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ANTI-SPECULATION & WATER LAW

GHOST-BUSTING, TRUST-BUSTING, OR ENSURING BENEFICIAL USE?

by Sandra Zellmer, University of Nebraska-College of Law (Lincoln, NE)

Prologue

In the mid-1980s, New York City experienced an unprecedented increase in supernatural activity. According to Ghostbuster's Dr. Peter Venkman, a professional paranormal eliminator, it was caused by the disturbance of the spirit of Zuul, a demigod worshiped by the ancient Mesopotamians. Zuul became a minion of the superior god Gozer-the-Destructor and served him as the Gatekeeper of Hell, preparing New York for Judgment Day (Ghostbusters (UCA Studios 1984); see Memorable Quotes for Ghost Busters, www.imdb.com/title/tt0087332/quotes).

Zuul's malevolent presence on the eastern seaboard raises some interesting parallels to the topic of this paper — the Anti-Speculation Doctrine of water law. Zuul's spirit may have been restless because she failed to protect her subjects in Sumeria and other Mesopotamian city states, which collapsed due in part to the failure of agriculture in an arid climate with high levels of evaporation and poorly drained soils (Jared Diamond, *Collapse* (2005). Is it mere speculation to posit that, if the US refuses to reform its water law in the face of increasing demand and dwindling supplies, it may someday suffer a similar fate?

Introduction

From Texas's über-entrepreneur T. Boone Pickens to Ontario's Nova Company, schemes to profit from large-scale transbasin water transfers have proliferated in the past decade. Reactions range from outrage at the commoditization of this precious resource to support for letting the market and its pricing signals move water to the most efficient use. On the international front, the World Bank and the International Monetary Fund have encouraged nations, particularly those in the developing world, to conform to a market paradigm by privatizing and thereby maximizing use of their water supplies. Affected communities are often less than enthusiastic. Throughout the world, attempts to privatize water resources have triggered a "morality play of rights versus markets, human need versus corporate greed." James Salzman, *Thirst: A Short History of Drinking Water*, 18 Yale J.L.H. 94, 96 (2006).

The controversy is not limited to developing countries. Yet the long-standing prohibition against speculation has served as an impediment to commoditization — and, consequently, water marketing — in the western United States. The anti-speculation provisions are intended to keep the reviled Robber Barons of yesteryear in their place and prevent them from coming back to haunt us as modern-day "Water Barons." This paper considers whether the anti-speculation restriction in western water law serves a continuing public purpose or, conversely, is an archaic relic of times past.

Water Speculation

Robber Barons

Water Barons

Differing Privatizations

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The Bogey Man Cometh

The term Robber Baron, a pejorative moniker used to describe the economic giants of the Gilded and Progressive Eras in American history, is typically applied to a few billionaires who made their money in steel, oil, or railroads (Matthew Josephson, *The Robber Barons: The Great American Capitalists, 1861-1901* (1934). According to early twentieth century political commentator Matthew Josephson, the Robber Barons' wealth was not of their own creation, but rather reflected elicit gains garnered by their anti-competitive practices and heavy-handed burdens levied upon the workers and craftsmen of America. Likewise, President Theodore Roosevelt decried the "malefactors of great wealth" and advocated an aggressive role for the federal government in trust-busting — breaking up private concentrations of economic power. *Id.*

Today's Robber Baron might be better described as a "Water Baron," scheming to sell water from Mono Lake, the Ogallala (High Plains) aquifer, the Great Lakes, and many other waterbodies. Nothing strikes fear into the hearts of westerners quite like the specter of a water monopoly. Indeed, "[t]here is something in the human spirit that responds with great passion and outrage when outsiders — however defined — look beyond their own back yards for a useable source of water." (Christine A. Klein, *The Law of the Lakes: From Protectionism to Sustainability,* 2006 Mich. St. L. Rev. 1259, 1260 (2006), available at: http://msulr.law.msu.edu/back_issues/2006/5/Klein.pdf).

Yet not all privatization schemes are alike. There are all sorts of variations and degrees of privatization, and this is especially true of natural resources such as air, minerals, fisheries, and of course water. Many blend government regulation and oversight through tradable permits or other devices with an element of private management. Some of these strategies may be suitable for management of water resources and some may already be occurring in some jurisdictions in some way, shape, or form. The type of privatization that raises concerns in the water world is that which involves placing the assets — the resource itself — in the hands of a private company (Robert Glennon, *Water Scarcity, Water Marketing, and Privatization*, 83 Tex. L. Rev. 1873, 1892 (2005)).

Outright privatization of water may concentrate power in monopolistic corporations and impede the ability of residents and local governments to manage their own supplies, as decision-making becomes less transparent and opportunities for meaningful participation are truncated or foreclosed. *Id.* at 1893. See also Maude Barlow & Tony Clarke, *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water* 207-208 (2002); Vandana Shiva, *Water Wars: Privatization, Pollution and Profit* 20-30, 137-38 (2002); Peter Gleick, et al., *The New Economy of Water: The Risks and Benefits of Globlization and Privatization of Fresh Water* 4-10 (2002).

The scenario depicted by the movie Chinatown is the quintessential example of an early 20th century water grab by the rapidly growing city of Los Angeles from rural northern California farmers (Paramont Pictures 1974). For a detailed description of the incident and its effects, see Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (Penguin Rev.Ed.1993). Speculative enterprises are by no means a relic of our nation's past, however. Indeed, much like the increased paranormal activity triggered by the disturbance of Zuul, proposals for large-scale, arguably speculative water transfers seem to be on the rise these days.

Perhaps the most brazen of the modern-day Water Barons is T. Boone Pickens. This free-wheeling entrepreneur, widely known in the oil and gas fields, has of late turned his attention to water, much to the dismay of residents of the counties and states surrounding his west Texas ranch. In the late 1990s, Pickens determined that municipalities could benefit by gaining access to the great quantities of Ogallala Aquifer groundwater underlying his ranch, so he devised a plan to extract and sell enough water to meet the demands of some 400,000 households a year. See Robert Elder Jr., *Corporate Raider Hopes for River of Green in Texas Panhandle*, Austin American-Statesman, Oct. 15, 2003.

According to Food and Water Watch, Pickens has been acquiring acreage overlying the Ogallala Aquifer with hopes that he could pump and sell as much as 200,000 acre-feet per year (AFY) of water to one of the state's metropolitan centers — El Paso, Lubbock, San Antonio, or Dallas-Fort Worth. The aquifer's minimal recharge rate of less then one AFY means that its users are mining fossil water that will not be replenished (*T.Boone Pickens in Texas*, www.foodandwaterwatch.org). For details on the use of the Aquifer, see Sandra Zellmer, *Boom and Bust on the Great Plains: Déjà vu All Over Again*, 41 Creighton L. Rev. (forthcoming 2008)).

Pickens' own website proclaims that his company, Mesa Water, is the largest private holder of groundwater rights in the United States (*Pickens: Ahead of His Time:* www.boonepickens.com/man_ahead/default.asp). In 2004, Pickens announced that he anticipated receiving $500 an acre-foot from either Dallas-Fort Worth or San Antonio, a price that includes the costs of delivering the water through a nine-foot-diameter pipeline (*T. Boone Pickens Believes Water Deal with Dallas-Fort Worth Possible Soon*,

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Dallas Business J., June 23, 2004 at: www.bizjournals.com/dallas/stories/2004/06/21/daily22.html). To date, however, Pickens is still waiting on a buyer (*Pickens: Ahead of His Time, supra*).

Speculative schemes have cropped up in the eastern United States as well. In 1998, Nova Group, a company allegedly founded in an individual's basement in Sault Ste. Marie, Ontario, obtained a permit to export 600 million liters (about 160 million gallons) of Lake Superior waters annually via tanker vessel to some unidentified recipient in Asia. Nova was subsequently revealed to be a shell company that had been put together by a professor at an Ontario community college and a handful of his friends (Milos Barutciski, *Trade Regulation of Fresh Water Exports: The Phantom Menace Revisited*, 28 Can.-U.S. L.J. 145, 148 (2002)).

Nova Group

Nova's proposal coincided with declining water levels in the Great Lakes, and the resulting public outcry persuaded Ontario to revoke the permit and also prompted the Canadian federal government to issue an outright ban on the bulk export of water. See Mark Squillace and Sandra Zellmer, *Managing Interjurisdictional Waters Under the Great Lakes Charter Annex*, 18 Nat. Res. & Env't 8, 8 (2003). Eric Reguly, in *It's Time Feds Came Clean on Water, Globe and Mail*, Nov. 25, 1999, at B2, described the Canadian government's policy on water exports as the hottest trade and environmental issue facing Canada in the next decade. "Bulk export" is defined as "the siphoning of freshwater from lakes or other sources for shipment through pipelines, diversions, or by sea on supertankers." Christopher Scott Maravilla, *The Canadian Bulk Water Moratorium and Its Implications for NAFTA*, 10 Currents Int'l Trade L.J. 29, 31 (2001).

"Annex 2001"

Like the star-type for which it was named, the Nova Group soon faded. Nova's proposal had transcendent effects on water transfers on both sides of the border, however, in that it motivated the eight states and two Canadian provinces bordering the Great Lakes to adopt a measure known as "Annex 2001" — designed primarily to prevent large-scale diversions from the basin (*Annex to the Great Lakes Charter*, June 18, 2001: www.cglg.org/1pdfs/Annex2001.pdf). If adopted by all of the member states and approved by Congress as an interstate compact, Annex 2001 would pose an obstacle to water exports from the Great Lakes.

Loopholes?

However, as things currently stand, a would-be water exporter could employ a crafty lawyer to find a loophole, perhaps in the form of a constitutional challenge under the dormant Commerce Clause. *Sporhase v. Nebraska*, 458 U.S. 941 (1982). What is that old adage? Oh, yes, "water flows to money and power." Lloyd Burton, *American Indian Water rights and the Limits of Law*, at ix (1991) (quoting Peterson Zah, Navajo Tribal Chairman).

Export Bans

Meanwhile, many Canadian provinces, including British Columbia and Ontario, enacted their own bans on bulk water exports. Maravilla, *supra* at 31.

NAFTA Suit

In response to the Canadian bans, in 1998, California company Sun Belt Water filed a notice of intent to submit a claim against the Canadian federal government and the provincial government of British Columbia under NAFTA's Chapter 11 investor provisions, claiming over $200 million in lost profits for not being allowed to purchase water for export. See Gregory F. Szydlowski, *The Commoditization of Water: A Look at Canadian Bulk Water Exports, The Texas Water Dispute, and the Ongoing Battle Under NAFTA for Control of Water Resources*, 18 Colo. J. Int'l Envtl. L. & Pol'y 665, 677 (2007). Although the Sun Belt arbitration has not moved beyond the notice of intent, Sun Belt's scheme was the first serious effort to turn Canada's water into an international commodity. *Id.* at 677. For Sun Belt's perspective, along with pleadings and other documents, see their website: www.sunbeltwater.com/index.shtml. Sun Belt owner Jack Lindsey has by no means faded quietly into the sunset. Lindsey, an individual with "no shortage of chutzpah," is still trying to sell British Columbia water held by defunct pulp mills and other sources. Eric Reguly, *Water Fight With U.S. has Just Begun*, Globe & Mail (Toronto Can.), Oct. 23, 1999, at B2.

Bottled Water

Let us turn our attention to what is perhaps the scariest apparition of late — the bottled water sector. In a well publicized dispute, Michigan residents, outraged by a proposal of Nestlé Waters (a subsidiary of the Perrier Group) to construct groundwater withdrawal and bottling facilities in Mecosta County for its new product line, Ice Mountain, took to the streets in protest and blocked truckloads of bottled water by lying in the streets (Klein, *supra*).

Public Trust Doctrine

Meanwhile, Michigan Citizens for Water Conservation, a group of riparians and other interested residents, took to the courts, alleging that groundwater pumping would adversely affect a nearby stream in violation of the Public Trust Doctrine and other Michigan laws. *Michigan Citizens for Water Conservation v. Nestle Waters North America Inc.*(Michigan Citizens), 269 Mich.App. 25, 709 N.W.2d 174 (2005), rev'd in part, 479 Mich. 280, 737 N.W.2d 447 (2007).

The public trust claim was dismissed on the ground that the stream was not navigable water subject to the public trust. However, Nestlé was temporarily enjoined because the court found the proposed withdrawal unreasonable under the balancing test applicable to disputes between riparian and groundwater users under Michigan law, to the extent that the withdrawal would cause the loss of recreational uses of the stream and lasting changes to its natural characteristics. *Michigan Citizens*, 709 N.W.2d at 208-209. The opinion was reversed in part on standing grounds, and the company subsequently agreed to limit pumping

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to 218 gallons per minute, approximately half of the amount initially approved by state regulators. See Todd Spangler, *Nestle: We're no Danger to Michigan*, Det. Free Press, Dec. 13, 2007; *Water Dispute*, Grand Rapids Press, July 26, 2007, at A2.

The controversy continues. In December 2007, Ohio Congressman Dennis Kucinich convened a House oversight subcommittee hearing to consider the environmental impact of bottled water operations. Nestlé offered extensive testimony about the overall benefits of its Ice Mountain enterprise. The congressional query may be aimed at greater federal oversight of the industry. Spangler, *supra*.

Regional Conflicts

Federal concern notwithstanding, it takes little imagination to envision a Sun Belt-like company orchestrating a large-scale water transfer from the water-abundant Great Lakes or the Ogallala Aquifer to the thirsty and growing West. See Peter Annin, *The Great Lakes Water Wars* (2006), describing growing pressure to transport Great Lakes water to Asia and other far-flung places. Next time, it just might be some well-heeled corporation with plenty of capital and influence to throw around.

Enron Gambit

Remember Enron? According to New York Times reporter Tim Egan:

> Enron, the nation's No. 1 marketer of natural gas and electricity, saw water as a commodity that would eventually be deregulated, just as electric power was in California. If that happened, Enron would be free to buy and sell water to the highest bidders — no different from oil or megawatts... Rebecca Mark, chief executive officer of Enron's water division, Azurix,...outlined plans to lay a claim to a global industry worth about $400 billion...But Enron discovered that water was not as easily corralled as oil or gas. Public agencies and consumer groups, many critical of Enron's role in the debacle of energy deregulation in California, fought the company and others pushing for privatization...[A]fter two years of foraging for water, Enron's water spinoff collapsed, reporting losses of more than $300 million and retreating from the stock market.
>
> Timothy Egan, *Near Vast Bodies of Water, Land Lies Parched*, N.Y. Times, Aug. 12, 2001, at 11.

