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Water Rights, Water Quality & Water Solutions in the West

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COALBED METHANE PRODUCED GROUNDWATER

A SURVEY OF WESTERN WATER LAW REGULATION

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INTRODUCTION

Over the last generation, the Rocky Mountain west has seen major growth in production of oil and gas resources. While oil and gas production has, in some cases, increased state and local revenues, individual landowners have often borne the brunt of localized impacts from these same operations. Local and regional news organizations report numerous examples of impacts to property and water rights. Water right owners have experienced particularly egregious impacts from **c**oal**b**ed **m**ethane (CBM) production, because pumping large volumes of relatively shallow groundwater is a prerequisite to methane extraction. However, availability of state water law remedies to protect vested rights holders vary widely. This article explores the development of state water law remedies for CBM-related impacts in four Rocky Mountain states: Colorado, Montana, New Mexico and Wyoming.

BACKGROUND: COALBED METHANE PRODUCTION

Historically, methane associated with coal seams was considered a nuisance and purposely vented to avoid mine fires. In the 1980s, energy companies developed technology to extract methane for commercial purposes and by 2004 CBM supplied as much as 8% of the country's energy needs. Nearly 20% of that amount came from the San Juan Basin of Colorado and New Mexico making the area one of the highest producers of CBM in the world. In 2007, BP announced plans to increase its investment in CBM development in the San Juan Basin by more than $2.4 billion over the next 10-13 years. Franklin, 2007. Wyoming's Powder River basin yielded 436.6 billion cubic feet of CBM gas in 2007. State of Wyoming, 2010. The taxable value of CBM operations in Wyoming exceeds 2.8 billion dollars. Coalbed Natural Gas Alliance, 2010.

CBM production requires removal of groundwater from the coal seam — the CBM "produced water." A CBM well is a groundwater well with two chambers: one diverts water; the other diverts methane gas (see illustration, page 2).

Thus, although technically a gas well, a CBM well functions like any other water well. As described below, a tremendous volume of produced water is associated with CBM extraction.

Coalbed Methane

Groundwater Withdrawals

Supply Volume

Aquifer Impacts

DIVERSION OF GROUNDWATER TO FACILITATE CBM PRODUCTION

INTERFERENCE WITH VESTED WATER RIGHTS

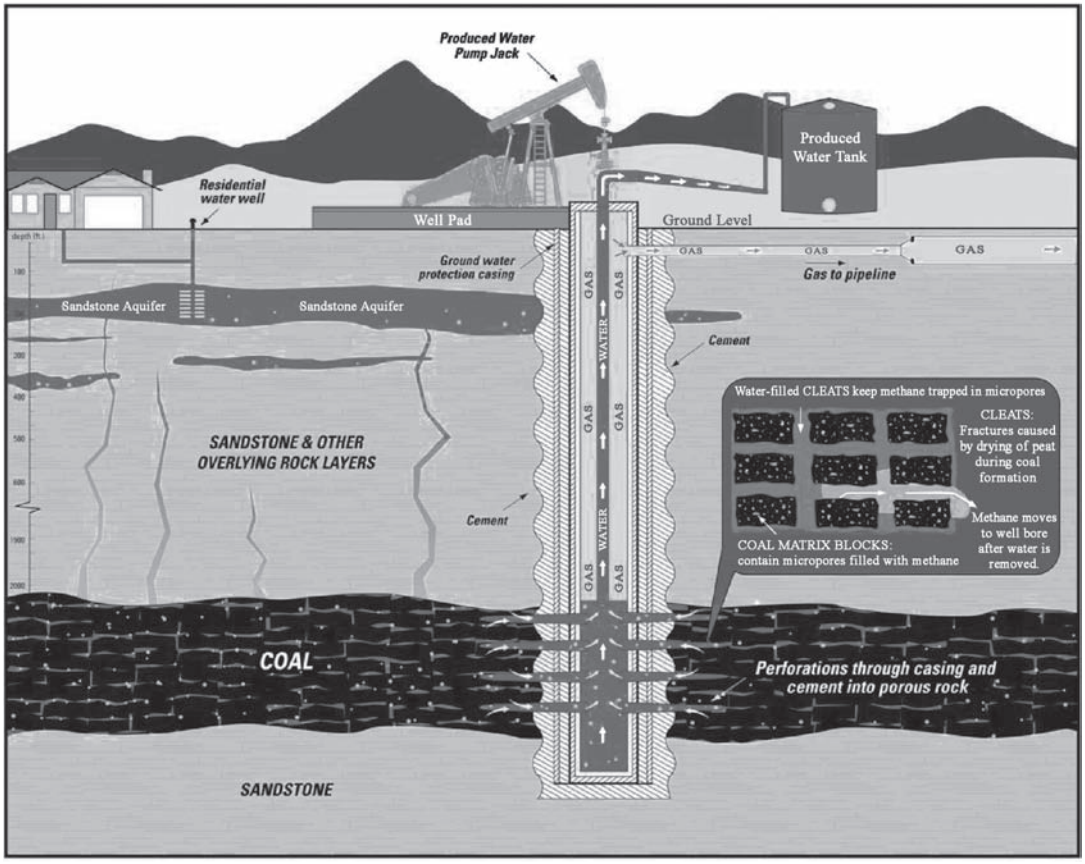
CBM production requires withdrawal of tremendous amounts of groundwater.

Examples of CBM water withdrawals includes the following:

- La Plata County, Colorado, CBM wells produce about 3,000 **a**cre-**f**eet of water per **year** (AF/year), an amount equal to requirements for all domestic and municipal uses in the county. S.S. Papadopulos, 2006.
- Raton Basin, Colorado (Huerfano and Las Animas Counties in the Arkansas Basin), CBM wells likely to withdraw more than 16,000 AF/year. S.S. Papadopulos & Associates, Inc, 2007.
- Wyoming's Powder River Basin CBM wells produced on the order of 74,000 AF in 2005. Ruckelshaus Institute of Environment and Natural Resources, 2005. However, in 2007, according to data found on the Wyoming Oil and Gas Conservation website, the total water production might be more than 295,000 AF.
- Montana's Powder River Basin CBM wells produced on the order of 5000 AF of water in 2007. Argonne National Laboratory, 2009.
- New Mexico statewide CBM groundwater production in 2007 was on the order of 5000 AF. Argonne National Laboratory, 2009.

These are vast amounts of water. For purposes of comparison, one AF is typically assumed to be a sufficient supply annually for two residences. Thus, 16,000 AF/year, the amount produced in the Raton Basin, would provide an annual municipal supply for 120,000 people. Withdrawal of these volumes of water — outside the priority system that regulates other water usage (see below) — has the potential to create a number of problems for vested rights, particularly in the arid Rocky Mountain west.

Water removed by CBM wells depletes aquifers and drops water tables. A recent study modeling CBM impacts in the Powder River Basin shows coal seam deletions may result in localized drawdowns of 450 to 600 feet, depending on the coal seam and the rate of pumping. *See* Wheaton and Metesh, 2002. Aquifer drawdowns of up to twenty feet based on CBM pumping may extend for four to five miles beyond CBM fields. US Bureau of Land Management, 2003. While aquifer recovery may begin soon after CBM pumping ceases, complete recovery "will be a long-term process, likely requiring hundreds of years for the removed groundwater to be replaced through precipitation infiltration." *Id.* at 4-634.



The Water Report
(ISSN 1946-116X)
is published monthly by
Envirotech Publications, Inc.
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Eugene, OR 97402

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Subscription Rates:
$249 per year
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Coalbed Methane

Surface Flow Impact

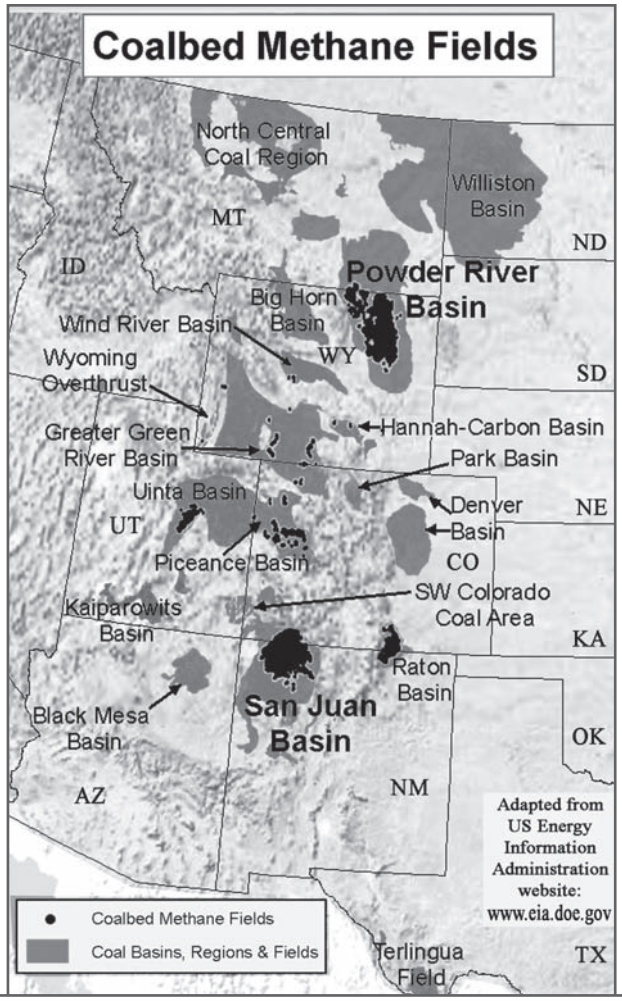
Water Quality Impact

Court Cases

If a coal seam is hydrologically connected to surface waters, CBM pumping may also deplete surface flows. A study published in 2009 found that full CBM development in the Tongue River Basin would deplete surface flows due to a 25% reduction in aquifer storage. Myers, 2009. Coal seam aquifers also provide important sources of groundwater for domestic and stock use. The Meyers study also concluded that several thousand springs and wells in the Powder River Basin could potentially be affected by aquifer draw down caused by CBM well withdrawals. *Id.*

If the groundwater withdrawal by CBM wells could be returned to the coal seam, the impact on water rights that rely on this physical supply could be minimal or non-existent. However, methane can only be produced if the associated groundwater is removed. Once withdrawn, this water cannot be returned to strata it originally occupied. Instead, this water is re-injected into strata thousands of feet deep or evaporated in ponds, where it becomes unavailable to supply existing water rights. Alternatively, the untreated water is discharged into surface streams, where it can adversely impact ambient water quality.

In general, states experiencing significant CBM production were initially unprepared to deal with the resulting impacts to physical supplies and water quality created by CBM production. With the exception of New Mexico, vested water rights owners in these Rocky Mountain states have filed numerous lawsuits, seeking court-made remedies in the absence of obvious regulatory or legislative remedies. See, e.g., *William F. West Ranch, LLC v. Tyrrell*, 206 P.3d 722 (Wyo. 2009); *Swartz v. Beach*, 229 F.Supp.2d 1239 (D. Wyo. 2002); *Vance v. Wolfe*, 205 P.3d 1165 (Colo. 2009); *Fidelity Exploration v. 1st Dist.*, 317 Mont., 77 P.3d 553 (2003); *Montana v. Wyoming*, 128 S. Ct. 1332, 170 L.Ed.2d 56 (2008). A result of this litigation is the ongoing development of a body of law aimed at protecting vested water right holders from impacts of CBM production.



Water Produced Incident to CBM Withdrawal by Basin

Basin	Approx. Volume in Acre-Feet Per Year
Powder River Basin (2005 data)	74, 000 af/year
San Juan Basin (Colorado only - annual average)	3000 af/year
Raton Basin (Colorado only - annual average)	16,000 af/year
New Mexico, (2007- statewide)	5000 af/year
Montana Powder River Basin (2007)	5000 af/year

Coalbed Methane

State Water Rights

Terminology (Editors' Note)

"**Beneficial Use**" Under Western Water Law, water must be diverted for a designated purpose and used beneficially to get a water right. Beneficial use is the use of a reasonable amount of water necessary to accomplish the purpose of the appropriation, without "**Waste**." Some common types of beneficial use are: irrigation, municipal, wildlife, recreation, mining, and household use.

"**Waste**" is basically the opposite of beneficial use, i.e. water that is diverted that is *not* needed for the purpose of the appropriation or water that is deemed to be in excess of a reasonable amount for the purpose is defined as waste.

"**Produced Water**" is the groundwater that is pulled to the surface as part of the CBM process; produced water is an incidental byproduct from the production of oil and gas.

THE PRIOR APPROPRIATION SYSTEM & CBM GROUNDWATER DIVERSIONS

Colorado, New Mexico, Wyoming and Montana all follow the Prior Appropriation Doctrine, incorporated in each state's constitution. Under the Prior Appropriation Doctrine the public owns a state's water resources, subject to appropriation for beneficial use. Once an appropriator complies with their state's requirements, they receive water in-priority from available supplies for specific beneficial uses. The specific means by which water for beneficial uses can be appropriated, maintained, and guaranteed as property rights vary by state. Colorado is the only state discussed herein where state district courts of special jurisdiction determine water rights. *See* C.R.S. § 37-92-203; *Santa Fe Trails Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46 (Colo. 1999); *Vance v. Wolfe,* 205 P.3d 1165 (Colo. 2009). In New Mexico, Wyoming and Montana, water rights are determined by executive agencies with statutory authority to issue permits or licenses. New Mexico's executive agency in charge of water rights administration is the Office of the State Engineer (OSE) whose authority over water is based on statute: "The state engineer shall have the supervision of the apportionment of water in this state according to the licenses issued by him and his predecessors and the adjudications of the courts." N.M. Stat. Ann. § 72-2-9 (West 2010). Wyoming's water rights are managed by the SEO and the State Board of Control. General provisions governing their control are found in Chapter 3 of the state water code. *See generally*: Wyo. Stat. Ann. §§ 41-3-101 to -115 (2009). These differences between the prior appropriation systems in various states provides the basis for differing approaches to protecting water and property rights from CBM production.

Colorado: *Vance v. Wolfe*

Colorado is the only state of the four states surveyed where lawful CBM groundwater withdrawals result in a prior appropriative right. *Vance v. Wolfe,* 205 P.3d 1165 (Colo. 2009). *Vance* was brought by two rancher-families concerned about the lack of SEO regulation of CBM operations under the prior appropriation system and resulting impacts to their water and property rights. The Colorado Supreme Court held CBM groundwater withdrawals were integral to the CBM production process and therefore resulted in a beneficial use of water. *Id.* at 1167, 1169-70. Moreover, the Court held that CBM production resulted in such water being unavailable to other water rights, and therefore also constituted a beneficial use. *Id.* at 1171.

Under Colorado law, groundwater is presumed "tributary," i.e., to be hydrologically connected to the surface stream, and subject to administration under the prior appropriation system. See *Safranek v. Town of Limon*, 123 Colo. 330, 334, 228 P.2d 975, 977 (1951); *American Water Dev., Inc. v. City of Alamosa*, 874 P.2d 352, 389 (Colo. 1994). Groundwater proven to have virtually no hydrological connection to tributary groundwater supplies, in accordance with statutory requirements, is considered "nontributary" and is exempt from administration under the prior appropriation system. *See* C.R.S. § 37-90-137(7)(a); *In re the Application for Water Rights of Park County Sportsmen's Ranch LLP*, 986 P.2d 262, 269 (Colo. 1999); *Vance*, 205 P.3d at 1171. The Court ruled that provisions controlling nontributary groundwater were not at issue in *Vance* because CBM groundwater was presumed tributary unless proven otherwise. *Id.* at 1171. Because groundwater withdrawn by CBM wells is beneficially used, the CBM well owner must obtain a permit from the SEO even if the water is nontributary. *Id.*

The practical result of the *Vance* ruling is that CBM groundwater diversions are subject to augmentation plan requirements under Colorado's 1969 Act (C.R.S. 37-92-101 et seq.). An augmentation plan is a plan decreed by a water court which details the means by which "juniors" (i.e., those water rights holders with less "senior" priority) will replace depletions of groundwater that impacts the water supply in time, location and amount of those holding more senior water rights. (C.R.S. 37-92-305(5), -308). The augmentation plan is a powerful tool designed to protect vested water rights. While industry has attempted to avoid the effects of *Vance* — via State Engineer-adopted rules purportedly determining that some of the groundwater withdrawn by CBM wells in certain areas of the state is nontributary — industry has also filed nearly a dozen Water Court applications to adjudicate augmentation plans. Hundreds of parties, including major water users in the Arkansas and San Juan Basins are opposing these claims. Further, the SEO's nontributary rules are the subject of appeal where the primary issue is the effect of such rules on the industry claims pending in Water Court. *See* Colorado Water Court Div. 2 Cases: No. 2009CW86, No. 2009CW87, No. 2009CW88, No. 2009CW90, No. 2009CW91, No. 2009CW92, No. 2009CW93, No. 2009CW94, No. 2009CW95, No. 2009CW96, and No. 2009CW97; and Rules and Regulations for the Determination of the Nontributary Nature of Ground Water Produced Through Wells in Conjunction with the Mining of Minerals, "*Produced Nontributary Ground Water Rules*," 2 CCR 402-17 (2010).

