



2000

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Dan A. Tarlock

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Recommended Citation

Tarlock, Dan A. (2000) "Prior Appropriation: Rule, Principle, or Rhetoric," *North Dakota Law Review*: Vol. 76: No. 4, Article 5.

Available at: <https://commons.und.edu/ndlr/vol76/iss4/5>

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PRIOR APPROPRIATION: RULE, PRINCIPLE, OR RHETORIC?

A. DAN TARLOCK*

I. INTRODUCTION: FIRST IN TIME, FIRST RIGHT—IS IT A REAL RULE?

Prior in time, prior in right is the central dogma of western water law.¹ With limited exceptions, western water rights are said to be allocated by the doctrine of prior appropriation.² The great issue has been how, not why, exclusive, temporal rights can be obtained to a fixed quantity of surface, and in more limited cases, ground water “[a]s opposed to the correlative rights of the common law, whereby all riparian owners on the stream have equal rights.”³

In all western states except Colorado, the answer is that states use an administrative permit system to create and to enforce priorities.⁴ Administrative agencies, originally the office of the state engineer, supervise and police the acquisition, exercise and transfer of water rights, but administration has not altered adherence to priority. All water rights remain

* Professor of Law, Chicago-Kent College of Law. Visiting Professor of Law, University of Hawaii School of Law, Spring 2001. A.B. 1962, LL.B. 1965 Stanford University. I have long been struck by how much priority talk there is in the West compared to the lack of reported water law cases that actually enforce a priority. This article is not a systematic empirical study of the extent of priority enforcement throughout the West, but over the last few years, I have pressed water lawyers, administrators and academics for specific examples of priority enforcement. I would like to thank Reed Benson of Oregon Water Watch; Steven Clyde of Clyde, Snow, Sessions and Swenson, Salt Lake City; Ramsey Knopf of Patrick & Stowell, P.C., Aspen, Colorado; Reed Marbut, Oregon Water Resources Department; Joe Sax, House-Hurd Professor of Law, University of California, Berkeley; John Thorson, former Special Master in the Gila River Adjudication; Gary Weatherford of Weatherford & Taaffe LLP, San Francisco; and others for providing some answers to my questions, but all opinions and errors of fact and judgment remain mine.

1. See 1 SAMUEL WIEL, *WATER RIGHTS IN THE WESTERN STATES* § 299, at 307 (3d ed. 1911).

2. The semi-arid states on both sides of the inner-mountain west first adopted the common law of riparian rights and then switched to prior appropriation or dual appropriation-riparian systems in the late 19th century to promote irrigation. See Joseph W. Dellapenna, *Riparian Rights in the West*, 43 OKLA. L. REV. 51, 51-55 (1990). These “dual system” states recognized both appropriative and riparian rights. See *id.* In almost all dual system states, riparian rights based on actual use have been converted to appropriative rights and unused rights have been extinguished. Common law riparian rights remain important in California, Oklahoma, and possibly Nebraska. California has creatively converted unexercised riparian rights to low priority riparian rights, see *In re Waters of Long Valley Stream Sys.*, 599 P.2d 656, 668 (Cal. 1979), but a subsequent case limited the rule to statutory adjudications, see *Pleasant Valley Canal Co. v. Borrer*, 72 Cal. Rptr. 2d 1, 28-29 (1998). In contrast, Oklahoma has bucked the west-wide trend and in 1990 revived unexercised riparian rights. See *Franco-American Charolaise, Ltd. v. Oklahoma Water Res. Bd.*, 855 P.2d 568 (Okla. 1990).

3. 1 WIEL, *supra* note 1, § 279, at 291.

4. See JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 245 (2d ed. 1991); Joseph L. Sax, *Environmental Law at the Turn of the Century: A Reportorial Fragment of Contemporary History*, 88 CAL. L. REV. 2375 (2000).

grounded in the mining and early irrigation practices that produced the prior appropriation doctrine. Agencies exist primarily to make it work.

Under the law of prior appropriation, water rights are allocated to the first person to put a specific quantity of water to beneficial use.⁵ The user obtains a temporal priority, and in times of scarcity, the right to withdraw or pump water is curtailed in reverse order of the manifestation of an intent to appropriate. The most junior user right holder must yield to the more senior and so on along a stream system or, in theory in some states, in a ground water basin.⁶ There are minor exceptions. A senior cannot make a call on a junior if the call would be futile, that is the water would not in fact reach the senior's point of diversion.⁷ However, this exception seems to exist more in theory than in practice. The right is good to the last drop.⁸

Prospective enforcement of priorities dominates the legal and political discourse of western water from small streams to the major interstate rivers such as the Colorado, Rio Grande and the Missouri.⁹ Water users rely on the possible enforcement of priorities in calculating the security of their entitlements, and all drought and long-term shortage projections are predicated on a worst case enforcement scenario. However, the enforcement of priorities assumes that adequate use and stream-flow information exists and that there is a speedy curtailment process. This is seldom the case. There is often a large gap between the amount of water claimed and the amount of water actually put to beneficial use,

5. Most water law casebooks introduce the prior appropriation system through the doctrine of "relation back." See, e.g., FRANK J. TRELEASE, *WATER LAW, CASES AND MATERIALS* 135 (1967). Prior to the introduction of permit systems, an appropriator could post a notice of intent to divert, and the priority would relate back to the date of the posting of the notice, provided that the appropriator proceeded with due diligence to put the water to beneficial use. In permit states, the priority date is the date of the filing of the permit application. See *Sand Point Water & Light Co. v. Panhandle Dev. Co.*, 83 P. 347, 350 (Idaho 1905). The frontier posting rules survive in Colorado's "first step" doctrine. See, e.g., *In re Applications for Water Rights*, 838 P.2d 840, 849 (Colo. 1992).

6. See *State ex rel. Bliss v. Dority*, 225 P.2d 1007 (N.M. 1950) (holding that a statute subjecting ground water to prior appropriation is not an unconstitutional taking).

7. See *infra* note 91 and accompanying text.

8. In 1992, the Montana Supreme Court reaffirmed the right of irrigators to de-water a river by taking two-thirds of a drought-stressed flow, over the objections of an environmental group. See *Baker Ditch Co. v. District Ct.*, 824 P.2d 260 (Mont. 1992). During a drought that began in 1987, the Walker River Irrigation District in Nevada drained a 42,460 acre foot reservoir "flushing warm water and considerable quantities of sediment from the reservoir, subsequently causing an extensive fish kill downstream." NEVADA DIVISION OF WATER PLANNING, *WALKER RIVER CHRONOLOGY: PART III—TWENTIETH CENTURY*, available at <<http://www.state.nv.us/cnr/ndwp/walker/walker3.htm>>.

9. Justice Hobbs of the Colorado Supreme Court has broadly characterized the modern purpose of the beneficial use requirement as the advancement of "the fundamental principles of Colorado and western water law that favor optimum use, efficient water management, and priority administration, and disfavor speculation and waste." *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54 (Colo. 1999). For an excellent recent survey of the problems of limiting water users to beneficial use, see Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919 (1998).

and this makes enforcement difficult. To remedy this problem, western states such as Arizona, Idaho, and Montana have invested millions of dollars in general adjudications to quantify rights so that the system of priorities can actually be fairly and accurately administered over a century after large claims to water were filed.¹⁰

This article addresses the question of whether priority enforcement is in fact the rule of western water law. It argues that priority is an efficient rule of water allocation, but it is often more rhetoric than rule. Like all drastic rules, the rule's importance lies more in the threat of its application rather than the application.¹¹

Priority's modern significance lies in the threat of enforcement rather than the actual enforcement because it encourages water users to cooperate either to reduce the risk of enforcement to as close to zero as possible or to share more equitably the burdens of shortages. This said, cooperation and ad hoc sharing do not come easily to water users. Alternative allocation systems usually emerge only when a significant group of water users thinks that cooperation will produce a superior result to the likely legal resolution allocation of the resource. If there is a credible threat of actual priority enforcement, users may cooperate to avoid the short and long term costs of the result. The formation of the Southern Nevada Water Authority to find regional solutions to supplement Nevada's limited Colorado River priority and to allow Las Vegas to continue its sprawl is an example of the incentives that enforcement can provide.¹²

The fact that priority enforcement is more bluff than substance does not undermine the need for consistent and fair allocation rules, but it does call into question the sole reliance on enforcement of priorities to allocate water in temporary and chronic shortages. The principal assumption of this article is that experience will demonstrate that priorities are seldom enforced in practice. In many situations, the strict enforcement of prior appropriation would raise substantial fairness and efficiency concerns. Further, most water users are "repeat users" and thus they have incentives to share rather than stand on their rights—at least if Indian reserved water rights are not involved. This is especially true on larger rather than smaller streams, but the future costs of priority enforcement can be high on small streams as well. Thus, it is not surprising that states have taken extraordinary steps to ensure that the rule is never applied in practice and that federal, state and local water distribution

10. See SAX ET AL., *supra* note 4, at 271-79.

11. I am indebted to eminent California water lawyer Gary Weatherford for this point.

12. See, e.g., Jon Christensen, *Las Vegas May Shoot Craps with its Water*, HIGH COUNTRY NEWS (Paonia, Colo.), June 23, 1997, available at <<http://www.hcn.org>>.

agencies find alternative ways to ameliorate the rule when droughts occur.

I do not argue that priority should be abandoned. There are no superior alternatives. Rather, I make a positive and normative argument. The positive one is simply that priority enforcement is generally the exception rather than the norm, and thus there is a need to examine more systematically what happens when scarcity occurs and how large and small systems cope. The normative argument is that the focus of water allocation should be on the actual expectations that lie behind a use,¹³ rather than the simple enforcement of the entitlement to understand that alternative ways of satisfying those expectations exist.¹⁴ The core idea of prior appropriation is the protection of investment-backed expectations from the risks of variable water years and perhaps now global climate change, and this idea remains a valid objective. The issue is whether the enforcement of priorities contributes to this objective.

