concerted efforts by legislatures and more standardized interpretations of public trust resources by courts. Courts can use the beneficial aspects of the uncertainty of the doctrine to accommodate changing public needs while also recognizing the importance of limiting uncertainties that create unclear expectations.

## 4. Ensuring Continued Access to Public Trust Resources

A final element of the public trust doctrine in upholding expectations in property rights is its assurance that public users will have uninterrupted access to public trust properties once public use rights have been established on those properties. In New Jersey, the Supreme Court has required that towns ensure public access to access beaches once they have established regulations permitting recreational activities on those beaches. ${ }^{212}$ Where a private casino was built along the shore, the court required the owners to allow the public to access the beach along the front of the casino. ${ }^{213}$ The California constitution requires that "the Legislature shall enact such laws as will give the most liberal construction of ... [the constitution's public trust] provision, so that access to the navigable waters of this State shall be always attainable for the people thereof. ${ }^{,{ }^{244}}$ And in South Carolina, the public trust doctrine guarantees the public the "right to access the portion of any beach extending from the mean high tide line to the water. ${ }^{>15}$ Courts should follow these examples to ensure that the public can actually use a resource protected by the public trust. Without this guarantee, legitimate public expectations of the rights to use such resources would be groundless.

[^48]
## D. Notice of Publicly Available Resources

The public trust doctrine is unique in that once expectations in public property are defined, they must be advertised. Public resources are often advertised informally to the general public. The public may know of the perfect swimming or fishing hole or a hidden, solitary lakefront beach only through word of mouth or articles in a local newspaper. By better defining property rights expectations under the public trust doctrine and upholding these expectations, courts would place public users and private owners of property on better notice as to the bounds of their rights. The public would be sure of their rights when the government attempted to wrongfully privatize a historically public resource and would be more likely to take advantage of opportunities to challenge the privatization in court before it occurred. For private owners, a stronger public trust doctrine would notify individuals that certain property they owned or wished to acquire was subject to public rights, therefore preventing inefficient private investments that might later be restricted or prohibited by courts if these investments encroached upon public rights.

Temporary privatization of public resources due to insufficient notice of public rights would create confusion and doubt as to their actual "publicness." Courts, by more consistently defining and applying the public trust doctrine, would fill an essential notice function and would ensure that public resources, once defined, remained continuously available for public activities. Without this notice, the purpose of the public trust would be frustrated, as the public would be unaware of its ability to take advantage of the very resources reserved for its enjoyment.

A lack of clear and consistent notice of the availability and openness of a piece of property also confuses private owners. While the public would be unaware of the availability of property or a portion of property for its use, private owners might assume the property to be open for development and begin appropriating it. Even if the government were able to later reappropriate the property for the public, this could still lead to inefficiencies. Former private owners could make payment claims for investments they had made based on expectations and lack of awareness of the publicness of the property. If compensation were required, the government might not be able to pay the high price required to repurchase the property, thus permanently depriving the public of a property that was formerly reserved in trust for its benefit. The use of the public trust doctrine to provide timely notice to the public and private individuals is essential to avoid these types of inefficiencies, but is
contingent upon consistent definition and application of the public trust by courts and the legislature.

By defining and upholding expectations in property rights and providing notice of these rights, a stronger public trust doctrine could provide clearer boundaries in property law, yet still allow for evolving definitions of these boundaries as human needs change over time. Even with this improved rights structure, both beneficial and negative uncertainty will remain. By allowing expansion and shrinkage of rights in response to changing needs, courts will inevitably create situations where rights expand suddenly and severely and unexpectedly encroach on public or private property rights. In these cases, a takings analysis is needed to address loss of both public and private rights, as I discuss in the following Subpart.

## E. Remedying Unmet or Damaged Expectations: The Key Role of Takings

To allow for flexibility under the public trust doctrine and to simultaneously address the problems of uncertainty addressed above in Part IV.C.3, courts need to better define the public trust and apply public trust and takings analyses depending upon the type of rights transfer at issue. The interpretational structure that I have proposed could help to limit the uncertainty of the public trust doctrine to a manageable level and reduce the problems associated with unclear user and owner expectations. But in some cases, the uncertainty will still be too great, and a court's retroactive application of the doctrine will "surprise" unsuspecting private owners. In other cases, the uncertainty will lead to public underuse of properties protected by the public trust doctrine and may result in privatization, thus damaging the public's reasonable expectations in continued use of public trust resources. I argue that in both of these cases, the courts should apply a takings-type analysis.

1. Status Quo Remedies: "Compensating" the Public for Divestiture Losses

Courts should focus strongly on correctly identifying public trust property in status quo public cases. A resource, which has been historically public and used by the public, risks irreversible destruction if privatized; at a minimum, privatization could interrupt notice to the public of the resource's availability. But inevitably, even with a better definition of public trust resources, courts will sometimes fail to recognize the existing public rights to a resource and wrongfully divest
the property. In these cases, the court should find a "taking" of public rights and devise a means to "compensate" the public-whether by reversing the government's divestiture and returning the property to the public (if irreversible destruction of the resource for public use has not occurred); by requiring the government to place a similar piece of nearby property in the public trust, and to ensure that it supports public uses similar to those enjoyed on the divested property; or by providing actual monetary compensation to members of the public who are likely to be the most frequent users of the resource.

The first type of "compensation"-returning the property to the public-already occurs in cases such as Illinois Central, when the court prevents divestment of the resource or reverses recent divestment to private interests. Although not labeled as compensation, it allows the courts to redress the harms caused to the public by the divestment. Due to its historic application, it is the most feasible remedy for public compensation.

The second remedy-requiring the government to find and acquire a resource similar to the one that has been divested-is less feasible, unless the government can somehow "reacquire" a public trust property that was historically public but divested to private use for a discrete period of time. When the government acquires or reacquires property for the public, there may be insufficient funds for acquisition. ${ }^{216}$

In some cases, the government should be able to reacquire wrongfully divested resources, as a remedy to the public, without having to compensate private owners who have temporarily benefited from the use and development of these resources. This occurs where, for example, former legislatures have made egregious errors in divesting public trust resources and the owner should have known that the property was public.

This type of situation arguably occurred under Arizona's Navigable Streambed Act, ${ }^{217}$ which the Hassell court determined to be

[^49]217. H.B. 2017, 38th Leg., 2d Reg. Sess. (Az. 1987).
unconstitutional. ${ }^{218}$ The Act attempted to remove state interest in many state navigable waters, only exempting the Gila, Verde, and Salt Rivers. Even for the exempted rivers, the government allowed a quitclaim of state interests at the low price of $\$ 25$ per acre. ${ }^{219}$ The Hassell court found that the state had not properly considered public trust interests in its rush to disclaim all responsibility over its public land, which it acquired under the equal footing doctrine. ${ }^{220}$

In cases like Hassell, the public trust allows the court to correct an error in the allocation of public trust resources by readjusting the boundary between private and public resources. While this requires private landowners to suffer the costs of the error, the landowners may also benefit from the public resources ${ }^{221}$ (thus decreasing their actual losses). Additionally, the landowners should have perhaps been on notice that, although Arizona did alienate navigable streambeds for a time, private rights in such resources are not typically fee simple rights allowing for exclusive private ownership, but rather are forever burdened with the jus publicum. The private owners' temporary exclusive ownership could be viewed as the "windfall" from which they benefited for a time and must be relinquished when the government reclaims public rights that were wrongfully alienated by previous legislatures.

