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State Equitable Apportionment of Western Water Resources

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State Equitable Apportionment of Western Water Resources

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I. INTRODUCTION

The term "state equitable apportionment" may seem a curious one to many students of western water rights law. Equitable apportionment, after all, is generally thought of as the formula used by the United States Supreme Court to resolve interstate water disputes.¹ The phrase is also familiar in connection with international water re-

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1. A recent review of this body of federal common law is provided in Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381 (1985). References to equitable apportionment are also common when interstate water controversies are settled by interstate compact. Grant, *The*

sources conflicts.² Intrastate controversies, however, are usually decided according to the doctrine of prior appropriation,³ which in the state law of the West has largely superceded the riparianism of the earlier common law.⁴ Priority, not equity,⁵ is thus commonly regarded as the paramount consideration when domestic water controversies are decided in the West.

Prior appropriation, however, presents many difficulties,⁶ even in its twentieth century form in which state administration is a prominent feature. One of the most serious problems arises when a source of water is either over appropriated or fully appropriated, thus respectively limiting existing uses with junior rights or precluding the initiation of new uses.

Typically in the West, when this has occurred, the response has been to expand the water supply in the source,⁷ for example, by providing seasonal storage of water or by an interbasin transfer of water.

Future of Interstate Allocation of Water, 29 ROCKY MTN. MIN. L. INST. 977, 989-93 (1984).

2. Utton, *Sporhase, El Paso, and the Unilateral Allocation of Water Resources: Some Reflections on International and Interstate Groundwater Law*, 57 U. COLO. L. REV. 549, 550 (1986). In international law the term "equitable utilization" is also used frequently, e.g., Lipper, *Equitable Utilization*, in *THE LAW OF INTERNATIONAL DRAINAGE BASINS* 15, 23-28 (A. Garretson, R. Hayton & C. Olmstead eds. 1967).
3. An overview of the prior appropriation doctrine as it applies to western surface waters can be found in 5 *WATERS AND WATER RIGHTS* (R. Clark ed. 1972).
4. See *infra* text accompanying notes 22-26 for a discussion of this process.
5. "Equity" is used here and throughout this Article to signify an attempt fairly to share limited water resources, often by taking into consideration many factors. "Priority," by way of contrast, is used to suggest an absence of *pro rata* sharing and a refusal to consider factors other than the temporal sequence in which water from a source is put to beneficial use. I recognize that for some to follow the priority principle is necessarily to do equity.
6. In addition to its tendency to lead to overappropriation, discussed in detail *infra* in the text accompanying notes 48-83, prior appropriation tends to produce great disparities between paper rights and actual rights, McIntire, *The Disparity Between State Water Rights Records and Actual Water Use Patterns*, "I Wonder Where the Water Went?" 5 LAND & WATER L. REV. 23 (1970); to create inflexibility as to place-of-use once an initial allocation takes place, *infra* note 28; to foster premature development and ignore marginal productivity, Gaffney, *Economic Aspects of Water Resources Policy*, 28 AM. J. ECON. & SOC. 131 (1969); and to be difficult to apply to stored water, particularly that found in aquifers. Corker, *Inadequacy of the Present Law to Protect, Conserve and Develop Groundwater Use*, 25 ROCKY MTN. MIN. L. INST. 23-1, 23-12 (1979); Haase, *The Interrelationship of Ground and Surface Water: An Enigma to Western Water Law*, 10 SW. U.L. REV. 2069 (1978). The prior appropriation rule that a "futile" call will not be honored, i.e. that a senior cannot restrict use by a junior unless the restriction will work to the senior's material advantage, is particularly problematic in the case of groundwater. See *id.* at 2084-85.
7. A fascinating recent interpretation of this response is D. WORSTER, *RIVERS OF EMPIRE: WATER, ARIDITY, AND THE GROWTH OF THE AMERICAN WEST* (1985). See also M. REISNER, *CADILLAC DESERT* (1986).

Water projects today, however, have for several reasons become much more difficult to construct.⁸ Consequently, the emphasis has shifted to better management of our developed water supply, and the existing western prior appropriation system is being subjected to intensifying scrutiny.⁹ Discussion of "water marketing" is much in the air,¹⁰ as are other means for promoting increased efficiency in the use of water.¹¹

Most of the contemporary discussion assumes the validity and continued dominance of prior appropriation as the most desirable doctrine to use in allocation of scarce western water resources. As time goes on and the difficulties created by adherence to priority become more apparent, however, I believe the significance of equitable considerations is likely to increase. There is some precedent for state equitable apportionment, and as the pressures on the prior appropriation system become greater, this precedent should be of increasing interest.

In this Article, I shall first review some aspects of early western water allocation, particularly the way in which riparianism was initially superceded by prior appropriation and the justification then and now for the no-sharing rule of prior appropriation. Contemporary difficulties of overappropriation will then be discussed, as will conventional state responses to overappropriation. I then analyze several examples from California of state equitable apportionment, which I view as an unconventional but important response to overappropriation in western states, and offer equitable interpretations of two well-known federal water law decisions.

II. EARLY WESTERN WATER ALLOCATION

The distinctive characteristics of early western water rights law were developed against a backdrop of the common law system found in the eastern states,¹² a riparianism which included three important elements. First, water rights were thought to inhere in rights to land¹³—indeed, it is somewhat misleading to use the term "water right" in reference to riparianism, since the use of water found sitting on or crossing one's land was but one of many resource utilization prerogatives acknowledged as belonging to the landowner. The owner of

8. See *infra* text accompanying notes 91-92.

9. See, e.g., Wilkinson, *Western Water Law in Transition*, 56 U.COLO. L. REV. 317 (1985).

10. See *infra* text accompanying notes 95-97.

11. Discussion of one efficiency-oriented alternative to water marketing is provided in Dunning, *The "Physical Solution" in Western Water Law*, 57 U. COLO. L. REV. 445 (1986).

12. An overview of this system is provided by Davis, *The Right to Use Water in the Eastern States* in 7 WATERS AND WATER RIGHTS 27 (R. Clark ed. 1976). The origins of riparianism have been the subject of lively academic discussion. *Id.* at 29-34.

13. J. SAX & R. ABRAMS, *LEGAL CONTROLS OF WATER RESOURCES* 154 (1986).

land had a right to use the water just as he had a right to the soil, the trees, the minerals, and any other natural resources found in his domain, so the "water right" was really but one of the many elements in the owner's proverbial "bundle of sticks."

Secondly, as the name suggests,¹⁴ riparianism preferred those landowners with parcels adjacent to the water course. These were the persons with immediate access to the resource, and in a time of widespread resource availability and extensive settlement along rivers, there was apparently little concern that this preference unduly limited the class of claimants. Furthermore, those with riparian status were in principle allowed to use water from their land only on the riparian parcel itself,¹⁵ and in some states only to the extent that the parcel fell within the watershed drained by the stream in question.¹⁶ These rules on place-of-use were highly restrictive, although in appropriate circumstances riparian jurisdictions have been able to find ways to permit a water supply to be developed for those municipalities and others excluded from claiming as riparians.¹⁷

Finally, the riparian system of the recent common law provided for a sharing rule for the preferred group of riparian landowners. Initially, there was no sharing for consumptive uses, at least to the extent upstream users were in fact required to ensure that those below received the "natural flow" of water undiminished in quantity or quality.¹⁸ But early on, riparian jurisdictions began to switch to the "reasonable use" variant of riparianism¹⁹ which permitted each ripa-

14. "Riparian" is derived from "ripa," the latin word for the banks of a river. 78 AM. JUR. 2d *Waters* § 260 (1975).

15. Ausness, *Water Rights Legislation in the East: A Program for Reform*, 24 WM. & MARY L. REV. 547, 548-49 (1983) (describes alternative definitions of the riparian parcel).

16. Special Project, *Limitation on Diversion from the Watershed: Riparian Roadblock to Beneficial Use*, 23 S.C.L. REV. 43 (1971).

17. One means has been to permit certain nonriparian uses by riparian proprietors. RESTATEMENT (SECOND) OF TORTS § 855 (1979). Others have been condemnation, Harnsberger, *Eminent Domain and Water*, 4 WATERS AND WATER RIGHTS (R. Clark ed. 1970), and the replacement of common law riparianism with statutory systems. Ausness, *supra* note 15. Although through such means riparian jurisdictions have allowed for major water projects—including some which cross basin lines, Abrams, *Interbasin Transfer in a Riparian Jurisdiction*, 24 WM. & MARY L. REV. 591 (1983)—it appears in these jurisdictions further institutional modifications may be necessary to provide adequate water supplies in time of drought. Gellis, *Water Supply in the Northeast: A Study in Regulatory Failure*, 12 ECOLOGY L.Q. 429 (1985).

18. RESTATEMENT (SECOND) OF TORTS § 850 (1979) (introductory note) (statement of natural flow theory); *but see* Davis, *supra* note 12, at 611 (no jurisdiction protected right of a riparian nonuser to the full natural flow).

19. Although many take this transition as an important doctrinal evolution, RESTATEMENT (SECOND) OF TORTS § 850 (1979) (introductory note), others argue that the two doctrines are intertwined. Thus "even when diversions are permitted under reasonable-use principles, the natural-flow doctrine persists and may

rian landowner a reasonable share of the resource. "Reasonable" was determined by examination of a range of factors,²⁰ and courts indicated that reasonable share allocations could change over time as circumstances changed.²¹ Thus, some degree of stability was sacrificed for flexibility in the resource allocation system, which provided a built-in mechanism to respond to new needs.

When courts in the western states began to develop their rules on water allocation, there was little careful analysis of the various elements of riparianism or detailed consideration of which were suitable and which unsuitable in the circumstances of a largely arid region. Rather the initial debate was whether to follow the natural flow tenets of the common law,²² and even in the earliest decisions, the courts largely forfeited the opportunity for conscious choice in terms of desirable natural resource allocation and allowed the decision to be dic-

support a riparian's right to a minimum flow or a minimum level." Davis, *supra* note 12, at 36. The author observes that whereas appropriative rights "are measured by what is taken," the riparian right of reasonable use is measured "by what is left or should be left in the waterbody." *Id.*

20. RESTATEMENT (SECOND) OF TORTS § 850A (1979). Typically the reasonable riparian use is subject to the right of an individual riparian landowner to take for domestic use water "sufficient to satisfy natural wants" such as washing, drinking and watering livestock. Davis, *supra* note 12, at 78.
21. See Davis, *supra* note 12, at 65-67.
22. The leading case from California eschewed common law riparianism not because it was inappropriate for the region, but because it was thought not applicable where the competing water users on the federal public domain could claim at most to be tenants at will of the land. "It is certain that at the common law the diversion of water courses could only be complained of by riparian owners, who were deprived of the use, or those claiming directly under them." *Irwin v. Phillips*, 5 Cal. 140, 145-46 (1855). Nonetheless the court was charged then and later with judicial legislation. G. YALE, *LEGAL TITLES TO MINING CLAIMS AND WATER RIGHTS IN CALIFORNIA, UNDER THE MINING LAW OF CONGRESS, OF JULY, 1866*, at 136-38 (1867). It responded that in all its decisions on private rights to the public domain, including those on water, "we have applied simply the rules of the common law. . . . [W]e claim that we have neither modified its rules, nor have we attempted to legislate upon any pretended ground of their insufficiency." *Conger v. Weaver*, 6 Cal. 548, 555 (1856). Rather, the court said new conditions had produced a "novel application" of an established rule. *Id.* at 555-56. The rule that the court had in mind was that a grant may be presumed from long possession in order to quiet the title of the possessor, *id.* at 556, and presumably the novelty arose from the fact the possession was of rather short duration. Shortly after *Conger* it was suggested that to argue for prior appropriation as an application of the common law in modified form to suit new conditions would be "a disastrous failure." G. YALE, *supra*, at 138. A recent commentary argues that in fact the California court in its early public domain water decisions simply applied the conventional common law rule of relative title, which protected anyone with prior peaceable possession against all but the true owner. Freyfogle, *Lux v. Haggin and the Common Law Burdens of Modern Water Law*, 57 U. COLO. L. REV. 485, 505-06 (1986). On this theory *Irwin* was perhaps less novel than the California court believed it to be.

tated by their understanding of customary practices.²³

The first cases came from the gold mining regions of California, where the miners treated priority of possession or control as the key element in deciding among themselves who had the better right to mining claims or to the water needed to work those claims.²⁴ When the question of the legitimacy of this method of allocation with regard to water was raised in the courts, the system was approved in large part simply because it had become the established custom of the miners. Implied federal approval and explicit state approval was found for the mining on federal land which had "been permitted to grow up by the voluntary action and assent of the population."²⁵ This activity included "the right to divert the streams from their natural channels" and to conduct water wherever needed for mining.²⁶

The miners' system, which came to be known as "prior appropriation," differed considerably from common law riparianism. First, it was the act of putting water to use rather than the status of landowner which was the foundation for the appropriative right, which could truly be termed a "water right" entirely distinct from any land right. Water thus was allocated as a natural resource independent from land,²⁷ although in practice often this was true only for the initial allocation.²⁸

23. The Colorado court, in adopting prior appropriation many years after California, exhibited a much more policy-oriented approach, which in fact seemed to distort the riparian thrust of the Colorado statutes. *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882); see also *Yunker v. Nichols*, 1 Colo. 551 (1872).

24. Indeed, in the first few years after the discovery of gold in 1848, "much of the California public assumed that water rights were synonymous with mining rights." Littlefield, *Water Rights During the California Gold Rush: Conflicts over Economic Points of View*, 14 W. HIST. Q. 415, 434 (1983).

25. *Irwin v. Phillips*, 5 Cal. 140, 146 (1855). In addition to certain revenue provisions treated in *Irwin* as evidence of explicit state approval, the Civil Practice Act of 1851 provided that in Justices' Courts mining customs not in conflict with the constitution or statutes were to govern the decision. G. YALE, *supra* note 22, at 59-60.

26. *Irwin v. Phillips*, 5 Cal. 140, 147 (1855). Ironically, although the opinion in *Irwin* purported to defer entirely to mining customs, the miners' committee that originally heard the case ruled for the junior appropriator. Littlefield, *supra* note 24, at 431. The committee's theory apparently was that the senior appropriator, who was involved in the transport and sale of water to miners rather than in mining activity, did not have a right superior to those like the junior appropriator who sought the water for mining purposes in the bed of the stream. *Id.* at 430-31. In reality *Irwin* was thus more a decision that "water rights were separate and distinct from mining rights," *id.* at 434, than one affirming the primacy of mining customs.

27. The right to divert gives a right to use present and future flows, as water unlike minerals is a renewable natural resource.