Coalbed Methane

Permit Standards

Public Interest Standard

Courts' Decisions

Law Unresolved

Water Quality Issues

New Numeric Standards

Wyoming: *West v. Tyrrell*

Unlike Colorado, Wyoming does not have a statutory framework for integrating surface and groundwater. *See* generally, Wyo. Stat. §§ 41-3-101 through -115. Instead, the Wyoming SEO issues permits to pump groundwater. By statute, the SEO can only issue a groundwater permit if he determines the requested withdrawal will not injure other water rights and is consistent with the public interest. To date, however, parties opposing CBM permits maintain that the SEO reflexively issues CBM groundwater well permits with no apparent evaluation of these factors.

The SEO's failure to make any evaluation of CBM groundwater permit applications under the public interest standard was among the bases for the Wests and Turners to bring suit against the SEO in *William F. West Ranch, LLC v. Tyrrell*, 206 P.3d 722 (Wyo. 2009). The ranching family-plaintiffs alleged that the result of the SEO's "hands off" approach to CBM permitting was injury to their water rights, including loss of domestic and stock-watering wells. In addition, as evidence of the injury suffered by the plaintiffs from the SEO's failure to consider the public interest in making permitting decisions, the complaint alleged that poor quality CBM groundwater (produced water) had damaged or destroyed critical pasture lands and cottonwood trees. [Editor's Note: Although the Wests and Turners alleged water quality problems as grounds for their complaint, this was not a Clean Water Act lawsuit, but a suit seeking relief under the Prior Appropriation Doctrine. Wyoming recognizes that water quality is an element of a prior appropriative water right. *See Mitchell Irr. Dist. v. Whiting*, 136 P.2d 502 (Wyo. 1943).]

The Wests and Turners notified the SEO of these concerns and the damages to their lands, but the SEO declined to take action. Wests and Turners sued in district court, requesting a determination by the court that the SEO was obligated to take steps to make the public interest determination required by statute. The court held that the plaintiffs did not present a justiciable controversy (i.e. a dispute that could be resolved by the court) under Wyoming's Uniform Declaratory Judgments Act, Wyo. Stat. §§ 1-37-101 through -115, because they failed to allege the SEO's noncompliance with a specific constitutional or statutory obligation which, in turn, resulted in injury to the plaintiffs' property interests. The Wyoming Supreme Court affirmed, essentially ruling that a judicial declaration requiring the SEO to take action — even the public interest review required by state statute — would not remedy plainffs' injuries. *Id.* at 732-33. The Court further held that declaratory judgment was not available to the plaintiffs because they failed to exhaust all the administrative processes available to them. *Id.* at 735-36. The Court noted but distinguished the *Vance* decision, claiming Colorado did not regulate CBM wells prior to *Vance*, while Wyoming historically regulated and continues to regulate CBM wells though the statutory permitting process. *Id.* at 732 n.10.

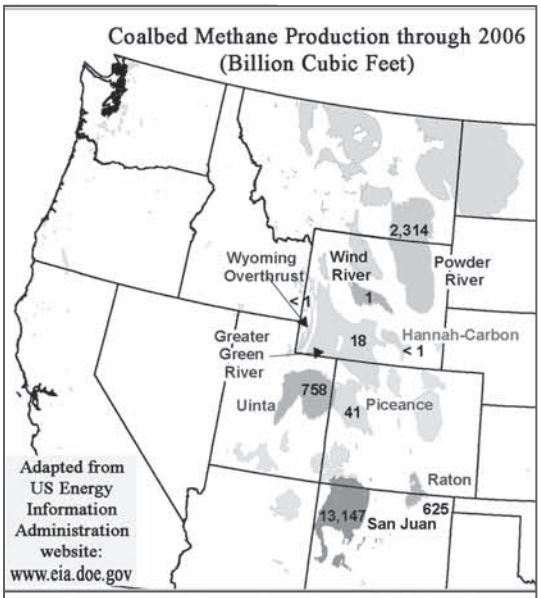
Montana's Experience With CBM Production

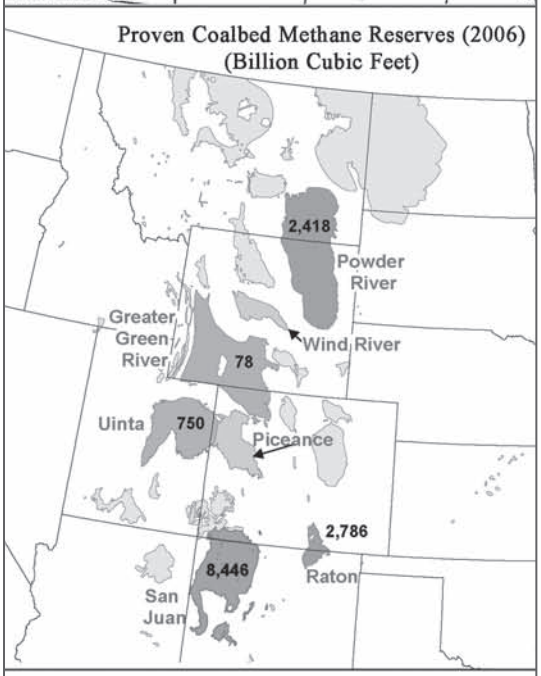
In Montana, there have been numerous challenges to permitting and regulatory decisions regarding CBM operations based on water quality and water right impacts. However, the Montana Supreme Court has yet to issue an opinion in this area. Fundamental issues of law remain unresolved, although the development of Montana law on CBM operations appears headed in a positive direction.

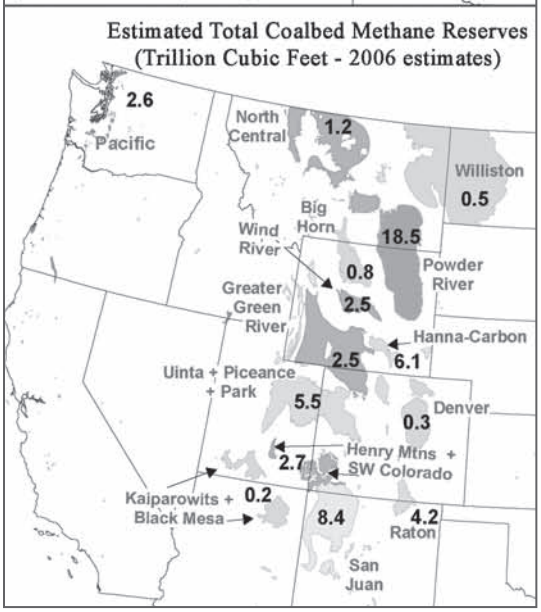
Montana Water Quality-Related Disputes

CBM produced water contains pollutants that harm irrigated crops, soils and river ecosystems, and a number of state and federal court decisions have provided relief on water quality grounds. *Northern Plains Resource Council v. FEPCO*, 325 F.3d 1155 (9th Cir. 2003), cert den. 540 U.S. 967 (2003) held that CBM water is an industrial waste, contains pollutants, and is subject to regulation of the federal Clean Water Act (CWA). In *Northern Cheyenne Tribe v. Montana Dep't of Environmental Quality*, No. DA 09-0131, 2010 WL 1997421 (Mont. May 18, 2010), the court found that the Montana Department of Environmental Quality violated the CWA and the Montana Water Quality Act by issuing CBM discharge permits without pre-discharge treatment standards.

When CBM operations began in Montana, there were no Total Dissolved Solids (TDS) or Sodium Adsorption Ratio (SAR) standards. National Pollutant Discharge Elimination System (NPDES) permits issued under the CWA were based on discretionary narrative standards. Three irrigation districts concerned about discharges of high SAR water from CBM wells and potential injury to irrigated lands petitioned the state's Board of Environmental Review (BER) to set numeric standards for TDS and SAR. BER eventually adopted numeric water quality standards significantly limiting discharge of CBM water with the potential to injure irrigated lands. The Montana Supreme Court rejected an industry challenge to the standards in *Pennaco Energy, Inc. v. Montana Bd. Of Environmental Review*, 347 Mont. 415, 199 P.3d 191 (2008).







Seeking a different forum, industry challenged the US Environmental Protection Agency's (EPA's) approval of identical standards in Wyoming federal district court. That court ruled EPA's standards were arbitrarily adopted and remanded the matter to EPA. *Pennaco Energy, Inc., v. EPA*, 2009 WL 6313820 (D. Wyo. Oct. 13, 2009). While EPA reconsiders its approval of the standards under the court order, they remain in effect in Montana.

Water Rights Related Disputes in Montana

Montana law does not provide for conjunctive management of surface and groundwater supplies. *See* e.g., Mont. Code Ann. § 85-2-101 et seq. However, impacts to water rights must be considered in evaluating a permit application. *See* e.g., Mont. Code Ann. §§ 85-2-311(1)(b); 85-2-317(1)(a) and 85-2-360 through -362. In addition — and in a striking departure from the law in Colorado and Wyoming — the 1973 Montana Water Use Act provides "prior jurisdiction" to the Montana Board of Oil and Gas Conservation (MBOGC) over groundwater withdrawn by CBM wells in "controlled ground water areas" (areas which are over-appropriated either as a result of excessive withdrawals or limited recharge, or are experiencing water quality degradation). Mont. Code Ann. § 85-2-506(5). This designation gives the Montana Department of Natural Resources and Conservation (MDNRC) jurisdiction to more stringently regulate use of groundwater. Mont. Code Ann. § 85-2-506(7). Montana also recognizes a fundamental constitutional right to a clean and healthy environment, which imposes substantive duties on both citizens and the government. *See Montana Environmental Information Ctr. v. Montana Dep't of Environmental Quality*, 988 P.2d 1236 (Mont. 1999).

In Montana, two district court decisions and an administrative decision by the MDNRC suggest uses of CBM groundwater must be consistent with the Prior Appropriation Doctrine by requiring beneficial use without waste. In *Diamond Cross Properties v. State of Montana*, irrigators challenged an MBOGC permitting decision that allowed disposal of CBM groundwater via land application and evaporation pits on constitutional grounds. Concerned that disposal of CBM water via evaporation pits and land application water would ultimately impact their own water rights negatively, the irrigators brought suit in district court, challenging the constitutionality of statutes relied on by MBOGC to evaluate a CBM permitting request. *See* 2008 Mont. Dist Lexis 180, Order on Motions for Summary Judgment, Cause No. DV-05-70 (July 14, 2008). Without addressing directly the constitutionality of the statutes applied by MBOGC, the court held Art. IX, § 3(3) of the Montana constitution prevented CBM waste water disposal practices that did not put groundwater to beneficial use. *Id.* at 17. This decision was not appealed. However, the decision signals a judicial view, as described below, that in Montana the uses of CBM produced groundwater are limited by the constitutional prohibition on waste.

Waste was also the theme of the district court's decision in *Tongue and Yellowstone Irrigation Dist. v. Montana Board of Oil and Gas Conservation.* In this case, irrigation district and environmental groups challenged a CBM disposal program because evaporation, "managed irrigation" and land application, resulted in an unconstitutional waste of water. Order on Cross-Motions for Summary Judgment, Cause No. BDV-2003-579 (April 26, 2010). "Managed irrigation" is an engineering construct promoted by industry which purportedly manages or treats CBM water to avoid detrimental effects associated with high SAR and other constituents. The court found "managed irrigation" using CBM water was a beneficial use and thus required a beneficial use permit. *Id.* at 8-9. The court also determined evaporation of groundwater produced by CBM wells wasted the water, in violation of Art. IX, § 3(3) of the Montana constitution. *Id.* at 12. This case will likely be appealed to the Montana Supreme Court.

A second district court case involved an "Emperor's New Clothes"-type inquiry into whether CBM produced groundwater was, for regulatory purposes, groundwater. An MDNRC hearing examiner, evaluating permit applications for "managed irrigation" using CBM produced groundwater in Montana and export of

Coalbed Methane

Water Type Consequences

Exporting Water

the same to Wyoming, determined among other things, that water produced by CBM wells is not legally groundwater, and therefore groundwater users attempting to participate in the proceedings could not do so. MDNRC reasoned that the groundwater was actually appropriated by the CBM operator's pipelines, and therefore the CBM operator had complete dominion over the source of the water and it should be treated as unappropriated surface water, subject to the Prior Appropriation Doctrine. *Id*. at pp. 11-20. On that basis, a permit for managed irrigation was granted, although the water could not be transferred out of Montana because the CBM operator had not met the heightened standard for out-of-state export. Groundwater users concerned about the impact of the permit on their water rights appealed. *Northern Plains Resource Council v. Montana DNRC*, Cause Nos. CDV-2007-425 and CDV-2007-612, Slip Op. issued December 8, 2008.

The district court voided the permits based on the hearing examiner's threshold determination that the water was not groundwater. The court held that the Water Use Act provided no basis for classifying what is obviously groundwater as surface water in a private pipeline for purposes of new appropriations. *Id.* pp. 4-5. This case will likely reach the Montana Supreme Court, although the parties are still wrangling over attorneys' fees and entry of judgment 18 months after the decision. This case has also spawned a new federal court case — with the issue being a dormant commerce clause challenge under the *Sporhase* precedent against Montana's heightened standards for exporting water. *FEPCO v. Mary Sexton*, *Director Montana DNRC*, Civil Cause No. CV-08-10-H-CCL (D. Montana). [Editor's Note: *Sporhase v. Nebraska ex rel. Douglas*, 458 U.S. 941 (1982) involved a dispute over groundwater that was appropriated in Nebraska and used in Colorado. The US Supreme Court found that groundwater is an article of commerce and that a Nebraska statute restricting the export of water violated the Commerce Clause by imposing an impermissible burden on interstate commerce.]

New Mexico's CBM Groundwater Regulatory Situation

Permitting Classification

In New Mexico, whether a CBM well withdrawal results in an appropriation for beneficial use depends, among other things, on whether the groundwater at issue is subject to New Mexico well permitting regulations. New Mexico law classifies groundwater produced by CBM wells as a byproduct or waste resulting from CBM operations. Authority to regulate produced water is vested in the Oil Conservation Division of the New Mexico Energy, Minerals, and Natural Resources Department (NMOCD) as opposed to the State Engineer's Office (SEO). N.M.S.A. §§ 70-2-12(B)(15); See also § 70-2-33(K) (defining "produced water" as "water that is an incidental byproduct from drilling for or the production of oil and gas.").

"Disposition" of Produced Water

Under New Mexico law, "existing principles of prior appropriation, beneficial use and impairment of water rights, when applied to the diversion of water to permit mineral production, may cause severe economic hardship and impact to persons engaged in mineral production." N.M.S.A. § 72-12A-2(A)(2)&(3). Therefore, no permit is required from the SEO for the "disposition" of produced water. N.M.S.A. § 70-2-12.1. New Mexico law was amended during the 2009 legislative session to specify this exemption applies only to non-potable water (TDS of 1,000 ppm or higher) produced by oil and gas development at or below 2,500 feet, which is considered "non-ascertainable" (e.g., not available for determination as a water right) and not subject to permit requirements. N.M.S.A. §§ 72-12-20 and 72-12-25. All other "deep" wells below 2500 feet are now subject to regulation. N.M.S.A § 72-12-25.

New Rule Requirements

In response to environmental contamination caused by the oil and gas industry, NMOCD promulgated rules affecting drilling, production and disposal of produced water. *See* N.M.A.C. §§ 19.15.16, .17, and .34 (2008). These new rules require oil and gas operators to "ensure that fresh waters and waters of present or probable value for domestic, commercial or stock purposes are confined to their respective strata and are adequately protected by division-approved methods." N.M.A.C. § 19.15.16.9. Operators are also prohibited from siting production waste disposal pits: (1) where groundwater is less than 50 feet below the bottom of the pit; (2) within 300 feet of a continuously flowing watercourse; (3) within 500 feet of private domestic fresh water wells or springs; or (4) within incorporated municipal boundaries or a defined municipal fresh water well field. *Id.* at § 19.15.17.10. Operators must now recycle, reuse, reclaim, or dispose of all drilling fluids to prevent fresh water contamination and protect public health and the environment. *Id.* at § 19.15.17.11-12(A)(2). Any person may sue for damages or injunctive relief when their water rights are impaired by non-potable water. N.M.S.A. § 72-12-28. The New Mexico Supreme Court has also considered impacts from oil and gas operations arising in negligence, nuisance, and trespass for tortious conduct or contamination. *Snyder Ranches, Inc. v. N.M. Oil Conservation Comm'n*, 110 N.M. 637, 640, 798 P.2d 587, 590 (N.M. 1990). At the present time, it appears that the law regarding impacts from CBM groundwater diversions will develop in the civil, tort-law context in New Mexico, rather than in a water law context.

Tort Law

Coalbed Methane

Water LAw Remedies

CONCLUSION

For prior appropriators in the four western states, water law remedies to avoid impacts from diversion of CBM produced water vary widely.