The third type of compensation for the public following wrongful divestiture of public lands, in the form of actual payment to the public, would be the most difficult because of the inherent challenges associated with monetarily valuing the use and aesthetic values associated with public property and identifying the members of the public who should be compensated. Epstein, however, suggests that it is possible. Under Epstein's view, all property transfers should result in a Pareto-efficient solution, where all individuals are better off and none are worse off following the transaction. ${ }^{222}$ To achieve this result, Epstein suggests that when a public-private transfer occurs, the government could conduct an auction (thus transferring the formerly public resource to the highest bidder), ${ }^{223}$ and distribute the proceeds to the public.

Regardless of which type of compensation a court chooses, the public should have a compensation right similar to the takings claims of private owners. Without this type of right, the public would suffer

[^50]substantial losses when a government wrongfully divested public trust resources and failed to provide a substitute.

## 2. Retroactive Remedies: Private Compensation for Unexpected Expansions of the Public Trust

As I have argued, the evolution of property rights occurs at several distinct paces. While the courts most often slightly expand or contract public and private property rights by identifying new uses that attach to already explicit rights (e.g., rights that inhere in the navigational servitude), there are also occasional "bursts" in the evolution of property rights. These sudden bursts occur when a court makes a finding that is substantially different from precedent or defines a previously unstated principle. For example, the Marks and Mono Lake courts quite abruptly announced a new rule that included environmental preservation as a public trust purpose in California. ${ }^{224}$ In such cases, takings analysis is a necessary follow-up to a court's application of the public trust doctrine because the new rules were not likely a reasonable part of a private purchaser's expectations.

Justice O'Connor's Phillips Petroleum dissent highlights the very legitimate concern that expansion of the public trust to resources that are owned privately and are not traditional public trust resources usurps private owners' expectations and leads to dangerously unsettled private ownership rights. ${ }^{225}$ The use of takings analysis to bring such resources back into public ownership would force courts to investigate the nature of the government action, its economic impacts, the owner's reasonable expectations, and changes in value resulting from the retroactive public trust action. ${ }^{226}$

As Rasband suggests, the public trust doctrine could itself include an element of takings and compensation. ${ }^{227}$ Although I do not suggest that the doctrine must incorporate this element, I do argue that cases involving the courts' application of the retroactive public trust are the ideal situations for a public trust analysis followed by a takings analysis for potential compensation. In these cases, a court must first investigate

[^51]the current status of the property to which the government plans to apply the public trust and the reasonable expectations associated with that property. Some courts have already incorporated this type of analysis into public trust cases. As Barton Thompson discusses in "Judicial Takings," the California "court has never ordered compensation for the mere assertion of the trust over otherwise private property," but "it has announced that the state must pay compensation if the state uses or destroys private improvements built in reliance on prior judicial decisions. ${ }^{1228}$

In cases applying the public trust to privately owned lands, the court should investigate any public uses occurring on the property that have historically occurred and should have placed the private owner on notice of public burdens on the property. If no apparent historic public uses exist, the court should investigate whether the owner should have had other reasons to expect that portions of his or her property were subject to the jus publicum, such as reasonably available evidence of past historic public use that ceased prior to the current private owner's domain, or government claims on portions of the property when the deed was transferred. If the private owner should have reasonably been aware of the public rights, this should have limited the owner's expectations ${ }^{229}$ and compensation should be limited.

In Boston Waterfront Development Corp. v. Commonwealth, for example, the Massachusetts Supreme Court found that a corporation's ownership of property was subject to use of "those having occasion to resort to the ports and harbors. ${ }^{, 230}$ Although the court did not specify the private actions that would inappropriately interfere with such uses, these preexisting uses served as general notice to the corporation that its expectations for development opportunity should have some bounds.

The existing public burdens in Boston Waterfront, however, were unusually simple for the court to identify because of Massachusetts statutes (the Lewis Wharf statutes) existing prior to the private ownership of the property, which specifically defined the purposes of private wharves and required the wharves to be open to public access. ${ }^{231}$ In

[^52]contrast, the court in Marks v. Whitney found "retroactively" that a private tideland property was burdened with specific public trust rights of ecological preservation. The court did not identify a source of these rights and instead found that there was a "growing public recognition" of the need to preserve tidelands in a natural state ${ }^{232}$ and that it was "not necessary to here define precisely all the public uses which encumber tidelands. ${ }^{2{ }^{233}}$ The Marks case demonstrates a situation closer to that of an evolutionary burst of public rights, where the owner should potentially receive compensation because of a lack of awareness of the jus publicum attached to the land. However, because the resources in Marks were tidelands, a traditional and historically recognized public trust resource, the private owners should have been aware that some public rights attached to their property.

The identification of which evolutionary "bursts" of the doctrine require compensation is of course a difficult one, but the four factors that I have set out above for identifying and defining public trust resources could be of some help. If the resource had not historically supported public use (whether for actual physical use or clear aesthetic and/or ecological benefits), the landowner could argue that she had no notice of potential public trust rights on the land. Additionally, where courts expanded the public trust to a new category of use that had not previously been recognized in the state, this could favor compensation for the landowner. Yet, as the Marks court recognized, if the resource fell within one of the traditional categories of public trust property, but was simply preserved for reasons other than the traditional triad of recreation, commerce, and fishing, this would not likely be a valid excuse for the owner: the physical characteristics of property are one of the simplest ways to gauge the potential public burdens on that property. Given former applications of the doctrine, a private owner should certainly be aware of potential public rights in any water resource, for example, unless the government has specifically divested the property and limited private development to an extent that it has determined will benefit public enjoyment of the property. In that case, the private owner has a reasonable expectation that public rights will not be expanded and that, provided she stays within the bounds of the allowed development, she will not encroach upon existing public rights.

Takings analysis for private owners, unlike the public compensation that I suggest above, is already well-established in property law. Courts

[^53]should be more careful, however, to apply takings analysis in public trust cases where the courts attempt to use the public trust as a "free pass" that allows the government to take private property that did not traditionally have any public rights attached to it.

## V. CONCLUSION

As evidenced by courts' emphasis on the historic nature of public rights, because of the expansion and contraction of public uses as human lifestyles change and limitations on the public's ability to organize to ensure that its interests are represented, courts' consistent definition of public property rights is essential. ${ }^{234}$ The public trust allows for a clearer recognition of public rights and their potentially expanding boundaries, ${ }^{235}$ whereas takings analysis examines the effect of such a boundary shift and whether or not a landowner should have reasonably expected the change.