28. Once water was put to use, frequently a new water-land bond developed, insofar as various rules made it difficult or impossible to change the use of the water from the place of first use. The most important of these rules provides that the

Secondly, appropriators of water could establish and maintain their rights only if more-or-less continuous and beneficial use existed. As later frequently stated in statutes and constitutions throughout the West, beneficial use is "the origin, the measure and the limit" of the appropriative right.²⁹ Whereas riparian status serves to designate the preferred category of landowners in the older common law system, continuing beneficial use defines the preferred group of claimants in the new system. By tying the property right to resource utilization, the appropriation system in principle precludes any prolonged period of dormancy for the water right.

Finally, and of greatest significance for this Article, the prior appropriation approach provides that among beneficial users of water there is to be no sharing of shortages. Temporal priority—"first-in-time, first-in-right"—is the rule, which means in time of shortage claimants are cut back in inverse order of priority. The most junior claimant thus is entirely deprived of water before the next most junior claimant loses any water, and so forth backward through the list of appropriators. This "no sharing of shortage" rule stands in stark contrast to the "reasonable use" sharing rule of riparianism.

The justification for the no-sharing rule of prior appropriation—either in the 1850s or today—is elusive. Abandonment of the natural flow and place-of-use restrictions of riparianism appear to have been mandatory in most of the West, given the limited supplies of water available and the frequent distance of those supplies from valuable mineral deposits or—later—from arable lands and growing cities.³⁰ But it is not as clear why in the West the impact of drought should fall

change may not injure another holder of a water right, even one junior in priority. In general, the prior appropriation doctrine "tends to 'freeze' a specific quantity of water to a specific tract of land." Hutchins & Steele, *Basic Water Rights Doctrines and Their Implications for River Basin Development*, 22 LAW & CONTEMP. PROBS. 276, 292 (1957). This tendency has been most pronounced where water rights are explicitly made appurtenant to the lands for which they are first acquired. Dunning, *supra* note 11, at 469-70.

29. See, e.g., N.M. CONST. art. XVI, § 3. Here the rules for water again follow the rules for mining, at least to the extent some minimal exploitation is required in order to maintain an unpatented mining claim on public lands. Turner & Sherwood, *Rights Conferred by Location*, 2 AMERICAN LAW OF MINING §§ 7.1-7.5 (1983); cf. G. YALE, *supra* note 22, at 81. A study of the Wyoming situation found, however, that often the initial proofs of water use were inaccurate, McIntire, *supra* note 6, at 23-24; that records were not maintained as to whether beneficial use continued, as required in theory, *id.* at 25; and that, where the paper right was known to exceed actual beneficial use, the relevant state official lacked the authority to initiate forfeiture proceedings. *Id.* at 33. It appears this same situation exists in most western states. *Id.* at 26.
30. "In a dry and thirsty land it is necessary to divert the waters of streams from their natural channels, in order to obtain the fruits of the soil, and this necessity is so universal and imperious that it claims recognition of the law." Yunker v. Nichols, 1 Colo. 551, 553 (1872).

disproportionately on those who most recently began to utilize water resources.

One historical explanation for the no-sharing-of-shortage rule of prior appropriation is simply that miners treated water like gold and there was no sharing of the mineral resource. The first to begin exploitation of a mining claim was entitled to pursue that claim to the exclusion of others.³¹

Applying to water the rules used for minerals ignores, of course, the significant physical differences between the two resources. Minerals, at least those of the so-called "hardrock" type, are provided by nature in fixed amounts at fixed locations. The resource is non-renewable, so that once removed for use there will not on our time-scale be any further mining activity. A mining claim does not readily lend itself to shared exploitation by independent operators, and exploitation does not normally leave behind much of interest to another user. The allocation question to be answered by the law is, thus, to whom should the right to engage in exclusive exploitation be granted. To say that the first to exploit is the preferred party is not necessarily the best response,³² but at least it fits with the objective of allowing someone to engage in exclusive exploitation.

The situation is rather different for water, which is typically a re-

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31. G. YALE, *supra* note 22, at 78 ("first in time is first in right" applies to mining claims with peculiar force). The mining claim is but one example of natural resource allocation by first-in-time, first-in-right, a notion which "determines the resolution of numerous human conflicts both in law and custom." Berger, *An Analysis of the Doctrine That "First in Time is First in Right,"* 64 NEB. L. REV. 349, 350 (1985). The notion is said to be "grounded in something almost instinctual," *id.*, and both the common and the civil law are said to have embraced "the proposition that taking possession of unowned things is the only possible way to acquire ownership of them." Epstein, *Possession as the Root of Title*, 13 GA. L. REV. 1221, 1222 (1979). That proposition assumes, of course, that the mineral or other natural resource is to be regarded as unowned when unpossessed.
 32. In addition to theories based on instinct, various policies are suggested in support of the rule of first possession. For one commentator, the most important is "the promotion of economic efficiency through encouraging development." Berger, *supra* note 31, at 388. Another offers an institutional justification: "In essence the first possession rule has been the organizing principle of most social institutions, and the heavy burden of persuasion lies upon those who wish to displace it." Epstein, *supra* note 31, at 1241. For this author the rule of first possession of the past "has a power to bind" and vested rights have "a life of their own." *Id.* at 1243; cf. R. EPSTEIN, *TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN* 217 (1985) (other "very attractive utilitarian features" of the first-possession rule discussed). What in fact the rule of the past *was* regarding a given resource and what properly should be regarded as "vested" are open to discussion. See generally Sax, Book Review, 53 U.CHI. L. REV. 279 (1986); Sax, *Liberating the Public Trust Doctrine from its Historical Shackles*, 14 U.C. DAVIS L. REV. 185 (1980). It should be noted that in some cases first possession is considered the basis of ownership, while in others it serves to establish the basis for protection pending a claim by the owner.

newable resource which can be exploited by several users in complementary ways. A miner can use water for washing gold ore, a farmer can then divert that same water for irrigation, after which another farmer can irrigate with the drainage returned to the stream by the first farmer. Meanwhile others can enjoy the benefits of flows in the stream, at least intermittently. In fact, multiple and successive uses for water are necessary if the economic returns of the resource are to be maximized. Usage by one does not usually exclude some usage by others, so water users experience an interdependency normally absent in mining. Exploitation is concurrent rather than exclusive, even though one use begins at a point in time prior to another use.

Another justification of the priority rule, more attuned to economics than history, emphasizes security of investment for the resource user. Sharing rules, it is said,³³ are inadequate because it is impossible to know in advance what apportionment any given claimant will receive and because apportionments can change as circumstances change. Therefore, insecurity exists and consequently needed investment of capital in water projects will be inhibited.

Unfortunately, however, the prior appropriation system does not provide all users of the resource with equivalent security. It simply places some in a more secure position than others, based only on who began using the resource first. Just as the system makes early or senior users of the resource relatively more secure from the threat of drought, it makes later or junior users concomitantly less secure. The insecurity of the latter obviously can inhibit needed investment, perhaps fully offsetting any additional investment prompted from seniors by advantaging them through priority rules. Or it can prompt juniors to support *overinvestment* in water projects, to protect themselves against the possible catastrophic impact of an occasional drought when the no-sharing rule may be invoked.

Curiously, the priority principle justified as needed to ensure security of investment has usually not been used within the local water distribution organizations which dominate western water supply to consumers. Individual appropriators who take their supply directly from a stream or lake are today a small minority in the West, with the vast majority receiving water from an irrigation district, mutual water company, or some other type of water distribution organization.³⁴ These organizations often either appropriate water themselves or

33. "[R]easonable use makes no sense in a situation of real shortage." Berger, *supra* note 31, at 372. Where, in the East or elsewhere, there is some certainty in the probability of normal flows, then "perhaps sharing the burden of shortage encourages further investment." Davis, *supra* note 12, at 111.

34. Water districts distribute about half the water used in the West. Leshy, *Irrigation Districts in a Changing West—An Overview*, 1982 ARIZ. ST. L.J. 345, 347 (1969 data). Most of the rest is distributed by private organizations. *Id.* at 347 n.12.

purchase water from some sort of wholesaler, and typically they distribute it on a utility basis to those in their service area. Customers generally do not have temporal priorities,³⁵ and in the event of inadequate supply, districts have great flexibility in rationing available supplies.³⁶ Nonetheless, billions of dollars of investment have been made in the belief that a system which includes this flexibility provides adequate security.

Another perspective on priority is provided if one notes that water resources, although renewable and capable of reuse by interdependent claimants, are nonetheless finite. If all users, regardless of temporal priority or riparian landownership, had equal status, that might encourage many late-coming claimants, with the inevitable consequence of over-taxing the limited resource. Particularly in situations where there is no administrative mechanism to determine the quantity of the resource available for allocation, it might reasonably be thought to be dangerous to have a system which did not put latecomers at some disadvantage. Prior appropriation could be justified not so much as a device for providing exclusivity as one for limiting the class of claimants, much as riparianism limits claimant landowners to those with immediate physical access to the resource.

To seek to limit the number of claimants to use of a scarce natural resource may have utility, but the prior appropriation system in practice often failed to provide a practical limit. Simply put, in many cases juniors were not discouraged by the apparent disadvantage of being subsequent in time. According to the great irrigation expert Elwood Mead, it was commonplace in earlier years for the paper claims to water vastly to exceed the water available in the source.³⁷ And even today, with far more tightly controlled systems of water administration than previously, legitimate claims can greatly exceed supply. Often these claims are turned into actual uses, so if disallowed considerable economic disruption would result. Such situations create pressure for courts (or agencies) to find some way to avoid the harshness of cutting off juniors entirely while allowing seniors to have their full entitlement.

35. Where a water distribution organization takes over a supply of previously appropriated water, typically the objective is to honor the prior rights. Special Project, *Desert Survival: The Evolving Western Irrigation District*, 1982 ARIZ. ST. L.J. 377, 411. But in the case of larger districts which typically develop or contract for a new water supply, the apportionment of water is usually linked in one way or another to the assessed valuation of the land. *Id.*

36. *Id.* at 414-15.

37. E. MEAD, IRRIGATION INSTITUTIONS 69-76 (1903). Furthermore, contrary to the principle of beneficial use, in many of the early decisions "not only was the minimum capacity of the ditch decreed but very often the amount mentioned in the notice [of appropriation], which might be far in excess of the maximum capacity [of the ditch]." A. CHANDLER, ELEMENTS OF WESTERN WATER LAW 44 (1913).

III. CONTEMPORARY OVERAPPROPRIATION

Today's western prior appropriation systems are far different from those which developed from the customs of the gold miners, primarily because of the introduction of a degree of governmental administration.³⁸ In the early days, water rights were unadministered—individuals on their own initiative simply carried out the physical acts necessary to begin water use,³⁹ and in case of conflict with other claimants from the same source the only resolution was by litigation. Lawsuits could be filed to determine priorities, to establish whether a use was beneficial, to decide whether forfeiture had occurred from a period of non-use, and so forth. In many areas of pressure on water resources, litigation was rampant and repetitive.⁴⁰

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38. A good account of the change from an unadministered to a partially administered (mainly for surface water) system is provided by Lasky, *From Prior Appropriation to Economic Distribution of Water by the State—Via Irrigation Administration* (pts. 1-3), 1 ROCKY MTN. L. REV. 161, 248 (1929), 2 ROCKY MTN. L. REV. 35 (1929). See also Ferrier, *Administration of Water Rights in California*, 44 CAL. L. REV. 833 (1956). Lasky presents western irrigation development, particularly in Colorado and Wyoming, as an important early example of administrative law, with the states "in transition from various forms of extreme individualism and vested property rights of substance in water to the same goal, the economic distribution of state-owned water by a state administrative machinery thru state-granted conditional privileges of user." Lasky, *supra*, 1 ROCKY MTN. L. REV. at 162. Nonetheless, in general the administration of water rights in the western states has incorporated and honored the priority principle.
39. In addition to making surveys and digging ditches, claimants customarily posted a notice near the point of diversion. *Thompson v. Lee*, 8 Cal. 275, 279 (1857). As with the digging of gold, governmental approval was presumed from the circumstances. *Conger v. Weaver*, 6 Cal. 548, 558 (1856). Mead greatly regretted this early identification of water law with mining law and the failure of the federal and state governments "to assert public control over streams and dispose of them as a great public resource." E. MEAD, *supra* note 37, at 62. From time to time proposals for public control were made which might have pleased Mead, but none was implemented. For example, in 1874 a California assemblyman acting on behalf of members of the Grange introduced legislation which provided that "the governor would designate all the land suited to irrigation in California, determine the size of the state's water supply, and decide the best way to use it." D. PISANI, *FROM THE FAMILY FARM TO AGRIBUSINESS - THE IRRIGATION CRUSADE IN CALIFORNIA AND THE WEST, 1850-1931* 136 (1984).
40. One example, dealing with water from the Kings River in California's San Joaquin Valley, is provided at GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, FINAL REPORT 22-24 (1978). Between 1876 and 1902, at least 103 lawsuits were filed with regard to Kings River water, *id.* at 22, virtually all of them in regard to the use of water for irrigation. In addition to competition for Kings River water for farming, there was hostility by some to any irrigation at all. Mead reported in 1903 that "the cattlemen along King's River threatened to lynch the first builder of a ditch on that stream." E. MEAD, *supra* note 37, at 186. The Kings River was not unique, for extensive litigation over water rights was touched off throughout the San Joaquin Valley by the canal building which followed completion in 1874 of a railroad through the Valley. D. PISANI, *supra* note 39, at 191.

The introduction of administrative control brought greater order to the situation. New appropriations, at least of surface water, required explicit rather than presumed governmental approval;⁴¹ terms and conditions were used in some states to protect the public interest;⁴² and often some sort of watermaster service was implemented to ensure that diversion facilities were actually operated in accordance with existing priorities.⁴³ Another way greater orderliness was achieved was through the development of large projects dependent for their water supplies on the storage of flood waters for which there were few or no competitors. These projects operate more or less above and beyond the ordinary prior appropriation system,⁴⁴ and indeed they often have their own system for the secondary allocation of the large amounts of water they control.⁴⁵ Finally, even where governmental control did not develop, in some cases—usually after decades of litigation—competitors reached comprehensive agreements which established an acceptable means of operation on a river.⁴⁶

Despite these improvements, certain structural characteristics of prior appropriation systems have provided the means for continued overappropriation of water resources, so that an established user can suddenly find himself in a junior position without a dependable water supply even in normal water years. Four such characteristics of particular importance are as follows: the recognition in several forms of dormant rights, contrary to the fundamental tenet of prior appropriation that continued beneficial use is required to maintain a water right; the failure to integrate the pumping of tributary groundwater into priority schedules for surface water; the allowance of overdrafting, both of ground and surface water resources; and the maintenance of separate state priority schedules for state segments of interstate rivers. Each will be considered briefly below.