There are legitimate alternative risk allocation mechanisms to prior appropriation and it is important to consider them as the West increasingly must accommodate four major competing interests, large and growing cities, traditional consumptive and non-consumptive users, Native American claims, and the restoration of degraded aquatic ecosystems and the maintenance of healthy ones. Property rights, in contrast to contracts, are not conventionally defined as risk allocation mechanisms

13. This analysis echoes and recasts the Progressive Era concern that the monopolization of water rights would prevent the more widespread distribution of access to water to the detriment of society's interest in the conservation of resources. For example, the great treatise writer Samuel Wiel, floated the idea that unreasonable assertions of priority would not be recognized. See WIEL, *supra* note 1, § 310, at 329-40. The leading case rejecting priority enforcement is *State ex rel. Cary v. Cochran*, 292 N.W. 239 (Neb. 1940). The case enforced a priority which involved a 77% loss between the point of diversion and point of withdrawal:

Amici curiae urge that the doctrine of reasonable use is in force in this state and that it should be applied to the case at bar. We recognize the principle that the public has an interest in the public waters of the state and it is the use thereof only that may be appropriated. Even though an adjudicated appropriation may be vested, it may be subjected to regulation and control by the state by virtue of its police power. It may likewise be circumscribed to the extent that a limited diversion for a specified purpose will not permit of an undue interference with the rights of other appropriators on the stream. But we cannot agree that the doctrine of reasonable use can be applied in a case where delivery of a usable quantity of water can be made, although the losses suffered in so doing are great. To permit the officers of the state the right to say whether prospective losses would or would not justify the delivery of usable quantities of water would clothe such officers with a discretion incompatible with the vested interests of the relators, and destroy the very purpose of the doctrine of appropriation existent in this state.

Id. at 247.

14. The United States Department of Interior's no surprises policy, which shifts the major risk of unanticipated conservation measures unnecessary to maintain the integrity of habitat conservation plans, is an example of defining the core entitlement-developer ability to adapt to changed conditions and implement a mutually advantageous risk sharing arrangement. See generally Fred P. Bosselman, *The Statutory and Constitutional Mandate for a No Surprises Policy*, 24 *ECOLOGY L.Q.* 707 (1997).

because the law of property seeks to eliminate all risk that there will be an interference with complete enjoyment, such as an unconsented entry.¹⁵ However, water rights are as much about risk as they are about stability. Because risk is inherent in water entitlements, there are no inherent legal barriers to management solutions that equitably reassign the risks of water shortages to accommodate all relevant uses and stakeholders in a basin.¹⁶

II. FIRST IN TIME, FIRST IN RIGHT: SOCIAL CONSTRUCT OR SOCIO-BIOLOGY

A. WHY PRIORITY: THE EXPECTATION ANSWER

First in time, first in right is a foundational principle of property law and has many powerful justifications. The principle that prior possession is the root of all titles is fundamental to the assignment of real and personal property in the Anglo American system of property rights.¹⁷ Priority enjoys both powerful, but not compelling historical, economic, and moral justifications, as well as intuitive common sense ones.¹⁸ Proponents of strong private property regimes argue that the drive to acquire is a universal rule grounded in human nature.¹⁹ One need not be this biologically deterministic to accept the law of prior appropriation. The protection of expectation remains the best justification for priority.

15. See Richard A. Epstein, *A Clear View of The Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2096-97 (1997).

16. The California Supreme Court sanctioned a new risk-based law of flood control liability in *Bunch v. Coachella Valley Water District*, 63 Cal. Rptr. 2d 89 (1997). *Bunch* holds that a public entity, which diverts water from a natural watercourse that has historically flooded adjacent lands and constructs flood control works that fail in a major rain event, is only liable if it acted unreasonably in designing, constructing and operating the project. "[T]he only way to determine whether a damaged private landowner has . . . been forced to contribute a compensable 'disproportionate' share of the public undertaking is to determine whether the system, as designed, constructed, operated, and maintained exposed him to an 'unreasonable' risk of harm, either individually or in relation to other landowners." *Id.* at 100-01.

17. The law of property generally only departs from priority when justice demands it. For example, in the law of mortgages, the failure of the first mortgagee to record may set up a circular priority problem when a second mortgagee, with notice of the first, records and then a third mortgagee with no notice of the first two transactions records. A few states apply the common law rule of first in time, but most subordinate the first mortgagee to the second and third lien holders because the first was at fault and caused the problem by failing to record. See GEORGE E. OSBORNE, MORTGAGES 366-74 (2d ed. 1970).

18. As Richard Epstein has demonstrated, rules which allocate resources to the first possession have a strong practical, intuitive appeal but have no *a priori* moral justification. For example, the labor theory justification for the rule, which posits that ownership is based on reduction of something in the negative community to possession, is both circular and incomplete. See generally Richard A. Epstein, *Possession as the Root of Title*, 13 GA. L. REV. 1221 (1979).

19. The distinguished conservative Russian scholar, Richard Pipes, argues that "acquisitiveness is universal among humans as well as animals, that it involves much more than the desire to control physical objects, being intimately connected to human personality by promoting a sense of identity and competence" RICHARD PIPES, PROPERTY AND FREEDOM 65 (1999).

In *The Path of the Common Law*, Oliver Wendell Holmes justified adverse possession with his famous cultural insight that:

[i]t is in the nature of man's mind. A thing which you have enjoyed and used as your own for a long time, whether property or an opinion, takes root in your being and cannot be torn away without your resenting the act and trying to defend yourself, however you came by it"²⁰

Water rights users, who have in fact put water to a beneficial use, are said to need clear, consistent rules that do not invite challenges to claimed entitlements in times of scarcity. Priority protects their legitimate-backed expectations,²¹ at least in theory. As the late Charles J. Meyers succinctly advised the National Water Commission, the prior appropriation system "promotes investment by giving security of use."²² This expectation can also be recast in quasi-religious terms. To the western irrigation community, prior appropriation represents a sacred and eternal covenant between the federal government and settlers. It is the reward for enduring the risks and hardships of settling the harsh, arid West and thus the right to use water is eternal and God-given.

B. THE COMMONS MANAGEMENT ANSWER

Modern commons management theory²³ can also be invoked to support priority, but it equally exposes the limits of the rule. Priority works very well as a rule for the initial assignment of exclusive property rights. Water allocation regimes are most accurately characterized as

20. Oliver Wendell Holmes, *The Path of the Common Law*, 10 HARV. L. REV. 477 (1897). Recent behavioral law and economics scholarship has recast this insight as the endowment effect. Modern endowment effect theory posits that people value property rights that they "own" and are protected against involuntary alienation more than less firm entitlements to "mere" compensation. See Jeffrey J. Rachlinski & Forest Jourden, *Remedies and the Psychology of Ownership*, 51 VAND. L. REV. 1541, 1551 (1998); Jennifer Arlen, Comment, *The Future of Behavioral Economic Analysis of Law*, 51 VAND. L. REV. 1765, 1777 (1998).

21. The Supreme Court has stated that whether or not a land use regulation interferes with investment-backed expectations is one of the relevant factors to determine if a taking of property has occurred. See *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978). See generally Daniel R. Mandelker, *Investment-Backed Expectations in Takings Law*, 27 URB. LAW. 215 (1995).

22. Charles J. Meyers, A HISTORICAL AND FUNCTIONAL ANALYSIS OF THE APPROPRIATION SYSTEM 6 (National Water Commission, Legal Study No. 5, 1991). RANDY E. BARNETT, *THE STRUCTURE OF LIBERTY, JUSTICE AND THE RULE OF LAW* 83, 155 (1998), offers a similar but theoretically richer justification. First-possession is justified because it allows persons to act on their own resource use preferences and it creates incentives for each user to pursue his or her own interest in the situation where a person has invested resources in determining that a claim is not inconsistent with another claim.

23. In brief, commons management theory refers to the debate among lawyers, economists, political scientists, and others on the optimum institutional mix—formal private property rights, customary practice and public regulation—to allocate the right to use common property resources readily accessible by large groups of users.

common property management and risk allocation regimes. In any water allocation regime, there are two tragedies of the commons.²⁴ First, unrestrained access will ultimately deprive similarly situated users of their fair share of the resource.²⁵ Second, such access will cause long term environmental degradation. Prior appropriation solves the first tragedy; priority, along with anti-waste and anti-speculative rules, limits individual use and produces a relatively broad and stable distribution of water use opportunities. The resource is fairly allocated over the long term among consumptive users. Prior appropriation does not solve the tragedy of environmental degradation;²⁶ to the contrary, it is one of the primary causes. One of the major challenge of modern water law is to find ways to promote aquatic restoration in a legal regime that promotes and entrenches environmentally destructive diversions.²⁷ For example, leading aquatic ecologists have called for the establishment of normative flow regimes²⁸ to restore degraded rivers.²⁹

Commons management theory is not a complete justification for prior appropriation because it teaches that there are powerful incentives for users to depart from it in crunch times. One of its major lessons is that users within a common property regime have incentives to cooperate among themselves to share access and use equitably.³⁰ In her path-breaking study of commons management, Elinor Ostrom describes an allocation regime in Valencia, Spain based, as economists have urged, on equal access and on comparative crop efficiency in times of shortage:

The basic elements of the turno system are that (1) the order in which irrigators receive water is fixed, and (2) each farmer can decide how much water to take as long as water is not wasted.

24. The tragedy of the commons refers to the theory, popularized by Garret Hardin's classic article, *The Tragedy of the Commons*, 162 *SCIENCE* 1243 (1968), which posits that unrestrained access to common property resources will lead to over use and degradation, and thus access needs to be restrained by property rules or centralized management. The literature on commons theory is summarized in ELINOR OSTRUM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 1-8 (1990).

25. See Hardin, *supra* note 24.

26. Professor Carol M. Rose has developed this point in *Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes*, 10 *DUKE ENVTL. L. & POL'Y F.* 45 (1999). The paper compares common property management regimes with tradable pollution permits and observes that local common property management schemes work best to permit sustainable resource exploitation, such as irrigation, but do not work as well as tradable permits to limit access to promote environmental values.