The challenge, though, is identifying a relatively constant definitional boundary that can move with the fluid evolution of property rights. ${ }^{236}$ Scholars have been unable to reach a consensus identifying a predictable course of this evolution. Perhaps the evolution is best recognized as the cycle between ex ante clarity of hard and fast property rules and ex post vague and equitable principles that Carol Rose describes in property rights. ${ }^{237}$ In a way, the public trust doctrine serves as the "crystal" ${ }^{238}$ ex ante principle limiting private owners' rights, and could do an even better job of this if more consistently defined. However, courts through often-muddy ${ }^{239}$ takings analysis (with differing applications of background principles, investment-backed expectations, and somewhat unpredictable balancing analyses under Penn Central), apply less crystalline rules ex post to recognize the injustices that may

[^54]result when the public trust doctrine shifts its boundaries into a new field of rights.

By better defining the public trust doctrine and applying takings analysis alongside the public trust doctrine when necessary, courts can clarify the boundary between private and public entitlements and establish a more structured yet evolving principle of property rights that creates better notice and helps to solidify owner and user expectations. The definition of property, or the bundle of rights that the private or public "owns" and merits compensation for if lost, will never be static. Human priorities, expectations, and uses of property are continuously changing. Yet a better-defined public trust doctrine, coupled with takings analysis, can serve as the gauge to continuously reevaluate and redefine these needs and expectations and to ensure that the government, courts, private property owners, and the public have a definitional anchor from which to address changes in property use. ${ }^{20}$ From this balance of uncertainty, predictability, and flexibility, a more manageable structure of property rights could emerge.

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[^0]:    * © 2008 Hannah Jacobs Wiseman. Hannah Wiseman (formerly Hannah Jacobs) graduated from Dartmouth College in 2002 and Yale Law School in 2007. She is currently clerking for Judge Patrick Higginbotham on the Fifth Circuit. Next year, she will be a visiting assistant professor with the Emerging Scholars Program at the University of Texas School of Law. 'She would like to thank Professor Henry Smith for his extensive input and guidance on this Article, her husband, Samuel Wiseman, for all of the editing help, and Joshua Berman, Megan Ceronsky, Andrea Gelatt, Edan Rotenberg, and other members of the Yale Environmental Law Association for their comments and suggestions.

[^1]:    1. See, e.g., Carol Rose, Crystals and Mud in Property Law, 40 Stan. L. Rev. 577 (1988) (discussing how property rules cycle between clear and unclear phases over time, a cycle that she describes as "crystal and mud").
    2. See, e.g., Laura S. Underkuffler, On Property: An Essay, 100 Yale L.J. 127, 128 (1990) (describing the "contemporary impulse toward equating the sphere of absolute individual autonomy with the concept of property").
    3. See, e.g., Symposium, Oregon at a Crossroads: Where Do We Go from Here?, 36 EnvTl. L. 53, 58 (2006) (discussing Measure 37 as a "successful attack on Oregon's land-use planning program').
    4. See Symposium, Democracy in Action: The Law \& Politics of Local Governance: All the King's Horses and All the King's Men: Hurdles To Putting the Fragmented Metropolis Back Together Again? Statewide Land Use Planning, Portland Metro and Oregon's Measure 37, 21 J.L. \& Politics 397, 425-32 (2005) (discussing the wide reach of Oregon's land-use planning system and urban growth boundaries).
    5. Or. Dep't of Land Conservation \& Dev., Measure 49 Claim Instruction Packet (Dec. 10, 2007), available at http://www.oregon.gov/LCD/MEASURE49/docs/forms/m49_claim_ packet_121007.pdf (discussing how landowners can make compensation claims if their "desired use is restricted by one or more land use regulations enacted after January 1, 2007").
    6. See Proposition 207 (Ariz. 2006) (to be codified at Ariz. Rev. Stat. § 12-1131 to 38), available at http://www.azsos.gov/election/2006/Genera//BallotMeasureText/PROP\%2020X $\% 20(\mathrm{I}-21-2006)$.pdf.
    7. See, e.g., Terry Pristin, Voters Back Limits on Eminent Domain, N.Y. Times, Nov. 15, 2006, at C6; see also Castle Coalition, 50 State Report Card: Tracking Eminent Domain Reform Legislation Since Kelo 1, 56 (Aug. 2007) (discussing how forty-two states have passed some form of legislation aiming to reform eminent domain).
[^2]:    8. Symposium, Properties of Carol Rose: Takings: Paper: Tribute to Carol Rose, 18 Yale J.L. \& Human. 141, 142 (2005) (discussing the frequently shifting definitional line between private and public property rights).
[^3]:    9. Joseph Sax has more eloquently espoused a similar theory, rooting the public trust doctrine in expectations, stating, "The central idea of the public trust is preventing the destabilizing disappointment of expectations held in common but without formal recognition such as title." Joseph L. Sax, Liberating the Public Trust Doctrine from its Historical Shackles, 14 U.C. Davis L. Rev. 185, 188 (1980).
[^4]:    10. Richard A. Epstein, The Public Trust Doctrine, 7 Cato J. 411, 426 (1987) (arguing that the public trust and takings doctrines are mirror images).
[^5]:    11. This Article will not discuss the origins of property. For discussion of the void in the definition of property's original disposition absent Locke's "theistic foundation" of property, see Epstein, supra note 10, at 411.
    12. John Locke, Two Treatises of Government 286 (Peter Laslett ed., 1988) (asserting that property rights initially descended from God to "Men in common" and that "no body has originally a private Dominion, exclusive of the rest of Mankind").
    13. Id at 288-89.
    14. Id. at 289.
    15. Id. at 292.
[^6]:    16. See, e.g., McBryde Sugar Co. v. Robinson, 504 P.2d 1330, 1338 (Haw. 1973) (describing the sovereign as owner of all land and water before some land was parceled out to private interests); In re Water Use Permit Applications, 9 P.3d 409, 443 (Haw. 2000) (referring to $M c B r y d e$ and holding that the sovereign reserved sovereign powers to provide for common use of land).
    17. See Hamilton v. Williams, 200 So. 80,81 (Fla. 1941) ("Wild game is vested in the State as trustee for all its citizens with full power and authority in the State to regulate and protect."); see also Geer v. Connecticut, 161 U.S. 519 (1896) (finding that the state owned wildlife as property in trust for it citizens); Hughes v. Oklahoma, 441 U.S. 322, 325, 334-35 (1979) (overruling Geer, but finding that neither the state nor federal government "owns" wildlife, thus affirming its common characteristics prior to capture).
    18. Andrew Daire, The Right To Pursue Game vs. the Government's Right to the Conservation of Wildlife, 10 U. Balt. J. Envtl. L. 115, 120 (2003) ("The ownership of animals and game is in the sovereign to be held for the use and benefit of the people and hunting game is subject to the regulations of the government for the general good of the public."); see also Geer, 161 U.S. at 519 (finding that the state could thus pass laws keeping wildlife within the state); Barrett v. State, 220 N.Y. 423, 427-29 (1917) (finding that the government does not own wildlife but that the state ownership doctrine remains viable and that the government has a broader right to protect wild animals).
[^7]:    19. See, e.g., David D. Haddock, Force, Threat, Negotiation The Private Enforcement of Rights, in Property Rights Cooperation Conflict and Law 168 (Terry L. Anderson \& Fred S. McChesney eds., 2003). But governments may at times more efficiently define or enforce property rights because they can reduce transaction costs associated with private property management, especially in a heterogeneous society with high costs of defending property rights on an individual basis. See Fred S. McChesney, Government as Definer of Property Rights: Tragedy Exiting the Commons?, in Property Rights: Cooperation, Conflict and Law 128, 129 (Terry L. Anderson \& Fred S. McChesney, eds., 2003).
    20. See, e.g., Nancie G. Marzulla, State Private Property Rights Initiatives, 46 S.C. L. Rev. 613, 615 (1995) (discussing property groups' referendum-based efforts to rein in government action by making government assess regulatory burdens and better define "compensable takings); Leonard C. Gilroy, Reason Found., Statewide Regulatory Takings Reform: Exporting Oregon's Measure 37 to Other States, Executive Summary (2006) (noting "an increasing recognition that land use regulation significantly infringes on private property rights").
    21. Peter Manus, To a Candidate in Search of an Environmental Theme: Promote the Public Trust, 19 Stan. Envtl. L.J. 315, 353 (2000) (describing the "status quo, where states may exercise the public trust to protect the environment only if third parties emerge fully compensated for foiled development schemes").
[^8]:    23. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978).
    24. See, e.g., Tulare Lake Basin v. United States, 49 Fed. Cl. 313, 319 (2001) (holding that EPA water use restrictions were a physical taking).
    25. Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 492-93 (1988) (O'Connor, J., dissenting).
    26. Kelo, 545 U.S. at 478 ("Nor would the City be allowed to take property under the mere pretext of a public purpose, when its actual purpose was to bestow a private benefit.").
    27. See, e.g., Georgette Chapman Poindexter, Symposium, Democracy in Action: The Law \& Politics of Local Governance: Land Hungry, 21 J. L. \& Politics 293, 319 (2005)
[^9]:    (discussing how "the public trust doctrine is a 'jarring' exception to the general rule favoring private ownership of private resources").
    28. See, e.g., Louis de Alessi, Gains from Private Property: The Empirical Evidence, in Property Rights Cooperation, Conflict and Law 90 (Terry L. Anderson \& Fred S. McChesney eds., 2003); Carol Rose, The Comedy of the Commons: Custom, Commerce, and Inherently Public Property, 53 U. Ch. L. Rev. 711, 711-12 (1986).
    29. See, e.g., Leonard C. Gilroy, The Western Property Rights Wildfire, Reason, Aug. 7, 2006, http://www.reason.org/commentaries/Gilroy_20060809.shtml (discussing the Western initiatives on regulatory takings); Hannah Jacobs, Note, Searching for Balance in the Aftermath of the 2006 Takings Initiatives, 116 Yale L.J. 1518, 1522-27 (2007) (describing the initiatives).
    30. See, e.g., Am. Planning Ass'n, Policy Guide on Takings (2005), http://www. planning.org/policyguides/takings.html (discussing the need for regulations that allow for management of growth and mixed uses).

