THE FLUID NATURE OF PROPERTY RIGHTS IN WATER

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"If water were our chief symbol for property, we might think of property rights—and perhaps other rights—in a quite different way."[1]

I. INTRODUCTION

Understanding how the right to use water is characterized in property terms is vital for efficiently allocating and reallocating this essential resource.[2] Because property "is the symbolic means through which people convey and receive the meaning of all rights,"[3] much great scholarship is devoted to exploring the concept of property rights in water. However, as one recent scholar observed, the law on "whether interests in water are legally recognized as property [is] surprisingly unsettled" with no consistent answers.[4] In writing this article, I struggled to resolve for myself whether water rights should be classified as property and whether they should be subject to private ownership. As a strong proponent of private property rights, who seeks to find a property interest in everything, I nevertheless

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1. Carol M. Rose, *Property As the Keystone Right?*, 71 NOTRE DAME L. REV. 329, 351 (1996) (arguing for a "more fluid and cooperative vision of property").

2. *See* Nicole L. Johnson, *Property Without Possession*, 24 YALE J. ON REG. 205, 209 (2007) (noting that "[f]undamental choices in how society defines property rights influence the resource's efficient allocation and reallocation").

3. Rose, *supra* note 1, at 349, 351 (observing that since water is "the subject of important and valuable property rights," if we used water instead of land as "our chief symbol for property, we might think of property rights—and perhaps other rights—in a quite different way").

4. Sandra B. Zellmer & Jessica Harder, *Unbundling Property in Water*, 59 ALA. L. REV. 679, 681–87 (2008) (suggesting that Professor Craig A. Arnold's metaphor of property as a "web of interests" be applied to understanding property rights in water instead of the "bundle of rights" metaphor).

conclude that water is too unlike land to be subject to private property holdings.

Instead of viewing water through the lens of the bundle of sticks metaphor for land ownership, we should use the public trust doctrine with its rich history in the U.S. legal tradition to determine rights to this resource.[5] Water is a crucial public resource, and its fluid nature requires that the government limit private rights to the "right to use" water that ultimately belongs to the public and is held in trust for us by the government. The characteristics of this essential resource compel a comparison to air and fish, not to land. I am persuaded by the argument that "[p]ublic rights are just as essential to a healthy and functioning democratic society as are private rights"[6] and water interests should belong to the public. By expanding the public trust doctrine to support a public stewardship model,[7] the management and allocation of this unique common resource will be entrusted to the government for the public good.

One of the driving forces in bringing the issue of water rights to the public consciousness is the continuing struggle to keep sufficient instream flows to prevent harm to endangered species and habitats.[8] This struggle pits public rights to natural resources against private rights to receive water for agricultural, fishing, and urban uses.[9]

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5. *See* Craig Anthony Arnold, *Water Privatization Trends in the United States: Human Rights, National Security, and Public Stewardship*, 33 WM. & MARY ENVTL. L. & POL'Y REV. 785, at 808–09, 836–38 (2009); *cf.* Myrl L. Duncan, *Reconceiving the Bundle of Sticks: Land as a Community-Based Resource*, 32 ENVTL. L. 773 (2002) (proposing somewhat in reverse that land be viewed as a community resource like water, and that rather than using the bundle of sticks metaphor for land, we should emphasize the interconnectedness of rights).

6. Carol Necole Brown, *Drinking From a Deep Well: The Public Trust Doctrine and Western Water Law*, 34 FLA. ST. U. L. REV. 1, 4 (2006).

7. *See* Arnold, *supra* note 5, at 840–49 (asserting that the public trust doctrine is too limited to ensure the government stewardship required and arguing for a shared responsibility between the public and the government "for being good and wise stewards of limited water resources that are essential to life, society, and nature").

8. *See* Timothy M. Mulvaney, *Instream Flows and the Public Trust*, 22 TUL. ENVTL. L.J. 315, 317 (2009) ("Failure to preserve sufficient instream flows can result in a variety of harmful effects, including reduced marine habitats, lower seafood production, higher concentrations of pollutants in waters utilized for human consumption, and diminished capacity of waterways to support recreational activities such as fishing, boating, and swimming."); Holly Doremus & A. Dan Tarlock, *Fish, Farms, and the Clash of Cultures in the Klamath Basin*, 30 ECOLOGY L.Q. 279, 310 (2003) (noting that the quantity of instream water may directly affect aquatic life or may indirectly cause adverse impacts "because the quantity of water is closely related to temperature and other important water quality characteristics").

9. *See* Doremus & Tarlock, *supra* note 8, at 282 (observing that the costs of strictly enforcing the Endangered Species Act "are especially high when the ESA is applied to water resources, since compliance with ESA mandates may require the holders of state-created water

Although the Endangered Species Act (ESA)[10] has been in existence for over forty years, the conflicts between state water rights and the ESA taking prohibition have escalated since the early 1990s, as the increasing demand for water resulted in the over-appropriation of water resources.[11]

State, federal, and international jurisdictions recognize some measure of private property rights in water, although each jurisdiction determines the extent to which private water rights will be considered protected ownership interests.[12] In the arid West, the right to use water can be one of the most valuable property rights to be legally recognized,[13] and eastern states are also facing issues of water scarcity as population increases and exhaustion of groundwater resources drive regions to compete for this precious resource.[14] When protecting endangered or threatened species under the ESA by maintaining instream water flows directly competes with valuable state property rights to use water, ESA protection may ultimately prevail on the

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rights to reduce or even forego long established entitlements"); *id.* at 288 ("Unless irrigated agriculture can find a way to integrate itself into the changing landscape of the new West, it may be overrun by growing societal demands for water for cities and environmental restoration.").

10. Endangered Species Act, 16 U.S.C. §§ 1531–1544 (2006).

11. Cori S. Parobek, *Of Farmers' Takes and Fishes' Takings: Fifth Amendment Compensation Claims When the Endangered Species Act and Western Water Rights Collide*, 27 HARV. ENVTL. L. REV. 177, 193 (2003).

12. *See, e.g.*, John D. Leshy, *A Conversation About Takings and Water Rights*, 83 TEX. L. REV. 1985, 1990–91 (2005) (noting that California state law provides that "'[a]ll water within the State is the property of the people of the State"') (citing CAL. WATER CODE § 102 (West 2005) (repealing CAL. CIV. CODE § 1410 as amended by 1911 Cal. Stat. 821)).

13. David Abelson, Comment, *Water Rights and Grazing Permits: Transforming Public Lands into Private Lands*, 65 U. COLO. L. REV. 407, 407 (1994).

14. *See, e.g.*, Janet C. Neuman, *Have We Got a Deal For You: Can the East Borrow From the Western Water Marketing Experience?*, 21 GA. ST. U. L. REV. 449, 449–52 (2004) (noting that "the East has been relatively water-rich" until recently, but that water disputes are occurring due to increasing demand); Joseph W. Dellapenna, *Developing a Suitable Water Allocation Law for Pennsylvania*, 17 VILL. ENVTL. L.J. 1, 2–4 (2006) (noting that Pennsylvania may require more administrative regulation of water use because of recurring droughts and climate change); Steven T. Miano & Michael E. Crane, *Eastern Water Law: Historical Perspectives and Emerging Trends*, 18 NAT. RESOURCES & ENV'T 14, 14 (2003) (observing that "eastern water supplies have become increasingly erratic due to overuse, short-term droughts, and potential long-term climatic changes" and that development patterns have created addition problems with water pollution of existing resources and salt water intrusion into groundwater supplies because of overpumping of aquifers in coastal regions); Robert Haskell Abrams, *Water Federalism and the Army Corps of Engineers' Role In Eastern States Water Allocation*, 31 U. ARK. LITTLE ROCK L. REV. 395, 397 (2009) (explaining that "this Article proceeds on the premise that water is no longer relatively plentiful in an increasing number of basins found in the humid eastern states").

theory that "no one owns the right to extinguish a form of life on earth."[15]

The historical development of water law centers on rights to surface water, as opposed to groundwater, since the lack of early scientific knowledge about groundwater limited our understanding of the extent of this water resource and its interconnectedness with surface water. Therefore, the majority of case law and scholarship focuses on surface water, and so these water rights have received the most attention and legal refinement, as will be described in Part II of this article. Nevertheless, groundwater resources are growing in importance, and in Part III, the article will explore the property characteristics of groundwater and the aquifer structures in which groundwater is stored. Part IV will briefly discuss property rights in rainwater, which, surprisingly to some, may also be limited as we attempt to manage these resources in conjunction with surface and groundwater rights. Finally, in Part V, the article will examine how these property classifications of water impact legal issues involving constitutional rights, such as the Takings Clause[16] and due process under both federal and state constitutions; water marketing;[17] and the privatization of public resources.[18]

The article will conclude by suggesting that jurisdictions recategorize water rights as contract rights or licensing rights,

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15. Oliver A. Houck, *Why Do We Protect Endangered Species, and What Does That Say About Whether Restrictions on Private Property to Protect Them Constitute "Takings"?*, 80 IOWA L. REV. 297, 332 (1995); *see also* Pac. Coast Fed'n of Fisherman's Ass'ns v. Gutierrez, 606 F. Supp. 2d 1195, 1201–02 (E.D. Cal. 2008) (finding certain water rights under service contracts subject to the ESA); Tom Tietenberg, *Tradable Permits In Principle and Practice*, 14 PENN ST. ENVTL. L. REV. 251, 258–59 (2006) (noting that in water permitting programs, "one significant problem has been the protection of 'instream' uses of water" such as retaining instream water to promote recreational environmental uses of water).

16. This Part will also discuss the concept of "givings" as "[a]ny government redistribution of private property necessarily involves givings and takings, and any government destruction of property can be matched with a government creation of property." Abraham Bell & Gideon Parchomovsky, *Givings*, 111 YALE L.J. 547, 563 (2001).

17. *See* Johnson, *supra* note 2, at 206–07 (proposing that appropriative water rights are usufructuary rights and thus cannot function in markets to allow instream water rights to be privately purchased to "compete in the market for water against traditional consumptive uses").

18. *See* Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective*, 2005 UTAH L. REV. 1127, 1153 (explaining that proponents of private ownership of natural resources consider such a policy to be "more economically efficient than public ownership"); Rose, *supra* note 1, at 331 (noting that treating natural resources such as water as unmanaged commons tends to deplete them while promoting security in property rights and will "induce us to invest, trade, and gently monitor each other"); Reza Dibadj, *Regulatory Givings and the Anticommons*, 64 OHIO ST. L.J. 1041, 1088 (2003) (noting the argument that "privatization encourages investment because it provides certainty").

revocable by the government for the public good.[19] Under the public trust doctrine, federally reserved rights, and the navigation servitude, there is historical support for the concept that water belongs to the public, with ownership held by the government in trust for the people. While the majority of state legislatures and state and federal courts continue to talk about water rights in property terms, water rights are generally viewed not as actual property rights subject to a taking under the Fifth Amendment, but as usufructuary rights, or a license from the state or federal government that can be revoked and is governed by contract rights. This is similar to the treatment of grazing rights, fishing rights, or timber permits.

Water rights may be defined as limited property rights under state law in order to prioritize private rights among citizens and establish a tradable permits system.[20] Valuation of these rights is necessary for a properly functioning permit market and may also be required for corporations claiming these rights as assets.[21] However, rights to *use* water can be valued without assigning ownership, in the same way that mining rights or grazing rights on federal land are valued. States should treat water as a public resource and hold ownership rights in trust for the public by recognizing the public trust doctrine[22] and granting only private usufructuary rights that do not interfere with the public good.

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19. While this Article does not discuss licenses that might become irrevocable if coupled with an interest in land, water has not historically been treated as a profit, which is typically treated the same as a license coupled with an interest. *See, e.g.*, State *ex rel.* Merrill v. Ohio Dept. of Natural Res., Nos. 2008-L-007, 2008-L-008, 2009 WL 2591758, at *66 (Ohio Ct. App. Aug. 21, 2009) (declining "to establish categorically whether all littoral rights are in the nature of a titled property interest, a franchise, a license, or a license coupled with an interest in land"); A.W. Walker, Jr., *The Nature of the Property Interests Created by an Oil and Gas Lease in Texas*, 7 TEX. L. REV. 1, 3 n.5 (1928) ("[C]ommon law is somewhat inconsistent as to the property in which profits may be created, denying their creation in the case of water on the ground that the landowner does not own the water . . . .").

20. *See, e.g.*, *Western States Water Laws: California Water Rights Fact Sheet*, NAT'L SCI. & TECH. CTR., BUREAU OF LAND MGMT. (Aug. 15, 2001), http://www.blm.gov/nstc/WaterLaws/california.html (explaining that "[a] water right in California is a property right allowing the use of water, but it does not involve ownership of the water" and also noting that water rights "can be held by any legal entity" and "are considered real property").

21. Although the author could not locate authority to directly support this assertion regarding the issue of water rights and corporate borrowing, an October, 2009 conversation with Paul Singarella, a practicing attorney with Latham and Watkins, revealed that water rights are being used as corporate assets to secure financing.

22. *See* Brown, *supra* note 6, at 2 (proposing "that the public trust doctrine is being underutilized by the states and that the optimal approach to the western states' water scarcity dilemma is one that applies the public trust doctrine more aggressively while simultaneously diminishing the applicability of the prior appropriation doctrine with its inherently private

II. PROPERTY RIGHTS IN SURFACE WATER

Riparian Rights, Prior Appropriation, and the Language of Property

The two major legal regimes for water rights in this country are based on riparianism and the prior appropriation doctrine. However, a few western states, including California, Nebraska, and Oklahoma, have adopted a dual system of appropriation and riparianism, named the "California Doctrine."[23] Riparian water rights are primarily based upon property rights in land adjacent to a water resource rather than based on water use.[24] Real property ownership entitles the landowner to use the nearby water, and the land value of these riparian parcels will reflect this advantageous water right. While riparian rights have been limited and subject to the public navigation right,[25] they have nonetheless been considered valuable water rights.[26]

The prior appropriation doctrine, developed in the arid regions of the western United States, gives water rights to the individual who first diverts the water and puts it to a beneficial use, regardless of land ownership.[27] Under both the prior appropriation doctrine and riparian

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property approach to water resource entitlement"). *But see, e.g.*, Scott Andrew Shepard, *The Unbearable Cost of Skipping the Check: Property Rights, Takings Compensation & Ecological Protection in the Western Water Law Context*, 17 N.Y.U. ENVTL. L.J. 1063, 1067 (2009) (concluding that "efforts to undermine the compensable property-right status of water rights" are unsuccessful because historical and federal doctrines such as the public trust doctrine do not support these "compensation-stripping" proposals).

23. *See* GEORGE A. GOULD, DOUGLAS L. GRANT, & GREGORY S. WEBER, CASES AND MATERIALS ON WATER LAW 9 (7th ed. 2005).

24. Leshy, *supra* note 12, at 1987; *see, e.g.*, Port of Portland v. Reeder, 280 P.2d 324, 333 (1955) (finding that upland owners acquired such water rights "as inhere in riparian owners on navigable water, subject to the limitations").

25. *See, e.g.*, Fox River Paper Co. v. R.R. Comm'n of Wis., 274 U.S. 651, 654, 656 (1927) (noting that under Wisconsin state law "neither the riparian owner nor the state could develop water power by placing a dam in a navigable river resting upon its banks without the consent of the other, and that the state might withhold its permission or grant it on conditions").

26. *See* Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 446 (1892) (recognizing riparian right as valuable property that "[can]not be arbitrarily or capriciously impaired"); Yates v. Milwaukee, 77 U.S. (10 Wall.) 497, 504 (1870) ("This riparian right is property, and is valuable . . . ."); *In re* Willow Creek, 144 P. 505, 515 (Or. 1914) (calling the riparian right a valuable interest "which should not to be ignored"). *Cf., e.g.*, Ariz. Copper Co. v. Gillespie, 230 U.S. 46, 57 (1913) (acknowledging as a "special injury" suffered by a plaintiff contamination of the Gila River "affecting the . . . value of his property rights as a riparian owner").

27. David L. Callies & Calvert G. Chipchase, *Water Regulation, Land Use and the Environment*, 30 U. HAW. L. REV. 49, 83–84 (2007) (explaining that Colorado's adoption of the doctrine of prior appropriation "grants water rights prioritized by the chronological order in which they were [obtained]" and that the doctrine generally requires: "(1) intent to make an appropriation; (2) taking or diverting the water from the stream; and (3) application of the

rights, there is debate over whether the water rights should be considered property in the traditional sense or whether they are merely rights to use the water. If we deem water to be a property right, government restrictions on the right to use water may result in a finding that water users must be justly compensated under the Takings Clause and may also generate due process or equal protection claims.[28]

Even within these water law doctrines, jurisdictions vary as to how they view property rights in water and as to who actually owns interests in water.[29] As the Court of Federal Claims observed in *Klamath Irrigation District v. United States*,[30] there are many variations in the water laws of the western states, and the various approaches of these states can be divided into three different categories: (1) riparian; (2) prior appropriation; and (3) a dual system, which is a hybrid of the prior two.[31] Under the prior appropriation doctrine portion of California's dual system, the appropriator "acquires no property right or any other right against the state" until the state issues a permit and all the conditions of the permit have been met, which then converts the permit into a license.[32] Additional

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water to beneficial use"); *see also* Hydro Res. Corp. v. Gray, 173 P.3d 749, 757 (N.M. 2007) (explaining that under the appropriation doctrine, "the person who develops water by putting it to beneficial use becomes the owner of the water right and can put it to his own use, sell or lease it, or transfer it to a different place and purpose of use (subject to the requirement that it will not impair other rights)"); Mulvaney, *supra* note 8, at 324 (acknowledging that the first user of water obtains a senior appropriation right "[r]egardless of the proximity of the ultimate water use to the relevant water source"); Zellmer & Harder, *supra* note 4, at 698 (noting that once appropriative water rights are obtained by putting water to a beneficial use, such rights "can be conveyed by deed, lease, mortgage, or inheritance as an appurtenance with a conveyance of the land where the water was initially put to use").

28. *See* Parobek, *supra* note 11, at 211 (explaining that although water had been deemed a property right in several previous cases, interested parties were taken by surprise when the Court of Federal Claims in *Tulare Lake* ordered compensation for loss of water rights because of the ESA) (citing Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed Cl. 313 (2001)).

29. *See* Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 516–18 (2005) (determining that the question as to who owns water rights under the Reclamation Act is controlled by state law, either that of Oregon or California); *Hydro Res. Corp.*, 173 P.3d at 754 (2007) ("[S]tate law controls any issues pertaining to water rights.") (citing Andrus v. Charlestone Stone Prods. Co., 436 U.S. 604, 613–14 (1978)); Kinross Copper Corp. v. State, 981 P.2d 833, 840 (1999).

30. 67 Fed. Cl. at 522 n.25.

31. *Id.* (citing 1 WELLS A. HUTCHINS, WATER RIGHTS LAWS IN THE NINETEEN WESTERN STATES 2–3 (1971)).

