

9-1-2012

Reconciling Water Law and Economic Efficiency in Colorado Water Administration

Charles W. Howe

Follow this and additional works at: <https://digitalcommons.du.edu/wlr>



Part of the [Law Commons](#)

Custom Citation

Charles W. Howe, Reconciling Water Law and Economic Efficiency in Colorado Water Administration, 16 U. Denv. Water L. Rev. 37 (2012).

This Article is brought to you for free and open access by the University of Denver Sturm College of Law at Digital Commons @ DU. It has been accepted for inclusion in Water Law Review by an authorized editor of Digital Commons @ DU. For more information, please contact jennifer.cox@du.edu, dig-commons@du.edu.

Reconciling Water Law and Economic Efficiency in Colorado Water Administration

RECONCILING WATER LAW AND ECONOMIC EFFICIENCY IN COLORADO WATER ADMINISTRATION

CHARLES. W. HOWE

I. Transaction Costs.....	39
II. The Scope of Water Markets: Market Size, Beneficial Use, and the Spook of Speculation.....	40
III. Uneven Application of the Anti-Speculation Doctrine	43
IV: Reconciling Some of the Water Law-Economic Conflicts.....	44

The prior appropriation doctrine of water law is the framework within which water is developed and administered in the Western United States.¹ This system of water law and administration has served well over the past century to provide flexibility through the establishment of clearly defined water rights that can be transferred among uses over time. While the doctrine of prior appropriation has sometimes been called rigid and inflexible,² innovations have been progressively incorporated into the law, including out-of-priority diversions and storage rights, related substitute water supply plans, conditional rights, recognition of in-stream flow protection and recreational uses as beneficial uses, water banks of various forms to facilitate transfers, and (belatedly) empowering the water courts to consider water quality effects when reviewing large transfers.³

* Professor Emeritus of Economics, Professional Staff, Institute of Behavioral Science, University of Colorado-Boulder. The author wishes to thank Peter D. Nichols, Esq., Professor Larry MacDonnell, and Dr. John D. Wiener for many beneficial suggestions.

1. NEIL S. GRIGG, *COLORADO'S WATER: SCIENCE & MANAGEMENT, HISTORY & POLITICS* 143 (1st ed. 2003).

2. See, e.g., Adam Schempp, *Western Water in the 21st Century: Policies and Programs that Stretch Supplies in a Prior Appropriation World*, 40 ENVTL. L. REPORTER NEWS & ANALYSIS 10394, 10395 (April 2010) ("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 of use."); see also LAWRENCE J. MACDONNELL, 1 *THE WATER TRANSFER PROCESS AS A MANAGEMENT OPTION FOR MEETING CHANGING WATER DEMAND* 68 (1990).

3. David Getches, A. Dan Tarlock, Douglass Kenney, Justice Gregory J. Hobbs, Jr. & Matt Jenkins, Panel Discussion at the Natural Resources Law Center's Conference (June 2007) (outline on file with the University of Colorado Natural Resources Law Center); see also Justice Greg Hobbs, Colo. S. Ct., *How Like a River: The Evolution of Western Water Law*, Speech to the Colo. Water Workshop (July 26, 2000), in *WATER RESOURCE MANAGEMENT* 155-56 (6th ed. 2009).

Nonetheless, there remain areas in the law and its administration that result in unnecessary economic losses to water users and their communities.⁴ For example, in 2006, the State Engineer shut down more than four hundred wells in Weld County on the South Platte River in Colorado on the grounds that the wells' pumping was interfering with surface flows belonging to more senior agricultural surface right holders downstream, who put a call on the river.⁵ The shutdown resulted from several years of complaints to the State Engineer from surface water users that the out-of-priority well pumping was not being adequately augmented.⁶ Evaluation of the economic impacts of the well shutdowns showed that the losses to the well owners and linked economic activities in Weld County greatly exceeded any potential gains to the agricultural senior water right holders that might result from enforcing the senior rights.⁷ The call also precluded upstream diversions and storage by several large urban users with more junior rights (including Greeley, Boulder, and Highlands Ranch), substantially increasing resulting economic losses.⁸

Thus, the process of priority administration, which lies at the heart of the doctrine of prior appropriation, can lead to economic losses that may outweigh the benefits from strict priority enforcement. The well shutdown case even suggests that river calls *generally* are likely to be economically inefficient since the parties who place river calls are not responsible for losses to upstream juniors. An offsetting argument is that, in the long run, river calls motivate changes in water administration and help to clarify the property rights in water.