41. See note 38 *supra*.

42. Ferrier, *supra* note 38, at 840-41.

43. 2 W. HUTCHINS, *WATER RIGHTS LAWS IN THE NINETEEN WESTERN STATES* 519-23 (1974).

44. Generally they store flood waters at times of the year when these are not desired for direct diversion. Where those with storage rights and those with direct diversion rights are in competition, however, sometimes the former have been subordinated to the latter regardless of temporal priority. 1 W. HUTCHINS, *supra* note 43, at 354-58.

45. In projects operated in accordance with federal reclamation law, for example, there are restrictions on the delivery of irrigation water to owners with parcels above a certain size. 43 U.S.C. § 390dd (1982). These restrictions preempt state law. *Ivanhoe Irrigation Dist. v. McCracken*, 357 U.S. 275 (1958).

46. On the Kings River, discussed *supra* note 40, such an agreement was reached in 1927 and users of related waters joined in 1949. This provided "peace on the river for the first time in more than eighty years." C. KAUPKE, *FORTY YEARS ON THE KINGS RIVER 1917-1957*, at 46 (1957).

A. Dormant Rights

Dormant or unexercised water rights are an important part of riparianism, for in principle the riparian landowner is entitled to a reasonable share of accessible water whether or not he is currently making use of it.⁴⁷ Riparianism, however, has been largely superceded in the West. Many states rejected the doctrine out-of-hand early in the development of their water rights law,⁴⁸ while others recognized riparian rights but largely assimilated them into their system of prior appropriation.⁴⁹ Only California among the western states still permits a riparian landowner to initiate a new use solely on the basis of landownership,⁵⁰ and this right may be limited where the stream in question is subject to a comprehensive adjudication.⁵¹

Within riparian jurisdictions that recognize the sharing rule, the exercise of a previously dormant right—or the expansion of a previously exercised right—in cases of shortage leads in principle to recalculation of each claimant's reasonable share. Temporal priority is usually not relevant in establishing reasonableness, although some authorities maintain that it is considered.⁵² Where claims total or exceed the available supply, the sharing rule allows all claims to be adjusted downward to the point where they match that supply. The impact of activation of the previously dormant claim is thus typically felt by all users.⁵³

Within prior appropriation jurisdictions, activation of a dormant right has an entirely different consequence. Since the rule is "no sharing" of shortage, the impact falls entirely on the most junior user or

47. See *supra* text accompanying notes 19-21.

48. These are the generally arid states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming. 2 W. HUTCHIN S, *supra* note 43, at 1.

49. These are the states from North Dakota to Texas which span the one-hundredth meridian and the Pacific Coast states. 2 W. HUTCHINS, *supra* note 43, at 1-2.

50. In certain circumstances this may also happen in Nebraska. *Wasserburger v. Coffee*, 180 Neb. 149, 141 N.W.2d 738 (1966).

51. *In re Waters of Long Valley Creek Stream System*, 25 Cal. 3d 339, 599 P.2d 656, 158 Cal. Rptr. 350 (1979).

52. RESTATEMENT (SECOND) OF TORTS § 850A(h) (1979). The Restatement follows suggestions in Beuscher, *Appropriation Water Law Elements in Riparian Doctrine States*, 10 BUFFALO L. REV. 448, 451-52 (1961).

53. Post-World War II reported decisions that illustrate this process are rare. One example is *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); but see *Davis*, *supra* note 12, at 101 (it is reasonable to consider *Harris v. Brooks* a case "where a subsequent user was able to prevail over a prior user by application of the reasonable-use test," but author suggests "the court did . . . what it said it was not doing—fixing a minimum level and according the in-place user a preference."). In recent years, however, "the number of reported court decisions presenting any riparian issues has dwindled to a few each year." J. SAX & R. ABRAMS, *supra* note 13, at 183. This decrease is attributed to "the rise in statutory governance of water use in many states" and "changes in technology [that] have rendered obsolete most uses of water for power" as mill use has disappeared. *Id.*

users. In California, for example, if a riparian landowner on a fully appropriated stream begins to use water for irrigation, in principle an equivalent reduction in use will have to be made by whoever has the most junior appropriative right.⁵⁴

Since California is the only western state to retain something similar to classical riparianism and since riparian rights in that state have been to some extent stabilized and quantified,⁵⁵ the problem of the dormant right's potentially disruptive impact on the fully appropriated western stream may seem a minor one. But dormant rights arise in other ways. For example, in some states the normal rule that due diligence is required in putting water to beneficial use is waived for public entities.⁵⁶ Municipalities and the state thus can hold unexercised rights for long periods of time, during which others may make use of the water in question. If and when the public entity exercises the right, however, one or more junior appropriators may find there is no longer sufficient water available to satisfy established and previously exercised rights.⁵⁷

Even more important, the dormant right is often part of the federal law "reserved" right. This right burst on the western water scene

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54. An exception would occur in the highly unlikely event the inception of the riparian right—the date of actual settlement of riparian land with a bona fide intent to acquire title by patent, *Pabst v. Finmand*, 190 Cal. 124, 131, 211 P. 11, 14 (1922)—came after the inception of the most junior appropriative right. In that case the riparian right is junior to the appropriative right, *McKinley Bros. v. McCauley*, 215 Cal. 229, 231, 9 P.2d 298, 299 (1932); *Rindge v. Craggs Land Co.*, 56 Cal. App. 247, 252, 205 P. 36, 38 (Ct. App. 1922), despite the fact recent dicta state without qualification that a riparian right is "paramount" to appropriative rights. *In re Waters of Long Valley Creek Stream System*, 25 Cal. 3d 339, 347, 599 P.2d 656, 660, 158 Cal. Rptr. 350, 354 (1979); see also Freyfogle, *supra* note 22, at 487.
 55. D. ANDERSON, *RIPARIAN WATER RIGHTS IN CALIFORNIA* 22-26 (1977) (Staff Paper No. 4, Governor's Commission to Review California Water Rights Law). Despite a degree of stability, important questions about the California riparian right continue to arise. Recently, for example, the Court of Appeal overturned a decision by the State Water Resources Control Board that federal agencies such as the Forest Service cannot claim riparian rights under state law. *In re Determination of the Rights of the Various Claimants to the Water of Hallett Creek Stream System in Lassen County, Calif.*, 187 Cal. App. 3d 863, 866, 232 Cal. Rptr. 208, 210 (Ct. App. 1986) (Forest Service under state law may assert "a defeasible riparian water right" to water on national forests in excess of that reserved under federal law, to the extent that such water "has not been appropriated and is available").
 56. Often municipalities may acquire and hold rights to water in excess of existing needs. ARIZ. REV. STAT. ANN. § 45-143(B) (Supp. 1985); CAL. WATER CODE §§ 106.5, 1203, 1462 (West 1971); OKLA. STAT. ANN., tit. 11, § 37-117 (West 1978); OR. REV. STAT. § 537.190(2) (1985); UTAH CODE ANN. § 73-1-4 (1980); WASH. REV. CODE ANN. § 90.03.260 (1962). In California, which has an extensive state water project, see *infra* text accompanying notes 151-52, the operator of the project is exempt from the due diligence requirement. CAL. WATER CODE §§ 10500, 10504 (West 1971 & Supp. 1986).
 57. That juniors may use excess municipal water is made explicit, for example, in CAL. WATER CODE §§ 1203, 1462 (West 1971).

with the 1908 judicial declaration of the "Winters Doctrine" protective of Indian claims to adequate water.⁵⁸ Since World War II the federal courts have made it plain that the doctrine applies to many other kinds of federal reservations⁵⁹ in order to ensure that the federal purposes for the land reservations are achieved.⁶⁰

Since the reserved right springs from a federal doctrine, in a sense it is not part of state prior appropriation systems. Yet as a practical matter, it is necessary for state systems to acknowledge and integrate the reserved right.⁶¹ Federal courts have indicated that the reserved right takes its place in the state's priority listing as of the date of the federal land reservation,⁶² but that present use is not a requirement for the validity of the right.⁶³ Thus, an important form of dormant rights exists, and its exercise frequently has the potential to disrupt established junior uses.⁶⁴ In many situations the scope of federal reserved rights is unknown, but if ultimately the quantities permitted

58. *Winters v. United States*, 207 U.S. 564 (1908). A hint of what was to come was provided in *United States v. Winans*, 198 U.S. 371 (1905).

59. *Arizona v. California*, 373 U.S. 546, 601 (1963) (national recreation area, national wildlife refuge, national forest); see *Federal Power Comm'n v. Oregon*, 349 U.S. 435 (1955) (hydroelectric site). A current controversy concerns a federal district court decision that federal reserved water rights exist in wilderness areas designated pursuant to the Wilderness Act. *Sierra Club v. Block*, 622 F. Supp. 842 (D. Colo. 1985).

60. "[W]hen the Federal Government withdraws its land from the public domain and reserves it for a federal purpose, the Government, by implication, reserves appurtenant water then unappropriated to the extent needed to accomplish the purpose of the reservation." *Cappaert v. United States*, 426 U.S. 128, 138 (1976).

61. States have jurisdiction over federal reserved rights whenever the state proceedings are a general adjudication for the determination of water rights. *Colorado River Water Conservation Dist. v. United States*, 424 U.S. 800, 809 (1976). In many situations, concurrent water litigation in federal court will be dismissed or stayed in deference to the state proceedings. *Arizona v. San Carlos Apache Tribe of Ariz.*, 463 U.S. 545, 569 (1983).

62. *Cappaert v. United States*, 426 U.S. 128, 138 (1976) (right is "in unappropriated water" and is "superior to the rights of future appropriators.").

63. *Id.* (right vests "on the date of the reservation" and no use requirement is stated); *Arizona v. San Carlos Apache Tribe of Ariz.*, 463 U.S. 545, 574 (1983) (Stevens, J., dissenting) ("Unlike state-law claims based on prior appropriation, Indian reserved water rights are not based on actual beneficial use and are not forfeited if they are not used.").

64. To date this potential is largely unrealized. With regard to reserved rights for national forests, for example, "officials have refrained from pressing large claims or assigning them to private enterprises carrying out federal functions. Minimum flows are located for the most part where they can do the least harm . . ." Trelease, *Federal Reserved Water Rights Since PLLRC*, 54 DEN. L.J. 473, 492 (1977). With regard to Indian reserved rights, "*Winters* has mostly functioned to protect subsistence uses, for survival but not comfort," Collins, *The Future Course of the Winters Doctrine*, 56 U. COLO. L. REV. 481, 494 (1985), for typically Indian tribes have not had the financial resources necessary to develop most of the water to which they are entitled. Shupe, *Water in Indian Country: From Paper Rights to Managed Resource*, 57 U. COLO. L. REV. 561 (1986).

are large and are utilized,⁶⁵ the result may be overappropriation of many western rivers. If the strictures of prior appropriation are followed, this may create severe pressure for relief.

B. Tributary Groundwater

Another cause of contemporary overappropriation has been the general failure of surface water prior appropriation systems to integrate the pumping of tributary groundwater.⁶⁶ Surface water exploitation generally preceded groundwater use in the West, for until the 1920s existing technology allowed only very limited utilization of other than artesian groundwater resources.⁶⁷ Consequently, throughout the West, rules for groundwater use were developed much later than those for surface water use.⁶⁸ The rules for groundwater, when developed, often provided rights for the landowner overlying the aquifer,⁶⁹ in contrast to the widespread refusal to prefer the analogous riparian landowner claimant of surface water.⁷⁰ In other cases the rules incorporated the prior appropriation principle,⁷¹ although sometimes limiting appropriators to surplus waters not needed by overlying owners.⁷²

These legal developments took place with no particular appreciation of the hydrological interconnection between surface water and groundwater.⁷³ Just as streams often replenish aquifers, underground water frequently feeds streams. Thus, in many situations the pumping and consumptive use of groundwater will deprive a stream of water to the possible detriment of one with a water right on that stream.

When the groundwater pumper exercises the right of an overlying landowner, the situation is another example of a dormant right being

65. That the potential for disruption of junior users continues to exist is indicated by the fact that today numerous Indian tribes are pursuing control over water resources in many ways, such as "financing water development projects, entering into agreements with federal and state entities, and establishing independent systems for the administration of reservation waters." Shupe, *supra* note 64, at 562.

66. Trelease, *Conjunctive Use of Groundwater and Surface Water*, 27 ROCKY MTN. MIN. L. INST. 1853 (1982). In recent years Colorado in particular has sought to remedy this failure. Dunning, *supra* note 11, at 465-69.

67. THE CALIFORNIA WATER ATLAS 47 (W. Kahrl ed. 1979). The keys to more extensive use of groundwater were development of the deep well turbine pump and wider distribution of electrical power to agricultural areas. DEPT OF WATER RESOURCES, BULLETIN 160-83, THE CALIFORNIA WATER PLAN 13 (1983).

68. See Clark, *Western Ground-Water Law*, 5 WATERS AND WATER RIGHTS 407 (R. Clark ed. 1972).

69. Champion, *Ground Water Rights*, in 2 W. HUTCHINS, *supra* note 43, at 634.

70. See *supra* text accompanying note 48.

71. Champion, *supra* note 69, at 634.

72. Katz v. Walkinshaw, 141 Cal. 116, 74 P. 766 (1903).

73. Haase, *supra* note 6, at 2070.

exercised in a potentially disruptive fashion. The impact will be felt first by the most junior appropriator of the surface water. When the groundwater claimant acts as an appropriator, the situation differs conceptually in that the right is not a dormant one and in principle the new appropriator takes subject to existing "downstream" appropriative rights. But given uncertainties as to the precise impact of the groundwater pumping and use on stream flow and given the general failure to administer groundwater pumping rights,⁷⁴ the impact may be precisely the same as in the case of pumping pursuant to the right of an overlying landowner. It often will be felt first by the most junior appropriator of the surface water.