32. Brian E. Gray, *The Property Right In Water*, 9 HASTINGS W.-NW .J. ENVTL. L. & POL'Y 1, 15 (2002) (quoting E. Bay Mun. Util. Dist. v. Dep't of Pub. Works, 35 P.2d 1027, 1029 (Cal. 1935)).

limitations on these water rights, such as reasonable use and the public trust doctrine, result in a "conclusion that water rights are—and always were—fragile."[33] Recognizing this fragility of water rights, we should avoid a property label[34] in favor of a more apt description such as usufructuary[35] rights or "licenses," which convey the limited extent of the right,[36] or we should instead rely on other legal constructs, such as contract law.[37]

Water is an unusual resource in that it is constantly changing in form, quantity, and location and is difficult to exclusively possess.[38] When viewed through the lens of the bundle of rights metaphor used for real property, the right to use water dons the classical characteristics of exclusivity, alienability, and utility.[39] Through this view, "[w]ater rights are property rights and cannot be taken except for a public use and upon the payment of compensation."[40] However, it appears that some states view property rights in water differently than property rights in land, treating water as a communal right,

33. *See id.* at 16.

34. It should be noted that some commentators could argue that "there is no scholarly or judicial consensus regarding the definition of property," so even a property label is unlikely to resolve the problem. Bell & Parchomovsky, *supra* note 16, at 579–80.

35. *See* Johnson, *supra* note 2, at 207 (noting that since "riparian and appropriative rights are fundamentally use-measured rights rather than quantity-measured rights" the parameters of the rights have been "determined by a specific use rather than a predetermined quantity"); *id.* at 216 (suggesting that like riparian rights, appropriative rights should be viewed as usufructuary instead of exclusionary or based on quantity).

36. *See infra* Part II.B (discussing analogous natural resource licenses such as for mining, oil and gas, and grazing).

37. *See, e.g.*, Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 540 (2005) (resolving the water rights dispute based on contract law rather than on property rights).

38. Zellmer & Harder, *supra* note 4, at 691–92 ("Water is a unique resource."); Gray, *supra* note 32, at 2 ("[W]ater rights are a unique form of property—limited by hydrologic variability, competing demands, the doctrines of reasonable and beneficial use, and in some states overtly environmental laws such as the public trust and statutory directives to protect instream flows and water quality.").

39. For a good discussion of the nature of property rights in general and property characteristics, see Zellmer & Harder, *supra* note 4, at 701–13.

40. Callies & Chipchase, *supra* note 27, at 73; *id.* at 73 n.137 (citing numerous United States Supreme Court decisions supporting the proposition that "[w]ater rights are property rights and compensation is owed when water rights are taken for a public use"); *see also* James H. Davenport & Craig Bell, *Governmental Interference With the Use of Water: When Do Unconstitutional "Takings" Occur?*, 9 U. DENV. WATER L. REV. 1, 4 (2005) ("[T]here is little doubt that the right to use water, generally, is a legally defensible interest that stands on equal footing with other traditional property rights.").

rather than as private property protected against government takings without just compensation.[41]

Characteristics of water are distinguishable from other resources in that: water cannot be exclusively possessed; it constantly moves from surface to ground, to air, to consumption; and there is always uncertainty as to the quantity that will be available for use because "drought, precipitation, and variable human uses create ever-changing circumstances."[42] As a resource necessary to human survival, water has historically been treated as a communal right.[43] Indeed, many scholars argue that access to clean drinking water is a universal human right[44] and this "Right of Thirst" appears to have pervasively existed over long periods of time and in multiple cultures.[45] Unlike private land ownership, which is not required for survival, water is a human necessity with an elusive and fluid nature that should not be subject to private ownership. Water should not be compared to land under the bundle of rights metaphor in order to assign private interests to this public resource. Instead, the "web of interests" metaphor, proposed by Professor Tony Arnold, may more appropriately address the characteristics of water such that rights to this communal resource take into consideration the interrelatedness of things and people.[46]

The personal property rights "rule of capture" doctrine, traditionally applied to the capture of wildlife, has also been applied to public resources such as water and minerals in order to allocate these resources to private ownership rights.[47] Applying the "rule of

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41. Leshy, *supra* note 12, at 1992–93 (citing California's original Water Code, providing for compensation for a state taking only in the amount actually paid to the state for the water right, which was usually zero).

42. Zellmer & Harder, *supra* note 4, at 691–92.

43. *See id*. at 693–94 (discussing the history of water laws and the public trust doctrine and noting that "[t]here is 'an astonishingly universal regard for communal values in water worldwide'") (quoting Erin Ryan, Comment, *Public Trust and Distrust: The Theoretical Implications of the Public Trust Doctrine for Natural Resource Management*, 31 ENVTL. L. 477, 478 (2001)).

44. *But see* Arnold, *supra* note 5, at 813–20 (discussing the difficulty of applying current legal doctrine, particularly in the United States, to support a human right in water).

45. *See* James Salzman, *Thirst: A Short History of Drinking Water*, 18 YALE J.L. & HUMAN. 94, 120–21 (2006) (arguing for "the need to move away from simplistic dichotomies such as rights versus markets, or public versus private management").

46. *See* Zellmer & Harder, *supra* note 4, at 719–20 (citing Craig Anthony Arnold, *The Reconstitution of Property: Property as a Web of Interests*, 26 HARV. ENVTL. L. REV. 281 (2002)).

47. Michael C. Blumm & Lucus Ritchie, *The Pioneer Spirit and the Public Trust: The American Rule of Capture and State Ownership of Wildlife*, 35 ENVTL. L. 673, 675 (2005).

capture" doctrine to wildlife resources "encouraged resource exploitation . . . [and] promoted investment in capture technology."[48] In the end, this exploitation led to wildlife overharvesting in the nineteenth century.[49] However, "virtually all states continue to claim ownership of wildlife within their borders," which allows them to "own wildlife in trust for their citizens" and restrain capture accordingly.[50] Consequently, other natural resources to which the rule of capture has been applied, namely water, should be similarly subject to state trust obligations and thus protected from private exploitation that conflicts with the public interest.[51] State restraints on using water should not subject the government to constitutional limitations, such as the Takings Clause, that it would otherwise face when regulating private property.[52]

Without defining the term "property," some western states have specifically identified water rights as protected property.[53] For example, in Montana, the state constitution provides that "all . . . waters within the boundaries of the state are the property of the state for the use of its people,"[54] and in Colorado, the state supreme court has noted that "[w]hatever the exact nature of the property interest, water rights . . . can be conveyed and the quality of the title may be warranted much like with real property."[55] However, early Colorado law also declared that a water right, while rising "to the dignity of a distinct usufructuary estate, or right of property," is limited in that it must be used for a beneficial purpose and is subject to prior appropriations.[56] Unlike many other western states, it appears that Colorado recognizes strong property rights in water and vests these rights to support an active water market without much regard for public trust interests.[57]

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48. *Id.* at 690.

49. *See id.* at 719.

50. *Id.* at 719–20.

51. *See infra* Part II.B.2 (discussing the public trust doctrine and limitations on property rights in water).

52. *See* Blumm & Ritchie, *supra* note 47, at 719 ("[S]tate regulation of wildlife harvests and wildlife habitat may be insulated from takings claims due to the state ownership doctrine.").

53. *See* Abelson, *supra* note 13, at 419–20 (noting generally that the notion of water as "a form of property is deeply rooted in the traditions of the West[,]" specifically discussing Colorado and Montana).

54. *See id.* (citing MONT. CONST. art. IX, § 3, cl. 3).

55. Navajo Dev. Co. v. Sanderson, 655 P.2d 1374, 1377–78 (Colo. 1982).

56. *See* Coffin v. Left Hand Ditch Co., 6 Colo. 443, 446–47 (1882).

57. *See* Zellmer & Harder, *supra* note 4, at 733–34 (observing that in Colorado "[t]he public trust doctrine has limited import, and water rights are granted and can be transferred

Eastern states are reevaluating their earlier views of the nature of property rights in water as they confront changes in supply and demand and face water shortages in regions once viewed as water-rich.[58] Some states are increasing management of water allocation through the use of permits and are moving away from common law doctrines that are not equipped to deal with surface and groundwater shortages.[59] Recent water scarcity woes have also encouraged states to turn towards market solutions in the public and private sectors through the commodification of water.[60] Finally, as Professor Robin Kundis Craig notes in her comprehensive article, *A Comparative Guide to the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, several eastern states have been influenced by California decisions to expand their state public trust doctrine to include water rights and ecological protection.[61]

Academic approaches to property rights in water are muddied as well. For example, one scholar concludes that "in most, if not all, states and in most, if not all, circumstances, municipalities and irrigation districts or district members [with contracts with the U.S. Bureau of Reclamation] do have property rights under state law."[62] Yet, in the same article, the author states that "[a] water right, whether obtained under the riparian doctrine or the appropriation doctrine, is a usufruct, that is, it confers no ownership of the flowing water but only allows its holder to take and use waters belonging to the public or the state."[63] Finally, the author concludes that while the

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with no regard for the general public interest"). *But see* COLO. REV. STAT. ANN. § 37-92-102 (West 2009) ("[A]ll water in or tributary to natural surface streams, not including nontributary ground water . . . originating in or flowing into this state have always been and are hereby declared to be the property of the public, dedicated to the use of the people of the state . . . .").

58. *See* Miano & Crane, *supra* note 14, at 14; Arnold, *supra* note 5, at 786 ("[T]he U.S. Southeast now struggles with drought, relentless and growing demand for water, depleting water sources, and persistent conflicts among major water users.").

59. *See* Miano & Crane, *supra* note 14, at 14 ("[M]ost laws used to regulate water use in many eastern states have not really kept pace with the changes in water supply and demand patterns.").

60. *See* Arnold, *supra* note 5, at 810–12.

61. Robin Kundis Craig, *A Comparative Guide To the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, 16 PENN ST. ENVTL. L. REV. 1, 19–20 (discussing the impact of the California Supreme Court decisions Marks v. Whitney, 491 P.2d 374, 380 (Cal. 1971) and Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709, 728–31 (Cal. 1983) on eastern states).

62. Douglas L. Grant, *ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?*, 36 ENVTL. L. 1331, 1334–35 (2006).

63. *Id.* at 1364.

water interest is a usufruct and confers no ownership, it may still be subject to a physical taking.[64]

So we learn that water users have property rights under state law, but that these rights are usufructuary and do not confer ownership—only the right to take and use waters belonging to the state. However, we are also told that in some cases the state may be required to pay just compensation to a water user.[65] How then do we decide what is the property interest at issue (an ownership right or a right to use), who owns the property (the state or an individual), and whether these rights are subject to a takings claim? The Court of Federal Claims in *Klamath Irrigation District* addressed these issues stating that, "[i]n applying these [takings] principles to water, it is important to understand that *the issue here is not who owns the water*."[66] The court made it clear that the states at issue own the property rights to water in trust for the public, precluding any private property rights to water.[67]

Commentators, courts,[68] and laypersons alike insist on recognizing a property right in water and boldly state that "[t]he right to the use of water in the arid region is among the most valuable property rights known to the law."[69] However, the fluid nature of water rights makes it difficult to grasp whether water rights are property, as defined by our land-based, bundle-of-rights approach to understanding property,[70] or whether we should use a different metaphor and baseline to describe water rights.[71] Developing an

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64. *Id.*

65. *See* Casitas Mun. Water Dist. v. United States, 543 F.3d 1276 (Fed. Cir. 2008) (finding the government's actions to be a taking of Casitas' right to the water).

66. 67 Fed. Cl. 504, 515 (2005) (emphasis added).

67. *See id.* (noting that, under either Oregon or California law, water within the state belongs to the public).

68. *See, e.g.*, Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 318–19 (2001) (holding water use restrictions imposed under the ESA constituted a physical taking); White v. Farmers' Highline Canal & Reservoir Co., 43 P. 1028, 1030 (Colo. 1896) ("The right to the use of water in the arid region is among the most valuable property rights known to the law.")

69. Abelson, *supra* note 13, at 407.

70. *See, e.g.*, Hydro Res. Corp. v. Gray, 173 P.3d 749, 755 n.5. (N.M. 2007) ("'[N]either surface water, nor ground water, nor the use rights thereto, nor the water-bearing capacity of natural formations belong to a landowner as a stick in the property rights bundle.'") (quoting Bd. of Cnty. Comm'rs v. Park Cnty. Sportsmen's Ranch, 45 P.3d 693, 707 (Colo. 2002) (en banc)).

71. *See* Arnold, *supra* note 5, at 838–39 (discussing the author's metaphor using a web-of-interests concept for property interests in water and the suggestion by Professors Zellmer and Harder that this is the appropriate metaphor).

alternative approach to water rights needs to be informed by understanding existing limitations on these rights and how the limitations impact the fluidity of the rights.

Limitations on Property Rights

Property rights may be limited based upon state law defining what constitutes the property right, or by state or federal law subsequently imposing conditions on usage.[72] As the water law regimes developed, states placed limitations on the water rights based upon scarcity and the need to allocate these resources to increasingly competitive interests.[73] State law may declare that the public owns all waters in the state and that certain conditions and limitations apply. For example, states may require that water not be wasted, that it be used reasonably, that it be efficiently diverted, and that water rights are subject to regulation to benefit the public.[74] In addition, the public trust doctrine and the navigation servitude limit riparian and appropriation water rights such that "water rights actually have less protection than most other property rights," and these limitations are inherent in the definition of water rights.[75] Finally, external factors

72. *See id.* at 807 (discussing the various common law doctrines that limit private rights in water); Jan G. Laitos & Richard A. Westfall, *Government Interference with Private Interests In Public Resources*, 11 HARV. ENVTL. L. REV. 1, 71 (1987) ("[I]f the terms of the interest acquired by a party give notice that the interest may be subject to later conditions, eventual imposition of conditions is neither unreasonable nor is it a taking.").

73. *See* Scott S. Slater, *State Water Resource Administration in the Free Trade Agreement Era: As Strong as Ever*, 53 WAYNE L. REV. 649, 668–69 (2007) (discussing the typical practice of states to condition the right to continued use of water upon compliance with state laws governing, including, for example, "the method and timing of withdrawals, storage, distribution, use and discharge"); Dale B. Thompson, *Of Rainbows and Rivers: Lesson for Telecommunications Spectrum Policy from Transitions in Property Rights and Commons in Water Law*, 54 BUFFALO L. REV. 157, 176 (2006) ("After initial attempts to use riparian doctrine in the Western United States ran into difficulties, the prior appropriation doctrine was established to deal with the scarcity of water supplies presented in the West."); Olivia S. Choe, Note, *Appurtenancy Reconceptualized: Managing Water in an Era of Scarcity*, 113 YALE L.J. 1909, 1912 (2004) (discussing the development of statutory efforts to place limitations on water use by riparian owners "often adopted in response to scarcity concerns").

74. *See* Abelson, *supra* note 13, at 420–21 (noting that under both Colorado and Nevada law, the view that "[w]ater belongs to the state for the benefit of the public" is "supported by both the public trust doctrine and the navigational servitude").

75. *Id.* at 421–23 ("[T]he subsequent exercise of state authority to regulate water rights is not a redefinition or repudiation of a water right, but is instead a recognition of inherent limitations imbued in any water right.").

such as floods, droughts, and groundwater extraction limit the certainty and availability of water rights.[76]

Reasonableness and Beneficial Use

Most jurisdictions, either riparian or appropriation, or a hybrid of the two, limit water rights based on the requirement that the water use be reasonable.[77] Riparian jurisdictions originally recognized absolute ownership rights to adjacent watercourses based on the natural flow theory from English common law.[78] The natural flow theory provides that "'[e]ach riparian owner on a waterbody is entitled to have the water flow across . . . the land in its natural condition, without alter[ation] by others of the rate of flow, or the quantity or quality of the water.'"[79] However, during the nineteenth century many eastern states adopted the reasonable use limitation on riparian rights, also called the American Rule, which provides that "all riparian owners bordering a common watercourse have an equal right to use the water for all reasonable lawful purposes, as long as such use does not cause unreasonable harm to other riparians."[80] Reasonable use is determined by balancing the riparian owner's needs against the needs of other riparian owners and taking into consideration the facts and circumstances of each situation.[81] The reasonable use doctrine addressed the East's shift from an agricultural society to an industrialized economy by changing common law water rights to accommodate community needs.[82]

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76. Zellmer & Harder, *supra* note 4, at 699; *see also* Doremus & Tarlock, *supra* note 9, at 301 ("State entitlements are subject both to climate variability, which can substantially reduce the amount of water available to junior right-holders, and to federal law . . . .").

77. *See* Zellmer & Harder, *supra* note 4, at 694 (noting that after the Industrial Revolution, "[t]he principle of undiminished natural flow evolved into the doctrine of reasonable use, which allows all reasonable uses of water on the riparian tract, even if natural flows are diminished").

78. *See* Christine A. Klein, Mary Jane Angelo & Richard Hamann, *Modernizing Water Law: The Example of Florida*, 61 FLA. L. REV. 403, 415 (2009).

79. R. Timothy Weston, *Harmonizing Management of Ground and Surface Water Use under Eastern Water Law Regimes*, 11 U. DENV. WATER L. REV. 239, 247 (alterations in original) (citing 1 WATERS AND WATER RIGHTS § 7.02(c) (Amy K. Kelly ed., repl. vol. 2007) (Robert E. Beck ed., 1991)).

80. Klein, Angelo & Hamann, *supra* note 78, at 415 (citing Taylor v. Tampa Coal Co., 46 So. 2d 392, 394 (Fla. 1950)); *see also* Choe, *supra* note 73, at 1930–34 (discussing reasonable use as doctrine).

81. 78 AM. JUR. 2D *Waters* § 33 (West 2009).

82. Marcia Valiante, *The Future of Common Law Water Rights in Ontario*, 14 J. ENVTL. L. & PRAC. 293, 308–09 (2004).

In prior appropriation or hybrid jurisdictions, water must be put to a beneficial use before any rights to the water can be acquired.[83] For example, under Nevada law, those who put water to a beneficial use are allowed the right to the use of the water, but they are not considered to "own title to the water."[84] The beneficial use requirement will prevent speculation or water hoarding, which would not constitute a diversion for a truly beneficial use. Therefore, those speculating or hoarding the water will not acquire any rights or title to the water.[85] In California, "water rights are subject to the universal limitation that the use must be both reasonable and for a beneficial purpose."[86] Therefore, rights in surface water based upon prior appropriation within California are "measured by both the amount and the nature of the use to which the water may be put," and changed conditions may result in what was once a beneficial use becoming a waste of water, unreasonable and unprotected as a property right.[87]

In resolving how to mesh riparianism and prior appropriation doctrines, the California Supreme Court in *Joslin v. Marin Municipal Water District*[88] made it clear that riparian rights would no longer exist if a new appropriation made a continuing riparian use unreasonable.[89]

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83. *See* Hydro Res. Corp. v. Gray, 173 P.3d 749, 755 n.5 (N.M. 2007) ("That appropriation of water to beneficial use produces a water right independently of ownership of the land is the majority position among those western states with a developed body of case law on that subject.").

84. Estate of Hage v. United States, 82 Fed. Cl. 202, 210 (2008) ("Plaintiffs would have put the waters to beneficial use to irrigate their own agricultural pastures, or could have sold the water to others to use for the same purpose . . . .").

