

PRIORITY: THE MOST MISUNDERSTOOD STICK IN THE BUNDLE

By

Gregory J. Hobbs, Jr.*

Ten years after Professor Charles Wilkinson proclaimed the death of Prior Appropriation, Justice Gregory Hobbs argues that Priority is more important than ever, though it is the most misunderstood stick in the water rights bundle. The states have created valuable property rights to previously unappropriated water for beneficial use, which Congress has recognized since the 1866 Mining Act that they have a right to do. Along with traditional water uses, State water law appropriative rights include such new beneficial uses as recreation, fish and wildlife, and instream flows, along with traditional agricultural, municipal, and industrial uses. Federal reserved water rights and Native American tribal rights also take their place in the priority system, when they are quantified and adjudicated. But, the priority system cannot function to protect water rights—whoever their owner and whatever their use—if claims to water of a stream system, including tributary groundwater, are not adjudicated and administered. In order to secure the value of a water right and allow markets to transfer old uses to new uses, so that the new uses can take water under the senior priority, enforcement of water rights to curtail junior uses in times of short supply is indispensable. The citizenry of the states and the United States desire dependable water supply for human and environmental needs. Adjudication and administration of the limited water resource is at the heart of twenty-first century water policy.

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I. Introduction

A decade has passed since Charles Wilkinson eulogized the passing of Prior Appropriation in 1991¹. I rejoined that Prior may have died but his progeny lived on². A year later, the authors of the "The Long's Peak Report" proposed a series of national water policy initiatives to the incoming federal administration³. I rejoined that the report presented a one-sided view of water policy that excluded other viewpoints, particularly viewpoints of water right owners⁴. Michael Blumm and I then engaged in a debate over the Long's Peak Report⁵. Two years before Wilkinson's eulogy, Bennett Raley⁶ and I authored two articles addressing the role of water quality law in protecting rather than restricting the exercise of water rights⁷.

In 1996, I transitioned from representing water clients to being a State Supreme Court Justice. In this role, I have had the privilege of authoring water opinions⁸ and several water law articles, as well as participating in water decisions authored by other Justices¹⁰. This work constantly reminds me how vital is the role of water law and policy, and how misunderstood is the role of water rights priority.

II. Looking Back

Help from History

Please help me know it happened,

That life I thought we had—

Our friends holding out their hands

To us—

Our enemies mistaken, infected by

Unaccountable prejudice—

Our country benevolent, a model

For all governments, good-willed

* * *

Let me retain what ignorance it takes

To preserve what we need—

A past that redeems any future. ¹¹

William Stafford

In concluding his eulogy, Wilkinson wrote, "Prior has now passed on ¹²." "I wonder whether the reformers . . . now that they will have to replace Prior . . . can offer up still other ideas as bright ¹³." Prior's wife, Ramona, truly lamented the passing of this antiquated, lovable, often wrong-headed, but genuinely motivated frontiersman. Prior's "most luminous idea," said Ramona, was "that sense of community . . . he most passionately cared about ¹⁴."

Taking up the theme, I envisioned the elopement of Prior's grandson, Beneficial, with Miss Trust. The young Miss was a stunning but pampered member of the California Trust family, generous to a fault in her willingness to give away the property of others. Nevertheless, the union of Beneficial and Trust brimmed with the generative seed of enduring western optimism. The song of their union sounded like this:

Beneficial: "Waste Not, Want Not"

Trust: "Let it Be, Let it Be"

Beneficial: "Use Only What You Truly Need"

Trust: "Efficiently, Efficiently."

Could such a marriage of tradition and reform occur voluntarily, or only with a gun to Beneficial's head? The Long's Peak Report, it seemed, favored a forced trip to the altar of reform. Uncle Sam would command Beneficial's consent to water reallocation, if necessary, to serve more contemporary values like stream flow restoration. Duty-bound to represent my client's interest in a voluntary match, I insisted on respecting Beneficial's inheritance of Prior's rights ¹⁵. Blumm advocated for the bride, the shortchanged latecomers, instream uses, and Indian tribes ¹⁶.

I attempted to regain the high ground by harnessing progressive conservation to prior appropriation¹⁷. Blumm retorted that I had mounted the steed backwards, stating that "Pinchot's call for multiple use was not simply a call for development of water resources, it was a call for centralized, federal regulation of waterways¹⁸."

A decade later, though at least my advocacy appears to have been overheated, Blumm and I had the privilege of a timely and significant debate. I must concede that centralized federal planning and development was at the core of the Reclamation Program. However, it was the prior appropriators who had invited the federal relationship; they needed national help to build the waterworks they required to make their water uses. Because a state law water right arises only by placing water to a beneficial use, and because the decree for a perfected water right confirms the amount of depletion from the stream that can be taken in priority as a property right¹⁹, the creation of new uses under the appropriation doctrine depends upon the construction of waterworks to secure new water rights. Section 8 of the Reclamation Act²⁰ integrates the federally constructed projects into the system of state priority administration²¹. The result is the federal "they" legally becomes "us."

The reclamation marriage was so successful that it provoked—because of river over-regulation—the paradigm shift Wilkinson and Blumm heralded as ending Prior's era in the early 1990s. The 1964 Wilderness Act²², 1972 Clean Water Act²³, 1973 Endangered Species Act²⁴, and 1976 Federal Land Policy and Management Act²⁵ have most notably piled federal regulatory sticks atop the state water rights bundle. A reluctant marriage, perhaps, but a union nonetheless—for better or worse! A recent water and growth study of the Natural Resources Law Center observes:

Rather than debate the merits of prior appropriation as an allocation system, perhaps a more practical way to frame this issue is to acknowledge that issues of reallocation are at the core of most water disputes. Whether "Prior" is, or should be, dead is not the issue before the water management community; the issue is how to modernize water law to deal with issues of reallocation²⁶.

In my view, this graceful acknowledgment of prior appropriation's continuing role in meeting human and environmental needs is a constructive context for twenty-first century water law and policy.

To place the discussion of priority's role in context, I would summarize the major active currents of western water law as the following: 1) Congress severed water from the title to public lands and permitted states and territories to establish water rights under their own laws²⁷; 2) the western states chose prior appropriation as basic water allocation and administration law for natural stream waters²⁸; 3) under prior appropriation law, water remains a public resource, the states continue to create property rights for the use of this resource, and beneficial use is the basis, measure, and limit of these water rights²⁹; 4) in times of short supply, state water officials have a duty to curtail junior water rights in favor of senior water rights³⁰; 5) the reserved water rights of the United States and of Native American Tribes are entitled to recognition and administration along with all other rights in order of their adjudicative priority³¹; 6) enforceable interstate water compacts and equitable apportionment decrees allocate water between the states with congressional approval³²; 7) new water demand is created predominantly by the public sector, namely municipalities and special districts that serve the West's municipal and commercial growth³³; 8) federal environmental laws significantly constrain new development of surface water resources, shift water supply planning towards increased reliance on groundwater, change water rights from their prior uses, and require implementation of conservation measures³⁴; 9) the changing values and customs of the people of the West—and of the United States—include clean and flowing water for recreation, instream flow, and restoration of disturbed riverine habitats³⁵; and 10) optimum use, efficient water management, and priority administration are fundamental adaptive

principles of western water law that are increasingly important to meeting water needs in the twenty-first century ³⁶.