- The **Colorado** template, sketched out in *Vance*, is beneficial use: so long as groundwater is being diverted for a beneficial use, industry must comply with the Colorado Prior Appropriation Doctrine. While *Vance* affirmatively incorporated industry into the prior appropriation system under the beneficial use theory, industry efforts are currently directed at avoiding compliance with Colorado water law either through improper reliance on the State Engineer's nontributary groundwater rules or on novel claims made in the context of industry water court applications.
- The template under development in **Montana** courts and agencies is waste. Courts seem to be signaling that diversion of CBM groundwater in Montana is to be limited by the constitutional prohibitions on waste. However, the legal framework to be applied to CBM groundwater diversions in Montana remains under development, and the unique statutory and constitutional framework to be applied to CBM groundwater disputes makes the development of the legal regime in this state worth watching.
- **Wyoming** pays lip service to the concept that CBM groundwater diversions are diversions for beneficial use. However, the SEO's permitting decisions are made lockstep, and in the absence of any rules or regulations allowing evaluation of whether or not permit applications are indeed consistent with the public interest. The Wyoming SEO issues such permits even when CBM groundwater pumping can be demonstrated to reduce physical supplies available to water wells of senior water right owners. Thus, although the legal framework contains the same concept as Colorado law, in fact CBM groundwater permitting reflects the ministerial determinations of the State Engineer's Office without regard to the agency's statutory and constitutional obligations, and is unfettered by judicial interpretation of his authority.
- **New Mexico** presents yet another model: legislative decision-making about the scope of the prior appropriation system. Because of the location of New Mexico's CBM resources, the legislative exclusion of deep, produced groundwater from water law decision-making means that any impacts from such development is likely to play out in the civil law context, rather than the water law context.

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TRIBAL WATER RIGHTS

CURRENT ISSUES & RELEVANT BACKGROUND

by Robert T. Anderson, Native American Law Center, University of Washington School of Law

Tribal Water Rights

Yakima Adjudication

Settlements

Supreme Court Decisions

Assimilation

Treaty Guarantees

Implied Easements

Reservation Theory

INTRODUCTION

Washington State's adjudication of the Yakima River System, known as *Acquavella*, recently entered its thirty-third year. "The litigation began in October 1977 when the state Department of Ecology filed an action to determine the water rights of all those claiming a right to use water from the Yakima River and its tributaries. This adjudication involves 'literally thousands of parties,' *Department of Ecology v. Acquavella,* 100 Wash.2d 651, 652, 674 P.2d 160 (1983) (*Acquavella* I), and significantly impacts the economy and future of those living in the Yakima River Basin." *Department of Ecology v. Acquavella*, 850 P.2d 1306, 1309 (Washington 1993). While it appears to be winding down, it is anyone's guess as to when it will finally conclude. Since the adjudication includes only surface water, one wonders whether groundwater might next need to be adjudicated? That seems doubtful. More likely, absent some crisis related to groundwater management, water users in the basin will simply carry on as best they can before asking the state to start the judicial machinery for a groundwater adjudication. In addition to state water rights, reserved rights of the Yakama Nation have figured prominently in the litigation.

In that same thirty-three year period, however, Congress approved twenty-three Indian water rights settlements and two other agreements were reached that were not subject to congressional ratification. In addition, there are approximately twenty-five tribes currently involved in eighteen settlement negotiations, all of which are the result of litigation. *See* References below.

The United States Supreme Court has handed down only two substantive decisions on the nature and scope of Indian reserved water rights; one decision dealing with Indian allotments; two procedural cases limiting opportunities to bring additional federal and tribal claims; and three cases involving state court jurisdiction to adjudicate federal and Indian reserved water rights without tribal consent. Despite the admonition that state court decisions interpreting Indian rights would receive exacting review by the US Supreme Court, the Court has never reviewed a case based on a tribal petition of certiorari. Consequently, understanding federal Indian law in the water rights context requires a thorough comprehension of the few US Supreme Court cases dealing with the merits, solid trends in lower court decisions, and most importantly, congressional approaches to settlements. *See* References for case citations.

INDIAN RESERVED WATER RIGHTS & FEDERAL LAW

In the late 19th and early 20th Centuries, the federal government commenced a policy of assimilating Indians into the general population with an expectation that traditional modes of life and decision making would fall by the wayside. *Cohen's Handbook of Federal Indian Law* § 1.04, pp. 75-84 (Nell Jessup Newton et al. eds., 2005). At the same time, Indians and their lands remained generally beyond the reach of state law — including state water law. *Id.* § 6.01[2], pp. 501-506. Establishing reservation homelands as a base for agricultural economies was one important part of the federal assimilation policy.

In order to obtain tribal consent to land cessions to the United States, many tribes secured treaty guarantees of off-reservation hunting and fishing rights. In *United States v. Winans*, 198 U.S. 371 (1905), the Supreme Court considered the rights of Yakama Nation members to cross privately owned land in order to exercise off-reservation treaty rights to fish at usual and accustomed grounds and stations. The phrase "usual and accustomed grounds stations" was used in a number of treaties entered into between the US and Pacific Northwest tribes. It simply refers to the locations at which tribal members customarily fished. Fay G. Cohen, *Treaties on Trial* 37-38 (1986). The confederated tribes of the Yakama Reservation had ceded most of their land to the US in 1855 in exchange for exclusive rights to occupy a smaller reservation, along with "the right of taking fish at all usual and accustomed places, in common with citizens of the Territory." Treaty with the Yakamas of 1855, art. III, 12 Stat. 951. Private landowners argued that since their patents from the United States government said nothing about an easement for access to Indian fishing sites on the now private land, one should not be implied. The Court rejected the argument, noting that the treaty reserved rights "to every individual Indian, as though named therein. They imposed a servitude upon every piece of land as though described therein." The Court found, "[t]he right to resort to the fishing places in controversy was a part of larger rights possessed by the Indians, upon the exercise of which there was not a shadow of impediment, and which were not much less necessary to the existence of the Indians than the atmosphere they breathed." The Court reasoned that the reserved easement followed from the principle that Indian treaties are "not a grant of rights to the Indians, but a grant of right from them — a reservation of those not granted." *Winans*, 198 U.S. at 381. This implied reservation theory quickly ran up against the state-based rights of non-Indian water users.

Tribal Water Rights

Winters Doctrine

In *Winters v. United States*, the Supreme Court (Court) held that when the federal government set aside land for the Fort Belknap Indian Reservation in Montana, it impliedly reserved sufficient water from the Milk River to fulfill its purpose for creating the reservation — which was to provide a permanent tribal homeland with an agricultural economy. 207 U.S. 564, 577 (1908). *See generally* John Shurts, *Indian Reserved Water Rights: The Winters Doctrine in its Social and Legal Context*, *1880s-1930s* (2000). Nonetheless, non-Indians who had settled upstream of the reservation claimed paramount rights to use water from the Milk River based on the state law of Prior Appropriation. If the state law of prior appropriation applied, the Fort Belknap Indians' water rights would be junior to the non-Indian settlers. The US, as trustee to the tribes, sued the non-Indians, arguing that in 1888 Congress had reserved sufficient water under federal law to fulfill the purpose for establishing the reservation — which was to encourage farming by Indians, and to serve as a homeland for the tribes. The argument was simple and logical. If the Indians were to become farmers as contemplated by the agreement creating the reservation, they would need water. The Supreme Court ruled that the federal government had the power to exempt waters from appropriation under state water law, and that the US intended to reserve the waters of the Milk River to fulfill the purposes of the agreement between the Indians and the United States (reserved water rights). *Id.* at 576-77. The Court accordingly upheld an injunction limiting non-Indian use to the extent it interfered with the current needs of the tribes.

Reserved Water

State Water Law

The ruling in *Winters* was a departure from the federal government's general deference to state water law in the arid West. However, the open-ended nature of the tribes' reserved water rights became a source of discontent among the western states and non-Indian water users, since Indian reserved rights could effectively move to the front of the line ahead of state water rights. Thus, state-law appropriators could establish rights relative to one another but never be certain if an up- or downstream Indian tribe might have a senior reserved right, and if so, of its quantity. The fear among these users was that the exercise of Indian reserved rights might destroy or undermine their investments in infrastructure to utilize the water. There was in fact little interference with state law rights due to the general lack of development of Indian water rights on the ground. The National Water Commission in 1973 concluded that "[i]n the history of the United States Government's treatment of Indian tribes, its failure to protect Indian water rights for use on the reservations it set aside for them is one of the sorrier chapters." Nat'l Water Comm'n, *Water Policies for the Future – Final Report to the President and the Congress of the United States* 475 (GPO, 1973). See also Robert T. Anderson, *Indian Water Rights and the Federal Trust Responsibility*, 46 Nat. Resources J. 399 (2006).

Uncertainty

Expanding Rights

Some early to mid-20th century cases in lower federal courts also recognized implied Indian reserved water rights but similarly did not quantify the amount reserved with any finality. *See Conrad Inv. Co. v. United States*, 161 F. 829 (9th Cir. 1908) and *United States v. Ahtanum Irrigation Dist.*, 236 F.2d 321 (9th Cir. 1956), cert. denied, 352 U.S. 988 (1957). Both cases recognized that reserved rights could increase as tribal needs expanded.

While *Winters* set out the basic parameters of the Indian reserved water rights doctrine, there have been few other Supreme Court cases dealing with the nature of the rights. Aside from the modern Indian water rights settlements, Congress has not spoken to the substance of Indian water rights.

Non-Indian Successors

In *United States v. Powers*, 305 U.S. 527 (1939), the Court addressed whether non-Indian successors to allotment owners acquired any right to use a portion of the water right originally reserved for a tribe under the *Winters* doctrine. The Court held that "when allotments were duly made for exclusive use [of individual tribal citizens] and thereafter conveyed in fee, the right to use some portion of tribal waters essential for cultivation passed to the [new] owners." *Id.* at 532. Because the issue was not properly framed, the Court did "not consider the extent or precise nature of respondents' rights in the waters." *Id.* at 533.

Colorado River Case

The Supreme Court did not revisit the Indian reserved rights doctrine until 1963, when it rendered a one-hundred-page decision in *Arizona v. California* (*Arizona I*), 373 U.S. 546 (1963). The case dealt primarily with the division of the water in the Colorado River among the affected upper and lower basin states. The United States intervened on behalf of several Colorado River Indian tribes and asserted claims for full and permanent allocations of water rights to the tribes. The claims went a step beyond the ruling of *Winters*, which had resulted in an injunction against certain uses but left the tribes with an open-ended decree. The Supreme Court agreed with the US that a final quantification was desirable and endorsed the **p**racticably **i**rrigable **a**creage (PIA) doctrine, which allowed a quantification of reserved water rights for the present and future needs of the several Indian reservations. *Id.* at 600-601. In general, the PIA standard awards water for present and historical irrigation, for those tribal lands capable of sustaining irrigation in the future, and for growing crops in an economically feasible manner. *See Cohen's Handbook of Federal Indian Law*, at § 19.03[5], pp. 1184-88.

PIA Doctrine

Tribal Water Rights

Changing Uses

Big Horn Adjudication

Federal Reserved Rights

General Indian Law Preclusion

Comprehensive Adjudication

States' Authority

Filing Fees

Tribes Bound

The Court explained its agreement with a Special Master's recommendation by noting a number of practical factors, such as the establishment of reservations in areas where water was essential to allow the Indians to survive, and by emphasizing fairness and feasibility as justifications for reliance on irrigable acreage as the measure. *Arizona I*, at 599-600. The Court could have simply followed the *Winters* rule and provided for current use, subject to future expansion as the Indians' needs increased. In the context of a division of the waters of the Colorado River among the various states, however, it would have made no sense to leave potentially large claims unquantified. The Court also approved the use of agricultural water for other purposes as time and the desires of the tribes changed. *Arizona v. California*, 439 U.S. 419, 422-23 (1979) (supplemental decree).

The only other Indian water rights case to reach the US Supreme Court on the merits, besides *Arizona I*, was *Wyoming v. United States*, which involved Wyoming's general adjudication of water rights to the Big Horn River, including the rights of the Shoshone and Arapahoe Tribes. *Wyoming v. United States*, 492 U.S. 406 (1989), *affirming as an equally divided court sub nom. In re General Adjudication of All Rights to Use Water in the Big Horn River System*, 753 P.2d 76 (Wyo. 1988). Although review was granted to consider the Wyoming Supreme Court's application of the PIA standard, there was no Opinion for the equally divided Court.

In *Arizona I*, the Supreme Court also applied the reserved rights doctrine to land set aside as federal reservations for non-Indian purposes. While the amount of water awarded for the non-Indian federal reservations was relatively insignificant (*Arizona v. California*, 376 U.S. 340, 345-346 (1964) (decree), the Master had "ruled that the principle underlying the reservation of water rights for Indian Reservations was equally applicable to other federal establishments such as National Recreation Areas and National Forests" and the Supreme Court agreed that "the United States intended to reserve water sufficient for the future requirements of the Lake Mead National Recreation Area, the Havasu Lake National Wildlife Refuge, the Imperial National Wildlife Refuge and the Gila National Forest." 373 U.S. at 601. Earlier, the Supreme Court held in *FPC v. Oregon*, 349 U.S. 435, 448 (1955), that the Desert Land Act, which generally authorized the application of state water law to grantees of federal land, did not apply to water rights on federally reserved land. For a review of the evolution of the reserved rights doctrine, see John D. Leshy, *Water Rights for New Federal Land Conservation Programs: A Turn-of-the-Century Evaluation*, 4 U. Denv. Water L. Rev. 271, 288 (2001).

MCCARRAN AMENDMENT LITIGATION

General rules of Indian law preclude the exercise of state regulatory or adjudicatory jurisdiction over Indian tribes, their members and their property within Indian country. *See generally* Cohen's Handbook of Federal Indian Law, supra note 15, § 6.01, pp. 499-514. Another group of Supreme Court (Court) cases involving federal Indian reserved rights cases interpreted the McCarran Amendment (Amendment, 43 U.S.C. § 666). In these cases, the Court read the Amendment broadly to provide states with authority to adjudicate federal water rights. *Dugan v. Rank*, 372 U.S. 609 (1963). For a comprehensive pre- and post-enactment history of the amendment, see John E. Thorson et al., *Dividing Western Waters: A Century of Adjudicating Rivers and Streams*, 8 U. Denv. Water L. Rev. 355 (2005) and *Part II*, 9 U. Denv. Water L. Rev. 299 (2006). The Court in *Dugan* also held that the Amendment requires that the adjudications be comprehensive — inclusive of the rights of all owners on a given stream — in order for a state court to assert jurisdiction over federal claims. Dismissing the claims, the Court noted that the case before it involved a private suit to determine water rights solely between the respondents and the US and local US Bureau of Reclamation officials. *Dugan* at 618.

Although the statute on its face says nothing about state court authority to adjudicate federal reserved rights, or Indian reserved water rights, the Court interpreted the McCarran Amendment to allow states to assert jurisdiction over both federal and Indian reserved water rights. *See United States v. Dist. Ct. in and for the County of Eagle*, 401 U.S. 520 (1971) and *Colorado River Water Conservation Dist. v. United States*, 424 U.S. 800 (1976). The *Colorado River* Court also held that while the Amendment does not deprive federal courts of jurisdiction over Indian water rights cases, they should abstain from asserting jurisdiction over water rights disputes when a state is asserting jurisdiction over the same matter. *Id*. at 819-21. Another case, *United States v. Idaho*, 508 U.S. 1 (1993), held that the Amendment waiver does not permit states to require the federal government to pay exorbitant state court filing fees.

Even states that had disclaimed jurisdiction over Indian lands in enabling acts as a condition for their entry into the Union could now assert jurisdiction over reserved water rights under the Amendment. *Arizona v. San Carlos Apache Tribe*, 463 U.S. 545 (1983). While tribal sovereign immunity stood as a separate bar to joining tribes without their consent, tribes would now be bound by any decree in which the US as trustee is properly brought into a general stream adjudication. *Nevada v. United States*, 463 U.S. at

Tribal Water Rights

Federal Law Application

Fisheries Purposes

Instream Flows

Time Immemorial Rights

Reservation Purpose

"Homeland" Approach

"Minimal Need"

Change in Use

135 (1983). In its latest word on the joinder of the United States, and thereby on tribal rights, the Court cautioned in *San Carlos Apache Tribe*, 463 U.S. at 571 that:

> State courts, as much as federal courts, have a solemn obligation to follow federal law. Moreover, any state-court decision alleged to abridge Indian water rights protected by federal law can expect to receive, if brought for review before this Court, a particularized and exacting scrutiny commensurate with the powerful federal interest in safeguarding those rights from state encroachment.

RESERVED RIGHTS TO INSTREAM FLOWS

In litigation involving the Confederated Tribes of the Colville Indian Reservation, the federal Ninth Circuit Court of Appeals (Ninth Circuit) found reserved rights to water for both agricultural and fisheries purposes. *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 47-49 (9th Cir.), cert. denied, 454 U.S. 1092 (1981). The court stated at page 47 (citations omitted):

> We apply the *New Mexico* test here. The specific purposes of an Indian reservation, however, were often unarticulated. The general purpose, to provide a home for the Indians, is a broad one and must be liberally construed. We are mindful that the reservation was created for the Indians, not for the benefit of the government.

After concluding that the reservation, like most in the West, had been set aside for agricultural purposes, the court supplemented its award of water under the PIA standard with water for instream flows to support tribal fisheries, due to the tribe's demonstrated traditional reliance on fisheries resources. *Id.* at 48. The court also stated that "Congress envisioned agricultural pursuits as only a first step in the 'civilizing' process" and that "this vision of progress implies a flexibility of purpose." *Id.* at 47 n.9 (citing 11 Cong. Rec. 905 (1881)).