C. Overdrafting

Overdrafting is a phenomenon commonly associated with the pumping of groundwater. This water is pumped from an aquifer, which can usefully be thought of as a subterranean reservoir. This type of reservoir has many advantages when compared to surface reservoirs, the most obvious of which is that it is provided by nature at no capital cost to the users. In recent years many water specialists have advocated, often under the rubric of "conjunctive use" of surface and groundwater, the conscious management of aquifers as reservoirs in our water supply systems.⁷⁵

Part of the philosophy of conjunctive use management for many is to limit extractions from aquifers to their "safe yield." Safe yield is, generally speaking, the amount that can be pumped without unacceptable consequences.⁷⁶ These consequences include compaction, leading to loss of storage capacity and surface subsidence; sea water intrusion or other water quality degradation brought about by a declining water table; and escalating pumping costs for obtaining water from ever greater depths. Overdrafting occurs when extractions exceed the safe

74. See Clark, *supra* note 68, at 411.

75. E.g., Ambroggi, *Underground Reservoirs to Control the Water Cycle*, 236 SCI. AM., May 1977, at 21. Fully efficient management of surface and groundwater supplies requires more than merely conjunctive use in the sense of managed aquifer recharge and use of both the surface water and groundwater in an area. It demands that "both groundwater and surface water . . . be controlled by the same agency" Helweg & Gardner, *Groundwater Management Problems in California*, in CALIFORNIA WATER PLANNING AND POLICY SELECTED ISSUES 46, 49 (Englebert ed. 1979).

76. See *infra* note 102. A more restrictive definition of safe yield is "net groundwater recharge, consisting of recharge from natural precipitation and return flow from delivered groundwater and delivered imported water, less losses from subsurface outflow, rising water outflow, evaporation, and infiltration into sewers." A. SCHNEIDER, GROUNDWATER RIGHTS IN CALIFORNIA 20 n.77 (1977) (Staff Paper No. 2, Governor's Commission to Review California Water Rights Law). This definition is drawn from *City of Los Angeles v. City of San Fernando*, 14 Cal.3d 199, 278-79, 537 P.2d 1250, 1308, 123 Cal. Rptr. 1, 59 (1975).

yield.⁷⁷

Overappropriation of groundwater resources occurs when overdrafting takes place, even though forbidden.⁷⁸ Commonly the prohibition is declared after safe yield is being regularly exceeded, or in any event is ineffective in preventing that from taking place. Therefore, it is necessary in order to achieve the safe yield objective to cut back on the pumping of groundwater, and if prior appropriation principles are followed, the impact of the cutback falls on those with the most junior appropriative rights.

Overdrafting can also occur with surface water resources, although it is not commonly recognized by that name. Just as "safe yield" represents a judgment as to how much water can be taken from an aquifer without causing unacceptable harm to use of the resources of the underground reservoir and the water within it, judgments are made as to how much water can be taken from a stream or lake without causing unacceptable damage. For surface waters, the harm, for example, may consist of loss of aquatic resources, such as fisheries; salt water intrusion; or loss of wildlife habitat.⁷⁹ When legal means are invoked for limiting extractions to the "safe yield" of the body of surface water,⁸⁰ the impact falls heavily on the most junior of the surface water appropriators.

D. Separate State Schedules

A final example of how contemporary overappropriation occurs is provided by the exploitation of interstate water resources. A river shared by two western states, for example, typically is allocated to users pursuant to priority schedules in each of the states. Where one state develops more rapidly than the other, the less rapidly developing state may recognize many priorities junior in time to the most junior priority in the more rapidly developing state. Yet if the former state permits those priorities to be exercised, for example in the instance of

77. See *infra* text accompanying note 131.

78. In some situations overdrafting is approved, usually as part of the "mining" of aquifers which experience very little recharge. See NATIONAL WATER COMMISSION, *WATER POLICIES FOR THE FUTURE* 239 (1973). It is a matter of judgment as to what is illegitimate overappropriation and what is legitimate mining of groundwater, but clearly the latter is appropriate where groundwater is "side tracked from the hydrologic cycle." Bagley, *Water Rights Law and Public Policies Relating to Ground Water "Mining" in the Southwestern States*, 4 J. LAW & ECON. 144, 147 (1961). It is then, in human time, "not a self-replenishing but an exhaustible resource similar to petroleum and other minerals." *Id.*

79. See *infra* text accompanying notes 153-55.

80. An example of a legal tool for the control of overdrafting of surface waters is the public trust doctrine. *National Audubon Soc'y v. Superior Court of Alpine County*, 33 Cal. 3d 419, 189 Cal. Rptr. 346, 658 P.2d 709, cert. denied, 464 U.S. 977 (1983). See generally Dunning, *The Public Trust Doctrine and Western Water Law: Discord or Harmony?* 30 ROCKY MTN. MIN. L. INST. 17-1 (1984).

it being upstream from the latter state, overappropriation may occur with serious impact on the more junior users in the latter state.

This problem is avoided and the likelihood of overappropriation decreased, of course, if priorities in the two states are integrated and a mechanism is found to limit total claims to the water supply generally available. The first, at least, of these two responses has been provided, at least after the fact, when claimants appear only in their private capacities.⁸¹ But when their interests are represented by their states, who claim some sovereign interest in a portion of the interstate river, different rules are used.⁸² These have the potential for an interstate allocation which gives a state insufficient water from the river to satisfy all rights it recognizes, even if these are the most senior rights to the river.⁸³ It then must either cut off the most junior claimants, pursuant to the dictates of the priority rule, or find some other solution to avoid harm to its juniors.

IV. CONVENTIONAL STATE RESPONSES TO OVERAPPROPRIATION

A. Enforcement of Priorities

The most obvious and straightforward state response to a condition of overappropriation is to enforce priorities. The plain logic of the priority principle is that in times of water shortage demand is balanced with supply by denying any water to the most junior of the appropriators. The concept is simple and well known to western water users.

Enforcement of priorities assumes, of course, that the agency or court engaged in enforcement can determine the quantum of each claimant's right as well as its priority. This means actual beneficial use, as opposed to the paper right, must be established; rights must be adjusted for any forfeiture; and in jurisdictions which recognize prescription of water rights, account must be taken of the modification of priorities through prolonged wrongful use. These are often difficult tasks, but they are frequently done with general success in the western states.⁸⁴

81. *Bean v. Morris*, 221 U.S. 485 (1911).

82. *See generally* Tarlock, *supra* note 1.

83.

Whether the apportionment of the water of an interstate stream be made by compact between the upper and lower States with the consent of Congress or by a decree of this Court, the apportionment is binding upon the citizens of each State and all water claimants, even where the State had granted the water rights before it entered into the compact.

Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92 (1938).

84. Agencies are assisted in this regard, at least in California, by "a high level of voluntary cooperation in . . . information gathering from most water rights holders." Comment, *Administrative Water Rights Inspections in California*, 12 U.C. DAVIS L. REV. 105, 106 (1979).

In the process of the enforcement of priorities, means are available within the prior appropriation system itself to deal with the disruptive consequences of denying water to established junior users. One means is to redefine what qualifies as reasonable beneficial use of water or as a reasonable means to divert and convey water to the place of beneficial use, so that senior users must either improve their operational efficiency or be partially or fully denied their water right.⁸⁵ This solution may protect juniors, but at some cost and possibly severe disruption for seniors. In its simplest form it is merely an application of the conventional notion that appropriators may not waste water, but if carried beyond situations of egregious inefficiency it amounts to a change in the fundamental norm of temporal priority.

Other means of adjustment are the "physical solution," by which juniors bear the burden of some change in the operations of seniors,⁸⁶ and the negotiation of a settlement by water users. Although such a settlement may depart from previously established priorities, it can be viewed as a reordering of priorities based on consent of the water users.

B. Augmentation of the Supply

The enforcement of priorities and denial of any water to the most junior appropriators is a disruptive act, one which water authorities will typically seek to avoid. One means of avoidance is to augment the water supply in the source, in order to ensure that except in extraordinary drought conditions there will be adequate water for all claimants. What might be termed the "supply-side management" aspect of water resources has in fact been the common solution for western water problems, as opposed to the demand-side management represented by the enforcement of priorities.

The results of this approach to water management can be seen all over the West.⁸⁷ Dams, reservoirs and aqueducts form an astounding network of facilities to ensure adequate water supplies for growing cities and for extensive acreages of irrigated agriculture. These works are a tribute to the bold imagination, engineering skill and political and legal finesse of generations of persons devoted to water resources development.

There has been, however, a dark side to the proliferation of western water projects. Many were designed and constructed with flagrant disregard of their environmental consequences, for example the destruction of fish resources.⁸⁸ Others, in being faithful to the tenet of

85. Dunning, *supra* note 11, at 448-58.

86. *Id.* at 448.

87. See generally D. WORSTER, *supra* note 7; THE CALIFORNIA WATER ATLAS, *supra* note 67; E. COOPER, *AQUEDUCT EMPIRE* 88 (1968).

88. J. BAIN, R. CAVES & J. MARGOLIS, *NORTHERN CALIFORNIA'S WATER INDUSTRY* 511

appropriation law that water may be moved to any place of need, so completely ignored the interests of inhabitants of an area of origin that they provided the basis for generations of regional conflict.⁸⁹ Still others were possible only because of enormous subsidies, which meant the direct beneficiaries paid only a small part of the cost and others in the country were called upon to bear the major financial burden.⁹⁰

The consequence of these unfortunate aspects of western water resources development, combined with the simple fact that by now most of the best dam sites have already been developed,⁹¹ is that a new climate has emerged regarding water projects.⁹² New starts for major water projects are today rare.⁹³ The massive interbasin transfer projects under active discussion twenty years ago are on the back burner,⁹⁴ if not forgotten altogether. The focus of attention is reallocation of the existing developed water supplies, and increased "water marketing" is for many a favorite means to achieve that reallocation.⁹⁵

The essence of water marketing is the transfer, usually in exchange for dollars, of water from a lower-valued use to a higher-valued use.⁹⁶ Typically this transfer is thought of as being from

(1966) ("no evidence" that the Bureau of Reclamation considered the fishery benefits lost when it constructed and operated Friant Dam to stop all releases of water downstream into the San Joaquin River).

89. See W. KAHRL, *WATER AND POWER* (1982) (export of water from the Owens Valley by the City of Los Angeles).

90. See P. LEVEEN & L. KING, *TURNING OFF THE TAP ON FEDERAL WATER SUBSIDIES* (1985).

91. Stetson, *Opportunities for Improving the Ways We Use Water* 1, in UNIV. OF COLO. SCHOOL OF LAW NATURAL RESOURCES LAW CENTER, *WESTERN WATER: EXPANDING USES/FINITE SUPPLIES* (1986).

92. Stetson, an experienced consulting civil engineer with a regional perspective on western water resources development, notes that in "today's atmosphere of high costs, protection of the environment and lowered expectations, additional water development projects will face great difficulties." *Id.* at 4. See generally R. SMITH, *TROUBLED WATERS: FINANCING WATER IN THE WEST* (1984).

93. Getches, *Competing Demands for the Colorado River*, 56 U. COLO. L. REV. 413, 450 (1985) (no new construction on federal water projects in the Colorado River Basin in almost ten years).

94. The most grandiose of these, developed in 1964 by the Ralph M. Parsons Company, was the North American Water and Power Alliance (NAWAPA), which would have taken water from the rivers of the Yukon to supplement water supplies in Canada, Mexico and the United States from the Great Lakes to California. THE CALIFORNIA WATER ATLAS, *supra* note 67, at 107. The estimated cost was \$200 billion. *Id.*

95. GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, *supra* note 40, at 72; NATIONAL WATER COMMISSION, *supra* note 78, at 270. The number of legislative studies, conferences and meetings devoted to water marketing has increased markedly in the past several years.

96. See generally T. ANDERSON, *WATER CRISIS: ENDING THE POLICY DROUGHT* (1983); Oeltjen & Fischer, *Allocation of Rights to Water: Preferences, Priorities, and the Role of the Market*, 57 NEB. L. REV. 245 (1978); C. LEE, *THE TRANSFER OF WATER RIGHTS IN CALIFORNIA* (1977) (Staff Paper No. 5, Governor's Commission to Re-

agricultural uses to municipal and industrial uses, but water marketing can also take place entirely within the agricultural sector. Water markets do not augment water supplies, but by directing water to higher-valued uses they increase overall economic efficiency. And although those who do the water selling obviously have less water available after the sale, they often can maintain their productivity by investment of the sale proceeds in better water management. A farmer, for example, might sell the rights to half his water supply but invest all or part of the proceeds in equipment and management services that will allow the remaining half of his previous water supply to sustain his previous level of production.

Although water marketing has considerable appeal, it also presents many problems.⁹⁷ Adverse impacts on third parties, institutional barriers and social constraints may explain why despite a considerable period of discussion and advocacy increased water marketing has not been widely observed in the West. Thus, with dismal prospects for water supply augmentation and with markets slow to develop, states with overappropriation situations must return to confront the unpleasantness of enforcing priorities. One way to escape this result is simply to abandon the no-sharing rule of prior appropriation and to find a way to spread the consequences of water shortage over all users of the source. Various ways to replace the no-sharing rule of prior appropriation with a sharing rule can be regarded as "equitable apportionment."

V. EQUITABLE APPORTIONMENT CASES IN CALIFORNIA: AN UNCONVENTIONAL STATE RESPONSE TO OVERAPPROPRIATION

State equitable apportionment of western water resources appears in the reported appellate decisions for the western states infrequently, and generally in conjunction with some other doctrine or principle offered as a basis for the departure from priority. The courts perhaps are uncomfortable with the idea of simply abandoning the established priority principle because of disruptive or counterproductive impact, particularly in an area of property law where "taking" claims might be raised were an established rule not to be followed.⁹⁸ But typically

view California Water Rights Law); L. HARTMAN & D. SEASTONE, *WATER TRANSFERS: ECONOMIC EFFICIENCY OF ALTERNATIVE INSTITUTIONS*(1970).

97. See generally Dunning, *Reflections on the Transfer of Water Rights*, 4 J. CONTEMP. L. 109 (1977).

98. *Robinson v. Ariyoshi*, 753 F.2d 1468, 1474 (9th Cir. 1985), *cert. granted, judgment vacated & case remanded*, 106 S. Ct. 3269 (1986) (in light of federal constitutional provisions, circuit court held substantial modification by Hawaii state court of state water law doctrine cannot divest water rights established pursuant to the earlier doctrine without payment of just compensation).

adoption of the other doctrine or invocation of the other principle is justified explicitly or implicitly as necessary to produce an equitable result, and this usually means a sharing of water shortages rather than following the no-sharing rule of prior appropriation.

A. *Pasadena v. Alhambra*

One good example of the process just described is *City of Pasadena v. City of Alhambra*,⁹⁹ a California decision on groundwater allocation. In *Pasadena*, cities, private parties and a water company pumped water from the Raymond Basin in the San Gabriel Valley. Beginning with the water year 1913-14, in most years extractions exceeded the safe yield of the basin, as that safe yield was later defined. This led to a gradual decline in the basin's water table between 1914 and 1937,¹⁰⁰ when a complaint was filed by the City of Pasadena. The city sought an injunction against continued overdraft and a declaration of the rights of the pumpers.