27. See generally Reed D. Benson, *Maintaining the Status Quo: Protecting Established Water Uses in the Pacific Northwest, Despite the Rules of Prior Appropriation*, 28 *ENVTL. L.* 881 (1998).

28. Normative flow regimes are artificial regimes that approximate to some degree the natural hydrograph.

29. See, e.g., N. Leroy Poff et al., *The Natural Flow Regime: A Paradigm for River Conservation and Restoration*, *BIOSCIENCE*, Dec. 1997, at 469.

30. See Elinor Ostrom et al., *Revisiting the Commons: Local Lessons, Global Challenges*, 284 *SCIENCE* 278, 279 (Apr. 9, 1999).

Consequently, no irrigator can tell exactly when his turn will come, because that depends on the volume of water in the canal and the quantity needed by those ahead of him. On the other hand, each irrigator knows that he can take as much water as he needs when his turn eventually comes.

In periods of extraordinary drought, these procedures are modified so that farms whose crops are in the most need of water are given priority over farms whose crops require less water. At the beginning of a drought period, the farmers themselves are expected to apply water only to those crops in most need to shorten their turns in order to allow other farmers in need to obtain the scarce water. As a drought period continues, the syndic and his representatives take more and more responsibility for determining how long each farmer may have water, in light of the condition of the farmer's crops and the needs of others. In recent years, procedures to be used in extraordinary drought have been needed less frequently than in earlier times, because of the increased regulatory capacity of the Generalísimo Dam. Even so, an established procedure is in place for switching rule regimes when environmental conditions change.³¹

As this case study illustrates, the certainty and investment-backed expectation justifications for priority do not, therefore, compel or justify the consistent, rigorous enforcement of priorities. Priority is an intuitive but not inevitable allocation rule.

This commons example is not an argument for the wholesale abandonment of priority and its replacement by ad hoc allocation based on allocative efficiency or justice. The alternatives to priority are not appealing. There is little ethical or empirical basis for a rule that subsequent in time is prior in right.³² Nor is there a strong case for a system that permits ad hoc case by case equity or efficiency adjudications in times of shortage. The limited experience with eastern permit systems, which allow an administrator the discretion to displace existing permits or to refuse to grant new ones, suggests that most states will follow a de facto priority system.³³ The most plausible alternatives are rules of equal

31. See OSTROM, *supra* note 24, at 69-73.

32. The sociologist Irving Goffman could only come with being last in line for the guillotine. See IRVING GOFFMAN, *RELATIONS IN PUBLIC* (1971).

33. A Florida intermediate appellate court held that existing permit holders enjoy "superiority" over new applicants and reduced a new agricultural user's application to protect the pressure of an existing municipal well field. See *Harloff v. City of Sarasota*, 575 So. 2d 1324, 1328 (Fla. Dist. Ct. App. 1991).

distribution or public ownership and distribution.³⁴ The first is perhaps the rule of riparian rights, and has been rejected in both the Far West and increasingly in the humid east because any fairness benefits are outweighed by the extreme uncertainty of the rule. As Jacob Beuscher demonstrated years ago,³⁵ a close study of riparian rights cases reveals that courts generally find that the prior use is the reasonable use. The late Frank J. Trelease managed, over vigorous objection, to make priority an element in the *Restatement of Torts (Second)* test of reasonableness.³⁶ The *Restatement of Torts (Second)* makes "the protection of existing values of water uses, land, investments and enterprises" one of the nine relevant factors to consider in determining the reasonableness of a use.³⁷

C. PRIOR APPROPRIATION: CUSTOM OR RULE

Custom is an important element in prior appropriation because its customary origins and subsequent evolution explain a great deal about the gap between rhetoric and reality. Common law historians continue to debate the basis of the common law,³⁸ but the standard theory is that the common law represents formalized custom. Because the early courts endorsed the miners and irrigators customs, the debates about the nature of the common law and the nature of law has special force in water law. Local custom plays a very limited role in the abstract and universal modern common law,³⁹ although in recent years, there has been renewed attention of the question of whether law or norms of "nested" common interest communities control behavior. Water allocation regimes would seem to be prime candidates for systems where norms trump legal rules, and there is considerable evidence in comparative irrigation studies for this thesis.⁴⁰ Many of these studies involve irrigation regimes. For example, Professor Elinor Ostrom's common pool management scholarship has shown that irrigation regimes develop effective sharing rules

34. This is the premise of THE REGULATED RIPARIAN MODEL WATER CODE, WATER LAW COMMITTEE, WATER RESOURCES PLANNING & MANAGEMENT DIVISION, AMERICAN SOCIETY OF CIVIL ENGINEERS (1997), § 1R-1-05x provides: "The State, in the exercise of its sovereign police power to protect the public interest in the waters of the State, undertakes to provide, through this Code, an orderly strategy to allocate available water efficiently and equitably in times of water shortage or water emergency."

35. See J.H. Beuscher, *Appropriation Water Law Elements in Riparian Doctrine States*, 10 BUFF. L. REV. 448, 451-52 (1961).

36. Dean Trelease's efforts to bring order to the common law of riparians continues to be unjustly criticized as unsuited to the humid east. See 1 WATERS AND WATER RIGHTS § 601(c) (Robert E. Beck ed., 1991).

37. RESTATEMENT (SECOND) OF TORTS § 850A (1979).

38. See, e.g., J.W. TUBBS, THE COMMON LAW MIND: MEDIEVAL AND EARLY MODERN CONCEPTIONS 24-32 (2000).

39. See David L. Callies, *Custom and Public Trust: Background Principles of State Property Law?*, 30 ENVTL. L. REP. 10003 (2000).

40. See text accompanying *supra* notes 30-31.

and dispute resolution procedures.⁴¹ Professor Robert Ellickson's study of cattle ranchers in Shasta County, California argues that small communities of common property users often follow conduct norms which are different from the formal rules,⁴² and his work has influenced a number of "norms" scholars.⁴³ However, ultimately western irrigation regimes are rule rather than customary or social norm regimes. States and local water user communities have invested substantial resources to administer legal priorities. Put differently, strict adherence to the law of prior appropriation is the custom.

Western water law is said to have evolved from mining customs in California, but it has long since hardened into a regime of rules. Western water rights were initially a practical, intuitive response to the seasonable unreliability of western stream flows. They were perceived as fair for the time, but competing claims to water have changed dramatically since the settlement of the West as a mining, cattle, and then irrigation economy.⁴⁴ In frontier times, when the institutions of justice were limited, simple rules were necessary to bring order to the chaotic early mining and irrigation communities.⁴⁵ Unrestrained grabbing, rather than conformity to a settled property rights regime, were the norm.⁴⁶ Miners developed the custom of allocating rights by priority rather than trying to use the vague equal sharing rules of the common law of riparian rights.⁴⁷ Courts sanctioned this custom as an acceptable risk distribution scheme for the frontier, and later this custom was deemed the only property rights regime suitable to the arid West.⁴⁸ As the great Samuel WIEL noted, "[t]his Possessory System whereby lands, mines and waters were claimed by 'prior appropriation' had all the force of a *system* of law governing real estate all over the West, for there was no other land law of consequence upon the public domain, and it was all public domain."⁴⁹

41. See OSTRUM, *supra* note 24, at 69-88.

42. See Robert C. Ellickson, *Of Coase and Cattle: Dispute Resolution Among Neighbors in Shasta County*, 38 STAN. L. REV. 623 (1986).

43. See, e.g., Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338 (1997) (citing Robert C. Ellickson, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 40-81 (1991)).

44. See Dellapenna, *supra* note 2, at 53.

45. See ROBERT DUNBAR, FORGING NEW RIGHTS IN WESTERN WATERS 59-62 (1983).

46. See *id.*

47. See 1 WIEL, *supra* note 1, § 71, at 72.

48. For example, at a time when the public use doctrine limited the exercise of the power of eminent domain to property which would be used by the public, the Supreme Court upheld a Utah statute which allowed appropriators to condemn ditch right-of-ways across private lands because of "some peculiar condition of the soil or climate, or other peculiarity of the State." *Clark v. Nash*, 198 U.S. 361, 368 (1905).

49. 1 WIEL, *supra* note 1, § 84, at 89.

Custom is a powerful but ultimately limited foundation for western water law. Custom reflects a static rather than dynamic system. The primary modern importance of custom, other than as a historical explanation for the doctrine, of prior appropriation is that it is the basis for the claim that appropriative rights represent a Lockian, pre-political appropriation of "nature,"⁵⁰ and are thus constitutionally protected from any modification. The twentieth century reality, of course, is quite different. Water rights were only pre-political because no effective legal regime existed, and the "state of nature" was eventually replaced with a full civil society. Western water allocation policies and the rights that support them are the result of deliberate political choices about the distribution of the risks of shortages.⁵¹ Dean Frank J. Trelease participated in an early National Academy of Sciences global climate change study and described prior appropriation as a fair and efficient risk distribution scheme for a regime of many small-scale irrigators. "The rule of priority does guarantee a firm supply to all for whom the source is sufficient, and the senior irrigators can build a stable agriculture unmatched in humid climes."⁵² However, the rhetoric of western water law has obscured the risks inherent in prior appropriation and has stressed the illusory firmness of water rights as we have moved to more sophisticated allocation regimes where security is as much physical as it is legal.

The legacy of reliance on priority makes formal modification difficult because the rule is the norm and has some, if undetermined, constitutional status.⁵³ The importance of rules is illustrated by a recent case which limited the power of the federal government to administer a Reclamation project a variance with priorities.⁵⁴ The court held that the

50. For a recent summary of the debate over whether property is bottom-up or top-down see Carol M. Rose, *What Government Can Do For Property (And Vice Versa)*, in *THE FUNDAMENTAL INTERRELATIONSHIPS BETWEEN GOVERNMENT AND PROPERTY* 209 (Nicholas Mercuro & Warren J. Samuels eds., 1999).