III. Priority's Continuing Role

Practically, in that country the right to water is acquired by priority of utilization, and this is as it should be from the necessities of the country. . . . If there be any doubt of the ultimate legality of the practices of the people in the arid country relating to water and land rights, all such doubts should be speedily quieted through the enactment of appropriate laws by the national legislature. Perhaps an amplification by the courts of what has been designated as the natural right to the use of water may be made to cover the practices now obtaining; but it hardly seems wise to imperil interests so great by intrusting them to the possibility of some future court-made law ³⁷.

John Wesley Powell

Priority's continuing role starts with a few basic principles. First, surface water and tributary groundwater are public resources, available for public or private purposes by appropriation and subject to administration in priority ³⁸. Second, water rights are decreed to structures and points of diversion ³⁹. Third, its priority, location of diversion at the source of supply, and amount of water for application to beneficial uses are the essential elements of a water right ⁴⁰. Finally, the purpose of adjudication is to assign priorities of use; a decree confirms the existence of the water right but does not create the right ⁴¹.

The priority of a water right vis-à-vis other water rights depending on supply from the same natural river basin within the state is a function of appropriation and adjudication. The appropriation date is generally set by the date of the appropriation, which is subject to adjudication. However, failure to adjudicate one's water right in the first available adjudication can result in postponement of the priority date to the year in which the application for adjudication was filed ⁴².

Legal and practical contradictions attend a discussion of priority's place in western water law and policy. The priority of a water right is both its most important and its most controversial feature. Priority is the most valuable stick in the bundle of a water right, but enforcement of senior priorities may be honored more in rhetoric than in curtailment of junior uses ⁴³. Theoretically, priority determines the allocation of unappropriated water, but it may not apply in some states to the pumping of tributary groundwater that intercepts surface supply.

Priority acquisition, if available to all possible water interests, might function as a universal water allocation methodology. However, this methodology is not applied in practice because states routinely allow fewer than all possible water interests to acquire priorities; for example, states often refuse to allow depriving the right of the federal government and private interests from holding environmental water rights. This has resulted in episodic claims to federal reservations of water for such purposes, regulatory restrictions on the use of state-allocated water quantities, and divisive litigation. Priority allocation and administration may only apply within a state, but not between states, because equitable apportionment decrees of the United States Supreme Court or river compacts⁴⁴ control water allocation between states, in turn circumscribing the amount of water available for allocation to state and federal rights within a state.

Priority determines the value of a water right, but lack of administration to curtail juniors in times of short supply can rob a senior right of its value. Priority is essential to a functioning water market, but lack of a reliable mechanism for changing water uses to new water uses destroys the potential of water markets to effectuate voluntary reallocation of the resource. Priority is only for beneficial use, but holders of priorities may be allowed to use water inefficiently, depriving junior users of a water supply.

Priority entails water consumption, but water consumption causes environmental and social effects, generating community conflict. Priority requires planning, infrastructure, and legal protection, but competing interests may support planning, water rights creation, and enforcement only to the degree that it serves their own interest.

These points and counterpoints reveal that priority is the most misunderstood stick in the bundle of a water right. Water policy can tear sticks from the bundle of water rights, or it can permit the bundle to serve human and environmental needs. Water law can spread its canopy, or it can fold its tent to the winds. To function effectively, priority must be employed in determining if and how much unappropriated water remains for appropriation by new users, taking into account actual river conditions in the operation of perfected water rights⁴⁵. To function effectively, priorities must also be enforced in times of short supply. If not, distribution of water is capricious and water user self-help occurs to the detriment of senior rights. In addition, episodic regulatory or crisis management measures ensue in an effort to address growing community conflict⁴⁶. Accordingly, adjudication and administration of rights through governmental action is essential to a functioning prior appropriation system.

Although federal claims for water have spurred the adjudication of water rights throughout the West, the inevitable necessity of doing this was always implicit in the property rights system of western water use allocation⁴⁷. As long as the available water resource could serve existing needs, administration resided in the background as an implicit but unexercised feature of the essential attribute of each water right—its priority. In times of scarcity, administration of water rights assumes its necessary law enforcement role.

The accelerating growth of the West makes fair and efficient administration of water rights the single most deserving feature of twenty-first century water policy. The American West is home to nearly one-third of the population of the United States. The western states have grown approximately thirty-two percent in the past twenty-five years, compared with a nineteen percent rate in the rest of the nation; by the year 2025, the West will likely add another twenty-eight million residents⁴⁸.

Colorado is a prime example. It was the fourth fastest growing state in the years 1990 to 1994, with a population increase of eleven percent. Its population in 1995 was 3,747,000 persons; its projected population for the year 2000 was 4,168,000 persons. Of the western states, only Nevada (32% increase), Idaho (16% increase), Arizona (14% increase), and Utah (13% increase) outstripped Colorado's growth rate in the past twenty-five years⁴⁹.

Historians and demographers alike acknowledge that the West hosts an urbanizing culture, despite its reputation for vast expanses⁵⁰. With growth comes the challenge of serving multiple demands for water. How to allocate and administer water for new uses while affording legal protection to existing uses is a basic consideration in formulating water law and policy. Dean Trelease made this classic statement about the "ideal water law:"

An ideal water law should give a water right those characteristics that will encourage and enable people to make the best decisions as to water use in their own interests and hence ultimately in the public interest. Private uses of water should be based upon property rights not dissimilar to the property rights in more stable and tangible assets, and like other property rights they should be subject to regulation in the public interest⁵¹.

It follows that federally-held water rights should have the same property rights protection as state-created water rights, both enforced through an integrated system of fair adjudication and administration⁵².

IV. Integration of State and Federal Rights and New Uses

If Major Powell were to return and study the map of reclamation activities, present and proposed, that was published by the Bureau of Reclamation on January 1, 1951, he might get the impression that resurrection morn had really dawned The whole Western future is tied to the multiple-purpose irrigation-power-control-stream management projects built to specifications first enunciated by Powell's bureaus, and the West's institutions and politics are implicit in the great river plans⁵³.