Pursuant to existing statutory authority and well-established practice, the trial court in *Pasadena* referred the matter to an administrative agency for an investigation and report on the physical facts. It was this report, filed in 1943, that indicated that 1913-14 was the beginning of the overdraft period.

Long before *Pasadena*, the priorities among groundwater pumpers had been established by the California Supreme Court.¹⁰¹ Pumping by overlying owners for use on their own lands has first priority, with such pumpers to share in riparian fashion the available supply. Other use is appropriative, and, to the extent there is water surplus to the needs of the overlayers, appropriators may use it in accordance with the conventional rule of priority. It was also settled that extractions should not exceed the safe yield.¹⁰²

The larger pumpers from the Raymond Basin were appropriators,¹⁰³ so in view of the existing rules it was to be expected that the trial court would simply order the most junior pumpers to cease their use of groundwater to the extent necessary to balance pumping with safe yield. This solution, however, would have placed a financial burden on the City of Pasadena,¹⁰⁴ which at that time was not yet taking

99. 33 Cal. 2d 908, 207 P.2d 17 (1949).

100. In a representative well field the water table fell anywhere from 27 to 81 feet between 1920 and 1937. *Id.* at 930, 207 P.2d at 31.

101. *Katz v. Walkinshaw*, 141 Cal. 116, 74 P. 766 (1903).

102. *City of San Bernardino v. City of Riverside*, 186 Cal. 7, 16, 198 P. 784, 788 (1921) (groundwater should not be taken "in such quantities or in such a manner as to destroy or endanger the source of supply"); *Burr v. Maclay Rancho Water Co.*, 154 Cal. 428, 438, 98 P. 260, 264 (1908).

103. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 927, 207 P.2d 17, 29 (1949).

104. *Pasadena* was the "chief producer" of water from the Raymond Basin. *Id.* at 916, 207 P.2d at 22. It should also be noted that all the major pumpers in the basin

the more expensive imported water available from the Colorado River.¹⁰⁵ In these circumstances, the trial court devised an alternate way to reduce pumping to the safe yield,¹⁰⁶ one which the Supreme Court approved. This is known as "mutual prescription," and it results in a sharing of shortage diametrically opposed to the lack of sharing found when priorities are enforced.

The premise of the mutual prescription theory was that once the period of overdraft began in 1913-14, additional pumping was wrongful and gave earlier pumpers a cause of action for injunctive relief in order to prevent long-term depletion of the water in the basin.¹⁰⁷ This cause of action was subject to a statute of limitations, so—it was reasoned—if the statute ran without the filing of an action, those wrongfully pumping would acquire prescriptive rights in the groundwater supply.¹⁰⁸

The difficult part of this theory is that ordinarily courts in prescription cases require that the party acquiring a property right act adversely to the party losing the property right and that the latter have actual or constructive notice of this adverse activity. Thus, for example, a downstream diverter making reasonable use of water would be subject to prescription when a junior upstream dries up the stream for the requisite time period before it reaches the downstream senior's point of diversion.¹⁰⁹ In *Pasadena*, however, all pumpers from the Raymond Basin had from 1913 through 1937 obtained all the groundwater they wished.¹¹⁰ How then could it be said the later pumpers acted adversely to the interests of the earlier pumpers?

The majority in *Pasadena* acknowledged that all pumpers received their full complement of water, but they argued later pumping was

except for one public utility company stipulated to the judgment. *Id.* at 916, 207 P.2d at 23.

105. *Id.* at 934, 207 P.2d at 23. Colorado River water was first brought to Southern California's coastal areas in 1941. THE CALIFORNIA WATER ATLAS, *supra* note 67, at 42. The importer was the Metropolitan Water District of Southern California (MWD), which was formed in 1928. ACWA'S 75-YEAR HISTORY 1910-1985 132 (M. Mohr ed. 1985). Although Pasadena was a charter member of MWD, *id.*, like many other water users in the area it preferred to use the less expensive groundwater as long as possible. E. COOPER, *supra* note 87, at 88. From 1941 to 1951, during which period *Pasadena* was decided, MWD delivered through its Colorado River Aqueduct less than 22% of the water available to it. *Id.* at 89. The failure of Southern California water users to take all available Colorado River water during that time, a decision which *Pasadena* arguably facilitated, contributed significantly to groundwater overdrafts which by the 1960's became very serious. *Id.* at 89-90.

106. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 922, 207 P.2d 17, 26 (1949).

107. *Id.* at 929, 207 P.2d at 30.

108. *Id.* at 932, 207 P.2d at 32.

109. Craig, *Prescriptive Water Rights in California and the Necessity for a Valid Statutory Appropriation*, 42 CALIF. L. REV. 219, 224 (1954).

110. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 931, 207 P.2d 17, 32 (1949).

adverse to earlier pumping because it triggered overdraft which was evidenced by the declining water table.¹¹¹ The overdraft itself was adverse to the long-term interest of the earlier pumpers, because it could lead ultimately to destruction of the supply. And notice was provided by the decline in water levels in the wells.¹¹²

This expansive understanding of prescription in the groundwater context brought a strong protest from the lone dissenter in *Pasadena*. He argued that to charge the earlier pumpers with knowledge of overdraft because of falling water levels in their wells was "absurd,"¹¹³ as many factors could produce a lowering water table. The duration and intensity of the seasonal rains and the level of humidity, said to impact on evaporation levels, were mentioned as important variables relevant to the level of the water table.¹¹⁴ His concerns were appropriate, and they were reflected in more stringent notice requirements for groundwater prescription announced in a later decision of the California Supreme Court.¹¹⁵

The adoption of a dubious theory of prescription in *Pasadena* did not ensure a sharing rather than a no-sharing rule in the resolution of the pumpers' dispute. Prescription can serve to reorder priorities, placing the wrong-doing acquirer ahead of others who are ousted,¹¹⁶ but in principle the reordered priorities should be enforced in the usual manner. To ensure sharing of the shortage, the *Pasadena* court had to take another step—to find that "mutual" prescription had occurred. In this the court broke new ground.

Ordinarily where prescription occurs there is a winner and a loser—a wrongdoer who has not been sued within the limitation period acquires a property right, while the previous holder of the right who failed to sue within the appropriate period loses a property right. In *Pasadena*, however, it will be recalled that all pumpers continued to draw water from the common resource,¹¹⁷ so that the earlier pumpers—analogueous to the "true owner" in a real property adverse possession case—were injured only insofar as ultimate depletion of the aquifer was threatened. This unusual twist to the prescription aspect of the case allowed the court to conceive of the continued activity by the earlier pumpers as "self help" by which they to an extent "re-

111. *Id.* at 929, 207 P.2d at 30.

112. *Id.*, 207 P.2d at 31.

113. *Id.* at 946, 207 P.2d at 40.

114. *Id.*

115. *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 283, 537 P.2d 1250, 1311, 123 Cal. Rptr. 1, 62 (1975) ("notice of adversity *in fact* caused by the actual commencement of overdraft" now required). The determination that overdraft has commenced no longer can be deduced merely from falling water levels in wells, *see infra* note 131.

116. Craig, *supra* note 109, at 224.

117. *See supra* text accompanying note 110.

tained or acquired" water rights.¹¹⁸ The phrase "mutual prescription" suggests it was acquisition rather than retention—that the earlier pumpers, having lost rights to later pumpers, to an extent recovered them through their continued pumping.

All this may seem both exceedingly conceptual and open to criticism on conceptual grounds. The absence of immediate adversity makes the prescription aspect questionable; and if one accepts the prescription argument of the majority, then it would follow that the court should have determined the precise extent of the prescriptive (or "counter-prescriptive") acquisition. Instead, as noted by the dissent, the "scattered operations" conducted by the later pumpers were simply "lumped together to constitute one prescriptive right."¹¹⁹

The result of the dubious logic of the *Pasadena* court, however, was a sharing of shortage rule which greatly benefited the City of Pasadena as a junior appropriator. All pumpers were treated as being on an equal footing, and each was cut back to about two-thirds of previous pumping in order to bring extractions in line with the safe yield.¹²⁰ A formula was developed which proved useful in a number of subsequent Southern California groundwater adjudications.¹²¹ The results in these cases fairly can be seen as an equitable alternative to application of the priority principle.

Although the *Pasadena* court's comments on the equitable nature of its solution are brief, they are very much on point. The court noted that application of the priority principle would result in "an unequal

118. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 931-32, 207 P.2d 17, 32 (1949).

119. *Id.* at 949, 207 P.2d at 42.

120. *Id.* at 923, 207 P.2d at 27. In 1955 the trial court, pursuant to its continuing jurisdiction, increased this amount. Krieger & Banks, *Ground Water Basin Management*, 50 CALIF. L. REV. 56, 61 (1962).

121. The formula, developed by the trial court and approved by the Supreme Court, permitted continued pumping of

the highest continuous production of water for beneficial use in any five (5) year period prior to the filing of the complaint by each of the parties in each of said units, as to which there has been no cessation of use by it during any subsequent continuous five (5) year period.

City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 922, 207 P.2d 17, 26 (1949). The later adjudications, most of which were settled by stipulated judgment, are discussed in A. SCHNEIDER, *supra* note 76, at 22-29. One adjudication in which the terms of a stipulated judgment based on the *Pasadena* formula were enforced on non-stipulating parties is *California Water Service Co. v. Sidebotham & Son, Inc.*, 224 Cal. App. 2d 715, 37 Cal. Rptr. 1 (Ct. App. 1964). The court there referred to an argument by a non-stipulating party as "an ingenious attempt to revive the theory of allocating water rights on the basis of priority in time which the Supreme Court expressly rejected in *City of Pasadena v. City of Alhambra* . . ." *Id.* at 728, 37 Cal. Rptr. at 8. A commentator writing during the heyday of *Pasadena* noted that one reason for adherence to its formula was "the apparent acceptance of the equities embodied therein by a vast majority of ground water pumpers." Reis, *Legal Planning for Ground Water Production*, 38 S. CAL. L. REV. 484, 488 (1965).

sharing of the burden of curtailing the overdraft" and that this would be unjustified "where all of the parties have been producing water from the underground basin for many years, and none of them have acted to protect the supply or prevent invasion of their rights until this proceeding was instituted."¹²² The court also commented that the solution adopted "will promote the best interest of the public, because a *pro tanto* reduction of the amount of water devoted to each present use would normally be less disruptive than total elimination of some of the uses."¹²³ The same, obviously, could be said of many cases where the priority principle is enforced.

Significantly, the equitable apportionment aspects of *Pasadena* have proved to be more durable than the mutual prescription doctrine itself. The doctrine, by focusing on past pumping and rewarding pumpers on the basis of their highest pumping levels, arguably provoked a "race to the pumphouse" by those with an interest in ground-water production.¹²⁴ Despite the apparent utility of the mutual prescription formula,¹²⁵ some post-*Pasadena* judicial opinions have been implicitly or explicitly critical of its rigidity.

One such decision implicitly evidencing more interest in an equitable solution than in application of the mutual prescription formula itself is *Tehachapi-Cummings*.¹²⁶ There the California Court of Appeal read *Pasadena* as limiting mutual prescription to situations where overdraft results from excessive pumping by appropriators, thus excluding those where it comes from excessive pumping by over-lyers.¹²⁷ It consequently followed earlier cases which under the rubric of "correlative" rights require a riparian-like sharing by over-lyers.

The most important of the post-*Pasadena* opinions is *City of Los Angeles v. City of San Fernando*,¹²⁸ a massive California Supreme Court decision on the allocation of groundwater resources in the San Fernando Valley. *San Fernando* greatly undermines the utility of mu-

122. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 932-33, 207 P.2d 17, 32 (1949).

123. *Id.* at 933, 207 P.2d at 32.

124. *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 267, 537 P.2d 1250, 1299, 123 Cal. Rptr. 1, 50 (1975). Efforts to halt this race legislatively, CAL. WATER CODE §§ 1005.1-1005.2 (West 1984), were in some cases apparently unsuccessful. Krieger & Banks, *supra* note 120, at 62.

125. A. SCHNEIDER, *supra* note 76, at 23. In these cases, as in *Pasadena*, Krieger & Banks, *supra* note 120, at 61, the availability of supplemental imported surface water was a crucial element in the solution.

126. *Tehachapi-Cummings County Water Dist. v. Armstrong*, 49 Cal. App. 3d 992, 122 Cal. Rptr. 918 (Ct. App. 1975).

127. "Without appropriation [of non-surplus waters] . . . there is no paramount right which can be prescribed against." *Id.* at 1001, 122 Cal. Rptr. at 924. This runs counter to the usual notion for surface waters that one riparian may prescribe against another riparian where the former takes for riparian use more than his reasonable share of the stream. D. ANDERSON, *supra* note 55, at 83.

128. 14 Cal. 3d 199, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

tual prescription by holding that there can be no prescription against municipal pumpers,¹²⁹ which in most cases effectively destroys the doctrine's even-handed impact on pumping from an overdrafted basin.¹³⁰ The opinion also refines and limits the operation of mutual prescription with regard to private pumpers.¹³¹

San Fernando's most interesting observations, however, concern the relationship between mutual prescription and equitable apportionment. Chief Justice Wright comments that although in *Pasadena* mutual prescription allowed "a fair result on the facts there presented,"¹³² allocation "mechanically" based on the mutual prescription formula "does not necessarily result in the most equitable apportionment of water according to need."¹³³ Many more factors, he says, must often be taken into account in order to achieve "a true equitable apportionment."¹³⁴ The implication is that a court should select for use those rules that produce an equitable result in the circumstances, whether they be the sharing rules of mutual prescription, the explicitly discretionary approach the federal courts use in interstate water controversies or the rules used in *San Fernando*.¹³⁵

San Fernando itself was decided in a way greatly favoring the City of Los Angeles over competing cities in the San Fernando Valley. Los Angeles was awarded most of the valley's native groundwater on the

129. *Id.* at 274, 537 P.2d at 1304-05, 123 Cal. Rptr. at 55-56. This decision was based upon a 1935 statutory provision not relevant in *Pasadena*, where all municipal pumpers stipulated to the judgment and the non-stipulating party was a public utility company not covered by the statute.

130. A. SCHNEIDER, *supra* note 76, at 31-32.

131. *Id.* at 32-34. One refinement provides extractions cannot exceed safe yield *plus* "temporary surplus." *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 280, 537 P.2d 1250, 1309, 123 Cal. Rptr. 1, 60 (1975). Temporary surplus is "the amount of water which if withdrawn would create the storage space [in the aquifer] necessary to avoid . . . waste." *Id.* "Waste" could come from outflow to the ocean, evaporation and sewer infiltration. *Id.* at 304, 537 P.2d at 1327, 123 Cal. Rptr. at 78.