Similarly, in *United States v. Adair*, the Ninth Circuit considered claims by the US and the Klamath Tribes to water for instream flows and lake levels to protect treaty rights to fish, wildlife, and plants. 723 F.2d 1394, 1397 (9th Cir.), cert. denied, 467 U.S. 1252 (1984). The court applied the *Winans* rationale in evaluating the Klamath Tribe's water rights:

> The 1864 Treaty [with the Klamaths] is a recognition of the Tribe's aboriginal water rights and a confirmation to the Tribe of a continued water right to support its hunting and fishing lifestyle on the Klamath Reservation. Such water rights necessarily carry a priority date of time immemorial. The rights were not created by the 1864 Treaty, rather, the treaty confirmed the continued existence of these rights. *Id*. at 1414 (paragraph omitted) (citing *Washington v. Washington State Commercial Fishing Vessel Ass'n*, 443 U.S. 658, 678-81 (1979)).

The Klamath Tribes also claimed reserved water to provide irrigation for individual Indians who had received allotments of tribal land. The Ninth Circuit stated that "*New Mexico* and *Cappaert*, while not directly applicable to *Winters* doctrine rights on Indian reservations...establish several useful guidelines." *Id.* at 1408 (citations omitted). The court explained, "[w]hile the purpose for which the federal government reserves other types of lands may be strictly construed,...the purposes of Indian reservations are necessarily entitled to broader interpretation if the goal of Indian self-sufficiency is to be attained."

The decisions of the Arizona Supreme Court and the Wyoming Supreme Court present an interesting contrast to the Ninth Circuit's approach. In the general stream adjudication of the Gila River, the Arizona Supreme Court endorsed a "homeland" approach that has superficial appeal in its interpretive approach that looks to the general purpose behind the treaty. *In re the General Adjudication of All Rights to Use Water in the Gila River System*, 35 P.3d 68, 74, 77-79 (Ariz. 2001). The court concluded that the essential purpose of Indian reservations is to provide Indian tribes with a permanent home and abiding place, that is, a "livable" environment — but expressed concern that awarding "too much water" under the PIA analysis to tribes would be inconsistent with the "minimal need" approach it borrowed from the non-Indian federal reserved water cases.

The answer to the court's concern, of course, is that once a federal reserved water right is recognized under PIA or any other consumptive use standard, the water may be marketed to other users or used for other purposes by the tribe. The only relevant US Supreme Court decision concerning a change in use, approved an agreement quantifying the rights and recognized the potential for a change of agricultural water to non-agricultural uses. *Arizona v. California*, 439 U.S. 419, 422 (1979).

Relegating the PIA standard to a matter merely for consideration as part of a total award focused on "minimal need" seems to invite trial courts to balance Indian reserved rights against non-Indian uses to avoid adverse effects on state water rights — an approach rejected by the US Supreme Court in *Cappaert.* The Arizona Supreme Court stated:

> The PIA standard also potentially frustrates the requirement that federally reserved water rights be tailored to minimal need. Rather than focusing on what is necessary to fulfill a reservation's overall

Tribal Water Rights

"Homeland" v. PIA

Instream Flows Rejected

Congressional Silence v. Settlements

Risks of Litigation

Federal Neglect

> design, PIA awards what may be an overabundance of water by including every irrigable acre of land in the equation…The court's function is to determine the amount of water necessary to effectuate this [homeland] purpose, tailored to the reservation's minimal need. We believe that such a minimalist approach demonstrates appropriate sensitivity and consideration of existing users' water rights, and at the same time provides a realistic basis for measuring tribal entitlements.
>
> *Gila River*, 35 P.3d at 79, 81. See text at note 69, *supra*, for relevant discussion of *Cappaert*.

Leading commentators also share pessimism regarding the fairness of the Arizona approach, but it remains to be seen whether it will ever be implemented. "Although the Arizona court's approach avoids the problems inherent in PIA, its focus on minimal need may ultimately leave some tribes with less water than the imperfect PIA standard." *Cohen's Handbook of Federal Indian Law*, supra note 15, § 19.03[5][b], p. 1187. In 2004, the claims of several Arizona tribes were settled. Arizona Water Settlements Act of 2004 (Gila River, Tohono O'odham, San Carlos), Pub.L. 108-451, 118 Stat. 3478. "Another concern with PIA is that it forces tribes to pretend to be farmers in an era when 'large agricultural projects...are risky, marginal enterprises.'" *Id.* at 78. It is doubtful that a tribe would undertake an agricultural operation if it would not at least break even financially (as required to demonstrate PIA), thus obviating the Arizona Supreme Court's concern that a tribe would somehow be "forced" into an uneconomic activity, or to "pretend to be farmers."

On the other hand, the Wyoming Supreme Court, in the *Big Horn* case, adhered strictly to the PIA standard and the primary purpose test, rejecting claims for other uses such as instream flows for fisheries or mineral and industrial development. *In re the General Adjudication of All Rights to Use Water in the Big Horn River System*, 753 P.2d 76, 98-99 (Wyo. 1988) (applying strictly), *aff'd by an equally divided court sub nom.*, *Wyoming v. United States*, 492 U.S. 406 (1989). However, the court's approach seems plainly incorrect in that it ignores the Indian law canons of construction and thus narrowly construes the purposes of a reservation. *See Cohen's Handbook of Federal Indian Law*, *supra* note 15, § 19.03[4], p. 1183. While the court did find that other uses such as municipal, domestic and commercial uses were subsumed within the agricultural right (*Big Horn*, 753 P.2d at 99), the court later compounded its error in narrowly construing the treaty by refusing to permit the tribe to change the use of a portion of its agricultural water to instream flows to enhance fisheries habitat. *In re the General Adjudication of All Rights to Use Water in the Big Horn River System*, 835 P.2d 273 (Wyo. 1992). There was no single opinion explaining the court's rationale.

INDIAN WATER RIGHTS SETTLEMENTS

Despite the hundreds of treaties establishing, enlarging, and diminishing Indian land reservations — which rarely mention water — Congress as a general matter has said even less than the Supreme Court on the subject on Indian reserved water rights. The Dawes Act of 1887 provides the Secretary of the Interior with authority to make an equitable distribution of water for irrigation purposes to allottees on reservations. *See United States v. Powers*, 305 U.S. 527 (1939). The McCarran Amendment of 1952 says nothing explicitly about federal or Indian reserved water rights. However, Congress has enacted twenty-three modern Indian water rights settlement statutes, ratifying federal-state-tribal agreements.

Although there was little development of water resources for tribes in the aftermath of the Supreme Court's landmark decision in *Winters* (*See* Nat'l Water Comm'n, *supra* note 22; Anderson, *supra* note 22), an increase in litigation involving both the McCarran Amendment and potential threats to extant non-Indian uses led to the settlement of a number of Indian water rights controversies in the late twentieth and early twenty-first centuries.

When parties leave it to the courts to decide these critical issues they take a tremendous risk, which sometimes results in even more ambiguity, as with the Arizona Supreme Court's 2001 ruling in *Gila River* (see above). Thus, understanding federal Indian law in the water rights context requires a thorough comprehension of the few US Supreme Court cases dealing with the merits, solid trends in lower court decisions, and most importantly, the past Congressional approaches. While federal Administrations of both political parties have complained about the cost of Indian water rights settlements, the fact is that many of the intractable problems faced in the arid West today are the result of a more than a century of federal neglect of tribal water needs and a corresponding encouragement of non-Indian development. As a consequence, the tribes and other parties to litigation look to the US to help settle conflicts that, in the view of the non-federal parties, the federal government did the most to create in the first instance. The bulk of the harm from the federal government's action (and inaction) most often was inflicted on the tribes, while non-Indian irrigation projects and state law appropriators have only recently begun to feel pressure as a result of the assertion of federal reserved rights, climate change, drought, and other environmental laws such as the Endangered Species Act.

Tribal Water Rights

Federal Criteria

Cost v. Flexibility

Navajo San Juan Settlement

Aamodt Settlement

Water Settlement Fund

Momentum

At least on paper the federal government's participation in Indian water settlement negotiations are guided by formal criteria and procedures for Indian water settlements that were established in 1991. *Criteria and Procedures for the Participation of the Federal Government in the Negotiations for the Settlement of Indian Water Rights*, 55 Fed. Reg. 9223 (March 12, 1990). These guidelines are generally regarded by non-federal parties as an unhelpful tool in promoting settlements, except to the extent they express a general federal policy promoting settlement of Indian water right claims. As noted elsewhere, the Criteria do not appear to have played any substantive role in the comprehensive settlement of the Snake River Basin Adjudication (*see* Robert T. Anderson, *Indian Water Rights: Litigation and Settlements*, 42 Tulsa L. Rev. 23, 33-35 (2006), but in testimony in 2008 on the Navajo San Juan Settlement, the Bush Administration relied heavily on the Criteria in its formal opposition to the Settlement: "The Administration did not participate in the drafting of the water rights settlement embodied in S. 1171, and does not support a water settlement under these circumstances. For these reasons, the Administration opposes the cost and cannot support the legislation as written." S. Rep. 110-401, 110th Cong. 2d Sess. at 35. The Bush Administration's statement at least gave lip-service to flexibility, but the position appeared to be primarily cost-driven. "The Administration believes that the policy guidance found in the Criteria and Procedures...provides a flexible framework in which we can evaluate the merits of this bill. As we have testified previously, the Criteria is [sic] a tool that allows the Administration to evaluate each settlement in its unique context while also establishing a process that provides guidance upon which proponents of settlements can rely." *Id.* at 37.

The Settlement was re-introduced in the 111th Congress and became law early in the Obama Administration. Omnibus Public Land Management Act of 2009, Pub. L. No. 111-11, § 10701, 123 Stat. 991, 1396 (2009). It is not clear whether the new Administration will rely on the guidelines as a ready source of opposition to pending settlements on fiscal grounds, but preliminary indications in testimony regarding the proposed Aamodt Litigation Settlement Act are promising. *See* S. Rep. 111-115, 111th Cong. 2d Sess. at 12 (Statement of Michal Connor, Commissioner, Bureau of Reclamation). This proposed settlement involves the Pueblos of Nambe, Pojoaque, San Ildefonso, and Tesuque in New Mexico. The Aamodt Settlement Act passed the House of Representatives with apparent Administration support as H.R. 3342 on Jan. 21, 2010. *See* H. Rep. 111-390, 111th Cong. 2d Sess. at 28-29. In a letter to Senate Indian Affairs Committee Chairman Byron Dorgan, Commissioner of Reclamation Michael Connor stated that the Obama Administration "would like to work with Congress to identify and implement clear criteria for going forward with future settlements on issues including cost sharing and eligible costs." S. Rep. 111-115, 111th Cong. 2d Sess. at 15. *See also*, H. Rep. No. 111-399, 111th Cong. 2d Sess. (Reporting both the Taos and Aamodt Settlements for passage by the House). The willingness of the Administration to discuss the core elements of the Criteria with Congress (and presumably the tribes and other constituents) is a welcome sign of flexibility and indicates great potential for resolution of other difficult water rights disputes.

Another positive development in the Obama Administration is the establishment of the Reclamation Water Settlement Fund to fund Indian water rights settlements without either decimating the budget of the Bureau of Indian Affairs or completely reordering the Bureau of Reclamation's operations. *Id.*, § 10501, 123 Stat. 991, 1375. While the Fund is not scheduled to provide a funding stream until 2020, its creation is a significant step in the right direction, and the current Administration is reliably rumored to favor advancing the timing of its availability. Access to this fund is a response to years of efforts by Indian and non-Indian advocates to encourage increased federal support for Indian water settlements. These efforts have been led by the Native American Rights Fund and the Western States Water Council (WSWC). *See* WSWC – *Celebrating Our 40th Anniversary* at 21-22 (2005) (see: www.westgov.org/wswc/ca-westernstates.pdf).

The momentum in favor of settlements owes a great deal to federal executive branch policy, congressional action and the realization that lengthy state court litigation under the McCarran Amendment is not a panacea to water rights disputes. Perhaps more important is an understanding that the history of Indian water settlements is generally a successful one. While there are cases where full funding has taken longer than expected, Congress may need to occasionally revisit some of the settlements. That should not, however, hinder the use of settlements in the future. The problems of water use and supply are ongoing, and the need for innovative solutions will only increase as climate change alters the hydrograph of the arid West.

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Instream Flow Cases: **State Court Approach**

For a **state court approach**, see *State Dep't of Ecology v. Yakima Reservation Irrigation Dist.*, 850 P.2d 1306 (Wash. 1993) (en banc). *See also Joint Board of Control of Flathead Irrigation Dist. v. United States*, 832 F.2d 1127, 1132 (9th Cir. 1987); *United States v. Anderson*, 591 F. Supp. 1, 5 (E.D. Wash. 1982), *aff'd in part & rev'd in part*, 736 F.2d 1358 (9th Cir. 1984) (water reserved to maintain favorable temperature conditions to support fishery); *Kittitas Reclamation Dist. v. Sunnyside Valley Irrigation Dist.*, 763 F.2d 1032 (9th Cir. 1985) (court acted appropriately in ordering release of water to protect habitat for treaty fishery); *State ex rel. Greely v. Confederated Salish & Kootenai Tribes of the Flathead Reservation*, 712 P.2d 754, 764-66 (1985) (tribal reserved rights may include water for fisheries as well as agriculture and other purposes). On the other hand, a state district court in Idaho rejected Indian reserved rights for instream flows. *In re SRBA*, Case No. 39576, Consolidated Subcase No. 03-10022 (Idaho Dist. Ct., Nov. 10, 1999). Congress mooted the controversy in that case by approving an Indian water rights settlement, the Snake River Basin Adjudication, which provided for instream flow protection. Snake River Water Rights Act of 2004, Pub. L. No. 108-447, 118 Stat. 3431 (2004).

NW Water Marketing

Transactions Cost

Pressures

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NORTHWEST WATER MARKETING

RE-ALLOCATING WATER IN THE PACIFIC NORTHWEST

by Richard A. Slaughter, University of Washington Climate Impacts Group, (Boise, ID, Office)

INTRODUCTION

Water allocation has been contentious in the Pacific Northwest (Washington, Idaho, and Oregon: the three states that comprise most of the Columbia Basin) for over a century. This article undertakes to examine, from a transactions cost perspective, the adequacy of each state's institutional support for water allocation through market means. It does not view markets as a policy option to be adopted, rejected, or created, but rather as the natural mode of resource transfer — within the constraints imposed by characteristics of the resource, provided that adequate institutional support exists.

Existing patterns of water use in the Columbia Basin are under pressure from three major sources:

- GROWTH AND URBANIZATION: Populations in Idaho, Oregon, and Washington rose 93% from 1970 to 2009. Growth has been particularly pronounced in and around the urban centers of Boise, Portland, and Seattle. At the same time, many rural counties have experienced population declines. This urban concentration results in an ever-increasing demand for municipal and industrial water uses, while demand for agricultural uses remains relatively constant.
- PUBLIC POLICY SHIFTS: The "develop the West" social policy of the late 19th and early to mid-20th centuries has given way to new public preferences — such as those embodied in the federal Clean Air, Water, and Endangered Species Acts — which seek to protect natural habitat against harmful human impacts. The new policies create overlapping and sometimes conflicting policy agendas with the existing development agencies, such as the US Bureau of Reclamation (Reclamation), which were created for other purposes.
- CLIMATE CHANGE: In addition, climate change has begun to challenge traditional water uses by undermining the physical assumptions that underlie our economic uses of the resource. Agriculture in particular is dependent on snowpack in the Cascade Range of western Washington and Oregon, the Blue Mountains of eastern Oregon, and the Rockies of central and southeastern Idaho for mid and late-season irrigation. The mid-level elevations of those ranges have become transition zones, where the snow cover is thinner and melts earlier, and winter rains are more frequent than when irrigation patterns were first established. Droughts appear to have become longer and more intense, adding to stress on water-delivery systems.

This article compares support for water transfers in Idaho, Oregon, and Washington in light of market criteria developed from transaction cost analysis published by the author last year (Slaughter, 2009). That study examined the available bases for water transfer arrangements and the obstacles to be managed. The analysis takes into account the special nature of water — a nature that has led to usufructory water rights, i.e., the right to use water when it is available rather than to own specific quantities of water, under western water law's Prior Appropriation Doctrine.

WATER REALLOCATION

One path to water reallocation is essentially political in nature: a governmental entity might decide on objectives, and authorize an agency to determine who gets how much water and when. Multiple government agencies might be involved, each following its own congressional or legislative mandate. Efforts to alter allocations would take the form of gaining influence over the allocation mechanism, as when Klamath Project farmers in 2001 appealed directly to their congressional representatives to overturn a shutoff ordered by Reclamation (Slaughter, 2007).

A 2004 Washington Department of Ecology (DOE) study found a growing and fairly dynamic set of water markets in the three Northwest states, including seven in Idaho, one in Oregon (plus the Reclamation program on the Klamath River, which was an annual auction of requirements among Project farmers only and not a water market; see below), and two in Washington. As might be expected, water-banking arrangements tend to be created during drought situations. The oldest is on the upper Snake River in Idaho (from 1932); in Washington the first was on the Yakima in 2001; and in Oregon on the Klamath River (also in 2001).

To function well, any market should have enough transactions to enable at least ballpark pricing. It is also preferable to have any constraints arising from externalized social costs (e.g., habitat degradation) known in advance. Currently, water transfers are challenged on both these fronts. This is due, in part, to the unique attributes of water and water rights.