Enron's water division was not alone in its demise. Enron's failure notwithstanding, other corporate Water Barons may be waiting in the wings. There is some political support for such a scheme, at least from the arid Southwest. In October 2007, during his bid for the Democratic nomination for president, New Mexico's Governor Bill Richardson caused an uproar when he suggested that water from the Great Lakes could be piped to the Southwest. Richardson rationalized that the Great Lakes states are "awash in water." Tim Jones, *Great Lakes Key Front in Water Wars*, Chi. Trib., Oct. 28, 2007. Michigan's Democratic Governor Jennifer Granholm responded swiftly and unequivocally: "Hell no." (CNN Newsroom Transcripts, Oct. 13, 2007: http://transcripts.cnn.com/TRANSCRIPTS/0710/13/cnr.05.html). Ironically, at one point, speculators proposed to pipe Great Lakes water to the Western High Plains to replenish depleted portions of the Ogallala Aquifer. See Editorial, *Saving the Great Lakes*, Chi. Tribune, Feb. 16, 1985, at 8.

Transport Costs

Large-scale, transbasin diversions are, as yet, the exception rather than the rule. In part, this is a simple matter of economics — the cost of transporting water, a heavy and unwieldy substance, long distances has in the past outweighed the financial benefits. Even if the pressures of a rapidly diminishing supply and ever-increasing demand change this dynamic, the basic elements of prior appropriation law may pose a continuing impediment to water transfers.

The Holy Trinity of Beneficial Use

Beneficial Use

All of the western water codes encapsulate the "doctrinal trinity of beneficial use, waste, and forfeiture." Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 Envtl. L 919, 922 (1998). Beneficial use is the lynchpin of the prior appropriation system. "Statutes of nine states intone in nearly identical language that 'beneficial use, without waste, is the basis, measure, and limit of a water right,' and the remainder refer in some way to beneficial use." *Id*. at 920. Many state constitutions and all of the water codes of the western states include the term "beneficial use." *Id.* at 923. The definition of beneficial use is similar among prior appropriation jurisdictions, and it typically includes just about any domestic, agricultural, or industrial activity, including sewage treatment, crop production, stock watering, hydroelectric power generation, mining, and recreational pursuits.

"Can & Will" Test

An applicant for an appropriative right must demonstrate both the intent to appropriate water for beneficial use and an overt act manifesting this intent. For example, in *Pagosa Area Water and Sanitation District v. Trout Unlimited (In re Application for Water Rights)*, 170 P.3d. 307 (Colo. 2007), the Colorado Supreme Court required the appropriator to establish that it "can and will put the conditionally appropriated water to beneficial use within a reasonable period of time." If water is put to beneficial use, the user develops a prior appropriation right, which is reflected in a state-issued permit or judicial decree. As between users, a person holding a senior appropriative water right has an exclusive right to use a specified amount of available water for a specified purpose at a specified time and place. The appropriator may

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Intent & Speculation

Maximum Use

Monopoly Concerns

Prior Appropriation

Right-to-Use

not, however, merely possess the water and also may not waste it. Water rights holders who fail to show continuous beneficial use of the water may lose the water right through abandonment or forfeiture. See, e.g., Nev. Rev. Stat. §533.060.

These requirements are intended to ensure that the public's water resource is available to those who actually need water. David B. Schorr, *Appropriation as Agrariarinism: Distributive Justice in the Creation of Property Right*s, 33 Ecol. L.Q. 3, 9, 22 (2005). More specifically, the holy trinity of western water law — beneficial use, waste, and forfeiture — has three fundamental purposes: 1) avoiding speculation and monopoly; 2) maximizing the use of a scarce resource; and 3) providing flexibility to water users. Neuman, 28 Envtl. 919, 962-63. The first purpose is the subject of this paper. The law of all western states prohibits speculation in water rights. *Id.* Colorado law, for example, specifies that no appropriator "may obtain a right to use a portion of the public's water resource unless it establishes intent to make a non-speculative appropriation," (*Pagosa Water* at 307; Colo. Rev. Stat. 37-92-305(9)(b)). See *Arizona v. California*, 574 U.S. 150, 154 (2006) where the US Supreme Court defined a perfected water right as having been actually diverted and applied to an approved use. Other states implicitly prohibit speculation through their definition of beneficial use: *Little v. Greene & Weed Inv.*, 839 P.2d 791, 794 (Utah 1992) (requiring appropriation "by actual diversion and application of the water to a beneficial use"); *Maricopa County Mun. Water Conservation Dist. v. Southwest Cotton Co.*, 39 Ariz. 65, 102-3, 4 P.2d 369, 382-83 (1931) (requiring an appropriator to perfect a water right by applying the water to a beneficial use).

Speculation is the act of acquiring a resource for subsequent use or resale. It is not necessarily a bad thing. In fact, speculators can (and do) hold real estate, stocks and bonds, art, and all sorts of other property for future uses. Indeed, "speculative fever was actually an important driving force in early western land and resource development, and as long as it was equal opportunity speculation open to ordinary folks as well as wealthy capitalists, it was encouraged rather than frowned upon." Neuman, 28 Envtl. 919, 964. Why, then, does western water law cling to the Anti-Speculation Doctrine?

Western history provides valuable context for our analysis of the modern-day prohibition on speculation. Prior appropriation arose during the late 1800s as a way to encourage and support western settlement and economic development by allowing maximum use of a scarce but essential resource — water. *Id*. at 967. Experiences with scarcity led western societies to believe that the gains from private management of water would outweigh the costs of establishing and enforcing a system of private rights. Anderson & Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163, 177 (1975).

Although the oft-repeated story is that westerners simply followed the customs of the mining camps in the use and allocation of water, the underlying objectives were almost certainly more complex. Prior appropriation's roots are as likely to be found in the populist inclinations of homesteaders and other settlers, who abhorred speculative maneuvering by monopolistic land barons and railroad companies. The fear of concentrated power over resources in the developing West shaped the doctrine of beneficial use. Neuman, 28 Envtl. L 919, 963; Schorr, *supra* at 9, 22. Concerns about monopoly were part of a broader social movement and a much bigger set of issues, including populism, the burgeoning interest in conservation of public lands and wildlife, and Teddy Roosevelt's progressive, trust-busting campaigns. *Id.* at 964, citing Samuel C. Wiel, *Water Rights in the Western States* 166 (3d ed. 1911). The same sentiments played a role in shaping the provisions of the homestead acts, which required actual settlement and occupancy to obtain title to land, as well as the Reclamation Act, which favored small farmers by limiting delivery of water to 160 acre parcels (43 U.S.C. § 431; Homestead Act of 1862, ch. 75, 12 Stat. 392 (repealed 1976).

According to legal historian Samuel Wiel, when many western constitutions were being adopted in the late 1800's and early 1900's, constitutional conventions embodied a strong sentiment against wealth and monopolies. Wiel, *supra* note 49, at 149. Railway and steamship lines were considered especially villainous, but concern about excessive power spread to other public services, including water. The rejection of riparian rights was one means of preventing an owner of just a few acres of land on a stream from locking up the water for that single parcel and thereby impeding the settlement of surrounding land. The adoption of the Prior Appropriation Doctrine, by definition, required the appropriator to apply the water to beneficial use, thereby precluding speculative hoarding in hopes of future gain. Neuman, 28 Envtl. L 919, 963-64. "Because actual, beneficial use was required, no one could acquire all of the water and thereby monopolize a scarce and valuable resource. Nor could anyone speculate by holding water without using it, and then make a steep profit by selling it to those who needed it." *Id*. at 964. See *High Plains A & M, LLC v. Southeastern Colorado Water Conservancy Dist.*, 120 P.3d 710, 719 n.3 (Colo. 2005).

The anti-speculation doctrine's populist underpinnings do not reflect anti-property sentiment. To the contrary, in many western states, it is commonly accepted wisdom that appropriative rights are a form of property. A. Dan Tarlock, *Law of Water Rights and Resources* § 1:1 (2006). Most judicial opinions make it

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abundantly clear, however, that a water right does not constitute ownership of the water itself; rather, it is usufructuary, or a right to use water. See Sandra Zellmer and Jessica Harder, *Unbundling Property in Water*, 59 Ala. L. Rev. (forthcoming 2008); John C. Peck, *Title and Related Considerations in Conveying Kansas Water Rights*, 66-Nov. J. Kan. B.A. 38, 39 (1997). The laws applicable to water, treating it as a semi-privatized yet community-based resource, and not as an ordinary commodity, are highly unique and apply to "virtually nothing else." Brian E. Gray, *The Property Right in Water*, 9 Hastings W.-Nw. J. Envtl. L. & Pol'y 1, 27-28 (2002).

Property Limits

> The roots of private property have never been deep enough to vest in water users a compensable right to diminish lakes and rivers or to destroy the marine life within them. Water is not like a pocket watch or a piece of furniture, which an owner may destroy with impunity. The rights of use in water, however long standing, should never be confused with more personal, more fully owned, property. Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 Envtl. L. 473, 482 (1989).

Change in Use

Today, water can be applied for beneficial use anywhere in the West and, once secured through application for beneficial use, water rights can be conveyed by deed, lease, mortgage, or inheritance as an appurtenance with a conveyance of the land where the water was initially put to use. Douglas L. Grant, *ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?*, 36 Envtl. L. 1331, 1336 (2006). Changes in place or type of use are tightly controlled by state statutes and common law, however, to ensure that no harm will come to other appropriators ("no injury" rule). In addition, in some states, changes and transfers are forbidden if unreasonable adverse effects to other third parties — such as riparians or the general public interest — would occur. See, e.g., Neb. Rev. Stat. §46-294(1)(d) (2007). As a result of these constraints, transfers of water away from the land on which it was initially used have been the exception rather than the norm. This, in spite of the increasing need to transfer senior priorities to other uses and locations to promote more efficient or socially valuable uses. The sum total of the beneficial use requirement means that, with a few exceptions described below, speculators cannot hold water for unspecified future uses. Whether this treatment is justified is addressed below in Part VI.

Transfers

Municipal and Foreign Speculators Abound

Exceptions

There are several exceptions to the general anti-speculation rule in western water law. Two of the most significant involve municipal water supplies and foreign water. Another exception involves maintenance of instream flows, primarily for fisheries, water quality, and recreational uses.

Municipal Growth

Urban Preference

Each system of water law in the US — prior appropriation, the common law of riparian rights, and the law of groundwater capture — gives a "super-preference" to municipal growth. See A. Dan Tarlock and Sarah B. Van de Wetering, *Western Growth and Sustainable Water Use: If There are No "Natural Limits," Should We Worry About Water Supplies*?, 27 Pub. Land & Resources L. Rev. 33 (2006); A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 5 Hastings W.-N.W. J. Envtl. L. 163 (1999). In other words, if push comes to shove in a contest over scarce water resources, cities almost always win. It may well be that the dedication of water to urban use comports with the longstanding preference for domestic applications, and it is indisputably rational from an economic standpoint. Tarlock and Van de Wetering, *Western Growth*, *supra* at 48. However, as a result, water law allows if not encourages unrestrained urban expansion.

"Growing Cities"

The municipal preference flows in part from commonly adopted exceptions to the Anti-Speculation Doctrine. First, the "growing cities" exception allows cities to perfect a water right to the amount that they will need in advance of demand, in some cases up to the anticipated future capacity of their systems (Tarlock, *Law of Water Rights and Resources*, § 5:70.1 (2007)). The Colorado Supreme Court embraced this type of an exception for its "great and growing cities," in *City & County of Denver v. Sheriff*, 105 Colo. 193, 96 P.2d 836 (1939), and its decision was subsequently adopted by the Colorado legislature in its Water Right Determination and Administration Act. This Act provides: "A governmental agency need not be certain of its future water needs; it may conditionally appropriate water to satisfy a projected normal increase in population within a reasonable planning period." *City of Thornton v. Bijou Irrigation Co*., 926 P.2d 1, 38 (Colo. 1996), citing Water Right Determination and Administration Act of 1968, Ch. 346, sec. 5, § 37-92-103(3)(a), 1979 Colo. Sess. Laws 1366, 1368 (codified at § 37-92-103(3)(a), 15 C.R.S. (1990)). Colorado courts have described the reservation of water for Denver and the surrounding vicinity as "not speculation but the highest prudence on the part of the city..." (*City & County of Denver*, 96 P.2d at 836; see also Or. Rev. Stat. § 537.230(2) (allowing cities to take up to twenty years to complete construction of proposed water works).

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"Progressive Growth

A related but more limited concept is known as the "progressive growth" doctrine. This allows claimants, most often cities, to establish a priority date by documenting their anticipated needs for water. Lora Lucero and A. Dan Tarlock, *Water Supply and Urban Growth in New Mexico: Same old, Same Old or a New Era?*, 43 Nat. Resources J. 803, 829 (2003).

The Montana Supreme Court explained:

> It is not requisite that the use of water appropriated be made immediately to the full extent of the needs of the appropriator. It may be prospective and contemplated, provided there is a present ownership or possessory right to the lands upon which it is to be applied, coupled with a bona fide intention to use the water, and provided that the appropriator proceeds with due diligence to apply the water to his needs.
>
> *St. Onge v. Blakely*, 76 Mont. 1, 23, 245 P. 532, 539 (1926). See also *State ex rel. Crider*, 431 P.2d 45, 49 (N.M. 1967); *State ex rel. Martinez v. City of Las Vegas*, 135 N.M. 375, 89 P.3d 47 (2004).

Forfeiture Exception

Another means of escaping the restrictions on speculation is to obtain an exemption from forfeiture provisions. Some states provide municipalities with such exemptions, either by statute or by case law. Neuman, 28 Envtl. L 919, 965 n.332. See, e.g., N.M. Stat. Ann. §§ 72-1-9, 72-12-8; N.D. Cent. Code § 61-04-23; Or. Rev. Stat. § 540.610(2)(a); Utah Code Ann. § 73-1-4(5); Neb. Rev. Stat. § 46-229.04(5). The underlying rationale is that the development of large-scale supplies for municipal purposes cannot, for all practical purposes, be held to strict "use it or lose it" requirements. Neuman, 28 Envtl. L 919, 965 n.332.

Conditional Rights

Although technically not an exception to the anti-speculation rule, would-be appropriators may also mitigate its harshness by seeking conditional water rights. Appropriators who seek a permit before putting the water to beneficial use may secure conditional rights and thereby reserve a place in the priority line for when the appropriator completes the adjudicatory process. To obtain a conditional water right, one must demonstrate the intent to appropriate water, as well as the ability to put the water to beneficial use within a reasonable time. See, e.g. Colo. Rev. Stat. § 37-92-305(9)(b).

