

Western Water in the 21st Century: Policies and Programs That Stretch Supplies in a Prior Appropriation World

by Adam Schempp

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Editors' Summary

The states of the Western United States face numerous water management challenges, now and in the coming years. Legal hurdles to sustainable water management are posed by the doctrine of prior appropriation and its resulting policy constructs, including forfeiture and abandonment, time-intensive transfer and change-of-use procedures, and restrictions on using conserved water. However, strategies for addressing these issues have been implemented in varying forms across the West, each under unique circumstances and with different degrees of success. The policies and programs included here are not intended to be comprehensive, but rather a selection of illustrative examples that modify the prior appropriation system in a way that has led or could lead to more efficient, adaptive, and sustainable water use decisions.

Water always has been the lifeblood of the western United States.¹ But its value is now greater than ever, a trend that shows no sign of abating. As populations continue to rise, regional, national, and global demand for the region's resources, including water and products that rely on it, is also growing. With more people come greater water needs for drinking, bathing, laundry, private lawns, and public parks. People also demand groceries, energy, processed materials, services, and recreation, most of which require water inputs. Additionally, the ecosystem services provided by a healthy riparian environment, including water quality, flood protection, and water storage, depend upon sufficient instream flows. Thus, there are numerous demands on water supplies, but a lack of clear trade-off alternatives since humans appear to need them all.

Increasing water demands are not the only challenge. Greater uncertainty in water supply means an ever-changing baseline for meeting those demands. Climate change models predict an intensification of the water cycle, producing longer droughts and more substantial floods. Rising temperatures already have begun to cause earlier and more intense snowmelt, the source of much of the West's water, leaving less water available for the late summer and fall if it cannot be captured. Additionally, recent data show that the average annual flow of the Colorado River was overestimated at the time the Colorado River Compact was drafted, suggesting far less supply in the future than those states rely upon.

Increasing demand and uncertain, even declining, supply means that we need to figure out a way to "do more with less" or else face very difficult trade-off decisions. Generally speaking, doing more with less water requires improving efficiencies in use and in supply management. Both approaches necessitate adapting policies and practices to changing circumstances in the short and long term, as well as aligning incentives, financial and otherwise, with preferred practices.

A number of legal and nonlegal factors contribute to the state of water management. The laws governing water usage are important for flexibility and guidance. In that realm, water districts, the federal government, and interbasin and

Editors' Note: The full report, including appendices, of Western Water in the 21st Century: Policies and Programs That Stretch Supplies in a Prior Appropriation World can be downloaded free of cost from <http://www.eli.org>.

1. The 12 western states included in this study are Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming. Selection and assessment of the examples below was the result of statutory review, analysis of legislative history, and secondary source research by the Environmental Law Institute, as well as personal communication with state engineers; staff of state agencies, municipal water providers, and nonprofit organizations; representatives of farming interests; and others from the 12 states studied.

interstate transfer agreements impose legal constraints on water management, but the prior appropriation system, the predominant legal foundation for water allocation in the West, is a critical consideration. While adaptable, prior appropriation is rule-bound, founded on the historical order of rights and quantity of usage. An imperfect understanding of the amount of water historically consumed (as opposed to what returns to the stream), coupled with the preeminent rule that “thou shall not injure the rights of other water users,” has fortified established practices behind a series of legal barriers, posing a significant obstacle to improving efficiency in use.

Perhaps best known of these laws are the doctrines of forfeiture and abandonment. Under those doctrines, water rights that are not put to use may be recovered by the state and reallocated to new users; hence the adage, “use it or lose it.” These doctrines are meant to discourage speculation and maximize water usage. While the anti-speculation aspect of these doctrines may retain some value, continuing to require historic levels of water usage (or else risk the loss of the unused portion of the right) creates a disincentive to conservation and sustainable water practices. In addition, if the use of water is changed to another purpose, it may only be to one of a few choices or again risk the loss of the right. This ensures that water continues to be put to productive uses, but current understanding of hydrology and ecosystems suggests that productive use is more than agriculture, industry, or drinking water. Instream flows, source exchanges, and water banking also can be important to protecting the long-term quantity and quality of water supplies.

Reducing the disincentives to sustainable water management posed by forfeiture is only one step toward a prior appropriation system aligned to meet the West’s water challenges. Obtaining changes in the purpose of use, place of use, and point of diversion are difficult under traditional rules. While these laws protect the rights of other water users from injury, they also delay the process and increase the cost of changing a right. This limits the ability of water managers to adapt, encouraging permanent rather than temporary transfers and reducing the potential for a responsive market. It also affects the incentive for efficiency. Water costs for buyers and opportunity costs for sellers can be big financial incentives for discovering ways to operate with less water. Quick yet thorough transfer reviews, responsive transfer agreements, sufficient third-party protections, and the authority to transfer or otherwise use conserved water (from reduced consumptive use and evaporative losses) create incentives for efficient and effective water use under any hydrologic condition.

Particularly in recent years, western states have amended their laws to reduce the disincentives of prior appropriation to sustainable water usage and supply management and

allow incentives for stretching supplies to more easily influence the decisionmaking of right holders. These legal reforms have varied from state to state in objective, form, and success. Given the difference in specific laws and regulations, as well as growth pressures and hydrologic circumstances, there is not necessarily a one-size-fits-all reform of prior appropriation, but the states can learn from the experiences, both good and bad, of their regional neighbors. Effective laws that are in line with social, economic, and environmental objectives can create greater resilience to inevitable water crises, and ultimately improve the sustainability of not only the water supplies, but the societies and environments that rely on them.

I. Reducing the Risk of Forfeiture as a Disincentive to Sustainability

The prior appropriation system operates as a first-come, first-served method of water allocation. Essentially, those with water rights to a stream or river are given priority based upon the date of the water right. Traditionally, the oldest right is completely fulfilled, then the next oldest, and so forth down the line until there is no water left to allocate. Because older (senior) water rights yield more water in a given year than do newer (junior) rights, senior rights are more valuable. In practice, this can mean the difference between three tons of alfalfa per acre with irrigation that lasts through the end of September for a senior right holder, and two tons per acre with irrigation through the middle of July for a junior right holder.

The doctrines of abandonment and forfeiture are designed to assure that water is actually put to a productive end and not merely the subject of hoarding or speculation. They originated in a period when maximizing the short-term benefits of natural resources was avidly promoted. The state wanted to give rights to those individuals who would use the water. Water rights, or even just portions thereof, that are not put to use are subject to permanent recovery by the state and reallocation to new users. “Abandonment” commonly requires intent by the right holder to no longer use the right. “Forfeiture,” however, can occur regardless of intent if nonuse extends beyond a statutory forfeiture period, which ranges from five to 10 years, depending on the state. Those states without explicit forfeiture doctrines commonly have a statutory abandonment period by which intent to abandon is inferred from the duration of nonuse, effectively serving the same function as forfeiture.

While these doctrines still provide some benefit, they also pose significant obstacles to sustainable water management. The risk of losing a water right creates a strong disincentive against using it for an unsanctioned purpose or simply reducing its use. Thus, all else being equal, water right holders will

continue to use water at historical rates and through historical means, for fear of losing any unused portion of the right. Water use efficiency can reduce input costs such as labor and energy, but the right holder must balance these benefits with the potentially lost value of the water right itself. If the objective is doing more with less, the law should support that effort, not directly oppose it.

There are two primary ways of reducing the influence of forfeiture and abandonment through law. The first, and perhaps most direct, approach is an explicit exemption. For example, the rules of forfeiture or abandonment may be deemed not to apply when a water right is deposited in a water bank, is used to improve instream flow, or is not used as a result of conservation or a source exchange.

The second approach involves the state's definition of "beneficial use." Right holders may lose their rights if they do not use them. But to qualify as "use," the water right must be put to a state-sanctioned "beneficial" purpose. A purpose of use that is not "beneficial" is not considered "use" and therefore is subject to forfeiture and abandonment. Traditional statutory lists of beneficial uses included agriculture, mining, industry, municipal use, and other similar, immediate human activities. By contrast, more recent lists also include water conservation, instream flows, or alternative storage techniques, among others.

Regardless of the approach, the end result is the same: the use of a water right for that purpose does not run the risk of forfeiture or abandonment, and hence legal disincentives to that activity are reduced if not alleviated. Other factors such as energy costs, labor, and water supply and demand will have more influence on water decisions because this legal hurdle has less influence. Even if these changes are only a codification of existing practice, they can be very helpful in clarifying that practice and easing the concerns of water right holders. The more of these options that apply to innovations in water supply management and practices that support efficiency or riparian ecology, the greater the opportunity to protect all the valuable demands on the water.

This part explores examples of how states have modified their definition of "beneficial use" and exempted certain activities from forfeiture and abandonment in ways that allow right holders to use less water for the original purpose without the threat of permanently losing the right, and open new options for using water that offset the impacts of other uses.

A. No Forfeiture

When there is a no forfeiture doctrine, the use or nonuse of a water right for any purpose, whether deemed beneficial or not, is not subject to recovery by the state for lack of use. The risk of forfeiture then plays no role in water use decisions.

Nevada

Prior to 1999, Nevada law governing surface water included the forfeiture doctrine. A surface water right was deemed to

be forfeited if the right holder had failed to use the water for its beneficial use for a period of five consecutive years. But due in large part to the *Alpine IV* decision, *United States v. Alpine Land & Reservoir Co.*,² the Nevada Legislature passed Assembly Bill 380 in 1999. Among other things, that bill changed §533.060(2) of the Nevada Revised Statutes from a law that embodied the forfeiture doctrine to one that explicitly rejected it.³

Despite a relatively short track record, there have been several noticeable effects of discarding the forfeiture doctrine in Nevada. According to state officials, the efficiency of agricultural use supplied by surface water has improved without this disincentive to nonuse, i.e., forfeiting the water right. Farmers no longer have an incentive to divert set quantities of water, so they are freer to respond to the influences of water scarcity, labor availability, and energy costs. The change also has provided added flexibility to water providers who are holding rights for their future needs, primarily municipal. These consequences in Nevada may not be the same as they would be in other states, since Nevada has very little surface water and almost all of it is under various decrees.

While forfeiture of surface water rights is no longer possible in Nevada, forfeiture of groundwater rights is. This distinction offers some insight into the effect that forfeiture can have on water use decisions. According to one state official, it is not unusual for a groundwater right holder to hire people to farm using their water once every five years. There also have been cases of water being pumped just to show a meter reading. While not the norm, these acts do highlight the more perverse incentives of the forfeiture doctrine, and have led some within the state to name the groundwater forfeiture statute as the biggest obstacle to water use efficiency in Nevada.

There are a number of other western states that do not recognize forfeiture per se. But they accomplish the same objective as forfeiture through the state's abandonment statute, by presuming the intent to abandon a water right after a set number of years of nonuse. Nevada does not use its abandonment statute in quite this manner. A ruling by the state engineer in 2004 notes that nonuse is "some evidence" of intent to abandon, but nonuse alone is insufficient proof, and there is no set number of years that raise a rebuttable presumption of abandonment.⁴

B. Water Conservation Efforts

One of the often-cited problems with the prior appropriation system is that it punishes water conservation efforts by threatening to take away whatever water is not used. Water conservation is defined differently in different states, in some instances including water that eventually returns to the river

2. 27 F. Supp. 2d 1230 (D. Nev. 1998).

3. NEV. REV. STAT. §533.060(2) ("Rights to the use of surface water shall not be deemed to be lost or otherwise forfeited for the failure to use the water therefrom for a beneficial purpose.")

4. Nev. State Engineer Ruling No. 5464.

and in other instances including only reductions in consumptive use and evaporative losses.

When the issue is only whether part of a water right is forfeited or abandoned due to conservation, not whether the conserved water may be otherwise used or sold, the definition of conservation does not pose as great a threat of expanding rights to water. Reducing the amount of water diverted from the stream is unlikely to result in notably greater consumption. If consumptive use and evaporative losses even remain constant, let alone decrease, “conservation” has resulted merely in a swap between water at the point of diversion and at the point of return, leaving more water instream between the two points and likely improving water quality. By including water conservation within the definition of “beneficial use” or excluding it from forfeiture, any disincentive to conserve from a fear of losing part of a water right can be reduced or nullified.

California

In 1977, the California Legislature passed a statute declaring water conservation to be the equivalent of a beneficial use.⁵ The statute was a result of recommendations by the Governor’s Commission on Water Rights, which supported making conservation a beneficial use because it believed the change would remove the existing disincentive to water use reductions.⁶

As allowed under the statute, the State Water Resources Control Board (SWRCB) requires permittees and licensees who wish to use this water right protection to have previously filed a report about the amount of water being conserved. To simplify this process, the SWRCB has changed its periodic reporting forms to include a section about conservation. Requiring reporting helps differentiate conservation from mere nonuse: the permittee or licensee must at least acknowledge the conservation on the reporting form in order to claim the protection. Going one step further, the SWRCB examines the intent of the nonuse when a permittee or licensee petitions for a change of use or place of use of conserved water. Petitions have been denied when the SWRCB finds the intent of the nonuse to be other than conservation.

While there is little doubt that this statute topples a legal barrier to efficiency, few right holders have claimed conservation credits or attempted to avoid forfeiture using it. Most water conservation efforts in California have reduced just

enough usage to avoid the need for new appropriations, but not enough for new uses. Still, where it has been used, the statute has improved use efficiency.

Texas

Under the Texas Water Code, “conserved water” is explicitly noted as a beneficial use of water.⁷ Section 11.002(9) of the Code defines “conserved water” as “that amount of water saved by a holder of an existing permit, certified filing, or certificate of adjudication through practices, techniques, and technologies that would otherwise be irretrievably lost to all consumptive beneficial uses arising from storage, transportation, distribution, or application.”