85. *See, e.g.*, Lanning v. Osborne, 76 F. 319, 332 (C.C.D. Cal. 1896) (noting that the California Constitution "provides that the water of natural streams may be diverted to beneficial use; but the privilege of diversion is granted only for uses truly beneficial, and not for the purposes of speculation"); Colo. Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist., 77 P.3d 62, 78–79 (Colo. 2003) ("The anti-speculation doctrine precludes the appropriator *who does not intend to put water to use for her own benefit, and has no contractual or agency relationship with one who does,* from obtaining a water use right. . . . [A] person who intends to hold the right *only to sell it or dispose of it for profit in the future, rather than acquire it for the purpose of applying water to an identified beneficial use,* is not entitled to a determination of a water use right.") (emphasis added); Combs v. Agric. Ditch Co., 28 P. 966, 968 (Colo. 1892) ("The [Colorado] constitution provides that the water of natural streams may be diverted to beneficial use; but the privilege of diversion is granted only for uses truly beneficial, and not for purposes of speculation.") (interpreting COLO. CONST. art. XVI, § 6).

86. Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 321 (2001) (citing CAL. CONST. art. XIV, § 3, amended by CAL. CONST. art. X, § 2).

87. Leshy, *supra* note 12, at 1996–98.

88. 429 P.2d 889 (Cal. 1967).

89. *Id.* at 898.

The court held that the riparians' inverse condemnation claim for water rights destruction by an upstream dam was precluded by their unreasonable use as compared to the new appropriation for domestic water.[90] In California, "[w]hat constitutes reasonable water use is dependent upon not only the entire circumstances presented but varies as the current situation changes"[91] and by statute and judicial decision "'[t]he use of water for recreation and preservation and enhancement of fish and wildlife resources is a beneficial use of water.'"[92] Therefore, in California and possibly in other states recognizing the public trust doctrine, the government requirement that water remain instream to protect public resources is considered a reasonable and beneficial water use.

This fluid and changing nature of water rights, based upon the doctrine of reasonable use (and the public trust doctrine as well), makes these evolving definitions subject to challenge as an "ex post facto definition of the property right."[93] However, whether such a challenge, based on a retroactive definition, or a takings challenge will be successful is determined by whether the state's property law supports a continuing reevaluation of the water right based on reasonableness. As a result, water rights will continue to be fragile when viewed as a property right according to our land-based standards.[94]

Public Trust Doctrine

The public trust doctrine reserves water rights for the public's benefit and provides that the state has an obligation to preserve these resources for the people.[95] These public rights to water and certain

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90. *Id.* ("[S]ince there was and is no property right in an unreasonable use, there has been no taking or damaging of property by the deprivation of such use and, accordingly, the deprivation is not compensable."); *see also* Gray, *supra* note 32, at 10 (citing *Joslin*).

91. Envtl. Def. Fund v. E, Bay Mun. Util. Dist., 605 P.2d 1, 6 (Cal. 1980).

92. Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 658 P.2d 709, 726 (Cal. 1983) (quoting CAL. WATER CODE § 1243).

93. Gray, *supra* note 32, at 15.

94. *Id.* at 15–17 (arguing that if courts require the government to pay for a taking when it is preventing an unreasonable use, water users receive a windfall).

95. *See, e.g.*, Callies & Chipchase, *supra* note 27, at 69 (citing HAW. CONST. art. XI, §§ 1, 7) ("Section 1 provides that 'for the benefit of present and future generations, the State and its political subdivisions shall protect and conserve . . . all natural resources, including . . . water.' Section 7 explains that '[t]he State has an obligation to protect, control, and regulate the use of Hawaii's water resources for the benefit of its people.'" (alterations in original)); *id.* at 92 ("Despite a trend toward private water rights and capitol [sic] improvement, 'the Constitution of New Mexico declares that the *unappropriated* waters of the state "belong to the public." This

other natural resources are recognized under the common law public trust doctrine as being "held in trust for the benefit and use of all people."[96] The doctrine's reach originated with the "ownership of lands washed by the tides and lying beneath navigable waters."[97] In the United States, the concept of "state ownership of public resources in trust for all citizens . . . began with the 1821 New Jersey Supreme Court decision *Arnold v. Mundy*" where the Court held that New Jersey's navigable waters, and submerged lands beneath them, were vested in the state and were destined for the use of all citizens based upon English common law.[98] The U.S. Supreme Court adopted the New Jersey approach in 1842 in *Martin v. Waddell* and further expanded this public trust doctrine in 1855 in *Smith v. Maryland* and in 1891 in *Manchester v. Massachusetts* to eventually cover both water resources and wildlife.[99] According to the Court's 1891 decision in

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expression of public ownership has been construed to mean that the members of the public have the right to appropriate water for their private use, but it has also been construed to vest the state with ownership of the resource.'") (emphasis in original) (quoting Charles T. Dumars, *Changing Interpretations of New Mexico's Constitutional Provisions Allocating Water Resources: Integrating Private Property Rights and Public Values*, 26 N.M. L. REV. 367, 368 (1996)); Abelson, *supra* note 13, at 421–22 (noting that "[t]he public trust doctrine holds that the submerged beds and banks of navigable for title waters went to the states upon statehood" and that the state has an obligation based upon public trust "to preserve these waters for public uses such as navigation, commerce, and fishing"). *But see* Callies & Chipchase, *supra* note 27, at 95 (arguing that the Hawaii court in both the *Wai'ahole* decision and in a new decision, *Kukui (Molokai), Inc.*, "continued to overstate both the place of the public trust doctrine in disputes governed by statute and the preeminence of native Hawaiian rights in water allocation matters").

96. Mulvaney, *supra* note 8, at 318; *see also id.* at 350–51 (observing that this doctrine has been expanded in some states to cover "periodically and recreationally navigable waters and their tributaries, adjacent wetlands, artificial reservoirs and lands covered by water caused by dams, flooded lands, and groundwater").

97. Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 727–28 (1986).

98. Blumm & Ritchie, *supra* note 47, at 693–94 (citing Arnold v. Mundy, 6 N.J.L. 1, 52 (N.J. Sup. Ct. 1821)); *see also* Rose, *supra* note 97, at 729 ("The first American case to apply the phrase [public trust] to waterways was *Arnold v. Mundy* in 1821 . . . ."); Jack Tuholske, *Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources*, 9 VT. J. ENVTL. L. 189, 214 (2008) ("Early American jurisprudence adopted England's version [of the public trust doctrine], which holds navigable waters in trust for the public in order to protect navigability and promote commerce."); Dibadj, *supra* note 18, at 1107 ("[The] earliest American manifestation [of the public trust doctrine] is the New Jersey Supreme court case of *Arnold v. Mundy*, where the defendant took oysters from an oyster bed which the plaintiff claimed belong to him under a land grant tracing back to the King of England." (citation omitted)).

99. Blumm & Ritchie, *supra* note 47, at 694–96 (explaining how the public trust doctrine was eventually extended to wildlife) (citing Martin v. Waddell, 41 U.S. (16 Pet.) 367 (1842), Smith v. Maryland, 59 U.S. (18 How.) 71, 75 (1855), and Manchester v. Massachusetts, 139 U.S. 240 (1891)).

Knight v. United Land Association,[100] this public trust obligation also covered public lands, requiring the Secretary of the Interior to protect public lands. Shortly thereafter, in 1892, the Court in *Illinois Central Railroad v. Illinois*[101] clearly defined the public trust doctrine to require states to preserve navigable waters and submerged lands for the public's use.[102] These trust duties were later expanded by the California Supreme Court in *National Audubon Society v. Superior Court of Alpine County (Mono Lake)*[103] to require the state to consider potential adverse effects of actions that might impair trust resources.[104]

Each state has the authority to "hold in trust waters affected by the ebb and flow of the tide even where they are not navigable in fact."[105] California law has been interpreted to require the state Water Resources Control Board to ensure that the water permits it has issued continually comply with public trust requirements.[106] This interpretation recognizes that "the state owns all of the water in the state, and [that] although water rights holders have the right to use water, they do not own the water and cannot waste it."[107] The Hawaii Supreme Court, in the *Wai'ahole Ditch* decision,[108] affirmed that the public trust doctrine applied to all water resources in the state, including both navigable and non-navigable surface water and groundwater.[109] It explained that "when land in Hawaii passed from the kingdom to private owners, the kingdom reserved title to all water to itself."[110]

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100. 142 U.S. 161, 177 (1891).

101. 146 U.S. 387, 452–53 (1892).

102. *See* Mont. Coal. for Stream Access, Inc. v. Curran, 682 P.2d 163, 167 (Mont. 1984) ("The Public Trust Doctrine was first clearly defined in *Illinois Central Railroad* . . . ."); Rose, *supra* note 97, at 737–38 ("*Illinois Central* sparked a new line of state 'public trust' jurisprudence.").

103. 658 P.2d 709 (Cal. 1983).

104. Blumm & Ritchie, *supra* note 47, at 714–15.

105. Tuholske, *supra* note 98, at 216 (citing Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 483 (1988).

106. *See* Zellmer & Harder, *supra* note 4, at 741 (citing *Nat'l Audubon Soc'y*, 658 P.2d at 730–31).

107. *Id.* at 739–40 (noting criticism of Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313 (2001), which "refused to recognize either the public trust doctrine or California's constitutional requirement that uses of water be both beneficial and reasonable as an inherent limitation on title").

108. *In re* Water Use Permit Applications (Wai'ahole Ditch), 9 P.3d 409 (Haw. 2000).

109. *Id.* at 440 (citing King v. Oahu Ry. & Land Co., 11 Haw. 717 (1899)).

110. Callies & Chipchase, *supra* note 27, at 69; *see also* Mulvaney, *supra* note 8, at 318–19 (noting that Hawaii "became the first regulated riparian state to recognize explicitly that the

How western states other than California or Hawaii will handle applying the public trust doctrine to water rights is less apparent. Idaho by statute precludes applying the doctrine to water rights, but the Arizona Supreme Court struck down a similar statute, leaving it up to individual water-claims adjudications to determine how this doctrine should be applied.[111] The Washington Supreme Court held that the doctrine could not be applied to water rights by the state water administration because there was no statutory authority.[112] However, the Ninth Circuit, in applying Washington state law to a dispute involving a residential development, described Washington State's recognition of the public trust doctrine and affirmed that "Washington's public trust doctrine ran with the title to the tideland properties and alone precluded the shoreline residential development proposed by Esplanade."[113] As Professor Douglas L. Grant observed, "the status of the public trust doctrine as a title limitation on water rights is uncertain at best in western states except for California and perhaps Arizona."[114]

It was suggested that local communities be responsible for managing public lands on a regional or watershed basis to keep the lands in public ownership and manage them in an ecologically sustainable manner.[115] Utah provides for "comprehensive, watershed-based planning and management for Great Salt Lake,"[116] which necessarily impacts two other neighboring states because of their hydrologic connection to the watershed.[117] Utah's Constitution provides specifically that public lands and waters are protected under

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public trust doctrine operates independently of the state's legislatively pronounced water code").

111. *See* Grant, *supra* note 62, at 1376–77 (citing Act of Mar. 19, 1996, ch. 342, § 1, 1996 Idaho Sess. Laws 1148-49 (codified at IDAHO CODE ANN. § 58-1203 (2006)) and San Carlos Apache Tribe v. Superior Court, 972 P.2d 179, 199 (Ariz. 1999)).

112. *See id.* at 1377 (citing Rettkowski v. Dep't of Ecology, 858 P.2d 232, 239 (Wash. 1993)).

113. Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 985–86 (9th Cir. 2002).

114. Grant, *supra* note 62, at 1377; *see also* Rose, *supra* note 97, at 722 ("Despite its popularity, the modern public trust doctrine is notoriously vague as to its own subject matter; cases and academic commentaries normally fall back on the generality that the content of the public trust is 'flexible' in response to 'changing public needs.'").

115. *See* Keiter, *supra* note 18, at 1207 (discussing locally managed plans proposed by Daniel Kemmis and the Lubrecht group, respectively).

116. Robert W. Adler, *Toward Comprehensive Watershed-Based Restoration and Protection for Great Salt Lake*, 1999 UTAH L. REV. 99, 132 (1999).

117. *Id.* at 202 (discussing the need to include Idaho and Wyoming in some kind of interstate compact or other mechanism).

the public trust doctrine,[118] but the Utah Department of Natural Resources has sought to include commercial and industrial development as public uses under the doctrine, in addition to the wildlife and ecological resources that are typically protected by it.[119] If the public trust doctrine is considered to be constitutionally based, this potential conflict in competing public uses may require Utah to protect navigation, fish life, and ecological resources above local commercial and development interests, which are not typically considered under the doctrine to be protected public uses.[120]

Eastern states have also struggled with defining the contours of the public trust doctrine.[121] As discussed in the first part of this section, some eastern states, such as New Jersey and Massachusetts, already recognized a state public trust doctrine by the time the U.S. Supreme Court in *Illinois Central Railroad Co. v. Illinois* articulated a federal public trust doctrine.[122] While several states currently regard the doctrine as primarily addressing navigation and commerce, similar to the federal view, some eastern states have been influenced by California's decisions expanding the doctrine to include water rights and ecological protection.[123] Thus, there is not a uniform state public trust doctrine recognized in either the West or the East. The significant differences that exist among the states may broaden as states respond to new public demands on water resources generated by development, scarcity, and climate change.[124]

Federal Reserved Rights

The federal government can limit both state and private water rights by asserting federal reserved rights, which "arise by reason of the creation of an Indian reservation or federal land management

118. *Id.* at 154 & n.324 ("State lands 'are hereby accepted, and declared to be the public lands of the State; and shall be held in trust for the people.'") (quoting UTAH CONST. art. XX, § 1).

119. *Id.* at 192.

120. *See id.* at 192–94 (urging "that a comprehensive watershed program for Great Salt Lake be driven by principles of watershed restoration and protection rather than resource use and development").

121. *See* Craig, *supra* note 61, at 5 (noting that "several eastern states have embraced (at least rhetorically) a public trust concept that evolves and expands to fit the changing needs of society, while others remain fixed with the contours of the Supreme Court's articulation of the doctrine").

122. *See id*. at 5–6.

123. *See id.* at 19–20 ("[C]itations to California law are often an indication that eastern states are expanding their state public trust philosophies.").

124. *See id.* at 25.

unit, such as a National Wildlife Refuge, for a water-related purpose" and do not require that the water be put to a beneficial use in order to retain the rights.[125] These federally reserved rights are an exception to the general rule that "water rights are created by operation of state law."[126] The U.S. Supreme Court in *Cappaert v. United States*,[127] explained that "when the Federal Government withdraws its land from the public domain and reserves it for a federal purpose [such as a national park or forest], the Government, by implication, reserves appurtenant water then unappropriated to the extent needed to accomplish the purpose of the reservation," but only the amount needed to accomplish the purpose.[128] The Court held that the 1952 Proclamation declaring the Devil's Hole cavern on federal land in Nevada to be a national monument was intended to reserve rights such that the United States had a right to maintain groundwater levels sufficient to preserve the scientific value of the pool in the cavern.[129] Landowners withdrawing groundwater in the area of Devil's Hole were therefore properly enjoined from pumping to the extent that such pumping caused the water level to drop below the point needed to support the unique fish living in the pool.[130]

Federal reserved rights have been successfully asserted to retain instream flows sufficient to protect navigability, hunting, fishing, and aquatic habitat, as well as to provide for reasonable irrigation rights and biodiversity protection under the Endangered Species Act.[131] Some state and local governments also statutorily authorize agencies to retain instream water rights to protect environmental and recreational interests.[132] Using federal reserved rights and the public trust doctrine, both the federal and state governments restrict, to some degree, private interests in water. The public trust doctrine may

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125. Doremus & Tarlock, *supra* note 8, at 303.

126. Reed D. Benson, *Giving Suckers (and Salmon) an Even Break: Klamath Basin Water and the Endangered Species Act*, 15 TUL. ENVTL. L.J. 197, 210 (2002).

127. 426 U.S. 128 (1976).

128. *Id.* at 138.

129. *Id.* at 147.

130. *Id.* at 141–43 ("The District Court thus tailored its injunction, very appropriately, to minimal need, curtailing pumping only to the extent necessary to preserve an adequate water level . . . .").

131. *See* Winters v. United States, 207 U.S. 564, 577 (1908) (federal government may reserve water rights from state appropriation); United States v. Rio Grande Dam & Irrigation Co., 174 U.S. 690, 709 (1899) (federal government has the right to restrict state appropriation of water if it interferes with navigability of the water body); Doremus & Tarlock, *supra* note 8, at 304–06.

132. Johnson, *supra* note 2, at 232–33 & n.102 (noting that Colorado, Idaho, Montana, Utah, and Wyoming have enacted such legislation).

limit the state's ability to convey ownership in water to private interests, while federal reserved rights prohibit either private interests or a state from interfering with interstate commerce and navigability.[133] Private interests in instream rights are allowed in Alaska and Arizona, while Oregon and Washington do not allow such private rights, instead providing that the state holds such interests in trust for its citizens.[134] Montana and Oregon allow for temporary water leases to private interests, and existing water users in California may "devote water rights to instream environmental uses, but not to appropriate for that purpose."[135] Nevertheless, because the federal government claims large amounts of water through reserved rights in national parks, forests, Indian lands, and federal projects, state and private claims to waters reserved by the federal government will necessarily involve the United States in determining water rights and water resources allocation.[136]

Navigation Servitude

Finally, riparian rights are subject to a navigation servitude, which means that a riparian owner is prohibited from obstructing navigation.[137] The federal government's power over navigation is based on the Commerce Clause of the United States Constitution, and the government is not required to compensate property owners when it needs to take action to protect the public's interest in navigable waters.[138] The federal navigation servitude has overridden even the riparian right of access to a watercourse protected under

133. *See* 65 C.J.S. *Navigable Waters* § 21 (2009).

134. Johnson, *supra* note 2, at 233–34.

135. *Id.* at 234–35.

136. *See* Thomas H. Pacheco, *How Big is Big? The Scope of Water Rights Suits Under the McCarran Amendment*, 15 ECOLOGY L.Q. 627, 627 (1988) (discussing the McCarran Amendment, "which authorizes suits against the United States to determine the water rights of all parties claiming water from 'a river system or other source'").

137. *See, e.g.*, Port of Portland v. Reeder, 280 P.2d 324, 341 (1955) ("The riparian rights of defendants did not include the right to obstruct navigation, and the removal of such obstructions which have been declared and are found to constitute a public nuisance will not 'destroy or impair' defendants' riparian rights.").