132. *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 266, 537 P.2d 1250, 1298, 123 Cal. Rptr. 1, 49 (1975).

133. *Id.* at 265, 537 P.2d at 1298, 123 Cal. Rptr. at 49.

134. *Id.*

135. Interestingly, in implying the ultimate judicial goal for California courts is an equitable apportionment, Chief Justice Wright cited a federal common law interstate allocation case, *Nebraska v. Wyoming*, 325 U.S. 589 (1945). The latter states that equitable apportionment requires "the exercise of an informed judgment on a consideration of many factors," *id.* at 618, although—at least in controversies between appropriation states—priority is "the guiding principle." *Id.* In interstate equitable apportionment cases there is, of course, an element of state sovereignty not present in a state equitable apportionment case, *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984), although that element seems to work more to protect established uses against disruption than to ensure an egalitarian sharing among the competing sovereigns. *Id.*; see also *Kansas v. Colorado*, 206 U.S. 46 (1907).

basis of its long-standing senior pueblo water right,¹³⁶ and it received most of the non-native groundwater on the basis of a right to recapture the surface water it imported which ultimately reached the groundwater basin.¹³⁷ There thus was little sharing of the available supply, and, despite the implication of the court's discussion of *Pasadena*, no "equitable apportionment of water according to need."¹³⁸ The question is presented, how can this result be reconciled with the approval given the sharing approach of equitable apportionment?

San Fernando, unfortunately, does not provide a satisfactory answer to that question. The main groundwater basin in question was in overdraft from 1941-42,¹³⁹ and the impact of enforcement of Los Angeles' priorities was a disruption of established junior uses.¹⁴⁰ The situation therefore seems similar to that in *Pasadena*, where "restriction to safe yield on a strict priority basis might have deprived parties who had been using substantial quantities of ground water for many years of all further access to such water."¹⁴¹ But *San Fernando* notes that juniors in its case were engaged in substantial pumping prior to the commencement of overdraft,¹⁴² and it concludes from that that mutual prescription was "not needed" for the *Pasadena* purpose: "avoiding complete elimination of appropriative rights stemming from uses of recent years in favor of those based on earlier uses."¹⁴³ Instead, it says, by imposing mutual prescription the effect of the trial court's judgment was "to eliminate [the priorities of Los Angeles] based not on the timing of its appropriations but on its importation of Owens water and on its pueblo right."¹⁴⁴ Why the nature of the priority—

136. A pueblo water right, derived from the Mexican law, is the paramount right of a city as successor of a pueblo to use water naturally occurring within the city's limits for the reasonable needs of the city and its inhabitants. *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 217, 537 P.2d 1250, 1265, 123 Cal. Rptr. 1, 16 (1975). These needs may be within the original territory of the pueblo or within areas added by annexation. *Id.* at 252-53 n.43, 537 P.2d at 1289 n.43, 123 Cal. Rptr. at 40 n.43.

137. *Id.* at 262, 537 P.2d at 1296, 123 Cal. Rptr. at 47. The right is based upon the desire "to credit the importer with the fruits of his expenditures and endeavors in bringing into the basin water that would not otherwise be there." *Id.* at 261, 537 P.2d at 1295, 123 Cal. Rptr. at 46.

138. *Id.* at 265, 537 P.2d at 1298, 123 Cal. Rptr. at 49.

139. *Id.* at 221, 537 P.2d at 1268, 123 Cal. Rptr. at 19. This finding of the trial court, although disputed by the Court of Appeal, *City of Los Angeles v. City of San Fernando*, 105 Cal. Rptr. 77, 86 (Cal. Ct. App. 1972), was not overturned by the Supreme Court of California.

140. See *City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199, 220, 537 P.2d 1250, 1267, 123 Cal. Rptr. 1, 18 (1975).

141. *Id.* at 266, 537 P.2d at 1299, 123 Cal. Rptr. at 50 (commenting on *Pasadena*).

142. *Id.*

143. *Id.* at 267, 537 P.2d at 1299, 123 Cal. Rptr. at 50.

144. *Id.*

recapture right and pueblo right rather than earlier appropriation—is relevant if the objective is to protect long-time junior users from disruption is unexplained.

I conclude from this that the impact of *San Fernando* on *Pasadena's* equitable apportionment language is indeterminate. The *Pasadena* result was approved in *San Fernando*, but the logical implications for *San Fernando* itself were not pursued. Nothing in the special circumstances of *San Fernando*, which involve the rare pueblo right and the recapture right, would seem to preclude another court adopting *Pasadena's* equitable apportionment approach in the more usual context of priority based on early appropriation.

B. California's Delta Water Cases

Overdrafting of groundwater was the root of the problem in both *Pasadena* and *San Fernando*, but the functional equivalent of overdrafting can also occur for surface water resources. When detrimental resource impacts indicate that too much water is being or may be taken from a river or lake,¹⁴⁵ diversions of surface water may have to be limited to the safe yield. California's Sacramento-San Joaquin Delta is a good example of one location where this process has been implemented and also where a sharing rule has been imposed on diverters.

The most important agricultural area in California is the Central Valley, which is drained in the north by the Sacramento River and in the south by the San Joaquin River.¹⁴⁶ The confluence of these two rivers is located in a large, lowland delta southwest of the City of Sacramento.¹⁴⁷ From this delta water flows westerly through Suisun Bay and San Francisco Bay to join the Pacific Ocean at the Golden Gate.¹⁴⁸

Both the Sacramento and the San Joaquin Rivers and most of their tributaries have been subjected to extensive development.¹⁴⁹ Local agencies use much of the flow,¹⁵⁰ and major state and federal projects

145. See *supra* text accompanying note 79.

146. See generally THE CALIFORNIA WATER ATLAS, *supra* note 67, at 46-47.

147. The legal boundaries of the Delta are set forth in CAL. WATER CODE § 12220 (West 1971).

148. *Id.* A good recent overview of this estuary is provided in Nichols, Cloern, Luoma & Peterson, *The Modification of an Estuary*, 231 SCIENCE 567 (1986). With regard to diversity of change, San Francisco Bay today is deemed "the major estuary in the United States most modified by human activity." *Id.*

149. See generally D. PISANI, *supra* note 39.

150. Some of these are municipalities, but most are water districts of one kind or another. In California, there are said to be "more than 3,700 public and private agencies with administrative authority over some aspect of water supply, delivery, use, and treatment." THE CALIFORNIA WATER ATLAS, *supra* note 67, at 63. Brief histories of more than three hundred local agencies with a major water supply function can be found in ACWA'S 75-YEAR HISTORY, *supra* note 105.

use a great deal more.¹⁵¹ Water is diverted not only for use throughout the Central Valley, but also for use in the San Francisco Bay Area and in Southern California.¹⁵²

One result of the many water projects is an enormous reduction in the amount of fresh water which reaches the Delta and the estuary downstream.¹⁵³ Reduced fresh water outflow through the Delta permits increased salt water intrusion,¹⁵⁴ which threatens water users in the Delta and those who export from the Delta.¹⁵⁵ Suggestions for a physical barrier to control sea water intrusion have been rejected.¹⁵⁶ Instead, a policy of salinity control through maintenance of a fresh water hydraulic barrier has been adopted.¹⁵⁷

A twofold mechanism is used to establish the hydraulic barrier. First, ambient salinity standards are set through a water quality control planning process managed by California's State Water Resources Control Board (SWRCB).¹⁵⁸ Second, implementation of these ambient standards is achieved by the imposition of terms and conditions on the appropriative water rights held by some of those whose diversions impact on Delta outflow.¹⁵⁹ To date such terms and conditions have

151. THE CALIFORNIA WATER ATLAS, *supra* note 67, at 47-56. Central Valley facilities constitute "the world's largest man-made water system." Nichols, Cloern, Luoma & Peterson, *supra* note 148, at 569.

152. THE CALIFORNIA WATER ATLAS, *supra* note 67, at 53.

153. Currently the average flow into San Francisco Bay is estimated at less than 40% of average historic (1850) levels. Nichols, Cloern, Luoma & Peterson, *supra* note 148, at 569. It is anticipated by the year 2000 the figure will be 30%. *Id.*

154. United States v. State Water Resources Control Bd., 182 Cal. App. 3d 82, 108, 227 Cal. Rptr. 161, 172 (Ct. App. 1986).

155. *Id.* In addition, biological communities, particularly migratory fish, are damaged. As the "null zone"—the point where downstream-flowing river currents are balanced by upstream-flowing bottom currents carrying salt water—moves upstream, the pelagic food web is suppressed and biological productivity decreases. Findings from recent scientific studies "illustrate the sensitivity of northern San Francisco Bay biological communities to persistent low river flow and suggest that further reductions in freshwater inflow . . . could permanently alter the pelagic food web and fisheries yield there." Nichols, Cloern, Luoma & Peterson, *supra* note 148, at 569.

156. E. COOPER, *supra* note 87, at 266-67.

157. United States v. State Water Resources Control Bd., 182 Cal. App. 3d 82, 108, 227 Cal. Rptr. 161, 172 (Ct. App. 1986).

158. This process was begun in the mid-1960s, *id.* at 110, 227 Cal. Rptr. at 174, and it proceeds pursuant to federal as well as state mandates. *Id.* at 108-09, 227 Cal. Rptr. at 173.

159. In 1978 the SWRCB engaged in a single set of proceedings, which led to promulgation of a Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh and of Water Right Decision 1485 (D 1485). *In re* Permit 12720 (Application 5625) and Other Permits of United States Bureau of Reclamation for the Federal Central Valley Project and of California Department of Water Resources for the State Water Project, California State Water Resources Control Board, Decision 1485 (August 1978). In litigation challenging both the plan and the decision, the California Court of Appeal recently observed that it was "un-

only been imposed on the federal government's Central Valley Project (CVP) and on California's State Water Project (SWP).¹⁶⁰

The CVP consists of many different units, but most of them predate the SWP, as do their applications for appropriative water rights.¹⁶¹ Thus one might expect that the burden of meeting delta salinity standards would fall largely upon the SWP. Put another way, one might anticipate that as the generally more junior appropriator, the SWP more than the CVP would find the amount of unappropriated water available for it limited by the need for fresh water for salinity control.

In fact, however, the policy of the SWRCB has been to impose the burden of salinity control on the CVP and the SWP without regard to priority of appropriation,¹⁶² and today there exists a possibility that this policy will be extended to other diverters who impact on salinity levels in the Delta.¹⁶³ The way in which this is done can usefully be regarded as a second example of state equitable apportionment of

wise" for the SWRCB to combine the water quality and water rights functions in a single proceeding, *id.* at 119, 227 Cal. Rptr. at 180, for in so doing it "compromised its important water quality role by defining its scope too narrowly in terms of enforceable water rights." *Id.* The court emphasized that in order adequately to discharge its water quality planning obligation to protect beneficial uses, the SWRCB must consider, in addition to conditioning water rights, "other actions . . . such as remedial actions to curtail excess diversions." *Id.* at 120, 227 Cal. Rptr. at 181. It also stated that in the exercise of its reserved jurisdiction to modify the terms and conditions of permits, the SWRCB could require appropriators to provide a reasonable level of protection for water quality, even if that means enhancement of water quality beyond what would have existed had there been no appropriation. *Id.* at 142, 227 Cal. Rptr. at 195. Protection is provided either through ceasing diversion or releasing stored water, since for the control of salinity intrusion the otherwise-discredited notion that "the solution to pollution is dilution" still governs.

160. Pursuant to the public trust doctrine the SWRCB could impose similar terms and conditions on other permittees whose diversions are harmful to nonconsumptive, instream uses of navigable waters, *id.* at 149-50, 227 Cal. Rptr. at 201-02, and it is likely the agency or a court could do so for riparians and for early appropriators of whom no permit is required. Such authority also exists on the basis of reasonableness provisions where the harm is to consumptive uses of water, *id.* at 129-30, 227 Cal. Rptr. at 187-88, *see infra* text accompanying note 180, although it may be limited to redressing harm caused by the diversion itself and thus may not allow enhancement. *Id.*

161. *Id.* at 131 n.25, 227 Cal. Rptr. at 188 n.25.

162. *Id.* at 131, 227 Cal. Rptr. at 188.

163. The provisions of both the water quality control plan and D 1485 will be reconsidered in a hearing the SWRCB has scheduled to begin in mid-1987. In addition to possibly exercising its authority with regard to diverters other than the CVP and the SWP, *see supra* note 160, the SWRCB may increase the scope of protection by setting salinity standards for San Francisco Bay. Currently various studies are underway to determine the impacts of decreased fresh water inflow into San Francisco Bay. 1984 ANNUAL REPORT OF THE INTERAGENCY ECOLOGICAL STUDIES PROGRAM FOR THE SACRAMENTO - SAN JOAQUIN ESTUARY 93-109 (R. Brown ed. 1986).

water resources. As in *Pasadena*, the consequences of a shortage of water are shared by the major users, instead of being allocated in accordance with the priority principle.

Both the CVP and SWP hold appropriative rights on the basis of state permits. These are required, at least against the state, for any recently initiated nonriparian use of surface water in California.¹⁶⁴ Permittees take with a priority date fixed by the moment the permit application is filed, unless the SWRCB provides otherwise.

The mechanism by which the SWRCB undoes the usual rule on priority is simple: It, as the creator of the appropriative right, defines it in a way which eliminates priority. In the best known early example of this, the SWRCB's predecessor conditioned a permit to appropriate water for power purposes so that it would not "interfere with future appropriations of said water for agricultural or municipal purposes."¹⁶⁵ The agency thus provided itself with the power to grant later applications to appropriate for the designated purposes and to allow the applicants to have a better priority than the power permittee. First-in-time, first-in-right was effectively replaced by a system of administrative discretion,¹⁶⁶ which today is known as "reserved jurisdiction."¹⁶⁷

If the SWRCB can condition permits so as to reverse the usual priorities, it can as easily do so to eliminate priority of any sort and put claimants on an equal footing. This is what it did with regard to appro-

164. *People v. Shirokow*, 26 Cal. 3d 301, 308-09, 605 P.2d 859, 865, 162 Cal. Rptr. 30,35 (1980). Possibly such a use can be maintained against private parties on the basis of prescription. *Id.* at 312 n.15, 605 P.2d 859, 867 n.15, 162 Cal. Rptr. at 38 n.15.

165. *East Bay Mun. Util. Dist. v. Department of Pub. Works*, 1 Cal. 2d 476, 477, 35 P.2d 1027, 1027 (1934).