[^10]:    31. Others have described the public trust as a "status quo" doctrine, although not typically differentiating the status quo from retroactive applications of the doctrine. See, e.g., James M. Olson, Shifting the Burden of Proof: How the Common Law can Safeguard Nature and Promote an Earth Ethic, 20 EnVTL. L. 891, 907 (1990) ("The public trust . . . shifts the onus of proof to those seeking to alter that status quo forcing them to internalize the costs and consequences of their conduct."). However, Barton Thompson has focused on the difference between the status quo and retroactive public trust in a more general sense in his discussion of takings that may arise from retroactive applications of laws. See Barton H. Thompson, Jr., Judicial Takings, 76 VA. L. Rev. 1449, 1507 (1990) (discussing how "the California government has frequently relied on the public trust doctrine to attempt to establish public rights to beaches and other resources for which they might otherwise have had to pay compensation").
    32. Other authors have used a similar term. See, e.g., Joy Ellis, Symposium, Drafting from an Overdrawn Account: Continuing Water Diversions from the Mainstem Columbia and Snake Rivers, 26 EnvTL. L. 299, 321-22 (1996) (discussing California's application "of the public trust doctrine in a retroactive manner"); Barton H. Thompson, Jr., Environmental Policy and State Constitutions: The Potential Role of Substantive Guidance, 27 Rutgers L.J. 863, 909 (1996) (discussing "retroactive judicial expansion of the public trust doctrine").
[^11]:    33. United States v. Miller, 317 U.S. 369, 374 (1943).
[^12]:    40. See, e.g., Joseph D. Kearney \& Thomas W. Merrill, The Origins of the American Public Trust Doctrine: What Really Happened in Illinois Central, 71 U. Chi. L. Rev. 799, 800 (2004) (describing Illinois Central as the "leading" public trust case in the United States).
    41. Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452-53.
    42. See, e.g., id. at 452.
    43. See, e.g., id. at 457 .
    44. Marks v. Whitney, 491 P.2d 374, 379-80 (Cal. 1971) (finding public trust rights in tidelands and the "shores of bays and navigable streams"); Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 721 (Cal. App. Dep't Super. Ct. 1983) (concluding that "the public trust doctrine, as recognized and developed in California decisions, protects navigable waters from harm caused by diversion of nonnavigable tributaries").
[^13]:    45. 658 P.2d at 709.
    46. Id at 719.
    47. Id. (discussing farmers' opposition to use of the waters by Los Angeles).
    48. Id.
    49. Id.
    50. 837 P.2d 158, 161 (Ariz. Ct. App. 1991).
    51. Id at 161 .
    52. Id. at 161 n .14 .
    53. Id. at 161.
[^14]:    54. See, e.g., id. (holding that navigability is determined by navigability upon admission to statehood and that parties should know that they do not hold a full bundle of private rights to formerly navigable areas); Nat'IAudubon Soc'y, 658 P.2d at 719 (noting that the city's attempts to acquire water rights were strongly opposed by local farmers).
    55. Az. Cttr for Law, 837 P.2d at 172.
    56. See, e.g., Nat'1 Audubon Soc'y, 658 P.2d at 713 (describing "the continuing power of the state as administrator of the public trust, a power which extends to the revocation of previously granted rights or to the enforcement of the trust against lands long thought free of the trust."). Douglas Grant has defined somewhat similar categories for the public trust doctrine. Grant uses two categories, describing one as upholding legislative decisions to revoke previous legislative grants of public trust land (such as Illinois Central) and the second as invalidation of legislative grants of public trust lands in cases where a later legislature didn't revoke the grant. Douglas L. Grant, Underpinnings of The Public Trust Doctrine: Lessons from Illinois Central Railroad, 33 ArIz. St. L.J. 849, 879 (2001).
    57. Although there are other subcategories of public trust cases, like those involving challenges to the government's management of trust resources, most of these sub-categories conveniently fall under the "status-quo" or "retroactive" labels. A claim that a government is not properly managing a public trust resource is essentially a claim that the government is not properly maintaining the status quo for public use.
[^15]:    58. Michael C. Blumm \& Thea Schwartz, Mono Lake and the Evolving Public Trust in Western Water, 37 Ariz. L. Rev. 701, 709-10 (1995) (discussing Mono Lake's clarification of public trust rights as "inherently nonvested property interests"); Joseph L. Sax, The Limits of Private Rights in Public Waters, 19 EnvtL. L. 473, 481-82 (1989).
    59. Douglas L. Grant, Western Water Rights and the Public Trust Doctrine: Some Realism about the Takings Issue, 27 ARIz. ST. L.J. 423, 423 (1995) (describing the state's ability to "later reassert title to the land to fulfill its trust duties" without creating a taking).
    60. See, e.g., Grant, supra note 56, at 883 (discussing whether the public trust doctrine is necessary when a state may reacquire previously public for the public property through eminent domain).
    61. See, e.g., Thompson, supra note 32, at 910 (discussing how under one view, "use of the public trust doctrine to make a potential end run around the 'just compensation' provisions should be a serious concern").
    62. Az. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 166 (Ariz. Ct. App. 1991) (discussing the "valid legislative concern with the unsettling of record title to extensive landholdings throughout the state"); see also Dickman Zobenica, supra note 36, at 1054 (discussing individual and business ownership of many riverbeds in Arizona).
[^16]:    64. Id at 166.
    65. Dickman Zobenica, supra note 36, at 1059.
    66. Az. Ctr. for Law, 837 P.2d at 369.
    67. Id. at 360 (explaining that Arizona acquired title to "all lands below high-water mark in all navigable watercourses within its boundaries" but did not assert equal footing claims to any waters other than the Colorado River until 1985).
    68. Id at 360 .
    69. Id. at 366 ("Our supreme court long ago acknowledged the doctrine yet the doctrine has not yet been applied.').
    70. See supra note 68 and accompanying text.
[^17]:    71. Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 713 (Cal. App. Dep't Super. Ct. 1983).
    72. Id. at 713 n. 8 .
    73. 505 U.S. 1003 (1992).
[^18]:    74. See, e.g., Kelo v. City of New London, 545 U.S. 469, 480 (2005) ("The disposition of this case turns on the question whether the City's development plan serves a 'public purpose.'").
    75. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978).
    76. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 421 (1982).
    77. Lucas, 505 U.S. at 1030.
    78. See, e.g., Kelo, 545 U.S. at 480 ("Without exception, our cases have defined [public use] broadly . . . .').
    79. See supra notes 76-77 and accompanying text.
[^19]:    80. See, e.g., Kootenai Envtl. Alliance v. Panhandle Yacht Club, 671 P.2d 1085, 1092-93 (1983) (noting that when determining whether property falls under the public trust, the court looks to "the impact of the [proposed private] project on the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited").
    81. See, e.g., Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 476 (1988) ("[W]e reaffirm our longstanding precedents which hold that the States [own] all lands under waters subject to the ebb and flow of the tide."); Dardar v. Lafourche Realty Co., 985 F.2d 824, 830 (5th Cir. 1993) ("The State owns 'public things . . . such as running waters, the waters and bottoms of natural navigable water bodies, the territorial sea, and the seashore."') (quoting LA. CIV. CODE ANN. art. 450)).
    82. Az. Ctr. for Law in Pub. Interest v. Hassell, 837 P.2d 157, 170 (Ariz. Ct. App. 1991).
    83. Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452 (1892).
    84. See, e.g., Arnold v. Mundy, 6 N.J.L. 1 (1821) (discussing English origins of the common right of navigation); Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 473-74 (1988).
    85. Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 720 (Cal. App. Dep't Super. Ct. 1983).
    86. Id.
[^20]:    87. See supra note 33 and accompanying text.
    88. See, e.g., Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1019 (1992) ("[W]hen the owner of real property has been called upon to ... leave his property economically idle, he has suffered a taking.").
    89. See, e.g., Just v. Marinette County, 201 N.W.2d 761, 770 (Wis. 1972) (finding that an owner's right to change "commercially valueless land" to economically productive land is not "controlling" in a takings case where exercising right damages public rights); City of Berkeley v. Superior Court of Alameda County, 606 P.2d 362, 373-74 (Cal. App. Dep’t Super. Ct. 1980) (discussing the need to "balance the interests of the public ... against those of the landowners," but finding that public uses outweighed the private benefit of filling tidelands that would be difficult to fill and develop).
[^21]:    91. Sean T. Morris, Taking Stock in the Public Trust Doctrine, 52 Cath. U.L. Rev. 1015, 1015 (2003) (describing growing conflicts between private and public users for beach access).
    92. See, e.g., id. at 1016-17; Gion v. City of Santa Cruz, 464 P.2d 50 (Cal. 1970).
    93. Lucas, 505 U.S. at 1003; City of Monterey v. Del Monte Dunes, 526 U.S. 687 (1999).
    94. Economists would likely argue that anything can be valued and that therefore, nothing should be relegated to a category of "noneconomic."
    95. Defenders of Wildlife v. Johanns, No. C 04-4512 PJH, slip op. at 14, 20 (N.D. Cal. Dec. 1, 2005).
[^22]:    96. Idaho v. Coeur d'Alene Tribe, 521 U.S. 261, 287 (1997) (discussing preservation of a lake for scenic beauty, health, recreation, transportation, and commercial purposes as "necessary and desirable for all inhabitants of the state" (quoting IDAHO CODE § 67-4304)).
    97. Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 831-32 (1978) (explaining that when there is "permanent physical occupation" of the property by the government, there is a taking regardless of whether there is only "minimal economic impact on the owner" (citing Loretto v . Teleprompter Manhattan CATV Corp., 458 U.S. 419, 432-35 (1982))).