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Market Comparisons

If I want to buy or sell shares of a publicly traded business, there is an existing market to facilitate my transaction. Standardized information is available in company disclosures required by federal law, an existing market participant will take my order and execute it electronically at very small cost to me, and existing legal standards will protect my investment from loss by my brokerage or any agent involved in the transaction. My brokerage will even keep a record of my ownership, indefinitely, at zero cost to me, and the Internal Revenue Service will accept their reports as legal proof of my transactions and ownership.

If I want to buy or sell a house (or an entire, privately-owned business) things are a bit more complicated and expensive, even though there are established markets, standards, and legal protection. While there are many houses, the one I'm interested in is a unique asset. I must find a property or buyer, usually through the use of an agent, for whose services I will pay a significant percentage of the transaction's value. Other costs will be incurred for title insurance, mortgage origination, debt insurance, and numerous other items, made necessary either to secure information related to the sale or to further one or more objectives mandated by legislation. The upshot is that while I can buy or sell on margin a half million dollars worth of publicly traded stock for fees totaling less than $20, the purchase of a house involving a mortgage of the same amount can cost upwards of eight percent of the asset value (over 2,000 times as much). Needless to say, people normally do not trade house ownership as frequently as they do stock shares, because transaction costs are substantially higher.

Water Uniqueness

If the commodity at issue is water, things are even more complicated and expensive. Not only is water in the river or ditch at a given time a unique asset, unlike a house it may or may not be there when I want it. In addition, my diversion right is in what may be a long prior appropriation queue, and I have only a right to the use of the water, not a fee simple property ownership of the water itself. Thus, water is *asset specific* in ways far beyond those that apply to housing or other assets with limited sales. As a result, while the inefficiencies of politically driven mechanisms incline us toward markets, the question at issue is how to design a market that is any more efficient than politics.

Valuation Factors

Water Pricing & Ability to Complete a Transfer

Water's value varies according to location, availability, and the needs of buyers and sellers. In that sense, water rights pricing is actually much the same as with retail goods except that the market for a given water right is extremely limited in time and space, as well as in the ability to physically and legally make the transfer.

In the simple case, a good will not be offered unless the seller can realize a price that covers cost and required return, and a buyer will not purchase unless the value received is at least equal to the price.

Seller v. Buyer

In a water sale, the seller must receive a price that is higher than the value of his alternative use for the water. He has no upper bound. Unneeded storage in a reservoir (the source for a rental pool) during a wet year may have a very low alternative use value because his irrigation needs have been met. During a dry year, that same storage will be worth at least the increment he could earn on the crops foregone to sell the water. For a buyer, the situation is reversed. He has no lower bound, but his upper bound is limited by his expected marginal gain from use of the water. Thus, the seller's situation determines the lower bound, and the buyer's the upper. The range may be quite narrow, or very wide. The ultimate pricing of any given transaction is likely to be unique.

Transaction Costs

Presuming there is a positive range between the seller's and buyer's price limits and there exists the ability to move water from one to the other, the potential for a transfer will be limited by transactions costs. The greater the cost of accomplishing a transfer, the fewer transfers will be accomplished and the less social benefit will accrue from the resulting re-allocation. This is where water markets with defined procedures play a role. An existing market structure can drastically reduce costs, both for information — is water available, how injury is calculated, what mitigation is available— and for contract enforcement (the bundle of legal rights that are being bought and sold)

Transactions Costs & the Design of Water Markets

Water Issues

Transactions cost analysis examines the relationship between distributions of bundles of legal rights and the costs inherent in forming and enforcing a contract. As concerns water transactions, this includes determining the sources of available water, appropriate prices, obstacles to buying or selling, and enforcing contract terms.

Bank Benefits

A pre-defined water banking mechanism reduces costs by providing buyers and sellers with an existing and mutually agreed upon source of information, procedures, enforcement, and pricing. When a bank exists, an individual buyer need not locate specific other individuals willing to sell or arrange an ad hoc means of transport. Attorneys needn't be hired on both sides to create contract arrangements from scratch or defend the arrangement in court against injury challenges. If the market has experienced a sufficient volume of transactions, it also provides the parties with a range of pricing information to narrow the ballpark of negotiations.

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Behavioral Challenges

Contract Challenges & the Basis of Markets

Oliver Williamson (Williamson, 1985) identifies three categories of behavioral challenge for any contract: 1) bounded rationality (constraints on knowledge about the future); 2) opportunism (the willingness to profit from a changed situation at the expense of other parties to the contract); and 3) asset specificity. Water presents all three challenges, as anyone familiar with irrigation history can attest. Williamson also identifies four contract models, or bases for contract, in terms of their capacity to address the challenges. The contract models are: planning; trust; competition; and governance.

In a planning-based contract, parties would identify who was to receive how much water, and when. Unfortunately, due to variability in climate, seasons, and weather, no one knows even for the current year how much water will be available. A contingency clause might handle drought situations. On the other hand, how social preferences will evolve over time is impossible to predict.

Trust is frequently the basis for contracting in societies where a stable and pre-existing social code limits the tendency of individuals to take undue personal advantage to gain more than fair returns. If trust is present, unknown future developments, asset specificity, and opportunism are handled by a self-enforcing general clause to not take advantage of other parties. Water, as violence at headgates and frequent lawsuits continue to demonstrate, is not amenable to trust arrangements.

Competitive Markets

Competitive markets can deal well with unknown futures, opportunism, and parties unknown to each other. This is due, in part, to multiple transactions occurring over time, with participants constantly adjusting their actions to meet shifting conditions. In the case of water, the virtues of market competition are defeated by the reality of asset specificity. While bottles of spring water in a grocery store can easily be competitively marketed, water flowing instream or pumped from underground cannot — due to the unique attributes of water discussed above. Consequently markets, as they are generally understood, are not a useful mechanism for water allocation.

Governance

Governance, as the term is used in transaction cost economics, describes a situation wherein a collective entity acts as referee in an allocation process, but does not control outcomes. Ownership matters, because it provides the buyer with the ability to realize returns from his investment. Direct judicial enforcement, with win/lose case law developed over time, is viewed as inefficient. Private negotiations — perhaps subsequent and subject to judicially imposed constraints (*post hoc* private ordering; see below) — are preferred. A workable governance structure would feature pervasive negotiation among parties with an ownership interest in the resource (ownership being defined as the ability to control returns from an asset). This definition excludes arrangements wherein water users are merely customers of a provider (such as the case with municipal systems or some Reclamation projects).

Guiding Criteria

Institutional Criteria to Support Water Marketing

State-level government support for water marketing and transfers for multiple purposes can be guided by five criteria derived from the above discussion.

Property Rights

1) Property Rights: Support of usufructuary water rights requires a property rights regime capable of enabling rights holders to control the economic returns from those rights. In the Pacific Northwest, the regime is based on implementations of prior appropriation. In Idaho, the regime is constitutionally based; in Oregon and Washington it is provided through statute.

Referee

2) System Referee: A referee is required to maintain a reasonably level playing field. Such a referee may be a quasi-judicial body or agency that serves as administrative rule-maker and ensures transparency, or may be non-judicial. Such an entity must have authority to enforce the rules and regulate use, but not determine allocation. State agencies created for this purpose (the State Engineer or Water Resources agency) might also be endowed with regulatory authority for the Clean Water and Endangered Species Acts, and other constraints on the exercise of water rights.

Conjunctive Management

3) Conjunctive Management: Where surface and groundwater sources are hydrologically linked, third party injury can result from expanded groundwater withdrawals. The injury standards applied to groundwater sources typically differ from those applied to surface water: a well owner may be required to take reasonable action to maintain his supply in the face of declining water levels, while senior surface users have a right to a full allocation ahead of junior users. Also, changes in well location can have varied effects on associated river reaches. For efficient allocation, surface and groundwater might be conjunctively managed within basins where the sources are hydrologically connected. In some basins, prior appropriation does not easily apply to groundwater, but, at least conceptually, conjunctive management is preferable to treating the two as separate, non-interacting resources. Conjunctive management also requires sophisticated hydrologic modeling, which may often not be feasible. However, where hydrologic modeling exists and is sufficiently developed to support the calculation of distributive effects in time and space, it can support the calculation of mitigation for water transfers.

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Private Ordering

4) Private Ordering: *Post hoc* private ordering occurs when private parties with significant interest in an allocation arrangement possess a degree of ownership sufficient to enable them to change allocation (contract) terms through negotiation with each other — either directly or through public institutions. "Private" is used in the sense that such ordering is not judicially-based, though it includes instances where arrangements are developed under the threat of litigation. These private parties are distinctly not customers of a resource provider, with claims only to fair treatment. Rather, they are analogous to those shareholders in a corporation who have sufficient ownership to affect major decisions.

Negotiations such as the 2004 Nez Perce settlement and the 1984 Swan Falls agreement between Idaho Power and the State of Idaho (revised and re-affirmed in 2009) are examples of private ordering. Both settlements accomplished major changes in water allocation among multiple parties, without judicial orders. Issues addressed through *post hoc* private ordering on the Snake system include: changing social preferences; demand growth; and climate effects. Responses have included expanding beneficial use to include instream and aquifer recharge; changes to burden of proof with regard to third party injury from transfers; out of court settlement of major rights conflicts between irrigators, native tribes, federal agencies, and hydroelectric producers; conjunctive management of surface and groundwater rights; accounting for water rights transfers; return flow quality constraints; and reduction of barriers to transfers through hydrologic research and models to simulate transfer effects and surface/groundwater interaction.

Neutral Rules

5) Rules neutral as to outcome: The rules defining a market should be neutral as to outcome, not biased in favor of agricultural, domestic, industrial, or environmental use. Existing constitutions, statutes, and water banking programs in the three states tend to be biased in this way. That bias may limit their overall effectiveness by raising barriers to otherwise viable transactions. The rationale here are the twin objectives that: 1) water should, insofar as possible, move to uses and users that provide the highest overall social return consistent with reasonable usage constraints set by current social policy; and 2) changes in allocation should not occur as a result of political maneuvering or external third party decision.

Water Transfers: Aggregate Data

Water transactions data is notoriously hard to come by, and pricing impossible. Tables 1 and 2 are drawn from data maintained by the University of California, Santa Barbara. They are used only in the aggregate to indicate magnitudes of the markets and the individual state emphasis on end use.

As examples of the difficulties, one major sale and lease is counted twice in the contract year, and not at all for 30 succeeding years. Another short-term transfer is not counted at all because electricity, and not water, was the nominal subject of the transaction.

- In Idaho, agriculture edges out environmental uses as the largest recipient.
- In Oregon, environmental uses predominate by a wide margin.
- In Washington, environment and urban uses are largest.
- Idaho reports 46% of the transfers, and 76% of the water traded. The larger water volumes are due to purchases by Reclamation for flow augmentation, as well as short-term agriculture to agricultural rentals; the higher transactions activity may reflect better support for water transfers.
- Washington reports 17.4% of the transfers, but only 4% of water transferred.

Table 1: Water Transfer Uses

		Receiving Use				
State	% of total	Agricultural	Urban	Environmental	Other	Total
Idaho	46%	37%	15%	35%	12%	100%
Oregon	37%	27%	4%	56%	13%	100%
Washington	17%	20%	27%	34%	20%	100%

Table 2: Water Transfer Amounts

Total KAF 1988 – 2008

State	000 AF	% of total
Idaho	6,423.5	76%
Oregon	1,686.7	20%
Washington	323.9	4%
Total	8,434.1	

Source: *Water Strategist*, via Donald Bren School, University of California, Santa Barbara

WATER MARKETS IN THE PACIFIC NORTHWEST

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Conservation Benefits

Conservation Practices & Unintended Consequences

Before discussing specific market conditions in the three Pacific Northwest states, it will be useful to present a short overview of some current practices aimed at water conservation.

There are certainly many sound reasons for water conservation, particularly in municipal and industrial use. They include: reduced maintenance expense; reduced diversion requirements in the event of drought; reduced labor cost; and other real savings that compensate an irrigator or municipality. However, water conservation is also subject to water's unique nature and, in the American West, prior appropriation practices. Consequently, some conservation practices have unintended consequences.

Public Source

In the last several decades, a wide range of governmental programs have been created to encourage the conservation of natural resources or products created from natural resources. If the resource is a fuel, then reduced use means that more fuel remains available and there is less pollution from its use. With water, however, any of the resource that is diverted and not consumed returns to the public water source. Thus, reducing one's diversion does not in itself "save" water — though it may keep water in a river reach that was otherwise de-watered. While piping a canal can reduce evaporation, simply lining canals, changing from flood to sprinkler irrigation, plugging leaks, and other similar measures save some water but primarily merely changes the point at which it may be diverted by someone else. (See Fereday, 2009, pp. 133-134.)

Oregon Approach

Oregon defines conservation as a reduction in the diversion requirement (Bastasch, 2006). There is no reference to consumption. The default arrangement is that the water rights holder may use 75% of the "conserved" amount, after mitigation requirements, while 25% returns to the state for instream use or further appropriation. Thus, if an Oregon irrigator who originally utilized flood irrigation (≈ 30% efficiency) converts to downward sprinklers (≈ 80% efficiency), he may use up to 75% of the "conserved" water to expand his beneficial use. The irrigator thus turns the excess diversion for his original right into consumption for an expanded right. In so doing, he *reduces* the return to the water source — which previously occurred — that may have been part of a junior user's diversion right, recharge to the aquifer, or return to a surface stream via a higher water level in the aquifer. While Oregon may require mitigation for an identified injury, the newly spread water changes the priority queue. It creates a new water right with seniority equal to the original right's priority. This is contrary to the practice in most states, where an expanded consumptive right would be the most junior. Oregon's practice might be considered a water parallel to the financial practice of issuing stock options in lieu of salary or bonus — and then not expensing the options. Whatever their value as incentives, both practices dilute shareholder value. See ORS 537.455 to 537.500, and OAR Chapter 690, Division 18 concerning Oregon's "Conserved Water" program.

Idaho Consumptive Portion

Idaho, which views groundwater as a common pool resource with surface flows, similarly defines conservation as any practice that reduces the required diversion while maintaining the full beneficial use. However, the beneficial use may not be expanded thereby, and for purposes of transfer the "savings" return to "waters of the state." Only the consumptive portion of a water right — that portion beneficially used and consumed — may be used elsewhere or transferred to another water rights holder. This approach prevents expansion of the right and as a side effect reduces the diversion.

Market Support in Idaho

Idaho Water Law

Idaho water law is grounded in its 1890 Constitution, as amended in 1928. Its provisions for prior appropriation were adopted from the Colorado constitution, providing protection for water rights in a manner to be expected in states dominated by early irrigation and mining interests. Idaho has never utilized riparian rights. [Editor's Note: A riparian right is the legal right held by an owner of land contiguous to or bordering on a natural stream or lake, to take water from the source for use on the contiguous land. Water is shared pro rata by riparian rights owners. The riparian system for regulating water is utilized in the states east of the Mississippi, while some western states incorporated limited aspects of riparian rights into their system.] Legislation on water deals primarily with principle and broad policy, leaving regulatory implementation to a Water Resource Board and Department.

Rental Pools (Reservoirs)

Temporary water transfers are accomplished in Idaho through three means. The most common are rental pools, which enable the owners of reservoir storage space to sell portions of the water they hold in storage. These pools exist on the Snake River upstream from Milner Dam (from the 1930s), the Boise River (1988), and the Payette River (1990). The pools are governed by their respective water district boards, pursuant to Idaho Water Resources Board (IWRB) sanction. An additional rental pool on the upper Snake, owned and governed by the Shoshone-Bannock Tribe, is based on historic tribal water rights. Except for the Sho-Ban tribal pool, prices for rental pool water are determined and administered by the water district.

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Risk to Fill

Two features emerging after the 2000-2001 drought have modified the picture, and illustrate the benefits to be gained from easier water transfers. First, the District 1 Board, which governs the Snake above Milner Dam, modified their rental pool to provide for global participation, eliminating the "last to fill" feature in the process. "Last to fill" means that the owner of the rented space (the water in that conceptual space) would bear the risk presented by a succeeding dry year, in which the reservoir might not completely fill. By eliminating that rule, the District spread future drought risk among all users, removing the primary dis-incentive to renting un-needed water, thus greatly increasing the quantities available for temporary transfer. As a result, there were no District lands short of water in the severe 2003 drought, a marked contrast from the early 1990s when many of the old Carey Act users in the Twin Falls tract were shut off in early August in a less severe drought. The Twin Falls Land and Water Company was established in 1900, with work on Milner Dam and 1000 miles of canals started in 1903. Water was first delivered in 1905. [Editor's Note: The Carey Land Act was passed by the US Congress in 1894. The act provided for the transfer to Western states of US-owned desert lands on the condition that they be irrigated. Settlers were permitted to buy up to 160 acres of the land at 50¢ per acre plus the cost of water rights.] Secondly, an unofficial but generally acknowledged second feature of District 1 pool transactions is that three checks may be written for a water transfer. Under the official transaction procedures, one check goes to the water district for administrative fees and a second for the official payment, at a district-determined price (e.g., $10 an acre-foot), to the owner of the water right. Unofficially, a third "off the books" check, reflecting the actual current market value of the water (e.g., $50 an acre-foot), may be written to the water right owner. This market value is typically somewhere between the seller's alternative use value (the low boundary), and the buyer's expected return from using the water (the high boundary). As these third payments are not officially reported, no data exists on price.