138. Pacheco, *supra* note 136, at 660; Leshy, *supra* note 12, at 1999; *see also id.* at 2013 (noting that in *Lucas v. S.C. Coastal Council*, 505 U.S. 1003 (1992), Justice Scalia cited *Scranton v. Wheeler*, 179 U.S. 141, 163 (1900), for an example of a background principle of state law "where the government exercised its navigation servitude and occupied someone's (submerged) land without compensating the owner").

state law,[139] and it "supersedes any state-defined private property rights along the banks of navigable waters."[140] However, if the federal government's main purpose in taking water rights is for irrigation and reclamation, the government may be required by congressional act to pay just compensation, even if the government's actions would otherwise be authorized and not compensable under its navigation power.[141] Congress may also decide "to compensate owners of submerged land in navigable waters" instead of relying on the servitude, but there is a presumption that no compensation need be paid "where a project has a legitimate navigation purpose, and there is no ascertainable Congressional intent to pay compensation."[142]

In *United States v. Rands*,[143] the U.S. Supreme Court explained the history and the extent of the federal navigation servitude in deciding whether "the compensation which the United States is constitutionally required to pay when it condemns riparian land includes the land's value as a port site."[144] The federal power to regulate navigation is based on the power to regulate commerce and "extends to the entire stream and the stream bed below the ordinary high-water mark."[145] Since riparian owners have always been subject to this commerce regulation, "the United States may change the course of a navigable stream or otherwise impair or destroy a riparian owner's access to navigable waters, even though the market value of the riparian owner's land is substantially diminished."[146] However, the Court held that in this case compensation had to be paid because the

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139. *See* Abrams, *supra* note 14, at 401 ("[F]ederal projects promoting the national interest in navigation extinguished vital incidents of state law property rights without Fifth Amendment compensation.").

140. Robin Kundis Craig, *Valuing Coastal and Ocean Ecosystem Services: The Paradox of Scarcity for Marine Resources Commodities and the Potential Role of Lifestyle Value Competition*, 22 J. LAND USE & ENVTL. L. 355, 377 (2007) (citing Oklahoma v. Atkinson, 313 U.S. 508, 534 (1941); Arizona v. California, 283 U.S. 423, 456 (1931); Lewis Blue Point Oyster Cultivation Co. v. Briggs, 229 U.S. 82 (1913)).

141. *See* United States v. Gerlach Live Stock Co., 339 U.S. 725, 739–40 (1950) (concluding "that, whether required to do so or not, Congress elected [in the Reclamation Act of 1902] to recognize any state-created rights and to take them under its power of eminent domain").

142. Coastal Petroleum Co. v. United States, 524 F.2d 1206, 1210 (Cl. Ct. 1976).

143. 389 U.S. 121 (1967).

144. *Id*. at 121.

145. *Id*. at 122–23.

146. *Id*. at 123 (citations omitted); *see also Coastal Petroleum*, 524 F.2d at 1209 ("[N]avigation servitude is an extremely old concept—owners of property or property rights within navigable waters take those rights fully cognizant of their limited nature.") (citing United States v. Kan. City Life Ins. Co., 339 U.S. 799, 808 (1950); Gibson v. United States, 166 U.S. 269 (1897)).

servitude did not extend beyond the high-water mark, but that the government did not need to include the "port site value as part of his compensation."[147]

The navigation servitude allows the federal government, and sometimes the state governments,[148] to regulate navigable waters to the exclusion and derogation of private property interests, so long as the government is acting to protect navigation. Under the navigation servitude, the government, unless required to do so by Congress, will not be required to pay just compensation for interference with state-created water rights because private claims to the public domain cannot be created.[149] This servitude provides a limitation on private property rights in water, as do the previously discussed doctrines of federal reserved rights, the public trust doctrine, and the requirement that water be put to a reasonable and/or beneficial use. Therefore, even where a state appears to recognize the existence of property rights in water, these rights might be severely limited by federal or state law doctrines.

Usufructuary Right to Use

A usufruct in civil law is the "right for a certain period to use and enjoy the fruits of another's property without damaging or diminishing it, but allowing for any natural deterioration in the property over time."[150] Thus, when water rights are labeled as usufructuary, such a label precludes consideration of these rights as private property rights, because by definition the water user has a right to enjoy the water, but the property ownership belongs to another—I would argue, the state. For example, "under California law the title to water always remains with the state."[151] In *Estate of Hage v. United States (Hage V)*,[152] the Court of Federal Claims explained,

147. 389 U.S. at 123–25. *But see* Rivers and Harbors Act § 111 of 1970, 33 U.S.C. § 595(a) (2000) (changing the result in *Rands* such that just compensation for property taken for navigation improvement must be the fair market value of the riparian property based on its access to navigable waters).

148. *See, e.g.*, Horry Cnty. v. Tilghman, 322 S.E.2d 831, 834 (S.C. Ct. App. 1984) ("[E]ven if [private landowners] have some present interest in the submerged land, it nonetheless may be appropriated for public use (navigational purposes) by Horry County [a state governmental unit] without compensation.").

149. 389 U.S. at 125.

150. BLACK'S LAW DICTIONARY 1684 (9th ed. 2009).

151. Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 318 (2001).

152. 82 Fed. Cl. 202 (2008).

> It is important to again note the difference between water ownership and real property ownership; water is a usufructuary as opposed to a possessory right. Whereas real property ownership is defined by a right to exclude others from that property, water ownership is defined by the right to access and use that water.[153]

If the state permits a private individual or entity to enjoy a state resource such as water, grazing, timber, minerals, or other public rights held in trust, ownership is not conferred, but instead the user should pay the public for this right to enjoy. The beneficiary of this right to use should compensate the public for the market value of the benefit since received,[154] and in any event, the state should not be subject to a takings claim if it decides to withdraw the right to use.

The right to use water owned by the public is analogous to the right to use other natural resources, such as the national forests for logging and public land for grazing[155] and mining. Such a right to use may be considered a revocable license or permit.[156] Logging companies are allowed to privately benefit by harvesting timber from public land, even though they have no real property interest.[157] The Forest Service has lost money by offering private companies the right to cut down trees at a price that does not properly take into account the environmental and economic devastation which results.[158] Similarly, the Bureau of Reclamation experienced losses for water permits issued to private irrigators at prices far below the capital costs required to harness and transport water resources.[159] Instead, the

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153. *Id.* at 211.

154. *See* Bell & Parchomovsky, *supra* note 16, at 605–06.

155. *See* Erin Morrow, *The Environmental Front: Cultural Warfare in the West*, 25 J. LAND RESOURCES & ENVTL. L. 183, 199 (2005) ("The overall trend showed that protective state statutes mitigated the correlation between private land ownership and species decline, but grazing land showed the reverse trend. Endangered species fared better on grazing lands in states without restrictive statutes than in states that had enacted land use restrictions."); Sally K. Fairfax & Andrea Issod, *Trust Principles as a Tool for Grazing Reform: Learning from Four State Cases*, 33 ENVTL. L. 341, 341 (2003) (concluding that it is unlikely that trusts, auctions, or competitive leasing of grazing permits will work for federally owned lands and federal grazing reform will likely be politically difficult to accomplish).

156. *See* Laitos & Westfall, *supra* note 72, at 2 ("A private party may also acquire from the federal government the revocable right to use a public resource, often to the exclusion of others, in the form of a license or permit.").

157. Dibadj, *supra* note 18, at 1059.

158. *Id.* at 1058–59.

159. MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER 133 (rev. ed. 1993) (discussing reclamation projects in the early 20th Century in the Rocky Mountains in which the cost of the projects was so high and the ability of private irrigators to pay for the water so low that "taxpayers would have to bail them out, even if bailing them out meant a long-term bill of billions and billions of dollars").

government "gave" these public natural resources to private interests at a dear cost to the taxpayers.[160]

The public trust doctrine may require the government to protect public assets and require a usage fee that is unsubsidized if a private actor wishes to use public resources.[161] This problem of governmental "givings" also arises in the marketing of water rights since "[t]he initial allocation of entitlements is perhaps the most controversial aspect of a tradable permits system."[162] When water was abundant, it was distributed based upon first-in-time concepts.[163] As we attempt to implement marketing of permits to promote efficient use of a limited resource, we need to decide whether the initial allocations will be free to those with existing uses or require payment to the state.[164] In any event, the government should not be required to pay just compensation for a taking if it determines that the public trust doctrine requires it to revoke a grant of rights previously conferred.[165]

The degree of protection given to a user of public resources depends upon how the "rights" are classified. Some rights, such as a fee interest in federal lands or a patent under the 1872 Mining Law, are considered vested property rights and are protected against deprivation by the government without just compensation.[166] Non-vested protectable property rights, such as oil and gas leases, mineral leases, and grazing permits, can be regulated, cannot be terminated unless done so pursuant to legislation in effect at the time the right was acquired, and may be protected "from the operation of subsequently passed law."[167] However, this protection from subsequent regulation may not be available if the lease is treated as a revocable license of resources that ultimately belong to the public, unless the lease contains contractual provisions with the state granting such protection. Interests can also be classified as protected

160. Dibadj, *supra* note 18, at 1059–60 ("The Forest Service has lost an astounding amount of taxpayer money: $6 billion between 1980 and 1991, and $1 billion from 1992 to 1994."). Ironically, "[s]ome economists have argued that general federal timber management policies, by increasing cheap supply, actually hurt the very private companies they were supposed to benefit." *Id.* at 1091.

161. *See id.* at 1109–10.

162. Tietenberg, *supra* note 15, at 269–70.

163. *See id.* at 270.

164. *Id*.

165. *See* Dibadj, *supra* note 18, at 1110 ("[T]he sovereign has the right to revoke a grant conferred under the public trust.").

166. Laitos & Westfall, *supra* note 72, at 9–13.

167. *Id.* at 14.

possessory interests, such as unpatented mining claims;[168] non-discretionary entitlements, such as noncompetitive coal leases, where the government does not have the right to reject an application and may be limited in withdrawing the entitlement at a later time;[169] rights of possession, such as prospectors exploring a claim;[170] or applications for the right to use public resources which are unprotected expectations.[171]

Using federal public resource management as a potential model for water resource management, we see that public land management has typically centered on a philosophy of encouraging private development of federal resources. This is accomplished by granting private parties easements or partial title to public lands, while retaining "sufficient authority to protect federal interests."[172] The private rights conveyed are significant, but the nature of these rights differs depending upon whether they were obtained informally, how ecological interconnections are affected by the private and public ownership of specific parcels, and whether the resource involved is grazing land, timber, or a coal, oil, or gas lease. This model may not be appropriate for federal land management as it does not take into account the need to allow public participation in the decision-making process of federal agencies and managers.[173] Our existing model of state or federal ownership of water rights[174] also encourages resource development by using public water to irrigate private crops. Federal reclamation projects have funded capital investments to harness and transport water and have contractually issued water permits to retain authority over water use. However, proper management of this public resource now requires that water resources be left instream and not developed in order to meet environmental needs, just as grazing

168. *Id.* at 15 (noting that interests will be subject to substantial regulatory power).

169. *Id.* at 16–17.

170. *Id.* at 18 (stating that this right includes the "existing right to prevent third parties from interfering with the possessory interest").

171. *Id.* at 18–19.

172. Sally K. Fairfax et al., *The Federal Forests Are Not What They Seem: Formal and Informal Claims to Federal Lands*, 25 ECOLOGY L.Q. 630, 635–36 (1999).

173. *See id.* at 646 ("[T]he Normal model is a poor reference point for understanding or redesigning allocation of decisionmaking on federal lands."). Professor Fairfax and her colleagues "carefully eschew[ed] any comment on the impact of private rights to water on the normal model of federal ownership." *Id.* at 636 n.18.

174. *See id.* at 636 n.18 (article authors stating that "we carefully eschew any comment on the impact of private rights to water on the normal model of federal ownership").

leases and timber permits may need to be restricted to preserve the ecological integrity of public lands.

Determining property rights in natural resources other than water is problematic because federal land management policies must balance public and private interests in these resources, and these policies differ depending upon the resource being managed.[175] National parks are generally managed to preserve resources in a natural state for the public, public grazing lands are dedicated to commercial uses, and national forests serve multiple uses, including oil, mineral, and timber harvesting, ranching, and recreation.[176] Valuing and allocating these public resources depends upon how property rights are defined, and defining these rights depends upon how we strike the balance between public ownership and private interests in our public resources.[177] The federal government has retained title to these public assets while enticing the private sector to develop these resources by providing sufficient certainty in private rights to encourage capital investment.[178] However, both environmental and economic concerns about the adverse impacts this development has had on our public resources required the government to reexamine costly federal subsidies and adopt appropriate resource management reform.[179]

Federal grazing rights litigation illustrates the battle between landowners arguing for protectable property rights in public resources against environmentalist claims that such rights to use public resources are revocable licenses not subject to a takings claim upon revocation.[180] In *Colvin Cattle Co. v. United States*,[181] the Federal

175. Daniel S. Levy & David Friedman, *The Revenge of the Redwoods? Reconsidering Property Rights and the Economic Allocation of Natural Resources*, 61 U. CHI. L. REV. 493, 521–22 (1994).

176. *Id.* at 522 (noting that the public cannot restrict this exploitation without paying compensation).

177. *Id.* at 525–26 ("In environmental law, the need to define property rights in legal disputes may necessitate a political solution."); *see also* Debra L. Donahue, *Western Grazing: The Capture of Grass, Ground, and Government*, 35 ENVTL. L. 721, 725 (2005) ("[W]estern livestock grazing is endangering species and disrupting ecosystem processes on landscape scales at unprecedented rates.").

178. *See* Keiter, *supra* note 18, at 1156–57 (referring to "such enticements as secure tenure and below-cost market pricing").

179. *See id.* at 1157–58.

180. *See* Abelson, *supra* note 13, at 413 ("[T]he case law and statutory framework support the conclusion that grazing permits are revocable licenses which do not constitute vested property rights and are thus not subject to compensation upon revocation.").

181. 468 F.3d 803 (Fed. Cir. 2006).

Circuit clearly stated that grazing on federal public lands "was [before the 1934 Taylor Grazing Act], *and remains,* a privilege, not a right."[182] The cattle ranch lost value by losing a grazing lease on adjacent public land, and its water rights to beneficially water livestock became worthless without the associated ability to graze.[183] However, the court concluded that no taking of property had occurred since "grazing is not a stick in the bundle of rights that [the cattle ranch] has ever acquired."[184] Following the *Colvin Cattle* decision, the Court of Federal Claims in *Hage V* reiterated that a grazing permit on federal land was a revocable license, not a property right.[185] Nevertheless, these public land grazing entitlements create expectations about property and are factored into a ranch's value such that abolishing low-fee grazing permits will create uncertainty about property values and undermine the economic role played by secure property ownership.[186]

A water right is a usufructuary right, and although it entitles the holder of the right to "a vested interest in that right, the right itself is something less than the full ownership of property because it is a right not to the corpus of the water but to the use of the water."[187] The very

182. *Id.* at 807 (emphasis added).

183. *Id.* at 808.

184. *Id.*; *see also* Hydro Res. Corp. v. Gray, 173 P.3d 749, 755 (2007) (noting that water rights are distinct from land ownership such that there is no grazing right implicit in a water right for stock watering; that water rights are not implicit in mining claims; and that land and water rights are "separate unless bound together by express agreement").

185. Estate of Hage v. United States, 82 Fed. Cl. 202, 209 (2008) (refusing to compensate owners for value of cattle impounded for trespass on federal land); *see also* United States v. Fuller, 409 U.S. 488, 494 (1973) (holding that revocable grazing permits created no property rights); Acton v. United States, 401 F.2d 896, 899 (9th Cir. 1968) (holding that holders of revocable uranium prospecting permits had no right which persisted beyond taking and were not entitled to compensation when the United States cancelled the permits); White Sands Ranchers of N.M. v. United States, 14 Cl. Ct. 559, 568 (1988) (refusing to compensate ranchers for value of grazing permits because ranchers had "no enforceable property rights in the public domain"); Leshy, *supra* note 12, at 2023–24 ("There is an active market in permits to graze livestock on federal land, for example, even though federal law is absolutely clear that such permits carry with them no property right.").

186. *See* Rose, *supra* note 1, at 343–44 (observing that if low cost grazing permits are discontinued, the property value of ranches will be diminished, thus "undermining the security of people's expectations about their property" which will "undercut property's all-important economic role—that is, making owners feel secure").

187. Red Canyon Sheep Co. v. Ickes, 98 F.2d 308, 315–16 (D.C. Cir. 1938) (holding the valuable nature of the privilege to graze, which would ultimately ripen into a permit under the Act, was subject to equitable protection against an illegal act); *see also* Zellmer & Harder, *supra* note 4, at 697 ("[A] water right does not constitute ownership of the water itself; it is instead usufructuary, or 'a right to use water.'").

nature of this public communal resource obligates the sovereign to protect the resource under the public trust.[188] Like a grazing right, or the right to cut timber on federal public land, the right to use water should be treated as a revocable license. Such a license will be subject to due process challenges when revoked, but it should not support a takings claim as there is no private property interest in public resources, which are owned by the state in trust for the people.[189]

Contract Rights

Water rights may also be protected based on contract principles, without the need to view the rights as property.[190] These contractual rights can be based upon state or federal contracts. The federal Bureau of Reclamation agrees to deliver water from dams and reservoirs in the western states to municipalities and irrigation districts.[191] In recent years, these contracts have come into conflict with the Endangered Species Act (ESA) as the habitats of threatened or endangered species have been jeopardized by contractual water deliveries. Reductions in these water deliveries to satisfy ESA obligations have generated litigation asserting both contract claims and takings claims under the Fifth Amendment.[192] Some courts have held that irrigators under contract to receive water have property rights,[193] and some commentators believe that in most circumstances, "municipalities and irrigation districts or district members do have property rights under state law."[194] However, these property rights are based on contract and, "although a contract right is property under

188. Zellmer & Harder, *supra* note 4, at 693 (discussing the Roman, English, and early American law recognition of the public trust over water and the universal regard for this public resource).

189. *See id.* at 711 (arguing that revocable licenses, such as grazing permits, are not "takings property," but may constitute "due process property"). *But see* Grant, *supra* note 62, at 1364 ("[A] usufruct is an incorporeal interest, that is, an intangible. This does not mean, however, that a water right cannot be the subject of a physical taking.").

190. *See, e.g.*, Grant, *supra* note 62, at 1331 (stating that this "article shows that water users supplied under Bureau of Reclamation (Bureau) contracts often will have Fifth Amendment property rights").

191. *Id.* at 1333.

192. *Id.* at 1333–35.

193. *See id.* at 1346–51 (discussing Ickes v. Fox, 300 U.S. 82 (1937), Nevada v. United States, 463 U.S. 110 (1983), and Nebraska v. Wyoming, 325 U.S. 589 (1945), as "support[ing] the proposition that if operative state laws regarding the relationship between a water supplier and the irrigators it supplies vest property rights in the irrigators to continuance of their supply, the Bureau in its capacity as a water supply entity must proceed in conformity with those property rights").

194. *See id.* at 1335.

the Takings Clause, no governmental taking of the other party's property occurs if the party retains the range of remedies associated with vindication of a contract," even if there is ultimately no breach found.[195]

If property ownership of water resides in the state, rights to the use of water can nevertheless be transferred by the state via permit and subsequent state delivery contracts to end users.[196] In a dispute involving water use restrictions imposed by the federal government against California water users, the Court of Federal Claims in *Tulare Lake Basin Water Storage District v. United States*[197] concluded that the "right to the *use* of water is a compensable contractual right"[198] and that such a "right to divert water in the manner specified by their contracts . . . continued until a determination to the contrary was made either by the [State Water Resources Control Board] or by the California courts."[199] The *Tulare* court clearly recognized that the water users' contract rights "are subject to the doctrines of reasonable use and public trust and to the tenets of state nuisance law."[200] However, unless the state acts to balance the interests under California law as to the cost and benefit of species preservation, the federal government must compensate the users for any water it uses to satisfy the objectives of the ESA.[201] Thus, "[t]he state water contracts . . . protected the state but not the federal government against liability for shortages from drought or other causes,"[202] such as the legislative demand for species preservation.