Colorado Conditional Rights

To maintain a conditional water right, some states require the appropriator to file an application for a finding of reasonable diligence every few years. Colorado's six year filing requirement was examined in *Double RL Co. v. Telluray Ranch Properties*, 54 P.3d 908 (Colo. 2002). So long as the conditional right holder continues to demonstrate an intent to place the water to beneficial use and exercises reasonable diligence in doing so, a conditional right can be held in perpetuity. When all of the elements of an actual appropriation are finally demonstrated, the conditional water right becomes perfected and declared absolute in a permit or judicial decree. In its 2007 opinion in *Pagosa Water,* 170 P.3d 307 (Colo. 2007), the Colorado Supreme Court delineated factors for consideration when a city seeks a conditional appropriation. It directed the water court to make specific findings of fact about future land use mixes and about per capita water use requirements. It also directed the water court to consider the effects that implementing conservation and reuse measures would have on the future water needs. Finally, the water court was instructed to determine whether the water suppliers had met Colorado's "can and will" test — whether they can and will put the conditionally appropriated water to beneficial use within a reasonable time period. *Id.* at 320.

City Planning Period

The Pagosa Springs suppliers estimated that they would need to triple their current storage capacity to 12,000 acre-feet (AF) to meet residents' water needs by 2043. Taking this a step further, they proposed to develop a reservoir project with a total storage capacity of 35,000 AF — almost triple their estimated 2043 needs — in order to serve population growth through the year 2100. *Id.* at 311. The court expressed its skepticism about this scheme, and cautioned the water court to "closely scrutinize a governmental agency's claim for a planning period that exceeds fifty years," a period of time that had been found reasonable in a previous case where the applicant had "presented extensive evidence to support its projections of future water demand and its ultimate intent," including the testimony of planning experts, along with planning documents and studies prepared by water consultants. *Id.* at 317, citing *City of Thornton v. Bijou Irrigation Co*., 926 P.2d 1, 40 (Colo. 1996).

Washington Limitation

Similarly, the Washington Supreme Court has concluded that a final certificate, i.e., a vested water right, may be obtained only in the amount of water actually put to beneficial use, not the amount allowed by the capacity of a developer's water delivery system. The court reversed a determination by the state Pollution Control Hearings Board that system capacity, or a "pumps and pipes" measure, could be the method of quantification for purposes of the final certificate under state statutory and common law. *Department of Ecology v. Theodoratus*, 135 Wash. 2d 582, 592, 957 P.2d 1241, 1246 (1998).

Foreign (Developed) Water

Stream-Basis

The prior appropriation system is based on the notion that all surface waters within a watershed belong to the stream and are therefore subject to appropriation by users. This means that appropriators have no expectation to water that was never part of the natural stream system. Developed water is water that has

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Developed Water

been "added to the supply of a natural stream and which never would have come into the stream had it not been for the efforts of the party producing it." See, e.g., *City of Thornton v. Bijou Irrigation Co*., 926 P.2d 1, 72 (Colo. 1996) (interbasin water transfer); *City & County of Denver v. Fulton Irrigating Ditch Co*., 179 Colo. 47, 506 P.2d 144 (1972) (interbasin water transfer and treated sewage effluent); *Dodge v. Ellensburg Water Co.*, 46 Wash. App. 77, 729 P.2d 631 (1986), review denied, 107 Wash. 1031 (1987) (interbasin water transfer); *Reynolds v. City of Roswell*, 99 N.M. 84, 654 P.2d 537 (1982) (treated sewage effluent); *Thayer v. City of Rawlins*, 594 P.2d 951 (Wyo. 1979) (treated sewage effluent); *Mountain Lake Mining Co. v. Midway Irrigation Co*., 48 Utah 346, 149 P. 929 (1915) (mine dewatering). Examples include water derived from mine dewatering, water exported from another watershed, and treated sewage effluent (A. Dan Tarlock, *Waters Subject to Appropriation—Developed Water*, L. of Water Rights and Resources § 5:18). This water is typically treated as the exclusive property of the developer, and is free of the "call" of the river (i.e. no senior appropriator can require the water to be released to satisfy his/her senior right). *Id.;* Note, *Colorado's Foreign Water Doctrine: License to Speculate*, 60 U. Colo. L. Rev. 1113 (1989). Thus, it can be transferred at will, free of anti-speculation constraints.

Water Banking and Forbearance

Water Banks

The use of water banks to facilitate water marketing is gaining acceptance in many western states. Water banks provide a flexible framework for water transfers, as there is no single required formula. Lawrence J. MacDonnell, *Water Banks: Untangling The Gordian Knot of Western Water*, 41 RMMLF – Inst. 22, 22 (1995). Generally speaking, water rights are deposited in the bank and available for withdrawal for a fee by others. The bank serves as an intermediary that arranges the transactions and maintains records. The pricing for deposits and withdrawals can reflect both the purpose of the new use — urban, industrial, environmental, recreational, or agricultural — and the location of use, particularly when the water would be used outside the original watershed. George W. Pring and Karen A. Tomb, *License to Waste: Legal Barriers to Conservation and Efficient Use of Water in the West*, 25 Rocky Mt. Min. L. Inst. 25 (1979).

Idaho Bank

To avoid forfeiture, legislation is typically required to facilitate water banking. Idaho was one of the first to authorize a water bank nearly sixty years ago on the Upper Snake River (Idaho Water Resources Board, Idaho Water Supply Bank: www.idwr.idaho.gov/waterboard/water%20bank/waterbank.htm). The bank is designed as an exchange market where individuals with excess water rights can place the rights in storage or natural flows, and others can purchase or lease this excess water. Idaho law also authorizes a general purpose water bank for facilitating temporary water transfers (Idaho Code Ann. § 42-1761). The bank is designed to provide flexibility to irrigators by allowing those who do not need water in a particular year to grant it to others without forfeiting their water rights. Janet C. Neuman, *Drought Proofing Water Law*, 7 U. Denv. W. L. Rev. 92, 104 (2003). The Idaho Department of Water Resources was also explicitly authorized to use the bank to provide instream flows for salmon runs on the Snake River (Idaho Code §42-1763B).

Colorado Banking

In Colorado, water banks are authorized for all of the state's major river basins, but as of 2006 none actually existed, other than a pilot bank in the Arkansas Basin. Reed D. Benson, *"Adequate Progress," or Rivers Left Behind: Developments in Colorado and Wyoming Instream Flow Laws Since 2000*, 36 Envtl. L. 1283, 1304-1305 (2006). A statute that requires the state engineer to "promulgate program rules necessary or convenient for the operation of a water bank within the division in which such district is located" evidently requires such rules to be adopted before establishment of a bank, thereby impeding water banking. *Id*. at n.154, citing Colo. Rev. Stat. § 37-80.5- 104.5(1)(a).

Oregon Trust

The Oregon Water Trust, a nonprofit organization that began buying water for streamflows in 1994, holds a diverse portfolio of water rights, including permanent purchases, long-term, short-term, and split-season leases, use forbearance agreements, and conserved water projects. Within the first decade of its existence, it protected over 124 cubic feet per second of water in over 300 water rights deals. Janet C. Neuman, *The Good, the Bad, and the Ugly: The First Ten Years of the Oregon Water Trust*, 83 Neb. L. Rev. 432, 433, 441 (2004). The Trust is able to accomplish instream flow protection because the Oregon legislature recognizes instream uses of water to be beneficial uses (Or. Rev. Stat. §§ 537.334(1), 537.336(1) and specifies that existing water rights converted to instream flow rights retain their priority date (Or. Rev. Stat. § 537.348(1)). According to Trust Advisory Board member Professor Janet Neuman, a final key component of the 1987 law that served as a catalyst for water marketing is the "conserved water" program, which allows water rights holders to improve their efficiency and keep a portion of the water saved (Neuman, *The Good*, supra note 92, at 439). Absent this provision, the appropriator — in other states — who accomplishes an authorized beneficial use with less water due to increased efficiencies would lose

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Colorado River Banking

Shortage Criteria

Anti-Trust Rules

the saved water to junior users or new appropriators. See, eg., Ariz. Rev. Stat. 45-188(A) (2007); Cal. Water Code 1241 (2007); Colo. Rev. Stat. Ann. 37-92-402(11) (2007); Idaho Code 42-222(2) (2007); N.M. Stat. Ann. 72-5-28(A) (2007); Or. Rev. Stat. 540.610(1) (2005); Utah Code Ann. 73-1-4 (2007); Wash. Rev. Code 90.14.160 (2007); Wyo. Stat. Ann. 41-3-401 (2007).

A related means of protecting instream flows comes in the form of a "use forbearance" agreement in which the water user agrees to stop irrigating as of a certain date and to leave the water instream in exchange for a cash payment (Neuman, *The Good*, *supra* at 454). Like water banking, forbearance agreements can be used for instream flow maintenance or other purposes. In the mid-1990s, to address unused entitlements in Arizona and severe shortages in Nevada and California, the Metropolitan Water District of Southern California (MWD) and the state of Nevada entered into an agreement to pay the Central Arizona Water Conservancy District (CAWCD) to deliver Colorado River water to groundwater irrigators in exchange for rights to that groundwater.

James Lochhead, a renowned Denver water lawyer, explains:

> When necessary, Nevada or MWD could later gain access to this "in-lieu" storage through a forbearance agreement whereby Arizona agreed to forbear, in the future, the use of an equal portion of its Colorado River entitlement to Nevada or MWD. This arrangement increased the use and financial feasibility of the CAP [Central Arizona Project], gave to Arizona farmers water at a cheaper price than their pumped groundwater, and created a storage water bank for Nevada and MWD. James Lochhead, *An Upper Basin Perspective On California's Claims To Water From The Colorado River Part Ii: The Development, Implementation And Collapse Of California's Plan To Live Within Its Basic Apportionment*, 6 U. Denv. W. L. Rev. 318, 344-345 (2003).

Although negotiations over CAP repayment obligations eventually broke down, the concept of developing a market for Arizona's unused entitlement became an important part of developing Arizona's groundwater bank. Arizona proposed to secure long-term supplies through groundwater storage credits, land fallowing, and interim contracts for excess CAP water. The water bank could then contract with other states for acquisition and storage, and transfers from the bank could be made through forbearance agreements. *Id.*

Negotiations on proposals to address shortages in the basin, particularly California's chronic overuse, continued for years. It was not until December 13, 2007, that Secretary of the Interior Dirk Kempthorne finally signed an agreement to implement a new strategy for Colorado River management. The decision adopts interim operational guidelines intended to provide a greater degree of certainty with respect to the amount of annual water deliveries in the face of diminished supplies — particularly in the Lower Division states — and to encourage and promote water conservation. See Record of Decision, *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead* (Dec. 13, 2007) - available online: www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf. Conservation measures under the agreement include: allowing water users to obtain future credit for conserving water and leaving it in Lake Mead; forbearance provisions that allow any party to agree to refrain from exercising its right to surplus Colorado River water; and provisions for cities to contract with farmers to temporarily fallow fields in dry years (Interior Press Release, supra note 101). The interim guidelines also provide that if the basin receives ample runoff at any given time, Interior will have rules in place to distribute the extra water, and set forth new operational rules for Lake Powell and Lake Mead to allow the two reservoirs to rise and fall in tandem, thereby better sharing the risk of drought. *Id.* These innovations are made possible by Article II(B)(6) of the Decree in *Arizona v. California*, 376 U.S. 340 (1963), which authorizes the Interior Secretary to deliver the unused entitlement of one Lower Division state in any one year for use in another Lower Division state. *Id.* at 343. See Consolidated Decree Art. II(B), 547 U.S. 150, 126 S.Ct. 1543, 1546 (2006), which allows the Secretary "to choose among the recognized methods of apportionment or to devise reasonable methods of his own." For an assessment of the new agreement, see Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Recent Basin States' Agreement and Beyond*, University of Nevada-Las Vegas, Oct. 12, 2007 (on file with author). Absent this provision, collaborative solutions involving forbearance agreements or water banking may not have been possible.

Trust-Busting: A Quick Diversion into Antitrust Principles

In addition to the Anti-Speculation Doctrine, antitrust rules designed to prevent monopolies can also have a chilling effect on water marketing. Although speculation and monopoly are often treated as twin themes, they are not the same thing. A monopoly entails super-concentrated market power, where the monopolist's control of so much of a resource enables it to depress supply or quality and to inflate price. Neuman, 28 Envtl. L 919, 964, citing Vernon A. Mund, *Monopoly: A History and Theory* 95, 100 (1933).

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In reality, monopolization of water has not been a significant concern in the West. There is no Wal-Mart, ExxonMobil, or General Electric of the water world. Instead, eighty percent of the water withdrawn from the West's surface water bodies is used for agriculture, and although concentration of ownership has grown in recent decades, the majority of agricultural water rights holders are still individuals or small corporations. *Id.* at 969, citing Western Water Policy Review Advisory Comm'n, *Water in the West: Challenge for the Next Century* 2-22 to 2-23 (1998). The remaining 20% of the water being used in the West is spread among millions of people, primarily urban dwellers. *Id.*

Collusion Potential

Individual appropriators can control large blocks of water — in some cases all of the water of a stream — as long as they enjoy a senior priority date and are actually using the water. Yet power over localized water resources by one or two farmers is not a monopoly in an economic sense. It does mean, however, that some streams are "held hostage to historic use patterns." *Id.* As water marketing opportunities grow, the potential for collusion and, consequently, antitrust concerns, grow as well. The Sherman Act prohibits agreements that restrain competition as well as predatory or anticompetitive conduct through attempts to monopolize, or through the acquisition and maintenance of monopoly power (15 U.S.C. §§ 1, 2). In addition to federal law, most states have antitrust statutes, often included in their Uniform Commercial Code. Sherman Act jurisdiction hinges on restraints that have a "not-insubstantial" impact on interstate commerce. *Pinhas v. Summit Health, Ltd*., 894 F.2d 1024, 1031-32 (9th Cir. 1989), aff'd, 500 U.S. 322 (1991). The restraint must also injure competition, which typically occurs when an agreement interferes with the setting of prices by market forces. *National Soc. of Professional Engineers v. United States*, 435 U.S. 679 (1978). See *FTC v. Ticor*, 504 U.S. 621, 639 (1992), where the US Supreme Court noted, "No antitrust offense is more pernicious than price fixing." Finally, injury must have resulted from a contract, combination, or conspiracy between separate entities; "unilateral action is not sufficient." Stuart L. Somach and Andrew M. Hitchings, *Antitrust Considerations in Water Marketing*, 11-FALL Nat. Resources & Env't 26, 29 (1996).

Controlling Groups

Existing patterns of water ownership may exacerbate the potential for anticompetitive behavior:

> The predominant historic use of water has been for agricultural purposes; however, the need has been shifting to uses urban in nature. Thus, the buyers and sellers are grouped in separate camps. The tendency has been for these camps to combine rather than compete. This is, in large part, due to the natural tendency of buyers and sellers to "control" the market to their benefit and the fear that they will be frozen out of the market without this control. Thus, the would-be sellers join together in an attempt to elevate prices, or the would-be buyers join together to hold prices down. Normal competition among and between buyers and sellers and the fostering of truly free markets is thereby frustrated.
>
> Another example of controlled markets exists if one considers the normal distribution of water in many arid states. In these situations, areas where water originates often have an advantage of supply over export areas. Again, there appears to be a tendency by those within the respective areas to combine to control the pricing of water.
>
> *Id.* at 67.