51. The debate in water policy is whether the allocation of western water produced by state and federal policies is democratic or tyrannical. Compare DONALD WORSTER, *RIVERS OF EMPIRE: WATER, ARIDITY, AND THE GROWTH OF THE AMERICAN WEST* (1985) (endorsing the Wittfogel thesis that control of water leads to state tyranny), with NORRIS HUNDLEY, JR., *THE GREAT THIRST: CALIFORNIANS AND WATER, 1770s-1990s* (1992), DONALD J. PISANI, *TO RECLAIM A DIVIDED WEST: WATER, LAW, AND PUBLIC POLICY, 1848-1902* (1992), and ROBERT KELLEY SCHNEIDERS, *UNRULY RIVER: TWO CENTURIES OF CHANGE ALONG THE MISSOURI* 253-54 (1999) (arguing that western water allocation is the product of multi-state interest pressure on a sometimes reluctant federal government).

52. Frank J. Trelease, *Climatic Change and Water Law*, in *CLIMATE, CLIMATIC CHANGE, AND WATER SUPPLY* 70 (Wallis ed., 1977).

53. The more limited constitutional protection of water compared to land rights is articulated in Joseph L. Sax, *The Constitution, Property Rights and the Future of Water Law*, 61 U. COLO. L. REV. 257 (1990) and Joseph L. Sax, *Rights That "Inhere in the Title Itself": The Impact of the Lucas Case on Western Water Law*, 26 LOY. L.A. L. REV. 943 (1993).

54. See *Goshen Irrigation Dist. v. Pathfinder Irrigation Dist.*, 62 F. Supp. 2d 1218, 1251 (D. Wyo. 1999).

parties may consent to a suspension of priorities in a drought year, but consent to an emergency allocation cannot waive strict enforcement of priorities in the future. The court concluded that the Warren Act,⁵⁵ which allows the sale of surplus water from Bureau of Reclamation reservoirs, precluded the Bureau of Reclamation from making a pro rata distribution between prior right holders and Warren Act contractors different from that spelled out in a Bureau-District contract.⁵⁶ Prior to any yearly allocation, the Bureau had obtained the consent of all irrigations districts since 1941.⁵⁷ But, the court held that such consent did not waive the right to demand the strict enforcement of priorities. Waiver "would put an immediate end to any possibility of beneficial and necessary short-term agreements in the area of water rights."⁵⁸

D. CHANGED CONDITIONS: WHY PRIORITY IS LESS IMPORTANT TODAY

The modern problems with priority stem from the changes in the West that have occurred since the late 19th century. As previously mentioned, prior appropriation was originally devised to bring order to a frontier economy.⁵⁹ Prior appropriation was constructed to support local individual and cooperative irrigated agriculture. Priority provided both a way of allocating highly variable natural flows and of stimulating investment in relatively small-scale canals and diversion structures.⁶⁰ Appropriative water rights were a simple and fair risk allocation regime among similarly situated competing claimants. However, conditions have changed substantially since the second half of the 19th century, and the result is that priority is less important today. The world of small water users continues to exist, especially in Colorado, Wyoming, and Utah, but it has long ceased to exist or it is fading throughout much the West.

The first major change was the Reclamation era, which lasted roughly from 1890 to the mid-1970s. Initially, the goal of the era was to settle the West with family farms.⁶¹ To this end, support for irrigated agriculture became a national priority. The Reclamation program was premised on the provision of wide margins of safety for recurring periods of

55. Ch. 141, 36 Stat. 625 (codified as amended at 43 U.S.C. §§ 523-525 (1994)).

56. See *Goshen*, 62 F. Supp. 2d at 1251; see also *City of Barstow v. Mojave Water Agency*, 5 P.3d 853, 870 (Cal. 2000) (finding that a court cannot impose physical solution on dissenting water right holders).

57. See *Goshen*, 62 F. Supp. 2d at 1257. However, because the Bureau did not obtain consent to allocation in 1989, the Goshen Irrigation District brought suit against the Pathfinder Irrigation District.

58. *Id.*

59. See *supra* text accompanying notes 43-48.

60. See DUNBAR, *supra* note 45, at 18-35.

61. See SAX ET AL., *supra* note 4, at 655.

drought and highly variable rainfall patterns through the construction of carry-over storage facilities.⁶² In the nineteenth and first half of the twentieth century, large carry-over facilities were constructed in all western states to firm up western water rights. These facilities substantially reduced but did not eliminate the risks of shortages, and the switch from a direct diversion to storage water allocation system has had a profound impact on the doctrine of prior appropriation.⁶³ The federal reclamation program's construction of carry-over storage reservoirs to back-stop water rights, not the law, is the main reason that water rights are relatively firm regardless of the water year. It is the very alternation of the western landscape by dams and canals that provides a modern basis to use new management strategies to overlay a new hydrologic regime on existing legal regimes with minimal disruption.

The Reclamation program gradually morphed into a regional development program after the Bureau of Reclamation's great rival, the United States Army Corps of Engineers, reluctantly embraced multiple-purpose river basin development.⁶⁴ During the New Deal, the Reclamation Program, along with the United States Army Corps of Engineers mission, was transformed from supporting small farms to regional multiple-purpose development and the support of large farming units.⁶⁵ Larger and larger dams were constructed, and flood control and hydroelectric power generation became as, or more important than, irrigation.⁶⁶ Regions were given additional back-up storage, and some, such as the Upper Missouri River states, received more back-up storage than they could ever put to beneficial use.⁶⁷ The infamous Pick-Sloan Program on the Missouri River turned the magnificent and unruly Missouri River into a series of cold and biologically less diverse lakes to the benefit of downstream navigation and flood control and to the detriment of upstream irrigation, Indian entitlements, and regional development.⁶⁸

Reclamation and multiple-use required development diminished the practical importance of priority in many areas of the West, and prior appropriation has been further undermined by the end of the Reclama-

62. See MARC REISNER, *CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER* 108-15 (1986).

63. See MARK FIEGE, *IRRIGATED EDEN: THE MAKING OF THE AN AGRICULTURAL LANDSCAPE IN THE AMERICAN WEST* 112-16 (1999), for an account of how the damming of the Snake River—in the name of prior appropriation—undermined the usefulness of priority as an allocation rule.

64. See SAMUEL P. HAYS, *CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT 1890-1920*, at 199-218 (1959).

65. See REISNER, *supra* note 62, at 151-75.

66. See *id.*

67. See A. Dan Tarlock, *The Missouri River: The Paradox of Conflict Without Scarcity*, 2 GREAT PLAINS NAT. RESOURCES J. 1 (1997).

68. See JOHN THORSON, *RIVER OF PROMISE, RIVER OF PERIL: THE POLITICS OF MANAGING THE MISSOURI RIVER* 76-85 (1994).

tion Era and the transition to an era of reallocation and environmental management. In 1985, the distinguished western resources scholar, Charles Wilkinson, published an article that challenged the view that the classic prior appropriation system was an adequate solution to the emerging demands for the more efficient use of water, instream uses and justice for Native American tribes.⁶⁹ Six years later, he prematurely pronounced the system dead after EPA's veto of Denver's Twin Forks storage reservoir.⁷⁰ The system is not dead. Rather the question is its continuing relevance. Traditional western water allocation practice resembles the pre-World War I Maginot Line, which the French build to prevent a repeat of the 1870 Prussian attack. Prior appropriation continues to avoid its application and to create incentives to structure water allocation debates, but it is less and less likely to turn spigots off and on. It is perhaps more accurate to describe prior appropriation as an extreme default rule of decreasing marginal importance.

Several specific features of the post-Reclamation Era undermine the relevance of priority. First, federal environmental laws create de facto regulatory property rights that trump state-created rights. One of the major developments in modern western water has been the effort to protect fish habitats in large and small western rivers.⁷¹ The Endangered Species Act gives the federal government the power to curtail state-created water rights in order to protect listed species.⁷² This power, not surprisingly, has been used sparingly.⁷³ Head gates have been closed in some places such as the Sacramento River in California and the Methow Valley in Washington state. However, the reason is usually the lack of adequate fish screens rather than the diversion of water per se.⁷⁴

The second feature is that the specter of the exercise of these rights is creating incentives for new basin management strategies that accommodate all major stakeholder users.⁷⁵ One of these strategies, the increas-

69. See Charles F. Wilkinson, *Western Water Law in Transition*, 56 U. COLO. L. REV. 317 (1985).

70. See Charles F. Wilkinson, *Prior Appropriation 1848-1991*, 21 ENVTL. L., at v (1991). For a vitriolic rejoinder, see Gregory J. Hobbs, Jr. (now Justice Hobbs), *Ecological Integrity, New Western Myth: A Critique of the Long's Peak Report*, 24 ENVTL. L. 157 (1994).

71. See REPORT OF THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION, WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY 3-51, 3-52 (1998).

72. See *United States v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126 (E.D. Cal. 1992).

73. See *Klamath Water Users Protective Ass'n v. Patterson*, 191 F.3d 1115, 1122 (giving an example where the Bureau of Reclamation, as the owner and manager of a dam, had a duty to comply with the ESA), *amended and superceded by* 204 F.3d 1206 (9th Cir. 1999), *and cert. denied sub. nom. Klamath Drainage Dist. v. Peterson*, 121 S. Ct. 44 (2000). See generally James R. Rasband, *Augmenting Stream Flows: How Useful are Sections 9 and 7 of the Endangered Species Act?*, 7 RIVERS 49 (1999).

74. See ABA Section on Environment, *Energy and Resources*, WATER LAW NEWSLETTER (Rocky Mtn. Min. Law Found.), Jan. 2000, at 14.

75. See SAX ET AL., *supra* note 4, at 555-56, for a discussion of the California Bay Delta stakeholder process.

ing use of water markets and water banks, is being used to correct the rigidities of prior appropriation.⁷⁶ Transfers are perfectly consistent with priority because the old priority date follows the new use. However, transfers usually combine small rights into larger blocks of water. And, the larger the block of water, the less amendable it is to be allocated by priority because priority will seldom be invoked.