Texas also exempts water saved under a conservation plan from forfeiture (termed “cancellation” in Texas).⁸ This provides double assurance that water rights unused due to conservation measures will not be lost. In 2003, the Texas Legislature established a Water Conservation Implementation Task Force in an effort to realize the full potential of water conservation in the state. The Task Force submitted its report to the legislature in November 2004, and one of the recommendations was to give the Texas Commission on Environmental Quality authority to exempt a water right from cancellation if the nonuse resulted from water conservation measures. With the understanding that this exemption would encourage water conservation, the Texas Legislature amended the cancellation statute in 2005 to include the exception recommended by the Task Force.

Classifying water conservation as a beneficial use and exempting it from cancellation has provided internal consistency in Texas water law in light of the water conservation plan requirements under Texas Water Code §11.1271. Conservation plans are to be completed by applicants for new or amended water rights, as well as existing high-volume users, and requires “the adoption of reasonable water conservation measures” and “specific, quantified 5-year and 10-year targets for water savings.” Without these statutory amendments, the amount of water conserved under the required plans would be subject to cancellation—a significant disincentive to implementing the plans.

But aside from legal consistency, these amendments have not had much impact. This is due in large part to the lack of enforcement of cancellation in Texas. Additionally, conservation plans are mandatory for many water users, so right holders already will be reducing their usage; there is no need for further incentive. Third, the financial benefit from water

5. CAL. WATER CODE §1011(a):

When any person entitled to the use of water under an appropriative right fails to use all or any part of the water because of water conservation efforts, any cessation or reduction in the use of the appropriated water shall be deemed equivalent to a reasonable beneficial use of water to the extent of the cessation or reduction in use . . . The board may require that any user of water who seeks the benefit of this section file periodic reports describing the extent and amount of the reduction in water use due to water conservation efforts . . . For purposes of this section, the term “water conservation” shall mean the use of less water to accomplish the same purpose or purposes of use allowed under the existing appropriative right.

6. Kimberly A. Felix, *Improving Efficiency in Water Use: An Overview of the Recommendations of the Governor’s Commission to Review California Water Rights Law*, 36 McGEORGE L. REV. 165, 170 (2005).

7. TEX. WATER CODE ANN. §11.002(4) (“‘Beneficial use’ means use of the amount of water which is economically necessary for a purpose authorized by this chapter, when reasonable intelligence and reasonable diligence are used in applying the water to that purpose and shall include conserved water.”).

8. TEX. WATER CODE ANN. §11.173(b):

A permit, certified filing, or certificate of adjudication or a portion of a permit, certified filing, or certificate of adjudication is exempt from cancellation . . . (5) to the extent the nonuse resulted from the implementation of water conservation measures under a water conservation plan submitted by the holder of the permit, certified filing, or certificate of adjudication as evidenced by implementation reports submitted by the holder.

conservation in Texas commonly is energy rather than available water—less pumping equals less cost. Often, right holders just let their conserved water go downstream rather than trying to lease or sell it. But, the amendments do have a more subtle effect: their existence adds to the social consciousness of water conservation.

New Mexico

New Mexico statutes do not expressly label conserved water as a beneficial use. In fact, such language was removed from the 2007 bill, HB 443, that now prohibits diminishing a water right because of use reductions from irrigation improvements or other changes in agricultural practices.⁹ While the state does not explicitly deem conservation to be a use, it also does not subject it to the same penalties as nonuse, at least in the agricultural context.

The New Mexico Legislature first amended the water allowance statute in 2003 to explicitly prohibit an owner's rights from being diminished as the result of water conservation via "improved irrigation methods." This change was only meant to codify the existing practice of the state engineer: not forfeiting the portion of a water right that went unused because of water conservation efforts.¹⁰ The bill raised concerns about whether allowing saved water to be put to additional beneficial use would increase depletions of water in the system. This argument was countered by the question of whether there is any incentive to irrigators to conserve water if their savings cannot be otherwise used. Ultimately, the bill passed without further elaboration.

In 2007, the New Mexico Legislature sought to clarify the allowance regarding conserved water. Most notable in the enacted version of this bill is the new authority granted to the state engineer to approve a change of use, place of use, or point of diversion for conserved irrigation water. But the 2007 bill also added "changes in agricultural practices" as a potential means of water conservation and justification for retaining the water right. Thus, this statute effectively increased the possibilities of what will qualify as conservation.

Oregon

Like many western states, Oregon's forfeiture statute applies to all or a portion of a water right that is not used. Typically, if an Oregon right holder uses only two-thirds of the right for five consecutive years, one-third of the original water right is forfeited. But in 1997, the Oregon Legislature amended the state's forfeiture statute to exempt rights that are not fully used but still accomplish their respective original purposes.¹¹ Under this exemption, if the right holder uses only

two-thirds of the original water right to accomplish the same objective as with the entire right, the remaining one-third of the right is not forfeited, i.e., the entire right is preserved. Plus, this remaining one-third of the water right, if not put to another use, increases streamflow and supports downstream junior water rights.

In practice, this forfeiture exemption has encouraged water conservation. Removing the legal disincentive against using less water has left little reason not to follow market pressures, such as labor availability and energy costs, both of which tend to favor efficiency. But the effect of this exemption likely is limited by the fact that the Oregon Water Resources Department had not actively enforced partial forfeiture in the first place.

As written, the exemption includes two requirements that still create perverse incentives. First, the fact that the facilities must be able to accommodate the full amount of the right forces the maintenance of larger facilities than may be needed for current usage. Fish screens, among other aspects of the facilities, are more effective if designed for the amount of actual diversion rather than the amount of the water right. Second, the requirement that the user be "ready, willing and able" to use the full right can add a hurdle to prolonged conservation efforts: needing to retain the ability to use the full right at any time despite the fact that the full amount may never again be used there.¹² The legal or practical benefits of these requirements are debatable, at best.

Idaho

In 2003, the Idaho Legislature added nonuse resulting from conservation to its statutory exemptions from forfeiture.¹³ The legislature defined "water conservation practice" in §42-250 of the Idaho Code as "any practice, improvement, project or management program that results in the diversion of less than the authorized quantity of water while maintaining the full beneficial use(s) authorized by the water right." Thus, as in Oregon, the full beneficial use of the water right still must be accomplished, but in Idaho, there are no facility-capacity or "ready, willing and able" requirements.

According to the official statement of purpose: "This legislation defines, encourages and supports water conservation practices." As with similar provisions, the intent of the forfeiture exemption is to not impede conservation, allowing other factors to influence use decisions. This exemption is relatively new, so its influence has yet to be fully realized. It has been used in defining the quantities of a water right in adjudications, but whether it has affected water use decisionmaking is unclear.

9. N.M. STAT. ANN. §72-5-18(B) ("Improved irrigation methods or changes in agriculture practices resulting in conservation of water shall not diminish beneficial use or otherwise affect an owner's water rights or quantity of appurtenant acreage.").

10. SB 128 Fiscal Impact Report 2003, at 1.

11. OR. REV. STAT. §540.610(3):

. . . if the owner of a perfected and developed water right uses less water to accomplish the beneficial use allowed by the right, the right

is not subject to forfeiture so long as: (a) The user has a facility capable of handling the entire rate and duty authorized under the right; and (b) The user is otherwise ready, willing and able to make full use of the right.

12. BRUCE AYLWARD, RESTORING WATER CONSERVATION SAVINGS TO OREGON RIVERS: A REVIEW OF OREGON'S CONSERVED WATER STATUTE 29 (2008).

13. IDAHO CODE §42-223(9) ("No portion of any water right shall be lost or forfeited for nonuse if the nonuse results from a water conservation practice, which maintains the full beneficial use authorized by the water right . . .").

Utah

In 2002, Utah added conservation and efficiency as justifications for nonuse.¹⁴ Under Utah law, some exemptions from the forfeiture statute require no other action than just using the water in the identified manner. Other exemptions require the filing of an application for nonuse with the state engineer in order for the exemption to apply, and only then for up to seven years. While the application process makes the forfeiture exemptions for these uses, including conservation and efficiency, more burdensome to the right holder, they serve a similar purpose as categorical exemptions.

To date, neither conservation nor efficiency has been used much, if at all, in nonuse applications. Since a nonuse application is required, if conservation or efficiency were cited as a reason for nonuse, there would be a record of it. Thus, it is fair to say that this statutory provision has had little influence. But, it still is relatively new and has potential to encourage conservation and efficiency, especially among water districts.

This provision was amended in 2008 to remove the limiting word “recognized” as a modifier of “water conservation or efficiency practices.” While this change theoretically could expand what is included under these practices, its true effect is yet unclear.

Colorado

Colorado does not have a forfeiture statute, but under its laws, nonuse of water for 10 consecutive years or more raises a rebuttable presumption of abandonment. The state statutorily exempts specific circumstances from the rules of abandonment. In 2005, the Colorado General Assembly expanded this list. Included within those additions are three that explicitly pertain to water conservation efforts: (1) a water conservation program approved by the state, a conservation district, or a conservancy district; (2) a water conservation program established through written action or municipal ordinance; and (3) an approved land fallowing program.¹⁵

Land fallowing has been relatively common in Colorado at the level of individual farms and ranches, and occasionally at the level of ditch companies. With rapidly growing populations, particularly in suburban Denver areas, and recent drought periods, a variety of temporary land fallowing agree-

ments, as well as long-term fallowing, have become a means of supplying municipal water demands. On a larger scale, the Lower Arkansas Valley Water Conservancy District fostered the creation of the so-called Super Ditch, a for-profit corporation formed by irrigators to coordinate rotational fallowing by many irrigators to supply water for growing needs in the state with significant positive effects, and without significant adverse effects, on individual agricultural communities.

But the statutory addition to Colorado’s abandonment exemptions has thus far had little effect on the Super Ditch project or other irrigators, in large part because fallowing usually occurs for rights transfer purposes rather than strictly for conservation. This should not overshadow the fact that the amendment does relieve any concerns about abandonment that may be felt by irrigators considering a conservation-based fallowing program. As water supply pressures mount, this amendment may prove valuable.

C. Instream Flow

Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming all classify recreation and fish or riparian area preservation as beneficial uses. These uses, in addition to a few similar ones in other states, are the basis for rights to instream flows. The concept of instream flow is counter to the classic tenets of prior appropriation, and can require an exception to one fundamental aspect of traditional beneficial use in many states, the need for a physical diversion. Some states also exempt instream flow uses from forfeiture.

Where recognized, instream flow rights protect a number of human uses, including recreation and fishing, as well as valued ecosystem services, such as water purification, flood protection, and a buffer for water supplies. Where instream flow rights may be temporary, rather than a permanent dedication, they can offer a means of meeting emergency environmental needs without sacrificing the normal year-to-year use of the water. Classifying instream flow as a beneficial use of water or exempting it from forfeiture provides the opportunity to accomplish multiple objectives and improve the long-term sustainability of water supplies. Perhaps more important, it sends a clear signal to water users that water rights will not be lost if used for this purpose.

I. Private Right

Each state has a unique set of rules on who, if anyone, may appropriate a new right for instream flow uses and who may transfer and hold an existing right that has been changed to those uses. New appropriations are the most junior rights on the river, therefore new appropriations for instream flow are only valuable for habitat protection. In effect, these new rights simply maintain the status quo, protecting instream flows from new demands for the water. But the opportunity to change the purpose of use from consumption to instream flows is critical to restoring riparian habitat, because it replenishes water that normally is removed from the stream.

14. UTAH CODE ANN. §73-1-4(4)(a) (“The state engineer shall grant a nonuse application on all or a portion of a water right for a period of time not exceeding seven years if the applicant shows a reasonable cause for nonuse. (b) A reasonable cause for nonuse includes: . . . (ii) the initiation of water conservation or efficiency practices . . .”).

15. COLO. REV. STAT. §37-92-103(2):
 . . . Any period of nonuse of any portion of a water right shall be tolled, and no intent to discontinue permanent use shall be found for purposes of determining an abandonment of a water right for the duration that: (a) The land on which the water right has been historically applied is enrolled under a federal land conservation program; or (b) The nonuse of a water right is a result of participation in: (I) A water conservation program approved by a state agency, a water conservation district, or a water conservancy district; (II) A water conservation program established through formal written action or ordinance by a municipality or its municipal water supplier; (III) An approved land fallowing program as provided by law in order to conserve water . . .

When the right holder may continue to hold the right while its purpose of use is changed to instream flow, it is a private instream flow right.

Nevada

In 1969, the Nevada Legislature enacted a statute recognizing recreation as a beneficial use.¹⁶ While this formal declaration is not groundbreaking, the instream flow policies in Nevada that developed from this statute are unique. In the 1988 case of *Nevada v. Morros*,¹⁷ the Supreme Court of Nevada found that diversions are unnecessary and often incompatible with most water recreation, leading it to the conclusion that an actual diversion is not necessary to perfect an instream flow right. The court also held in that case that “wildlife watering” falls under the definition of recreation, since the legislature had intended that result.

In Nevada, instream flow rights are treated the same as other water rights. Any person, whether an individual, private organization, or government agency, may appropriate a new right for instream flow or change the use of an existing right to instream flow. Also, such changes of use may be temporary or permanent. In practice, those who actually hold instream flow rights range from water suppliers, to tribes, to government entities. Agreements, like those between suppliers and tribes, occasionally result in instream flow rights to protect culturally and environmentally important riparian areas.

Nevada has very little surface water, and this statutory provision has been helpful in supporting instream flows. For example, in the Reno-Sparks area, much of the water that has been transferred from agricultural use has gone, not just to municipal use, but also to instream flows.