Antitrust Immunity

Certain types of antitrust immunity may apply to water marketing transactions, however, including: state action immunity; Noerr-Pennington immunity; and local governments immunity.

State Action Immunity

State Law

State action immunity has been applied to shield water transfers from antitrust liability in at least two circuits. *Kern-Tulare Water District v. City of Bakersfield*, 828 F.2d 514 (9th Cir. 1987), cert.denied, 486 U.S. 1015 (1988). See also *McCallum v. Athens*, 976 F.2d 649 (11th Cir. 1992) which held that state action immunity protected the city from antitrust liability for its allegedly anticompetitive operation of waterworks. In *Kern-Tulare*, the Ninth Circuit assessed a challenge to a contract that gave the city a right to veto the district's subsequent sale of water purchased from the city (828 F.2d at 514). The district brought suit when the city refused to approve the district's sale of surplus water. The court concluded that state law evidenced a "clearly articulated and affirmatively expressed state policy to displace competition with regulation in the area of municipal control over water and water rights, as long as the municipality does not engage in waste or unreasonable use." *Id.* Accordingly, state legislatures can impact the scope of the immunity available under the state action doctrine by legislation regarding the degree of state regulatory authority over water resources. See Somach and Hitchings, *supra* at 29; and the decision in *McCallum*, rejecting consumers' claim against the city for its allegedly anticompetitive operation of waterworks where Georgia's municipal statutes specifically authorized cities to provide waterworks service and to determine areas to be served.

Water Speculation

Lobbying

Noerr-Pennington Immunity

Noerr-Pennington immunity allows private individuals to seek favorable anticompetitive treatment from legislative bodies, administrative agencies, and the courts (Somach and Hitchings, *supra* at 29). This doctrine protects the constitutional right to petition the government, and it permits lobbying efforts that may harm competitors so long as the lobbying efforts are expected to result in lawful government action. *Hedgecock v. Blackwell Land Co*., 52 F.3d 333 (9th Cir.), cert. denied, 516 U.S. 862 (1995). See also *Davric Maine Corp. v. Rancourt*, 216 F.3d. 143 (1st Cir. 2000) where lobbying for legitimate government purposes was found to be immune from antitrust suits. This form of immunity has come up in a water case in the Ninth Circuit, which held that landowners, when acting through their water district, are immune from antitrust liability if they lawfully seek to influence their water district's decisions, for example, by electing board representatives sympathetic to their position or lobbying board members. *Hedgecock*, 52 F.3d at 333.

Local Government Actions

Local Governments Immunity

Finally, the Local Government Antitrust Act of 1984 protects "local governments," a term that would likely include most public water agencies from antitrust liability (15 U.S.C. §§ 34-36). Normally, the anti-trust laws authorize "any person...injured in his business or property...[to] recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee." (15 U.S.C. § 15(a)). Unfortunately for a person injured by a local government, the Local Government Antitrust Act specifically states that "no damages, interest on damages, costs, or attorney's fees may be recovered…from any local government, or official or employee thereof acting in an official capacity." (15 U.S.C. § 35(a)). It also precludes such remedies "in any claim against a person based on any official action directed by a local government, or official or employee thereof acting in an official capacity." (15 U.S.C. § 36(a)). In championing these provisions, congressional members argued that government action raises unique considerations.

Governmental Decisions

Representative Hyde stated at 130 Cong. Rec. H. 12183 (1984):

> When you move over to governmental decisions, then the competitive factor is not relevant, really, or far less relevant than environmental considerations, health considerations, safety considerations, and a whole panoply of issues that a governmental body must take into consideration in its judgments allocating contracts, access to sewer lines, zoning, and things like that...So it is clear that the antitrust laws ought to be inapplicable...in their most harsh aspect and that is treble damages for governmental decisions. The problem is governments make decisions...based on their best judgment on a range of considerations that are not contemplated by antitrust laws. So the antitrust law is a square peg trying to be forced into a round hole of government operation. This remedy [of immunity] is very much needed.

Immunity Rationale

Senator Moynihan added that antitrust suits filed against local governments were having a "paralyzing effect on decisionmaking" so that immunity was needed to "balance the need of local governments to provide essential services — without the fear of lawsuits — and the right of aggrieved parties to seek injunctive relief against cities." *Id.* at S. 14367.

As a result of these immunity provisions, water marketing transactions may evade antitrust liability, particularly when governmental entities are market participants, absent outright price-fixing or other serious misconduct.

Exorcising the Ghost of Nova

Covert Speculation

The requirement that water rights be put to an actual, non-speculative use has served as a universal principle of international water law. See Miguel Solanes and Fernando Gonzalez-Villarreal, *The Dublin Principles for Water As Reflected in a Comparitive Assessment of Institutional and Legal Arrangements for Integrated Water Resources Management* ¶17 (June 1999), available at: www.africanwater.org/SolanesDublin.html. Even so, critics have lobbed several meritorious charges at the anti-speculation rule.

Waste Result

First, it may have the perverse consequence of fostering covert speculation. In other words, prohibiting water rights holders from reserving water for future use "merely force[s] the would-be speculator to disguise his activity by wasting resources in the construction of diversion works that are either economically unjustifiable regardless of their timing, or premature." Neuman, 28 Envtl. L 919, 968, quoting Stephen F. Williams, *The Requirement of Beneficial Use as a Cause of Waste in Water Resource Development*, 23 Nat. Resources J. 7, 13 (1983). Although it is difficult if not impossible to trace whether covert speculation is occurring and, if so, how often and on what scale, it seems unlikely that a large number of individuals are intentionally irrigating their land for the sole purpose of selling off their water rights at a later date. Neuman, 28 Envtl. L 919, 969. It is true that the prior appropriation system encourages irrigators and other water users to err on the side of using too much, because the penalty for

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Transaction Costs

Chilean Example

Taxing Unused Water

Free Market Benefits?

Oversight Need

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nonuse is loss of the water (e.g., Neb. Rev. Stat. §§ 46-290, 46-294). That is a far cry from constructing diversion works and applying the water to a use with no economic benefit, such as a crop with no subsistence value and no market, just to hold on to the water for future sale.

A second criticism is that anti-speculation rules prevent rational planning for anticipated future growth. The prevalence of municipal exceptions described above, however, undermines this argument, as does a recent survey by researchers at the University of Arizona and the Bren School of Environmental Management. This survey found that nearly half of all transfers in the West occurred in the state with the reputation for having the most stringent anti-speculation laws — Colorado. Brewer, et al., *Transferring Water in the American West: 1987-2005*, 40 U. Mich. J.L. Reform 1021, 1043 (2007). Much of the water being transferred involves the Colorado-Big Thompson Project, a mutual water company that facilitates a trans-basin diversion of water from the West Slope to the Front Range. As "developed" water, it is subject to the complete control of the company. Another important feature of the Colorado-Big Thompson project involves the use of shares to represent members' interests to water, which in turn allows an active market for the shares by minimizing transaction costs. *Id.*

Other critics point to recent international trends toward privatization of resources. The experiences of South America, however, indicate that privatization schemes should be approached with a good deal of caution. Provisions that allowed privatization of water in Bolivia triggered public outcry and subsequent reforms (Salzman, *supra*). Chile did away with its anti-speculation prohibition in its 1981 Water Code as a component of broad government reforms toward a market-oriented economic policy. See Carl J. Bauer, *Siren Song: Chilean Water Law as a Model for International Reform* (2004). The Code granted an unconditional private water right that allowed owners to freely change their types of water use without government approval. Water rights holders were not required to actually use the water nor were they charged a fee for the concessions. Rutgerd Boelens and Hugo de Vos, *Water Law and Indigenous Rights in the Andes*, 29 Cultural Survival Quarterly 4 (2006), available at: www.cs.org/publications/Csq/csq-article.cfm?id=1867. As a result, hydropower projects belonging to a single corporation purchased vast quantities of water rights on a speculative basis, locking new entrepreneurs out of the power market and making water unavailable for actual, beneficial uses (Solanes, et al. *supra* at ¶ 18, ¶ 110). The Water Code also spawned confrontations between indigenous peoples and the government over indigenous lands and water resources. The Pangue-Ralco Project, an ambitious hydroelectric development plan approved by the Chilean government in 1989 in the upper Bio Bio River area on traditional Mapuche lands, is described in Lila Barrera-Hernánde's article, *Indigenous Peoples, Human Rights and Natural Resource Development: Chile's Mapuche Peoples and the Right to Water*, 11 Ann. Surv. Int'l & Comp.L.1, 13-14 (2005). In 2005, Chile amended its Water Code and imposed a new annual tax on unused water rights. As a consequence, owners have been induced to sell their unused water rights to avoid paying the annual license, creating substantial activity in water rights transactions. Chile's experimentation with rescinding its anti-speculation provision indicates that the requirement has continuing value and should not be cavalierly discarded. See Grunstein, et al., *International Legal Developments in Review: 2006 Energy and Natural Resources*, 41 Int'l Law. 491, 505 (2007), citing Title XI of the Chilean Water Code; Stephen Hodgson, *Modern Water Rights: Theory and Practice*, FAO Legislative Study # 92, 66 (2006), available at ftp://ftp.fao.org/docrep/fao/010/a0864e/a0864e00.pdf.

Finally, proponents of opening water markets to speculative transfers argue that existing laws governing water transfers can address any potential harm to other appropriators and third parties. If water moves to the highest and best use, everyone stands to benefit — so the argument goes. The question, then, is whether free market principles should be allowed to take their course, allowing speculative transfers if the benefits exceed the costs, or whether other legal reforms may be appropriate.

There is still a strong sense that speculation in water is just plain wrong, perhaps because so many people and ecological communities depend on it. Neuman, 28 Envtl. L 919, 974. Thus, to the extent that society envisions water marketing as a significant tool to reallocate water use, federal, state, and local governments must continue to play a significant role in overseeing water transfers — speculative and otherwise — to ensure that the interests of affected third parties are protected. Glennon, *supra* at 1902.

Giving increased priority to conservation measures might go a long way toward alleviating the concerns about speculative water transfers for future, unspecified uses. San Diego, which is water-limited both by geography and its limited Colorado River entitlement, may serve as an example. Concerning San Diego water planning:

> The city has linked water supply and growth as part of its ongoing growth management program with a six-part strategy. In the future, in addition to possible water transfers from the embattled and divided fiefdom known as the Imperial Irrigation District, San Diego will depend on a combination of: (1) more efficient use of existing supplies; (2) demand management; (3) reallocation of existing

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supplies through water marketing; (4) more limited new storage and distribution facilities; (5) desalination; and (6) greater conjunctive surface and groundwater use. This strategy has allowed it to add some 300,000 new residents since 1990 without increasingly its water use during that period. Tarlock and Van Wetering, *supra* at 61, citing, inter alia, San Diego County Water Authority, *2005 Urban Water Management Plan*, available at: www.sdcwa.org/manage/pdf/2005UWMP/FinalDraft2005UWMP.pdf (Dec. 2005).

Restricted Development

The City of Santa Fe has followed suit by developing innovative conservation measures and by making water availability a key determinant of future growth. The city first restricted new water connections outside city limits absent a valid, preexisting agreement for water service. Next, all new projects within the city were required to offset their water usage by retrofitting existing toilets with high-efficiency units. Finally, an ordinance adopted in 2005 requires new, large construction projects to transfer water rights to the city prior to receiving building permits. *Id.* at 65. See Julie Ann Grimm, *County Wades Into Long-Range Planning for Water Allocation*, The New Mexican, Mar. 1, 2006, at A1.

Updating Benefits

At least one thing seems clear. Statutory expressions of beneficial use have changed and will continue to evolve over time to reflect changed social values and new scientific understanding. Neuman, 28 Envtl. L 919, 924. Beneficial use, and the related anti-speculation doctrine, "must expressly come to mean beneficial by the standard of today's culture, not by the standards of some culture longeclipsed by changing values and circumstances." Eric T. Freyfogle, *Water Rights and the Common Wealth*, 26 Envtl. L. 27, 42 (1996).

Epilogue

"Total Protonic Reversal"

Dr. Venkman and his ghost-busting team eventually realized that the gateway to Hell swung both ways, into and out of New York City. When the Ghostbusters crossed their proton streams and fired at the portal, they succeeded in causing "total protonic reversal," destroying the portal and saving New York City from the clutches of Zuul and her demonic boss, Gozer-the-Destructor. Paranormal activity resumed normal levels, making a lucrative but manageable business portfolio for the Ghostbusters. Happy endings for all... but, of course, one can safely speculate that there may be a sequel or two. According to Ghostbuster Ray Stantz, Zuul's return wasn't entirely random, but rather "Nature's way of telling us to slow down. You have to admit it's kind of humbling, isn't it?" Harold Ramis and Dan Aykroyd, Ghostbusters, Final Shooting Script, Oct. 7, 1983, at: www.awesomefilm.com/script/Ghostbusters.txt.

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Forest Roads

Funding

Legacy Roads

500.000 Miles

Sediment Delivery

Chronic Effects

Funding Shortfalls

FOREST SERVICE LEGACY ROADS

NEW REMEDIATION INITIATIVE RENEWS FOCUS

by Mary Scurlock, Pacific Rivers Council & Gina Ottoboni, Washington Watershed Restoration Initiative

SYNOPSIS

The 2008 US Department of Agriculture Forest Service (USFS) Congressional appropriation included $40 million for the "Legacy Roads and Trails Remediation Initiative" — which was created to combat the widespread problem of failing USFS roads and the damage they do to fish, wildlife habitat, and water quality. Effective remedies for forest road-related threats to freshwater ecosystems are well established but have been chronically under-funded. The Initiative, however welcome, falls far short of adequacy. Continued under-funding will inevitably exacerbate environmental damage and thus greatly increase total remediation costs. Growing awareness and successful advocacy gives us reason to hope.

FOREST ROADS' IMPACTS TO AQUATIC ECOSYSTEMS

Legacy forest roads have numerous widespread, pervasive and — if left untreated — long-lasting biological and physical impacts on aquatic ecosystems that continue long after initial construction. [Angermeier et al. - 2004] These roads increase surface water flow, alter runoff patterns, alter streamflow patterns and hydrology, and increase sedimentation and turbidity. They can also deliver chemical pollutants to streams where such chemicals are a by-product of road use. Road crossings can become barriers to movement for fish and other aquatic organisms, disrupting migration and reducing population viability at multiple scales. [Schlosser and Angermeier, 1995] In most cases, these adverse effects are persistent and cannot be alleviated without human intervention.