Market Value

Water Banks

Only two stream-specific surface water banks exist, both for environmental purposes. On the Lemhi River, water is purchased by Reclamation to ensure minimum flows for salmon in a stretch that has been historically dewatered (from 2000). On the Lake Fork Creek of the Payette River, another small bank exists to transfer a very small amount of water for conservation purposes (from 2001).

There is also a statewide water bank (from 1979), which enables water leases covering anywhere from one year to infinity. This bank is governed by the Director of the Idaho Water Resources Department, and is frequently used to avoid loss by forfeiture due to extended non-use.

Issues in Idaho Market Support: Conjunctive Management

Conjunctive Issues

The introduction of conjunctive management in an attempt to resolve the joint (conflicting) priorities of surface and groundwater withdrawals will take some time to work out. For example, because of the hydrology of a large aquifer, the time lapse between curtailment of use from a groundwater source and subsequent relief for a surface user can be so long that in surface management terms it would constitute a "futile call." [Editor's Note: a "futile call" means that curtailing a junior water user would not result in actually providing water for the senior user — thus, the call is futile and will not be enforced.] There can also be meaningful differences between expectations if a rights holder is presumed entitled to original conditions as they would obtain today absent junior users, rather than being presumed to have an entitlement to water. Under traditional application, a rights owner is entitled to the conditions that existed when the right was granted — so if in a dry year water was not available, there would be no expectation of actual water other than to the most senior users. With the application of conjunctive management, senior surface users have claimed that they are entitled to full delivery of their diversion right, no matter the hydrologic conditions, at the expense of groundwater pumpers. [Editor's Note: Conjunctive management in the Snake River has resulted in a major battle in Idaho (see Budge, TWR #64); issues include the impact that groundwater pumping and water use have on historic water flow levels in the Snake River.] Additionally, there is the constitutional mandate for "full economic use" of water, with a more recent emphasis on the requirement that use be in the "public interest" — the meaning of which is open to interpretation.

Because markets require reasonably certain property rights, a prolonged inability to resolve these and other issues will dampen the extent to which water transfers can be reasonably efficient and reflect current social preferences.

Agricultural Preference

Ag Preference

The rules governing the District #1 rental pool have been innovative and successful in reducing drought impacts on irrigated agriculture on the Eastern Snake Plain. They continue, however, to express an agricultural preference, which has been part of Snake history from the 19th century. Large quantities of water have been moved to instream flows through various agreements and large tracts withdrawn from irrigation, but for the rental pools irrigation uses above Milner continue to hold preference over industrial, municipal, or environmental uses downstream.

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Market Support in Oregon

Oregon adopted the Prior Appropriation Doctrine by statute in 1909. Prior to that date water rights enforcement was a matter for local courts or self help. Claims that: 1) pre-date 1909; 2) have been in continuous use; and 3) have been adjudicated — are vested.

Senior rights can be purchased, leased or gifted for instream and environmental use, by any entity. Following permanent transfers, rights are held in trust by the State of Oregon. This is a more liberal practice than that in Idaho, where senior rights may be accepted only by the Water Resource Board, and may not otherwise be transferred to instream.

Existing Oregon Water Markets

Deschutes basin

Water Bank Rules

The Deschutes Ground Water Mitigation Bank and the Deschutes Water Alliance Water Bank, created by the Deschutes River Conservancy, operate explicitly to provide increased surface streamflow in the Deschutes River as mitigation for new groundwater rights. Administrative Rules in the Deschutes Basin are directed to reducing the surface impact of groundwater pumping. The rules are complex, involving mitigation credits as a requirement for new groundwater withdrawals and for water transfers. The credits may be created and purchased from public or private entities. A transfer or new groundwater applicant may purchase credits from a mitigation bank, or implement a mitigation project. To date, only transfers and leases that fallow, or dry up existing surface uses (permanently retire the right), have been used to generate mitigation credits.

Klamath basin

Reclamation Auction

In the Klamath Basin in 2001, a century of US Bureau of Reclamation (Reclamation) water provisions came up against the environmental damage caused by 20th century priorities. The irresistible force of a new Biological Opinion regarding fish species listed under the federal Endangered Species Act ran headlong into the immovable object of prolonged drought. Perhaps because the Klamath Project farmers had always been essentially customers of Reclamation rather than proprietors of their own irrigation district, water banks and transfer procedures had not been established in the basin prior to the crisis (Slaughter, 2007). The near term result was a political train wreck in which the participants were unable to collectively manage their shortage without recourse to Congress. After an initial irrigation cutoff, water has moved between uses through means of a Reclamation crafted and directed annual water auction to meet each year's expected flow requirements. This provided only a partial solution. The water auction was developed by Reclamation and only applied to Reclamation's Klamath Project. It involved reducing irrigation to highly fertile Reclamation Project lands to supply flow needs for listed fish stocks. The less fertile areas above Upper Klamath Lake could not contribute to flow, as they would under a broader market structure (Slaughter and Wiener, 2007).

Ten years and several lawsuits later, *post hoc* negotiations among the players appear to have reached a resolution, in which hydropower, irrigation, fish, and other interests have determined a win-win path forward (Spain, *TWR* #70 and #71). If that agreement withstands the extant legal challenges (Spain, *TWR* #70, p. 20), it will signal a success for *post hoc* revision of the social contract binding all users of Klamath Basin water (Slaughter, 2009).

Threat of Litigation

This re-writing of 20th Century allocation arrangements is in the same institutional class as the Nez Perce agreement (amongst the Tribe, irrigators, Idaho Power, Reclamation, conservation interests, and State (Rigby, TWR #18)) and a series of Swan Falls agreements (amongst irrigators, Idaho Power, and State) controlling allocation of Snake River water in Idaho. It is worth noting that such changes in institutional arrangements and allocation frequently take place over a prolonged time period and under threat of litigation. On the Klamath, there were indeed inconclusive judicial decisions partially overturned by the *post hoc* private ordering. In Idaho, a current surface/groundwater controversy stemming from increased groundwater pumping and surface "conservation" that reduced Snake Plain recharge has also seen court decisions, subsequent overturning of judicial decisions, and ongoing negotiation in pursuit of re-ordering contractual arrangements put in place prior to 1950.

Market Support in Washington

Washington adopted the Prior Appropriation Doctrine in 1891 by statute, with revisions in 1917. Prior to that date both riparian and prior appropriation claims existed; claims that pre-date 1891 and have been in continuous use are vested, though unless they have been adjudicated, the Washington State Department of Ecology (Ecology) cannot enforce them.

Classes of Water Rights

The most significant water bank in Washington is in the Yakima River basin, though it has not realized its potential for several reasons. Reclamation appropriated all remaining water in the Yakima basin in 1905, creating two classes of water rights. Senior rights include only those filed prior to 1905, consisting of about half of the natural flow in the basin. All other rights, derived from Reclamation's filing, thus have

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the same priority date. The adopted priority solution for those rights has been to pro-rate water among all junior rights holders whenever expected supply is less than the total diversion rights. As a result, only the pre-1905 rights are actually available for sale or lease, undermining the potential for a working water market in the basin.

Existing Washington Water Markets: Banks and Rental Pools

WASHINGTON TRUST WATER RIGHTS PROGRAM

Forfeiture Protection

Created in 1991, the Washington Trust Water Rights Program allows water rights to be placed in trust, either temporarily or permanently. In this fashion, the water rights are protected from forfeiture due to non-use. The water can then be designated for instream use or withdrawn for other uses. In this sense it is akin to Idaho's Water Supply Bank. The trust program is utilized for most instream flow restoration projects in Washington, but has seen little use for other water uses. One exception is the Walla Walla Mitigation Program administered by the Washington Water Trust (WWT) on behalf of Ecology. Groundwater rights are purchased by WWT and put in trust to provide mitigation for new permit-exempt wells in the shallow aquifer. This groundwater mitigation program is not unlike that in Oregon's Deschutes basin, the difference being its focus on permit-exempt wells. This program has seen little use, presumably not from inadequacy of the trust provisions so much as the inability of Washington water rights holders to inexpensively pass clear title and demonstrate the extent and validity (via historic use) of the water rights.

Mitigation for Exempt Wells

YAKIMA BASIN

Ag-to-Ag Leasing

Ecology and Reclamation created a leasing program in 2001 that enabled the transfer of some 61,000 **a**cre-**f**eet (AF) from fallowed lands to permanent crops such as orchards and vineyards. This program continues, though at lower activity levels. Its single purpose is agriculture-to-agriculture transfers. Other transfers include a proposed surface water transfer in Kittitas County to mitigate for groundwater withdrawals.

Issues in Washington Market Support

SINKING CREEK

Agency Authority

Washington law does not support private ordering. A Washington Supreme Court majority in 1993 expressed its belief that judicial determination is preferable to administrative agencies and private negotiation. In the *Sinking Creek* case (*Rettkowski v. Department of Ecology*, 122 Wn.2d 219, 858 P.2d 232 (1993)), the legal issue involved the authority of Ecology to regulate groundwater withdrawals to protect pre-1917 riparian water rights for stockwater. Since the 1960s, irrigators have heavily drawn on groundwater for irrigating wheat in the Odessa sub-basin of east-central Washington, driving down the water table and drying up the ranchers' springs. Ecology had issued cease and desist orders against the groundwater irrigators.

Enforcement Tied To Adjudication

As a result of *Rettkowski*, Washington does not have an unbiased referee (Criteria #2 above) in place to enforce the rules. The Court found that while "the conclusion Ecology reached as to the relative priorities of the water rights in the Sinking Creek basin may ultimately prove to be correct" the Washington Legislature had not specifically granted Ecology the power to enforce water rights unless the water rights in the basin had been adjudicated (*Id*. at 234). In a dissent, the minority opined that such authority could be clearly implied from the statutes, and that the ruling would "seriously and improperly interfere with Ecology's ability to regulate water rights… ." *Id.* at 243. The inability of Washington to develop significant water trading is evidence of the minority's prescience.

The Yakima basin is just now entering the final phase of adjudication, and several other Washington basins remain un-adjudicated. As a result, use-dependent junior rights in particular are insecure, as they cannot be protected against point of diversion and other changes in senior rights.

STOCK WATERING & RESIDENTIAL WITHDRAWALS

Allocation Problems

In 2005, the Washington Attorney General (AG) addressed several problematic aspects of Washington State law and water allocation practices, including the problem posed by increased demand for water coupled with great difficulty in obtaining new permits; Ecology's inability to regulate existing rights and reluctance to issue new ones; and the existence (in the 1945 water law) of exemptions for stockwatering, lawn watering under one-half acre, and domestic or industrial uses under 5,000 **g**allons **p**er **d**ay (gpd) of water withdrawal. Although expanded dairy use has become a major threat to the water resource, the AG's opinion stated that the stockwatering exemption was not constrained by the 5,000 gpd limit, but was unlimited. Additionally, a 2009 AG opinion (No. 6, 9/21/09) finds that there is no limit to residential withdrawals for lawn watering, and that Ecology has no authority to regulate exempt uses (Osborn, *TWR* #71, p. 16; Water Briefs, *TWR* #75 and #76).

Permit Exemptions

Transfers Inhibited

As in the Yakima basin, these legal standards work to undermine water transfers, because important water constituencies have been relieved from the necessity to obtain water from existing appropriations. Not only have major classes of users been given access to new groundwater appropriations, but without adequate legal protection existing rights are difficult to transfer, making transfers unavailable as a source for new uses and users.

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CONCLUSIONS

Nobel Laureate Douglass North has said that it is almost impossible for a society, once trapped in a dysfunctional institutional structure, to adapt more efficient institutions, because existing interests can inhibit change. Pacific Northwest water law clearly illustrates this concept.

Idaho's water allocation structure originated to serve the needs of mining districts. It then evolved in response to periodic drought, and protects water rights sufficiently well to support marketing. Conservation interests and Reclamation have leased and purchased water rights to reallocate water to environmental uses.

Evolving Systems

Oregon and Washington legislatively adopted the Prior Appropriation Doctrine to bring order to previously little-defined systems. Both appear to have had elements of riparian and prior appropriation law, determined and enforced by local courts on a case-by-case basis. Both at first enjoyed plentiful water that made allocation systems largely unnecessary, and benefited in the 20th Century from large federal investments. The federal role made state legal development largely superfluous until after out-of-stream uses were well entrenched.

Water is now in increasingly short supply relative to growing demand and environmental needs. In Oregon, new mechanisms directed toward instream enhancement increasingly influence water allocation, as evidenced on the Deschutes. Encouragingly, after a decade-long "train wreck," a *post hoc* process appears to have emerged in the Klamath Settlement Agreements, avoiding the costly and inefficient outcomes from purely judicial processes. North's institutional curse may, perhaps, be avoided.

Washington's Focus

In Washington, the *Sinking Creek* decision hamstrung Ecology's ability to protect water rights that were not adjudicated. The ensuing difficulty in acquiring existing rights led to an Attorney General's opinion that expanded a statutory exemption meant for domestic and small agricultural use into a gaping loophole for unregulated groundwater mining. Thus, the state's water management agency must deal with new water demand in the absence of full authority. Unfortunately, Washington's primary focus appears to involve efforts to increase water supply at considerable public expense. Examples include efforts to move Columbia water to the Yakima basin through a lift and storage system, and to move other Columbia water via the proposed Weber Siphon to the Odessa sub-area as replacement for groundwater mined for irrigation.

Idaho Projects

Idaho developed major irrigated agriculture in desert conditions from the 1860s, while much of Washington and Oregon, west of the Cascades, enjoyed bountiful water supplies. Because drought was an early and frequent visitor, schemes developed early to deal with low water, and an extra-legal institution — the Committee of Nine (now the governing board for Water District #1) — was created in part to allocate upper Snake water between the early natural flow rights and later (1911) storage rights holders. Natural flow rights holders on the upper Snake had from the mid-19th century diverted water from the river's flow. The Minidoka Project, authorized in 1902, lies downstream from the natural rights irrigation, but owns water upstream in Wyoming's Jackson Lake, which was built for that project. In dry years, the water master would shut off the natural flow holders' headgates while there was water flowing in the river to deliver water downstream to the Minidoka Project, but the technology of the time did not permit accurate distinctions between the flows.

Environment Emphasis

Thus, much of Idaho's institutional structure was in place and tested prior to the advent of 1970s social policy, which has emphasized environment over development and placed new stress on water distribution. The final resolution in 2009 of conflict between Idaho Power and irrigators over subordination of the Company's Swan Falls facility, and the 2004 resolution of major claims by the Nez Perce tribe in a mammoth undertaking not dissimilar to the proposed Klamath settlement in Oregon, suggest that Idaho institutions continue to be sufficiently resilient to handle increased stress from changing social policy. As part of the Nez Perce settlement, Reclamation acquired nearly 500,000 AF annually for flow augmentation to support salmon, and Idaho Power now manages its storage at Brownlee Reservoir in part to shape flows for salmon smolts.

Idaho Resiliency

Future Stresses

Stress from climate change, together with Eastern Snake Plain Aquifer hydrology and the strictures of prior appropriation, may prove to be more difficult. Conjunctive management, the solution to surface-groundwater conflicts under prior appropriation, has generated a new set of issues. Further institutional innovation may be required, as strict application of prior appropriation rules frequently do not match the hydrological reality. Climate change is creating pressure for new storage as the high elevation snow pack that feeds the Snake through the summer diminishes. The Snake possesses storage for only about 40% of annual flow, leading to major proposals to expand storage, including a new dam on the Middle Fork of the Boise River, rebuilding of the Teton Dam on the upper Snake, and raising the level of Minidoka Dam, below American Falls.

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Acknowledgements

The author wishes to thank Bruce Aylward and Joel Hamilton for valuable comments on earlier drafts. Errors or omissions in the paper are entirely the responsibility of the author. This paper was [partially] funded by the Joint Institute for the Study of the Atmosphere and Ocean (JISAO), under NOAA Cooperative Agreement No. NA17RJ1232, Contribution #1820.

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Richard Slaughter is an international economic and public policy consultant, Director of the Boise Committee on Foreign Relations, and co-founder and vice-president of the American Committees on Foreign Relations, Washington, DC. He was previously Chief Economist of the State of Idaho (1976-84), and Director of the Martin Institute at the University of Idaho (1996–2000). He has consulted privately since 1984. His current work is focused on adaptation to climate change, primarily with regard to institutional support for natural resource use and transfers, for the Climate Impacts Group of the University of Washington. Slaughter holds a BA from the University of Idaho, and MA and Ph.D. degrees in International Politics from the University of Denver. He is a member of the Council on Foreign Relations in New York, and serves on the boards of the Martin Institute at the University of Idaho, the Frank Church Institute at Boise State University, and the American Committees on Foreign Relations. Related publications include work on third world economic development in The National Interest (2002) and on water transfers in The Journal of the American Water Resources Association (2007, 2009).