Wallace Stenger

Progressive conservationists recognized early in the twentieth century that comprehensive planning and multi-purpose river basin development was key to the nation's well being. Along with navigational improvements and irrigation, they urged the construction of works for power generation, flood control, and municipal and manufacturing use⁵⁴. The Great Depression produced a generation of Americans anxious to promote and subsidize reclamation projects as a means of putting the country's unemployed back to work⁵⁵. The post-World War II period brought about the culmination of projects that, in Stegner's words, "remade the map of the West" from the 95th meridian to the Pacific Ocean⁵⁶. These are the projects the West increasingly depends upon in an era that discourages new project construction. These are the projects that can serve both old and new uses.

The integration of federal and state water policies is a subject for which "the states have demonstrated a capacity—albeit an uneven capacity⁵⁷." For example, adjudications in state court of federally-held appropriative rights, along with all other rights, have played a pivotal role in recognizing such varied traditional and newly evolving uses of water, as irrigation, municipal and commercial use, hydropower, flood control, fish and wildlife needs, and recreation⁵⁸.

The *Winters* doctrine brought to the fore what has always existed in the West: "compelling alternative legal theories regarding human relationships to land and water, none necessarily more important than the others⁵⁹." Adjudication of water rights arising under federal law for Native American Tribes, national parks, and recreational areas, together with federal environmental statutes embodying the public's changing values, has pushed state political and legal change that would have been unlikely otherwise⁶⁰. These alterations in state law have included statutory and judicial precedents that have expanded the compass of beneficial uses, including instream flows, and instituted conservation measures—although the pursuit to reduce waste, real or perceived, continues to drive further calls to reform⁶¹. While the prior appropriation doctrine and western water development has been lampooned and lambasted⁶², no one has made a serious proposal for substitution of a water law system that would better serve the needs of humans and the environment with equal or greater security, reliability, and flexibility—these being the hallmarks of an effective resource allocation system⁶³.

State constitutions and statutes do not generally confine the content of the term "beneficial use." Instead, beneficial use tracks the economic and community values of the people. Citizen demand for water-related amenities in all forms drives the direction of water law and policy. The list of recognized beneficial uses now includes irrigation; stock watering; domestic, municipal, commercial, and industrial uses; power generation; fire protection; flood control; residential environmental needs; recreation; fish and wildlife culture; release from storage for boating and fishing flows; snowmaking; dust suppression; mined land reclamation; boat chutes; fish ladders; nature centers; augmentation of depletions for out-of-priority diversions; and minimum stream flows for preservation of the environment to a reasonable degree⁶⁴. The list is growing as new and changed uses are proposed for state permits and judicial decrees⁶⁵.

Instream flow has been the most dramatic innovation. Thirteen western states now recognize instream water rights in some form⁶⁶. Colorado is but one example. In 1965, reiterating longstanding rejection of riparian water law, the state supreme court proclaimed that "maintenance of the 'flow' of the stream is a riparian right and is completely inconsistent with the doctrine of prior appropriation⁶⁷." Fourteen years later, the court jumped the boundaries: "[I]t is obvious that the General Assembly in the enactment of S.B. 97 certainly did intend to have appropriations for piscatorial purposes without diversion. We hold that under S.B. 97 the Colorado Water Board can make an instream appropriation without diversion in the conventional sense⁶⁸." In its 2001 session, the Colorado General Assembly enacted a statute for governmental appropriation of recreation flows, prompted by the popularity of instream kayak courses in populated areas of the state⁶⁹.

V. The McCarran Proceedings

[B]y enforcing the Aspinall absolute decrees as we would any other absolute decree, we clarify that the water rights of the United States carry the same benefits and responsibilities as all other decreed water rights⁷⁰.

Whether state-law based, as with the reclamation projects, or federal-law based, as with the tribal and federal land reservations, federal water claims had not been subject to determination by state forums until 1952. Adjudication litigation occurred only in federal court, if at all, while the states proceeded on a separate track as to state based claims owned by non-federal appropriators.

This dual-track with its inherent uncertainty became intolerable to the western states⁷¹. The right to divert a certain amount of water from the available natural stream supply at a specific location, to the exclusion of all others not then in priority, is the essence of a state-created water right⁷². The security and dependability of water rights turn on the enforceability of their priority in times of short supply. Inability to ascertain and administer federal rights undercuts the enforcement of state-created water rights.

Without a decree, a water right owner is not entitled to make an enforceable "call" for curtailment of upstream juniors who might be intercepting the water needed to satisfy his or her senior priority. In Colorado, for example, the state and division water engineers and local water commissioners enforce the court decrees for the instream flow rights of the Water Conservation Board, as they do for all other water rights⁷³.

The reason for adjudicating a federal reserved water right is the same for all other rights to the use of water—to realize the value and expectations that right's priority secures. In times of short supply, water users depend on the state to exercise its police power to curtail junior uses in favor of senior uses, regardless of the identity of the owner of the right, state or federal. To accomplish this, the amount and priority of rights drawing on the watershed must be determined.

Because the states could not hale the federal agencies and tribes into state court without congressional waiver of sovereign immunity, they were unable to secure reliability for state-created water rights and meet future needs because of uncertainty about the nature, extent, and priority of federal water rights.

In sum, administration of rights within the watershed cannot occur without a means for adjudicating water claims, whether based in state or federal law. Accordingly, after a prolonged effort and over the resistance of the Justice Department and federal agencies,

Congress passed the 1952 McCarran Amendment⁷⁴ permitting joinder of the United States and the tribes in state court water adjudications⁷⁵. In order to assert this jurisdiction, states relying primarily on administrative mechanisms commenced comprehensive adjudications to determine the rights of all users, including the federal entities.

When joined by a state in a McCarran proceeding, the United States must assert all federal claims to water rights; if it does not, the priority of the federal rights, including reserved rights as well as appropriative rights, may be relegated to intervening state and private junior rights⁷⁶. This has compelled federal agencies and tribes to participate in litigation they might otherwise have postponed or foregone entirely. McCarran adjudications are underway in the state courts of Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming, with Texas having completed a comprehensive adjudication⁷⁷.

Because of congressional adoption of myriad environmental laws starting in the 1960s, federal agencies manage the lands they administer with greater attention to values beyond resource extraction, including recreation, fish and wildlife, wild and scenic river, national park, and wilderness area preservation, among others. Bennett Raley has pointed out that the failure of the United States to claim state or federal appropriative water rights for environmental purposes, such as endangered species protection, defeats the purposes of the McCarran Amendment and the federal environmental laws when reserved water rights do not exist or are uncertain⁷⁸.

Raley argues that a secure water right that can be administered in priority vis-à-vis other water rights is the most rational and consistent way to accommodate important state and federal interests in water. Resort to regulatory mechanisms on an ad hoc basis, such as by-pass flows imposed by the Forest Service as a condition of right-of-way permit renewal—diminishing the yield of pre-existing water rights—undermines reliability, promotes disorder, intensifies hostility, leads to takings actions, and generally favors chaos over law⁷⁹.