Roads are widely recognized as a risk to aquatic ecosystems on both publicly and privately managed lands. [Gucinski et al. - 2001; Trombulak and Frissell, 2000] Nationwide, roads contribute more sediment to streams than any other land management activity [USFS, 2001]. Forest roads are the main source of sediment to water bodies from forestry operations. [US Environmental Protection Agency (EPA), 2002]

USFS forest lands include over 500,000 miles of roads — i.e. more road mileage than the entire federal Interstate Highway System. Many of these roads have far exceeded their lifespan and now crumble into streams and rivers, degrading fish habitat and muddying what should be clean water. These roads are the legacy of past forest policies that emphasized logging at the expense of ecosystem services. Many of them were built in the post-World War II era and do not reflect current engineering standards. They crisscross our national forest lands in ways that threaten the integrity of forest habitats and serve as conduits for sediment that clogs streambeds.

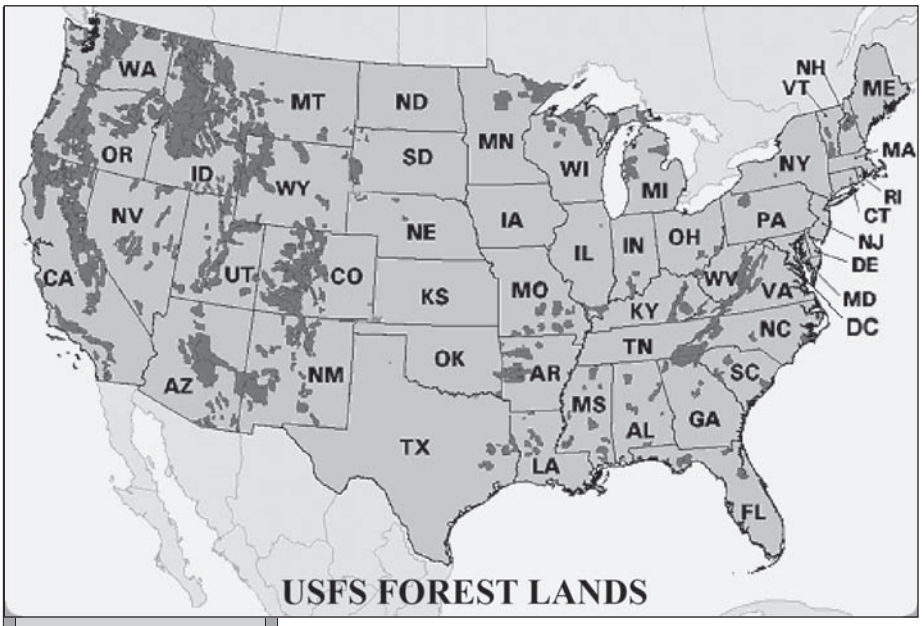
ROAD IMPACTS CAN BE REDUCED

Three basic categories of geomorphic processes are responsible for most sediment delivery to streams from surrounding out-of-stream areas: (1) chronic surface erosion from exposed soil areas; (2) fluvial (water flow) erosion, including gully and stream channel erosion; and (3) episodic mass wasting or landsliding.

The good news is that techniques for remediation of these road-related sediment delivery risks are well-established, agreed upon, and readily available. [Weaver et al. - 2006] Because the highest volumes of sediment are delivered to streams through mass wasting events (e.g. failed road crossings that trigger landslides), many road stabilization programs tend to focus almost entirely on these types of high-risk sites. However, it is important to recognize that because the cumulative effects of low levels of chronic sediment inputs are significant over time and space these "low levels" are equally detrimental to sensitive aquatic biota. One study documented that 28% of sediment production was produced in small amounts from 513 of 515 culverts and 72% in landslides from the remaining two sites. [Piehl et al. - 1988] This means that the most effective strategy is to take a watershed-wide approach to sediment reduction — particularly in high-value watersheds.

FUNDING NEED VERSUS BUDGET REALITY

As the USFS budget has been cut — particularly in the past ten years — so, too, has that portion of the budget dedicated to road maintenance and decommissioning, and to the removal, maintenance and/or improvement of associated culverts for passage of fish and other aquatic organisms. The dollar-size of the problem now stands at approximately $10 billion nationwide. Much of the problem is concentrated in the West where federal lands are more prevalent.



Forest Roads

For example, the USFS estimates that in Washington and Oregon alone (USFS Region 6), it would cost $1.3 billion to do needed road and culvert work. With an allotment of only $3 million a year for this under current budgets, Region 6 is one billion dollars short every year. And unfortunately, like interest, road damage compounds with each passing season.

The problem of deteriorating USFS roads is particularly dramatic in the Pacific Northwest due to the large amount of precipitation the region receives. Climate change will further challenge the integrity of this road network. A regional model now predicts that although average annual rainfall will not change significantly, winter rainfall will increase and intensify. The model also predicts a shift of the snow zone, which could contribute to flooding when heavy rain and warm temperatures occur during periods of snow accumulation. In recent years, severe winter storms have already accelerated the damage to stream habitat from legacy roads. In 2003, 2006, and 2007, heavy rainfall and high winds inflicted damage across the region and on USFS lands. [Tebaldi et al. - In Press; and Yoram et al. - 2006] The intense storms of November 2006 and December 2007 showed that poorly maintained USFS lands in the State of Washington suffered more than $40 million in road damage (see Climate Impact Group website: http://cses.washington.edu/cig/fpt/ccscenarios.shtml).

USFS Report

Fortunately, federal land managers have increasingly recognized roads for the ecological and fiscal problems they pose. A USFS report found that "construction of high density and insufficiently maintained road networks poses severe problems and risks for forest resources" and that watershed restoration requires "decommissioning and obliterating non-critical road systems." [USFS, 2003]

Ecological Integrity

The large-scale analysis of USFS and US Department of the Interior Bureau of Land Management (BLM) lands in the interior Columbia Basin found a strong association between moderate to low or zero road densities, and several measures of ecological integrity. [Quigley et al. - 1997] A related study specifically found that increasing road densities and their accompanying effects were associated with declines in anadromous fishes, and that areas with high road density were far less likely to contain strong fish populations. [Lee et al, . - 1997]

Costs & Backlog

It is estimated that at least $120 million is needed to decommission roads on USFS lands nationwide just to achieve minimum water quality needs. [EPA, 2001] For roads that cannot be decommissioned, regular maintenance is often critical to minimizing impacts on freshwater ecosystems — but this cannot be accomplished under existing budgets. The costs associated with the current USFS road maintenance backlog are estimated to be from $4.1 billion up to $10 billion (the latter amount includes annual road and bridge maintenance, deferred maintenance, capital improvements, indirect agency costs and program management costs). [Taxpayers for Common Sense, 2004]

LEGAL & POLICY FRAMEWORKS SUPPORTING ROAD REMEDIATION

Policy Progress

Significant policy-level progress has been made in recognizing the ecological impacts of roads on federally managed lands over the last decade. Road-related watershed restoration has been specifically identified in several national and regional federal policies as a high priority for aquatic conservation on federal lands. Chief among these are: the Northwest Forest Plan (applicable to Pacific Northwest USFS and BLM lands); the Clinton Administration's Roadless Area Conservation Rule and Roads Analysis guidance (applicable to the Forest Service nationwide); and two regional interim aquatic conservation policies covering the Interior Columbia Basin known as "Pacfish" and "Infish." These specific policies are products of the broader statutory directives that guide federal lands management, including the National Forest Management Act (NFMA) for the Forest Service and the Federal Lands Management and Planning Act (FLPMA) for the BLM. Arguably, however, the clearest mandates for road-related watershed restoration derive from the federal Clean Water and Endangered Species Acts — which apply to all US lands. These and other significant policy initiatives will now be briefly described.

Federal Policies

Forest Roads "Key Watersheds"

Restoration Components

The Northwest Forest Plan

The regional Northwest Forest Plan (Plan) requires that reducing road impacts on watershed function be a high priority on federal lands in western Washington, Oregon and Northern California. The Plan also limits new road construction by prohibiting a net increase in road density in "Key Watersheds" identified as part of the plan's Aquatic Conservation Strategy (ACS).

The ACS recognizes that the most important components of watershed restoration include "control and restoration of road-related runoff and sediment production" and that "watershed restoration is designed to address past disturbances by treating roads (decommissioning, upgrading, modifying drainage, etc.)." [Plan Record of Decision at 10 and 73] One of the nine ACS objectives is to "maintain and restore the sediment regime under which aquatic ecosystems evolved" (*Id.* at B-11). This objective can only be accomplished if the federal land managers make road restoration a priority and maintain not only roads used for timber haul, but the entire road system. It will also be necessary to monitor roads after work is completed to ensure that adverse effects are fully minimized.

Available monitoring data compiled to describe "watershed condition scores" from 1994-2003 indicate that, as intended, watershed conditions are generally improving under the ACS, but that "condition scores of watersheds influenced by roads…generally did not change." [Reeves et al. - 2005] Although improvements are primarily attributed to riparian vegetation improvements, it is noted that "watersheds with condition scores that increased had the most extensive road-decommissioning efforts."

Decommissions

It is estimated that 5360 kilometers (km) of roads (3.6% of the estimated total length) were decommissioned or closed on national forests in the Plan area. In addition, 570 km of new roads were constructed and 5000 km were "improved" in terms of reduced sediment delivery, increased stability, and restored stream/floodplain interaction. However, watershed health benefits proved negligible. Reasons identified (by Reeves et al) for why this work did not translate into improved watershed conditions included:

Negligible Benefits

- current models of watershed condition could not account for road improvements because data were not available on such improvements, and;
- the length of road removed in any given watershed was insufficient to improve the condition scores, or roads were removed from areas less connected to streams, like ridgetops and non-riparian areas.

An anecdotal look at roads work in the Plan area confirms that only a fraction of needed roads work has taken place since 1993. For example, in the Five Rivers watershed of the Alsea Basin in Oregon, the USFS and its partners have completed only about one-third of the projects detailed in the landscape management plan for the area, and other watersheds in the Alsea have received far less attention. It is projected that over $14.4 million dollars are still needed for high priority work in the Alsea Basin alone. [Bahls, 2004]

CALIFORNIA SALMONID STREAM HABITAT RESTORATION MANUAL

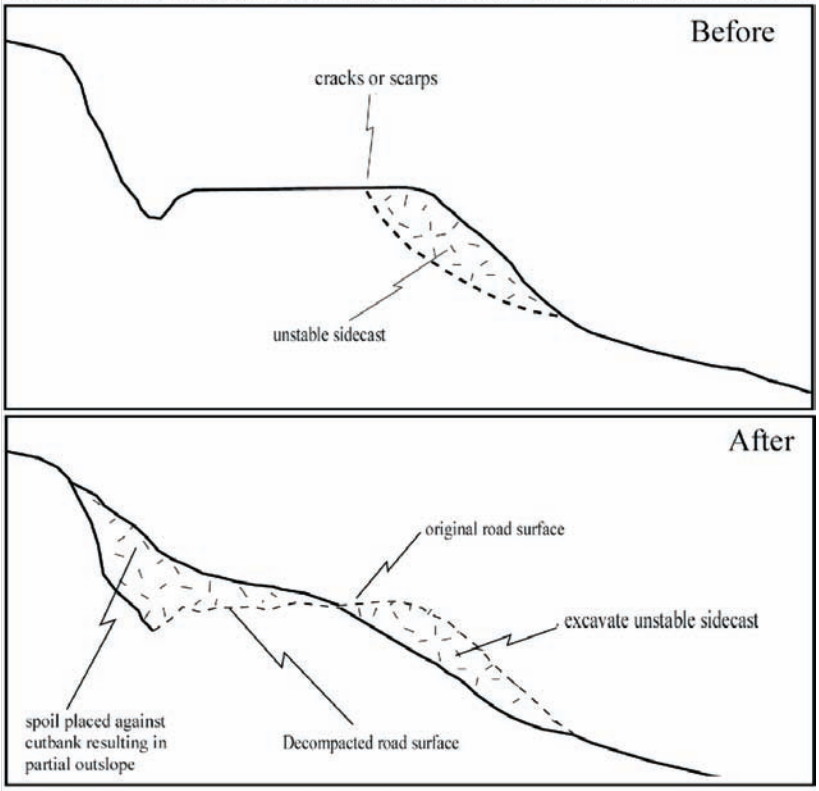


Figure X-11. Partial outsloping for road decommissioning.

UPSLOPE EROSION INVENTORY AND SEDIMENT CONTROL GUIDANCE X-57 March 2006

USFS Roads Policy

The Roads Analysis requirement is a key element of the 2001 USFS Roads Policy. [USFS, 1999] This Policy states that the USFS is to "provide sustainable access in a fiscally responsible manner to National Forests System lands," and must "manage a forest transportation system with the environmental capabilities of the land." As of January 12, 2003, all National Forests were required to have submitted a forest-level Roads Analysis that examined each individual Forest's road network from a number of perspectives, including: recreational value; resource management; ecological damage; and social/cultural benefits. While the Roads Analysis itself does not mandate site-specific decisions, it provides a framework for informing all future project decisions where road-building is required, and identifies roads that are candidates for closure, reconstruction, or decommissioning based on fiscal and ecological concerns.

Forest Roads

Riparian Habitat

Regional Interim Direction for Salmon and Trout in Interior Columbia Basin — Pacfish and Infish

Pertaining to eastern Oregon and Washington, western Montana, Idaho and portions of California, "Pacfish" (USFS/BLM, 1995) and "Infish" (USFS, 1995) were spurred into being by the listing of Snake River salmon and the proposed listing of bull trout — both wide-ranging species with a majority of their remaining freshwater habitat on federal lands. These policies delineated substantial riparian habitat conservation areas for all streams and established management standards pertaining to roads within these areas and within Priority Watersheds. For example, "watershed analysis" was required prior to any road-building activity in riparian areas, and measures to avoid sediment delivery were identified (e.g. outsloping (see figure, previous page) and prohibiting sidecast in riparian areas of priority watersheds). Road and Transportation plans were also required in priority watersheds — where road density was intended to be reduced if it exceeded two miles per square mile.

These policies included roads management standards for closing, stabilizing and obliterating roads that threaten fish habitat and riparian resources. They also included requirements for improvement of stream crossings that pose "substantial risk to riparian conditions," and "retard or prevent attainment" of specified riparian management objectives. Originally intended to apply for less than two years, these polices still provide the foundational management standards in large portions of the West, although this direction is slowly being superceded by new forest plans and biological opinions.