Third, prior appropriation is a rule for small irrigation communities, but these are shrinking.⁷⁷ Prior appropriation continues to display vitality in small, direct flow irrigation communities, but these are increasingly remnant communities of a former West. However, today urban interests increasingly control the water policy agenda as the dominant players. Agriculture has historically claimed the largest share of the region's developed supplies. Irrigated agriculture still commands close to eighty percent of the West's water supplies,⁷⁸ but demand will slowly shrink in the future. The stabilization of decline of western agriculture is part of the larger pattern of the declining importance of raw commodity production in the Western economy as the West continues to urbanize at a rapid rate and to transform itself in a vibrant high tech service economy.

A recent National Academy of Sciences report concisely stated the relative position of irrigated agriculture concisely: "The value of water in agriculture is generally less than in industrial or municipal uses . . . [and] [b]ecause it is so expensive to develop additional water supplies, only the higher-value water uses are likely to be justified economically."⁷⁹ "As late as 1940, almost half the West's people were directly employed in farming, ranching, mining, and processing of agricultural and mineral products."⁸⁰ By 1969, however, all the natural resources industries together provided only 11 percent of direct employment and 9.6 percent of personal income for residents of the Rocky Mountain states.⁸¹ The decline is continuing; in 1991 these combined industries supported less than 6 percent of the region's employment and less than 5 percent of all personal income.⁸² Agriculture has declined in terms of

76. See NATIONAL RESEARCH COUNCIL, WATER TRANSFERS IN THE WEST; EFFICIENCY EQUITY AND THE ENVIRONMENT (1992).

77. See NATIONAL RESEARCH COUNCIL, A NEW ERA FOR IRRIGATION 94 (1996).

78. See U.S. GEOLOGICAL SURVEY, ESTIMATED WATER USE IN THE UNITED STATES IN 1995, at 32 (1998).

79. NATIONAL RESEARCH COUNCIL, A NEW ERA FOR IRRIGATION 67 (1996).

80. Pamela Case & Gregory Alward, *Patterns of Demographic, Economic and Value Change in the Western United States*, REPORT TO THE WESTERN WATER POLICY ADVISORY REVIEW COMMISSION 1 (1997).

81. See Raymond Rasker, *A New Look at Old Vistas: The Economic Role of Environmental Quality in Western Public Lands*, 65 U. COLO. L. REV. 369, 377 (1994).

82. See *id.*

its proportional size of overall economic activity in the West, from ninth in the list of income sources in 1977 to eleventh in 1993.⁸³ Although largely due to the Central Valley of California, the western states continue to play an important role in national agricultural production.⁸⁴

The most important water-related conclusion that can be drawn from the many recent studies of the rapid growth in most of the West is that the growth patterns are *relatively less* dependent on the traditional patterns of water use and development, because the West's population growth is not accompanied by a proportional rise in total water demand.⁸⁵ Urban water use is more efficient compared to agricultural uses.

III. THE LIMITATIONS OF PRIORITY

Prior appropriation is a law of rules, but the question remains: Are the rules actually applied or invoked? This section of the article examines the primary limitations of the enforcement of priorities. The basic argument is that there are many modern physical and behavioral constraints on the rigorous enforcement of priorities. The following is a partial list of constraints and situations where priority is unlikely to work well consistently or to work at all. In previous articles, I have addressed the impact of global climate scenarios on prior appropriation.⁸⁶ I note only that the West faces possible increased water shortages as a result of early spring evaporation caused by global warming.⁸⁷ Drier, more water-short summers will only increase stresses to depart from prior appropriation.⁸⁸

83. See Case & Alward, *supra* note 80, at 11, 13.

84. Federal policy towards agriculture has changed in recent years, as evidenced by the Federal Agriculture Improvement and Reform Act of 1996, 7 U.S.C. §§ 7201-7334, (also known as the 1996 Farm Bill). This legislation removed the link between income support payments and farm prices by providing for seven annually fixed but declining "production flexibility contract payments," whereby participating farmers may receive government payments independent of current farm production and prices. Farmers will have much greater flexibility to make planting decisions with the elimination of annual acreage idling programs. They will be able to plant any crop on contract acres, with limitations on fruits and vegetables. As a result, farmers will rely more heavily on the market as a guide for production decisions, and will bear greater income risk because payments are fixed and are not related to market prices.

85. See, e.g., A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163, 168 (1999).

86. See generally A. Dan Tarlock, *Western Water Law, Global Warming, and Growth Limitations*, 24 LOY. L.A. L. REV. 979 (1991).

87. See A. Dan Tarlock, *Now, Think Again About Adaptation*, 9 ARIZ. J. INT'L & COMP. L. 169, 175 (1992) (citing Jennifer Woodward, *Turning Down the Heat: What the United States Laws Can do to Help Ease Global Warming*, 39 AM. U. L. REV. 203, 213-17 (1989)).

88. See *id.*

A. THE CORRELATIVE NATURE OF WATER RIGHTS

Appropriative rights have been described as exclusive in contrast with riparian rights, but they are in fact inherently correlative, and this creates pressures on users to share with their neighbors. Even the most selfish user is forced to take into account the interests of other users. All water rights are usufructuary; they are rights to the use of water and do not confer ownership of a stream or aquifer. All usufructuary rights in fugitive resources are to some degree correlative because there are inherent limitations on exclusivity. The oft invoked, but seldom applied, futile call rule, which allows a junior to refuse a senior call if water will not in fact reach the later point of diversion,⁸⁹ is an example of inherent limitations.

There are two primary limitations that flow from the correlative nature of water rights. First, all stream users have strong, if unequal expectation, of the continued enjoyment of a right which cuts against unlimited recognition of priority. The physical nature of water rights creates strong pressures for equitable sharing rules. The most striking example of this pressure is the rule that senior right holders cannot injure junior downstream right holders, who use the return flow, when water rights are transferred.⁹⁰ More generally, water rights exist within a community of users who can tolerate equitable adjustments, and thus the case for a narrow, fixed rule is less compelling than has traditionally been assumed.⁹¹

Scattered empirical evidence confirms this assertion. Watermasters who report to the Oregon Water Resources Department of Water Resources regulated 265 streams in 1998 and reported 7,663 regulatory actions.⁹² However, only six violation notices were sent to users, eight formal enforcement orders were issued and no cases were referred to Salem for formal enforcement. The Department offers two reasons for this. First, there is a 98 percent voluntary compliance rate in the state

89. See *State ex rel. Cary v. Cochran*, 292 N.W. 239, 247 (Neb. 1940). The court in *Cochran* refused to apply the futile call rule or the doctrine of reasonable use to modify the priority schedule on the Platte River even though 700 second-feet of water had to remain in the stream to satisfy a downstream senior right with a 162 second-foot entitlement.

90. See, e.g., *Sante Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 57 (Colo. 1999).

91. This argument is developed at length in Carol M. Rose, *Crystals and Mud in Property Law*, 40 STAN. L. REV. 577 (1988). She points out that fixed rules, crystals, are more appropriate to dealings with strangers than within a community of similarly situated entitlement holders. However, she also notes that the fixed rules promote needed community stability, and thus, in a geologically inapt metaphor, that in the end "crystals and mud dissolve into each other." *Id.* at 610.

92. See Internal Report on 1998 Field Regulation and Enforcement, Memorandum from Barry Norris, Administrator Field and Technical Services, to Water Resources Commission 5 (Apr. 30, 1999).

which is achieved "not without a substantial investment of time by field regulatory staff."⁹³ Second, watermasters spend a lot of time during regulation negotiating voluntary reductions, rotations or compliance schedules with water users. Often senior right holders volunteer to use less than their entitlement so that junior users are not completely shut off.

The second, and related "correlative" limitation is that prior appropriation is not self-enforcing and the costs of enforcing prior rights are high.⁹⁴ The costs include individual user ill-will and possible net efficiency losses as well as high transaction costs. The great Samuel Wiel did not think that priority would survive in the face of the conservation movement.⁹⁵ He argued that priorities should not be enforced when it would be unreasonable to do so, as against other users on the same stream. He quoted Justice Stephen J. Field's dictum in *Basey v. Gallagher*⁹⁶ that all appropriations must be used reasonably and with "reference to the general condition of the country and the necessities of the people, and not so as to deprive a whole neighborhood or community of its use and to vest an absolute monopoly in a single individual."⁹⁷ The beneficial use requirement works as a weak restraint on priorities, but it remains too tied to the lowest common denominator standard to play a major role in water allocation.

Wiel's prophecy has not been formally incorporated into the western water law,⁹⁸ but there is an element of reasonableness in the exercise of prior appropriation. A prior right holder can upset the reasonable but legally unjustified expectations of other, junior users that there will be de facto restraint and sharing in times of shortage and claim a full entitlement, the long run costs may outweigh the short term

93. *Id.* at 4.

94. See Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 136-37 (1998).

95. See Samuel C. Wiel, "Priority" in *Western Water Law*, 18 YALE L.J. 189 (1908).

96. 87 U.S. 670 (1874).

97. 1 WIEL, *supra* note 1, at 333 (quoting *Basey v. Gallagher*, 87 U.S. 670 (1874)). The strongest support for Wiel's position is *Schodde v. Twin Falls Land & Water Co.*, 224 U.S. 107 (1912), a case decided after the last edition of this treatise was published. *Schodde* held that appropriator could not claim natural flow of Snake River to lift water to irrigate land with water wheels. Field and Wiel's efforts to balance the recognition of exclusive individual property rights with the obligation to exercise the right reasonable in light of the competing of other users reflects the great tension in property law. With her usual insight, Professor Carol M. Rose has characterized the tension between individual and community resource claims as ownership anxiety. See generally Carol M. Rose, *Canons of Property Talk, or, Blackstone's Anxiety*, 108 YALE L.J. 601 (1998).