Montana

In 1973, the Montana Legislature passed the Water Use Act, which included recreation, fish, and wildlife in the definition of beneficial use.¹⁸ In the 2002 *Bean Lake III*¹⁹ decision, the Supreme Court of Montana held that, not only were these purposes recognized as beneficial uses prior to the Water Use Act, but that no diversion was required for a valid appropriation. Through the statute and judicial decision, instream flow

uses have become feasible and are lending flexibility to water use in Montana.

This statute has had influence independent of the *Bean Lake III* decision. Naming recreation, fish, and wildlife as beneficial uses has eased the transition to instream flows by aiding cultural acceptance of flow as “use.” The current definition of beneficial use also references two other statutes, Montana Code §§85-2-408 and 85-2-436. These statutes serve the same purpose, allowing the temporary change of an existing right to instream flow, but §85-2-436 applies to the Montana Department of Fish, Wildlife, and Parks (FWP) while §85-2-408 applies to everyone else.²⁰ Much of the growing participation in and success of conservation and restoration efforts for Montana’s rivers and streams have been attributed to these two statutes.

Presently, only the FWP and the U.S. Forest Service may permanently transfer existing rights to instream flow uses, and only on a limited basis. But temporary transfers have been gaining momentum in the state, particularly in areas with a history of environmental restoration, like the Blackfoot Basin. Section 85-2-408 limits right holders’ change of water rights to instream flow to no more than 10 years, or 30 years if the water is the result of a conservation or storage project, but with an option to renew. Section 85-2-436 lays out the same opportunities and restrictions for instream flow leases by the FWP. Few private water right holders have done this on their own; most people interested in this option have leased their rights to the Montana Water Trust or Trout Unlimited. There have been approximately 30 such transfers, with numbers increasing in recent years. These leases take large chunks of concentrated time, but the process is getting streamlined as those involved gain experience with the procedures.

California

Unlike some states, California still requires a diversion in order to appropriate water. This rule prohibits the appropriation of new water rights for instream flow purposes. But changing the use of an existing right to instream flow can avoid this requirement because the right at one point was a quantified diversion right. This interpretation has made §1243 of the California Water Code (recreation and fish and wildlife preservation are beneficial uses) a means of protecting instream flows beyond the state’s minimum flow levels.²¹ Section 1243 supports §1707(a)(1), which makes explicit the permission to change the use of an existing right to one of the listed instream flow purposes.²²

16. NEV. REV. STAT. §533.030(2) (“The use of water, from any stream system as provided in this chapter and from underground water as provided in NRS 534.080, for any recreational purpose, is hereby declared to be a beneficial use.”).

17. 766 P.2d 263, 267 (Nev. 1988).

18. MONT. CODE ANN. §85-2-102(4):

“Beneficial use”, unless otherwise provided, means: (a) a use of water for the benefit of the appropriator, other persons, or the public, including but not limited to agricultural, stock water, domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, and recreational uses . . . (c) a use of water by the department of fish, wildlife, and parks through a change in an appropriation right for instream flow to protect, maintain, or enhance streamflows to benefit the fishery resource authorized under 85-2-436; (d) a use of water through a temporary change in appropriation right or lease to enhance instream flow to benefit the fishery resource in accordance with 85-2-408 . . .

19. 55 P.2d 396 (Mont. 2002).

20. The fact that there are two statutes of this nature is a function of history rather than a strategic division of rights; §85-2-436 was passed in 1989 and paved the way for §85-2-408.

21. CAL. WATER CODE §1243 (“The use of water for recreation and preservation and enhancement of fish and wildlife resources is a beneficial use of water . . .”).

22. CAL. WATER CODE §1707(a)(1) (“Any person entitled to the use of water, whether based upon an appropriative, riparian, or other right, may petition the board pursuant to this chapter . . . for a change for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in, or on, the water.”).

Since §1707's enactment in 1991, several cases of changing use to instream flow have been approved. In some instances, there were monetary incentives to change the use and then lease the water for fish passage and other environmental purposes. In other instances, the authority of the SWRCB to force diversion bypasses under the trust doctrine has played a role in encouraging the change to instream flow.

Section 1243 itself has promoted flexibility in the system and balanced ecological and consumptive uses in a mutually beneficial manner. For example, the statute has allowed several right holders in the Sacramento River Basin to change their point of diversion from a small creek to the main stem of the river, often with the help of public funds, to benefit fish populations. Instances of land fallowing and groundwater usage in lieu of surface flows for the sake of environmental protection also have been attributed to §1243.

Permanent transfers for instream flows, or any separation of water from land, occur rarely, if ever, in California. This is due in large part to the fact that neither a permittee²³ nor licensee²⁴ may sell a water right for more than was originally paid for it.

Texas

In addition to explicit exemptions from its cancellation statute, Texas also allows nonuse without cancellation under certain circumstances, one of which is instream flows. In 1997, the state legislature set out conditions that the Texas Commission on Environmental Quality must consider at the end of a cancellation hearing, in order to determine whether nonuse was justified. Among these conditions is whether a water right has been reserved for instream flows or bay and estuary inflows.²⁵ These revisions were a part of a broader bill designed to improve water management decisions in the face of heightened environmental concerns and competition for water.

This statute has had limited practical effect, since it only applies in the case of cancellation hearings, and cancellation is not often enforced in Texas. Even then, the statute only requires the commission to *consider* whether the water was reserved for instream flows when determining if the nonuse is justified. It is not certain that reservation for instream flows always will be a justified nonuse. Thus, there is no assurance to the right holder that water rights reserved for instream flow use will not be cancelled.

But, the legislature's 2007 declaration of instream flows as a beneficial use may provide the assurance that the cancellation statute does not. The Texas Legislature extended the normal protections and opportunities of water rights to instances in which they have been changed to an instream

flow use.²⁶ This allows an instream flow right to be privately held and leased or sold, increasing both the number of potential parties that may promote restoration and the possible financial benefits to the original right holder. The state has a water trust, but dedication of instream flow rights to the trust is not mandatory, and only a few right holders have done it.

In Texas, a change of use to instream flow follows the same rules as any other change of use. In the past, there was little administrative review of use changes, which made the process relatively quick and easy. But a recent decision of the Texas Supreme Court raised the expectations of analyses by the Texas Commission on Environmental Quality. Exactly what these analyses now will entail is up in the air, but administrative review is bound to become more thorough for changes of use to instream flows and other purposes.

Utah

In 2007, the Utah Legislature expanded its definition of beneficial use to include instream flow use by fishing groups in certain circumstances.²⁷ As seen above, fishing groups have been influential in restoring stream flows in states that allow anyone to hold water rights that have been changed to instream flow. Thus, this statute creates a narrow exemption for a proven means of flow restoration. The Utah statute defines "fishing group" as an organization that is tax-exempt and "promotes fishing opportunities in the state." An organization like Trout Unlimited would qualify under this definition.

This statute is narrow, not only in who may hold the right, but also in what rights are approved for a change of use, why, and for how long. The water right for which the fishing group seeks a change of use must be a perfected, consumptive right. In other words, it must be an established right that has been fully diverted in previous years and put toward a consumptive use like crop production. Further, the fishing group must identify the precise stream section in which it seeks to increase flows, and the protection or restoration must be focused on one of three specific native fish species. These changes of use may be for no more than 10 years, and the fishing group must receive the approval of the Utah Division of Wildlife Resources before filing the change of use application with the state engineer.

Given the statute's recent enactment and narrow scope, there has been little experience to date with its implementation.

23. CAL. WATER CODE §1392.

24. CAL. WATER CODE §1629.

25. TEX. WATER CODE ANN. §11.177(b) ("In determining what constitutes reasonable diligence or a justified nonuse as used in Subsection (a)(2), the commission shall give consideration to . . . (5) whether the permit, certified filing, or certificate of adjudication has been reserved to provide for instream flows or bay and estuary inflows.").

26. TEX. WATER CODE ANN. §11.0235(d-1) ("The legislature has determined that existing water rights that are amended to authorize use for environmental purposes should be enforced in a manner consistent with the enforcement of water rights for other purposes as provided by the laws of this state governing the appropriation of state water.").

27. UTAH CODE ANN. §73-3-30(3)(a):

A fishing group may file a fixed time change application on a perfected, consumptive water right for the purpose of providing water for an instream flow, within a specified section of a natural or altered stream channel, to protect or restore habitat for three native trout: (i) the Bonneville cutthroat; (ii) the Colorado River cutthroat; or (iii) the Yellowstone cutthroat . . . (7) Water used in accordance with this section is considered to be beneficially used . . .

Arizona

Arizona law regarding instream flows is unique, in that it allows any person to appropriate water for the purpose of recreation or wildlife, including fish, but effectively prohibits the holder of an existing water right from changing its use to instream flow without transferring it to the state. A water right holder may transfer the use of water to another location without losing the right's priority date. But if the right holder wishes to use the water for instream flow purposes, the statute requires that the right be permanently transferred to the state, or a subdivision thereof, if it is to retain its priority date.²⁸

Arizona law also allows the right holder to retain the water right when put to instream flow use, but at the expense of the right's priority date. Since an established water right is valuable largely because of its seniority, losing the priority date is effectively the same as losing the right. Retaining the right under a new priority date is analogous to appropriating a new right. Since Arizona allows any person to appropriate a new water right for instream flow, this is not an opportunity unique to existing right holders and offers no greater flexibility in the use of a water right for instream flow purposes than does the opportunity to permanently transfer the right to the state.

Allowing a right holder to put a water right to use for instream flow only when dedicating that right to the state is not unusual in the West. However, the fact that the state allows any person to hold an instream flow right when newly appropriated, but not when changed from an existing right, is contrary to the approach of many other western states. Arizona's instream flow laws are progressive for appropriations but fairly restrictive for existing uses, which promotes preservation but limits restoration, responsiveness, and options for use.

2. Trust Right

Most western states that do not allow private parties to retain control of a water right once it has been changed to instream flow do allow permanent donations to the state for that purpose. But allowing only permanent donations, or even sales, to the state still limits the long-term options for the right holder and can be viewed as similar to "losing" the right. Colorado, Oregon, Utah, and Washington try to address this concern by classifying as beneficial use or exempting from forfeiture or abandonment temporary water right transfers to the state for instream flow. The resulting instream flow rights are similar to those in states that allow a private party to hold the instream flow right, except that the right must be

transferred to the state for as long as it is put to an instream flow use. Oregon and Washington each have established a highly publicized water trust within a state agency to manage instream flow rights.

Oregon

In Oregon, an instream flow right is defined as "a water right held in trust by the Water Resources Department for the benefit of the people of the State of Oregon to maintain water in-stream for public use."²⁹ Instream flow rights may not be held by private parties, but anyone may purchase, lease, or accept as a gift an existing water right for the purpose of converting it to instream use. During the time the water right is used for instream flow purposes, permanently or temporarily, it is held in trust by the state and is considered to be beneficially used.³⁰

Water right leases, which are five years or less in Oregon, and other transfers for instream flow purposes have been very common: approximately 1,000 leases and transfers totaling around 500 cubic feet per second throughout the state.³¹ The fact that a water right held in the public trust for instream flow is classified as a beneficial use has encouraged the dedication of water rights to the state for this purpose. The objectives of individual donors varies from ecological preservation, to payments from an environmental organization, to simply trying to avoid forfeiture, but in each case, the fact that instream flows are a beneficial use makes the objective possible and increases the flexibility of the owner's right to water.

Washington

In Washington, as in Oregon, when the use of an existing water right is changed to instream flow, the right is simultaneously transferred to the state for the duration of the change of use, be it permanent or time-fixed. The state trust water rights program, in which all such instream flow rights are held, is managed by the Washington Department of Ecology.³² The same year, 1991, that the statewide trust was authorized, the state definition of "beneficial use" was expanded to include the use of trust water rights for instream flow purposes.

But not until 10 years later, in the midst of exempting instream flows from multiple aspects of the state water code, did the legislature explicitly exempt instream flows from forfeiture, termed "relinquishment" in Washington.³³ This statutory amendment likely is not necessary since instream flow

28. ARIZ. REV. STAT. §45-172(A):

A water right may be severed from the land to which it is appurtenant or from the site of its use if for other than irrigation purposes and with the consent and approval of the owner of such right may be transferred for use for irrigation of agricultural lands or for municipal, stock watering, power and mining purposes and to the state or its political subdivisions for use for recreation and wildlife purposes, including fish, without losing priority theretofore established . . .

29. OR. REV. STAT. §537.332.

30. OR. REV. STAT. §537.348(2) ("Any person who has an existing water right may lease all or a portion of the existing water right for use as an in-stream water right for a specified period without the loss of the original priority date. During the term of such lease, the use of the water right as an in-stream water right shall be considered a beneficial use.")

31. See http://www.oregon.gov/OWRD/mgmt_instream_milestones.shtml.

32. WASH. REV. CODE §90.42.040(1) (" . . . Trust water rights acquired by the state shall be held or authorized for use by the department for instream flows, irrigation, municipal, or other beneficial uses . . . ")

33. WASH. REV. CODE §90.14.140(2) (" . . . there shall be no relinquishment of any water right . . . (h) If such right is a trust water right . . . ")

use of a trust water right already is explicitly labeled in law as a beneficial use. Relinquishment only is a concern when a water right is not being applied to its beneficial use. But this amendment does provide consistency within state law, clarifying that trust water rights, whether used for instream flows or another purpose, are not subject to relinquishment.

It is difficult to gauge the direct effects of labeling instream flow use as beneficial or exempting it from relinquishment in Washington. But without one of these statutory amendments, the trust program might not be possible. If instream flow was not made a beneficial use or exempted from forfeiture, the trust would need to defend its use of water for instream flow for more than five consecutive years under a different beneficial use category, such as fish. This practical difficulty likely is the reason why the legislation enacting the trust expanded the definition of beneficial use to include instream flows.