Roads & Aquatic Integrity

Interior Columbia Basin Ecosystem Assessment

FINDINGS, REGIONAL STRATEGY & IMPLEMENTING THE MEMORANDUM OF UNDERSTANDING

When the Pacfish and Infish Strategies were drafted, the USFS believed that long-term management direction based upon a regional assessment of Interior Columbia River Basin by USFS and BLM would replace these policies. President Clinton had directed these agencies to develop a scientifically based ecosystem management strategy for these areas in 1993, and the agencies responded by creating the Interior Columbia Basin Ecosystem Management Project. [USDA/BLM, 1997]

As a part of this project, a regional scientific assessment was prepared in 1996. The assessment found a high correlation between unroaded and lightly roaded areas and aquatic integrity, providing direct support for the protection of these areas as a high ecological priority. *See e.g*. Map of Aquatic Strongholds and Areas of Very Low Road Densities and Charts Illustrating Proportion of Strong Fish Populations v. Road Density Class, Lee et al. *Broadscale Assessment of Aquatic Species and Habitats* (1997)

Management Plans

Although no ecosystem strategy was ever agreed upon, and no regional roads standards were implemented based on the Interior Columbia Basin assessment, a 2003 interagency strategy did agree that federal lands plans would address the following principle related to roads:

> "Roads have significantly modified the aquatic and terrestrial resources in the Basin and continue to affect fish, wildlife, water quality, and stream and wetland processes. Roads are also important in many areas for providing public access and for accomplishing numerous management objectives, including restoration. Forest Service and BLM management plans need to provide direction for minimizing road related impacts to water quality, fisheries, and wildlife. The management plans also need to identify the road network that is needed for public and tribal needs, and land management access, which can be adequately maintained with agency budgets and capabilities." [USFS, BLM, US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), & EPA, 2003]

Watershed Analysis

Federal Lands Biological Opinions on Salmon and Trout under the ESA

A number of influential biological opinions related to forest plans affecting salmon, steelhead and bull trout (which migrate across wide areas) established specific road management objectives to be achieved through watershed analysis. These opinions required watershed analysis to serve as the "primary process for integrating and interpreting amended road information, inventories and other potential information," (NMFS, Salmon and Steelhead BO, 1998), and to address "the design and prioritization of . . . culvert replacement upgrades and road decommissioning actions." [USFWS, 1998]

Plan Provisions

Recent Forest Plans Outside the Northwest Forest Plan Area

As a result of the recent national and regional policy developments focusing on the ecological impacts of roads, they are being dealt with more explicitly in forest plans than in the past, even outside the Northwest Forest Plan area. For example, the plans for the Southwest Idaho Ecogroup of National Forests — the Boise, Payette and Sawtooth Forest Plans — contain provisions for: (1) a land classification which maintains roadless or undeveloped acres and which allows road construction and reconstruction only where needed to access reserved or outstanding rights to satisfy a statute or treaty; and (2) emphasis areas where treatment of road related impacts on watershed health are stated to be a priority.

Forest Roads

CWA Provisions

State Water Quality Programs under the Federal Clean Water Act

Congress enacted the Clean Water Act (CWA) in 1972 to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," thereby declaring a national goal of eliminating discharges of pollutants to navigable waters by 1985. 33 U.S.C. §1251(a). The CWA requires states to set minimum water quality standards and to create federally acceptable strategies to meet them.

Water quality standards are composed of statutes and administrative rules adopted by states that must include: (1) designated beneficial uses; (2) water quality criteria; and (3) "antidegradation" provisions. Attention to all three components is necessary for the CWA to function as intended.

Figure X-D-13. Site # 11, 1305 Road, before excavation. This picture was taken 30 feet above the top of the stream crossing and along the left bank, looking downstream. The stream crossing has been brushed out and is ready to be excavated. A large "Humboldt" log is visible just left of the mossy alder tree in the right-center portion of the picture (see arrow).

Figure X-D-14. Site #11, 1305 Road, after excavation. This picture was taken from the same viewpoint asX-D-13. The stream crossing has been excavated, mulched and seeded. See same view below after heavy rainfall (Figure X-D-15).

Figure X-D-15. Site # 11, 1305 Road, after excavation. This picture was taken from the same viewpoint as above (Figure X-D-13 and Figure X-D-14) during a heavy rainfall event. Note the stream channel bed has developed a self armoring "lag" deposit during the first season's rainfall. Redwood Creek is in the background.

Adapted from: *Upslope Erosion Inventory and Sediment Control Guidance,* California Department of Fish and Game (March 2006)

States identify and designate "beneficial uses," which in turn guide the establishment of narrative criteria (e.g. bottom deposits deleterious to aquatic life) or numeric criteria (e.g. percent dissolved oxygen) that characterize how the quality of these water bodies will be assessed and measured. The CWA intends to fully protect beneficial uses, so that if attainment of specific criteria does not in fact allow for the unimpaired beneficial use, the criteria may be deemed inadequate. An "antidegradation" provision is intended to minimize degradation of existing levels of water quality, particularly where minimum criteria are exceeded, i.e. in "high quality" or "outstanding" water bodies.

Typical beneficial uses threatened by roads include: fishing; aquatic life; public or private drinking water supply; water contact recreation; salmonid spawning or rearing; and aesthetic quality.

Water quality criteria that reflect roads impacts include:

Turbidity — e.g. in Oregon, turbidity increases are limited to 10% over "background" in **n**ephelometric **t**urbidity **u**nits (NTUs — which measure translucence to indicate the level of cloudiness)

Sedimentation — e.g. Oregon's numeric "intergravel dissolved oxygen" standard and a narrative standard prohibiting "the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life"

Temperature — typically a maximum allowable temperature based on a "seven-day moving average maximum"

Pursuant to federal law, state programs to control polluting activities differ as between "point" sources (typically end-of-pipe) and "nonpoint" (diffuse) sources — with point sources having a stringent permitting requirement. Section 301(a) of the CWA, 33 U.S.C. §1311(a), prohibits the discharge of pollutants from point sources to navigable waters of the United States unless such discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to Section 402 of the CWA, 33 U.S.C. §1342. Additionally, EPA regulations require NPDES permits for stormwater discharges associated with industrial activity such as logging. 40 C.F.R. 122.26.

The prevailing practice is for states to consider discharges from forest roads to be "exempt" from the CWA's permitting requirements. However, there is a strong argument that owners and operators of forest roads should obtain discharge permits because they discharge pollutants from point sources along logging roads to navigable waters of the United States and the road runoff is stormwater associated with industrial activity. *Env. Prot. Info. Ctr. v. Pac. Lumber Co.*, 301 F.Supp.2d 1102 (N.D. Cal., 2004) (holding that conduits channeling water from logging roads are point sources); *but see Northwest Envtl Def. Ctr. V. Brown,* 06-1270 (D. Or, March 1, 2006) (dismissed without reaching the issue of whether the roads discharge stormwater associated with an industrial activity, under appeal). A permit requirement would make roads managers accountable for monitoring and reporting of roads discharges.

Forest Roads

ESA Protection

Endangered Species Act: "take" and "jeopardy" prohibitions; habitat conservation plans.

The Endangered Species Act (ESA) provides protection to listed species from harm caused by roads by prohibiting "take" of and "jeopardy" to protected species. ESA Section 9 prohibits all activities that cause a "take" of an endangered species, and regulations extend this prohibition to some threatened species. 16 U.S.C. § 1538(a)(1)(B),1533(d). To "take" is defined in the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. §1532(19). Habitat modification and degradation may cause a take in violation of section 9. 50 C.F.R. § 222.102.

ESA Section 7 prohibits federal agencies from authorizing or itself taking actions that are "likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [designated critical] habitat." 16 U.S.C. § 1536(a)(2).

Jeopardy is defined as any action "that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the species in the wild by reducing the reproduction numbers, or distribution of that species." 50 C.F.R. § 402.02

Incidental Take

Private landowners who may cause incidental take through road construction and use can avoid ESA liability by preparing a Habitat Conservation Plan (HCP) and obtaining an incidental take permit. NMFS or USFWS may only issue an incidental take permit for an HCP if the approving agency finds, among other things, that the impacts of take will be minimized and mitigated and that the taking will not appreciably reduce the likelihood of survival and recovery of the [covered] species in the wild. 16 U.S.C. § 1539(a)(2).

Guidance developed by NMFS or USFWS while meeting their ESA-consultation obligations explicitly addresses forest roads' impacts. For example, current NMFS guidance recognizes a series of indicators that relate directly to the impacts of roads on salmonids.

Road Impact Indicators

NMFS guidance on road-impact indicators include:

Density: "properly functioning" characterized as less than one linear mile of road per square mile of area for bull trout watersheds and < two miles/mile^2 for salmon and steelhead watersheds

Location: existence and extent of valley bottom roads are deemed relevant to proper watershed function

Increase in Drainage Network: "properly functioning" defined as zero or minimum increases in active channel length correlated with human caused disturbance (e.g. trails, roadside ditches, compaction, impervious surfaces etc.)

Change in Peak/Base Flows: "watershed hydrograph indicates peak flow, base flow, and flow timing characteristics comparable to an undisturbed watershed of similar size, geology and geography"

Floodplain Connectivity: channel should be able to interact with floodplain at higher flows

Substrate Character and Embeddedness: the goal is for gravels/cobbles to have clear interstitial spaces and stream-reach embeddedness of less than 20%.

Physical Barriers: human-made barriers present in watershed should allow upstream and downstream fish passage at all flows

Turbidity: NTU measurement is the preferred indicator with "low" values desired

Suspended Sediment, Intergravel Dissolved Oxygen [USFS, NMFS, BLM, USFWS, 2004]

WASHINGTON STATE & THE LEGACY ROADS AND TRAILS REMEDIATION INITIATIVE

Washington State Agreement

Washington State shares the problem of failing USFS roads with many other western states. Out of more than 22,000 miles of such roads, less than 20 percent are being addressed (and many only inadequately). However, Washington has negotiated a unique agreement with USFS that is far more specific than similar agreements in other states. In Washington, USFS has made explicit commitments under the CWA to bring its roads up to minimum standards within a specified timeline.

Washington Forest Practices

The Washington State Department of Ecology (Ecology) is federally delegated to implement the CWA. In addition, Ecology has a long-term relationship with USFS regarding water pollution from forest management practices. Washington's forest practices rules governing most private and state lands aim to prevent harm to water quality and salmon. These rules (WAC 222-24-051) preserve trees in streamside areas to provide shade, keep waters cool, and provide the woody debris that builds in-stream salmon habitat. They also require road construction and maintenance to help prevent stream siltation and road runoff. The State's forest practices rules also require improvements for passage of fish. Under the Memorandum of Agreement (MOA) signed in 2000 between Ecology and USFS, these same forest practice rules govern national forests. The agreement requires an inventory of USFS roads and sets a timeline to improve them enough to prevent harm from polluted water and excess sediment (see Ecology website: www.ecy.wa.gov/pubs/0010048.pdf).

Washington's MOA with USFS has helped to foster a unique partnership in the State. Conservation, recreation and fishing groups, long-concerned with the deterioration of roads and water quality resulting from federal forest management policies, reached out to the State in an effort to combat the problem.

Forest Roads

Coalition Efforts

Together, they formed a coalition — the Washington Watershed Restoration Initiative — whose mission is to reestablish and maintain healthy aquatic and forest ecosystems in Washington's national forests through maintenance, repair, and reclamation of forest roads and fish culverts. Accomplishing these goals, however, requires finding the funds for road work that the USFS lacks. The coalition has been working over the past two years to educate the congressional delegation and supportive constituencies in support of increased federal funding for road-related watershed restoration. One result is the Legacy Roads and Trails Remediation Initiative (LRRI) with a 2008 budget of $40 million.

US Representative Norm Dicks represents Washington State's 6th District — which includes the heavily forested Olympic Peninsula and the only temperate rainforest in the contiguous US. The Peninsula is home to the Olympic National Park and Olympic National Forest and attracts visitors worldwide. Rep. Dicks is one of Congress' senior members and is also the chairman of the House Appropriations Subcommittee on Interior, Environment, and Related Agencies.

The legacy of failing logging roads impacts the Olympic Peninsula. In December 2007, a single storm caused $5 million of damage to the roads of Olympic National Forest alone. In the spring of 2007, with support from the Washington Watershed Restoration Initiative and conservation groups nationwide, Rep. Dicks sought funding for Legacy Roads Remediation and Removal at $65 million for FY08. In the Senate, Maria Cantwell (D-WA) championed the issue, but funding for LRRI was ultimately capped at $40 million.

THE LEGACY ROADS & TRAILS REMEDIATION INITIATIVE

LONG-TERM PROGRAM OR A ONE-SHOT DEAL?

The Omnibus Appropriations Act of 2008 (H.R. 2764) was signed into law by the President in the closing days of 2007. Deep within the bill, under the heading of "Capital Improvement and Maintenance" is a paragraph reflecting the creation of the LRRI and directing $40 million nationally to conduct road/trail repair and maintenance, road decommissioning, removal of fish passage barriers, and road repairs required due to recent storm events. The original $40 million was subsequently cut to $39.4 million as part of an across-the-board cut in appropriations (rescission).

LRRI Focus

SPECIFICALLY, LRRI FUNDS ARE TO BE FOCUSED ON:

- Urgently needed road decommissioning, where inaction can lead to water quality issues in streams and water bodies which support TES [i.e. **t**hreatened, **e**ndangered & **s**ensitive species] and community water systems
- Decommissioning of unnecessary and/or undesired system and unauthorized roads
- Removal or replacement of stream crossing structures that are a barrier to aquatic organism passage
- Road and trail repair and maintenance, and associated activities in environmentally sensitive areas
- Road repair and maintenance, and associated activities on roads subject to recent storm damage

In Region 6, Oregon and Washington national forests received $8.372 million. Of these funds, $2,120,000 will go to road decommissioning and $2,026,000 is earmarked for improving passages for aquatic organisms.

The State of Washington received only $3.46 million — far short of the $30 million estimated to be necessary each year for the next 10 years to bring USFS into compliance with the MOA with Washington and with that state's Administrative Code: "All roads in the planning area must be in compliance with the current rules by July 1, 2016." (WAC 222-24-051 — see website: www.dnr.wa.gov/forestpractices/rules/wac222-24.pdf)

CONCLUSION

More Funds Needed

Funding for LRRI will clearly need to be increased in coming years in order for the USFS to meet its obligations in Washington State. Just as clearly, overall funding will have to increase nationwide if we are to address the well-documented problems associated with legacy forest roads. The solutions to these problems are also well-documented, if costly. However, these problems get evermore costly the longer they go unaddressed.

Although the Legacy Roads appropriation is a far cry from what is needed to solve the problem in Washington and other Western states, it is positive step on the road to healthy forest habitat and clean water. With a new budget cycle in full gear, discussions are well underway in Congress about the need to continue LRRI funding. Supporters, who continue to include Rep. Norm Dicks and Sen. Maria Cantwell, are growing in number and commitment. The creation of a sustained federal investment in the road maintenance, upgrades and decommissioning has, at long last, become a possibility.

Supporters nationwide look forward to the 2008 field season for successful projects to illustrate that it is possible to protect clean water and fish habitat, prevent damage to public and private property, and save millions in taxpayer dollars by "storm-proofing" national forest watersheds.