In *Klamath Irrigation District*,[203] the Court of Federal Claims affirmed that contract claims based upon rights arising from a federal contract with the United States government are protected under the Fifth Amendment; however, the court also warned that takings

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195. *Id.* at 1355–56; *see also* Davenport & Bell, *supra* note 40, at 4 ("Contractual water rights are difficult to characterize as a defensible property interest because contractual contingencies may reduce the certainty of the right.").

196. *See* Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 318 (2001) ("While under California law the title to water always remains with the state, the right to the water's use is transferred first by permit to DWR, and then by contract to end-users, such as the plaintiffs.") (footnote omitted).

197. 49 Fed. Cl. 313 (2001).

198. *Id.* at 318 n.6.

199. *Id.* at 324.

200. *Id.*

201. *See id.* ("The federal government is certainly free to preserve the fish; it must simply pay for the water it takes to do so.").

202. Doremus & Tarlock, *supra* note 8, at 316.

203. Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504 (2005).

compensation should not be commingled with contract damages.[204] The court concluded that the irrigators seeking compensation from the United States because of temporary reductions in water supply by the Bureau of Reclamation were third-party beneficiaries of the district contracts and thus their claims "sound[ed] in contract, not in takings."[205] Recognizing the claimants' understandable expectation of uninterrupted water flow for irrigation, the court explained that such expectation does not give them property rights greater than what they obtained and possessed.[206] Instead, "water rights, though undeniably precious, are subject to the same rules that govern all forms of property—they enjoy no elevated or more protected status," and in this case such rights were in the form of contract claims.[207]

The availability of contract remedies may preclude a takings claim that is based upon an alleged breach of contract. However, a physical diversion of water to build a fish ladder, as opposed to a requirement that water be left instream, may support a takings challenge in addition to contract claims.[208] When the federal government physically diverted water and reduced the amount of water a California municipal water district was entitled to receive under a California water rights license, the Federal Circuit held in *Casitas Municipal Water District v. United States*[209] that the diversion to build a fish ladder was a physical taking.[210] It allowed Casitas to assert contract claims in addition to its takings claim, but concluded that the federal government was not liable for breaching its contract obligations with the district by failing to make all of the water in Lake Casitas and the water impounded behind the Robles Dam available to the district as part of the Ventura River Project agreement.[211]

State or federal contracts establish protectable water rights, but contract provisions may also limit the government's obligation to provide the promised water supply when reductions are required

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204. *Id.* at 531 (citing Lynch v. United States, 292 U.S. 571, 579 (1934), and Hughes Commc'ns Galaxy, Inc. v. United States, 271 F.3d 1060, 1070 (Fed. Cir. 2001)).

205. *Id.* at 534–35.

206. *Id.* at 540.

207. *Id.*

208. *See* Casitas Mun. Water Dist. v. United States, 543 F.3d 1276, 1296 (Fed. Cir. 2008) ("The government requirement that Casitas build the fish ladder and divert water to it should be analyzed under the physical takings rubric.").

209. 543 F.3d 1276 (Fed. Cir. 2008).

210. *Id.* at 1296 (reversing district court's finding that a taking under the Fifth Amendment did not occur).

211. *Id.* at 1286–88.

under the ESA to protect endangered species.[212] Discretionary action by the government in renegotiating or renewing water supply contracts will be subject to compliance with the ESA, and "contracts, including those to which the federal government is a party, are subject to subsequently enacted legislation."[213] The Ninth Circuit, in *O'Neill v. United States*,[214] concluded that contract language limiting liability for water shortages because of "any other causes" included the government's water supply reduction to comply with the legislative mandates of the ESA.[215] When water users' rights are established based upon the terms of a contract with the government, the fluid nature of property rights in water will not impact the litigation outcome of water rights disputes.[216] Instead, in most cases contract remedies and defenses will be operative in lieu of takings claims, which require the existence of a property right.[217]

III. GROUNDWATER RIGHTS

Private property rights in surface water are fluid and may confer only a usufructuary right to use, with the state or federal government retaining title and ownership under the public trust doctrine. But certainly private landowners own the groundwater or any natural storage structures located beneath their surface rights. Or do they? After all, the ancient property maxim *cujus est solum, ejus est usque ad coelum et ad inferos* dictates that "[t]he owner of the soil owns to the Heavens and also the lowest depths."[218] However, groundwater rights are "fragile and limited, because you cannot stop others from

212. Doremus & Tarlock, *supra* note 8, at 313–14 (quoting a memorandum by the Regional Solicitor's Office of the Department of Interior, which stated that contractual obligations to deliver water were subject to the availability of water and that water would not be available if delivery was not made due to a need to comply with federal laws, such as the ESA).

213. Parobek, *supra* note 11, at 195 (discussing Barcellos & Wolfsen v. Westlands Water Dist., 849 F. Supp. 717 (E.D. Cal. 1993), which "held that the water service agreement between the Bureau, as the supplier of water, and the local irrigation district, did not confer any absolute contract right to unqualified delivery of irrigation water").

214. 50 F.3d 677 (9th Cir. 1995).

215. *Id.* at 682–84.

216. *See* Davenport & Bell, *supra* note 40, at 43 (discussing the *Ickes v. Fox* case holding that "because the water users complied with their contractual obligations and put their water to beneficial use, their right to use project water vested under Washington state law").

217. *See* Gray, *supra* note 32, at 17 (noting that if there is no breach of contract there is no liability and "it is unnecessary for the court to engage in the complex investigation into the nature of water rights").

218. BALLENTINE'S LAW DICTIONARY 102 (1916).

pumping groundwater out from underneath your land, so long as they withdraw it from wells on their own land and use it on that land."[219] Groundwater pumping can also adversely affect surface water uses, and a surface water user may not have a right to exclude groundwater pumpers from removing water.[220] If a landowner of the surface soil claims a property right in groundwater, such a claim is without meaning if there is "no right to prevent anyone else from withdrawing, using, and exhausting it."[221]

It appears that in many jurisdictions, there is no right to groundwater based upon land ownership over an underground source, and "[g]round water, like surface water, must be appropriated and applied to beneficial use before a vested water right will result."[222] In several cases involving groundwater issues, courts have applied surface water principles to groundwater and eschewed any distinction between these different sources.[223] In *Cappaert v. United States*,[224] for example, the U.S. Supreme Court held that under the federal reserved rights doctrine "the United States can protect its water from subsequent diversion, whether the diversion is of surface or groundwater,"[225] and in *Spear T Ranch, Inc. v. Knaub*,[226] the Nebraska Supreme Court found that there is no private property interest in either surface or groundwater since "water is viewed as a public want and the appropriation is a right to use the water."[227] Furthermore, it appears that those jurisdictions applying the public trust doctrine to

219. Leshy, *supra* note 12, at 1988.

220. *Id.* at 1989.

221. *Id.* at 2004–05; *see also* Zellmer & Harder, *supra* note 4, at 695 (noting that the doctrine of "absolute ownership" of ground water is a misnomer because "[a]s soon as someone with a more powerful pump comes along, existing uses of the aquifer can be diminished or completely eviscerated, with no legal recourse").

222. Hydro Res. Corp. v. Gray, 173 P.3d 749, 756 (N.M. 2007).

223. *See, e.g.*, Hood *ex rel.* Miss. v. City of Memphis, 570 F.3d 625, 630–31 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010) (making no distinction between the underground aquifer at issue and "other interstate water resources"); Davis v. Agua Sierra Res., 203 P.3d 506, 510 (Ariz. 2009) (stating that Arizona law does not recognize a property interest in groundwater unless it has "been captured and applied to reasonable use"); Town of Chino Valley v. State Land Dep't, 580 P.2d 704, 709 (Ariz. 1978) ("Under the doctrine of reasonable use property owners have the right to capture and use the underground water beneath their land for a beneficial purpose on that land . . . .").

224. 426 U.S. 128 (1976).

225. *Id.* at 143.

226. 691 N.W.2d 116 (Neb. 2005).

227. *Id.* at 127 (holding that no claim for trespass or conversion is possible since there is no property interest in water, only a right to use).

surface water will similarly apply this doctrine to prevent private property interests in groundwater.[228]

Five Common Law Groundwater Doctrines

While there are essentially three possible surface water doctrines in existence in the United States—riparian, prior appropriation, and a hybrid of the two—there are five different common law groundwater doctrines adopted by states, separate and apart from the surface water laws.[229] Many states statutorily alter these doctrines, and both the common law doctrines and statutory regulation may vary based upon the geographic area and whether the water is percolating groundwater or an underground stream.[230] These state regulations are sometimes adopted to address a specific geographic area in order to conserve groundwater and prevent overdrafts, or they may be directed at regulating well drilling.[231] One of the persistent problems with state water resource management is "[t]he failure of states to regulate ground and surface water as a unified resource."[232]

In his article discussing the public trust doctrine as applied to groundwater, Professor Jack Tuholske gives a brief overview of groundwater law and describes the five common law doctrines.[233] The *absolute dominion* rule is recognized by five states and is based on the rule of capture, allowing the "overlying landowner to take as much groundwater as the landowner desires, without limitation or liability to adjoining landowners."[234] The more widely used *reasonable use* rule requires courts to balance competing uses and allow unlimited withdrawal, unless such withdrawal causes unreasonable harm to

228. *See, e.g.*, Mulvaney, *supra* note 8, at 370 (discussing *In re* Water Use Permit Applications (Wai'ahole I), 9 P.3d 409 (Haw. 2000), where "the Hawai'i Supreme Court rejected a takings challenge concerning the exercise of public trust rights over groundwater, holding that the state assumed the duty to protect those lands and waters long before the formation of individual property rights, and private interests cannot claim a vested right to them").

229. *See* Tuholske, *supra* note 98, at 204–05.

230. *Id.* at 205.

231. *Id.* at 211–12.

232. *Id.* at 212–13 (noting that groundwater is "the source of almost 40% of the stream flow in the United States"); *see also Spear T Ranch*, 691 N.W.2d at 125 ("Nebraska water law ignores the hydrological fact that ground water and surface water are inextricably linked.").

233. Tuholske, *supra* note 98, at 205–11.

234. *Id.* at 205–06 (citing JOSEPH W. DELLAPENNA, QUANTITATIVE GROUNDWATER LAW, *in* 3 WATERS & WATER RIGHTS § 20.07, at 20-36 (Robert E. Beck ed., 1991 ed., 2003 repl. vol.)).

other aquifer users.[235] The California c*orrelative rights* rule allows courts to apportion competing uses in proportion to the surface ownership interests whenever an aquifer cannot sustain unlimited withdrawal from all users.[236] *Prior appropriation* rules are not as easy to apply to groundwater as they are to surface water, but rights to groundwater can be obtained under this doctrine by putting the water to beneficial use, thereby assuring that junior users cannot interfere with senior rights.[237] The fifth doctrine relies on *tort law* to regulate the use of groundwater based on liability for withdrawing water in a manner that harms others.[238]

Arizona is a good example of a state that uses one doctrine to govern surface water and another to govern groundwater, even though it does not distinguish between the two sources for purposes of determining whether water is property.[239] Under Arizona law, surface water is subject to the prior appropriation doctrine, while groundwater is governed by the doctrine of reasonable use by the overlying landowner.[240] Arizona's common law originally viewed groundwater as the property of the overlying landowner but later judicially limited this right such that "land ownership does not include ownership of the groundwater itself, but instead may afford a qualified right to extract and use the groundwater for the benefit of the land."[241] The Groundwater Management Act (GMA), established by Arizona's legislature in 1980, later created a statutory "system of groundwater rights and conservation."[242] At issue in *Davis v. Agua Sierra Resources*[243] was whether a landowner had a property interest

235. *Id.* at 207.

236. *Id.* at 209 (noting that this doctrine is not conservation-based since "[s]urface owners are free to use all of an aquifer, as long as they do not damage another in the process").

237. *Id.* at 209–10 (noting that problems are encountered because groundwater may not be renewable and so senior rights become valueless and the interconnectedness of surface and groundwater may impact appropriation seniority of both types of water resources).

238. *Id.* at 210–11.

239. *See* Strawberry Water Co. v. Paulsen, 207 P.3d 654, 660 n.4 (Ariz. Ct. App. 2008) (noting that the source of the water, whether surface or ground, "does not change the usufructuary nature of a water right").

240. Davis v. Agua Sierra Res., 203 P.3d 506, 508 (Ariz. 2009).

241. *Id.* (citing Town of Chino Valley v. City of Prescott (Chino Valley II), 638 P.2d 1324, 1328 (Ariz. 1981)).

242. *Id.* at 509 (citing 1980 Ariz. Sess. Laws, ch. 1, § 86 (4th Spec. Sess.) (codified as amended at ARIZ. REV. STAT. §§ 45-401 to -704 (2003 & Supp. 2008)).

243. 203 P.3d 506 (Ariz. 2009).

in the potential future use of groundwater.[244] The *Davis* court reviewed earlier Arizona decisions and the GMA to conclude that "'there is no right of ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and that the right of the owner of the overlying land is simply to the usufruct of the water.'"[245] Therefore, the court determined the potential future use of groundwater that has not yet been captured or applied is an "unvested expectancy"[246] and held that landowners do not have a real property right to this potential future use.[247]

Arizona illustrates the confusion over the property status of water rights that exists in many states. The *Davis* decision, discussed above, appears to unequivocally denounce the existence of a property interest in water that has not been captured or applied, yet in *Strawberry Water Co. v. Paulsen*,[248] the state appellate court announced that "[w]ater rights are real property interests."[249] However, when the court in *Strawberry Water Co.* distinguished rights to groundwater from rights to already pumped groundwater, it concluded that the right to groundwater is a right to use, not a right to own, and that groundwater is transformed into personal property only when it is "captured" by being reduced to possession and control within pipes.[250] Thus, within one opinion, we see the fluid nature of this property right changing from real property, to no property, to personal property. It should also be noted that if water rights are viewed as personal property and not real property, they may receive even less protection based on this distinction.[251]

Property rights in groundwater have also evolved, or one might say "disappeared," in Hawaii. Originally recognizing the absolute ownership rule as applied to groundwater, Hawaii abandoned this

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244. *See id.* at 509 (noting Agua Sierra's claim that "the right to prospectively use groundwater is one of the 'sticks' in the bundle of a landowner's property rights, and the landowner can reserve this stick when conveying the surface estate to another").

245. *Id.* at 510 (quoting *Chino Valley II*, 638 P.2d at 1328).

246. *Id.*

247. *Id.* at 512.

248. 207 P.3d 654 (Ariz. Ct. App. 2008).

249. *Id.* at 659 (holding that water rights cannot be converted since they are real property rights, not chattels) (citing Paloma Inv. Ltd. P'ship v. Jenkins, 978 P.2d 110, 115 (Ariz. Ct. App. 1998)).

250. *Id.* at 660 & n.4 ("The source [surface or ground] of the water in question does not change the usufructuary nature of a water right.").

251. *See* Leshy, *supra* note 12, at 2013 (noting that Justice Scalia in the *Lucas* decision "contrasted land with personal property, regarding the latter as having, generally speaking, much less constitutional protection against governmental regulation").

doctrine in *City Mill Co. v. Honolulu Sewer & Water Commission*,[252] and adopted a correlative rights approach which allowed the landowner to use as much groundwater as needed unless the withdrawal interfered with the relative rights of other surface landowners.[253] This established a co-ownership property right in the surface landowners overlying the groundwater.[254] These property rights seemingly "disappeared" when the Hawaii Supreme Court in *In re Water Use Permit Applications (Wai'ahole Ditch)*[255] determined that groundwater rights did not pass with the private ownership of the surface land but were instead reserved in the state under the public trust doctrine, which applied to all water resources.[256] While some argue that applying the public trust doctrine to groundwater eliminates private property rights and requires just compensation under the Fifth Amendment,[257] others argue that no distinction between surface water and groundwater should apply and that "[t]he better view is that water is a common resource, held in trust by the State for the wise and perpetual use by its citizens."[258]

Limitations on Groundwater Rights

Even when states appear to recognize property rights in groundwater, these rights may be limited. In Texas, for example, the legislature "has recognized that land owners have property rights in the groundwater located beneath their land," but it has allowed these rights to be limited by groundwater conservation districts.[259] Under Texas water law, a Groundwater Conservation District (GCD) may

252. City Mill Co. v. Honolulu Sewer & Water Comm'n, 30 Haw. 912 (1929), *overruled by In re* Water Use Permit Applications (Wai'ahole Ditch), 9 P.3d 409 (2000).

253. Callies & Chipchase, *supra* note 27, at 65.

254. *Id.*

255. 9 P.3d 409 (Haw. 2000).

256. Callies & Chipchase, *supra* note 27, at 69; *see also id.* at 71 (noting that expanding the public trust doctrine "required the court to eliminate correlative rights"); *id.* at 74 (asserting that the court's elimination of water rights was an "unconstitutional taking of property").

257. *See id.* at 71–74; Tuholske, *supra* note 98, at 235 ("Recent attempts in Vermont to apply the public trust doctrine to groundwater through legislation were opposed by property rights advocates, the ski industry, and water bottlers.").

258. Tuholske, *supra* note 98, at 236; *see also In re* Metro. Utils. Dist. of Omaha, 140 N.W.2d 626, 636 (Neb. 1966) ("Underground waters, whether they be percolating waters or underground streams, are a part of the waters referred to in the Constitution as a natural want. Such waters are as much a part of the hydrologic cycle as the flow of water in a stream or river.").

259. Coates v. Hall, 512 F. Supp. 2d 770, 778 (W.D. Tex. 2007) (citing TEX. WATER CODE ANN. § 36.002 (2005)).

regulate the amount of groundwater withdrawn, the recharging of groundwater, the spacing and permitting of wells, and "may exercise the power of eminent domain to acquire by condemnation a fee simple or other interest in property, [but] it may not exercise this power to acquire rights to groundwater, surface water, or water rights."[260] In deciding whether a takings claim was ripe based upon the finality element from *Williamson County Regional Planning Commission v. Hamilton Bank*,[261] a Texas district court in *Coates v. Hall*[262] disagreed with an earlier Texas district court decision, which held that "an inverse condemnation claim is not available in Texas to recover money damages for an alleged groundwater taking."[263]

The *Coates* court accepted that a GCD could not "take" property rights in groundwater through eminent domain, but it noted that regulatory takings are not specifically addressed in the Texas Water Code section, which forbids eminent domain actions, and it pointed to a Texas Supreme Court case that allowed an inverse condemnation action for regulatory takings.[264] Nevertheless, the *Coates* court concluded that Texas state law was unclear as to whether the finality element of the groundwater takings claim had been met.[265] Although the Texas Supreme Court in *Barshop v. Medina County Underground Water Conservation District*[266] had *assumed* that landowners in Texas have a property right in water beneath their land, it did not *decide* that such a property interest exists, and the Texas district court in *Coates* similarly declined to decide whether a property interest in Texas groundwater exists.[267]

The public trust doctrine has been used to restrict property rights in surface water, but its use has been limited in some states to navigable and tidal waters.[268] However, some courts expanded this doctrine to protect other natural resources and environmental

260. *Id.* at 778–79 (citing TEX. WATER CODE ANN. § 36.105 (2005)).