166. In this case the agency acted pursuant to explicit statutory provisions that prefer some uses over others. CAL. WATER CODE §§ 106, 1254 (West 1971); see generally Trelease, *Preference to the Use of Water*, 27 ROCKY MTN. MIN. L. INST. 133 (1955). Such provisions, if honored more extensively throughout the West, would complicate greatly the administration of water rights. In California the SWRCB is given great discretion in its award and conditioning of water rights by language directing it to act in "the public interest," CAL. WATER CODE §§ 1253, 1255, 1257 (West 1971), and it has been said this language is "the primary statutory standard." *Johnson Rancho County Water Dist. v. State Water Rights Bd.*, 235 Cal. App. 2d 863, 874, 45 Cal. Rptr. 589, 596 (Ct. App. 1965); see also *United States v. State Water Resources Control Bd.*, 182 Cal. App. 3d 82, 103, 227 Cal. Rptr. 161, 169 (Ct. App. 1986) (noting as well in exercising its permit power the SWRCB's "first concern is recognition and protection of prior rights to beneficial use of the water . . ."); *Bank of America v. State Water Resources Control Bd.*, 42 Cal. App. 3d 198, 212, 116 Cal. Rptr. 770, 779 (Ct. App. 1974). See generally Robie, *The Public Interest in Water Rights Administration*, 23 ROCKY MTN. MIN. L. INST. 917 (1977).

167. Legislative authority for the reservation of jurisdiction was explicitly provided in 1959, CAL. WATER CODE § 1394 (West 1971), although the practice predates that statute as noted, for example, in *United States v. State Water Resources Control Bd.*, 182 Cal. App. 3d 82, 128 n.22, 227 Cal. Rptr. 161, 186 n.22 (Ct. App. 1986).

priations of the CVP and the SWP,¹⁶⁸ insofar as they impacted on the delta. And in recent litigation in which the validity of this practice was questioned, the California Court of Appeal approved the SWRCB's action.¹⁶⁹

In one respect, the decision on the delta water cases is quite different from *Pasadena*.¹⁷⁰ In the latter case groundwater pumpers initiated uses pursuant to rules of law which gave them a preferred position, but they found their priority was nullified by the court's desire to impose an equitable solution through adoption of the mutual prescription doctrine.¹⁷¹ In the delta water cases, user expectations were not thwarted in the same way, because the appropriators' rights were defined from the beginning in a way that avoided priority. Nor were there established junior users analogous to the City of Pasadena seeking to escape from the consequences of the priority principle. In both situations, however, the important point is that the no-sharing rule characteristic of prior appropriation was replaced by a sharing rule which reflects a form of state equitable apportionment of water resources.

C. The Reasonableness Cases

Nearly eighty years ago the great water law scholar Samuel Wiel identified as a minority line of authority in western water law what he called "the principle of unreasonable priority."¹⁷² He suggested that this principle, likely to grow in importance over time,¹⁷³ was "shaping the law of appropriation into a discretionary system, with power in the Chancellor to apply his ideas of fairness whenever priorities would work injustice because of complication of the history of claims, or because of selfish results of enforcing them."¹⁷⁴ He thought this discretion reflected "the community idea" that required "an equitable co-relation of [water] users for the common good."¹⁷⁵

Wiel acknowledged that often the reasonableness cases merely put

168. Even though jurisdiction was not explicitly reserved for all of the CVP's many units, "[a]s long as the Board had reserved jurisdiction . . . in at least one of the [CVP] permits, it retained the power and jurisdiction to 'coordinate' the permits and impose similar conditions upon all." *Id.* at 129, 227 Cal. Rptr. at 187.

169. *Id.* at 131-33, 227 Cal. Rptr. at 188-90.

170. *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 207 P.2d 17 (1949).

171. See *supra* text accompanying notes 99-123.

172. Wiel, "Priority" in *Western Water Law*, 18 YALE L.J. 189, 198 (1909).

173. *Id.* ("likely to be a growing doctrine as the irrigated regions become more closely settled").

174. *Id.*

175. *Id.* at 194. These observations may also be found at 1 S. WIEL, *WATER RIGHTS IN THE WESTERN STATES* §§ 310-315 (3d ed. 1911). "Equitable co-relation" of water users obviously evokes the sharing element of riparianism, and it should be noted Wiel has been portrayed as generally supportive of riparianism against prior appropriation. Davis, *supra* note 12, at 35.

limits on the waste or misuse of water, and they did not put aside the priority principle itself.¹⁷⁶ But he cited other cases in which the court "ignored priorities and proceeded simply to an equitable apportionment among all."¹⁷⁷ He noted that this was done "in order to reach justice among large communities."¹⁷⁸

Today the notion that appropriators as well as riparians are limited to reasonable beneficial use of water is well entrenched in western water law,¹⁷⁹ and in fact in California the idea has been given constitutional expression.¹⁸⁰ This evolution in prior appropriation is important, particularly as we search today for greater efficiency in our water law, but generally it is a modification, not an abandonment, of the priority principle. The priorities for those with egregiously wasteful uses are unprotected, but those who pass the minimal efficiency threshold imposed by courts find that priority still applies.¹⁸¹

Occasionally, however, a reasonableness case is reported which is reminiscent of the decisions which interested Wiel. One example occurred eleven years ago when the California Court of Appeal sorted out water rights among vineyardists in the famed Napa Valley in *People ex rel. State Water Resources Control Board v. Forni*.¹⁸²

Frost protection is a serious problem for Napa Valley grape growers. For many years they used orchard heaters to warm the air, but in the late 1960s and early 1970s many growers switched to the use of water.¹⁸³ Vines that are sprayed with a fine mist can tolerate lower ambient temperatures than those that are not,¹⁸⁴ so many growers sought access to water for frost protection.

Difficulties arose because the common source of water for frost protection purposes was the Napa River, which consists mainly of runoff from rain. Normally rains come with warmer weather, not the cold snaps, so the river typically is low when water is most needed for frost protection. High instantaneous demand at two o'clock a.m. on a cold spring morning in the Napa Valley might lead to a virtually dry river bed.

When some of the newer vineyardists applied to the SWRCB for appropriations for frost protection, the board devised a plan to allow extensive use of Napa River water for frost protection without drying

176. Wiel, *supra* note 172, at 193-94.

177. *Id.* at 196.

178. *Id.*

179. Dunning, *supra* note 11, at 448-58.

180. CAL. CONST. art. X, § 2 (1928, amended 1974; formerly at art. XIV, § 3).

181. Dunning, *supra* note 11, at 448-58.

182. 54 Cal. App. 3d 743, 126 Cal. Rptr. 851 (Cal. App. 1976).

183. A WINKLER, J. COOK, W. KIEWER & L. LIDER, GENERAL VITICULTURE 406, 492 (1974).

184. DIVISION OF AGRIC. SCI., UNIV. OF CALIF., FROST PROTECTION FOR NORTH COAST VINEYARDS 3 (1975) (Leaflet 2743).

up the river. The key was the construction of storage,¹⁸⁵ so in a cold snap reservoirs would be drawn down and the river preserved for reservoir replenishment later on.

In addition to imposing this plan on appropriators through terms and conditions,¹⁸⁶ the SWRCB took legal action to impose it on Napa Valley riparians. The board's legal vehicle was the constitutional reasonableness requirement,¹⁸⁷ which extends to methods of diversion as well as to uses of water.

The Napa Valley riparians resisted on the ground their rights were paramount to those of the appropriators, their method of use was reasonable and the board had no authority to prevent them from engaging in direct diversion for frost protection or to compel them to build storage.¹⁸⁸ But after the trial court granted judgment on the pleadings for the riparians, the court of appeal reversed. It held the board's complaint stated a cause of action and the case should proceed to trial on the factual question of the reasonableness under the circumstances of the riparians' use of water by direct diversion.¹⁸⁹

The *Forni* decision might be viewed as simply one in a series of reasonableness cases, in which, if the claimant has an unreasonable use or method of use, his priority or method of use is unprotected but

185. The regulation applicable to SWRCB permittees then prohibited the grant of permits for the appropriation of Napa River water after March 15 for frost protection except to replenish winter storage and where a water distribution program had been established. CAL. ADMIN. CODE tit. 23, § 659 (1985) as reprinted in STATE WATER RESOURCES CONTROL BD., REPORT ON NAPA VALLEY TRIAL DISTRIBUTION PROGRAM 1 (1986). In 1972, however, the SWRCB adopted a resolution whereby participation in the distribution program alone would be accepted as compliance. *Id.* (reflected in 1979 amendment; CAL. ADMIN. CODE tit. 23 § 659 (1985)). Thus, from 1972 until the present there has been no ban on nonreplenishment diversion, since enough storage has been built on a voluntary basis. STATE WATER RESOURCES CONTROL BD., *supra*, at B-2 (table shows those with substantial acreage have sufficient reservoir capacity). During these years, periods of low streamflow and sustained frost have not occurred, *id.* at 4, and most Napa River frost protection diversions have been for storage replenishment. *See, e.g., id.* at 5.

186. CAL. ADMIN. CODE tit. 23, § 659, discussed *supra* note 185.

187. CAL. CONST. art. X, § 2 (1928, amended 1974; formerly at art. XIV, § 3).

188. *People ex rel. State Water Resources Control Bd. v. Forni*, 54 Cal. App. 3d 743, 751, 126 Cal. Rptr. 851, 856 (1976).

189. *Id.* at 754, 126 Cal. Rptr. at 858. Later in 1976 the suit was settled by a stipulated judgment which requires the defendants to participate in a trial distribution program. STATE WATER RESOURCES CONTROL BD., *supra* note 185, at 2. This judgment requires among other things that the defendants comply with the orders of a SWRCB-appointed watermaster, who allots the available water and controls the amount, rate and times of pumping by the defendants; install meters to measure both their instantaneous pumping rate and the cumulative volume of water pumped; allow the watermaster reasonable access to their property for inspection purposes; and reimburse the SWRCB for their proportional share of the actual expense of the watermaster service. *People ex rel. State Water Resources Control Bd. v. Forni*, No. 31785 (Cal. Super. Ct., Napa County, Dec. 29, 1976).

the priority principle itself is respected. Yet the SWRCB claimed and the court accepted that what was unreasonable about direct diversion was not inefficiency in the sense of use of significant quantities of water bringing no or marginal benefits.¹⁹⁰ Rather, the unreasonableness came from the fact that direct diversion during the critical periods would result in "great temporary scarcity of water."¹⁹¹

The interesting aspect of this observation is that any use of water by one with a better priority can produce a scarcity for others. Even in the impossible situation of 100% irrigation efficiency—all the water diverted taken up by the crop for consumptive use—use by one could create scarcity for another. In *Forni* apparently the construction of storage together with a distribution program managed by a watermaster relieved the pressure, but what if no such solution had been at hand? Should scarcity then have been dealt with by abandoning priority and engaging in a sharing of the limited resource? *Forni* did not so provide,¹⁹² but it seems a plausible next step in seeking a community solution to a community problem.

Confirmation that, at least in California, the reasonableness limitation on water rights sometimes permits an agency or court to substitute sharing for no-sharing is suggested by language in the recent Court of Appeal decision in the delta water rights litigation discussed above.¹⁹³ In its analysis of the authority of the SWRCB to modify appropriators' permits in order to enforce water quality control standards, the court stated:

Obviously, some accommodation must be reached concerning the major public interests at stake: the quality of valuable water resources and transport of adequate supplies for needs southward. The decision is essentially a policy judgment requiring a balancing of the competing public interests, one the Board is uniquely qualified to make in view of its special knowledge and expertise and its combined statewide responsibility to allocate the rights to, and to control the quality of, state water resources.¹⁹⁴

That language served as the foundation for the judicial determination that the SWRCB properly imposed joint responsibility on the

190. By way of contrast, in California's leading reasonableness case, the court stated that to use stream water to carry "mere sand and gravel . . . subserves no public policy." *Joslin v. Marin Mun. Water Dist.*, 67 Cal. 2d 132, 141-42, 429 P.2d 889, 895, 60 Cal. Rptr. 377, 383 (1967) (emphasis in original).

191. *People ex rel. State Water Resources Control Bd. v. Forni*, 54 Cal. App. 3d 743, 750, 126 Cal. Rptr. 851, 855 (Ct. App. 1976).

192. Nor does the stipulated judgment, which includes the following: "Appropriators having nonriparian vineyards will be allowed to pump for this land only when streamflow is in excess of riparian direct diverters' and riparian storage replenishment diverters' requirements including replenishment of reservoirs serving riparian lands." *People ex rel. State Water Resources Control Bd. v. Forni*, No. 31785 (Cal. Super. Ct., Napa County, Dec. 29, 1976).

193. See *supra* text accompanying notes 169-71.

194. *United States v. State Water Resources Control Bd.*, 182 Cal. App. 3d 82, 131, 227 Cal. Rptr. 161, 188 (Ct. App. 1986).

CVP and the SWP to ensure appropriate salinity control in the Sacramento-San Joaquin Delta and in Suisun Marsh.¹⁹⁵ In that situation, the SWRCB acted pursuant to jurisdiction reserved by the permits' terms to allow coordination of project activities.¹⁹⁶

Even where jurisdiction has not been reserved, however, the SWRCB and the courts have continuing authority pursuant to constitutional and statutory provisions to make judgments on reasonableness.¹⁹⁷ Sometimes these judgments deprive a type of use or method of use of water of any protection,¹⁹⁸ a result which is arguably consistent with the priority principle. But in other situations it seems the "accommodation" to which the Court of Appeal made reference in the delta water cases decision could include protection of competitors on some egalitarian basis in order to "strike the proper balance."¹⁹⁹ Or, in Wiel's words, to provide "justice among large communities" by means of equitable apportionment.²⁰⁰

VI. EQUITY IN FEDERAL CASES

Readers will doubtless have noticed that my examples of what I have called "state equitable apportionment" come from California. Furthermore, they all could be explained entirely in more conventional terms, as examples of prescription or conditional rights or limitations on waste. To the extent the less conventional explanation in terms of equity is persuasive, one could think that the story is simply one of California water law craziness—deviant behavior of merely academic interest in the rest of the West. Adherents of an uncompromising devotion to prior appropriation in other western states could take

195. *Id.* at 132, 227 Cal. Rptr. at 189.

196. *Id.* at 127-29, 227 Cal. Rptr. at 185-87.