There is debate about the effectiveness of the trust water rights program, as compared to allowing anyone to hold an instream flow right, but there is little question that the trust has been important to riparian protection and restoration, as well as flexibility in water right use in Washington.

Colorado

As noted above, Colorado does not have a forfeiture statute, but a rebuttable presumption of abandonment is established if water is unused for 10 consecutive years. In 2007, the Colorado General Assembly added another justification for nonuse that rebuts the presumption, this time one that pertains to instream flow use.³⁴ All instream flow rights, whether permanent or temporary, are held in trust by the Colorado Water Conservation Board. The only way for water right holders to participate in instream flow protection without threat of abandoning a right is through the Board.

While the Board had entered into water right loans for instream use prior to 2007, amending the abandonment statute has aided these efforts. Clarifying that a water right is not subject to abandonment while loaned to the Board has eased the concerns of some water right holders contemplating this option. The added justification for nonuse also has the potential to encourage instream flow loans as a protection of a portion of a water right not currently needed.

D. Mitigation

Under prior appropriation, changing the purpose or place of use is rarely seamless. Geologic and hydrologic variables often make it difficult to move water as desired without detrimental impacts to the rights of others. Mitigation patches some of these seams by, among other things, replacing the

water that was removed. Defining the use of water for mitigation purposes as beneficial or exempting it from forfeiture can allow more options for the use of water while encouraging greater responsibility in water management.

Idaho

In 2004, the Idaho Legislature added nonuse that results from approved mitigation efforts to its list of forfeiture exemptions.³⁵ According to the official statement of the bill's purpose, "this legislation is to provide assurance that a water right is not subject to forfeiture for nonuse if it is being used as approved by the Director of the Department of Water Resources to mitigate for the effects of using water under a portion of the same or another water right." In essence, this statutory amendment serves as support for the decisions made by the Director, specifically those making use more flexible but protecting existing users and the environment.

This statutory amendment applies to specific instances, each of which can improve the flexibility and adaptability of water management. Appropriating new rights or transferring or exchanging existing rights can be important to getting water where it is most needed. Conditioning a new right, transfer, or exchange on minimizing the resulting impacts often is valuable, or even critical, for protecting existing water users and the environment from the effects of these actions. Without a condition, such an action might not be approved. By explicitly protecting water rights not used due to such an approval condition, the law is clear that following mitigation requirements set out by the Director will not adversely affect the right.

The practical impact of this exemption is yet unclear.

Montana

In 2007, Montana amended its definition of beneficial use in the course of establishing new groundwater use and storage laws. Among the laws enacted as part of this package was a requirement to replace pumped groundwater or mitigate the hydrologic effects of that withdrawal when newly appropriating groundwater in a closed basin. To accommodate this requirement, the state added "aquifer recharge or mitigation" to the definition of beneficial use of surface water.³⁶ This amendment makes possible a change of use of existing water rights to aquifer recharge with no intent of future use, a change to instream flow to offset flow reductions from

34. COLO. REV. STAT. §37-92-103(2):

. . . Any period of nonuse of any portion of a water right shall be tolled, and no intent to discontinue permanent use shall be found for purposes of determining an abandonment of a water right for the duration that . . . (b) The nonuse of a water right is a result of participation in . . . (V) A loan of water to the Colorado water conservation board for instream flow use . . .

35. IDAHO CODE §42-223(10):

No portion of any water right shall be lost or forfeited for nonuse if the nonuse results from the water right being used for mitigation purposes approved by the director of the department of water resources including as a condition of approval for a new water right appropriation approved pursuant to section 42-203A, Idaho Code, a water right transfer approved pursuant to section 42-222, Idaho Code, a water exchange approved pursuant to section 42-240, Idaho Code, or a mitigation plan approved in accordance with rules promulgated pursuant to section 42-603, Idaho Code.

36. MONT. CODE ANN. §85-2-102(4) ("Beneficial use", unless otherwise provided, means . . . (e) a use of water for aquifer recharge or mitigation . . .").

pumping, and other such uses. It increases the flexibility of water use and promotes responsible coordination of surface water and groundwater.

This amendment is relatively recent, and the public discussion of aquifer recharge and mitigation is still in its early stages. But this new beneficial use category already has been applied in a few cases in the Upper Missouri River Basin. In those instances, wells were affecting river flows, so the use of several established water rights were changed to recharge and diverted for that purpose. This option helped the Montana Department of Natural Resources and Conservation out of a difficult regulatory dilemma.

There is some concern among the state's environmental community that adding aquifer recharge and mitigation to the list of approved uses of water will increase demand for, and hence the price of, senior rights for instream flow and other purposes, thus limiting the effectiveness of those programs. But higher prices may be welcome news for senior right holders and have potential to promote greater efficiency by any user, since there would be significant financial incentives to reducing consumption.

E. *Underground Storage*

With a greater understanding of the environmental impacts of dams, and the resulting political obstacles to their construction, states have turned to other means of water supply management. When storage space is available in an aquifer, there is potential to use it like available space behind a dam. Aquifer storage and recovery adds flexibility in the use of existing water rights, such as storing water unused because of crop rotation and then using it in a dry year.

But this approach also has significant implications for supplementing existing rights. A water user may appropriate water in winter months or a particularly wet year, when there is water available for new appropriation, and store it underground until it is needed. Storage and extraction of surface water in an aquifer can promote conjunctive management of groundwater and surface water, as well as improve long-term supply management. This use of water may not fit under a state's traditional water storage laws, and the storage period may extend beyond the statutory forfeiture period. Thus, including underground storage in the definition of beneficial use may be necessary to encourage this practice, let alone for it to be legally viable.

Montana

The same Montana bill that added aquifer recharge and mitigation to the definition of beneficial use in 2007 also authorized aquifer storage and recovery projects in closed basins. To make this legally feasible, the legislature classified the use of water for aquifer storage and subsequent recovery as beneficial.³⁷ The state has yet to set regulations on these projects,

37. MONT. CODE ANN. §85-2-102(4) ("Beneficial use", unless otherwise provided, means . . . (f) a use of water for an aquifer storage and recovery project . . .").

including whether and when stored water must be pumped and used.

Aquifer storage and recovery projects have not been developed as quickly in Montana as have recharge and mitigation efforts. But storage and recovery likely will gain momentum in the coming years. As with recharge and mitigation, storage and recovery presents an added opportunity for existing right holders and may generate added competition for senior rights. The implications of higher values for water rights may be detrimental for existing purchasers like the Montana Water Trust, but might improve use efficiency overall.

California

California classifies aquifer storage as beneficial use, so long as the water is subsequently pumped and put to the beneficial use for which it was being stored.³⁸ The default time frame for pumping stored water is 10 years, but the development schedule on the storage permit may set a different deadline for withdrawal. Under any time frame, this authority adds options to a water user's long-term supply strategy, especially when experiencing significant fluctuations in supplies.

Despite a long history in California, it is difficult to determine exactly how frequently aquifer storage and recovery has been used. The database run by the SWRCB allows a permit to be listed for surface or ground storage, but not both. Thus, the few permits for underground storage on record may not be representative of the true number of projects. Additionally, the law in California is unclear as to whether a change petition is required for aquifer storage when the water being stored is an existing water right—the point of diversion and ultimate purpose and place of use likely are the same, the use is just delayed. Hence, permits may never have been sought for these projects, and accurate numbers cannot be tallied.

Aquifer storage and recovery also can be applied on a larger scale, opening the opportunity for groundwater banking. In California, the Semitropic Groundwater Banking Program is a good example of this approach. The bank has partners from the agricultural, urban, and private sectors, each of which deposits some of its water entitlement from the State Water Project when demand for that water is low. Semitropic either uses this surface water to recharge the aquifer or directly for irrigation, instead of pumping groundwater. Upon request, the bank delivers the partner's stored water either by pumping it from the aquifer or by providing the equivalent amount from Semitropic's State Water Project entitlement.³⁹

38. CAL. WATER CODE §1242 ("The storing of water underground, including the diversion of streams and the flowing of water on lands necessary to the accomplishment of such storage, constitutes a beneficial use of water if the water so stored is thereafter applied to the beneficial purposes for which the appropriation for storage was made.")

39. PEGGY CLIFFORD ET AL., WASHINGTON DEPARTMENT OF ECOLOGY, ANALYSIS OF WATER BANKS IN THE WESTERN UNITED STATES 51 (2004).

Utah

In 2008, the Utah Legislature amended the language of the water storage exemption to Utah's forfeiture statute to include aquifer storage, not just surface reservoirs.⁴⁰ This change was promoted by a single district that is storing water in an aquifer because it does not yet have a demand for water equal to its supply. As a result of the amendment, the use of a water right for aquifer storage and later use is not at risk of forfeiture, even though aquifer storage is not considered a beneficial use in Utah.

Since this amendment is so recent, its practical impact is yet unknown. But, it has the potential to reduce disincentives to short- and long-term storage and recovery projects, including storing water in winter months to be used in the summer and storage in wet years to be used in dry years. This could get more use out of limited water supplies and facilitate cooperative agreements among users. Currently, there are no regulatory limitations on the duration of storage to qualify under this exemption. The state's recharge and recovery program does account for hydrologic losses, reducing the accessible water by 5-10% per year.

F. Source Substitution

Water can come from a variety of sources, some natural and some artificial, some hydrologically linked and some not. Long-term sustainability of water supplies requires thinking about these sources together. Management of ever-changing demands and variations in supplies is aided by flexibility in source usage. In some cases, using a different source in lieu of an established one can help protect the quantity and quality of that old supply. For example, using groundwater in lieu of surface water in dry years can preserve streamflow, and using surface water instead of groundwater in wet years can preserve aquifer supplies. Defining source substitutions as a beneficial use or exempting them from forfeiture removes the threat of losing the right to the old water source and makes these opportunities more viable.

Arizona

Arizona is unique in its management of its different sources of water. The state has four categories of water supplies, each managed differently: Colorado River water, surface water other than Colorado River water, groundwater, and effluent. Colorado River water is allocated based on the law of the river, other surface water rights are allocated by prior appropriation, and rights to groundwater differ by location.

40. UTAH CODE ANN. §73-1-4(2)(a):

When an appropriator or the appropriator's successor in interest abandons or ceases to use all or a portion of a water right for a period of seven years, the water right or the unused portion of that water right is subject to forfeiture . . . (e) This section does not apply to . . . (v) a water right to store water in a surface reservoir or an aquifer . . . if: (A) the water is stored for present or future use; or (B) storage is limited by a safety, regulatory, or engineering restraint that the appropriator or the appropriator's successor in interest cannot reasonably correct.

Arizona has no regulatory scheme for effluent, but because of a decision by the Arizona Supreme Court, *Arizona Public Service Co. v. Long*,⁴¹ those who treat wastewater are entitled to put it to any reasonable use.

In 1992, the Arizona Legislature enacted comprehensive legislation on water substitutions and exchanges. That bill added Subsection E to §45-141 of the Arizona Revised Statutes, exempting surface water rights involved in substitutions or exchanges from forfeiture or abandonment.⁴² As a result, exchanging water or using an alternative source in lieu of the original source of water explicitly would not risk loss of the water right, regardless of whether the original right is beneficially used. In 1995, after the completion of a significant portion of the Central Arizona Project, Subsection E in turn was amended to include Colorado River water in the justified sources for substitution and exchange.

As Arizona increases flexibility in supply and eases the burden on certain sources of water, often groundwater, by meeting demand with other sources, source substitutions and exchanges have become critical to holistic water management and the long-term sustainability of Arizona's water resources.

California

California explicitly classifies the use of recycled water, desalinated water, and wastewater as beneficial, to the extent that it is used in lieu of other water rights.⁴³ This statute allows water right holders to use wastewater instead of the original water, yet the original water is considered to be used. In essence, the right holder lets water flow past the normal point of diversion, but does not return water to the stream where the wastewater normally is deposited. Theoretically, more water is in the stream than normal from the point of diversion to the point of deposit, but otherwise there is no impact on water quantity. Perhaps more importantly, the quality of water after the point of deposit should be better than before this exchange, since the wastewater is no longer being directly added to the river.

So far, this statute has had little effect in California. Its purpose is to promote the use of recycled water, desalinated water, and wastewater, instead of surface water. But in prac-

41. 773 P2d 988 (Ariz. 1989).

42. ARIZ. REV. STAT. §45-141(E):

The following water exchange arrangements or substitutions do not constitute an abandonment or forfeiture of all or any portion of a right to use surface water: 1. Exchanging surface water for groundwater, effluent, Colorado river water, including water delivered through the central Arizona project, or another source of surface water pursuant to chapter 4 of this title. 2. Substituting groundwater, effluent, Colorado river water, including water delivered through the central Arizona project, or another source of surface water for surface water.

43. CAL. WATER CODE §1010(a)(1):

The cessation of, or reduction in, the use of water under any existing right regardless of the basis of right, as the result of the use of recycled water, desalinated water, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses, is deemed equivalent to, and for purposes of maintaining any right shall be construed to constitute, a reasonable beneficial use of water to the extent and in the amount that the recycled, desalinated, or polluted water is being used not exceeding, however, the amount of such reduction.

tice, these alternative sources often are used to supplement surface supplies, not to replace them. In fact, water reuse and desalination have been instrumental in expanding the water supplies of coastal cities in California, and the interest in both technologies continues to grow. However, they are expensive processes, often much more costly than diverting water. Water users have been willing to pay a premium for the added supply, but they are unlikely to pay it for improved water quality for downstream users. Therefore, correcting the legal disincentives against replacing surface water supplies with recycled water, desalinated water, or wastewater has meant very little, as long as the economic disincentives to replacing the original supply, as opposed to supplementing it, are so high.