    98. See, e.g., id. at 853 ("[W]e have regarded as particularly significant the nature of the governmental action and the economic impact of regulation.").
    99. See, e.g., Pruneyard Shopping Ctr. v. Robbins, 447 U.S. 74, 82 (1980) ("The term 'property' as used in the Taking Clause includes the entire 'group of rights inhering in the citizen's [ownership]."' (quoting United States v. General Motors Corp., 323 U.S. 373 (1945)); Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1044 (1992) (Blackmun, J., dissenting) (discussing how "[p]etitioner can picnic, swim, camp in a tent, or live on the property in a movable trailer"seemingly non-explicitly economic uses- but finding such attributes to be "economic uses").
    100. See, e.g., Kaiser Aetna v. United States, 444 U.S. 164 (1979) (noting the court's focus on the investments already made by owners who dredged and built around the water).
    101. See, e.g., Catherine L. Kling, The Gains from Combining Travel Cost and Contingent Valuation Data to Value Nonmarket Goods, 73 Land Econ. 428 (1997).
[^23]:    102. Epstein, supra note 10 , at 419,426 (describing takings and the public trust as a mirror image).
    103. Id at 428.
    104. Id. at 419 ("Two questions have to be addressed. The first is whether the transfer should be made, and the second is, when made, what level of compensation should be provided.").
    105. Id at 428.
    106. Id at 429 .
[^24]:    107. Kootenai Envtl. Alliance v. Panhandle Yacht Club, 671 P.2d 1085, 1092-93 (1983).
[^25]:    108. See, e.g., Preston Paul Frischknecht, Comments and Notes, Safety Nets and Side Effects: Regulatory Takings and Alternative Compensation Structures Created in Response to the Desert Tortoise Listing in Southern Utah, 2005 Utah L. Rev. 997, 1011 (2005) (discussing how Congress rarely uses eminent domain powers, especially under the Endangered Species Act, because the use of eminent domain requires "large scale political support").
    109. Justice Blackmun argued that recreational and temporary residential economic uses remained. See Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1044 (1992) (Blackmun, J., dissenting).
[^26]:    110. See, e.g., Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452 (1892) (explaining that the public trust is "a title held in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein"); In re Crawford County Levee \& Drainage Dist. No. 1, 196 N.W. 874 (Wis. 1924) (preventing privatization of a resource where privatization would substantially impair hunting and fishing).
    111. See, e.g., Lise Johnson, After Tahoe Sierra, One Thing Is Clearer: There Is Still a Fundamental Lack of Clarity, 46 Ariz. L. Rev. 353 (2004); Douglas W. Kmiec, The Original Understanding of the Taking Clause Is Neither Weak nor Obtuse, 88 Colum. L. Rev. 1630 (1988); Saul Levmore, Takings, Torts, and Special Interests, 77 VA. L. Rev. 1333, 1333 (1991).
    112. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 434-35 (1982).
    113. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1016 (1992).
    114. The court admits the uncertain nature of this test. See Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978) (admitting that each case requires an "essentially ad hoc, factual inquiry").
[^27]:    115. Patrick Parenteau, Unreasonable Expectations: Why Palazzolo Has No Right To Turn a Silk Purse into a Sow's Ear, 30 B.C. Envtl. Aff. L. Rev. 101, 127 (2002).
    116. See, e.g., Grant, supra note 59, at 461 (discussing the appropriation doctrine's establishment of secure water rights to "encourage investment in water development projects").
    117. David L. Callies \& J. David Breemer, Selected Legal and Policy Trends in Takings Law: Background Principles, Custom and Public Trust "Exceptions" and the (MIS) Use of Investment-Backed Expectations, 36 VaL. U.L. Rev. 339, 373 (2002).
[^28]:    118. Epstein, supra note 10 , at 421 .
    119. See, e.g., Paul Sarahan, Wetlands Protection Post-Lucas: Implications of the Public Trust Doctrine on Takings Analysis, 13 VA. EnvTL. L.J. 537, 564 (1994) (discussing how a private owner should have "constructive knowledge" that public trust rights attached to the property).
[^29]:    120. Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 720 (Cal. App. Dep't Super. Ct. 1983).
[^30]:    121. As discussed in further detail below, the use need not be physical; I broadly define "use" to include ecosystem services provided by public trust property.
    122. Rose, supra note 28 , at $750-53$.
    123. Denver Area Educ. Telecomms. Consortium v. FCC, 518 U.S. 727, 791 (1996).
    124. Id.
[^31]:    125. ACLU v. City of Las Vegas, 333 F.3d 1092, 1099 (2003).
    126. 504 U.S. 555, 565-66 (1992) (citing Lujan v. Nat'l Wildlife Fed'n, 497 U.S. 871, 88789 (1990)).
[^32]:    127. See, e.g., Gion v. City of Santa Cruz, 464 P.2d 50, 54 (Cal. 1970) (explaining that the public has used the beach and road in question for "at least 100 years"); Eaton v. Town of Wells, $2000 \mathrm{ME} 176, \mathbb{T} 34,760$ A.2d 232, $244-45$ (discussing the long history of public use of the beach).
    128. S05 U.S. 672, 680 (1992).
    129. 444 U.S. 164, 178-79 (1979) (emphasizing that the pond was historically private and nonnavigable before the private owner made improvements).
    130. Eaton, 2000 ME 176, 955,760 A. 2 d at 250.
[^33]:    131. See, e.g., Attorney General v. Benjamin F. Woods, 108 Mass. 436 (1871) (discussing the public's need to use a small stream, free of obstruction by a dam, for business or pleasure).
    132. Rose, supra note 28 , at 753-55.
    133. Id. at 754-55.
    134. For public squares, the courts protect the public by finding implied dedication for public use. See, e.g., President, Recorder \& Trs. of Cincinnati v. Lessee of White, 31 U.S. 431, 439 (1832).
[^34]:    135. Alternatively, privatization of the square could result in better notice to the public of its location because the private individual would have incentive to advertise the location and attract customers. But low-income individuals would be excluded from use.
[^35]:    136. Az. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 170 (Ariz. Ct. App. 1991).
    137. Id.
    138. 742 F. Supp. 441,446 (N.D. Ill. 1990).
    139. Id.
    140. Id.
    141. Id. at 445.
    142. Milwaukee v. State, 214 N.W. 820,827 (Wis. 1927).
    143. See, e.g., City of Berkeley v. Superior Court of Alameda County, 606 P.2d 362, 366 (Cal. App. Dep't Super. Ct. 1980) (allowing a public-private transfer when "the purpose of the conveyance was to promote navigation and commerce); City of Madison v. State, 83 N.W.2d 674, 678 (Wis. 1957) (discussing how diminution of a small portion of public property-construction of a public auditorium built by a "private" party (a city) —improved public use of the property).
[^36]:    144. Democratic Nat'l Comm. v. FCC, 460 F.2d 891, 900 (D.C. Cir. 1972) (declaring that broadcast frequencies are part of the public trust).
    145. Int'l Soc'y for Krishna Consciousness v. Walter Lee, 505 U.S. 672, 710 (1992).
    146. See infra notes 147-149 and accompanying text; see also Alison Rieser, Ecological Preservation as a Public Property Right: An Emerging Doctrine in Search of a Theory, 15 Harv. Envtl. L. Rev. 393, 418 (1991) (arguing that the public trust should be used to preserve important ecological resources).
[^37]:    147. Morse v. Or. Div. of State Lands, 581 P. 2 d 520 (Or. Ct. App. 1978).
    148. Id. at 526 (citing Joint Statement of the Fish Commission of Oregon and the Oregon State Game Commission Supporting Senate Bill 224, Minutes of Senate Committee on Fish and Game (Mar. 9, 1971)).
    149. WASH. REV. CODE. § 90.03 .005 (1979).
    150. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1029 (1992).
[^38]:    151. See, e.g., Parenteau, supra note 115 , at 116 (discussing the Rhode Island court's historic use of the public trust doctrine as a background principle); Zachary C. Kleinsasser, Public and Private Property Rights: Regulatory and Physical Takings and the Public Trust Doctrine, 32 B.C. Envtl. Aff. L. Rev. 421, 429 (2005).
    152. Lucas, 505 U.S. at 1029.
    153. 533 U.S. 606, 629-30 (2001).
    154. Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 985-86 (9th Cir. 2002).
    155. Lazarus, supra note 36, at 660-64.
[^39]:    156. Arnold v. Mundy, 6 N.J.L. 1, 55 (1821) (finding that individuals may do anything with their property, provided their actions are not a nuisance).
    157. Id.
    158. Id. at 48-49.
    159. Parenteau, supra note 115 , at 121 (discussing nuisance law as changing with societal values and needs).
    160. Palazzolo v. Coastal Res. Mgmt. Council, C.A. No. $88-0297$, slip op. at 17-18 (R.I. Super. Ct. Oct. 24, 1997).
    161. Palazzolo v. Rhode Island, 533 U.S. 606, 632 (2001).
    162. Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 720 (Cal. App. Dep't Super. Ct. 1983).
    163. See, e.g., Lynn E. Blais, Takings, Statutes, and the Common Law: Considering Inherent Limitations on Title, 70 S. CAL. L. Rev. 1, 4-5 (1996) (describing the uncertainty of the nuisance exception as a background principle and how most courts view nuisance as a "limited doctrine").
    164. See, e.g., Upper Chattahoochee Riverkeeper Fund, Inc. v. Atlanta, 986 F. Supp. 1406, 1420 (N.D. Ga. 1997) (finding that an individual bringing a public nuisance claim must show "special" damage); Citizens for Pres. of Waterman Lake v. Davis, 420 A.2d 53, 59 (R.I. 1980)
[^40]:    (defining a public nuisance as an "unreasonable interference with a right common to the general public").
    165. See, e.g., Report of the United Nations Conference on Environment and Development, Annex 1, Principle 15 of the Rio Declaration on Environment and Development, Rio de Janeiro (June 13-14, 1992), available at http://www.un.org/documents/ga/conf151/aconf15126-lannex 1.htm ("[W]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.").
    166. See Envtl. Prot. Agency, Terms of Environment, http://www.epa.gov/ocepal11/OCEPAterms/pterms.html (last visited Aug. 11, 2007) ("When information about potential risks is incomplete, basing decisions about the best ways to manage or reduce risks on a preference for avoiding unnecessary health risks instead of on unnecessary economic expenditures.").