98. The California Supreme Court has a long history of tempering the strict enforcement of both ground and surface rights through the use of physical solutions to balance equity, efficiency and the settled expectations that water law seeks to generate, see Harrison C. Dunning, *The "Physical Solution" in Western Water Law*, 57 U. COLO. L. REV. 445, 458-64 (1986), but it has recently moved away from this tradition, see *City of Barstow v. Mojave Water Agency*, 5 P.3d 853, 870 (Cal. 2000).

benefits. A cautionary tale from Aspen, Colorado makes the point. During the dry summer of 1975, the president of an irrigation district in then-not-as-chic Aspen instructed his ditch rider to construct a makeshift dam to force all the water into the ditch's head gate. This was done solely to demonstrate that senior irrigation rights were superior to recently filed state instream flow rights on the Roaring Fork River. Roaring Fork in fact dried up through Aspen for a day, but the next night "[enraged citizens gathered sledgehammers and crow bars and . . . smashed Berquist's [the ditch rider's] handiwork to pieces and freed the water to go back into Roaring Fork."⁹⁹ The dam was not rebuilt. More generally, state practice in both "soft" and "hard" appropriation states seeks to avoid priority enforcement.

The protection of correlative can be found both in states that substitute dams for water rights enforcement, and those that do not. California is famous for solving water allocation problems by constructing a massive water infrastructure and allocating water by large blocks. Colorado is often cited as the opposite case where hundreds of water lawyers fight over small amounts on small streams, and the Colorado Supreme Court continues to refine prior appropriation law. But, examples of priority avoidance can be found in Colorado. When a new appropriation applies for a water permit or, in Colorado, a conditional degree, an administrative agency or a court must determine if there is water available for appropriation. There are two approaches in the West. Texas and Nevada simply add up the amounts claimed in previous permits and compare them to the estimate annual flow.¹⁰⁰ This limits new entrants. In contrast, Colorado takes a more realistic view of the practice of water use and assumes that the claimed or paper entitlement may not represent the amount of water actually put to beneficial use. The decision has been limited in subsequent decisions, but it does illustrate that courts will sometimes subordinate priority to sharing.¹⁰¹

99. Mark Harvey, *The Politics of Water*, ROARING FORK SUNDAY, June 20, 1999, at A1, A4. I am indebted to Ramsey Knopf for sending me the newspaper.

100. See *Lower Colorado River Auth. v. Texas Dep't of Water Res.*, 689 S.W.2d 873, 875 (Tex. 1984).

101. *Pueblo West Metropolitan District v. Southeastern Colorado Water Conservancy District*, 717 P.2d 955, 960 (Colo. 1986), holds that out-of-priority diversions will not be counted for purposes of calculating consumable water that can be transferred, and *Santa Fe Trail Ranches Property Owners Ass'n v. Simpson*, 990 P.2d 46 (Colo. 1999), limits *Southeastern Colorado Water Conservancy District v. Rich*, 625 P.2d 977 (Colo. 1981), to changes in diversion point that (1) do not increase applicable water duties, (2) were unopposed, and (3) where actual historic water use has been established.

B. PRIORITY DOES NOT WORK FOR NONRENEWABLE RESOURCES

Priority does not work for nonrenewable water resources such as ground water aquifers. These resources were initially allocated by a rule of capture out of scientific ignorance. The rule of capture practically bankrupted the oil and gas industry until it was replaced by correlative rights schemes that allocate rights based on the relationship between overlying parcels and the common oil and gas pool.¹⁰²

The story is the same for many western ground water basins, and prior appropriation has not proved to be the effective conservation rule that many hoped that it would be. Western states have not successfully applied priority to ground water. Many western states continue to allocate ground water by separate rules. In the western states that apply the prior appropriation system to ground water, priority has proved impossible to administer in practice for basins that are not directly hydrologically connected to surface systems. The problem is that a causal connection between a victim senior well and a junior well is extremely difficult, if not impossible, to establish.¹⁰³ All wells contribute to mining and it is difficult to insulate the causal connection between a well and the relevant cone of depression.

For efficiency and fairness reasons, the ground water appropriative right does not include a right to the maintenance of the pressure level at the time the right was perfected.¹⁰⁴ The non-recognition of a "right to lift" effectively converts ground water appropriations in pro rata sharing rights along the lines of California's correlative rights rules. In fact, most states have moved to an allocation rule that closes basins in overdraft to new entrants¹⁰⁵ but allows all pumpers to pump without restriction or imposes pro rata limitations to prevent mining.¹⁰⁶ The important ground water using states, California, Nebraska, and Texas, do

102. See BRUCE KRAMER & PATRICK MARTIN, *POOLING AND UNITIZATION* § 5.01 (1991). Technically, in all oil and gas producing states except Texas, compulsory unitization is a statutory mechanism to allow the state to force minority common pool owners to join a unit defined and administered by the minority interest holders.

103. Steven Clyde reports that in Utah, which formally applies prior appropriation to ground water, "the State Engineer has been very reluctant to enforce priorities. He has adopted a gentle persuasion approach to enforcement during drought cycles and encouraged all ground water users to share the available resource and has coupled his request with a threat to start enforcing on the basis of priorities." Interview with Steven Clyde; Clyde, Snow, Session, and Swenson; Salt Lake City, Utah (Sept. 19, 1999).

104. See *Baker v. Ore-Ida Foods, Inc.*, 513 P.2d 627, 636 (Idaho 1973).

105. See generally *Doherty v. Oregon Water Res. Dir.*, 783 P.2d 519 (Or. 1989).

106. "Underground water basins require management that is different from the management of surface streams and underground waters tributary to such streams." *Fundingsland v. Colorado Ground Water Comm'n*, 468 P.2d 835, 839 (Colo. 1970); accord *John C. Peck, Kansas Groundwater Management Districts*, 29 KAN. L. REV. 51 (1980).

not subject ground water to prior appropriation, and California and Texas provide minimal or no restrictions on pumping. Thus, states have allowed *de jure* or *de facto* ground water mining and have not tried to use the mild conservation bias inherent in prior appropriation.

The plight of a northern Colorado well owner to enforce a priority illustrates the difference between ground and surface water rights enforcement.¹⁰⁷ Mr. Goss owned a senior permitted well in a designated ground water management district, and as well levels declined, he sought to enforce his priority against a junior well owner. Under Colorado ground water law, designated ground water is subsurface water that is presumed to be not tributary to a surface stream.¹⁰⁸ Designated ground water may be mined pursuant to appropriation permits. "In designated ground water basins, conservation and reasonable depletion of the aquifer are paired with economic development"¹⁰⁹ Unlike surface water in Colorado, ground water is subject to administrative regulation, but in a true Catch 22, both the state Ground Water Commission and the local management district disclaimed jurisdiction. Mr. Goss eventually obtained a writ of mandate against the local district to enforce his priority. The Colorado Supreme Court per Justice Hobbs, who has been effectively restating and clarifying Colorado water law in his opinions, agreed that the local district had the power to enforce well priorities, but it laid out a procedure and a substantive standard that will make enforcement highly unlikely. The ground water user must first petition the District for enforcement, and if it refuses, he is entitled to an adjudicatory hearing. Unlike a surface appropriation, the senior well owner is not automatically entitled to enforcement if he proves a decline in his water table because designated ground water is mined ground water; thus, the risk of pressure declines or reasonable injury is an inherent component of the right. The well owner must prove unreasonable injury. Put differently, Wiel's theory of reasonable versus unreasonable priorities has been applied to ground water.

C. STRICT ENFORCEMENT IS OFTEN INEFFICIENT

The strict enforcement of priorities tends to lead to inefficient use practices. The cushion of a senior right combined with the "use it or lose it" rules, abandonment and forfeiture, create powerful incentives to use the maximum entitlement and to forego investments in water conservation infrastructure. Larry MacDonnell's recent study of two

107. See generally *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177 (Colo. 2000).

108. See COLO. REV. STAT. § 37-90-103(6) (2000).

109. *Goss*, 993 P.2d at 1189.

adjacent irrigation districts in the Yakima Valley of Washington State is instructive. One district, the Sunnyside Division of the Yakima Project, has senior rights that go back to pre-Reclamation Act diversions, and these rights are primarily non-proratable. The other, the Roza Irrigation District, has a contract with the Bureau of Reclamation which is proratable. The Roza Division receives much less water compared to the Sunnyside Division in dry years and "has invested heavily in improvements in its water delivery and use systems in order to take best advantage of the water supply available to it."¹¹⁰

D. STRICT ENFORCEMENT MAY BE UNFAIR

There is increasing and disturbing evidence that priorities and other aspects of western water law are enforced unequally against politically marginal users. Indian tribes have trouble enough claiming "wet" Indian reserved water rights, but they also can face curtailment risks for their quantified rights above those faced by non-Indian irrigators as the holders of the original reserved right found out in 1981. The Fort Belknap Reservation in extreme northeastern Montana is the beneficiary of the first Indian reserved water right with a May 1, 1888 priority.¹¹¹ The Tribe has both a direct flow right in the Milk River, a tributary of the Missouri, and a 1/7 interest in a subsequently constructed reservoir. In 1985, there was a severe drought in the state, and after the Tribe used its 1/7 reservoir right, the Bureau of Indian Affairs acceded to a Bureau of Reclamation request to close the Reservation's head gate due both to insufficient water and the threat of water pirates. The Tribe immediately filed suit, but August rains allowed the Bureau to make temporary reservoir releases to benefit the Tribe.¹¹²

Instream flow facilitators may also find the rules of prior appropriation apply only to them. In Oregon, the Oregon Water Trust has been purchasing senior agricultural water rights, and it reports that it is subject to much more rigorous change of use proceedings compared to non-instream use transfers, as a result of opposition to instream flow protection by the Oregon Farm Bureau and Cattleman's Association.¹¹³ In short, there is full prior appropriation for fish, but not for irrigation. In the Pacific Northwest, there may be substantial deliveries of Reclamation Project water to non-project beneficiaries to the detriment of endangered salmon. In 1994, allegations of water spreading, the delivery of

110. LAWRENCE J. MACDONNELL, *FROM RECLAMATION TO SUSTAINABILITY: WATER, AGRICULTURE, AND THE ENVIRONMENT IN THE AMERICAN WEST* 201 (1999).