Oregon

Oregon's forfeiture statute identifies several acceptable justifications for nonuse of a water right. Two of these concern water source substitution: the use of reclaimed water and the reuse of water, instead of water from an existing right.⁴⁴ Reclaimed water is defined in Oregon law as water used for municipal purposes and subsequently made suitable for a beneficial use through treatment. By contrast, water reuse does not demand treatment, originates from industrial or confined animal feeding uses, and is applied to land for irrigation purposes.

Use of reclaimed water and reused water as justifications for nonuse were enacted in 1991 and 1997, respectively. Each was a part of a larger bill promoting the development and expansion of the practice. Forfeiture presents a hurdle to replacing an existing water right with a new source. The new source likely is less consistent or stable than an existing right, especially a senior one. In many cases, the risk of losing the existing right outweighs the benefits of the new source. By removing the forfeiture concern, that risk no longer factors into the equation.

As noted above, reclaiming water involves an expensive treatment process. In most cases, it is cheaper to continue using the existing surface water supplies than replacing it with treated wastewater. However, this statute may gain more traction if wastewater treatment is the least expensive way of correcting a water quality impairment. While water reuse is not necessarily expensive, the quality of water likely is lower than existing supplies, and hence a disincentive to replacing existing supplies, except in certain circumstances.

44. OR. REV. STAT. §540.610(2):

Upon a showing of failure to use beneficially for five successive years, the appropriator has the burden of rebutting the presumption of forfeiture by showing . . . (h) The nonuse occurred during a period of time within which the water right holder was using reclaimed water in lieu of using water under an existing water right. (i) The nonuse occurred during a period of time within which the water right holder was reusing water through land application as authorized by ORS 537.141 (1)(i) or 537.545 (1)(g) in lieu of using water under an existing water right.

Washington

In 2001, the Washington Legislature passed a bill that amended several statutes to promote the reuse of agricultural industrial process water from food processing. The legislature explicitly noted that this industry can play a significant role in promoting water use efficiency. To assist the development of these reuse efforts, the legislature removed several potential water right and permitting hurdles. Among them was relinquishment. The 2001 bill added a new subsection to the state's relinquishment statute, exempting a water right use that is satisfied by reused agricultural industrial process water.⁴⁵

Despite this statute and a simplified permit process for applying agricultural industrial process water (through the state waste discharge permit), such water is not often used in lieu of existing water rights. The wastewater must be treated to a level that is suitable for its intended use, usually agriculture. Again, the cost of treatment, as well as the risk of contamination, may surpass the cost and risk associated with existing water supplies, discouraging the switch.

G. Water Banks

Water banks have the potential to expedite water transfers, temporarily or permanently filling needs as they arise. Use of a water right by another user commonly is viewed the same for purposes of forfeiture as use by the right holder. But if the water right is deposited with a bank and goes unused, it would not be protected. Therefore, exempting from forfeiture water rights that are deposited in the water bank facilitates, and can even encourage, participation in the bank.

Idaho

In 2002, the Idaho Legislature made several additions to its list of exceptions and defenses to forfeiture, among them depositing a right in the water supply bank.⁴⁶ This statutory provision codified the existing understanding that a water right deposited in the bank, regardless of whether it actually is rented or not, qualifies for the forfeiture exemption.

The success of Idaho's statewide water bank has been widely attributed to this forfeiture exemption for deposited water rights. The bank often is used by right holders to protect from forfeiture the portion of their rights that are in excess of what they need. There are some time limitations, but water stays in the bank if it is not rented. Thus, the forfeiture exemption simultaneously reduces a barrier to using the bank, establishes an incentive for participating, and promotes saving water for dry periods and transferring it to the uses for which it is most needed.

45. WASH. REV. CODE §90.14.140(2) (" . . . there shall be no relinquishment of any water right . . . (g) If such a right or portion of the right is authorized for a purpose that is satisfied by the use of agricultural industrial process water . . .").

46. IDAHO CODE §42-223(5) ("A water right shall not be lost or forfeited by a failure of the owner of the right to divert and apply the water to beneficial use while the water right is placed in the water supply bank or is retained in or rented from the water supply bank . . .").

Colorado

As noted above, Colorado does not have a forfeiture statute, but a rebuttable presumption of abandonment is established if water is unused for 10 consecutive years. The state statutorily exempts specific circumstances from the rules of abandonment. In 2005, the Colorado General Assembly added several items to this list, including participation in a water bank program.⁴⁷

Despite Colorado's long and active history of water marketing, the state has had a relatively short and tumultuous history with water banking. The first real attempt at a regulated water bank in Colorado, the Arkansas Water Bank Pilot Program, was approved by the Colorado General Assembly in 2001 and became operational in 2003. It had little, if any, success. The failure of the bank has been attributed to a number of factors, including the duration of the transaction review period, restrictions on multi-year contracts and out-of-basin transfers, prohibition against banking direct flow rights, and the ease of using the bank as a "bulletin board"—entering agreements outside of it.⁴⁸

The threat of abandonment did not appear to affect participation in the bank, and the bank did not fair any better after passage of the 2005 abandonment exemption than it did before the exemption. There has been little expressed interest in water banking in other regions of the state, and since the end of the Arkansas Water Bank Pilot Program, there are no long-term water banking programs created in Colorado. Thus, the abandonment exemption for participation in a water bank appears to have had no influence on right holders or state programs. With other means of large-scale, shorter term water transfers, like the Super Ditch, in place or under development, water banks and their associated statutes may continue to be of limited significance in Colorado.

Texas

As explained above, Texas allows nonuse without cancellation under certain circumstances. As part of a large 1997 bill designed to improve water management decisions, the state legislature drastically revised the list of conditions that must be considered when determining whether nonuse is justified. Among the resulting conditions is the deposit of a water right into the state water bank.⁴⁹

The Texas Legislature created the Texas Water Bank in 1993. But prior to the 1997 amendments, no water rights had been marketed through the bank. Along with other changes to improve the bank's marketing capabilities, the legislature

provided protection from cancellation for those water rights deposited in the bank. Still, these changes have not had a noticeable impact. This result is due in large part to three main factors. First, the Texas Water Bank primarily operates as an information clearinghouse, including a list of sellers and buyers, which makes transactions outside the bank easier, and makes data on the true influence of the bank incomplete. Second, cancellation is not well enforced in Texas, and without enforcement, protection from cancellation does not offer much incentive. Third, the protection is not absolute. The statute only requires that depositing the water right in the bank be considered, not that it is determinative.

H. Substantially Used

Forfeiture often applies to any portion of a water right that is unused. In practice, it is difficult to enforce this strictly. The exemption from forfeiture of water rights that are "substantially used" can be a practical adaptation to the law, expressly allowing a little more flexibility.

Utah

In 2002, the Utah Legislature added several exemptions to its forfeiture statute. Among these was the substantial use of the right.⁵⁰ As is true in other western states, forfeiture in Utah is not an all-or-nothing issue. Partial forfeiture is the loss of the portion of a water right that is unused for the statutory period, which in Utah is seven years. In other words, if a right holder uses 60% of the right for seven years, he is subject to losing the other 40%. The addition of the substantial use exemption in 2002 modifies partial forfeiture in Utah by protecting the entire right if "substantially all" of the right has been beneficially used within the seven years in question.

"Substantially all" is not defined in the statute. The legislature could not resolve what percentage of usage should qualify under this exemption, so it left that determination to the state engineer with only the vague guidance of "substantially all." The state engineer has not yet determined an exact standard, but according to his office, it will be fairly high—somewhere in the range of 80-95%.

This forfeiture exemption has not yet been applied in practice. But it has the potential to relieve concerns of strict forfeiture enforcement, where it exists, and allow small reductions in usage from conservation and general variability in use. The exemption puts breathing room into a law that otherwise is very tight.

47. COLO. REV. STAT. §37-92-103(2) ("... Any period of nonuse of any portion of a water right shall be tolled, and no intent to discontinue permanent use shall be found for purposes of determining an abandonment of a water right for the duration that ... (b) The nonuse of a water right is a result of participation in ... (IV) A water banking program as provided by law.")

48. HAL D. SIMPSON, REPORT TO THE GOVERNOR AND LEGISLATURE ON THE ARKANSAS RIVER WATER BANK PILOT PROGRAM (2005).

49. TEX. WATER CODE ANN. §11.177(b) ("In determining what constitutes reasonable diligence or a justified nonuse as used in Subsection (a)(2), the commission shall give consideration to ... (4) whether the permit, certified filing, or certificate of adjudication has been deposited into the Texas Water Bank ...").

50. UTAH CODE ANN. §73-1-4(2)(a):

When an appropriator or the appropriator's successor in interest abandons or ceases to use all or a portion of a water right for a period of seven years, the water right or the unused portion of that water right is subject to forfeiture ... (e) This section does not apply to ... (vi) a water right if a water user has beneficially used substantially all of the water right within a seven-year period ...

II. Assisting Incentives for Sustainability From the Market

Reducing the disincentives to sustainable practices posed by forfeiture and abandonment is only one step toward a prior appropriation system aligned to meet the West's water challenges. And it is a small step. Beyond legal rules, a driving force in encouraging efficiency and relocating uses is the market. The water market can be seen as a friend or foe, the means of securing senior rights or a destroyer of long-established societies and livelihoods.

Part of the reason for this disconnect is the rigidity of the traditional rules surrounding prior appropriation. The more expensive and time-intensive the water right transfers, the greater the incentive to "buy and dry" agricultural lands. Conversely, quick yet thorough transfer reviews, responsive transfer agreements, sufficient third-party protections, and the authority to transfer or otherwise use conserved water create potential incentives for efficiency and effective water use under any hydrologic condition.

A market that timely responds to demand shifts could allow water to be used for agriculture, except when most needed for other uses, giving society the crops and products it demands when feasible and supporting the farmers when not. A responsive market also can create a real price for water, giving all users more incentive to be efficient. Farmers would have more water to lease or sell while being consistently productive, and municipal and industrial users would have to buy the same or less despite increasing populations and production.

Classifying water conservation as a use or exempting it from forfeiture removes concern about forfeiture or abandonment, but it does not necessarily allow for the influence of the market. For that, the state must allow conserved water to be transferred, or at least authorize a change in the purpose or place of use, while retaining its appropriation date (seniority). The right holder is then able to reap financial benefit from improved efficiency, either by leasing or selling the conserved water or using it for other productive purposes.

However, the traditional rules surrounding prior appropriation require detailed review of any significant modification to a water right. This affects the speed with which a transfer or other change in a water right may occur, and hence reduces the responsiveness of a water market. But this review does serve an important purpose under prior appropriation. In most western states, the amount of water that one has a right to divert (paper right) is not necessarily the amount that the right holder may consume (consumptive use right). Paper rights for agricultural irrigation based on field-flooding practices can be triple the amount of water actually consumed. Water can be "lost" to evaporation, via surface runoff, and by percolating into groundwater, in transport or application. Water that returns to the stream or river through surface runoff and groundwater commonly is used by right holders downstream. Therefore, the operation of the series of

rights in a given basin often relies heavily upon these return flows to remain viable.

Changing the purpose of use, e.g., from agriculture to industrial, and the place of use, e.g., from abutting a river to three miles from it, can affect the quantity and location of these return flows. Changing the point of diversion, e.g., from upstream to downstream, affects where the water is demanded and how much is "lost" in transport. Thus, these amendments to a water right must be approved in order to assure that they will not impair other water rights. Without such protections, upstream users could disrupt the delicate balance of use and return flows, affecting the availability of water for downstream right holders. The science required for determining consumptive use and whether a change will affect other right holders can be time-intensive and expensive. There also may be a long line of other applicants, delaying the process further.

This part explores examples of how states have modified their laws to balance these protections with flexibility and expediency in ways that allow a more responsive water market and ultimately greater incentive for water use efficiency.

A. Allow the Use or Sale of Water Conserved

Determining whether water conservation measures are actually reducing consumptive use and evaporative losses, as opposed to simply reducing return flows to the river, is difficult. This practical obstacle makes granting the authority to use conserved water for another purpose or in another place a risky proposition—it may enlarge the right. But allowing a right holder to otherwise use or transfer conserved water provides an added incentive for conservation and makes a greater number of projects economically viable.

California

Closely linked with Subsection (a) of California Water Code §1011, which makes water conservation a beneficial use (explained in detail in Chapter II), subsection (b) allows conserved water to be transferred and its purpose of use, place of use, and point of diversion changed, just like any other water right.⁵¹ This affords the permittee or licensee of a water right in California the opportunity to benefit from efficiency measures by receiving money through transfer of the conserved water, by using the conserved water to meet settlement obligations, or by applying the conserved water to a new purpose or location, among other options.

The potential impact of this language is magnified by the fact that in California, the amount of water conserved is

51. CAL. WATER CODE §1011(b):

Water, or the right to the use of water, the use of which has ceased or been reduced as the result of water conservation efforts as described in subdivision (a), may be sold, leased, exchanged, or otherwise transferred pursuant to any provision of law relating to the transfer of water or water rights, including, but not limited to, provisions of law governing any change in point of diversion, place of use, and purpose of use due to the transfer.

based upon the reduction of withdrawal at the point of diversion. Under this practice, consumption and conservation are not necessarily connected. A permittee or licensee can “conserve” water by limiting transportation and application losses that otherwise would return to the stream or aquifer. This liberal application of the term makes credits for conservation much easier to get than in other states. But greater total consumption, and consequently less water recharging the aquifer and returning to the stream, threatens the quantity of groundwater supplies and increases the potential for impairment of other water users.

Despite a very favorable environment for conservation, this statute has not been widely used. There have been only a few cases, the most notable of which is the transfer of approximately 500,000 acre-feet of conserved water from the Imperial Irrigation District to the San Diego County Water Authority. Individuals involved in this area attribute the untapped conservation potential, not to the laws of the state, but to failure to advertise the opportunities available, as well as water users’ limited view of the need for water use efficiency.