In short, whether asserting a claim for traditional consumptive use (such as agricultural or municipal), non-consumptive use (such as hydropower or flood control), or environmental use (which is largely non-consumptive), federal officials and agencies failing to assert federal water rights claims in the McCarran proceedings may be in dereliction of their congressionally assigned public duties. When agencies assert such claims, state judges must give the claim fair consideration and uphold federal ownership of rights that have a basis in either state or federal law, regardless of political controversy within the state over the filing, existence, nature, or extent of the rights.

VI. Water Markets: A Mechanism for Voluntary Reallocation

A more deliberate way to permanently acquire new water rights is simply to seek out willing sellers in desirable locations and to negotiate a transaction. . . . Increasingly, buyers and sellers are connecting through water markets. Water markets provide a central mechanism for buyers and sellers to exchange information about water demands, supplies, and transfer opportunities, and help to establish prices⁸⁰.

Water and Growth in Colorado

Western water law is generally posited on serving the more senior rights in times of short supply. Because holders of junior rights must expect shortage, they can plan for measures necessary to firm their water supply; for example, by using non-tributary groundwater, purchasing senior rights, leasing through the intermediary of a water bank and/or dry year leases whereby farmers are paid for cities' rights to use the senior water in dry times⁸¹. A

water-banking mechanism often assists by providing leased water, so that others may use the water for interim purposes without permanent transfer. In 2001, the Colorado General Assembly adopted a pilot water bank statute for the Arkansas River Basin within Colorado⁸².

Increasingly, water markets are becoming a primary mechanism for meeting water demand, principally in the arenas of municipal use and environmental protection, the two foremost contemporary demands. The 1998 Report of the Western Water Policy Review Commission included among its recommendations a goal of ensuring "sufficient instream flows to achieve and protect the natural functions of riverine, riparian, and floodplain ecosystems⁸³." Those interested in assuring a long-term, stable place for instream flow recognize that "it is critical to choose strategies that will actually get water back into the river, free from call, during the periods of greatest need⁸⁴."

How might this be accomplished? The preferred and surest way is through management within the water rights system, by "allowing conversion of senior consumptive rights to instream flows, either by the rights holders themselves, or in the marketplace, and with solid protection for keeping those flows instream, either as an official senior water right, or using some other device⁸⁵."

Water markets require transferable rights. Making rights worth transferring requires recognition of the amount of water that can be delivered reliably. This means assuring their place in water administration. Scarcity and value of the water resource has always driven water law; accordingly, its policy is to efficiently manage, administer, and optimize water use for operation of as many decreed uses as there is available supply⁸⁶. For example, "provisions of Colorado's 1969 Water Resources Determination and Administration Act for adjudication of water rights changes, exchanges, and augmentation plans allow newer uses of water, such as municipal and recreational uses, to come into being and operate in a manner that is consistent with the administration of decreed water rights⁸⁷."

When unappropriated water is unavailable, augmentation plans permit junior water right holders to divert water out-of-priority while ensuring the protection of senior water rights⁸⁸. This is typically accomplished by providing a replacement water supply necessary to offset the out-of-priority diverters' depletions, so that holders of decreed water rights can enjoy the quantity of supply that would be available to them according to priority, absent those depletions⁸⁹.

As the source of water dedicated to replacing depletions, augmentation plans often include consumptive water allocations adjudicated through change proceedings⁹⁰. Through application and adjudication, the point of diversion, type, manner, or place of use of a water right may be changed⁹¹. Changes in quantity and time of water rights are limited by historic use⁹². The decreed change of a water right provides its owner the advantage of being able to exercise the priority previously adjudicated to the appropriation⁹³.

Over an extended period of time, a pattern of historic diversions and use under the decreed right for its decreed use at its place of use will mature and become the measure of the water right for change purposes, typically quantified in acre-feet of water consumed⁹⁴. Essential functions of change of water right proceedings are: 1) identifying the original appropriation's historic beneficial use, 2) fixing the historic beneficial consumptive use attributable to the appropriation by employing a suitable parcel-by-parcel or ditch-wide methodology, 3) determining the amount of beneficial consumptive use attributable to the applicant's ownership interest, and 4) affixing protective conditions for preventing injury to other water rights in operation of the judgment and decree⁹⁵.

Water engineers play an important role in change of water right and augmentation plan proceedings. When serving as expert witnesses, their tasks typically include establishing: 1) the historic beneficial consumptive use of the appropriations at issue, and 2) the protective conditions that will maintain the conditions of the stream upon which decreed water rights depend in order to prevent injury⁹⁶. The first function applies to the Water Court's role in determining the measure of the appropriation proposed for change—a question of evidentiary historical fact⁹⁷. The second function applies to the Water Court's role in ascertaining the timing and delivery of return flows and/or substitute water necessary to supply other water rights with the quantity of water they would otherwise enjoy absent the change of water right or augmentation plan. This question involves predictions of future injury and the measures that will likely prevent that injury⁹⁸.

Transfers of water are grounded in property law and depend upon the right to reduce a public resource to private possession:

Four characteristics [have been identified as] necessary to convert a common property resource to a regime of individual property rights in order to induce market allocation. They are (1) maximum exclusivity within the constraint of the physical nature of the resource, (2) free transfer at costs which are low relative to the value of the resource, (3) absence of positive and negative externalities that prevent the transfer of the resource or impose excessive, unaccounted for costs on third parties, and (4) a clear, general definition of permitted and prohibited activities⁹⁹.

Whether water markets effectively reallocate existing water uses to new water uses wholly depends on water law and policy that accords protection to vested property rights in water use. In scarcity is the opportunity for community values that include protection of pre-existing rights.

VII. The Opportunity of Scarcity

THE EAGLE OR THE OTTER

Some days you look at a river

You forget you've ever seen one,

Somehow this particular river seems

So supple, loose and fine, so immediate.

You want to turn the wrong way

Just to cross a bridge, you want to

Climb a bluff you've always ignored.

You look over the edge, you see a path

Through the reds, the goldens, round

The crook of the bend, down to the edge

Of the ripple. You feel you could peel

Back your arms, stick out your chin,

Lift off and skim the air and the water.

You might be the eagle or the otter.

Greg Hobbs

Mary Austin writes in *The Land of Little Rain* that the land sets the limit, not the law¹⁰⁰. The supposedly water-rich Pacific Coast, Midwest, and Southeastern states are now experiencing water scarcity of the type long known to the semi-arid high plains and mountain states¹⁰¹. In times of drought, political leaders do the best they can; however, these belated efforts usually point to the necessity of structural and legal arrangements instituted well in advance. Citizens of the United States want it all: strong local, state, and national economies along with viable riverine habitats for recreation and fish and wildlife. Yet this presents the age-old dilemma and opportunity of scarcity. Water is a public resource, and water law has always followed the customs and values of the people.