111. See *Winters v. United States*, 207 U.S. 564, 567-68 (1908).

112. See CHARLES J. MEYERS ET AL., *WATER RESOURCE MANAGEMENT* 779 (1987).

113. Interview with Janet Neuman, Professor, Lewis & Clark Law School (June 19, 2000).

water to ineligible or non-project beneficiaries surfaced, and the Clinton Administration formed a task force to eliminate the practice and recover past illegal benefits. In 1995, the Task Force was terminated and the problem was turned back to the regions, which is a prescription for inaction.¹¹⁴ In the meantime, priority enforcement will seldom be an issue for the beneficiary irrigators.

E. MUNICIPALITIES WILL NOT BE DRIED UP

The strict enforcement of priorities is not likely to be applied against municipalities. Equity and efficiency aside, it is unlikely that it will be politically acceptable to ration water to large cities based on the strict enforcement priorities. In addition, cities have power, the financial capability and the legal authority to acquire large reserves to buffer them against drought of water. Municipal appropriations are subject to lighter anti-speculative control compared to other appropriations. The "progressive growth" doctrine allows a city to perfect a water right based on its anticipated need for the water.¹¹⁵

The doctrine is an exception to the principle that water rights cannot be held for speculative purposes. The anti-speculation principle seeks to ensure that water rights are as widely distributed as the available supply will permit among those who have the present ability to put water to beneficial use.¹¹⁶ Cities enjoy an even larger exemption from the anti-speculation principle under the growing cities doctrine. Like the progressive growth doctrine, this doctrine also allows cities to perfect a water right to the amount of water that they will need to meet reasonably anticipated future growth.¹¹⁷

Cities also have a much greater capacity to adjust to short and long term droughts through rationing and demand management.¹¹⁸ Municipal capacity is illustrated by the growing number of western cities that

114. Interview with Reed Benson, Oregon Water Watch (July 21, 2000).

115. See, e.g., *St. Onge v. Blakeley*, 245 P. 532, 539 (Mont. 1926); *State ex rel. State Eng'r v. Crider*, 431 P.2d 45, 48-49 (N.M. 1967).

116. See, e.g., *Colorado River Water Conservation Dist. v. Vidler Tunnel Water Co.*, 594 P.2d 566, 568 (Colo. 1979).

117. See, e.g., *Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 29-30 (Colo. 1996); *City and County of Denver v. Northern Colorado Water Conservancy Dist.*, 276 P.2d 992 (Colo. 1954); *City and County of Denver v. Sheriff*, 96 P.2d 836 (Colo. 1939); *Reynolds v. City of Roswell*, 654 P.2d 537 (N.M. 1982); *Department of Ecology v. Theodoratus*, 957 P.2d 1241, 1257-58 (Wash. 1998) (Sanders, J., dissenting); Tarlock & Van de Wetering, *supra* note 85; Janis E. Carpenter, *Water for Growing Communities: Refining Tradition in the Pacific Northwest*, 27 ENVTL. L. 127 (1997); Dennis J. Herman, Note, *Sometimes There is Nothing Left to Give: The Justification for Denying Water Service to New Customers to Control Growth*, 44 STAN. L. REV. 429 (1992).

118. Steven Clyde reports that in the last major drought in Utah, which occurred in the early 1990s, some agricultural users were curtailed, but "no domestic water rights were cut off," although cities were forced to ration and limit landscape irrigation. Interview with Steven Clyde; Clyde, Snow, Sessions, and Swenson; Salt Lake City, Utah (Sept. 19, 1999).

have, of necessity, begun to add water supply elements to their growth management plans. For example, San Diego, California faces the double problem of limited natural surface and ground water supplies and a low priority Colorado River entitlement. The city has linked water supply and growth as part of its ongoing growth management program and has outlined a five-part strategy. In the future, San Diego will depend primarily on a combination of (1) more efficient use of existing supplies, (2) demand management, (3) the reallocation of existing supplies through water marketing, (4) more limited new storage and distribution facilities, and (5) greater conjunctive ground and surface water use.¹¹⁹

The most extreme example of water planning and conservation as a strategy for unlimited growth accommodation is Arizona's 100-year assured water supply policy. The state's Groundwater Management Act imposes a duty on all new developments, and thus on their municipal suppliers, to establish that there will be "a sufficient supply of water which will be physically available to satisfy the applicant's 100-year projected water demand."¹²⁰ The rules are structured to eliminate reliance on continued ground water mining to establish an assured water supply. Initially, the rules set off a scramble to acquire agricultural water rights in remote counties, but more recently, municipal suppliers will have to pay the high Central Arizona Project (CAP) rates for Arizona's underused Colorado River entitlement.¹²¹ As Phoenix and Tucson have used more surface water, municipal water use has started to decline in part because of a wetter than average cycle, ground water conservation, and increased reliance on gray water for turf irrigation.¹²² Other cities are slouching toward marginal cost pricing to limit water use. El Paso, Texas estimates the recoverable ground water in its share of the Hueco Bolson, which it fought so hard to expand into New Mexico, will be depleted by 2025, but the cities El Paso and Ciudad Juarez will grow to 5 million people.¹²³ El Paso has implemented an aggressive conservation strategy including a seasonable excess use rate structure. This inverted rate structure charges users a rate based on the customer's percentage use above their average winter consumption.¹²⁴ All of these strategies

119. See San Diego County Smart Growth Coalition Water Resources Availability Study Team, <http://co.san-diego.ca.us.sgc/water/recommendations.html> (last visited Mar. 3, 2001).

120. ARIZ. ADMIN. CODE § R12-15-703(B).

121. See NATIONAL RESEARCH COUNCIL, *WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT* (1992).

122. See *Arizona Pub. Serv. Co. v. Long*, 773 P.2d 988 (Ariz. 1989).

123. See Octavio E. Chávez, *Mining of Internationally Shared Aquifers: The El Paso-Juárez Case*, 40 NAT. RESOURCES J. 237, 248 (2000).

124. Edmund G. Archuleta & Anai J. Padilla, *Water Conservation Pricing at the El Paso Water Utilities* (visited Sept. 27, 2000) <<http://twri.tamu.edu/twriconf/w4tx98/papers/padilla.html>>.

will buffer cities in times of shortages and minimize the possibility of priority enforcement.

F. THE LARGER THE ALLOCATION, THE MORE DIFFICULT IT IS TO ENFORCE PRIORITIES

Prior appropriation applies to large as well as small amounts of water, but the larger the block, the less important priorities will be. There are many reasons for this assertion. First, large blocks of water come from carry-over storage reservoirs, and it takes a prolonged drought to produce shortages. Second, larger block holders will have the political clout to resist enforcement. California's ability to take surplus water from the Colorado River illustrates this reason in action. Third, the larger the block, the easier it is for entitlement holders to absorb proportionate cut backs.

The low risk of priority enforcement among large block holders is nicely illustrated by California's long success in diverting the Colorado River in excess of its priority. In 1922, the seven Colorado River basin states allocated the Colorado River between the two basins. Each basin was given 7.5 million acre feet, and the lower basins, Arizona, California and Nevada were given an additional 1 million acre feet. In 1928, Congress passed the Boulder Canyon Project Act to authorize the construction of Hoover dam.¹²⁵ The three lower basin states could not agree on an allocation because California had already put over 5 million acre feet to use. The Act resolved the conflict by allocating 4.4 million acre feet to California, 2.8 million to Arizona and 300,000 to Nevada.¹²⁶ Three years later, the major California water users agreed to an internal priority schedule which applied to the almost 5.4 million acre feet of water the state was diverting.¹²⁷ To complicate matters, under the seven party agreement, the four major irrigation districts adjacent to the River enjoy a superior priority over the Metropolitan Water District, which serves much of urban Southern California. Subsequently, *Arizona v. California*¹²⁸ construed the Act as a Congressional apportionment of the lower basin flow among the three basin states and therefore confirmed the 1928 Congressional appointment, which in effect subordinated California's customary use priority to Arizona's equities.

125. See Pub. L. No. 70-642, 45 Stat. 1057 (codified as amended at 43 U.S.C. §§ 617-617u (1994)). For a history of the apportionment of the Colorado, see Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1 (1966).

126. See 43 U.S.C. § 617c(a) (1994).

127. See NORRIS HUNDLEY, *WATER IN THE WEST: THE COLORADO RIVER COMPACT AND THE POLITICS OF WATER IN THE AMERICAN WEST* 287 (1975).

128. 373 U.S. 546 (1963).

The law and politics of the Colorado River have long been primarily driven by efforts of all the basin states, except of course, California, to prevent California's actual use from ripening into a permanent right. California has consistently diverted about 5.2 million acre feet a year.¹²⁹ Arizona technically succeeded in curtailing this use when the Supreme Court ruled that the Boulder Canyon Project Act limited California to 4.4 million acre feet and that the Secretary of Interior had the power to apportion both surpluses and shortages.¹³⁰ California, however, has long been able to ignore Arizona's entitlements for legal and hydrologic reasons. First, Arizona had to convince the federal government to authorize the Central Arizona Project to put her share of the River to use in the populous interior. California was able to force Arizona to subordinate her CAP priority to California's as the price for Congressional authorization of the project. Second, the long delay in construction and the CAP transformed it from an agricultural to an urban supply project, and allowed California to continue to use its 700,000 acre feet of surplus water throughout the twentieth century as central Arizona and Las Vegas grew into major urban agglomeration.¹³¹

California's excess diversions may be slowly ending. Exponential urban growth in Arizona and Nevada, along with Indian entitlements and compliance with the Endangered Species Act, raise the very real possibility that California must now live with its 4.4 allocation.¹³² The three lower basin states and the Department of Interior agreed to a curtailment plan which would never pass muster as a substance abuse treatment program.¹³³ There will be no cold turkey or paid withdrawal for California. California will have at least fifteen years to reduce its diversions from 5.2 to 4.4 million acre feet.