[^41]:    167. See, e.g., Stephen G. Wood, Stephen Q. Wood \& Rachel A. Wood, Section IV, Constitutional and Administrative Law: Whither the Precautionary Principle? An American Assessment from an Administrative Law Perspective, 54 AM. J. Comp. L. 581, 583-85 (2006) (discussing how federal regulations and Supreme Court decisions fail to mention the precautionary principle).
    168. Lead Indus. Ass'n v. EPA, 647 F.2d 1120 (D.C. Cir. 1976); see also Wood, Wood \& Wood, supra note 167, at 587 (arguing that the case "explicitly embodies the precautionary principle").
    169. Wood, Wood \& Wood, supra note 167 , at 585 (arguing that the United States does not incorporate the actual terminology of the principle but frequently applies the principle in regulatory risk-based decisionmaking).
    170. At least one author does, however, mention the precautionary principle in the context of the public trust doctrine. See, e.g., Joseph Sax, Managing Hawai''s's Public Trust Doctrine: Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, 24 Haw. L. Rev. 21, 33 (2001) (explaining that California court decisions have used "judicial oversight" such as the precautionary principle as part of their public trust analysis).
    171. See Fred Bosselman, David Callies \& John Banta, The Takings Issue: A Study of the Constitutional Limits of Governmental Authority to Regulate the Use of Privately-owned Land Without Paying Compensation to the Owners 218-19 (1973); see
[^42]:    also Just v. Marinette County, 201 N.W.2d 761, 768 (Wis. 1972) (noting that the regulation maintained "the natural status quo of the environment").
    172. See, e.g., Blumm \& Schwartz, supra note 58, at 726-27 (discussing how some state courts require governments to investigate the potential impacts of public resource alienation before acting); In re Water Use Permit Applications, 9 P.3d 409, 428 (Haw. 2000) (finding that courts must take "close look" at agency's actions allocating water rights).
    173. U.S. Plainsmen v. N.D. State Water Conservation Ass'n, 247 N.W.2d 457, 461 (N.D. 1976).
    174. See, e.g., Az. Ctr. for Law in Pub. Interest v. Hassell, 837 P.2d 158, 166 (Ariz. Ct. App. 1991) (defining public navigability as rivers that "are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which travel and trade would are or may be conducted in the customary modes of trade and travel on water" (emphasis added)). This type of precaution, even without a finding of actual historic use, may apply in public easement cases, which typically require an examination of historic use. See, e.g., Eaton v. Town of Wells, 2000 ME 176, $\mathbb{1} 52,760$ A.2d 232, 249 (Saufley, J., concurring) (arguing that proof of actual historic use should not have to be presented in every public easement case).
    175. State ex rel. Medlock v. S.C. Coastal Council, 346 S.E. 2d 716, 719 (S.C. 1986) ("[T]here cannot be the least doubt that the public is as much entitled to be protected in its use [of