But as drought in California looms even larger, the available supply of water will decrease and the price of water will increase, particularly due to municipal demand. Those with water will have a significant financial incentive to transfer all or some of it, and this statute could provide a valuable means of retaining current use while receiving additional funds from conserved water transfers.

Oregon

Oregon’s Conserved Water Program is designed to provide economic incentives for improving water use efficiency and thereby increasing water availability. The authority to transfer or otherwise use the conserved water is an important part of that incentive structure, allowing the water right holder to gain additional income from water saved.⁵² As in California, conservation measures in Oregon do not necessarily have to reduce consumptive use; they can include projects like canal lining.

But unlike California, Oregon law mandates that credit for the quantity of water conserved be reduced by the amount necessary to mitigate the effects of the efficiency measures on other water users. In practice, this mitigation amount can consume a significant portion of the water deemed to be conserved. While this reduces the benefit to the water right holder of adopting more efficient transportation and use techniques and technologies, it may also reduce the severity of hydrologic drawdown and chance of future impairment claims.

Additionally, Oregon Revised Statute §537.470(3) requires that, of the quantity of water remaining after the mitigation reduction, at least 25% be allocated to the state for instream flow use. If the conservation was achieved with government

funding, this percentage increases relative to the level of that funding, but no more than 75%. Theoretically, such a structure gives incentive to the state to promote water efficiency measures, whether financially or otherwise, so as to improve instream flows. But the 25% minimum dedication to the state, even when there is no government funding for the project, further reduces the potential benefit to the water right holder.

The program’s market-based incentives have not been used often, nor have they spread much water to new uses. The program began in 1987, but the state received only two conserved water applications before 1996.⁵³ Since then, the number of applications has grown slowly but steadily, with most of the activity in the Deschutes and Umatilla basins. The Walla Walla sub-basin of the Umatilla has had a number of conserved water applications for on-farm efficiency projects, primarily because mitigation is not an issue. The Walla Walla flows into Washington, and there is no responsibility for losses to water right holders across the border. Instead of this geographic advantage, the Deschutes Basin has a geologic one. The volcanic rock base in the area causes significant seepage losses, creating the opportunity for large piping projects to conserve substantial amounts of water.

In practice, Conserved Water Program projects often must be large to be economical. The costs of developing the project, coordinating participants, and going through the application process are considerable, so the amount of water available for use at the end of the process must be enough to have made that expense a logical investment.⁵⁴ Additionally, the application process is time-intensive, which means a significant delay in seeing a return on the initial investment. Part of the success of the Deschutes River Conservancy in using this program is attributed to the fact that a preexisting U.S. Geological Survey study sped up the process for determining the amount of water needed for mitigation. The Oregon Water Resources Department has sought to address this general problem by dedicating a staff member exclusively to the program and striving for a five-month time frame for review.

For the most part, projects in other basins have not had the same success with the Conserved Water Program, because they do not have one of the aforementioned characteristics. But the program is still developing, and the fundamental structure still has promise.

Washington

Washington law is not as explicit about using and transferring conserved water as the laws of California and Oregon, but Washington offers similar market-based incentives. Washington law authorizes the use of water in a new place and for a new purpose if it does not increase the annual con-

52. OR. REV. STAT. §537.490(1) (“Any person or agency allocated conserved water under ORS 537.470 may reserve the water in stream for future out-of-stream use or otherwise use or dispose of the conserved water.”).

53. Aylward, *supra* note 12, at 7.

54. Aylward, *supra* note 12, at 33.

sumptive quantity of the right.⁵⁵ This is not an efficiency-oriented statute on its face, but the flexibility in usage that it allows, as well as its constraints on consumption, lend itself to this end.

The statute defines the annual consumptive quantity as the average of the two years of most use within the last five-year period of continuous use. Use is determined by the amount of water diverted in that year, minus the estimated return flows. Thus, the amount of water available for other uses or places is linked to the reduction in consumption at the original location for the original purpose. Under this structure, if water right holders apply efficiency techniques and technologies that actually reduce water consumption, they may be able to maintain the productivity of their current usage while making water available for other purposes or places, or even for lease.

In practice, this statute has been one of the more successful tools for encouraging water use efficiency in Washington. It has influenced usage decisions and opened discussion about innovations in conservation. While pleased with these outcomes, many of the state's water-focused nonprofit organizations are concerned about the statute's potential for increasing agricultural acreage. For this reason and others, there is a push for the state to promote certain uses of this conserved water over others.

While there is no hierarchy of uses for conserved water in the state, Washington Revised Code §90.42.030 requires that public benefits, often in the form of water for instream flows, be given to the state if it or the federal government financially supports the water conservation project. As in Oregon, the state water trust receives a portion of the conserved water equal to the proportion of the project cost funded by the government. Unlike Oregon law, Washington has no minimum or maximum donation requirements to the state water trust. Thus, if the project receives no government funding, it is under no obligation to donate any of the conserved water. On the other hand, the project could be required to contribute more than 75% of the conserved water to the trust if more than that percentage of the project cost is covered by government funds.

Montana

In 1991, the Montana Legislature passed a bill that allowed salvaged water to be put to a different use, applied to a new location, leased, or even sold, so long as the right holder met the requirements for state approval.⁵⁶ The state defines

55. WASH. REV. CODE §90.03.380(1) (“... A change in the place of use, point of diversion, and/or purpose of use of a water right to enable irrigation of additional acreage or the addition of new uses may be permitted if such change results in no increase in the annual consumptive quantity of water used under the water right . . .”).

56. MONT. CODE ANN. §85-2-419:

. . . holders of appropriation rights who salvage water may retain the right to the salvaged water for beneficial use. Except for a short-term lease pursuant to 85-2-410, any use of the right to salvaged water for any purpose or in any place other than that associated with the original appropriation right must be approved by the department as a change in appropriation right . . . Sale of the right to salvaged water . . . and the lease of the right to salvaged water must be [approved].

“salvage” as “mak[ing] water available for beneficial use from an existing valid appropriation through application of water-saving methods.”⁵⁷ The state defines “water saving method” as:

a change to the actual water use system or management of water use in which the modification being made would decrease the amount of water needed to accomplish the same result. Water saving methods might include: (a) changing from a ditch conveyance to a pipeline; (b) lining an earthen ditch with concrete or plastic; and (c) changing management of a water system to decrease water consumption.⁵⁸

Therefore, the Montana salvage statute opens the opportunity for market-based incentives for conservation by allowing the new use or sale of water saved through conservation measures.

In effect, the Montana salvage statute was a codification of existing practice. The Montana Department of Natural Resources and Conservation (DNRC) had been allowing such activity prior to the bill's enactment. According to several state officials, neither before nor after 1991 did this opportunity result in a significant change in the number or extent of conservation projects in the state. The FWP has used the salvage water statute to make water available for instream flow while maintaining agricultural production. Trout Unlimited also has used this statute a number of times.

As in other states with statutes that allow the transfer or new use of conserved water but do not tightly link conservation to reductions in consumption, there is a general concern in Montana over the statute's potential for increasing impairment of other users' water rights. If the right holder receives approval to use more water than actually was saved by reducing consumption, the state is effectively sanctioning expansion of the consumptive use right. If water users upstream are actually consuming more than they traditionally have, there will be less water available for downstream users and a greater chance of water right impairment. Montana already has started to see some of these problems due to piping and certain irrigation techniques. According to state officials, Montana DNRC has begun to take a conservative view of what can be considered consumptive use. Litigation on this issue is pending.

New Mexico

In 2007, the New Mexico Legislature amended its water allowance statute to provide flexibility in usage of conserved water. The state engineer was given authority to approve the change of use, place of use, or point of diversion for conserved irrigation water.⁵⁹ As noted above, New

57. MONT. CODE ANN. §85-2-102(20).

58. MONT. ADMIN. R. 36.12.101(77).

59. N.M. STAT. ANN. §72-5-18(C):

Any water rights owner who demonstrates that improved irrigation or changes in agricultural practices have resulted in the conservation of water shall be able to make an application to the state engineer for a change in the point of diversion or place or purpose of use of the

Mexico does not explicitly recognize conserved water as a beneficial use in its statutes. In fact, this 2007 bill originally included language declaring conserved water to be a beneficial use, but it was stricken prior to passage. Despite this circumstance, the water allowance statute preserves an owner's irrigation water rights and appurtenant acreage, even if water usage drops due to conservation. It also establishes a means of putting that conserved water to another use in another location.

Under the 2007 amendment, the water right owner bears the burden of demonstrating conservation to the state engineer. The statute states that conservation can result from improved irrigation or changes in agricultural practices. While this does not appear to include canal lining and other projects noted in other states' definition of conservation, it still is a generous view of conservation and is not necessarily connected to an actual reduction in evaporative or seepage losses or consumptive use.

The statute also states that conservation may not impair or diminish other water rights. The 2007 bill, as originally introduced, included the more stringent requirement that there be no increase in net depletions, but this provision was removed before the bill was passed. Thus, the law technically allows reductions in stream flow as a result of conservation and subsequent change of purpose and place of use, but only when other water rights are not affected.

In its official comments on the 2007 bill, the Office of the State Engineer expressed concern over the potential to further reduce instream flows. The Office stated that agricultural conservation usually results in the same consumptive use or even an increase in consumption, and when there are true water savings, they are nearly impossible to quantify with certainty. The Office noted that the bill, in conjunction with an elimination of watermasters, likely would result in additional water depletions and an expansion of the problems faced in the Pecos River to most of the state's compacted rivers.

This statute has the structure for incentivizing conservation in agricultural water use, particularly since it may result in leases to municipalities. But it has not yet been a factor in increasing municipal supplies.

B. Accelerate the Transfer Process

Transferring a water right, whether in the short term or long term, can greatly disrupt the delicate structure of use and return flows in the basin. Transfers often entail a change in purpose of use, place of use, and point of diversion. The science and procedure commonly required to ensure that other right holders are unharmed by these changes is important but onerous. A long review process makes transfers expensive and time-consuming. As a result, some transfers are not feasible on account of the small amount of water to be trans-

ferred (uneconomical given the costs) or the immediacy of the need (demand will have passed by the time the transfer is approved).

Accelerating the review process can make more of these transfers possible. Water supply can be more responsive to demand. Water rights can remain with lower value uses, such as agriculture (commonly the most senior water rights), and then leased to other users in dry periods. This reduces the incentive for one-time transfers (hence less pressure to "buy and dry"), may provide income beyond the opportunity cost of fallow fields, and keeps farms in business.

But a too-quick review process at the expense of protecting other users and third parties may simply lead to political roadblocks and more litigation after approval of the transfer, both of which ultimately slow the process again. Thus, expedited review must be sufficiently thorough or rely on accurate estimates to truly accelerate the process. To allow transactions to occur even faster than any full-blown process would allow, the state can conditionally preapprove transfers or permit greater variance in the terms of a water right, such as when and where the water is used. Faster transfer procedures that also retain their basic protections have the potential to meet the many, varied demands for water as frequently as possible.

I. Expedite Review Procedures

Quick reviews make it economically and temporally viable to affect a greater number of transfers and other changes, particularly those for the short term.

California

In 1999, the California Legislature repealed Water Code §1726, governing the petition requirements for a temporary point of diversion, place of use, or purpose of use. It was replaced by a statute that sets deadlines for the SWRCB for temporary water right changes, those that last for one year or less.⁶⁰ The SWRCB must begin its review of these petitions within 10 days of receiving them and decide within the following 35 days whether the change would harm another water user. In the case of a protest or other good reason, the SWRCB may extend the review period by at most 20 days. As compared to changes that took one year or more, this is a quick turnaround.

In practice, these time constraints have effectively accelerated the review process while maintaining a relatively high quality of analysis. The expedited review has, in turn, resulted in more petitions to the SWRCB for temporary changes, now about five per year. This increase in short-term changes has not had an apparent effect on the number of long-term leases, which suggests that expedited review is

quantity of conserved water, provided that: (1) conservation of water shall not result in impairment or diminishment of other water rights; and (2) priority and quality of right shall be assessed under the same standards as apply to transfers.

60. CAL. WATER CODE §1726 ("... (e) Within 10 days of the date of receipt of a petition, the board shall commence an investigation of the proposed temporary change... (g)(1) ... the board shall render a decision on the petition not later than 35 days after the date that investigation commenced or the date that the notice was published, whichever is later.").

making more transactions feasible rather than simply altering transaction strategies. With a quick review process for temporary changes, water users in California have been able to be more responsive to changing circumstances, a trait that will be increasingly useful as water supplies become more uncertain.

Colorado

In 2002, Colorado enacted legislation that codified temporary review procedures for augmentation plans, rotational crop management contracts, and changes to water rights.⁶¹ In Colorado, review of these plans, contracts, and changes are to be performed by a state water court. But the statute also grants authority to the state engineer to approve a plan, contract, or change for one year or less if it has been filed with a water court. The state engineer may renew its approval each year until the court issues a decree, so long as delay in obtaining a decree is justified. In essence, this allows temporary operation of a plan following an administrative review while a more formal decision is being made by the court.

If an augmentation plan or change of water right has not been filed with the court, this statute authorizes the state engineer to approve the plan or change, so long as the effects of the project will not last beyond five years. The state engineer may renew the substitute water supply plan each year up to the fifth year. In essence, this offers temporary operation of short-term augmentation plans or changes of water rights.

In either instance, the applicant still must provide notice to relevant parties, and the state engineer must allow 30 days for comments. The state engineer must consider all comments but is not required to hold formal hearings or other proceedings. The state engineer may impose terms and conditions on the substitute water supply plan to ensure that the plan will replace all out-of-priority depletions in time, location, and amount; will prevent injury to other water rights; and will not affect compliance with interstate compacts.