261. 473 U.S. 172 (1985).

262. 512 F. Supp. 2d 770 (W.D. Tex. 2007).

263. *Id.* at 786 (disagreeing with Williamson v. Guadalupe Cnty. Groundwater Conservation Dist., 343 F. Supp. 2d 580, 598–99 (W.D. Tex. 2004)).

264. *Id.* at 786 n.8 (citing Westgate, Ltd. v. State, 843 S.W.2d 448, 452 (Tex. 1992)).

265. *Id.* at 785.

266. 925 S.W.2d 618 (Tex. 1996).

267. *See Coates*, 512 F. Supp. 2d at 785–86 (quoting *Barshop*, 925 S.W.2d at 630–31).

268. Tuholske, *supra* note 98, at 215–16 (discussing the historical principles recognized in *Illinois Central Railroad Co. v. Illinois* in 1892, which extended the public trust doctrine to navigable waters).

interests, due to their importance to the public as a whole.[269] As mentioned above, the Hawaii Supreme Court extended the public trust doctrine to groundwater in *In re Water Use Permit Applications (Wai'ahole Ditch)*.[270] New Hampshire statutorily extended the doctrine to groundwater in 2004, as did Connecticut in its state environmental protection act of 1988.[271] If the public trust doctrine is extended beyond protecting navigability to protecting public water resources, groundwater should be protected to the same degree the doctrine protects surface water as these public water resources are inevitably connected.[272]

Ownership of the Aquifer Structure

Another controversial ownership issue relates to aquifer structures, which are potentially valuable assets when used for storing groundwater for later use. This issue arose between the states of Tennessee and Mississippi, when Mississippi sued Tennessee for a wrongful appropriation of groundwater contained within an aquifer located beneath Tennessee, Mississippi, and Arkansas.[273] In *Hood v. City of Memphis*, the Fifth Circuit upheld the lower court decision that Tennessee was an indispensable party[274] because the court concluded that the aquifer was an interstate resource and that the doctrine of equitable apportionment should be applied to resolve an interstate dispute as to water use entitlements.[275] The court did not distinguish between surface water and groundwater in applying the doctrine of equitable apportionment and rejected the argument that apportioning a shared water source was dependent upon state boundaries.[276]

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269. *See id.* at 216–18 (observing the important influence of Joseph Sax and his famous article, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*).

270. 9 P.3d 409, 445 (Haw. 2000) ("[T]he public trust doctrine applies to all water resources without exception or distinction.").

271. *See* Tuholske, *supra* note 98, at 220 (citing N.H. REV. STAT. ANN. § 481:1 (2004); Connecticut Environmental Protection Act, CONN. GEN. STAT. § 22a-16 (1988)).

272. *Id.* at 222–23 ("It is time to recognize that the public trust doctrine embraces the water itself. Groundwater . . . is inexorably tied to surface water.").

273. Hood *ex rel.* Miss. v. City of Memphis, 570 F.3d 625, 627 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010).

274. *Id.* at 631.

275. *Id.* at 629–30.

276. *Id.* at 630 ("The fact that this particular water source is located underground, as opposed to resting above ground as a lake, is of no analytical significance.").

With regards to the right to store water in underground storage basins, courts in both California[277] and Nebraska[278] do not protect the ownership of authorized extractors or overlying landowners, respectively. In *Central & West Basin Water Replenishment District v. Southern California Water Co.*,[279] the California Court of Appeal held that because the amendment to the California Constitution mandating the use of all water resources in a manner consistent with the people's interest applies to "the use of all of the water within the state," the right to use subsurface storage space is also a public resource.[280] Because the subsurface storage space is a public resource, utilizing underground storage space would be subject to the beneficial use requirement of the California Constitution.[281] Although some commentators consider California law to be unsettled in this area,[282] at least one commentator believes that California courts have established "underground storage rights as a limitation on overlying *private* property rights."[283] This limitation arises by applying the correlative rights doctrine to find that a water district owns groundwater in trust for the overlying surface owners located within the district.[284]

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277. *See* Cent. & W. Basin Water Replenishment Dist. v. S. Cal. Water Co., 109 Cal. App. 4th 891, 917 (2003) ("[A]ppellants' right to extract water from the Central Basin does not create a concomitant right to store water in the Central Basin.").

278. *See* Cent. Neb. Pub. Power & Irrigation Dist. v. Abrahamson, 413 N.W.2d 290, 298 (Neb. 1987) (disagreeing with the appellants' contention "that the right to use the ground water gives rise to the exclusive right to use the storage space").

279. 109 Cal. App. 4th at 891.

280. *Id.* at 904–05 (interpreting CAL. CONST. art. X, § 2) ("[T]he parties' statement that the subsurface storage space is a public resource is amply supported by the Constitution and Water Code.").

281. *See* CAL. CONST. art. X, § 2 (requiring that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable").

282. *See, e.g.*, Kevin M. O'Brien, *The Governor's Commissions Recommendations on Groundwater: Treading Water Until the Next Drought*, 36 MCGEORGE L. REV. 435, 442 (2005) (noting a "need for clear rules defining ownership rights" and discussing unresolved issues).

283. *See* Victor E. Gleason, *Water Projects Go Underground*, 5 ECOLOGY L.Q. 625, 649–50 (1976) (discussing Niles Sand & Gravel Co. v. Alameda Cnty. Water Dist., 37 Cal. App. 3d 924 (Ct. App. 1974)).

284. *Niles Sand & Gravel Co.*, 37 Cal. App. 3d at 929 n.5 (applying correlative rights doctrine); *see also* Katz v. Walkinshaw, 141 Cal. 116, 136 (1903) (changing the common law rule that percolating water belongs to the overlying surface owner to recognize the correlative rights doctrine, which provides that "[d]isputes between overlying landowners, concerning water for use on the land, to which they have an equal right, in cases where the supply is insufficient for all, are to be settled by giving to each a fair and just proportion").

In *Central Nebraska Public Power & Irrigation District v. Abrahamson*,[285] the Nebraska Supreme Court similarly limited the private rights of overlying landowners to underground water storage by holding that a state statute recognizing incidental underground water storage associated with a proper appropriation was constitutional.[286] This statute was challenged as a possible taking of private property without just compensation because it permitted individuals or entities, other than the overlying property owners, to use the storage associated with water appropriation.[287] The court dismissed the takings claim, finding that the statute was not unconstitutional and did not interfere with appellants' right to use their property.[288] Thus, in some jurisdictions, contrary to the reasonable expectation of property rights in what lies below the surface, overlying landowners may not have a property right to either the groundwater or the natural storage structures beneath their surface property.

IV. RAINWATER RIGHTS

While many people would be surprised to learn that "collect[ing] rainwater that falls on your roof or in your yard" might be illegal,[289] several states have identified rainwater as part of their state water law regime.[290] It is unclear whether these states are using the public trust doctrine to assert state control,[291] but because rainwater is naturally

285. 413 N.W.2d 290 (Neb. 1987).

286. *Id.* at 299 (finding that the statute is not in conflict with any provision in the Nebraska Constitution).

287. *Id.* at 297.

288. *See id*. at 299 ("Appellants' rights in the use of the 'ground water' . . . under their lands are not affected.").

289. *See, e.g.*, Connie Coyne, Editorial, *Our Agenda: Provide Facts, Perspective*, SALT LAKE TRIB., Feb. 6, 2009, *available at* 2009 WLNR 2448820 (discussing Utah's requirement that one obtain a water right to collect rain water).

290. *See, e.g.*, Patty Henetz, *Free as the Rain? Don't Bet on it; Collecting Wet Bounty May Be Illegal*, SALT LAKE TRIB., Oct. 22, 2008, *available at* Factiva, Doc. No. SLTR000020081022e4am0006m (noting that Utah considers as public property "all water in the state—above, below or on the ground"); John Dodge, *Big Money, Big Goal: $220 Million Infusion to Aid in Cleanup*, OLYMPIAN, Feb. 18, 2008, at A2 (discussing efforts in Washington state to "make it easier for homes, businesses and office buildings to collect rainwater from rooftops without running afoul of state water rights laws").

291. For additional thoughts on the public trust doctrine and rainwater, see Kenton M. Bednarz, *Should the Public Trust Doctrine Interplay with the Bottling of Michigan Groundwater? Now Is the Appropriate Time for the Michigan Supreme Court to Decide*, 53 WAYNE L. REV. 733, 747–48 (2007) (noting that, similarly to groundwater, rainwater is included

interconnected to surface water and groundwater, these states consider rainwater diversion away from the natural process of precipitation reaching surface or groundwater to be an interference with existing water rights.[292] Washington State, for example, considers rainwater to be a state water resource and prohibits a certain magnitude of rainwater collection without an appropriate water right permit.[293] The state is interested in "'ensur[ing] that collection and storage of rainwater happens in a way that is consistent with protecting stream flows and water rights.'"[294] However, the state also recognizes that it is important to facilitate rainwater collection in urban areas to supplement municipal water supplies and reduce storm water runoff.[295]

Historically in Texas, rainwater collection was a common method of supplying water to homes, ranches, and farms.[296] As with other arid western states, increased water demands in Texas limited existing municipal supplies obtained from pumping surface and groundwater to individual landowners.[297] In addition to its importance as a supplement to local water supplies, rainwater is hailed by some as better-tasting drinking water, and as advantageous for appliances and

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within the public trust doctrine because of its connectivity to surface water, but the public's right to it does not vest "until it ends up in a body of public trust encompassed surface water").

292. *See* Patty Henetz, *supra* note 290 (observing that if homeowners in Utah were allowed to collect rainwater without a water law right, such a diversion would be improper if no new water allocations were being granted and farmers would complain that "[a]llowing city folk to harvest rainwater without a water right would be like letting them move into an apartment without paying rent"); *State Has Obligation to Manage Resources*, THE OLYMPIAN, Aug. 23, 2008, *available at* 2008 WLNR 15948336 (noting that in Washington there is a concern that "large-scale rainwater collection could reduce the water supply of folks holding 'senior' water rights, obtained under the state's doctrine of 'first in time, first in use'").

293. *Rainwater Collection Rule to be Discussed at Aberdeen Open House*, WASH. DEPT. OF ECOLOGY (July 10, 2008), http://www.ecy.wa.gov/news/2008news/2008-191.html (reporting that the state Department of Ecology is drafting new regulations to "define how much rainwater can be collected and used before a permit is required"); *see also* JAY J. MANNING, DEP'T OF ECOLOGY, POL 1017, WATER RESOURCES PROGRAM POLICY REGARDING COLLECTION OF RAINWATER FOR BENEFICIAL USE 1, *available at* http://www.ecy.wa.gov/programs/wr/rules/images/pdf/pol1017.pdf.

294. *Rainwater Collection Rule*, *supra* note 293 (quoting Brian Walsh, the Washington Department of Ecology's policy and planning manager for water resources).

295. *Id.* (noting that in some areas, such as the San Juan Islands, rain water is the only source of water for some landowners).

296. Patrick Driscoll, *Rainfall Is Airborne Aquifer: Rainwater Harvesting Reaps Benefit*, SAN ANTONIO EXPRESS-NEWS, Sept. 2, 1998, at 01H.

297. *Id.*

plants as the salt and mineral content is reduced.[298] Rain collection systems may sometimes be more cost-effective than drilling a well, but they may require screening and filtering and should not be used for drinking water if they collect from roofs and gutters that may contain toxic chemicals such as lead or asbestos.[299] Nevertheless, Texas encourages rainwater harvesting as a water conservation measure, and it does not regulate rainwater collection.[300]

Colorado is forward-looking in its approach to rainwater harvesting and views this potential water source as a way to make up for groundwater loss in the state.[301] The state is considering a proposal to construct ten experimental groundwater collection facilities.[302] To ensure that downstream stakeholders are not adversely impacted by this collection experiment, the program would "monitor how much water is collected and . . . then supply an equal amount into streams and tributaries."[303] The state water board conducted a study and "found that only 3 percent of rainwater contributes to normal river flows, while the other 97 percent either evaporates or is taken up by plants."[304] However, by monitoring the experimental collection program to measure the amount collected and comparing this to "how much precipitation would have made it into streams during the same period," the bill's proponents hope to show that rainwater collection does not significantly impact the normal surface water flow.[305] Such proof would be helpful to those states wishing to promote rainwater harvesting outside of their permitting schemes for surface and/or groundwater regulation.

Rainwater collection is a new water law issue involving an ancient water source. In determining the government's right to

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298. *Id.*; *but see* Henetz, *supra* note 290 (warning that rain water is not necessarily clean and should not be harvested for drinking).

299. Driscoll, *supra* note 296, at 01H.

300. *Id.* (noting that although Texas does not regulate rain water as it does municipal water, well water, mosquito hazards and gray water, it does suggest that harvesters consider guidelines and specifications from other states and has published a rainwater harvesting guide).

301. *See* S. 80, 67th Gen. Assemb., Reg. Sess. (Colo. 2009), http://www.leg.state.co.us/clics/clics2009a/csl.nsf/fsbillcont3/49D4349AC4A73794872575370071F5D4?open&file=080_enr.pdf (authorizing the collection of precipitation from up to 3,000 square feet of a roof of a building that is primarily used as a residence and is not connected to a domestic water system serving more than 3 single-family dwellings).

302. John Schroyer, *Rainwater Harvesting Bill May Have Tough Fight*, COLO. SPRINGS GAZETTE, Feb. 4, 2009, http://www.gazette.com/articles/tough-47395-bill-denver.html.

303. *Id.*

304. *Id.*

305. *Id.*

regulate or prohibit private behavior in collecting and using this resource, it is important to decide whether there exists a property right in rainwater and who holds that right.[306] Rainwater falling on private land that is captured on private land appears to be destined for private ownership.[307] Nevertheless, just as some states have decided that groundwater located beneath private property and surface water located under or adjacent to private property are public resources,[308] rainwater falling on a landowner's property might similarly be considered a public resource owned by the state.[309] As the public trust doctrine is extended from surface water to groundwater, it is possible that the interconnected rainwater resource will also be subject to the public trust doctrine.[310] Thus, if rainwater is subject to regulation as a state water resource and if the public trust doctrine prohibits private ownership, landowners will not own the rainwater that falls on their land but may only be granted revocable access to use of the state's resource.

V. EFFECT OF PROPERTY RIGHTS CLASSIFICATION ON LEGAL ISSUES

Constitutional Implications: Takings

If water is viewed as a private property right, efforts by the government to regulate access to the water supply may require that just compensation be paid if the regulation interferes with the water right to such a degree that it constitutes a "taking" under the Fifth

306. *See* Arlene J. Kwasniak & Daniel R. Hursh, *Right to Rainwater—A Cloudy Issue*, 26 WINDSOR REV. OF LEGAL & SOC. ISSUES 105, 113 (2009) (Can.) (beginning the inquiry into whether an ownership interest in rainwater is gained upon capture in Canada by asking "whether the Crown claims ownership of rainwater and whether the governing legislation provides mechanisms to acquire a right to capture and use rainwater").

307. *See* Turner v. Big Lake Oil Co., 96 S.W.2d 221, 228 (Tex. 1936) (finding citation of authority "[un]necessary to demonstrate that the right of a land owner to the rain water which falls on his land is a property right which vest[s]" when ownership in the land vests).

308. *See infra* notes 240–273 and accompanying text.

309. *See* Kwasniak & Hursh, *supra* note 306, at 113–20 (analyzing whether rainwater falls under the statutory meaning of water in Alberta, Canada which defines water as "all water on or under the surface of the ground, whether in liquid or solid state").

310. *See id.* at 110–11 (suggesting that rainwater harvesting could reach a scale where it impacts the entire water cycle as well as other human users and wildlife); Bednarz, *supra* note 291, 747–48 (noting that, similarly to groundwater, rainwater is included within the public trust doctrine because of its connectivity to surface water, but the public's right to it does not vest "until it ends up in a body of public trust encompassed surface water").

Amendment's Takings Clause.[311] If water is viewed as a state resource and the government determines that previously granted access to water must be reduced or withdrawn, the government will not be subject to a takings claim because no private property has been implicated.[312] As discussed above, classifying water rights as property directly impacts whether water users can assert a takings claim, and the law is unclear as to whether private property in water exists.[313]

To determine whether a taking has occurred, the court must first decide whether the plaintiff has a property right impacted by government action.[314] Secondly, the court must determine whether the government has "gone too far" in its regulation and needs to pay just compensation.[315] Assuming there is a property right in water, water rights takings claims can be analyzed as either a per se taking or a regulatory taking under *Penn Central*[316] using the ad hoc factual inquiry test.[317] A *per se* taking is a permanent physical occupation[318] under *Loretto*,[319] or a denial of all economically viable use[320] under

311. U.S. CONST. amend. V (applied to the states by U.S. CONST. amend. XIV, § 1) ("nor shall private property be taken for a public use, without just compensation"); *see also* Penn. Coal v. Mahon, 260 U.S. 393, 415 (1922) ("The general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.").

312. *See, e.g.*, Leshy, *supra* note 12, at 2008 (observing that takings claims have been allowed in the past for water rights when "the government was taking water from one group of farmers and giving it to another group of farmers" but that a different situation exists when the government is benefiting the public at large by limiting private diversions that harm the environment); *see also* Fox River Paper Co. v. R.R. Comm'n of Wis., 274 U.S. 651, 657 (1927) (finding that the state defines land rights and the state's refusal to grant a riparian owner the right to maintain and repair their dam was not a denial of Fourteenth Amendment rights); Mont. Coal. for Stream Access, Inc. v. Curran, 682 P.2d 163, 171 (Mont. 1984) (concluding that since the plaintiff had no claim to the waters at issue there was no basis for a takings claim).

313. *See* Leshy, *supra* note 12, at 2005–6 ("[C]hronic uncertainty about the validity and measure of many water rights has some important implications for takings law."); Laitos & Westfall, *supra* note 72, at 62 (noting that the extent to which an interest is protected depends on its classification as a protectable property interest); *supra* Parts II–IV.

314. Kevin W. Moore, *Seized by Nature: Suggestions on How to Better Protect Animals and Property Rights Under the Endangered Species Act*, 12 GREAT PLAINS NAT. RESOURCES J. 149, 154 (2008).

315. *See id*.

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

317. *See, e.g.*, Estate of Hage v. United States (*Hage V*), 82 Fed. Cl. 202, 212 (2008) (using *Penn Central* factors to determine whether a taking occurred based upon Forest Service policies which prevented landowners from accessing and using water on their property).

318. *See* Boise Cascade Corp. v. United States, 296 F.3d 1339, 1352 (Fed. Cir. 2002); Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 318–19 (2001) (holding that water users had property rights based on their contracts and that the U.S. government had physically taken their rights to preserve endangered species).

319. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 441 (1982).