Still, one would expect that active water markets would correct such uneconomic results since higher-valued junior users would profit from buying the water rights of lower-valued senior users.⁹ After all, Colorado has had more than a century of water market activity and has exhibited flexible legal innovations like those noted earlier.

However, efficient functioning of water markets depends heavily on two key conditions: (i) low transaction costs; and (ii) a legal framework that creates the potential for a wide range of transactions, in other words, sufficient *market scope*.¹⁰ In Colorado, transaction costs create substantial barriers to market transactions while the "beneficial use" doctrine and the closely related "anti-

4. It should be noted that water right priorities are established by the timing of initial use of the water without regard for the economic value of benefits derived from the use of the water. DAVID H. GETCHES, *WATER LAW IN A NUTSHELL* 108 (1997).

5. Charles W. Howe, *Water Law and Economics: An Assessment of River Calls and the South Platte Well Shut-Down*, 12 U. DENV. WATER L. REV. 181, 183 (2008).

6. *Id.*

7. *Id.* at 185.

8. *Id.*

9. The term "water markets" can refer to anything from an individual farmer's sale of a right to an adjacent town to highly organized markets like that in the shares of the Northern Colorado Water Conservancy District. See Charles W. Howe & Christopher Goemans, *Water Transfers and Their Impacts: Lessons from Three Colorado Water Markets*, 39 J. AMERICAN WATER RES. ASSOC. 1055, 1055 (2003).

10. See HAL R. VARIAN, *INTERMEDIATE MICROECONOMICS* 15-16 (5th ed. 1999).

speculation” doctrine substantially narrow market scope.¹¹ Transaction costs discourage potential economically beneficial transfers, while strict enforcement of the anti-speculation doctrine can prevent the useful packaging of rights to fit demands for water. As a result, the correspondence between water rights seniority and economic productivity of the water applied under those rights remains low.

I. TRANSACTION COSTS

Transaction costs of carrying out an appropriation or transfer (measured by dollars per acre-foot transferred) include filing costs, possible litigation, and the evidentiary showings (the burden of which is squarely on the applicant) required by the court to establish historic consumptive use and non-injury to other water rights holders.¹² These unit costs depend on the size of the transfer (there are economies of scale due to elements of fixed costs in the transfer process) and on the level of controversy surrounding the transfer (partially measured by the number of protests).¹³ In addition to monetary costs, any delays in administrative review may prohibit fast turn-around transfers like those needed by agriculture during drought.¹⁴

Transaction costs in Colorado are also increased by a lack of basic water rights information. Neither the State Engineer’s Office nor the water courts have publicly available centralized databases of the names of water right owners, making it difficult to contact owners. Water rights transactions and ownership are recorded at the county level like real estate transactions;¹⁵ however, the lack of a more centralized system to account for water rights whose above- and below-ground tributaries span multiple counties complicates interpreting these records. Equally important, sale prices are not recorded, complicating the problem of “price discovery” (figuring out what a reasonable offer to buy or sell might be).

When an application for a change of right is filed, the owner of the right and nature of the changes are included in the application filed with the water court. Resumes of such applications are published monthly by the water court

11. The legal standard for speculation is the lack of a “specific plan and intent to divert . . . a specific quantity of water for specific beneficial uses.” *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307, 315 (Colo. 2007) (citing COLO. REV. STAT. § 37-92-103(3)(a)(II) (2012)).