California Water Regulation

Authority to Regulate

CALIFORNIA WATER REGULATION

FARM BUREAU CHALLENGES STATE FISH & GAME DEPARTMENT AUTHORITY

by Joseph M. Carpenter, Somach Simmons & Dunn (Sacramento, CA)

Introduction

On May 25, 2010, the California Farm Bureau Federation (Farm Bureau) filed suit against the California Department of Fish and Game (DFG), alleging that DFG has exceeded its authority to regulate water rights in California by interpreting Fish and Game Code section 1602 as requiring surface water users with valid water rights to notify DFG prior to diverting water, and, potentially, to obtain a streambed alteration permit. Farm Bureau alleges that DFG's recent interpretation is contrary to the obligations prescribed under section 1602, which only apply to water diversions that substantially divert or obstruct the natural flow of a watercourse. Farm Bureau further alleges that DFG's interpretation constitutes a fundamental change in the application of section 1602, and will have the effect of requiring nearly every surface water user in California to notify DFG of its water use and potentially obtain a permit prior to diverting water from a watercourse.

California Water Regulation

Section 1602

Ag Diverters Notified

Farm Bureau Allegations

"Substantially Divert or Obstruct"

Duplication of Authority?

Potential Impact

Background

Fish and Game Code section 1602 requires any person, state, local governmental agency, or public utility to notify DFG before conducting any project or activity that will "substantially divert or obstruct the natural flow of...any river, stream, or lake." Once notified, DFG determines whether the activity might substantially adversely affect an existing fish, wildlife, or plant resource. If DFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, it issues a streambed alteration permit to the entity that includes reasonable measures necessary to protect the resource. The entity must then conduct the activity in accordance with the permit. If DFG determines that the activity will not substantially adversely affect an existing fish or wildlife resource, the entity may commence the activity without a section 1602 permit so long as the entity conducts the activity as described in the notification.

Between March and May 2010, DFG sent three letters to agricultural water diverters in the Scott and Shasta River watersheds in Northern California threatening civil and criminal enforcement actions for surface water diversions. DFG informed the diverters that any individual diverting surface waters without a streambed alteration permit is vulnerable to an enforcement action by DFG. In response, Farm Bureau filed this action in the Superior Court of California, County of Siskiyou, seeking clarification of the scope of DFG's authority under section 1602.

The Complaint

Farm Bureau's complaint seeks a judicial determination of the parties' respective rights and duties under section 1602; specifically, whether agricultural water diverters with valid surface water rights are required to notify DFG prior to diverting water. Farm Bureau alleges that the disagreement between the parties over the applicability of section 1602 focuses on the meaning of the phrase "substantially divert or obstruct the natural flow." Farm Bureau alleges this phrase means that notification by water diverters is only required for "activities that physically alter the manner in which water naturally flows through a watercourse;" it "does nor refer to the act of passively extracting water in accordance with a valid water right." DFG, however, allegedly interprets this phrase to also include "the mere act of passively taking water from a watercourse in accordance with a water right." Farm Bureau alleges that prior to the listing of the Coho salmon under the California Endangered Species Act (CESA) in 2005, DFG did not require agricultural water users to notify DFG prior to exercising their water rights, except to the extent the exercise of those rights involved physically altering a watercourse. Farm Bureau asserts that one of the reasons DFG reinterpreted section 1602 is to maximize participation in permitting programs, created as part of the Coho Recovery Strategy, which are designed to facilitate compliance with CESA.

Farm Bureau contends that DFG's new interpretation of section 1602 is contrary to the origin and historical application of the statute. Farm Bureau further contends that DFG's new position on water diversion is at odds with the legislative scheme for the regulation of water rights because it "would essentially make DFG a de facto water agency" with the authority to regulate water rights, a function already performed by the California State Water Resources Control Board. Farm Bureau maintains that this duplication of governmental functions was not intended by the Legislature.

Conclusion and Implications

The Superior Court's interpretation of section 1602 has the potential to significantly impact water rights and environmental regulation in the State of California. If the court adopts DFG's interpretation of the statute, water diverters that have never been subject to the notification and permitting requirements of section 1602 would be required to notify DFG of their water use and potentially obtain a streambed alteration permit prior to diverting water from a watercourse.

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Joseph Carpenter joined Somach Simmons & Dunn in September 2009, after serving as a law clerk for the US District Court (Northern Dist. California). His practice focuses on water, natural resources, and environmental law and he represents both public and private clients before the federal and state courts. He earned his J.D. from UC Davis, King Hall School of Law in 2004. While in law school, he served as an extern to the Honorable Ming W. Chin (California Supreme Court), the Honorable Ronald B. Robie (California Court of Appeal), and the Honorable Edward J. Garcia, US District Court (Eastern Dist. California). Mr. Carpenter also worked as a legal intern for the California Department of Justice, Office of the Attorney General, Public Rights Division Summer Honors Program, Land/Environment/Natural Resources Section.

WATER BRIEFS

WATER RULING REVERSED NV

NEW NV SUPREME COURT DECISION

On June 17, 2010, the Nevada Supreme Court (Court) issued a new opinion in the matter of *Great Basin Water Network, et al. v. State Engineer and Southern Nevada Water Authority,* Case No. 49718, 126 Nev., Advance Opinion 20 (June 2010). See Water Briefs, *TWR* #72 and #74. The Court unanimously withdrew its earlier decision dated January 28, 2010, and substituted a new ruling, holding that the Nevada State Engineer "violated his statutory duty by failing to take action within one year after the final protest date." The State Engineer had a statutory duty under Nevada law to act on water right applications filed by a predecessor of the Southern Nevada Water Authority (SNWA) in 1989 to pump groundwater from five rural valleys. "We determine that the State Engineer must re-notice SNWA's 1989 applications and reopen the period during which appellants may file protests," Justice James Hardesty wrote in a 19-page opinion. Advance Op. at 4. Under the new decision, SNWA's applications for water rights dating back to 1989 won't have to be refiled as new applications in 2010. The Court's decision may affect other water rights depending on the particular circumstances involved, including the date of filing of the application, actions taken by the State Engineer, and the exceptions contained within the applicable statute (NRS § 533.370(2)(b)).

On July 7, the Nevada Division of Water Resources (NDWR) issued an "Interpretation of [the] Supreme Court Decision" to respond to numerous inquiries received by State Engineer Jason King "as to how he will interpret the decision and how that interpretation will be implemented." After providing the caveat that "the State Engineer cannot state with certainty how that decision will be interpreted in all circumstances" the Interpretation goes on to set out a "general response to those inquiries regarding the republication of a water right application... ." The Interpretation is available on NDWR's website shown below.

Part of State Engineer's Interpretation deals specifically with SNWA's 1989 applications: "The water rights issued to the Southern Nevada Water Authority (SNWA) under the 1989 applications in Spring Valley, Cave Valley, Dry Lake Valley and Delamar Valley will revert to application status." Thus, SNWA must relinquish the water rights which had been granted in those cases, and go through the application process — facing the certainty of protests. The Interpretation further stated: "Water rights that took longer than one year to act on but were eventually permitted or denied remain 'as is' and require no further action. This includes the permits issued to SNWA in Hidden Valley, Garnet Valley, California Wash, Tikapoo and Three Lakes Valleys."

Finally, the Interpretation discussed "Protests to 1989 Applications and New 2010 Applications" as follows: "When the State Engineer renotices the SNWA's applications in Spring, Cave, Dry Lake and Delamar Valleys, any person wishing to protest must file new protests to those applications. However, the original protestants to the 1989 filings do not need to refile their protests if they are content to stand on those original protests. The protests filed in response to the new 2010 applications cannot be transferred to the 1989 applications and the protest filing fee will not be refunded."

For info: Decision available at Great Basin Network's (Appellant) website: www.greatbasinwater.net/news/index.php >> News & Articles; Interpretation at NRWR: http://water.nv.gov/; Additional information: http://water.nv.gov/hearings/supremecourt.cfm

INSTREAM FLOW POLICY CA

WATER QUALITY CONTROL

On May 4, 2010, the California State Water Board adopted a policy for water quality control titled "Policy for Maintaining Instream Flows in Northern California Coastal Streams." As noted in section 2 of the final resolution, "[T]he policy establishes principles and guidelines for maintaining instream flows for the protection of fishery resources, while minimizing the water supply impacts of the policy on other beneficial uses, including irrigation, municipal use, and domestic use." The geographic scope of the policy encompasses coastal streams from the Mattole River to San Francisco and coastal streams entering northern San Pablo Bay and extends to five counties: Marin, Sonoma, and portions of Napa, Mendocino, and Humboldt Counties. The policy must now be approved by the State Office of Administrative Law (SOAL).

This Instream Flow Policy, though limited in geographic scope at this point, is expected to show the approach the State Water Resources Control Board may utilize for future instream flow proceedings in California. For information about SOAL action on this matter and additional background information, check the website listed below.

For info: www.waterboards.ca.gov/waterrights/water_issues/programs/instream_flows/

HYDRAULIC FRACTURING US

EPA STUDY RELEASED - PUBLIC MEETINGS

According to EPA, natural gas plays a key role in our nation's clean energy future and the process known as **h**ydraulic **f**racturing (HF) is one way of accessing that vital resource. HF is used by gas producers to stimulate wells and recover natural gas from sources such as coalbeds and shale gas formations. HF is also used for other applications including oil recovery. Over the past few years, several key technical, economic, and energy policy developments have spurred increased use of HF for gas extraction over a wider diversity of geographic regions and geologic formations. It is projected that shale gas will comprise over 20% of the total US gas supply by 2020.

EPA agrees with Congress that there are serious concerns from citizens and their representatives about HF's potential impact on drinking water, human health and the environment, which demands further study. EPA's Office of Research and Development (ORD) will be conducting a scientific study to investigate the possible relationships between HF and drinking water. EPA will use information from the study to identify potential risks

WATER BRIEFS

associated with Hydraulic Fracturing to continue protecting America's resources and communities.

EPA has scheduled a series of public meetings to discuss its proposed hydraulic fracturing study. Remaining meetings: Canonsburg, PA on July 22 (6-10 pm); and Binghamton, NY on August 12 (6-10 pm). EPA is requesting pre-registration for attendees at least 72 hours prior to each meeting.
For info: www.epa.gov/safewater/uic/wells_hydrofrac.html

WESTERN GOVERNORS WEST

WATER RESOLUTIONS

The Western Governors' Association (WGA) 2010 Annual Meeting (June 27-29, Whitefish, MT), resulted in several actions concerning water in the west. WGA passed several noteworthy resolutions for water professionals and also accepted a Progress Report from the Western States Water Council on implementation of the Governors' report on "*Water Needs and Strategies for a Sustainable Future*."

The Governors addressed one issue that has drawn widespread attention lately, passing Policy Resolution 10-17, Hydraulic Fracturing for Oil and Natural Gas Development: "Western Governors believe drinking water supplies must be protected and support EPA conducting a transparent, peer-reviewed study on hydraulic fracturing techniques in collaboration with state regulatory agencies that oversee oil and natural gas drilling and production throughout the United States."

A report on climate change adaptation was also approved by WGA (*Climate Adaptation Priorities for the Western States: Scoping Report* (June 2010)). The WGA also passed resolutions concerning: 1) Negotiated Indian Water Rights Settlements; 2) the Endangered Species Act; 3) Energy Policy; 4) the Farm Bill & Western Agriculture; and 5) Federal Non-Tribal Fees in General Water Adjudications. For a complete list of resolutions passed see WGA's website.
For info: Tom Iseman, WGA Counsel, 303/ 623-9378 or www.westgov.org

WATERSHED NEEDS US

EPA RELEASES 2008 SURVEY

EPA has issued a new report that estimates that nationwide capital investment needs for wastewater and stormwater pollution control will be more than $298 billion over the next 20 years. The 2008 Clean Watersheds Needs Survey summarizes the results of EPA's 15th national survey on publicly owned treatment works needs. The estimate includes $192 billion for wastewater treatment and collection systems, $64 billion for combined sewer overflow corrections and $42 billion for stormwater management.

The report documents a $43 billion (17 percent) increase (in constant 2008 dollars) in investment needs over the previous 2004 report. The increase is due to a combination of improved reporting, aging infrastructure, population growth and more protective water quality standards. In addition to the $298 billion in wastewater and stormwater needs, other needs for nonpoint source pollution prevention ($23 billion) and decentralized/onsite wastewater systems ($24 billion) are included in the report.

The report is a collaborative effort between 47 states, the District of Columbia, US territories, and EPA. From February 2008 through April 2009, states, the District of Columbia, and US territories collected and provided data for the report.

The release of the report comes as the Senate considers federal Clean Water Act State Revolving Funds (SRF) reauthorization legislation (S. 1005). The 2004 CWNS helped shape the state allocation numbers and the release of the report may complicate state allocation percentage agreements and may further delay S. 1005 from reaching the Senate floor. The House version of the bill, H.R. 5320, the "Assistance, Quality, and Affordability Act of 2010" (AQUA Act), was approved in May 2010 by the House Energy and Commerce Committee, 45-1.
For info: EPA Clean Watersheds Needs website: www.epa.gov/cwns

WATER RIGHTS RETIRED NV

FEDERAL-STATE-TRIBAL PROGRAM NEWLANDS PROJECT

Reclamation has announced the availability for public review and comment of the Draft Environmental Assessment and Finding of No Significant Impact (EA/FONSI) of the Newlands Project Water Rights Retirement Program. Reclamation proposes to provide $3 million to the Newlands Project Water Rights Fund as directed by Public Law 110-161, Section 208 (a)(4), for a Federal-State-Pyramid Lake Paiute Tribe program for the retirement of water rights.

The Newlands Project Water Rights Retirement Program would acquire and retire surface water rights from willing sellers in Reclamation's Newlands Project to benefit Pyramid Lake and provide an alternative to time-consuming and costly legal or administrative proceedings involving challenged water rights. Great Basin Land and Water, a Nevada non-profit organization, would administer both the Water Rights Retirement Program and Fund.

Under this program, an estimated several hundred acres of surface water rights would be purchased from willing sellers over a two-year period. The Truckee Carson Irrigation District would receive a payment for each acre of water rights acquired as an offset for lost operating and maintenance revenues associated with the retirement of water rights.

Between 2000 and 2006, Reclamation contributed federal funding to the Nevada Assembly Bill 380 Water Rights Acquisition Program (AB 380 Program) to acquire and retire surface water rights within the Newlands Project. The AB 380 Program was also intended to settle long-standing water rights conflicts that developed because of the decline of Pyramid Lake due primarily to irrigation water diversions from the Truckee River to the Newlands Project. The AB 380 Program ended in 2006, retiring 4,623.54 acres of a proposed 6,500 acres of water rights before funding was exhausted. To further the aim of reaching the 6,500 acre goal, Reclamation is proposing

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to allocate $3 million in additional funding.

The draft EA/FONSI comment period ended on June 25, 2010.
For info: Jane Schmidt, Reclamation, 775/ 882-7592 or jcschmidt@usbr.gov. RECLAMATION WEBSITE: www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=5825

DRINKING WATER RULES US
TOTAL COLIFORM — EPA UPDATE

EPA is proposing to revise a national primary drinking water regulation to achieve greater public health protection against waterborne pathogens in the distribution systems of public water systems. Waterborne pathogens can cause a variety of illnesses with symptoms such as acute abdominal discomfort or in more extreme cases, kidney failure, hepatitis or chronic concerns.

EPA is proposing to revise the 1989 Total Coliform Rule to incorporate improvements recommended by a federal advisory committee that included representatives from a broad range of stakeholder groups, including public health and public interest groups, environmental groups, state drinking water agencies and water utilities.

The revised rule requires water systems to take action when monitoring results indicate that contamination or a pathway to contamination may be present. Water utilities are required to regularly monitor for microbial contamination in the distribution system. Although microbes detected in monitoring are not necessarily pathogens themselves, the detection can indicate that there is a pathway that would allow pathogens to enter the system, such as a water main break or an opening in a storage tank. Under the proposed rule, when monitoring results are positive, systems must find and fix any pathways leading to microbial risk.

The proposal also provides incentives for better system operation by improving the criteria for public water systems to qualify for and stay on reduced monitoring, which provides an opportunity to reduce system burden. In addition, the proposed rule updates conditions that will trigger public notices to better represent the relative health threat identified. It also makes the wording required in these public notices more clear.

EPA is seeking public comment on this proposed rule for 60 days following publication in the Federal Register.
For info: www.epa.gov/safewater/disinfection/tcr/index.html

DRINKING WATER RULES US
EPA ALTERNATIVE TESTING METHODS

EPA has approved 12 new, alternative (and optional) testing methods for use in measuring the levels of contaminants in drinking water and determining compliance with national primary drinking water regulations. The Safe Drinking Water Act (SDWA) authorizes EPA to streamline approval of the use of alternative testing methods through publication in the Federal Register. This expedited approach provides public water systems, laboratories, and primacy agencies with more timely access to new measurement techniques and greater flexibility in the selection of analytical methods, thereby reducing monitoring costs while maintaining public health protection.

These 12 alternative methods test for Dalapon; Radium-226; Uranium; Radioactive Cesium, Iodine and Gamma emitters; Tritium; and E. coli in drinking water.
For info: Complete text of the Federal Register final action and fact sheet: http://epa.gov/safewater/methods/analyticalmethods_expedited.html.

CAFO REGULATIONS US
EPA GUIDANCE

EPA has released to the public a guidance document — "*Implementation Guidance on CAFO Regulations – CAFOs That Discharge or Are Proposing to Discharge*" — that EPA developed to assist in implementing the 2008 Concentrated Animal Feeding Operation (CAFO) rule. In 2008, EPA promulgated revised regulations for CAFOs to require that CAFOs that discharge or propose to discharge must seek coverage under a federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit. The rule also clarifies that a CAFO proposes to discharge if it is designed, constructed, operated, or maintained such that a discharge will occur.