Lucas.[321] As discussed previously, both state and federal courts are in disarray as to whether property rights in water exist.[322] While some courts have viewed water rights as property and proceeded with a takings analysis,[323] other courts have found that no property rights in water exist and have dismissed takings claims on the basis that this first requirement has not been met. However, some courts stress the difference between land ownership rights and usufructuary rights in water and then continue in the same decision to find a taking of water rights requiring just compensation from the government.[324]

Earlier court decisions recognized property rights in water sufficient for a takings claim.[325] In *Dugan v. Rank*,[326] for example, the United States Supreme Court concluded that the U.S. government committed a partial taking of water from riparian and overlying owners by operating a dam, which would reduce the natural amount of water flowing in the San Joaquin River by almost three-fourths.[327] The Court reasoned that because the federal government had the right to seize the claimants' property, federal officers of the Bureau of Reclamation had the right to take these water rights by impounding water behind the dam, but the U.S. would be required to pay damages based upon "the difference in market value of the respondents' land before and after the interference or partial taking."[328] The Court explained that "[a] seizure of water rights need not necessarily be a physical invasion of land. . . . [and instead] might

320. *See, e.g.*, Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 984 (9th Cir. 2002).

321. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1019 (1992).

322. *See supra* Part II.

323. *See, e.g.*, *Esplanade Props.*, 307 F.3d at 984.

324. *See* Estate of Hage v. United States (*Hage V*), 82 Fed. Cl. 202, 211 (2008) (noting the difference between water ownership as the right to access and use water and landownership as the right to exclude and then finding a taking based on the government fencing around the water and streams).

325. *See, e.g.*, Rivers and Harbors Act, 50 Stat. 850 (1937) (providing that Secretary of the Interior "may acquire by proceedings in eminent domain, or otherwise, all lands, rights-of-way, water rights, and other property necessary for said purposes"); Ivanhoe Irrigation Dist. v. McCracken, 357 U.S. 275, 294–99 (1958) (recognizing a property right but finding no taking); United States v. Gerlach Live Stock Co., 339 U.S. 725, 752–54 (1950) (finding the riparian owner held flood water rights which could only be acquired by the government through condemnation or acquisition); Int'l Paper Co. v. United States, 282 U.S. 399, 405–08 (1931) (finding a taking of International Paper's water rights).

326. 372 U.S. 609 (1963).

327. *Id.* at 620–21.

328. *Id.* at 622–25.

be analogized to interference or partial taking of air space over land."[329]

Some recent decisions also recognize property rights in water. In *Estate of Hage v. United States (Hage V)*, the Court of Federal Claims acknowledged that "[t]he surface waters which flow from federal land to Plaintiffs' patented lands are a vested water right."[330] However, the *Hage V* decision clarified the extent of this vested water right by distinguishing between having title to the water and owning the right to use the water.[331] The *Hage V* court noted that there is a "difference between water ownership and real property ownership; water is a usufructuary as opposed to a possessory right."[332] Nevertheless, even without recognizing the landowner's water rights as title ownership, the court held that "the Government's construction of fences around the water and streams amounts to a physical taking during the time period in which Plaintiffs still had a grazing permit and their cattle had the right to water at these streams."[333] The *Hage V* court also used the *Penn Central* factors to find that the Forest Service's actions in allowing brush to overgrow the stream beds and preventing the riparian landowners from clearing it severely reduced the water flow to their land and constituted a taking based upon the severe economic impact they suffered.[334] Thus, while calling water a usufructuary right that is different from real property ownership, the court still found a private property right in water sufficient to support a takings claim against federal interference.

The *Tulare Lake Basin Water Storage District v. United States*[335] decision by the Court of Federal Claims identified the property subject to a taking as the "contractually-conferred right to the use of water."[336] The *Tulare* court recognized that "under California law the title to water always remains with the state,"[337] but concluded "that plaintiffs' right to the *use* of water is a compensable contractual right."[338] The court determined that this "right to use" the water was

329. *Id.* at 625.

330. Estate of Hage v. United States (*Hage V*), 82 Fed. Cl. 202, 210 (2008) (citing Hage v. United States (*Hage IV*), 51 Fed. Cl. 570 (2002)).

331. *Id.* at 210–11.

332. *Id.* at 211.

333. *Id.*

334. *Id.* at 212.

335. 49 Fed. Cl. 313 (2001).

336. *Id.* at 314.

337. *Id.* at 318 (citing CAL. WATER CODE § 102 (Deering 1977)).

338. *Id.* at 318 n.6.

taken when the federal government preserved water to protect fish under the Endangered Species Act and "rendered the usufructuary right to that water valueless," thus effectuating a "physical taking."[339] The court's language makes it difficult to decipher whether the court found a per se taking under *Loretto* as a permanent physical occupation, or under *Lucas* as a denial of all economically viable use.[340] If decided based upon the *Loretto* standard, the decision can be criticized because *Loretto* requires that the physical occupation be permanent, and the water reduction at issue in the *Tulare* case was only temporary.[341] If viewed under *Lucas,* there is a strong argument that, under the exception to a *Lucas* per se taking, the background principles of California's public trust doctrine would have precluded the water users from arguing they had a property right to continue receiving water to the detriment of the public interest in an endangered species of fish.[342] Nevertheless, many commentators criticize the view adopted in *Tulare*[343] and affirmed by the Federal Circuit in *Casitas Municipal Water District v. United States*,[344] which treats the government's restrictions on water deliveries as physical takings instead of regulatory takings.[345]

In the *Casitas* case, the Federal Circuit reviewed a Court of Federal Claims opinion issued by Judge John P. Wiese, the same trial judge who had earlier written the *Tulare* decision. Whereas in *Tulare* Judge Wiese held that the government had physically taken a water right when it reserved water for endangered species, in *Casitas* the

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339. *Id.* at 319 (comparing this denial of a right to use water to the invasion of air space above a landowner's property found to be a taking in United States v. Causby, 328 U.S. 256, 265 (1946)).

340. *See* Grant, *supra* note 62, at 1363–64 (noting that commentators have criticized this decision and "have particularly lambasted [Judge Wiese's] ruling that the water delivery reductions were a per se physical taking rather than a regulatory taking in the *Penn Central* balancing category").

341. *See id.* at 1364; Leshy, *supra* note 12, at 2011–13.

342. *See* Houck, *supra* note 15, at 320–21 (noting that government restrictions to protect wildlife resources is a background principle and citing Sierra Club v. Dept. of Forestry & Fire Prot., 26 Cal. Rptr. 2d 338, 347 (Ct. App. 1993) (depublished), which applied *Lucas* and stated that "'wildlife regulation of some sort has been historically part of the pre-existing law of property,' and thus would fall within its (enigmatic) 'nuisance' exception").

343. Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 318 (2001).

344. 543 F.3d 1276, 1296 (Fed. Cir. 2008).

345. *See, e.g.*, Doremus & Tarlock, *supra* note 8, at 315 (opining that "[t]he *Tulare* decision appears to have applied the wrong test [in holding] that regulatory restrictions on water delivery amounted to a physical taking of the plaintiffs' property interest in the water, making the restrictions per se takings" and arguing that such a rule "should not be applied in the context of restrictions on water deliveries"); Parobek, *supra* note 11, at 212–14.

Judge determined that diversion of water by the United States did *not* constitute a physical taking.[346] The Court of Appeals for the Federal Circuit reversed Judge Wiese's finding of no government taking, concluding that the diversion of water for a fish ladder *was* a physical taking of water from Casitas.[347] Judge Wiese changed his approach between *Tulare* and *Casitas* based on the intervening *Tahoe-Sierra* decision, most likely because he viewed the diversion as a temporary taking of water instead of a permanent physical occupation. Accordingly, the Federal Circuit stressed that the diversion was permanent in that "[t]he water, and Casitas' right to use that water, is forever gone."[348] In dissent, Judge Mayer argued that the takings claim should not have been analyzed as a per se taking but instead should have been subject to the "multi-factor inquiry set out in *Penn Central*" as decided by the trial court.[349] The Federal Circuit declared that physical diversions of water by the government should be analyzed as a physical taking rather than a regulatory taking, even though, as the dissent pointed out, the government regulation required that Casitas leave more water in the river to comply with the ESA, and Casitas had several options to meet this requirement.[350]

Unfortunately, the *Casitas* decision does not shed much light on whether the right to water is a property right subject to a takings claim. For purposes of the summary judgment motion at issue in the case, the government "conceded that Casitas has a valid property right in the water in question."[351] Therefore, the *Casitas* court did not address whether there is a property right in water to support a takings claim, and we must await resolution at the trial court before the alleged diversion action is analyzed as a physical taking. The *Casitas* dissent observed that "Casitas does not own the water in question

346. *Casitas Mun. Water Dist.*, 543 F.3d. at 1283 (explaining that Judge Wiese concluded that Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302 (2002), which was decided after his opinion in *Tulare*, clarified takings law such that he was compelled to reach a different result in *Casitas*).

347. *Id.* at 1296.

348. *Id.*

349. *Id.* at 1297–98 (Mayer, J., dissenting) (citing Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104 (1978), and noting that Casitas conceded that it would not prevail on its takings claim under the *Penn Central* test).

350. *Id.* at 1300–01 (observing that "it was Casitas who initiated Reclamation's Section 7 ESA consultations with the National Marine Fisheries Service and suggested use of the fish passage facility to ensure ESA compliance" as the most economical way to comply with the federal statute).

351. *Id.* at 1288 (majority opinion).

because all water sources within California belong to the public,"[352] and since California subjects water rights permits to the public trust doctrine, there can be no takings claim if there is no property interest in the water.[353] "[B]ecause Casitas possesses a usufructuary interest in the water and does not actually own the water molecules at issue, it is difficult to imagine how its property interest in the water could be physically invaded or occupied."[354]

On February 17, 2009, the Federal Circuit denied a petition for panel rehearing and rehearing en banc of the *Casitas* appellate decision on the summary judgment motion. The three circuit judges concurring in the decision not to rehear the case explained that the government diverted water from Casitas for public use and that based on Supreme Court precedent, water diversions are considered to be physical takings.[355] The three circuit judges who dissented from the denial of petition for rehearing en banc opined that even if Casitas does have a property right, it is only a usufructuary right to divert water and cannot be analyzed as a physical taking, but rather should be analyzed as a regulatory taking under *Penn Central* as a limitation on use, not an occupation of property.[356] It appears as though the United States government will not seek review by the United States Supreme Court as the July 2009 deadline passed without the government filing a petition for writ of certiorari.[357] Nonetheless, future litigation at the trial court level may generate issues that might eventually lead to a decision by the U.S. Supreme Court about property rights in water. The issue may well be framed as whether government interference with water rights to preserve endangered species will result in a successful takings claim under the Fifth or Fourteenth Amendments.

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352. *Id.* at 1297 (Mayer, J., dissenting) (citing CAL. WATER CODE §§ 102, 1001 (Deering 1977)).

353. *Id.*

354. *Id.* at 1298.

355. Casitas Mun. Water Dist. v. United States, 556 F.3d 1329, 1333 (Fed. Cir. 2009) (Moore, J., concurring) (citing Int'l Paper Co. v. United States, 282 U.S. 399 (1931); United States v. Gerlach Live Stock Co., 339 U.S. 725 (1950); Dugan v. Rank, 372 U.S. 609 (1963)).

356. *Id.* at 1336 (Gajarsa, J., dissenting) (noting that in *Boise Cascade Corp. v. United States*, 296 F.3d 1339, 1354 (Fed. Cir. 2002), the Federal Circuit "treated a requirement that a landowner not cut and utilize trees that are used for owl nesting as a regulatory taking").

357. James S. Mattson, *Casitas Municipal Water District Revisited*, GRAND THEFT: PROPERTY (Aug. 10, 2009), http://mattsonlaw.blogspot.com/2009/08/casitas-municipal-water-district.html.

No property rights in water were recognized by the Court of Federal Claims in *Klamath Irrigation District*,[358] except as created based upon contracts between the water users and the United States, which held ownership title to the water according to Oregon state law.[359] As discussed previously, the water users in *Klamath* were restricted to remedies under contract law and were precluded from asserting their takings claim because they did not have a property right under Oregon law.[360] Nebraska decisions appear to similarly restrict private ownership of water rights.[361] The Nebraska Supreme Court in *Spear T Ranch, Inc. v. Nebraska Department of Natural Resources (Spear II)*[362] did not reach this question, but found that an inverse condemnation claim by surface water users adversely impacted by groundwater withdrawals could not be asserted because the government agency "did not have authority to regulate ground water users or administer ground water rights for the benefit of surface water appropriators."[363] Although the same court had stated in its earlier *Spear I* decision that "[a] right to appropriate surface water however, is not an ownership of property" for purposes of supporting a claim for conversion or trespass,[364] it based its *Spear II* takings claim decision on the government's lack of a duty to act, rather than on the lack of a property interest held by the plaintiff water user.[365] Clearly, there are discrepancies among and within state and federal jurisdictions[366] as to whether water users have a protectable property interest that will support a legal claim requiring the existence of a property right.[367]

The public trust doctrine has served to defeat takings claims for interference with water rights as courts find that the government, not

358. Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 524 (2005).

359. *Id.* at 523–24.

360. *Id.* at 540 (concluding that landowners have potential contract claims only as against the United States); *see also supra* notes 204–08 and accompanying text.

361. *See* Zellmer & Harder, *supra* note 4, at 736–37 (noting that the *Spear I* decision is problematic and that earlier Nebraska courts had concluded that surface water appropriators "did in fact possess vested property rights").

362. 699 N.W.2d 379 (2005).

363. *Id.* at 386.

364. Spear T Ranch, Inc. v. Knaub (Spear I), 691 N.W.2d 116, 127 (2005).

365. 699 N.W.2d at 387

366. Zellmer & Harder, *supra* note 4, at 738 ("Outside of the navigational servitude context, the federal courts have been wildly inconsistent regarding takings claims brought by appropriators with state-sanctioned water rights.").

367. *See, e.g.*, *In re* Hood River, 227 P. 1065, 1087 (Or. 1924) ("No one has any property in the water itself, but a simple usufruct.").

private individuals and entities, owns these rights. Although there was not an explicit takings claim at issue in *National Audubon v. Superior Court*,[368] the California Supreme Court held,

> The state has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible. . . .
>
> Once the state has approved an appropriation, the public trust imposes a duty of continuing supervision over the taking and use of the appropriated water. In [doing so,] the state is not confined by past allocation decisions which may be incorrect in light of current knowledge or inconsistent with current needs.[369]

Thus, the state should not be required to pay just compensation to a permitee if it later decides that water needs to be kept instream to support wildlife. While the public trust doctrine has also been used to overcome takings claims for interference with shoreline interests, particularly in the East, these cases are beyond the scope of this article as they deal with real property interests in land, not water rights.[370]

Constitutional Implications: Givings

Under the public trust doctrine, if water is determined to belong to the state in trust for the people, it cannot become private property unless the state temporarily "gives" it to a private owner and such a "giving" may also be constitutionally constrained.[371] The public trust doctrine serves as a "protection against unfettered givings" of public resources in the same way the Takings Clause serves as a protection

368. 658 P.2d 709 (Cal. 1983).

369. *Id.* at 728.

370. *See, e.g.*, Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 985–87 (9th Cir. 2002) (affirming district court holding that development proposal "was inconsistent with the public trust that the State of Washington is obligated to protect" and the public trust constitutes a "background principle" of state law that prevents the landowner from asserting a takings claim under *Lucas v. S.C. Coastal Council*); Rouse v. Dep't of Natural Res., 524 S.E.2d 455, 460–61 (Ga. 1999) (holding that state Protection of Tidewaters Act as applied does not constitute a taking because "Rouse has no protectable property interest that would permit him to maintain his structures on public tidewaters"); Opinion of the Justices, 649 A.2d 604, 608–09 (N.H. 1994) (state legislative bill for public use of coastal beaches, "which recognizes that the public trust extends to those lands 'subject to ebb and flow of the tide'" does not constitute a taking of property).

371. *See* Bell & Parchomovsky, *supra* note 16, at 563 ("[O]ur taxonomy of takings applies with equal validity to givings.").

against a powerful government absconding with private property.[372] Accepting that under the Takings Clause it is unfair to "'force some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole,'" it is also unfair "to bestow a benefit upon some people that, in all fairness and justice, should be given to the public as a whole."[373]

As explained by Professors Abraham Bell and Gideon Parchomovsky in their seminal article entitled *Givings*, a government "giving" occurs when the state: (1) "grants a property interest to a private actor;" (2) "uses its regulatory power to enhance the value of certain private properties;" or (3) "indirectly increases the value of property by engaging in a physical or regulatory giving or taking."[374] For example, a physical giving results when the state grants a broadcasting license or a cable easement,[375] cattle grazing rights, mineral rights, or logging rights on public land.[376] A regulatory giving occurs where "the state eliminates development restrictions in wetlands."[377] A so-called derivative giving would "include the building of a park or the shutting down of a power plant in a residential area."[378]

Assuming water is a state-owned resource, it could be argued that a physical giving occurs when the state, through its water law doctrines, grants water rights to private landowners, as riparians or prior appropriators, to irrigate their crops, or for other reasonable uses.[379] Regulatory givings also occur when the federal government heavily subsidizes the cost of water to encourage agriculture in the arid western states.[380] Finally, derivative givings may occur when the

372. *See id.* at 553–54 ("[W]hen the state permits logging companies to chop down trees in national forests for lumber, it is forcing the public as a whole to surrender natural resources for the private profit of the logging companies.").

373. *Id.* at 554 (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)); *see also id.* at 578 ("From the vantage point of fairness, the law of takings is concerned with the allocation of burdens; our proposed law of givings focuses on the allocation of benefits.").

374. *Id.* at 551; *see also* Dibadj, *supra* note 18, at 1045 (crediting Charles Reich's law review article, *The New Property*, as first exploring the concept of "givings").

375. Bell & Parchomovsky, *supra* note 16, at 551.

376. *Id.* at 563.

377. *Id.* at 551.

378. *Id.*

379. For example, how different is granting water rights for irrigation purposes from "permit[ting] logging companies to chop down trees" in state owned forests? *See id.* at 554.

380. *See, e.g.*, REISNER, *supra* note 159, at 500 ("Only a government that disposes of a billion dollars every few hours would still be selling water in deserts for less than a penny a ton. And only an agency as antediluvian as the Bureau of Reclamation, hiding in a government as

government builds water supply infrastructures such as reservoirs, irrigation ditches, and aqueducts, which subsequently increase the value of land previously incapable of supporting economically viable crops.[381]

At a minimum, the government should not be required to compensate water users for a taking when it finds it necessary to reduce or eliminate access to water to protect public resources.[382] In fact, the government should be required, through its contracts with water users such as farmers, irrigation districts, and municipalities, to obtain the appropriate market value for water use rights so that economic forces promote efficient utilization of this resource.[383] Such changes in pricing strategy will help ensure that private individuals and entities do not unfairly benefit from the state's largesse to the detriment of the public as a whole.[384] As Professors Bell and Parchomovsky conclude, "[c]harging for givings would reduce interest-group politics, enhance the efficiency of government decisions, and improve the fairness of our property system."[385] Thus, it would appear to be viable to operate a market in a state-owned water resource that is properly valued.

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elephantine as ours, could successfully camouflage the enormous losses the taxpayer has to bear for its generosity."); Garance Burke, *AP Impact: Feds Pay Farmers to Till Arid Land*, SEATTLE TIMES, Apr. 14, 2009, http://seattletimes.nwsource.com/html/nationworld/2009052162_apsubsidizingthirstycrops.html (noting that the federal government handed out more than $687 million in subsidies between 2007 and 2009 to hundreds of farmers in California and Arizona); ENVTL. WORKING GROUP, DOUBLE DIPPERS: HOW BIG AG TAPS INTO TAXPAYERS' POCKETS—TWICE (2005), *available at* http://www.ewg.org/reports/doubledippers (finding that in 2002 one in five Central Valley Project farms received both water and crop subsidies, receiving water subsidies totaling an estimated $121.5 million).