12. COLO. REV. STAT. § 37-92-302 (2012); Administrative Order Concerning Division 1 Water Court Policies (2011).

13. Charles W. Howe, Carolyn S. Boggs & Peter Butler, *Transaction Costs as Determinants of Water Transfers*, 61 U. COLO. L. REV. 393, 397, 399, 401 (1990). It is also worth noting that if an applicant in Colorado appeals the water court’s decision to the Colorado Supreme Court, the court will often request amicus briefs regarding the proposed water right or transfer from third parties to the suit, even further delaying or adding complexity to review.

14. It seems possible, if not inevitable, that parties needing quick access to water might attempt privately to negotiate with other water users not to oppose their applications in order to expedite the process.

15. *Ditches & Diversions*, The Water Information Program of the Colorado Division of Water Resources, available at <http://www.waterinfo.org/colorado-water/ditches-diversions> (last visited Sept. 15, 2012).

clerk, but include only limited information like the amount, priority date, location of water put to beneficial use, and general source of the water.¹⁶ For a water market to function efficiently, more information, such as the types of crop irrigated and average water applications, would be useful.

In 2007, the Colorado Supreme Court appointed a committee to “review the water court process to identify possible ways to achieve efficiencies in water court cases through rule and/or statutory changes.”¹⁷ Committee recommendations included amendments to rules of procedure, educational programs for attorneys and judges, establishment of a standing water court committee, better materials to assist the public and individuals without attorneys, and necessary funding for the courts and their staffing.¹⁸ While the recommendations are undoubtedly steps in the right direction, the jury is still out on the effectiveness of the resulting 2009 rule changes¹⁹ and the periodically updated set of forms water applicants must use.²⁰ Reducing transaction costs remains a challenge in Colorado.

II. THE SCOPE OF WATER MARKETS: MARKET SIZE, BENEFICIAL USE, AND THE SPOOK OF SPECULATION

The scope of a water market is defined by (i) the geographical extent of the market; and (ii) the breadth of allowable transactions; the larger the number of buyers and sellers, the closer that market approaches one of perfect competition.²¹ The greater the scope of the market, the more effective the market will be in effecting advantageous transactions.²² For example, a market that can generate transactions throughout an entire river basin is more likely to generate advantageous transactions than one confined to a smaller watershed, because the larger number of buy and sell offers increases the likelihood that mutually beneficial matches will occur. Conversely, legislative proposals to prohibit out-of-basin transfers would, if passed, also rule out advantageous transfers.²³

16. See, e.g., WATER RESUME PUBLICATION, District Court, Water Division 1, Colo. (May 2012).

17. Chief Justice Mary J. Mullarkey, *Order Concerning the Establishment of the Water Court Committee of the Colorado Supreme Court*, COLO. S. CT. OFFICE OF THE CHIEF JUSTICE (Dec. 4, 2007), available at http://www.courts.state.co.us/userfiles/File/Court_Probation/Supreme_Court/Committees/Water_Court_Committee/Water_Court_Committee_Chief_Justice_Signed_Order.pdf.

18. Justice Gregory J. Hobbs, Jr., *Timely, Fair, and Effective Water Courts: Report to the Chief Justice*, WATER CT. COMM. OF THE COLO. S. CT. (Aug. 1, 2008), available at http://www.courts.state.co.us/userfiles/File/Court_Probation/Supreme_Court/Committees/Water_Court_Committee/Final_Report_August_1_2008.pdf.

19. *Id.*

20. See Zachary Willis, *Water Court Forms Again Updated by Colorado State Judicial Branch*, Colo. Bar Ass'n. Legal Connection, January 12, 2012, <http://cbaclegalconnection.com/2012/01/water-court-forms-again-updated-by-colorado-state-judicial-new-denver-basin-application-issued/> (last visited Sept. 17, 2012).