Developing guidance that provides additional explanation for how to implement regulations is a routine part of how EPA fulfills its responsibilities to carry out Clean Water Act programs. This guidance will assist EPA and States with program implementation and assist CAFOs in evaluating whether they discharge or propose to discharge.
For info: The guidance document is available at: http://www.epa.gov/npdes/caforule.

RECAPTURED WATER CA
SAN JOAQUIN RIVER RESTORATION

Reclamation has released for public review the Draft Environmental Assessment and Draft Finding of No Significant Impact (EA/FONSI) for recapture of San Joaquin River Restoration Program (SJRRP) Water Year 2010 Interim Flow releases and the recirculation back to contractors in the Friant Division.

Reclamation is estimating that up to 60,000 acre-feet of Interim Flows will be recaptured and made available in San Luis Reservoir for conservation during Water Year 2010, from October 1, 2009 to September 30, 2010, to be recirculated back to the 16 Friant Division Class 2 contractors as Class 2 supplies. Class 2 is additional water, when available, beyond the firm amount of 800,000 acre-feet, or Class 1 water.

The 2006 Stipulation of Settlement in *NRDC et al. v. Rodgers, et al*. provides for the development of a recapture and recirculation plan, as a part of the implementation of the San Joaquin River Restoration Program (SJRRP— see Gasdick/Gidding, *TWR* #76) water management goal. The goal is to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows.

The Draft EA/FONSI is available online at www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=5962
For info: Margaret Gidding, SJRRP, 916/ 978-5461 or mgidding@usbr.gov SJRRP WEBSITE: www.restoresjr.net

WATER BRIEFS

CAFO DISCHARGES ID

EPA ORDER — SIMPLOT CATTLE FEEDING

EPA has issued the Simplot Cattle Feeding Company a legal order to halt discharges from its nearly 700-acre feedlot complex near Grand View, Idaho. Simplot confines between 30,000 and 65,000 cattle year round at this feedlot facility near the Snake River in Idaho. EPA's order directs Simplot to immediately cease all discharge of pollutants to waters of the US. The Snake River has been designated as "impaired" for bacteria and nutrients.

EPA's Order stems from Simplot's use of a constant flow stock watering system. When not used for irrigation (November to March), a portion of this water is diverted to pasture, irrigation ditches, or into the Ted Trueblood Wildlife Refuge, all of which ultimately flow into the Snake River. Simplot water samples pulled from the facility's discharge contained 1600 colonies of fecal bacteria per 100 ml of sample.

Simplot is covered under an NPDES CAFO permit. By discharging 1500 gallons per minute from the production area, they are violating their permit. While EPA recognizes that many producers use similar systems at their facilities, CAFO regulations apply to feedlots and dairies. They do not typically apply to rangeland. If watering system flows are re-used and/or do not leave the facility, they are not considered a discharge.

Simplot's watering system adds fecal bacteria to the Snake River. It discharges a tremendous volume of contaminated water to a river already impaired by bacteria and nutrient pollution.

Pollutants commonly associated with animal waste or manure often includes nutrients such as nitrogen and phosphorus, organic matter, pathogens and sediments. These pollutants can choke rivers and streams with algae, kill fish by reducing oxygen in the water and transmit waterborne diseases.

To comply with the order, Simplot must cease all discharges to the Snake River and its tributaries immediately.
For info: EPA's CAFO Rule: http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm

DISHWASHER DETERGENT WA

LOW-PHOSPHATE DETERGENTS PHASE-IN

NEW STATE LAW COPIED ELSEWHERE

In accordance with a new State law that went into effect on 1 July 2010, new low-phosphate dishwasher detergents are being phased-in throughout Washington State.

In addition, fifteen other states (Illinois, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia, and Wisconsin) have joined Washington in the move away from phosphate-laden detergents.

The Washington requirement is that all dishwasher detergents have low-phosphate formulas. It applies to the dishwasher detergents for residential uses only — it does not apply to commercial and industrial dishwasher products.

Phosphorus that goes down the drain creates water pollution problems. It acts as a fertilizer to algae and aquatic plants. When the plants and organisms die, their decay uses up oxygen, suffocating fish and other aquatic life. Sewage treatment plants can now remove much of the phosphorus from our wastewater, but they cannot remove all of it before it reaches rivers, lakes and streams.

The new Washington law requires that dishwasher detergents contain no more than 0.5 percent phosphorus. Previously, the products could contain up to 8.7 percent phosphorus. Because soaps designed for washing dishes by hand are already phosphorus-free in that state, the new Washington State requirement affects only soaps used in automatic dishwashers.

Dennis Griesing of the Soap and Detergent Association said, "Washington's phased-in law was the first, and 15 other states followed. The industry has been readying for the new law for months now. And while July 1 is the legal effective date in 16 states, the new products are part of a nationwide rollout being undertaken in Canada as well as the United States."
For info: www.ecy.wa.gov/programs/wq/nonpoint/phosphorus/PhosphorusBan.html.

WATER CONSERVATION NE

OGALLALA PLATTE RECOVERY PROJECT

$2,000,000 AWARDED

The Ogallala Platte River Recovery project has been awarded $2,000,000 for fiscal year 2010 through the Agricultural Water Enhancement Program (AWEP) of the Natural Resources Conservation Service. This project will assist in planning efforts to reduce consumptive uses of water in the Platte River Basin. The Nebraska Department of Natural Resources (DNR) is the lead partner along with the Central Platte, Tri-Basin, Twin Platte, South Platte, and North Platte Natural Resources Districts (NRDs).

The purpose of this project is to reduce water consumption and related depletions to surface water flows in these five NRDs, helping to meet the requirements of the integrated management plans recently adopted by the DNR and the NRDs. The AWEP funds will provide direct payments to producers for a conversion of agricultural land from irrigated farming to non-irrigated land uses for a period of five years. Non-federal funds will then be offered to extend the conversion through the purchase of permanent easements. These non-federal funds are available through the Platte Basin Habitat Enhancement Program (PBHEP), funded through DNR and NRD contributions, and a grant from the Nebraska Environmental Trust. Through PBHEP, the DNR and the NRDs will promote and enhance the AWEP project.

AWEP is a voluntary conservation initiative that provides assistance to agricultural producers for agricultural water enhancement activities on agricultural land for the purposes of conserving surface water and groundwater and improving water quality. AWEP is part of the Environmental Quality Incentives Program and operates through program contracts with producers to plan and implement conservation practices in project areas established through partnership agreements.
For info: Jim Schneider, NRD, 402/471-3141

CALENDAR

July 12-15 CA
American Membrane Technology Ass'n Annual Conference & Exposition, San Diego. Town & Country Hotel. For info: www.amtaorg.com/calendar.html

July 12-16 UT
Stream Restoration Principles: Short Course, Logan. For info: Gentri Green, Utah State U., 435/ 850-9029, gentri.green@usu.edu or www.cnr.usu.edu/streamrestoration

July 12-16 TX
Fifth Int'l Conf. on Environmental Science & Technology, Houston. Hilton Hotel. Sponsored by American Academy of Sciences. For info: www.aasci.org/conference/env/2010

July 13 DC
Sanitary Sewer Overflow Rulemaking Listening Session, Washington. EPA HQ Office, Ariel Rios Building. For info: http://cfpub.epa.gov/npdes/home.cfm?program_id=4

July 13-15 WA
HydroFutures: Water Science, Technology & Communities: UCOWR/NIWR Annual Conference, Seattle. For info: Rosie Gard, UCOWR, 618/ 536-7571, gardr@siu.edu or www.ucowr.org

July 14 Webcast
Sanitary Sewer Overflow Rulemaking Listening Session, EPA webcast. For info: http://cfpub.epa.gov/npdes/home.cfm?program_id=4

July 14-15 CA
Introduction to the California Environmental Quality Act Course, Oakland. The Washington Inn. For info: NWETC, 206/ 762-1976 or www.nwetc.org

July 15 AZ
Water Rights Sales & Transfers Conference, Tucson. Radisson Suites. For info: Lorman Education, www.waterlawresource.com/seminars/product.php?pid=210046

July 15-16 IL
Water Quality Regulation & Enforcement, Chicago. Millennium Knickerbocker Hotel. Use Discount Code TWR-1795 & save $400 off full price. For info: American Conference Institute, 888/ 224-2480 or www.AmericanConference.com/WaterQuality

July 15-16 NM
Natural Resources Damages Conference, Santa Fe. La Fonda Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

July 15-16 NM
Natural Resource Damages Conference, Sante Fe. La Fonda Santa Fe Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

July 19 WA
Groundwater Cleanup Series: Contaminant Chemistry 101 Course, Lacey. Woodland Creek Community Park. For info: NWETC, 206/ 762-1976 or www.nwetc.org

July 19-20 CA
California Water Quality & Impact on Supply Conference, San Francisco. Marriott Union Square. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

July 19-22 CO
"Water Across Interfaces" Hydrologic Science & Engineering Conference, Boulder. UCAR. For info: CUAHSI: www.cuahsi.org/biennial2010/index.html

July 20 CA
Municipal & Industrial Water Shortage Policy for the Central Valley Project Workshop, Sacramento. Red Lion Hotel, 1401 Arden Way, 9am-3pm. Convened by Bureau of Reclamation. For info: Tammy Laframbois, Reclamation, 916-978-5269, TLaframboise@usbr.gov or www.usbr.gov/mp/cvp/mandi

July 20-23 CA
Sustainable Resource Management - Lessons From Clean Water's Past & Present Conference, San Francisco. Fairmount San Francisco. For info: National Assoc. of Clean Water Agencies, 202/ 833-2672 or www.nacwa.org/

July 21-22 WA
Construction Site Erosion & Pollution Control, Shoreline. For info: UW Engineering website: www.engr.washington.edu/epp/cee/wet.html

July 21-23 NV
Western States Water Council Summer Meeting, Lake Tahoe. MontBleu Resort. For info: Cheryl Redding, WSWC, 801/ 685-2555, credding@wswc.state.ut.us or www.westgov.org/wswc

July 22 PA
Hydraulic Fracturing: EPA Public Hearing, Canonsburg. Hilton Garden Inn, 6-10pm. For info: www.epa.gov/safewater/uic/wells_hydrofrac.html

July 22-24 Canada
Rocky Mt. Mineral Law Foundation 56th Annual Institute, Banff, Alberta. Fairmont Banff Springs Hotel. For info: Mark Holland, RMMLF, 303/ 321-8100 x106, mholland@rmmlf.org or www.rmmlf.org

July 26-28 CA
Tuolumne River: Ecology, Resource Management & Whitewater Course, Groveland. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

July 27-29 CO
USDOE Tribal Energy Program Workshop on Tribal Energy Business Development, Denver. For info: http://teeic.anl.gov/news

July 27-29 MT
Montana Hydrology Workshop, Helena. Holiday Inn Conf. Ctr. Downtown. For info: www.wrh.noaa.gov/tfx/hydro/hydroconf.php?wfo=tfx

July 27-30 NC
HydroVision International Conference, Charlotte. Convention Ctr. For info: www.hydroevent.com/index.html

July 29-31 CA
EngEx 2010 Conference & Exhibition, San Diego. San Diego Convention Ctr. RE: Technological Advances in Clean Water Supply. For info: www.engexpo.com

July 30 CO
Conservation Easements Conference, Denver. Ritz-Carlton. For info: CLE International, 800/ 873-7130 or website: www.cle.com

July 30 AZ
AZ Water: Collection Systems Workshop, Lake Havasu. Public Works Maintenance Facility, 900 London Bridge Rd, 8am - 4pm. For info: Michelle Varner, AZ Water Assoc, 520/ 443-6514 or www.azwater.org

August 5-6 WA
Renewable Energy in the Northwest Conference, Seattle. Crowne Plaza Downtown. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 5-6 NM
New Mexico Water Law Conference, Santa Fe. Inn & Spa at Loretto. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 9-10 CA
Tuolumne River: Ecology, Resource Management & Whitewater Course, Groveland. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

August 10-11 WA
Statistical Analysis of Groundwater Monitoring Data: EPA's New Unified Guidance, Training Course, Bellevue, 8:00 A.M. to 5 P.M. WA Department of Ecology, NW Regional Office, 3190 160th Ave SE, Conf Rms 2A/B, 8am-5pm. RE: Core Elements of EPA's First Major Revision to Groundwater Statistical Guidance in Almost 20 Years. For info: Northwest Environmental Training Center, 206/ 762-1976 or info@nwetc.org

August 11-12 CA
Understanding Riparian Processes Course, Davis. Da Vinci Bldg., 1632 Da Vinci Ct. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

August 12 NY
Hydraulic Fracturing: EPA Public Hearing, Binghampton. Binghampton University, Anderson Performing Arts Ctr., 8am-12pm; 1-5pm; 6-10pm. For info: www.epa.gov/safewater/uic/wells_hydrofrac.html

August 14 OR
RiverFeast, Bend. Mirror Pond. For info: Deschutes River Conservancy, 541/ 382-4077 x10 or www.deschutesriver.org

August 16-20 Canada
American Fisheries Society Annual Meeting, Ottawa. For info: AFS website: www.fisheries.org/afs

August 16-20 CA
Geomorphic & Ecological Fundamentals for River & Stream Restoration, Lake Tahoe. Sagehen Creek Field Station. For info: http://sagehen.ucnrs.org/courses/geomorph.htm

August 17-18 WA
Advanced GIS Concepts Course, Olympia. For info: NWETC, 206/ 762-1976 or www.nwetc.org

August 17-18 WA
Rediscovery - As If the Earth Matters: An Environmental Educators Institute, Everett. Northwest Stream Center. For info: Streamkeeper Academy, 425/ 316-8592 or www.streamkeeper.org

August 18-19 WY
Natural Resource Decision-Making in Communications Course, Sheridan. For info: www.uwyo.edu/enr

August 18-19 OR
New Effluent Limitation Training Course, Portland, Portland Airport Ramada Inn & Suites, 6221 NE 82nd Ave, 8:30am-4pm. For info: Northwest Environmental Training Center, 206/ 762-1976 or info@nwetc.org

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402

CALENDAR

(continued from previous page)

August 19 CA
Municipal & Industrial Water Shortage Policy for the Central Valley Project Workshop, Sacramento. Red Lion Hotel, 1401 Arden Way, 9am-3pm. Convened by Bureau of Reclamation. For info: Tammy Laframbois, Reclamation, 916-978-5269, TLaframboise@usbr.gov or www.usbr.gov/mp/cvp/mandi

August 19-20 MN
Renewable Energy Conference, Minneapolis. Marquette Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 19-20 AZ
Arizona Water Law Conference: Building Blocks for Success, Phoenix. Biltmore Resort. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 20 CA
California Water Quality Act Conference, Santa Monica. DoubleTree Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 20 CA
California Environmental Quality Act (CEQA) Workshop, Santa Monica. DoubleTree Guest Suites Santa Monica Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 23-27 WS
Watershed 2010 Management Conference, Madison. For info: American Society of Civil Engineers, 800/ 548-2723 or website: www.asce.org/

August 24-25 WA
Certified Erosion and Sediment Control Lead Training, Seattle, EOS Alliance Training Center, 650 South Orcas Street, Suite 220, 8am-5:30pm. For info: Northwest Environmental Training Center, 206/ 762-1976 or info@nwetc.org.

August 27 WA
Water Valuation Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

August 29-Sep 3 Switzerland
Adaptation & Mitigation: Responses to Climate Change Summer School, Grindelwald. For info: www.nccr-climate.unibe.ch/summer_school/2010

August 30-Sept 1 Puerto Rico
Tropical Hydrology & Sustainable Water Resources Conference, San Juan. Gran Melia Puerto Rico. For info: www.awra.org

September 1 CA
Wetlands Regulation & Mitigation Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

September 5-11 Sweden
2010 World Water Week, Stockholm. For info: www.worldwaterweek.org/

September 7-10 CA
The California and the World Ocean 2010 Conference, San Francisco. Hyatt Regency Hotel. For info: CWO '10, 800/ 858-7743 or www.cce.csus.edu/cwo

September 7-9 MT
2010 Montana Watershed Symposium: Connecting Communities, Helena. Red Lion Colonial Hotel. For info: Alicia Vanderheiden, 406/ 244-4420 or info.mwcc@gmail.com

September 12-15 DC
25th WateReuse Symposium, Washington. Omni Shoreham Hotel. Sponsored by WateReuse Association. For info: WRA website: www.watereuse.org/

September 13 OR
BEST FEST '10 Expo, Portland. Oregon Convention Ctr. For info: Sue Moir, NEBC, 503/ 227-6361, sue@nebc.org or www.nebc.org

September 13-14 NE
Nebraska Water Law Conference, Lincoln. Cornhusker Marriott. For info: CLE International, 800/ 873-7130 or website: www.cle.com

September 15 WA
Shoreline Development & Permitting Conference, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

September 15 WA
Biomass Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 15-16 OR
Sustainable Stormwater Symposium, Portland. World Forestry Ctr. Sponsored by Oregon Section ASCE-EWRG & APWA. For info: www.asceor.org/stormwater_home