[^43]:    navigable waters] for floating pleasure boats as for any other purpose." (quoting State ex rel. Lyon v. Columbia Water Power Co., 82 S.C. 181, 189 (1909)).
    176. 944 F.2d 1489, 1498 (9th Cir. 1991) (citing Economy Light \& Power Co. v. United States, 256 U.S. 113 (1921)).
    177. Id.
    178. John C. Dernbach, Taking the Pennsylvania Constitution Seriously When It Protects the Environment: Part II-Environmental Rights and Public Trust, 104 Dick. L. Rev. 97, 123 (1999).
    179. See, e.g., Mancur Olson, The Logic of Collective Action: Public Good and the Theory of Groups 43-52 (1971); Samuel Peltzman, Toward a More General Theory of Regulation, 19 J. Law \& ECON. 211 (1976).

[^44]:    180. See, e.g., United States Geological Survey, NWISWeb Data, http://waterdata.usgs. gov/nwis (last visited Aug. 11, 2007).
    181. See, e.g., Protection of Roadless Areas: Hearing Before the Subcomm. on Forests and Public Land Management of the Comm. on Energy and Natural Resources 2000, 106th Sen. (2000).
    182. See George P. Smith II \& Michael W. Sweeney, The Public Trust Doctrine and Natural Law: Emanations Within a Penumbra, 33 B.C. Envtl. Aff. L. Rev. 307, 326 n. 106 (2006).
    183. Epstein, supra note 10 , at 421 (discussing the allure of transferring public property to private individuals for "political influence and intrigue").
    184. Abraham Bell \& Gideon Parchomovsky, Givings, 111 Yale L.J. 547, 578 (2001). Note, however, that "givings" are not typically transfers of real property. Reza Dibadj, Regulatory Givings and the Anticommons, 64 Онг ST. L.J. 1041, 1946 (2003).
    185. Bell \& Parchomovsky, supra note 184, at 659 (discussing the need for courts, in using the public trust, to protect the public interest against legislative failure); Joseph L. Sax, The Public Trust Doctrine in Natural Resource Law, 68 Mich. L. Rev. 471, 560 (1970) (discussing the groups' influence on the legislature); Johanna Searle, Private Property Rights Yield to the
[^45]:    Environmental Crisis: Perspectives on the Public Trust Doctrine, 41 S.C.L. Rev. 897, 917 (1990) (citing the public trust doctrine as a method for the judiciary to review legislative decisions about natural resources where private developers could overshadow the public's voice); S.V. CiriacyWantrup \& Richard C. Bishop, "Common Property" as a Concept in Natural Resources Policy, in Property Rights and Environmental Problems I 67, 80 (Bruce A. Larson ed., 2003) (discussing how the public trust doctrine forces governments to "take broader public interests . . . into account").
    186. See, e.g., Olson supra note 179, at 43-52; Peltzman, supra note 179.
    187. Joseph Sax, The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention, 68 Mich. L. Rev. 471, 474 (1970).
    188. Richard A. Epstein, In and Out of Public Solution, in Property Rights: Cooperation, Conflict and Law 307, 308-09 (Terry L. Anderson \& Fred S. McChesney eds., 2003).
    189. Id. at 1048-52.