G. INTER-REGIONAL POLITICS CAN TRUMP PRIORITY

A priority is ineffective unless water can be put to beneficial use, and inter-regional politics may prevent this. This limitation is illustrated

129. See SAX ET AL., *supra* note 4, at 701-02.

130. See *Arizona v. California*, 373 U.S. 546, 565, 580 (1963).

131. California had an additional advantage of being able to borrow in dry years and pay back in a wet year, but in wet years when water was spilled because of a surplus, the payback obligation was in effect canceled. Interview with Joe Sax, House-Hurd Professor of Law, University of California-Berkeley (Sept. 1, 1999).

132. See SAX ET AL., *supra* note 4, at 701.

133. California and Las Vegas will still be able to tap into Arizona's surplus, if any. The Department of Interior has issued a final rule which allows authorized state entities in the three lower Colorado River Basin states to store unused Colorado River entitlements water in off-stream reservoirs and aquifers. After unused surplus entitlements have been offered to entitlement holders in the storing states, the Secretary of Interior may release the water pursuant a voluntary Interstate Release Agreement for use in another Lower Basin state. See 43 C.F.R. pt. 414 (1999) (explained at 64 Fed. Reg. 58,986 (Nov. 1, 1999)).

by the story of the lower Missouri Basin's political triumph over the upper. In brief, in 1944 Congress authorized the Pick-Sloan Plan, an amalgam of Corps of Engineer flood control and Bureau of Reclamation irrigation projects.¹³⁴ Five mainstream Missouri River dams were added to the Fort Peck dam in Montana to turn the river into a series of lakes and a narrow channel below Gavin's Point dam.¹³⁵ The grand compromise of Pick-Sloan was that the Upper Basin states and Indian tribes would give up a great deal of land for the mainstream reservoirs which would provide immediate flood control and navigation enhancement for the lower basin in return for future irrigation projects.¹³⁶ The Pick-Sloan dams were built, but Montana, North Dakota, and South Dakota never received the promised irrigation projects for a variety of reasons, including poor drainage and the end of federal subsidization of irrigation.¹³⁷ As the price for the dams, Senators O'Mahoney of Wyoming and Millikin of Colorado succeeded in enacting an amendment which gives irrigation and other upstream consumptive uses priority over navigation.¹³⁸ The O'Mahoney-Millikin Amendment is of no use to the Upper Basin states. Today, the issue is whether the reservoirs should be re-operated to protect endangered species and recreation interests, and the Upper Basin states are trying to induce the river master, the U.S. Army Corps of Engineers, to expand its mission from flood control and navigation enhancement to include ecosystem management and recreation enhancement.

IV. CONCLUSION

The net result of the large and small reservoirs and distribution systems that vein the West is that the risks of variable stream flows and *the actual enforcement* of priorities have been masked by this infrastructure and the importance of priority diminished. Carry-over storage reduced, rather than eliminated, the inherent risks and therefore, created the conditions for the expectation of a dependable supply to become the real rule of water allocation. Water rights are more accurately characterized as a risk allocation regime among a wide range of claimants.¹³⁹

134. See JOHN R. FERRELL, *BIG DAM ERA: A LEGISLATIVE AND INSTITUTIONAL HISTORY OF THE PICK-SLOAN MISSOURI BASIN PROGRAM*, at xii (1993).

135. See *id.* at 61-63.

136. See THORSON, *supra* note 68, at 82-83.

137. See THORSON, *supra* note 68, at 80.

138. See John P. Guhin, *The Law Of The Missouri*, 30 S.D. L. REV. 346, 411 (1985).

139. This analysis borrows from some of premises of "green Property" theory such as the need to recognize that entitlements are part of a larger landscape, the role of public participation in defining the expectations of property right holders, see Terry W. Frazier, *The Green Alternative to Classical Liberal Property Theory*, 20 VT. L. REV. 299, 357-63 (1995), and the insight that property rights have always been redefined as societies have changed, see *Imperial Irrigation District v. State Water*

Property rights, in contrast to contracts, are not conventionally defined as risk allocation mechanisms because the law of property seeks to eliminate the risk that there will be an interference with complete enjoyment, such as an unconsented entry. Courts often announce that the function of water law is to create certain, exclusive property rights, but the real function should be to protect the expectation of the water users to a sufficient supply to support the underlying beneficial use. Naturally, there will be considerable resistance to this idea, as a 2000 California Supreme Court opinion illustrates, which underscores the idea that courts, legislatures, and users must be persuaded that priority departures are both fair and efficient.

In a recent ground water adjudication, the California Supreme Court had an opportunity to implement an expectation-based allocation scheme but refused to do so when the scheme conflicted with priority rights.¹⁴⁰ The opinion illustrates the likely judicial resistance to priority modification. In brief, the Mojave River basin in southern California is a severely over-drafted ground water basin. After a lengthy negotiation, the trial court imposed a physical solution, much like compulsory unitization is imposed on holdout oil and gas pumpers, after over 80 percent of the basin water users agreed to it. Under the solution, pumpers were assigned a free production allowance; pumping in excess of the allowance was subject to a charge dedicated to the purchase of replacement water. California ground water law divides rights among overlying, appropriative, and prescriptive rights.¹⁴¹ Overlying owners have priority over non-overlying users; non-overlying users may obtain appropriative rights only if there is surplus water—water in excess of safe yield. Non-overlying pumpers can also obtain prescriptive rights. These rules are difficult to administer, in large part because most ground water basins are overdrafted, and in the past the courts have preferred basin-wide solutions that equitably distribute the burdens of limiting ground water use to safe yield among all basin users to the strict declaration and adjudication of rights.¹⁴²

The Mojave settlement pitted large municipal users against alfalfa and dairy farmers who decided to stand on their “prior” overlying

Resources Control Board, 275 Cal. Rptr. 250, 256 (1990); Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433, 1447-48 (1993). However, I ultimately make a more traditional argument that the voluntary or involuntary adjustment of the risks inherent in water rights to modify (but not eliminate) historic water delivery patterns is a limitation inherent in a water right title and thus constitutional under the restrictive test of *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992). See Fred P. Bosselman, *Limitations Inherent in the Title to Wetlands at Common Law*, 15 STAN. ENVTL. L.J. 247 (1996), for a creative application of this argument to wetland regulation.

140. See *City of Barstow v. Mojave Water Agency*, 5 P.3d 853, 869 (Cal. 2000).

141. See *City of Los Angeles v. City of San Fernando*, 537 P.2d 1250, 1307, 1318 (Cal. 1975).

142. See *City of Pasadena v. City of Alhambra*, 207 P.2d 17, 32 (Cal. 1949).

rights, and the California Supreme Court held that trial courts lack the authority to, based on the doctrine of equitable apportionment, impose a physical solution on holdout overlying pumpers which alters their preexisting rights. "[I]t is clear that a trial court may impose a physical solution to achieve a practical allocation of water to competing interests, [but] the solution's general purpose cannot simply ignore the priority rights of the parties asserting them."¹⁴³ The court's reluctance to impose the solution on the holdout farmers appears to be based on the conclusion that it was inequitable to deprive the farmers of their prior water rights because the payment of replacement waters would be a hardship to them.¹⁴⁴

*City of Barstow v. Mojave Water Agency*¹⁴⁵ illustrates the force of the idea of priority, but courts must eventually recognize that appropriate rights have never been risk free. Two consequences follow from the explicit characterization of appropriate water rights as risk allocation mechanisms. First, water users must simultaneously plan for the reductions dictated by the strict enforcement of priorities and for alternative reduction scenarios. In general, priorities are likely to be enforced in the short but not the long run. A serious shortage from a "natural" or "global climate change-induced" drought will strain existing allocation schemes and induce different adaptation patterns. Second, as the West tries to incorporate ecosystem restoration into existing consumptive entitlements, new, often ad hoc risk sharing schemes will emerge. These will not displace prior appropriation; they will be overlaid on existing entitlements. But, these schemes will alter the risks of existing entitlement holders. The focus should shift, as Samuel Wiel predicted long

143. *City of Barstow*, 5 P.3d at 869. For a prescient defense of the Supreme Court's holding, see Rebecca Sugerman, *The Mojave Basin Physical Solution: It's a Good Idea, But Is It Good Law?*, 6 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 307 (2000).

144. Professor Brian Grey of Hastings College of Law attributes the Supreme Court's protection of holdouts to the trial court; failure to determine if the holdout's use was in fact a reasonable, beneficial one. Interview with Brian Grey, Professor, Hastings College of Law (Sept. 22, 2000). *City of Barstow* takes California water law in a new direction, priority enforcement, and it is a substantial break with the Court's long tradition of trying to accommodate water law to changing conditions without undue disruption of beneficial uses. The opinion is not unsupported by precedent, but it has two primary flaws. First, those who agreed to the settlement are estopped to assert "better" water rights once they agree to a physical solution, so the incentives for basin-wide agreements are substantially undermined. Second, the overlying owner's ground water rights lack the very attribute of priority-certainty that justifies strict enforcement. Prior overlying ground water rights in California are highly uncertain. They are correlative; no fixed allocation formula exists, and they are subject to a Constitutional provision that limits all water rights to reasonable and beneficial uses. In short, the expectations of a fixed quantity of water are much less than a surface appropriator with a fixed priority date. *City of Barstow* will not be the last word on priority or physical solutions in the state, but it substantially increases the burden on those trying to devise and implement innovative solutions that promote both equity and efficiency.

145. 5 P.3d 853 (Cal. 2000).

ago, to the reasonable rather than formal expectations of the right holder.¹⁴⁶

146. See WIEL, *supra* note 1, § 310, at 329.