21. See ROBERT D. COOTNER & THOMAS ULEN, *LAW AND ECONOMICS* 37 (1988).

22. See *id.*

23. See, e.g., H.B. 97-1286, 1997 61st Leg. 1st, Reg. Sess. (Colo. 1997).

In Colorado, the scope of water markets is further limited by two closely related doctrines that lie at the heart of appropriations doctrine: “beneficial use” and “anti-speculation.”²⁴ The origins of both doctrines historically lay in concerns about the monopolization of unused water supplies.²⁵ Common-sense beneficial use requirements prevented early settlers from claiming entire streams and promoted efficiency of use by discouraging “waste” and threatening forfeiture of the right.²⁶ However, the doctrines have not kept up with the times. As Professor Janet Neuman states, “the doctrinal trinity of beneficial use, waste and forfeiture . . . is ill-equipped in its present form to achieve the levels of efficiency that will be necessary to meet twenty-first century western water demands.”²⁷

In defining beneficial use, courts have used a custom-based, lowest common denominator standard that fails to motivate the highest-valued uses of water and fails to incorporate a desirable “ratcheting-up” of reasonable use standards as better technologies become available.²⁸ For example, flood irrigation should not be considered a beneficial use if economically reasonable sprinkler techniques are available and widely accepted. One can conclude that the water courts are not well equipped to say what is beneficial and what is not, a determination better left to water users, water managers, and water markets.

Closely related to beneficial use is the concept of “speculation” and the “anti-speculation doctrine.” Speculation in water law has been defined as “lack of a specific plan and intent to divert, store or otherwise capture, possess and control a specific quantity of water for specific beneficial uses.”²⁹ Insisting on these conditions at the time of filing for a change of use can preclude economically valuable transactions, especially the “packaging” of smaller rights to match the supply needs of larger users. Requiring a definite transferee who has a clear “beneficial use” for the water creates a “chicken and egg” problem in which potential buyers will not commit to buy or lease until the change of use is assured, while the filing requires a buyer with a clear “beneficial use.”

24. Scott A. Clark & Alix L. Joseph, *Changes of Water Rights and the Anti-Speculation Doctrine: The Continuing Importance of Actual Beneficial Use*, 9 U. DENV. WATER L. REV. 553, 562 (2006) (citing *High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist.*, 120 P.3d 710 (Colo. 2005)).

25. COLO. REV. STAT. § 37-92-305(9)(b) (2012); see also *High Plains*, 120 P.3d at 710.

26. Forfeiture of rights is very infrequent in Colorado. The State has no forfeiture statute (which, in other states, reverts the water right back to public use after a specified period of time, regardless of the water right holders’ intentions) and an abandonment proceeding, which requires a showing of intent to abandon the water right, is required to eliminate an unused right, although abandonment is presumed if water rights have gone unused for ten years. COLO. REV. STAT. § 37-92-103(2) (2012); COLO. REV. STAT. § 37-92-402(11) (2012).

27. Janet C. Neuman, *Beneficial Use, Waste and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 922 (1998).

28. See *id.* at 947-48.

29. *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d at 315 (citing COLO. REV. STAT. § 37-92-103(3)(a)(II) (2012)). The financial definition of “speculation” is the undertaking of a risky business or financial position in the expectation of a commensurate gain. In the futures markets, speculators accept contracts offered by “hedgers” who seek to avoid risk. This is a vital function in the allocation of risk. See VARIAN, *supra* note 10 at 236-39.

For example, in *High Plains A&M, LLC v. Southeastern Colorado Water Conservancy District*, High Plains had acquired extensive water rights and options on the Fort Lyon Canal in the Arkansas Basin of Colorado with the intent of reserving the consumptive fractions of those rights for transfer to unspecified, but fairly obvious, Front Range communities.³⁰ The water court denied High Plains' change of use application for these supplies and the Colorado Supreme Court affirmed the denial in 2005, alleging that the exchange application (10CW4) was speculative.³¹

Speculators typically are parties who invest in risky situations, banking on superior information or better-informed anticipation of future conditions to profit from spot and forward sales or purchases.³² These risk takers are needed to contract with risk adverse "hedgers" for a continuous, efficient market as found in the grains, oil, and electric energy markets. It is reasonable to assume that the High Plains group made extensive investigations into emerging Front Range water needs and the willingness of Arkansas Valley farmers to sell parts of their water supplies. By providing a ready market for farmers who wanted to sell some of their water and to provide an alternative source for buyers, High Plains could have beneficially served both. But the tight constraints of the anti-speculation doctrine, while considered fundamental to the prior appropriation system as it currently stands in the State, prevented High Plains from doing so.