The values of the people now include multiple uses, and more of our citizens want to be involved in water decisions. Good policy, it would seem, should foster to the greatest extent possible the security of water rights and then administer them in a reliable manner. Without reliability, whether for human needs or for the environment, conflict increases, damage results, and government at all levels loses its credibility. Political officials have a fundamental responsibility for formulating a coherent policy regarding this most basic resource of all life.

Courts, of course, must continue to enforce state and federal law according to constitutions, statutes, and case precedent. The United States Court of Claims has held that the United States Government owes just compensation to water users whose contractually-conferred right to use the water, was restricted for the benefit of endangered fish¹⁰². Such a ruling respects federal preemption principles and affords compensation for deprivation of vested rights. However, it does not have the beneficial effect of providing water to all of those who need it. This would require efficient water management, including the construction and operation of water works and the implementation of conservation measures.

It appears that the states, in order to maintain viable state water law systems, must find ways to accommodate the values that underpin federal environmental statutes. United States policy favoring western water development has shifted to environmental protection and preservation, through such laws as the Clean Water Act, the Endangered Species Act, and the Federal Land Policy and Management Act. The Clean Water Act section 404 requirement to obtain a dredge and fill permit for dam or diversion works that tap surface water has placed federal agencies in a regulatory role governing additional western water development¹⁰³. This has spurred increased use of tributary and nontributary groundwater, as well as changes in agricultural rights to municipal use, water exchange projects, and augmentation plans. State adjudications increasingly involve these water supply and water management techniques¹⁰⁴.

Existing and new reservoirs have become even more critical to meeting western water needs. Such structures are needed to move water from the old uses to the new uses, but new reservoirs face a long, difficult, and uncertain permitting course. The obligation to obtain required federal approval and permits directly affects whether water users are in a position to obtain absolute decrees. Until the structures are built to turn water to beneficial use a water right cannot be perfected¹⁰⁵.

Human and natural needs are best served by water rights creation and administration that accommodates and serves both interests¹⁰⁶. Although the summer of 2001 demonstrated

the preemptive effect of the Endangered Species Act in the Klamath Basin, the landscape is stark but not bleak¹⁰⁷. Beneficial use and preservation, as well as state and federal relationships, are the enduring heritage of water policy done ably. In scarcity is the opportunity for community. That is how farmers came to cooperate in the formation and operation of mutual ditch companies¹⁰⁸. As the ongoing western state water adjudications demonstrate, settlement is often preferable in the effort to secure rights that are interdependent.

State water law systems are continually evolving to incorporate the changing customs and values of the people. Water policy built on the progressive conservation model has no yet proven peer. Science and the public interest were the lodestars of those conservationists. We have since learned that wringing every drop of water out of our watersheds for use in the name of economic efficiency is counter to the health of the watershed and uses required for the making of an interdependent dwelling place for all creatures. A number of endangered species recovery and conservation plans in the West combine water flows and non-flow management options as a means to meet both environmental preservation and water development objectives¹⁰⁹.

One person's view of waste is another person's gospel of water use. Instream flows were traditionally considered to be a waste of water; today they are fundamental to the implementation of public values. The twenty-first century is bound to be the century of water management, as the states strive to live within their interstate water apportionments, growth continues, and the important work of supplying people and protecting the environment proceeds.

The two chambers of the western heart, the two lobes of the western mind, are beneficial use and preservation¹¹⁰. Growth and glorious natural habitat, this is the heritage of the public domain. Our rapidly urbanizing western experience is bridled by our love for the vistas, rivers, and all life, our natural optimism, and our need for each other. In this our western place, so prized by the entire country, shall carry us forward.

Priority will continue to function as legislators, the courts, and policy makers at every level of the national, state, and local communities go about the essential business of allocating and administering water in accordance with the customs and values of the people expressed through their laws. The richness, complexity, conflict, and opportunity for community resolution inherent in our federal system of government must, of design and necessity, inform the use and preservation of the public's water resource¹¹¹.

* Justice, Colorado Supreme Court. The author presented a portion of this Article in draft form at "Two Decades of Water Law Policy Reform: A Retrospective and Agenda for the Future," Natural Resource Law Center Water Conference, University of Colorado, Boulder, Colo., June 15, 2001.

1. Charles F. Wilkinson, In Memoriam, Prior Appropriation 1848-1991, 21 ENVTL. L. No. 3 pt. 1, at v (1991) [hereinafter In Memoriam].
2. Gregory J. Hobbs, Jr., The Reluctant Marriage: The Next Generation (A Response To Charles Wilkinson), 21 ENVTL. L. 1087, 1087 (1991).
3. Natural Resources Law Center, University of Colorado School of Law (1992), America's Waters: A New Era of Sustainability, Report of the Long's Peak Working Group on National Water Policy, 24 ENVTL. L. 125, 133-41 (1994).
4. Gregory J. Hobbs, Jr., Ecological Integrity, New Western Myth: A Critique of the Long's Peak Report, 24 ENVTL. L. 157, 157 (1994)

[hereinafter Ecological Integrity, New Western Myth].

5. Michael C. Blumm, *The Rhetoric of Water Reform Resistance: A Response to Hobbs' Critique of Long's Peak*, 24 ENVTL. L. 171 (1994) [hereinafter *The Rhetoric of Water Reform Resistance*]; Gregory J. Hobbs, Jr., *Interpreting the Ecological Integrity Myth: (A Response to Professor Blumm)*, 24 ENVTL. L. 1185 (1994) [hereinafter *Interpreting the Ecological Integrity Myth*]; Michael C. Blumm, *Pinchot, Property Rights, and Western Water (A Reply to Gregory Hobbs)*, 24 ENVTL. L. 1203 (1994) [hereinafter *Pinchot, Property Rights, and Western Water*].

6. Currently serving as Assistant Secretary for Water and Science, U.S. Department of the Interior.

7. Gregory J. Hobbs, Jr. & Bennett W. Raley, *Water Rights Protection in Water Quality Law*, 60 U. COLO. L. REV. 841 (1989); Gregory J. Hobbs, Jr. & Bennett W. Raley, *Water Quality Versus Water Quantity, A Delicate Balance*, 34 ROCKY MTN. MIN. L. INST. 24-02 (1988).