381. *See* REISNER, *supra* note 159, at 117 (noting that certain parcels of land were worth fifty times more after the land owners irrigated their parcels of land with the assistance of interest free loans from the federal government); CONG. BUDGET OFF., CURRENT COST-SHARING AND FINANCING POLICIES FOR FEDERAL AND STATE WATER RESOURCES DEVELOPMENT, at iii (July 1983), *available at* http://www.cbo.gov/ftpdocs/50xx/doc5029/doc11-Entire.pdf ("The federal government spends several billion dollars each year to plan, construct, and maintain water projects for navigation, irrigation, flood control, hydropower, recreation, and other purposes.").

382. *See* Leshy, *supra* note 12, at 2023 (observing that "the nation's taxpayers have been bestowing gifts on farmers for decades" and it would be anomalous to require the taxpayers to compensate the farmers when it decides to "end the gift-giving").

383. *See* Bell & Parchomovsky, *supra* note 16, at 590–92 (discussing when the government should charge for a benefit and how should the charge be assessed and collected).

384. *See id.* at 601 ("[P]ayment of compensation for a taking, or assessment of a charge for a giving, should reflect the net effect of all givings and takings befalling the property owner.").

385. *Id.* at 618.

If we treat water as a public resource owned by the state, the state must establish a pricing system for both the initial allocation of access rights and the continuing water usage rights such that the public as a whole benefits. If a giving has already occurred, such as with the grant of water rights to prior appropriators and riparians, the public trust doctrine can be used to remedy this giving since the government should have "the right to revoke a grant conferred under the public trust."[386] The implied reservation of government rights may also preclude a takings claim as such reserved rights are not subject to private ownership.[387]

Other Constitutional Challenges

Water rights may not be considered property for purposes of a takings claim but may nonetheless be considered due process property.[388] In addition to a takings claim, litigants seeking a remedy from the government for interference with their water rights may assert claims that the government action has deprived them of due process (procedural and/or substantive) and/or equal protection. However, some federal courts have held that federal substantive due process claims are not allowed where the alleged violation can be addressed by a Fifth Amendment takings claim.[389] The Ninth Circuit in *Esplanade Properties v. City of Seattle*[390] not only affirmed the district court's dismissal of a federal substantive due process claim for the city's denial of a shoreline property development application, but it also dismissed the landowner's state substantive due process claim on the basis that other constitutional provisions were available under the Fifth and Fourteenth Amendments.[391]

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386. Dibadj, *supra* note 18, at 1110.

387. *See supra* notes 125–136 and accompanying text (discussing federal and state reserved rights).

388. *See* Zellmer & Harder, *supra* note 4, at 732.

389. *See, e.g.*, Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 983 (9th Cir. 2002); Armendariz v. Penman, 75 F.3d 1311, 1318 (9th Cir. 1996). *But see* Shanks v. Dressel, 540 F.3d 1082, 1087 (9th Cir. 2008) (rejecting the argument "that any claim that governmental action caused a diminution in the value of real property involves the Takings Clause, not the Due Process Clause," and clarifying that *Armendariz* does not "create a blanket prohibition of all property-related substantive due process claims"); Action Apartment Ass'n, Inc. v. Santa Monica Rent Control Bd., 509 F.3d 1020, 1024 (9th Cir. 2007) (recognizing that the holding in *Armendariz* had been affected by the Supreme Court's decision in Lingle v. Chevron U.S.A., Inc., 544 U.S. 528 (2005), which "signaled that substantive due process can be an appropriate vehicle to challenge the rationality of land use regulations").

390. 307 F.3d 978 (9th Cir. 2002).

391. *Id.* at 983.

Courts have also allowed substantive due process claims to be asserted when a regulatory takings claim was dismissed as unripe. Contrary to the Ninth Circuit's view in *Esplanade Properties* that a takings claim precludes a substantive due process claim, the court in *Coates v. Hall*[392] explained that "[t]he Fifth Circuit has refused to adopt a 'blanket rule' that a takings claim subsumes any substantive due process claim related to a deprivation of property."[393] Although the *Coates* court allowed the plaintiff to assert both a substantive due process claim and an equal protection claim in addition to a takings claim for the government's restriction on groundwater withdrawal, it found that both these claims required dismissal based on ripeness.[394] The court concluded that under the particular facts of the case before it, the substantive due process claim and the equal protection claim were the same as the takings claim, which had been dismissed for ripeness for failure to obtain a final decision on the government's groundwater restriction.[395] Thus, while it may be possible to assert substantive due process, equal protection, and even procedural due process[396] claims in addition to a takings claim,[397] the factual circumstances of most cases will likely preclude a claimant from maintaining these actions separate from the takings analysis.

Under the public trust doctrine, the property right to water should remain with the state. Access to water may be granted by the government to individual water users, but such permits should be treated as revocable licenses, not subject to compensation upon revocation, similar to federal grazing rights.[398] Water rights have consistently been identified as usufructuary, which precludes

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392. 512 F. Supp. 2d 770 (W.D. Tex. 2007).

393. *Id.* at 789 (citing FM Props. Operating Co. v. City of Austin, 93 F.3d 167, 171 n.5 (5th Cir. 1996); Simi Inv. Co. v. Harris Cnty., 236 F.3d 240, 248 (5th Cir. 2000))

394. *Id.* at 790–91.

395. *Id.*

396. *See, e.g.,* Zellmer & Harder, *supra* note 4, at 742 (discussing Sheep Mountain Cattle Co. v. Dep't of Ecology, 726 P.2d 55, 57 (Wash. Ct. App. 1986), in which "the court construed a water right as property for due process purposes . . . [and] found that the state violated procedural due process by issuing a termination order without providing notice or a hearing to a water rights holder who had failed to show continuous beneficial use of the water").

397. *See id.* at 745 (concluding that although water users in most prior appropriation states will be precluded from having a possessory property right sufficient to support a takings claim, "it does not preclude them from having due process or common law property").

398. *See* United States v. Fuller, 409 U.S. 488, 492–93 (1973) (holding that government does not need to compensate a grazing permit holder for the value of the permit if the government condemns the fee lands).

ownership rights and entitles the holder to rights of access and use.[399] A usufructuary permit should be subject to revocation by the government owner, without compensation being required under the Fifth or Fourteenth Amendments. When the government gives a water right to a private individual, such a right entitles the user to enjoy the benefits of this right so long as any contractual obligations, such as paying for the right, are observed and the public interest, as expressed in laws such as the Endangered Species Act, is supported.

Water Marketing & Privatization

Identifying the nature of property rights in water will also affect the viability of a market in water rights.[400] A viable water market, implemented to encourage water usage efficiency and to keep more water instream,[401] would require some degree of certainty in the water rights valuation.[402] Using a tradable permit system to establish such a market would necessitate adequate security provided to permit holders.[403] The value of water rights will depend upon the legal protection given to these interests as against private and governmental interference.[404]

The emissions trading schemes instituted under the Clean Air Act create private interests in the sky through tradable emissions permits designed to encourage reductions in air pollution through

399. *See, e.g.*, Red Canyon Sheep Co. v. Ickes, 98 F.2d 308, 315 (D.C. Cir. 1938) ("[T]he [water] right itself is something less than the full ownership of property because it is a right not to the corpus of the water but to the use of the water.").

400. *See* Levy & Friedman, *supra* note 175, at 524–25 ("[T]he valuation of goods having no close substitutes, including many disputed natural resources, can be highly sensitive to the definition of property rights.").

401. *See* Johnson, *supra* note 2, at 239–46 (promoting the use of market incentives, rather than governmental power, to achieve water conservation and the increase of instream flows for environmental protection).

402. *See* Zellmer & Harder, *supra* note 4, at 745 ("In order for water users to execute water transfers, engage in water banking, conserve streamflows, or participate in a myriad of beneficial uses, it is important to have a clear characterization of which incidents of property inhere in a water right."); Doremus & Tarlock, *supra* note 8, at 339–40 (noting that uncertainty about legal rights and responsibilities make "it excruciatingly difficult for water markets to move water to more socially valuable uses").

403. Tietenberg, *supra* note 15, at 267–68.

404. *See* Zellmer & Harder, *supra* note 4, at 745 ("[A]dequate remedies for real world disputes between users must be available for the legal system to function and to evolve in a fashion that promotes both stability and the full range of values associated with water."); Levy & Friedman, *supra* note 175, at 494 (noting that in order to properly allocate and redistribute goods, "property rights must be well defined and enforceable").

economic incentives.[405] Professor Gerald Torres proposed that air is not government-owned property but is instead public property which should be managed by the government as an asset held in trust for the people.[406] As a trustee, the government must protect the air resource and cannot give the property away to private interests.[407] Professor Torres concluded that the public trust doctrine should be extended to "the pollution and carbon loading capacity of the atmosphere" such that it provides a way "to both capture the value of the sky resource for the people as a whole and to supervise the government dealings in relationship to the carrying capacity of the atmosphere."[408] Water can be similarly viewed, with the government holding the water resource in trust for the people and managing that asset for sustainability.

Air pollution control market solutions through cap and trade permits are based on a specified amount of tons of emissions allowed in a given region.[409] Water markets will necessarily require a more flexible management system because of the uncertainty of water supply, which "can vary significantly from year to year, implying that caps are likely to vary from year to year."[410] Tradable permit systems for fisheries may be a more appropriate model for water rights than the air pollution model because such fishery systems must also respond to seasonally changing conditions without drastically impacting the value of these investments.[411] However, United States fisheries have also had difficulty meeting sustainability goals, even though this government ownership model for natural resources has attempted to solve the tragedy of the commons problems by mimicking sole ownership by a private entity.[412]

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405. *See* Gerald Torres, *Who Owns the Sky?*, 19 PACE ENVTL. L. REV. 515, 560–62 (2002) (explaining that under the Coase theorem, "a trading scheme exploits the differences [among firms that have different marginal cost curves for controlling pollution] and encourages firms to re-allocate reduction efforts to the sources that have the lowest-cost opportunities to reduce pollution [through market transactions]").

406. *Id.* at 573.

407. *Id.*

408. *Id.* at 532.

409. *See* Tietenberg, *supra* note 15, at 268.

410. *Id.* ("Since different users have quite different capacities for responding to shortfalls, the system for allocating this water needs to be flexible enough to respond to this variability or the water could be seriously misallocated.").

411. *See id.* (suggesting that the need for allocating water has been met "by a combination of technological solutions (principally water storage) and building some flexibility into the rights system").

412. *See generally* Josh Eagle, *A Window into the Regulated Commons: The Takings Clause, Investment Security, and Sustainability*, 34 ECOLOGY L.Q. 619 (2007).

The United States has attempted to control overfishing and overinvestment in the fishing industry by having government agencies set annual allocations (quotas) based upon scientific advice about available catch levels.[413] This model of sole ownership in the government is an economic solution based on the theory that such ownership "rationalizes resource use by eliminating wasteful competition for the resource among fishermen and by internalizing individually generated externalities."[414] However, as a "private" owner, the government must both regulate to limit resource use and facilitate the investment by fishermen to extract the resource.[415] While this model for commercial fishing management may have its limitations, the underlying issues about natural resource economics are very applicable to our water management challenges. Like fish, the available water supply is dependent upon natural conditions, which may vary drastically from season to season and year to year and are currently out of direct human control. As a common resource, both water and fish are subject to a tragedy of the commons scenario, which may be partially resolved by private ownership.[416] Government ownership of the common resource in trust for the public may be the best (although not necessarily ideal) method to manage a natural resource that is critical to the public good.[417]

Tradable permit systems for air emissions and fisheries have not required that private property rights exist in either the clean air or the actual fish.[418] Instead, these markets have been established based on a usage allocation controlled by government regulators, hopefully for the benefit of the public.[419] Putting aside for a moment the question of private property rights in water, quantifying the allocation is important to valuing these rights and is also important to the

413. *See id.* at 644–46 (discussing the Magnuson-Stevens Act and the efforts of the Gulf of Mexico Fishery Management Council).

414. *Id.* at 643 (noting, however, that there is a distinction between public and private ownership in that the government is not profit oriented like a private owner is).

415. *See id.* at 623–24.

416. *See id.* at 622–23.

417. *See id.* at 654 ("In order for government ownership to succeed, management institutions must take into account the incentives of the entrepreneurs embedded within them.").

418. *See* Am. Pelagic Fishing Co. v. United States, 379 F.3d 1363, 1376 (Fed. Cir. 2004) (holding that the government owns the right to fish and that fishermen have a license to catch fish but do not have a property interest subject to a takings claim).

419. *But see* Arnold, *supra* note 5, at 831–32 ("[P]rivatization and commodification fail to achieve *economic integrity and sustainability*.").

development of a water market.[420] However, water rights, particularly under the prior appropriation doctrine, have typically been defined based upon usage, not quantity, and while allocation based on usage may be efficient, it may not be fair as "[t]hose who are initially able to obtain the largest water rights reap the benefits of future trades to more beneficial uses."[421] Thus, any tradable permit system in water will necessitate policy decisions about how to quantify and allocate initial water rights and whether this initial allocation will be based upon historical usage and priorities established as part of our water law regimes.

Professor Craig Arnold has addressed privatizing water as a national security and human rights issue and concludes that to control, manage, and allocate water, our legal system and public institutions should use a public stewardship concept "based in public ownership of water with recognition and protection of private interests in water."[422] Professor Arnold posits that both human rights and national security protections are inadequate to meet basic human water needs because of the "deeply entrenched conceptualization of rights in the United States" and proposes that private control over water sources and systems should be limited.[423] He suggests that the United States adopt principles of public stewardship of water resources "premised on the concept that the government is a trustee of water resources for the public."[424]

Noting that there is a global trend toward the privatization of water and the supporting infrastructure, Professor Arnold expresses concern that "tensions between water privatization and human rights in developing countries cause great unrest."[425] Although this article does not address the concerns about international water supplies, it is

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420. *See* Johnson, *supra* note 2, at 229 ("A primary advantage of quantification is that the number of units to which a property right applies remains constant, thereby making questions about the distinction between one owner's rights and another's predictable and relatively easy to determine.").

421. *Id.* at 229–30; *see also id.* at 230 ("Prior appropriation incorporates the best of both systems by utilizing use measures to define and allocate water rights, and by implementing a quantity measure for the purposes of transfer.").

422. Arnold, *supra* note 5, at 849.

423. *Id.* at 789.

424. *Id.* (noting that this public stewardship is "a fiduciary obligation not limited to the traditional public trust doctrine, but based in the many public characteristics of water in the United States, as well as the social and human necessities of a complex society").

425. *Id.* at 798 ("Water privatization in the developing world has been met with public opposition and conflict, as opponents argue that water is a human right and that global corporations are exploiting the needs of the world's poor for profit.").

noteworthy that the privatization of water by countries in cooperation with large corporations is viewed as a matter of national security by the government, while residents, especially the poor, may experience the adverse impact of high prices and service cut-offs.[426] Grassroots organizations in Latin America are resisting this privatization and have demanded water justice to fight what they fear is the commodification of their country's water for the benefit of foreign corporations.[427] Privatization and commodification of water may help to some degree by moving scarce water to its highest and most efficient use through market forces. However, transitioning to a private interest model may have severe consequences for human rights and survival as commodification degrades the sustainability of this precious natural resource.

IV. CONCLUSION

Property rights in water depend upon state law to the extent that constitutional or legislative pronouncements establish or negate private claims to a protectable interest in water. [428] State rules are diverse and govern whether water users can claim property rights for purposes of investing in and trading these rights or for protecting against government interference. California has conferred only a fragile right in water as it recognizes the public trust doctrine as a constraint on private ownership of public resources.[429] Other states, which similarly restrain such private rights, also grant only conditional property rights and are unlikely to protect water users from government interference in favor of public resources, such as endangered species.

As states adopt the public trust doctrine or extend it to include all state waters,[430] property rights proponents will question the court's authority to take property rights without compensation based upon

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426. *See generally* Maude Barlow & Tony Clarke, *The Struggle for Latin America's Water*, GLOBAL POLICY FORUM (Jul. 2004), http://www.globalpolicy.org/component/content/article/215-global-public-goods/46052-the-struggle-for-latin-americas-water.pdf.

427. *See id.* ("The destruction of water sources, combined with inequitable access, has left most Latin Americans 'water poor.'").

428. *See* Mulvaney, *supra* note 8, at 370–71.

429. *See* Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 58 P.2d 709 (Cal. 1983); Gray, *supra* note 32, at 26 ("In states such as California that—by constitutional mandate, statutory directive, and common law doctrine—have conferred only a conditional and fragile property right in water, few water rights takings cases are likely to succeed.").

430. *See In re* Water Use Applications (Wai'ahole Ditch), 9 P.3d 409, 445–46 (Haw. 2000) (extending public trust to groundwater).

judicial decision.[431] However, to meet sustainability goals for human survival and ecological health as the demand for water increases, we must change our concept of water rights. Rather than start with the premise that there are private property rights in water, subject to restrictions as discussed above, we should instead treat water as a public resource managed by the government in trust for the people.[432]

Under the public trust doctrine, federal reserved rights, or the navigational servitude, the state or federal government can assert ownership over water in trust for the public such that any water rights given to a private individual or entity for access and use will be restricted by the public interest in these water resources. We should consider access to water and its use as interests similar to grazing, fishing, or timber cutting permits, which do not convey an ownership interest as the government cannot sell public interests it holds in trust for the people. However, water interests conveyed by the government to a private party may be protected against claims from other private users based upon principles such as prior appropriation or riparianism, so long as these interests are not adverse to the public interest.

Private users should be required to pay market value for the right to use water, or such grants of access should be considered as potentially unconstitutional "givings" in derogation of the public trust. Although contracts may be modified based upon subsequent legislation, such as the Endangered Species Act,[433] assuming water usage interests are contractually granted by the government to private users, these contract rights will be protected under contract law principles.[434] The government, as the ultimate title owner of property rights in water, holds it in trust for the people and should not be required to pay just compensation for a taking when it reserves water for the public benefit. Particularly when the government has granted rights to use water at a value markedly below its worth, the public should not be required to pay for taking back valuable rights it

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431. *See generally*, Petition for Writ of Certiorari, Stop the Beach Renourishment v. Fla. Dep't of Envtl. Prot., 129 S. Ct. 2792 (2009) (No. 08-1151) (addressing issues in terms of "judicial taking" in reviewing Florida Supreme Court's decision upholding legislation impacting waterfront owners' rights to shoreline property); Callies & Chipchase, *supra* note 27, at 73–74 (arguing that an expansion of the public trust doctrine amounts to a taking of property which must be compensated for).

432. *See* Arnold, *supra* note 5, at 807–08.

433. *See* Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 537 (2005).

434. *Id.* at 540 (concluding that water rights in the case at hand "take the form of contract claims and will be resolved as such").

has given to private users. Water is fluid and too unlike land to be treated as a property interest and held by private individuals. Instead, it should be held by the state in trust for the public good.