The Arkansas Valley "Super Ditch" is an innovative proposal in which participating farmers agree to fallow part of their irrigated land on a rotating basis so that their collective consumptive use can be leased to other users for longer terms.³³ The project would allow water supplies to pass temporarily from agricultural users to other users without permanent sale of the underlying water rights.³⁴ Many protests were filed against Super Ditch in Division 2 Water Court, alleging that the exchange application (10CW4) was speculative.³⁵ In

30. *High Plains A & M, LLC*, 120 P.3d at 715-16, 721.

31. *Id.* at 714. The *High Plains* court explained that:

High Plains applied to change water rights historically used for irrigation to any one of over fifty proposed uses in any of twenty-eight Colorado counties. The water court found the change application "so expansive and nebulous" that there was no way to determine whether vested water rights would be injured by the change or to determine if there would actually be a new beneficial use made of the water. The court found that the proposed changes were "such a deviation from the original right" that they effectively requested a new water right. As such, the court found that the applications violated Colorado's anti-speculation doctrine, and granted the objectors' motion for summary judgment.

Id.

32. VARIAN, *supra* note 11, at 236.

33. PETER D. NICHOLS, COLO. WATER CONSERVATION BD., DEVELOPMENT OF LAND FOLLOWING-WATER LEASING IN THE LOWER ARKANSAS VALLEY 1 (June 30, 2011); *see also Super Ditch*, THE WATER INFORMATION PROGRAM, <http://www.waterinfo.org/super-ditch> (last visited Sept. 21, 2012).

34. NICHOLS, *supra* note 33.

35. *See* Chris Woodka, *Irrigation Regulations Draw Protests Across Valley*, PUEBLO CHIEFTAIN, Dec. 28, 2009, http://www.chieftain.com/news/local/irrigation-regulations-draw-protests-across-valley/article_816422e6-8fa9-50d9-87c9-98a02b4d2e1e.html.

spite of those protests, this innovative institutional arrangement is moving ahead.

Some have argued that the biggest impediment to successful water banks and leasing programs like the Super Ditch is the lack of information available to water rights holders about how the banks function.³⁶ While states like California, Idaho, and Arizona have relatively active water banks, Colorado lags behind.³⁷ There is no question that the application of Colorado's anti-speculation doctrine can have the effect of discouraging participation in water banking or pilot leasing programs. Effective administration should, instead, have the effect of injecting more information and flexibility into water markets.³⁸

III. UNEVEN APPLICATION OF THE ANTI-SPECULATION DOCTRINE

The prohibition of "speculation" has been unevenly applied and has been frequently circumvented. Cases cited in the *Denver Post* investigative series, "Liquid Assets: Turning Water into Gold," showed that water brokers had been able to acquire water rights for undefined future sale through temporary application to specially formed water districts.³⁹ The *High Plains* ruling has not prevented the formation of more special districts that accumulate water rights for later sale to unspecified users.⁴⁰ The United Water and Sanitation District consists of a one-acre patch of land that can serve users anywhere in the State while accumulating water rights for unspecified future sale.⁴¹ The thirty-nine-acre Elbert and Highway 86 Commercial Metro District is constituted as a statewide district that intends to build a 150-mile pipeline from the Lamar Canal to Elbert County for unspecified users.⁴² Thus, while the State attempts to take an anti-speculation stance, highly speculative transactions have been able to proceed.