In practice, this legislation has improved the efficiency of water transfers in Colorado, but only as all parties have become accustomed to the process. Soon after the bill's passage, the city of Aurora used this method of temporary approval for its Highline Project, a two-year pilot water leasing-fallowing agreement with 160 farmers. Even

under this expedited process for short-term projects, it still took 18 months before the substitute water supply plan was approved by the state engineer. However, a number of factors contributed to this delay, including the very large amount of water to be transferred, the fact that it proposed an interbasin transfer, and the numerous other augmentation plans and substitute water supply plans submitted to the state engineer. Since that time, petition writers and the state engineer have become more comfortable with the process for submitting and reviewing these petitions; applicants now are required to file by December 31, and approvals are routinely granted by March 31, the start of the "water year" in Colorado.

In the near future, this expedited process will serve as the mechanism for transferring water under the water leasing program commonly known as the Super Ditch. Modeled in large part after the water transfer agreement between the Palo Verde Irrigation District and Metropolitan Water District of Southern California, the Super Ditch is designed to maximize the short-term and long-term use and value of irrigation water and retain water rights in the hands of farmers. When the Super Ditch begins operation, it will lease water, made available from field fallowing by farmers in a number of ditch and reservoir companies in the Lower Arkansas River Valley, to municipalities and other water users. The amount of water supplied to customers will largely depend on the demand in a given year. Hence, the expedited review process is instrumental to the annual flexibility of the supply, and ultimately to maximizing the water's use and value.

Wyoming

Starting in 1959, the state of Wyoming has allowed an expedited water transfer review process for changes of use of two years or less.⁶² Normally, the change of use or place of use must be approved by the State Board of Control under Wyoming Statutes Annotated §41-3-104, a process that requires careful consideration of historical consumptive use and historical return flow, and may require a public hearing at the petitioner's expense. Under the temporary water use statute, petitions are reviewed by the state engineer and the procedures are abbreviated. While the temporary change of use still may not exceed historical use amounts, this restriction is roughly estimated in the temporary change context as a 50% return flow requirement. If the 50% estimate is significantly in error, the state engineer may determine the actual amount of historical return flow and limit the consumptive use amount accordingly. But the 50% estimate serves as a

61. COLO. REV. STAT. §37-92-308(4)(a):

. . . if an application for approval of a plan for augmentation, rotational crop management contract, or change of water right has been filed with a water court and the court has not issued a decree, the state engineer may approve the temporary operation of such plan, contract, or change of water right as a substitute water supply plan . . . (5)(a) . . . for new water use plans involving out-of-priority diversions or a change of water right, if no application for approval of a plan for augmentation or a change of water right has been filed with a water court and the water use plan or change proposed and the depletions associated with such water use plan or change will be for a limited duration not to exceed five years, the state engineer may approve such plan or change as a substitute water supply plan . . .

62. WYO. STAT. ANN. §41-3-110(a):

Any person shall have the right to acquire by purchase, gift or lease the right to the use of water which may be embraced in any adjudicated or valid unadjudicated water right, or any portion thereof, for a period of [sic] not to exceed two (2) years, for highway construction or repair, railroad roadbed construction or repair, drilling and producing operations, or other temporary purposes . . . (b) Before any right to such use shall become operative, an application . . . shall be filed in the office of the state engineer for his ratification and approval.

convenient and sufficiently accurate baseline for most temporary use changes.

Wyoming's temporary water use statute is more limited in scope than those seen in other states, in large part due to its historical purpose of providing flexibility between sectors for brief emergency uses. Thus, intrasector transfers, e.g., between farmers, may not use this expedited process. The statute also explicitly references the type of temporary uses envisioned by the Wyoming Legislature, including highway and railroad construction and drilling operations. But the list is not exhaustive; the statute has been used to, among other things, supply municipalities with water during periods of drought. Attempts have been made to use this statute for temporary changes of use to instream flow, but that has been rejected as beyond the bounds of the statute. There is significant opposition to making the statute more inclusive, due in part to a comfort level with existing uses and a belief that the statute was meant for truly temporary uses. Bills for new, more inclusive statutes on temporary change of use procedures have been and continue to be introduced.

The temporary water use statute explicitly limits the duration of the changed use to two years to qualify as temporary. However, renewals are permitted, and there is no limit on renewals. A few of the changes have been renewed several times, but most actually last for two years or less. One issue that has yet to be resolved is whether there is abandonment of a water right if the temporary transfer surpasses five years. Like the push to include more uses under the statute, there also has been a demand for a permit period longer than two years. But, this has met with resistance as well, mostly out of concern over losing the original purpose of the water right because of it being used for something else for a long period.

The temporary water use statute has been instrumental in facilitating water use transfers in Wyoming. Between 100 and 200 such applications are approved by the state engineer every year.

Idaho

Informal water banking has occurred in Idaho since the early 1930s, but formal statutory provisions governing this process were not enacted until 1979. Idaho has several types of banking programs: a state bank; five local rental pools; and a bank created by the Shoshone-Bannock Tribe. The Idaho Water Resources Board (IWRB) sets policy and runs the Idaho State Water Supply Bank. The rental pools are a subset of the bank system run by local committees appointed by the IWRB.⁶³

For the State Bank, the IWRB serves as an intermediary between lessors and lessees of water, obtaining rights to water, commonly natural flow rights as opposed to storage rights, and subsequently leasing them. As with any other water transfer, rental of water from the State Bank must

be approved by the Director of the Idaho Department of Water Resources and may not, among other things, impair other water rights, enlarge the right at issue, or conflict with the public interest. However, the administrative procedures for approval of a rental from the State Bank are less onerous than, and replace, the procedures required for other water transfers.⁶⁴ For example, the Director need not seek the advice of the district watermaster, provide notice of the rental, or conduct hearings about the rental. While the protections of other users remain mostly intact, the abbreviated process allows for quick review and ultimately faster transfers.

The rental pools share some common rules set by the IWRB but have developed their own unique operating procedures. The Snake River Rental Pool, the most active of the pools, has a late-season fill program that attempts to reimburse participants for water shortages caused by the previous year's rentals rather than attempting to prevent those shortages upfront. This results in a standardized, expedited rental process. Each year, 50,000 acre-feet of late-season fill water is made available for rent. If the reservoirs do not fill the next year, participating reservoir spaceholders will be paid in proportion to the impact of those rentals on their current water storage supply. These payments are made from the Impact Fund and limited to the amount of money in the Fund. Each year, 70% of the net proceeds from rentals is distributed to participating spaceholders, and the remaining 30% is put into the Impact Fund. If the Fund is not used in a given year, it carries over to the next year, building a larger financial buffer for participants.

For short-term leases or rentals, the Idaho water banking system has been very effective, in some cases with nearly seamless day-to-day transfers. It has not been as effective for longer term leases or permanent transfers. The statutory exemption of banked water from forfeiture contributes to the success of this system, as water right holders commonly use it to protect their rights from forfeiture.

Washington

The Yakima Basin Water Transfer Working Group (WTWG) arose in 2001 as part of the Yakima Emergency Water Bank. The Bank was established by the Washington Department of Ecology (DOE) and the U.S. Bureau of Reclamation to facilitate short-term water transfers and relieve the effects of the 2001 drought in the Yakima Basin. The WTWG served as a means of expediting the review process for water transfers—with a 15-day turnaround objective.⁶⁵

Representatives of the Bureau of Reclamation and DOE, the two agencies with decisionmaking authority on water rights transfers, hosted the WTWG, which

63. Clifford, *supra* note 39, at 61-62.

64. IDAHO CODE §42-1764(1) ("The approval of a rental of water from the water supply bank may be a substitute for the transfer proceeding requirements . . .").

65. WATER TRANSFER GUIDELINES, YAKIMA RIVER BASIN CONSERVATION ADVISORY GROUP ("(A) Basic Criteria for "fast track" response to transfer request: (1) Equivalent reductions in consumptive use, (2) Water that would have been used if not for transfer, (3) Transfer must adhere to specific delivery schedule, (4) Must be no adverse change in instream flow, (5) Operational Impacts.").

included hydrologists, water users, and water rights experts from across the Yakima Basin. Members of the WTWG served voluntarily and did not formally represent their respective organizations. Since those likely to sue or raise objections to transfers were a part of the WTWG, concerns could be vetted in the group, and unanimous approval was a positive indication that the transfer would not adversely affect streamflow or other users. The WTWG established a set of guidelines, and if the proposed transfer was found to be consistent with those guidelines, the WTWG would label the proposal as “recommended.” If the proposal did not receive this label, the WTWG often would help the applicant make the necessary adjustments to be “recommended.”

For temporary transfers or changes in water rights subject to the Yakima River Adjudication, which most proposals were, the Yakima County Superior Court holds the authority to approve or deny the proposal. The WTWG would notify the court of “recommended” proposals. If a proposed transfer was not “recommended,” the applicant was still free to apply to the court for approval. (http://www.ecy.wa.gov/programs/WR/ywtwg/ywtwg_qanda.html) The judicial approval rate of “recommended” proposals was 100%.

The success of the WTWG in 2001 led to its permanent status. It continues to function just as it did then, but the high transfer volume in dry years like 2001 makes the system, particularly pricing, faster and easier than in wetter years. A 45-day turnaround period has been the goal in non-drought years. In 2005, the next drought period, the WTWG operated better, more cheaply, and faster than in 2001, in large part because it was composed primarily of the same people as in 2001. That year, it reserved more water for instream flows than in 2001, and was done by May rather than July.

The continued success of the WTWG in expediting water transfers and changes of use is attributed to several key factors. First, it is composed of dedicated experts, familiar with the area and coming from the entire range of interests in the Yakima Basin. Second, the court is responsive, holding hearings every week when there are water matters for it to decide. Third, the Yakima Basin is fully adjudicated, which clarifies what is being reviewed and provides a base for collaboration since the parties know each other. Finally, the fact that reservoirs are high in the basin helps with the flexibility of water transfers.

Replicating this scenario elsewhere would be difficult, if not impossible. But the success of the WTWG suggests that a similar program in a different environment may still have positive results for optimizing the speed, while retaining the thoroughness, of the transfer review process.

2. Protect Third Parties

Third parties, those that are not on either end of the water transfer, could delay the transfer process through formal comments and formal hearings, subsequent lawsuits, or political pressure, if available. Therefore, minimizing the direct and indirect effects of transfers and other water right

changes on third parties can be an important factor in expediting the transfer process. Balancing the time and money for this effort with the extent of third-party protections can optimize the average time needed for transfer approval.

Colorado

In 1992, Colorado began requiring revegetation provisions in change of use agreements that move water from irrigation to other uses. In 2003, the legislature expanded this law to include noxious weed management. As now composed, the law requires that former farmlands from which water is removed by a transfer agreement be managed so as to accomplish both goals.⁶⁶ The transfer applicant may stop maintaining the former farmland for revegetation only after receiving a final determination by the court stating that no further water is needed for that purpose.

In practice, this law has not been particularly influential, until recently. This result is partly due to the fact that revegetation provisions were already fairly common by 1992. Perhaps more important, the statute does not explain what is meant by “reasonable provisions,” only that they must be included. Recent court decisions are beginning to create a baseline of standards, which is helping the statute gain value and improve preexisting practice.

Addressing a different consequence of water transfers on third parties, in 2003, the Colorado General Assembly amended the standards by which water judges and referees make their rulings. This new statutory provision allows courts to impose transition mitigation payments and bonded indebtedness payments on significant water transfers.⁶⁷ As defined in the law, transition mitigation payments are meant to offset reductions in property tax revenue resulting from significant water development activities. Bonded indebtedness payments serve a similar purpose for bond repayment revenue. Each type of payment shall be made on an annual basis according to a schedule determined by the applicant and taxing entities, if they come to an agreement, otherwise by the court.

This statutory amendment was born from practice. For example, an agreement between Rocky Ford area farmers and the city of Aurora in the late 1980s, Rocky Ford I, included payments in lieu of taxes. But while the payments had precedent, they were not entirely commonplace. By allowing the courts to actively impose the payments, the statute promotes

66. COLO. REV. STAT. §37-92-305(4.5)(a) (“The terms and conditions applicable to changes of use of water rights from agricultural irrigation purposes to other beneficial uses shall include reasonable provisions designed to accomplish the revegetation and noxious weed management of lands from which irrigation water is removed.”).

67. COLO. REV. STAT. §37-92-305(4.5)(b)(I):
 . . . a court may impose the following mitigation payments upon any person who files an application for removal of water as part of a significant water development activity: (A) Transition mitigation payment . . . shall equal the amount of the reduction in property tax revenues for property that is subject to taxation . . . Such payment shall be made on an annual basis . . . (B) Bonded indebtedness payment . . . shall be equal to the reduction in bond repayment revenues that is attributable to the removal of water as part of a significant water development activity.

their inclusion in water transfer agreements and provides added protection for the interests of county governments from which the water originates.

Wyoming

For over 30 years, the state of Wyoming has had a detailed statutory procedure for changing the use or place of use of a water right. Included in this statute is a list of limitations on such a change: it shall not injure other water users, increase consumptive use, decrease historic return flow, or exceed the historic amount and rate of diversion. In addition to these factors, the Wyoming State Board of Control, the decisionmaking authority over change of use and place of use petitions, must consider third-party impacts that it believes are pertinent.⁶⁸

Of note are the economic implications to the community from which the water right would be transferred, as well as the impact to the state if the use to which the water had been put is discontinued. Concern over these losses can be reduced by the economic benefits of the new use of the water. But if the water is transferred out of the original community, the new use will not offset the community's losses, even if it completely offsets the state's losses.