8. *Colo. ex rel Simpson v. Highland Irrigation Co.*, 917 P.2d 1242 (Colo. 1996); *Colorado Ground Water Comm'n v. Eagle Peak Farms Ltd.*, 919 P.2d 212 (Colo. 1996); *Bennett Bear Creek Farm Water & Sanitation Dist. v. City & County of Denver*, 928 P.2d 1254 (Colo. 1996); *Dallas Creek Water Co. v. Huey*, 933 P.2d 27 (Colo. 1997); *Williams v. In re Application for Water Rights of Midway Ranches Prop. Owners Ass'n*, 938 P.2d 515 (Colo. 1997); *Chatfield E. Well Co., Ltd. v. Chatfield E. Prop. Owners Ass'n*, 956 P.2d 1260 (1998); *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46 (Colo. 1999); *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177 (Colo. 2000); *Farmers Reservoir & Irrigation Co. v. Consol. Mut. Water Co.*, 22 P.3d 799 (Colo. 2001); *Empire Lodge Homeowners' Ass'n v. Moyer*, No. 00SA211, 2001 WL 1598753 (Colo. Dec. 17, 2001).

9. Gregory J. Hobbs, Jr., *Colorado Water Law: An Historical Overview*, 1 U. DENV. WATER L. REV. 1 (1997) [hereinafter *Colorado Water Law*]; Gregory J. Hobbs, Jr., *Colorado's 1969 Adjudication and Administration Act: Settling In*, 3 U. DENV. WATER L. REV. 1 (1999) [hereinafter *Settling In*]; Gregory J. Hobbs, Jr., *State Water Politics Versus an Independent Judiciary, The Colorado and Idaho Experiences*, 5 U. DENV. WATER L. REV. (forthcoming Jan. 2002) (also published in 20 QUINNIPIAC L. REV. 669 (2001)).

10. *Colorado Water Law*, supra note 9, at 61-73; Gregory J. Hobbs, Jr., *Update to Colorado Water Law: An Historical Overview*, 2 U. DENV. WATER L. REV. 223 (1999); Gregory J. Hobbs, Jr., *Second Update to Colorado Water Law: An Historical Overview*, 4 U. DENV. WATER L. REV. 111 (2000).

11. William Stafford, *Help from History*, in AN OREGON MESSAGE 128 (1987).

12. *In Memoriam*, supra note 1, at xvi.

13. *Id.* at xviii.

14. *Id.*

15. *Ecological Integrity, New Western Myth*, supra note 4, at 164-65.

16. *The Rhetoric of Water Reform Resistance*, supra note 5, at 172.

17. *Interpreting the Ecological Integrity Myth*, supra note 5, at 1190-94.

18. *Pinchot, Property Rights, and Western Water*, supra note 5, at

1204.

19. *Dallas Creek Water Co. v. Huey*, 933 P.2d 27, 34 (Colo. 1997).
20. Act of June 17, 1902, ch. 1093, 32 Stat. 388.
21. See 43 U.S.C. § 372 (1994).
22. Wilderness Act, 16 U.S.C. §§ 1131-1136 (2000).
23. Federal Water Pollution Control Act of 1976, 33 U.S.C. §§ 1251-1387 (1994 & Supp. III 1997).
24. Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (2000).
25. Federal Land Policy and Management Act, 43 U.S.C. §§ 1701-1785 (1994 & Supp. III 1997).
26. NATURAL RESOURCES LAW CENTER, UNIV. OF COLO. SCH. OF LAW, WATER AND GROWTH IN COLORADO 35 (2001) [hereinafter WATER AND GROWTH IN COLORADO] (citing David H. Getches, Two Decades of Water Law Policy Reform: A Retrospective and Agenda for the Future, presented at Natural Resources Law Center Water Conference, Univ. of Colo., Boulder, Colo., June 15, 2001).
27. *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 163-64 (1935); *California v. United States*, 438 U.S. 645, 662 (1978).
28. *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 447-49 (1882); *State v. Southwestern Colo. Water Conservation Dist.*, 671 P.2d 1294, 1304-08 (Colo. 1983) (describing Colorado's decision to use a prior appropriation system of water allocation).
29. *Williams v. Midway Ranches Prop. Owners Ass'n*, 938 P.2d 515, 521-23 (Colo. 1997).
30. *Navajo Dev. Co. v. Sanderson*, 655 P.2d 1374, 1379-80 (Colo. 1982).
31. *Winters v. United States*, 207 U.S. 564, 577 (1908); *United States v. City & County of Denver*, 656 P.2d 1, 17-18 (Colo. 1982).
32. *Kansas v. Colorado*, 514 U.S. 673, 693-94 (1995); *Simpson v. Highland Irrigation Co.*, 917 P.2d 1242, 1246, 1248 (1996).
33. See, e.g., *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 39 (Colo. 1996) (noting that by statute, a municipality can be decreed conditional water rights for an amount consistent with the municipality's reasonably anticipated requirements).
34. *Riverside Irrigation Dist. v. Andrews*, 758 F.2d 508, 514 (10th Cir. 1985); *Chatfield E. Well Co. v. Chatfield E. Prop. Owners Ass'n*, 956 P.2d 1260, 1270 (Colo. 1998).
35. WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY, REPORT OF THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION 5-11, 6-11 to 6-14 (1998) [hereinafter WATER IN THE WEST].
36. *Santa Fe Trails Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54 (Colo. 1999).
37. JOHN WESLEY POWELL, REPORT ON THE LANDS OF THE ARID REGION OF THE UNITED STATES 42-43 (1879).
38. *Chatfield E. Well Co.*, 956 P.2d at 1267.
39. *Dallas Creek Water Co. v. Huey*, 933 P.2d 27, 38 (Colo. 1997).
40. *Colo. ex rel. Simpson v. Highland Irrigation Co.*, 917 P.2d 1242, 1252 n.17 (Colo. 1996).
41. *Shirola v. Turkey Canon Ranch LLC*, 937 P.2d 739, 748 (Colo. 1997).
42. See, e.g., COLO. REV. STAT. §37-92-306 (2001) (describing

priority determination and administration of state water right system). The priority is a combination of the adjudication date and the appropriation date. All adjudicated water rights filed for adjudication in a given year are junior to those of previous years. As between water rights adjudicated for the same year, the date of appropriation controls. In 1919, the Colorado General Assembly enacted an adjudication limitation act designed to settle the priorities of water rights. It required submittal of claims for adjudication to be made by a date certain; failure to do so resulted in a conclusive presumption of abandonment. *Settling In*, supra note 9, at 9.

43.A. Dan Tarlock, *Prior Appropriation: Rule, Principle, or Rhetoric?*, 76 N. DAKOTA L. REV. 881 (2000). This excellent article discusses how priority plays into the allocation of water and points out that deficiencies in enforcement of priorities can undermine the benefits of allocation by priority. Tarlock's discussion underscores the importance of adjudication and administration of priorities in prior appropriation systems applicable to waters of the surface stream and groundwater tributary thereto. When adjudication and administration is lacking, water uses are made according to who can intercept the supply at any given time, not who was first in right.