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In early 2008, LRRI funds were divided up across USFS regions as follows :

[Note: USFS Region 7 merged with Regions 8 and 9 some time ago]

Region 1: $4.756 million (12%) = USFS Northern Region: Idaho north of Salmon River (coincides with time zone boundary), Montana, and North Dakota

Region 2: $3.397 million (8.5%) - USFS Rocky Mountain Region: Colorado, South Dakota, Nebraska (grasslands), Eastern Wyoming

Region 3: 3.076 million (7.7%) - USFS Southwestern Region: Arizona, New Mexico

Region 4: $3.880 million (9.8%) - USFS Intermountain Region: Idaho south of Salmon River, western Wyoming, Utah, Nevada

Region 5: $6.719 million (17%)

USFS Pacific Southwest Region: California; Hawaii, Guam and South Pacific Trust Islands (except for California, the others are research stations)

Region 6: $8.372 million (21.1%) - USFS Pacific Northwest Region: Oregon and Washington

Region 8: $4.833 million (12.2%) - USFS Southern Region: Virginia, West Virginia, North/South Carolina, Georgia, Florida, Louisiana, Mississippi, Alabama, Texas, Kentucky, Oklahoma, Tennessee, Virgin Islands (research), and Puerto Rico (tropical forestry research). -

Region 9: $4.065 million (10.2%) - USFS Eastern: Wisconsin, Minnesota, Michigan, Pennsylvania, New Hampshire, Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland (mostly Chesapeake Bay research station), New Jersey, New York, Ohio, Rhode Island, Vermont.

Region 10: $0.668 million (1.7%) - USFS Alaska Region

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Gina Ottoboni is public policy associate for The Mountaineers, in Seattle, Washington. She is currently working on regional conservation and recreation policy issues. She serves on the steering committees of both the Washington Watershed Restoration Initiative and the Northwest Public Lands and Storm Recovery Coalition. She also works as an independent consultant, providing research and communications expertise on both conservation and history projects. Gina has a bachelor's from Stanford, a master's from Yale, and spent several years in the doctoral program in history at U.C. Berkeley.

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Rio Grande Settlement

Interstate Storage & Delivery

Rio Grande Compact

Reclamation Project

RIO GRANDE SETTLEMENT REACHED

HISTORIC AGREEMENT BETWEEN NEW MEXICAN AND TEXAN IRRIGATION DISTRICTS

DISPUTE OVER INTERSTATE SURFACE AND GROUNDWATER RESOLVED

by David C. Moon, Editor

Introduction

On February 14th, 2008, a momentous agreement between Elephant Butte Irrigation District (EBID in New Mexico), El Paso County Water Improvement District No. 1 (EPCWID in Texas) and the US Bureau of Reclamation (Reclamation) settled long-lived interstate legal disputes over contracts Reclamation entered into with the two irrigation districts almost three decades ago. The parties' "Compromise and Settlement Agreement" (which incorporates an "Operating Agreement") formalizes an arrangement that will govern surface water allocation and reservoir storage between the two states as well as encompassing groundwater use in New Mexico. This Settlement Agreement, which principally addresses how water stored in Elephant Butte Reservoir in New Mexico will be apportioned, also has international implications bearing on US Treaty obligations to Mexico.

The Settlement Agreement establishes — for the first time — the amount of surface water that New Mexico must allow to flow across the border with Texas to meet New Mexico's obligations under the Rio Grande Compact (see Moon, TWRs #13 & #15). It also requires the dismissal of two federal lawsuits, one in Texas and one in New Mexico, previously filed by the irrigation districts. The issues in the lawsuits included disputes between the irrigation districts that centered on the under-delivery of water in the Rio Grande to Texas — allegedly caused by groundwater pumping by water users in New Mexico. Steven Hernandez, Attorney for EBID/NM commented that the "agreement is basically a mini-compact between New Mexico and Texas and — considering all the failed efforts by other western states to resolve their interstate disputes — this agreement should be looked at as a model for other states to consider."

Rio Grande Project: History and Background

The Rio Grande Project (Project) was authorized as a Reclamation project under the Reclamation Act of June 17, 1902 and the Rio Grande Project Act of February 25, 1905 (33 Stat 814). The United States owns and controls Elephant Butte Dam and Reservoir, Caballo Dam and Reservoir, the bed and banks of the Rio Grande River within the Project (except in the international reach of the Project, where the US owns the bed and banks on the US side of the Rio Grande only), and six Project diversion dams on the river. In addition to the Project delivering water between states, the US is also obligated to make water deliveries to Mexico pursuant to the Convention of May 21, 1906 (Treaty between US and Mexico).

In 1938, the "Rio Grande Compact" apportioned the waters of the Rio Grande. Dr. J. Phillip King, a Civil Engineering professor at New Mexico State University and consultant to EBID/NM, stressed the historical importance of the new Settlement Agreement thusly: "In 1938, the states of Colorado, New Mexico, and Texas agreed to the Rio Grande Compact. They haven't agreed on much since."

Reclamation entered into separate contracts with EBID/NM and EPCWID/TX in 1979 and 1980, respectively, relating to the construction, operation and maintenance of the Project in New Mexico and Texas. In both contracts, it was stated that the "United States will make allocation of available stored project water..." and that a "detailed operational plan will be concluded between the United States and the District setting forth procedures for water delivery and accounting." Over the years, however, EPCWID/TX and EBID/NM have never actually signed an operating agreement, plan, or criteria. Instead, they have acquiesced and cooperated with Reclamation procedures on a year-to-year basis.

Rio Grande Settlement

"Return Flow"

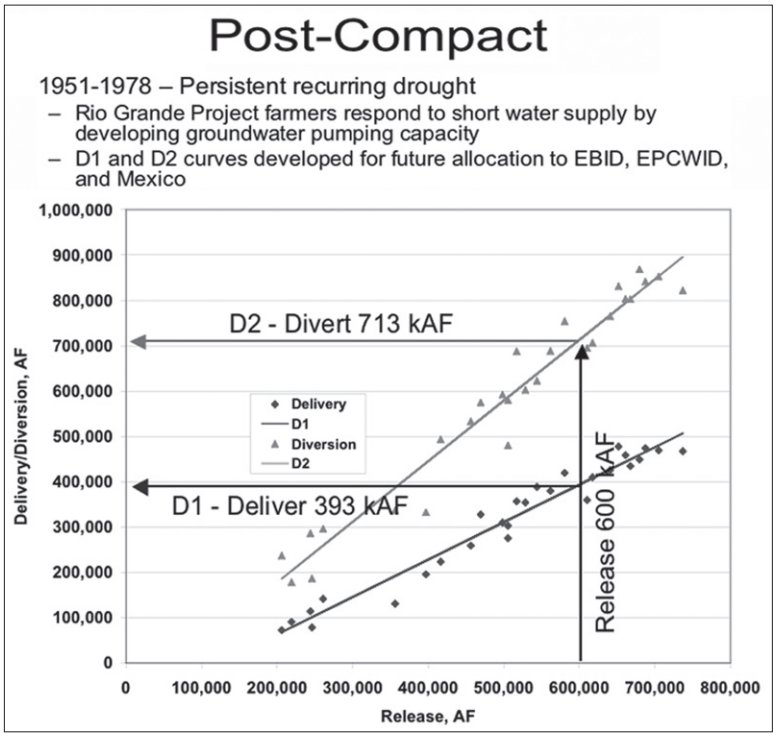
The Project stores water in New Mexico, primarily in Elephant Butte Reservoir — which has a storage capacity over 2 million acre-feet. Water is released from Elephant Butte Reservoir for use downstream. However, the amount of water EPCWID/TX actually receives in Texas is highly dependent on "return flows" to the Rio Grande in New Mexico. "Return flow" refers to water that returns to a river after it has been released from a water use (e.g. irrigation) and thus becomes available for additional use down stream. Groundwater use in New Mexico has been shown to have impacts on the amount of return flow to the Rio Grande.

A calculation of the amount of water being contributed to the Rio Grande from return flow has been used to determine the appropriate amount of water to release from storage. The amount of water being released is considerable. Currently, the "Normal Annual Release from Project Storage" — which is an amount covering all authorized uses and is referenced in the Settlement Agreement — is 790,000 acre-feet as measured at the first gauging station downstream from Caballo Dam." (Operating Agreement, p.1).

Storage Releases

During the period 1951 through 1978, the Project experienced severe and sustained drought, reducing the amount of water available for use. The D1 curve in Figure 1 is a linear regression relationship between the release from Caballo Reservoir (on the horizontal axis) and deliveries to US and Mexico diversion points (vertical axis). The D1 curve's function is to reduce the allocation to Mexico during an "extraordinary drought," pursuant to the 1906 Treaty. The D2 curve relates diversion to the US irrigation districts and Mexico (vertical axis) to releases from Caballo Reservoir (horizontal axis). D2 establishes how much water was available for diversion to the two districts and Mexico for a given level of Caballo release under 1951-1978 conditions.

FIGURE 1



Allocations

Rio Grande Project farmers responded to the drought by developing groundwater pumping capacity. From 1979-2002, the Project was able to deliver full allocations to EBID/NM, EPCWID/TX and Mexico. Drought returned in 2003 and from 2003-2006 Reclamation employed an "ad hoc" allocation method to distribute water: Mexico's allocation was based on useable water in Project storage with the remaining water diverted between EBID/NM and EPCWID/TX in 57% - 43% proportions respectively (this was based on the districts irrigated acreage: EBID/NM at 90,640 acres and EPCWID/TX at 69,010 acres).

Groundwater Impacts

With the return of drought, tensions escalated. New Mexico water users were concerned that litigation could result in substantial monetary liability to Texas resulting from the impact of New Mexico groundwater use on Rio Grande surface water delivery to Texas users. Studies of data from 2003 forward confirmed that groundwater depletions in New Mexico were reducing the drain return flows to the Rio Grande and thereby significantly reducing the surface water supply available for diversion. As this reduction in diversion had a direct impact on the amount of water actually reaching Texas, there was

Rio Grande Settlement

Damage Claims

"Carryover" Storage

Texas Factors

New Mexico Benefits

Allocation Calculation

ample room for legitimate complaint. Extrapolating the data back to the earlier drought period of 1951-1978 seemed to indicate that groundwater pumping during that time was also significantly impacting Rio Grande surface water flows, with the potential of enormous consequences should Texas successfully litigate damage claims based on under-delivery of surface water to Texas. EBID/NM needed only to look at recent decisions involving groundwater pumping impacts on surface flows — such as *Kansas v. Colorado*, 543 U.S. 86 (2004) involving the Arkansas River ($35 million damages) and *Texas v. New Mexico*, 482 U.S. 124 (1987) regarding the Pecos River ($15 million settlement, with $180 million compliance cost) — to realize that failure to settle its disputes with EPCWID/TX could have both dire monetary consequences and adverse impacts on future groundwater use.

EPCWID/TX, meanwhile, was extremely interested in obtaining the right to have "carryover storage" in Elephant Butte Reservoir to enable it to "bank" or "reserve" water left unused from one irrigation season so as to have it available for the subsequent irrigation season. As noted, before the Settlement Agreement, any "left over" water not used by EPCWID/TX was essentially split 57%-43% between EBID/NM and EPCWID/TX in the subsequent year. In other words, under Reclamation's "ad hoc" allocation method, EPCWID/TX received only 43% of water left unused at the end of an irrigation season. Under the Settlement Agreement, EPCWID/TX receives 100% credit for subsequent use of its allocated water retained in carryover storage (unused, allocated water carried forward).

For EPCWID/TX, carryover storage in Elephant Butte Reservoir (located in New Mexico) is much more preferable than storing unused water underground in Texas. This is due to Texas' "Rule of Capture" groundwater law — if EPCWID/TX stored excess water underground for later use there would be "lots of straws" drilled in Texas that could pump the water for use unrelated to EPCWID/TX. In addition, using wells to supplement reduced Project deliveries is not feasible due to the poor quality of the groundwater within EPCWID/TX boundaries. Thus, EPCWID/TX prefers to be able to store unused, excess water as carryover storage in Elephant Butte Reservoir. This stored water will now be retained for their exclusive use the following year. For New Mexico water users the Settlement Agreement assures their ability to store water underground and be able to more effectively utilize groundwater.

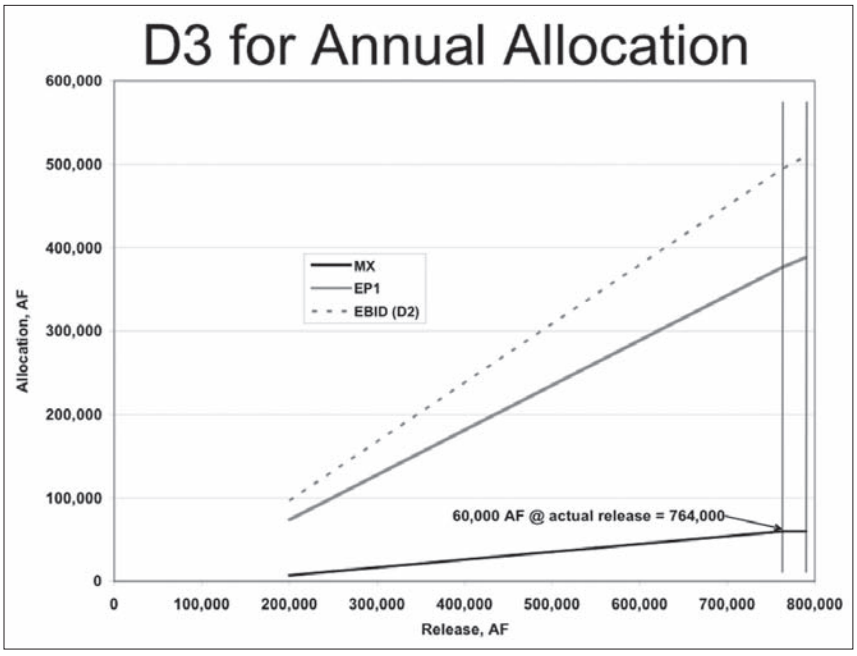
In short, forgiveness of potential damages based on past shortages and the ability to more effectively use groundwater in the future was what EBID/NM wanted from the settlement. Carryover storage was what EPCWID/TX most desired. The ability to carryover diversion allocations will help both districts to reserve "banked" water for use during droughts.

Compromise and Settlement Agreement: Key Points

Key Points of the Operating Agreement (Exhibit A of the "Compromise and Settlement Agreement") are:

- EBID/NM guarantees deliveries of surface water to Texas using a new allocation regimen dubbed "D3" — which was first developed by EBID/NM in 2006 to calculate the amount that is actually released from the reservoirs in order to meet EPCWID/TX's allocated amount (see Figure 2).