In practice, this statute and these considerations have affected the board's decisions on some petitions. More than anything, the added considerations have prompted the rule of thumb that the more information that is provided in support of a petition, and hence in minimizing these losses, the more likely it is that the petition will succeed.

California

In 1986, California enacted legislation designed to facilitate voluntary water transfers by making it easier to transport water from seller to buyer. The statute prohibits state, regional, or local agencies from denying the transfer of water through conveyance facilities that have unused capacity, so long as fair compensation is paid for that use. As a result, the number of potential buyers and sellers with realistic access to one another increased: pipes and canals that do not belong to either party can be used to transport water. Currently, this statute has significant application to the California State Water Project, an extensive system of reservoirs, aqueducts, and pumping plants for the purpose of storing and distributing water to urban and agricultural users throughout the state.

The statute placed a few limitations on this activity, including limiting unreasonable impacts on fish, wildlife, and the overall economy and environment of the seller's

county.⁶⁹ In other words, if a water transfer will have one of these impacts, public agency facilities shall not transport that water. Where an alternative means of conveying the water exists, this statute may not have much effect on whether the transfer occurs. But the expansive network of publicly owned conveyance facilities in California means that they may be not only the best way, but the only way to get water from seller to buyer. This scenario increases the likelihood that the statute will operate to limit those water transactions with significant third-party impacts.

In practice, these limitations have had a tangible result. Among other examples, a number of water transfers from the Colorado River have had to address third-party impacts. Further, the California Department of Water Resources used the considerations from this statute when developing the Environmental Water Account, which is intended to reduce the impact of supply transfers on flows for fish species. The statute also was used as the basis for the environmental aspects of the 2009 Water Bank.

Distinct from these conveyance rules, California has long required consideration of "fish, wildlife, and other instream beneficial uses" in the course of reviewing petitions for change in use, place of use, or point of diversion of a water right. This language appears in a number of statutes in the state's water code, applying to both temporary and long-term water transfers.⁷⁰ In both instances, the SWRCB decides whether the transfer would "unreasonably affect" these ecological resources. If it would, the petition is denied or conditioned. As compared to a "no significant impact" requirement, the SWRCB has some flexibility in its decisionmaking; it may balance the effects of the water transfer on fish and wildlife against the benefits of the transfer.⁷¹

In practice, this added inquiry has had more of an impact on the types of petitions submitted than in the number of petitions denied. Logically, people are less likely to petition for a change if they know it will not pass this stage of review. This can result in not submitting a petition or in submitting a petition structured to protect or improve conditions for fish and wildlife. The Yuba Accord is an example of the latter.

68. WYO. STAT. ANN. §41-3-104(a):

. . . The board of control shall consider all facts it believes pertinent to the transfer which may include the following: (i) The economic loss to the community and the state if the use from which the right is transferred is discontinued; (ii) The extent to which such economic loss will be offset by the new use; (iii) Whether other sources of water are available for the new use.

69. CAL. WATER CODE §1810(d) ("This use of a water conveyance facility is to be made without injuring any legal user of water and without unreasonably affecting fish, wildlife, or other instream beneficial uses and without unreasonably affecting the overall economy or the environment of the county from which the water is being transferred.")

70. *See, e.g.*, CAL. WATER CODE §1727(b):

The board shall approve a temporary change if it determines that a preponderance of the evidence shows . . . (2) The proposed temporary change would not unreasonably affect fish, wildlife, or other instream beneficial uses. (c) The petitioner shall have the burden of establishing that a proposed temporary change would comply with paragraphs (1) and (2) of subdivision (b) . . .

CAL. WATER CODE §1736:

The board, after providing notice and opportunity for a hearing, including, but not limited to, written notice to, and an opportunity for review and recommendation by, the Department of Fish and Game, may approve such a petition for a long-term transfer where the change would not result in substantial injury to any legal user of water and would not unreasonably affect fish, wildlife, or other instream beneficial uses.

71. Division of Water Rights 1999, at 3-9.

The Yuba Accord is a long-term water transfer strategy that includes three interrelated agreements. The Water Purchase Agreement delivers up to 140,000 acre-feet of water in dry years for the California Department of Water Resources and the Bureau of Reclamation. The Conjunctive Use Agreement increases groundwater usage, under a management plan, to replace the water sold under the Water Purchase Agreement. The Fisheries Agreement increases instream flow requirements in the lower Yuba River, down the Feather River and Sacramento River, and to the Bay-Delta.⁷² This last agreement made the water transfer in the Yuba Accord more appealing from a fish and wildlife perspective.

3. Make Time, Place, and Use More Flexible

Authorizing the modification of water rights to increase available options for purpose and place of use without significant further review can drastically accelerate adaptation to changing circumstances. Demand can be met closer to the time that it arises than with other transfer procedures, meaning that forecasting is less critical and water can be put to its regular use until it is otherwise needed.

Nevada

Under Nevada law, multiple irrigators may combine their water rights and rotate the usage of this larger amount between them.⁷³ The same opportunity is available to individual irrigators with multiple water rights. In essence, this statute allows for irrigation at a higher volume but less frequently than under any of the individual water rights. Of course, the total amount of water used is to remain the same. The rotation is lawful only if it does not impair other water users.

The legislature's stated rationale for this statute is to encourage efficiency in irrigation. During periods of drought, as well as with certain crops, topography, and soil conditions, irrigation can be more effective using this application pattern than a continuous diversion of a small flow for each water right. But despite being in the law for a long time, the place of use of irrigation water is not commonly rotated in this manner in Nevada. There has been some renewed interest lately, but few real developments.

Also relevant to the issue of flexibility in usage, in 2007 the Nevada Legislature declared temporary changes in water rights from agricultural use to use for wildlife or flow pur-

poses to be lawful.⁷⁴ The statute requires the applicant to follow the normal procedures for temporary changes in place of use, purpose of use, or place of diversion. Under Nevada Revised Statute §533.345, temporary changes have an abbreviated approval process compared to permanent changes. For temporary changes, if the state engineer determines that the change is in the public interest and will not impair other water rights, the application need not be published or go through a protest period and hearing. In all other cases, temporary changes in water rights are limited to one year, with the opportunity for renewal. However, §533.0243 extends the time frame for temporary changes in water rights from agricultural use to use for wildlife or flow to three years, with the opportunity for three-year renewals.

In practice, this law is not a significant change. More than anything, it emphasizes the value of, and authority to, transfer water use from agriculture to instream flow. According to participants in the Senate Committee on Natural Resources hearing on this bill, it clarifies the appropriate procedures for these water right changes and relieves concerns about retaining the rights to water after the conclusion of the change period. Part of the reason why this statute is not a bigger shift in practice is the state engineer's interpretation of the preexisting law, reading it to allow these water right changes in roughly similar form.

Oregon

In 2001, the Oregon Legislature authorized the split of a water right between its historical use and instream flow use.⁷⁵ Under the statute, the split may occur in time, but not amount. The historical and instream uses shall not occur simultaneously; rather the right holder may use the water for the historical purpose for part of the year and then lease the entire amount of the right to the state for instream purposes for another part of the year. Restricting split-year leases to all-or-nothing usage reduces the likelihood of impairing other water rights and consequently simplifies the review process. In addition, the statute requires the holders of these water rights to measure and report the water usage, which protects other water users and documents the entitlement to be protected instream.

Split-year leases can be a helpful water management tool, particularly in areas that demand higher instream flows at certain times of the year. For example, a split-year lease that switches water use from irrigation to instream flow during salmon spawning can significantly aid salmon populations. Leases designed for this purpose often change use in mid- to

72. YUBA COUNTY WATER AGENCY, *THE PROPOSED LOWER YUBA RIVER ACCORD: A COLLABORATIVE SETTLEMENT INITIATIVE* (2005).

73. NEV. REV. STAT. §533.075:

To bring about a more economical use of the available water supply, it shall be lawful for water users owning lands to which water is appurtenant to rotate in the use of the supply to which they may be collectively entitled; or a single water user, having lands to which water rights of a different priority attach, may in like manner rotate in use, when such rotation can be made without injury to lands enjoying an earlier priority, to the end that each user may have an irrigation head of at least 2 cubic feet per second.

74. NEV. REV. STAT. §533.0243 ("The Legislature hereby finds and declares that it is the policy of this State to allow the temporary conversion of agricultural water rights for wildlife purposes or to improve the quality or flow of water.")

75. OR. REV. STAT. §537.348(3):

A lease of all or a portion of an existing water right for use as an in-stream water right under subsection (2) of this section may allow the split use of the water between the existing water right and the in-stream right during the same water or calendar year provided: (a) The uses are not concurrent; and (b) The holders of the water rights measure and report to the Water Resources Department the use of the existing water right and the in-stream water right.

late-summer. While this prevents irrigation during that part of the growing season, it allows irrigation during the rest of the year and also protects an important ecological resource.

Split-year leases can be viewed as a means of maximizing water use for the full year. Additionally, these leases give farmers certainty in timing; they can plan the change in use roughly around their crop schedule. There is little added risk in losing a crop investment on account of a split-year lease, unlike many dry-year leases.

Despite the statute, split-year leases still are not common in Oregon. There have been fewer than 10 such leases to date. By contrast, numerous split-year leases have been successfully negotiated by the Washington Department of Ecology and Washington Water Trust, most notably in the Dungeness and Teanaway River basins. Oregon's lack of success with these leases commonly is attributed to the water use measurement required by the statute. In Washington, the measuring and reporting requirements are the same for a split-year lease as normal use, and therefore not an issue.

Also in 2001, the Oregon Legislature amended its drought agreement law to include all water right holders, not just local governments and public corporations.⁷⁶ The statute allows any of these parties to enter into options or agreements with water right holders to use their water after a declaration of severe, continuing drought by the governor. In essence, the holder of the option or agreement then has a backup water supply in the event that a drought depletes otherwise reliable water sources.

Perhaps more importantly, this backup supply often is easy to access and can quickly satisfy demand as it arises. Once the governor declares a state of severe, continuing drought, the only requirement, beyond the terms of the agreement, is to notify the local watermaster of intent to transfer the water. This responsiveness is possible because the option or agreement itself must be approved by the Water Resources Commission, in effect preapproving the transfer. As noted in Oregon Administrative Rule 690-019-0080, the purpose of this law is to allow the planning for and mitigation of severe drought. The speed of transfers is vital to that objective.

Prior to 2001, only local governments and public corporations could benefit from this law, and only for the purpose of distributing water. The 2001 amendments significantly expanded the purpose of the law and people to whom it is available. It now can serve as a means of supplying a safety net during a drought for any existing water user.

Despite this opportunity, the statute has not been used much to date. Drought options and agreements do present complexities in water management. For example, there is uncertainty in the timing of the lease; the parties do not know if or when it will occur as the year begins. This also can lead to inefficiencies, as crop investments may be lost due to an option being exercised mid-season. Furthermore, there

can be funding issues: not knowing when and for how long the option will need to be exercised creates great uncertainty in how much the agreement will cost in the end.

III. Conclusion

Recent years and most forecasts suggest that the West will face unprecedented water management challenges in the coming decades. Water resource demands are likely to continue to rise, while the availability of supply is likely to become even more uncertain. The prior appropriation system has withstood extreme hydrologic events and changing pressures throughout its history, and there is nothing to preclude state water laws founded on this system from overcoming the next set of challenges. But instead of simply surviving difficult times through deep-rooted entrenchment in practice and law, prior appropriation has the potential to prepare the West for what is to come and soften the impact of what could be significant crises.

A small but important first step is reducing the active disincentives against using less water and supporting future supplies. By adding to the definition of "beneficial use" or exempting more activities from forfeiture and abandonment, one cost of those actions—loss of the water right—is removed. The lack of enforcement of forfeiture and abandonment in some western states is beginning to achieve this end, but actually amending the law provides assurance to water right holders that they will not lose their right. Changing the perception of what is allowed and not allowed in terms of water usage is difficult, and this legal clarification has been helpful in practice.

A second step is allowing the use of conserved water beyond what is permitted in the water right. Removing concern over losing a portion of the right for not using it only goes as far as allowing other costs, such as labor and energy, to have a larger influence on the amount of water that is diverted and used. By allowing a water right holder to use conserved water for another purpose, in another place, or to transfer it to another user even temporarily, improved efficiency can increase earnings, as well as reduce costs. This financial incentive can make a greater number of efficiency projects viable and give sufficient reason for right holders to alter the status quo. The opportunity carries with it a threat of enlarging water rights, if the evaporative and seepage losses and/or consumptive use are not actually reduced. But, even if review procedures do not catch these mistakes, litigation can rectify impairments of other water rights.

A third, and perhaps most important, step is accelerating the transfer process. Quick transfer review procedures reduce costs and the time lag between identifying a demand and filling it. Reducing third-party impacts reduces opposition to a transfer, whether exercised through political pressure, administrative review procedures, or litigation, and accelerates the transfer process. Greater flexibility in allowing activity under a water right and approving contingency transfer agreements essentially offer preapproval of water transfers,

76. OR. REV. STAT. §536.770(1) ("The Water Resources Commission or a local government, public corporation or water right holder may purchase an option or enter an agreement to use an existing permit or water right during the time in which a severe, continuing drought is declared to exist.")

hence very rapid transaction times when the demand arises. An accelerated transfer process particularly benefits short-term water transfers, since high transfer costs make brief transactions financially infeasible and a long review may not conclude in time to meet the need. Responsive short-term transfers can lead to timely adaptations to changing supply and demand, which in turn results in good use of water in both wet and dry years.

To accomplish the lofty goal of doing more with less water, all water users must be encouraged as well as allowed to use water more efficiently. State water laws founded on the prior appropriation system of water allocation can do this, but they mostly fall short at the moment. If corrected, an easier path will be paved for science and technology to play their parts in reducing our water dependence and meeting the challenges that lie ahead.