44. See, e.g., *Arizona v. California*, 373 U.S. 546, 597 (1963) (stating that the doctrine of equitable apportionment is a method of resolving water disputes between states); *Kansas v. Colorado*, 514 U.S. 673, 673 (1995) (noting that the Arkansas River Compact was negotiated to settle disputes between Kansas and Colorado over the waters of the Arkansas River).

45. *Board of County Comm'rs v. Crystal Creek Homeowners' Ass'n*, 14 P.3d 325, 333-34 (Colo. 2000).

46. These are the very kinds of occurrences and considerations that gave rise to Colorado's adjudication laws. *Settling In*, supra note 9, at 5-9.

47. See, e.g., ROBERT G. DUNBAR, *FORGING NEW RIGHTS IN WESTERN WATERS* 113-32 (1983) (highlighting the chaotic nature of the varying states' and territories' water laws).

48. *WATER IN THE WEST*, supra note 35, at 2-14.

49. *Id.* at 2-7. The 2000 census reports a population of 4,301,261 for Colorado. RockyMountainNews.com, *Census 2000, Colorado: Gender and Age Numbers*, available at <http://cfapp.www.rockymountainnews.com/census2000/stateNumbers.cfm> (last visited Dec. 5, 2001).

50. "Most Westerners are urban people. A much higher percentage of our population lives in units that the Census Bureau describes as urban than any other region of the United States." William H. Hornby, *Recognizing the West as an Urban Place*, in *A SOCIETY TO MATCH THE SCENERY: PERSONAL VISIONS OF THE FUTURE OF THE AMERICAN WEST* 120 (Gary Holthaus et al. eds., 1991).

51. Frank J. Trelease, *Policies for Water Law: Property Rights, Economic Forces, and Public Regulation*, 5 NAT. RESOURCES J. 1, 8-9 (1965).

52. Gregory J. Hobbs, Jr., *Involuntary Transfers of Water for the Environment, A State Law Perspective*, 14TH ANNUAL WATER LAW CONFERENCE, AMERICAN BAR ASSOCIATION SECTION OF NATURAL RESOURCES, ENERGY, AND ENVIRONMENTAL LAW, tab B, at 6-9 (Feb.

8-9, 1996).

53. WALLACE STENGER, *BEYOND THE HUNDREDTH MERIDIAN*, JOHN WESLEY POWELL AND THE SECOND OPENING OF THE WEST 353 (1954) [hereinafter *BEYOND THE HUNDREDTH MERIDIAN*].

54. SAMUAL P. HAYS, *CONSERVATION AND THE GOSPEL OF EFFICIENCY, THE PROGRESSIVE CONSERVATION MOVEMENT, 1890-1920*, at 106 (1959).

55. DANIEL TYLER, *THE LAST WATER HOLE IN THE WEST, THE COLORADO-BIG THOMPSON PROJECT AND THE NORTHERN COLORADO WATER CONSERVANCY DISTRICT 28* (1992).

56. *BEYOND THE HUNDREDTH MERIDIAN*, supra note 53, at 353.

57. NORRIS HUNDLEY, JR., *WATER AND THE WEST, THE COLORADO RIVER COMPACT AND THE POLITICS OF WATER IN THE AMERICAN WEST* 334 (1975).

58. See, e.g., *Board of County Comm'rs v. Crystal Creek Homeowners Ass'n*, 14 P.3d 325, 336 (Colo. 2000) (recognizing water rights for "domestic and municipal uses, irrigation and stock watering, industrial, power, flood control, piscatorial, wildlife protection and preservation, and recreational purposes").

59. JOHN SHURTS, *INDIAN RESERVED WATER RIGHTS, THE WINTERS DOCTRINE IN ITS SOCIAL AND LEGAL CONTEXT, 1880s-1930s*, at 252 (2000).

60. *Colorado Water Law*, supra note 9, at 19-24.

61. See generally Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919 (1998) (outlining an agenda of proposed reforms to make water use in the West more efficient).

62. See, e.g., *In Memoriam*, supra note 1, at v (1991) (discussing the rise and fall of prior appropriation in the West); CHARLES F.

WILKINSON, *CROSSING THE NEXT MERIDIAN, LAND, WATER, AND THE FUTURE OF THE WEST* (1992) (analyzing the outdated policies governing water allocation in the West); MARC REISNER, *CADILLAC DESERT, THE AMERICAN WEST AND ITS DISAPPEARING WATER* (1986) (commenting on the problem of water administration); PHILLIP L. FRADKIN, *A RIVER NO MORE, THE COLORADO RIVER AND THE WEST* (1981) (discussing the excessive burdens placed on the Colorado River).

63. *Empire Lodge Homeowners' Ass'n v. Moyer*, No. 00SA211, 2001 WL 1598753 slip op. at 13-14 (Colo. Dec. 17, 2001).

64. *Colorado Water Law*, supra note 9, at 9.

65. See *Colorado Water Court, Colorado's Water Districts* (providing monthly water resumes for each water district that detail cases before the water court), at www.courts.state.co.us/clikwatr.htm (last visited Nov. 27, 2001).

66. Janet C. Neuman, *Protecting Instream Flows in Prior Appropriation States: Legal and Policy Issues*, *WATER AND GROWTH IN THE WEST* § II.C (Natural Resources Law Center, Univ. of Colo. Sch. of Law 2000); see also *United States v. New Mexico*, 438 U.S. 696, 711-13 (1978) (holding that Congress did not intend to reserve federal water rights for wildlife and instream flow preservation in National Forests).

67. *Colorado River Water Conservation Dist. v. Rocky Mountain Power Co.*, 406 P.2d 798, 800 (Colo. 1965).

68. *Colo. River Water Conservation Dist. v. Colo. Water Conservation*

Bd., 594 P.2d 570, 574 (Colo. 1979).

69.S. 01-216, 2001 Gen. Assem., Reg. Sess. (Colo. 2001) (codified at 10 COLO. REV. STAT. § 37-92-102(5), (6) (2001)).

70.Bd. of County Comm'rs v. Crystal Creek Homeowners Ass'n, 14 P.3d 325, 343 (Colo. 2000).

71.See John E. Thorson, *State Watershed Adjudications: Approaches and Alternatives*, 42 ROCKY MTN. MIN. L. INST. 22-1, 22-16 to 22-24 (1996) (describing the background reasons for the McCarran Amendment).

72.See *Navajo Dev. Co. v. Sanderson*, 655 P.2d 1374, 1380 (Colo. 1982) (holding that the Navajos' water right can be affected by federal reserved water rights that have a senior priority date).

73.*Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 58 (Colo. 1999).