[^46]:    many types of water such as groundwater, drinking and irrigation water, wetlands protection, and nonnavigable tributaries of navigable water. See Arnold v. Mundy, 6 N.J.L. 1 (1821); Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452-53 (1892); Grant, supra note 59, at 456-57; New Mexico v. GE, 335 F. Supp. 2d 1185, 1201 (D.N.M. 2004); City of Los Angeles v. Pomeroy, 124 Cal. 597, 640 (1899); Watuppa Reservoir, 18 N.E. at 472-73; U.S. Plainsmen v. N.D. State Water Conservation Ass'n, 247 N.W.2d 457, 462 (N.D. 1976); Just, 201 N.W.2d at 766-69; Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 719 (Cal. App. Dep't Super. Ct. 1983).
    200. Nat'IAudubon Soc'y, 658 P.2d at 721 .
    201. Id at 728.
    202. Id.
    203. See, e.g., 484 U.S. 469,476 (1988) ("It would be odd to acknowledge such diverse uses of public trust tidelands [fishing for 'shell-fish [and] floating fish' and "creat[ing] land for urban expansion," for example] and then suggest that the sole measure of the expanse of such lands is the navigability of the waters over them." (internal citations omitted)).

[^47]:    204. David L. Callies \& J. David Breemer, Selected Legal and Policy Trends in Takings Law: Background Principles, Custom and Public Trust "Exceptions" and the (MIS) Use of Investment-Backed Expectations, 36 VAL. U.L. Rev. 339, 373 (2002).
    205. See supra note 59 and accompanying text.
    206. Courts in Massachusetts, for example, have historically favored jus privatum rights. See, e.g., Sharon M.P. Nicholls, Public Rights of Passage Along the Massachusetts Coast: An Argument for Implementation Without Compensation, 4 B.U. PUB. INT. L.J. 113, 116 (1994).
    207. See, e.g., Stephen A. DeLeo, Phillips Petroleum v. Mississippi and the Public Trust Doctrine: Strengthening Sovereign Interest in Tidal Property, 38 Cath. U.L. Rev. 571, 579-80 (1999) (discussing colonial legislatures' definition of public trust resources as limited to lands below the low tide and "fishing, fowling, and navigation").
    208. See, e.g., id. at 118 (discussing strict interpretation of the Massachusetts ordinance to cover "public rights to fishing, fowling, navigation, and the natural derivatives thereof, such as shellfishing"); James L. Huffman, A Fish Out of Water: The Public Trust Doctrine in a Constitutional Democracy, 19 EnvTL. L. 527, 545-55 (1989) (discussing the "constitutionalization" of the doctrine).
[^48]:    211. See, e.g., Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1029 (1992) (finding that a regulation must fit within the "restrictions that background principles of the State's law of property and nuisance already place upon land ownership" to not be a taking (emphasis added)); Palazzolo v. Rhode Island, 533 U.S. 606, 629-30 (2001).
    212. Van Ness v. Borough of Deal, 393 A.2d 571, 574 (N.J. 1978).
    213. Id.
    214. CAL. CONST. art. X, § 4.
    215. Leydon v. Town of Greenwich, 777 A.2d 552, 564-65 (Conn. 2001).
[^49]:    216. Rose, supra note 28, at 711-12; see Richard A. Epstein, Symposium on Richard Epstein's Takings: Private Property and the Power of Eminent Domain: An Outline of Takings, 41 U. Miami L. Rev. 3, 10 (1986). Epstein provides an example of the most extreme case, where the government would cease to exist if it had to pay for every "partial taking" that occurred under its regulation. Id.; see also Pa. Coal Co. v. Mahon, 260 U.S. 393, 413 (1922) ("Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law.'); Grant, supra note 56, at 881-82 (discussing how just compensation requirements could prevent important government acquisition of property for the public); Sarahan, supra note 119 , at 541 (discussing the "serious budgetary constraints" that "hamper government action" and the environmental degradation that would occur with expanded compensation requirements).
[^50]:    218. Az. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 158 (Ariz. Ct. App. 1991).
    219. Az. H.B. 2017.
    220. Hassell, 837 P.2d at 171.
    221. Epstein, supra note 216, at 11-12.
    222. Epstein, supra note 188 , at 332.
    223. Id. at 332-33.
[^51]:    224. Marks v. Whitney, 491 P.2d 374, 379-80 (Cal. 1971) (finding that uses under the public trust doctrine are "sufficiently flexible to encompass changing public needs," which include "the preservation of . . . lands in their natural state"); Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 719 (Cal. App. Dep't Super. Ct. 1983) (finding that protection of recreational and ecological values is "among the purposes of the public trust").
    225. Phillips Petroleum Co. v. Mississippi, 484 U.S. 469 (1988).
    226. See generally Thompson, supra note 31.
    227. James R. Rasband, Equitable Compensation for Public Trust Takings, 69 U. Colo. L. Rev. 331, 380-81 (1998).
[^52]:    228. Thompson, supra note 31, at 1520 (citing Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709, 723 n. 22 (1983); State v. Superior Court, 625 P.2d 256, 261 (1981); City of Berkeley v. Superior Court, 606 P.2d 363, 373 (1980)).
    229. See, e.g., Dickman Zobenica, supra note 36, at 1078 (discussing how a public trust right with no private "sticks" in the bundle indicates that the private landowner never possessed the right to "impair" public trust resources).
    230. 393 N.E.2d 356, 369 (Mass. 1979).
    231. Id. at 361 (describing the statutes as allowing a "convergence of private profit and public benefit").
[^53]:    232. 491 P.2d 374, 379-80 (Cal. 1971).
    233. Id. at 380.
[^54]:    234. Some scholars describe this view (that "all claims to property are subject to an implied public interest limitation") as the "republican-positivist tradition." See, e.g., Frank Michelman, The Common Law Baseline and Restitution for the Lost Commons: A Reply to Professor Epstein, 64 U. ChI. L. Rev. 57, 57 (1997) (discussing the positivist view as one that sees all property as "hostage" to state interests).
    235. See, e.g., Johnson, Goeppele, Jansen \& Paschal, supra note 38, at 526 (discussing the public trust as a "true common law doctrine" which the courts expand or contract depending on changing public and private expectations).
    236. See, e.g., Been, supra note 8, at 141-42 (describing this as the overriding challenge in the field of property rights).
    237. Rose, supra note 1.
    238. Id. at 577.
    239. Id. at 579 (introducing the concept of some rules' transformation to a "mud doctrine").
[^55]:    240. Blumm \& Schwartz, supra note 58 , at 709 (discussing the doctrine as changing "with the felt necessities of the current generation").