197. CAL. CONST. art. X, § 2 (1928, amended 1974; formerly at art. XIV, § 3); CAL. WATER CODE §§ 100, 275 (West 1971); CAL. ADMIN. CODE tit. 23, § 761(a) (1985); *United States v. State Water Resources Control Bd.*, 182 Cal. App. 3d 82, 129, 227 Cal. Rptr. 161, 187-88 (Ct. App. 1986). But the courts are responsible for "the ultimate adjudication of reasonableness." *People ex rel. State Water Resources Control Bd. v. Forni*, 54 Cal. App. 3d 743, 752, 126 Cal. Rptr. 851, 857 (Ct. App. 1976).

198. *In re Alleged Waste, Unreasonable Use, Method of Use or Method of Diversion of Water by Mission Viejo Company*, California State Water Resources Control Board, Decision 1463 (March 1977) (no protection for filling of an artificial lake during a period of severe drought; but filling with degraded groundwater subsequently approved in a modification of the decision in a connected case by the same name. California State Water Resources Control Board, Decision 1469 (June 1977)); *Joslin v. Marin Mun. Water Dist.*, 67 Cal. 2d 132, 141-42, 429 P.2d 889, 895, 60 Cal. Rptr. 377, 383 (1967) (no protection for use of water to carry sand and gravel).

199. *United States v. State Water Resources Control Bd.*, 182 Cal. App. 3d 82, 130, 227 Cal. Rptr. 161, 188 (Ct. App. 1986).

200. Wiel, *supra* note 172, at 196.

comfort in recalling California's "softness" on priority in continuing to give a significant place to the riparian water right.

In evaluating the California cases I have discussed, it may be helpful to consider also some possible parallels in water law decisions from the United States Supreme Court. One is the celebrated decision in *Arizona v. California*,²⁰¹ which involved interstate allocation of the lower Colorado River. Until that decision, there were only two accepted means for such an allocation: an agreement among the riparian states manifested by an interstate compact approved by the Congress and an equitable apportionment by the United States Supreme Court.²⁰²

In *Arizona v. California*,²⁰³ the Court put aside the existing doctrine on the settlement of interstate water controversies and announced that a third means of dividing an interstate river is apportionment by Congress.²⁰⁴ Furthermore, in a most doubtful exercise in statutory construction,²⁰⁵ the Court decided that Congress had in fact established in the Boulder Canyon Project Act a mechanism for the allocation of the lower Colorado River between Arizona, California and Nevada.²⁰⁶

Arizona v. California,²⁰⁷ like *City of Pasadena v. City of Alhambra*,²⁰⁸ can be and normally is understood simply as doctrinal evolution. On the other hand, if the result of judicial action is to avoid the harshness which results from application of the priority principle, one can properly ask if the governing principle is the new bit of doctrine or possibly an unstated notion that equity in some cases is a better guide than priority. There is no compact for the lower Colorado, so if the conventional wisdom on interstate water controversies had been followed the Court would have engaged in an equitable apportionment, but with priority still the "guiding principle."²⁰⁹ This would likely have greatly favored California over Arizona,²¹⁰ with little interstate

201. *Arizona v. California*, 373 U.S. 546 (1963).

202. As noted earlier by one of the West's leading water lawyers, "it is doubtful if Congress has any authority to establish a principle for the settlement of an interstate stream controversy." Bannister, *Interstate Rights in Interstate Streams in the Arid West*, 36 HARV. L. REV. 960, 963 (1923).

203. 373 U.S. 546 (1963).

204. The constitutional basis for this congressional authority was unexplained by the Court but is discussed in Trelease, *Arizona v. California: Allocation of Water Resources to People, States, and Nation*, 1963 SUP. CT. REV. 158, 176-83.

205. Clyde, *The Colorado River Decision - 1963*, 8 UTAH L. REV. 299, 308-10 (1964).

206. *Arizona v. California*, 373 U.S. 546, 575-90 (1963). The theory was Congress by the act authorized the Secretary of the Interior by contract to apportion the river in accordance with certain congressional guidelines. *Id.*

207. *Id.*

208. 33 Cal. 2d 908, 207 P.2d 17 (1949).

209. *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945).

210. One difficulty for California, regardless of congressional apportionment, was the

sharing of the consequences of an inadequate supply in the river.

By way of contrast, the Court's decision has allowed development of a major Colorado River project for the benefit of Central Arizona,²¹¹ although that region remains very short of water. At the same time, it has required California to plan for some cutbacks in its Colorado River diversions,²¹² and in particular it has required the urban areas of Southern California to look elsewhere for additional water supplies.²¹³ It is perhaps relevant that in 1963, when the Court decided the case, Southern California's prospects for water from sources other than the Colorado appeared much brighter than central Arizona's.²¹⁴

Some might say, of course, that decisions such as *City of Pasadena v. City of Alhambra*²¹⁵ and *Arizona v. California*²¹⁶ are "one-of-a-kind,"²¹⁷ and consequently they should not be taken that seriously when general theories on water allocation are advanced. Perhaps so, but there comes a point when enough "one-of-a-kind" cases are discovered to suggest that Wiel was right:²¹⁸ if priority is the major theme in western water law, equity is increasingly the minor theme and deserves to be recognized as such.

fact that pursuant to a requirement of the Boulder Canyon Project Act of 1928, § 4, 43 U.S.C. § 617c(a) (1986), it had limited its claim to consumptive use of water of and from the Colorado River to 4.4 million acre feet of the water apportioned to the lower basin by the Colorado River Compact, plus up to one-half of any surplus unapportioned by that compact. 1929 Cal. Stat. ch. 15 at 37. California sought to minimize the impact of this limitation by arguing that in the project act and in its own legislation "water of and from the Colorado River" included both mainstream and tributary water. *Arizona v. California*, 373 U.S. 546, 567 (1963). Inclusion of tributary water, rejected by the Court in the context of congressional apportionment, *id.*, would have resulted in much more surplus water in the mainstream to be divided equally between California and Arizona. Wilmer, *Arizona v. California, A Statutory Construction Case*, 6 ARIZ. L. REV. 40, 53 (1964).

211. The Central Arizona Project, now nearing completion, will serve the Phoenix and Tucson areas. Getches, *supra* note 93, at 449.

212. THE CALIFORNIA WATER ATLAS, *supra* note 67, at 45.

213. The major new source has been Northern California. See *supra* text accompanying note 152.

214. "Something in the human viscera, if not in the human intelligence, refuses to accept a solution which calls for returning to desert [in Arizona] that which men have reclaimed from the desert. California, moreover, had an alternative supply of water within California." Corker, *Save the Columbia River for Posterity or What Has Posterity Done for You Lately?*, 41 WASH. L. REV. 838, 841 (1966) (author an attorney for California in the Colorado River litigation). The Special Master in the case had sustained California's objections to Arizona's evidence on the equities of the situation. *Id.*

215. 33 Cal. 2d 908, 207 P.2d 17 (1949).

216. 373 U.S. 546 (1963).

217. See J. SAX & R. ABRAMS, *supra* note 13, at 830 (asks if *Pasadena* is a "one-of-a-kind decision" and if the doctrine of mutual prescription is "an *ex post facto* rationale manufactured to support a palatable resolution of the particular case").

218. See *supra* text accompanying notes 172-78.

In the United States Supreme Court water law jurisprudence, another major decision which functions as a sort of equitable apportionment is *United States v. New Mexico*,²¹⁹ the Court's most recent major pronouncement on the troublesome subject of the federal reserved right.²²⁰ This decision broke with the general expansionist tendency in the reserved right decisions from 1908 to 1976,²²¹ and held that federal reserved rights for the use of water on a national forest exist only for the primary uses of that forest,²²² at least insofar as those rights are created by the National Forest Organic Act.²²³ Thus, for timber production and watershed protection, water is available to the national forests pursuant to their organic legislation; but for maintenance of fish and wildlife habitat, stock watering and other purposes resort must be had to state law.²²⁴

*United States v. New Mexico*²²⁵ by its terms is entirely consistent with the priority principle and makes no explicit reference to equity. Federal law reserved rights have a particular priority, in this case 1899 when the Gila National Forest was established in New Mexico.²²⁶ The "primary use" principle defines the scope of the federal reserved right. Any use not within the scope of the federal right must be provided for pursuant to state law, which—if it allows a right for such a use at all²²⁷—will provide its own priority date. "First-in-time, first-in-right" is intact, and there is no obvious element of equitable apportionment.

The ease with which *United States v. New Mexico*²²⁸ can be assimilated to the conventional priority system should not cause one to ignore certain other elements in the decision. The Court's opinion shows great sensitivity to the disruption federal reserved rights could cause for those who rely on junior state law rights²²⁹—rights often-times created when there was no hint the federal reserved right extended to more than Indian reservations.²³⁰ This is the problem of the

219. 438 U.S. 696 (1978).

220. See *supra* text accompanying notes 58-65.

221. See *supra* text accompanying notes 59-60.

222. *United States v. New Mexico*, 438 U.S. 696, 702 (1978) (water necessary to fulfill "the very purpose" of a federal reservation is reserved, but not water "only valuable for a secondary use.")

223. See *supra* note 59 (reserved rights in designated wilderness areas).

224. *United States v. New Mexico*, 438 U.S. 696, 707-18 (1978).

225. *Id.*

226. *Id.* at 698.

227. Some states do not permit appropriative water rights for uses as to which there is no physical control of the water by the appropriator. *Fullerton v. State Water Resources Control Bd.*, 90 Cal. App. 3d 590, 600-02, 153 Cal. Rptr. 518, 525-26 (Ct. App. 1979); *California Trout, Inc. v. State Water Resources Control Bd.*, 90 Cal. App. 3d 816, 153 Cal. Rptr. 672 (1979).

228. 438 U.S. 696 (1978).

229. *Id.* at 699.

230. "At no time prior to 1955 did I ever hear a suggestion that the reserved rights

dormant right, a situation in which, when a river is fully appropriated, "federal reserved water rights will frequently require a gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators."²³¹ A way to minimize the need for this reduction and in effect to achieve some rough equity in apportioning the benefits of the river between the federal agency and established state law appropriators is to develop a doctrine of primary uses. In a broad way the result is a sharing of shortage analogous to that in *City of Pasadena v. City of Alhambra*,²³² but unlike the *Pasadena* court, the Court in the reserved right case includes in its opinion no discussion of the benefits of abandoning priority for equity.

Western water rights specialists from outside California might still wonder, conceding that perhaps *Arizona v. California* and *United States v. New Mexico* do bear some functional similarity to *City of Pasadena v. City of Alhambra* and to the other California equitable apportionment cases, what advantages departures from priority might offer their states. If the root problem which leads courts to abandon priority for equity is overappropriation in respect to actual uses in normal water years, it might seem a better response would be to confront the overappropriation rather than to abandon priority. As noted above, construction of projects is one means of confrontation. Colorado has taken that process a step further with its "plan for augmentation," which can provide a mix of projects, exchanges, physical solutions and other options.²³³ In what situation, one might ask, would a state as devoted to the priority principle as Colorado be tempted to abandon it?

One possibility exists with regard to Indian reserved water rights. Unlike most of the federal law rights for non-Indian reservations, these may involve large amounts of water²³⁴—quantities which, if actually put to beneficial use over the next several generations, could damage substantial economies based on junior water rights. New projects are unlikely to save those economies, and plans for augmentation may be of limited benefit. Some sort of equitable apportionment with sharing of available supplies between the established juniors and seniors and the Indians would, however, help the established users. And to the extent such allocation facilitates the settlement of long-standing Indian water claims, it might help the latter get the political

doctrine was anything but a special quirk of Indian water law." Trelease, *supra* note 64, at 475.

231. *United States v. New Mexico*, 438 U.S. 696, 705 (1978).

232. 33 Cal. 2d 908, 207 P.2d 17 (1949).

233. COLO. REV. STAT. § 37-92-302(5) (1973); see generally Dunning, *supra* note 11, at 466-67 and 475-77.

234. Shupe, *supra* note 64, at 566 (tribes hold "vast tracts of potentially irrigable lands . . . and the associated water rights [are] correspondingly enormous").

approval needed to obtain projects for the use of their water.²³⁵

Western states with a tradition of unbroken devotion to priority in the non-Indian context may find it difficult to justify a sudden concern for equity only in those cases where Indian water rights are involved. To avoid charges of discrimination against the Indians, they may need to demonstrate that in non-Indian as well as Indian cases, they are ready in appropriate situations to temper the harshness of priority with principles designed to provide fairness overall—the “justice among large communities” for which Wiel called.²³⁶ One way to do this is to incorporate in their domestic system some principle of equitable apportionment of water resources.

VII. CONCLUSION

Water in the West is the subject of a unique legal regime. Although the resource is commonly said to be owned by the public or the state,²³⁷ it is subject to extensive private use rights. By and large these private rights are founded on priority of appropriation for reasonable beneficial use. This priority principle remains today the dominant notion in the allocation of water resources to those who make use of our rivers and lakes, even though where they are water wholesalers or retailers they typically treat their customers on a more egalitarian basis.²³⁸

Doubtless it is true that the priority principle itself reflects a judgment about fairness or equity.²³⁹ Difficulties arise, however, when in various circumstances juniors with important established uses must be wholly denied water in order fully to honor earlier appropriations. This creates stress for the prior appropriation system, and it sometimes leads to deviation from the priority principle itself. These departures from priority can collectively be regarded as state equitable apportionment of water resources.

235. *See generally id.*

236. *See supra* text accompanying note 178.

237. 1 W. HUTCHINS, *supra* note 43, at 5-6.

238. *See supra* text accompanying notes 34-36.

239. Indeed, the leading early prior appropriation case described the priority principle as a “maxim of equity.” *Irwin v. Phillips*, 5 Cal. 140, 147 (1855).

[W]hen a person has taken, used, become accustomed to, and made a livelihood from water, it becomes “his water,” and . . . one who takes it from him has “stolen his water.” I used to think that prior appropriation was an American invention, but now I am convinced it was simply the verbal identification of a very widespread human trait.

Trelease, *New Water Legislation: Drafting for Development, Efficient Allocation and Environmental Protection*, 12 LAND & WATER L. REV. 385, 414 (1977). “The rule of priority is not as harsh as it sounds. It guarantees a firm supply to all those for whom the supply is sufficient The junior appropriator is encouraged by this law to develop water resources.” Trelease, *supra* note 204, at 187.

As time passes and the problems with prior appropriation become ever more apparent, instances of state equitable apportionment are likely to increase in frequency. Ultimately they represent a partial reintroduction into western water law of the concept of riparianism that users should share water resources and absorb the burden of shortage in a proportional way. In the words of Samuel Wiel, equitable apportionment like common law riparianism provides a vehicle for allowing water users what is "reasonable under *all* the circumstances."²⁴⁰

240. Wiel, *supra* note 172, at 198 (emphasis added).