74.43 U.S.C. § 666 (2000).

75.Bennett W. Raley, *Chaos in the Making: The Consequences of Failure to Integrate Federal Environmental Statutes with McCarran Amendment Water Adjudications*, 41 ROCKY MTN. MIN. L. INST. 24-1, 24-21 to 24-30 (1995) (describing the legislative history and implementation of the McCarran Amendment).

76.*United States v. Bell*, 724 P.2d 631, 636-37 (Colo. 1986).

77.Thorson, *supra* note 71, at 22-36. For example, the Arizona proceedings involve 77,000 water right claims, and the Idaho Snake River proceedings involve 185,000 claims. *Id.* at 22-37, 22-39.

78.Raley, *supra* note 75, at 24-35 to 24-49.

79.*Id.* at 24-48 nn.124-25. The problem with this approach is that such claims provoke intense state political reaction and litigation, as evidenced by the federal filings in Idaho's Snake River Basin adjudication. The right of the United States to obtain appropriative rights under federal law, in contradistinction to state law, has also been highly controversial and, although the western states (except for New Mexico) have state law mechanisms for instream flow water rights, they typically hold these in state ownership and do not allow federal agencies or others to appropriate or hold them.

80.WATER AND GROWTH IN COLORADO *supra* note 26, at 114.

81.Reid Peyton Chambers & John E. Echohawk, *Implementing the Winters Doctrine of Indian Reserved Water Rights: Producing Indian Water and Economic Development Without Injuring Non-Indian Water Users?*, 27 GONZ. L. REV. 447, 449 (1991/92).

82.H.R. 01-1354, 2001 Gen. Assem., Reg. Sess. (Colo. 2001) (codified at 10 COLO. REV. STAT. §§ 37-80.5-101 to 37-80.5-107 (2001)).

83.WATER IN THE WEST, *supra* note 35, at xx.

84.Neuman, *supra* note 66, § IV.A.

85.*Id.* § IV.A.1.a.

86.*Farmers Reservoir v. Consolidated Mutual Water Co.*, 33 P.3d 799, 806 (Colo. 2001).

87.*Id.* (citing *William v. In re Application for Water Rights of Midway Ranches Prop. Owners Ass'n*, 938 P.2d 515, 521-22 (Colo. 1997)); Sherry A. Caloia et al., *The Water Rights Determination and Administration Act of 1969: A Western Slope Perspective on the First Thirty Years*, 3 U. DENV. WATER L. REV. 39, 45-47 (1999).

88.*Danielson v. Castle Meadows, Inc.*, 791 P.2d 1106, 1112 (Colo. 1990); David F. Jankowski et al., *The 1969 Act's Contributions to Local Governmental Water Suppliers*, 3 U. DENV. WATER L. REV. 20, 27

(1999).

89.COLO. REV. STAT. §37-92-305(5), (8) (2001).

90.William v. In re Application for Water Rights of Midway Ranches Prop. Owners Ass'n, 938 P.2d 515, 522 (Colo. 1997).

91.COLO. REV. STAT. § 37-92-103(5), -302, -305(3), (4) (2001).

92.Weibert v. Rothe Bros., 618 P.2d 1367, 1372 (1980).

93.Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 55 (Colo. 1999).

94.William, 938 P.2d at 521.

95.Santa Fe Trail Ranches Prop. Owners Ass'n, 990 P.2d at 54-55.

96.Daniel S. Young & Duane D. Helton, Developing a Water Supply in Colorado: The Role of an Engineer, 3 U. DENV. WATER L. REV. 373, 382-88 (2000).

97.For an agricultural appropriation, this analysis focuses on the lands historically irrigated and utilizes diversion records, water application practices, soil and crop types, diversion and delivery efficiency, precipitation, temperature, growing season, aerial records, and testimony of irrigators, along with other reliable and relevant evidence of the appropriation's historic beneficial consumptive use over a representative time period. *Id.* at 379-80, 384-85; *Farmer's Reservoir & Irrigation Co. v. Consolidated Mutual Water Co.*, 33 P.3d 799, 807 n.5 (Colo. 2001).

98.The injury analysis focuses on the time, amount, and location of return flows of surface water and groundwater. If return flows will not be maintained, an additional water source must be located and operated to ensure that water rights of others are not injured. The applicant for the change or augmentation plan must have the opportunity to propose terms and conditions for preventing injury. The Water Court, after taking into account objections and alternative proposed conditions, must include protective conditions in the judgment and decree for preventing injury. *Id.* at 386-88; *Farmer's Reservoir & Irrigation Co.*, 33 P.3d at 807 n.6.

99.A. DAN TARLOCK, *LAW OF WATER RIGHTS & RESOURCES* 2.12, at 2-11, 2-12 n.3 (2000) (citing Devany et al., *A Property System for Market Allocation of the Electromagnetic Spectrum: A Legal-Economic Engineering Study*, 21 *STAN. L. REV.* 1499 (1969)).

100.MARY AUSTIN, *THE LAND OF LITTLE RAIN* 1 (1950).

101.Timothy Egan, *Near Vast Bodies of Water, Land Lies Parched*, *N.Y. TIMES*, Aug. 12, 2001, at 1.

102.*Tulare Lake Basin Water Storage Dist. v. United States*, 49 Fed. Cl. 313, 314 (2001).

103.See 33 U.S.C. § 1344 (1994).

104.*Settling In*, *supra* note 9, at 15-17; see also *Empire Lodge Homeowners' Ass'n v. Moyer*, No. 00SA211, 2001 WL 1598753, slip op. at 13-14 (Colo. Dec. 17, 2001) (enjoining upstream appropriators from making out-of-priority diversions to fill two ponds).

105.See *Dallas Creek Water Co. v. Huey*, 933 P.2d 27, 37 (Colo. 1997) (refusing to recognize a claim until affirmation of capture, possession, control, and beneficial use of water).

106.Gregory J. Hobbs, Jr., *Federal Environmental Law and State Water Law: Accommodation or Preemption*, 1 *NATURAL RESOURCES & ENV'T* 23 (1986).

107.Michael Milstien, *Klamath Farms Left Without Water*, *OREGONIAN*,

Apr. 7, 2001, at A1.

108. See MARK FIEGE, *IRRIGATED EDEN: THE MAKING OF AN AGRICULTURAL LANDSCAPE IN THE AMERICAN WEST* 83 (1999) (describing the development of communal hydraulic projects).

109. *WATER AND GROWTH IN COLORADO*, supra note 26, at 55-58.

110. Justice Gregory Hobbs, *Historical Perspective on Western Land and Water Law*, Water Education Foundation, 75TH ANNIVERSARY COLO. RIVER COMPACT SYMP. PROC. 112-13 (1997).

See *United States v. Appalachian Elec. Power Co.*, 311 U.S. 377, 424-26 (1940) (discussing congressional authority to regulate waters in capacity as well as use).