Conditional water rights that are typically granted to municipalities have not been considered speculative even though some have not been perfected for one hundred years.⁴³ It is difficult to distinguish between urban planning needs and "speculation." Additionally, many conditional oil shale rights are more than fifty years old, while some conditional irrigation rights are over one

36. WASH. DEP'T OF ECOLOGY, ANALYSIS OF WATER BANKS IN THE WESTERN STATES, at ii (Pub'n No. 04-11-011 July 2004), available at <https://fortress.wa.gov/ecy/publications/publications/0411011.pdf>.

37. *Id.* at 29, 37, 55, 61.

38. *See generally id.* at 19-27.

39. David Olinger & Chuck Plunkett, *Liquid Assets: Turning water into gold*, DENVER POST, Nov. 21, 2005, at A1.

40. *Id.*

41. *Id.*

42. Karen E. Crummy, *Elbert County Commission Water district soon could reach across Colorado*, DENVER POST, July 27, 2011, at B1.

43. J. Gregory J. Hobbs, Jr., Colo. S. Ct., *Anti-Speculation and the Great and Growing Cities Doctrine*, 41st Annual Conference on Environmental Law for the American Bar Association (Mar. 23, 2012).

hundred years old.⁴⁴ In a real sense, every water right owner is a speculator since water prices are broadly expected to continue increasing. Most of the investment groups that have recently invested extensively in Western U.S. ranchland clearly are not in business to raise cattle but to acquire water rights.



"Speculators All"

(Cartoon credit: Bruce Stark of the *Baltimore Times*.)

IV. RECONCILING SOME OF THE WATER LAW-ECONOMIC CONFLICTS

It seems feasible to work toward the reconciliation of these two major issues: (i) excessive transaction costs; and (ii) excessive application of the anti-speculation doctrine. Regarding the reduction of transaction costs, scholars and practitioners can develop presumptive values for consumptive use, time-of-use and return flows tailored for each watershed based on the many years of court cases and related transaction data.⁴⁵ For example, in the Rules Governing the Arkansas River Water Bank Pilot Project, the Colorado Division of Water Resources specifically allowed the Project to use presumptive values for consumptive use and time of use for each ditch.⁴⁶ Presumptive values would avoid the need for new hydrologic and agronomic studies in many change-of-use cases. More broadly, the Colorado Supreme Court has allowed the use of presumptive values for transfers on the same ditch.⁴⁷

44. Derek L. Turner, *Pagosa Area Water & Sanitation District v. Trout Unlimited and an Anti-Speculation Doctrine for a New Era of Water Supply Planning*, 82 U. COLO. L. REV. 639, 643 n. 20, 670 n. 181 (2011).

45. See Charles W. Howe et al., *Transaction Costs as Determinants of Water Transfer*, U. COLO. L. REV. 393 (1990).

46. COLO. REV. STAT. § 37-80,5-101 *et seq.* (2001) (repealed 2007).

47. See, e.g., *Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist.*, 256 P.3d 645, 668, 675 (Colo. 2011) (applying a ditch-wide analysis for quantifying water

Regarding speculation, the rules for water administration should allow for “repackaging” or “bundling” of water rights to better meet the quantity and reliability needs of potential customers—as was the intention in the *High Plains* case and as is the intention of the Arkansas Valley Super Ditch Project. This would allow us to avoid the “chicken and egg” situation mentioned earlier, that is- a situation where the buyer will not commit until change of use is assured but where the change of use application lacks a specific buyer. Finally, the granting of conditional rights (in reality a form of speculation) should be tightened by limiting the life of such rights and stiffening diligence requirements to “free up” water for other claimants and reduce the hydrologic uncertainties currently faced by downstream water rights owners.

The issue of the inefficiency of river calls should gradually be solved through market transactions facilitated by lower transaction costs and freed from excessive anti-speculation restraints.

rights in the same ditch during a change case); see also David W. Baker, *Future of Ditch-Wide Change Cases in Colorado: Reducing Per-Share Water Quantities with Historical Consumptive Use Determinations Based On Unlawful Enlargement and Average Reservoir Releases*, 15 U. DENV. WATER L. REV. 173, 174, 187-88 (2011).