FIGURE 2



Rio Grande Settlement

Key Points of the Operating Agreement (continued)

Groundwater Use

- With the implementation of D3, EBID/NM constituents and other ground water users in New Mexico's Lower Rio Grande basin can now plan for the most efficient and equitable use of its groundwater resources without the threat of litigation from Texas. EBID/NM users may continue to use groundwater to supplement surface water as long as the delivery requirements to EPCWID/TX are met.
- With implementation of D3, EBID/NM plans to proceed forward to address regional issues regarding flooding and the need for storage reservoirs to address climate change impacts on Project water supply.
- EBID/NM will initiate negotiations with the Office of the State Engineer of New Mexico to resolve issues in the Lower Rio Grande basin stream adjudication regarding the rights of EBID/NM in the Rio Grande Project water supply.

Carryover Accounts

- The two districts have initiated the right of each district to maintain a carryover account of conserved water limited to a maximum of 60 percent of a full allocation (232,915 acre-feet for EPCWID/TX and 305,918 acre-feet for EBID/NM) that can be stored in the Project reservoirs on a yearly basis. At the end of the water year (December 31), either district's carryover balance in excess of its respective carryover limit shall be transferred to the carryover account of the other district.
- The carryover water should result in higher levels of water in Elephant Butte reservoir which promotes recreation in the lakes and also allows more upstream storage of water by New Mexico under the Rio Grande Compact.
- To further conservation of water, the districts and Reclamation will develop scheduling tools to run the Project as efficiently as possible.
- The Settlement Agreement procedurally incorporates the new Operating Agreement [as Exhibit A] and requires the dismissal of two federal district court lawsuits, one in Texas and one in New Mexico, without prejudice.

Reclamation Review

- The Settlement Agreement contains language to implement portions of Reclamation's Managing for Excellence Plan (M4E). Reclamation has agreed to conduct an internal review of the Operations portion of the El Paso Field Office in order to address concerns of the districts in order to formulate a dialogue with EBID/NM and EPCWID/TX to further the M4E goals of: Transparency in Accounting; Transparency in Planning; Commitment to Cost Effective Project Operation and Maintenance; and to identify areas, if any, where the two districts may assume further operation and maintenance functions currently conducted by Reclamation.
- EBID/NM, EPCWID/TX and Reclamation shall produce an Operations Manual containing detailed information regarding the methods, equations, and procedures used to account for all water charges and operating procedures for the Rio Grande Project.

Mexico Obligation

- The Annual Allocation which is allocated for the US to meet its delivery to Mexico is also set out in a calculation in the Operating Agreement (Section 2.4). This allocation is necessary for the US to meet its obligations under the "Convention of 1906" treaty with Mexico to deliver water in the bed of the Rio Grande at the International Diversion Dam (see map) of the Acequia Madre (the Mexican water-delivery canal).

Stephen Hubert, Hernandez's law partner and EBID/NM's attorney, stated, "This agreement brings certainty and stability to the farmer's rights to the surface and ground water resources of the Rio Grande Project and ends years of litigation between EPCWID and EBID. It is without question, a significant achievement for the farmers in both districts, and brings a degree of independence from state and federal water officials."

Future Issues

The Water Report also interviewed Gary Esslinger, Manager of EBID/NM. According to Esslinger, "the settlement is extremely important for EBID/NM and other groundwater users in New Mexico. Not only that, but by settling this long-running dispute with EPCWID/TX we have effectively saved the State of New Mexico an enormous amount of money that could have accrued in attorney's fees and potential damages. Now, we're interested in the State Engineer's Office coming down here to work with us to get our Rio Grande water rights adjudicated. It also gives us the opportunity to address the impacts of climate change that will severely affect our Project Supply. We need to move forward with new and innovative water management policies. We can't rely on antiquated methods to measure and distribute water."

For Additional Information: Gary Esslinger, EBID/NM, 505/ 526-6671 x401, email: gesslinger@ebid-nm.org or website: www.ebid-nm.org/

WATER BRIEFS

RESERVOIR PERMITS WA
STATE REGULATION COMPLIANCE

The Washington State Department of Ecology (Ecology) is conducting a statewide inventory of dams on small reservoirs that may not comply with state safety regulations. The dams are often used in farming for frost control and to store irrigation water.

In recent years, five dams that were not properly inspected and permitted have failed, causing flooding and property damage downstream. Ecology's Dam Safety Office is asking owners of unpermitted dams to voluntarily get their dams inspected and obtain all necessary permits.

An orchard owner from the Royal Slope area whose unpermitted dam failed estimated he lost $100,000 replacing four acres of producing trees uprooted by a dam breach flood. In the Walla Walla, area the owner of an unpermitted dam estimated its failure cost him some $200,000 in one season's fruit production.

Aerial photographs are now available for all areas of the state and unpermitted dams and reservoirs can easily be identified. Several unpermitted dams being used as frost control ponds have been spotted in central Washington and their owners will be notified. Orchard owners often use frost control ponds instead of smudge pots or wind machines to minimize frost damage to budding trees for orchard owners. Spraying a fine mist of water serves to raise air temperatures a critical degree or two as the mist freezes.

A water reservoir for any use capable of storing 10 acre-feet (3.26 million gallons) or more above ground level falls under Ecology's authority in RCW 90.03.350. Ten acre-feet of water is equivalent to a football field, eight feet deep. Owners of reservoirs holding less than 10 acre-feet may still be liable for property damage if their dams fail. Even reservoirs not requiring permits should be designed by licensed engineers and inspected periodically.

Ecology's Dam Safety Office is asking owners of unpermitted dams to contact Ecology for an initial inspection and then to hire an engineer to provide recommendations on how to bring their facilities up to current safety standards. Owners who voluntarily come forward before Sept. 1, 2008, and cooperate with Ecology to obtain permits for their dams will not be penalized. Owners who fail to correct deficiencies and obtain all needed state permits could face fines of up to $5,000 a day. Ecology can also order dangerous dams to be drained and removed.

For info: Ecology Dam Safety Office, write: 360/ 407-6623 or email: djsd461@ecy.wa

DAMS-WATER QUALITY WA
401 CERTIFICATION
AVISTA DAMS

Ecology is taking public comment on the water-quality certification that is designed to ensure that four Avista Corp. dams do not harm water quality. The dams include the Upper Falls Dam, the Monroe Street Dam, the Nine Mile Dam and Long Lake Dam on Lake Spokane.

The 401 Certification is now available for a 30-day public review. The certification (similar to a permit) is required before the Federal Energy and Regulatory Commission can approve Avista's license to operate the four dams in Washington. Licenses are renewed after 30 to 50 years.

The 401 certification refers to Section 401 of the Federal Clean Water Act and includes ways for Avista to comply with state water-quality standards and other relevant state regulations protecting the environment.

The re-licensing process began in 2002. Ecology has been involved in the discussions with other stakeholders since that time. In consultation with the Washington State Department of Fish and Wildlife, other fish agencies, tribes and the public, Avista and Ecology have identified activities designed to avoid, minimize or compensate for the effects of the dam's operation on water quality and aquatic resources.

Hydropower dams and facilities impound rivers, spill water, and change stream flows. This can alter fish habitat, increase water temperature, and increase "total dissolved gas" generated by water spilling over dams. The gas may cause "gas bubble trauma" in fish.

Avista will have a maximum of 10 years to fulfill the requirements in the certification. This "compliance schedule" is especially important for implementing total dissolved gas control measures and evaluating the effects of flow fluctuations on the Spokane River. It includes plans to monitor, evaluate, report and implement conditions designed to demonstrate that the dams are complying with state water-quality standards.

Another goal in the 401 Certification is to achieve the flows that residents and visitors want to see. The document contains aesthetic and minimum-flow requirements. Under the plan as written, downtown visitors and local residents will see more water flowing through the North Channel, which is currently dry for most of the summer. The increase would take place between 10 a.m through 30 minutes after sunset.

In general, minimum flows during dry times, would increase by 200 to 300 cubic feet per second. This amounts to up to 2,244 gallons per second of increased flow.

The 401 requires Avista to do its share to increase the amount of dissolved oxygen in Lake Spokane to support a healthy fish population. Fish depend on oxygen to breathe. Avista's actions and the schedule itself will be consistent with the community's phosphorus reduction plan called Foundational Concepts. This document is included within the draft 401 Certification.

Significant water quality improvements are required before a major review is conducted in 10 years. Avista will continue to conduct computer modeling to determine the company's contribution to the dissolved oxygen deficiencies. Avista also plans to modify the structures inside Long Lake Dam to increase the dissolved oxygen that is released on the downstream side.

For info: Marcie Mangold, Ecology, 509/ 329-3450 or email: dman461@ecy.wa.gov; Hugh Imhof, Avista Corp, 509/ 495-4264; or email: hugh.imhof@avistacorp.com

ECOLOGY WEBSITE: http://aww.ecydev/biblio/0810029.html

PROPERTY "TAKINGS" OR
WATER OWNERSHIP ISSUES

On March 11, the US Court of Appeals for the Federal Circuit decided to send four issues to the Oregon Supreme Court for resolution, in the pending appeal of *Klamath Irrigation District v. United States*, No. 2007-5115. The lawsuit involves the "taking" of water from the Klamath Reclamation

WATER BRIEFS

Project (Project) in 2001 in order to protect two species of endangered fish. The water users, who farm land within the US Bureau of Reclamation (Reclamation) Project, maintain that they were deprived of water they were entitled to divert for irrigation. In 2004, the trial judge held that the water users had no property right in the water rights of the Project, relying on a 1905 Oregon statute that the court held conveyed all of Oregon's unappropriated water in the Klamath basin to the United States for the Klamath Project. The Federal Circuit's ruling presents four questions to the Oregon Supreme Court to rule on and determine for itself what the 1905 Oregon statute means.

The four questions certified to the Oregon Supreme Court deal with the issues of ownership and property interests in the water rights utilized in the Reclamation Project. At the heart of the matter is the issue of who owns the water rights in the Project: water users who own the appurtenant land and who use the water for the beneficial use of irrigation versus Reclamation — through its acquisition of the water rights for the Project.

As noted on the website of the water users' attorney, Nancie Marzulla, certification of issues pending in federal court allows a federal court faced with a novel state law question to put the question directly to the state's highest court, reducing the delay, cutting the cost, and increasing the assurance of gaining an authoritative response. "In this case, the trial judge had interpreted an Oregon statute based purely on what the federal trial judge believed that the Oregon State Legislature intended to accomplish in a 1905 statute. No Oregon court had ever interpreted this statute in this context and there was no legislative history supporting the trial judge's ruling. On appeal, the water districts and the water users argued that this issue and the related water rights issues should be certified to the Oregon Supreme Court for resolution," Marzulla said.

The parties were ordered to submit a Joint Statement of Facts pertinent to the four certified questions by April 9th, which are to include a statement of the controversy in which the questions arose. The parties are also free to include exhibits they feel are pertinent to the questions. The issues will then be transmitted to the Oregon Supreme Court for review.

This case has been previously covered by The Water Report (see TWR #19, #22 and #39). Roger Marzulla of Marzulla & Marzulla also wrote an article for The Water Report on "taking" issues that was included in TWR #21. The letter from the US Court of Appeals that contains the four questions is available on the Marzulla & Marzulla website.

For info: Marzulla & Marzulla website: www.marzulla.com

SWP WATER DELIVERIES CA

LIMITED FOR SMELT
SNOWPACK NORMAL

The California Department of Water Resources (DWR) reported on March 26 that snowpack water content is near normal this year. Despite that fact, State Water Project (SWP) deliveries remain near record lows because of a federal court ruling restricting Delta pumping to help protect the threatened Delta smelt.

The pumping reductions are a result of federal Judge Oliver Wanger's decision in December 2007 to curtail pumping by state and federal water projects to protect the tiny fish that has seen its population decline drastically in past years. Delta smelt populations are also adversely affected by other activities such as other water diversions, water pollution, and non-native species. The SWP is projected to deliver only 35 percent of requested amounts this year to communities, farmers and businesses in the Bay Area, Central Valley and Southern California.

The pumping restrictions have caused water suppliers in southern California to purchase water from irrigators for municipal supplies. In a March 11th press release, the Metropolitan Water District of Southern California (MWD) stated that "the board approved a $25-per-acre-foot surcharge that would fund purchases of up to 200,000 acre-feet of additional supplies. Purchases on the water transfer market are necessary to make up for reductions in State Water Project deliveries from the Delta due to a federal court order addressing declining populations of the threatened Delta smelt."

For info: Don Strickland, DWR, 916/ 653-9515; MWD website: www.mwdh2o.com/

DRINKING WATER FINE AZ

TCE CONTAMINATION

Arizona Department of Environmental Quality (ADEQ) Director Steve Owens announced on April 3rd that Arizona American Water Company will pay $69,000 in penalties for water quality violations in which its customers in Scottsdale and Paradise Valley received drinking water with levels of **t**ri**c**hloro**e**thylene (TCE) in excess of federal health standards. The company is paying the penalty under a Consent Order it has entered into with ADEQ. "This is the maximum penalty allowed under Arizona law for these violations," Director Owens stated. "The company delivered contaminated drinking water to its customers, failed to maintain and operate its facilities to deliver safe drinking water, and failed to implement an adequate emergency plan." TCE is an industrial solvent used to remove grease from metal parts and is an ingredient in adhesives, paint removers and spot removers. Some people who drink water with elevated levels of TCE over many years may have an increased risk of cancer and experience liver problems.

Some of the company's wells draw from groundwater containing TCE, but the water must be treated to remove the contaminant before it is safe to drink. On the afternoon of January 15th the company's water treatment system broke down and the alarm system failed to operate. At about 6:30 a.m. the following morning, an operator noticed that the system was not working and turned it back on. The company shut down the system at 9:30 a.m. but did not alert ADEQ and the Maricopa County Environmental Services Department (MCESD) until late that afternoon, about 4 p.m. At about 5 p.m., the company began using a "reverse 911" system to warn its customers not to drink or cook with tap water, but, according to the company, the warning reached only 65 to 70 percent of the company's nearly 5,000 customers. The company also issued a press release.

Tests taken by the company on January 16 found levels of TCE of up to 23 parts per billion (ppb) in the drinking water. The drinking water standard for TCE is 5 ppb. Tests did not show TCE levels below 5 ppb until results were received for samples taken the day before on January 19, when ADEQ and

WATER BRIEFS

MCESD authorized the company to lift the warning against drinking the water.

In addition to requiring Arizona American to pay the maximum penalty allowed under state law, the Consent Order requires the company to stop using the two wells impacted by TCE contamination in the groundwater as drinking water sources until a new operations plan is approved. It also requires the company to submit a new plan for treating the water, including weekly sampling, as well as a new emergency operations plan. ADEQ also cited the company for dumping water contaminated with excessive TCE levels into streets and storm sewers in Scottsdale and Paradise Valley without having a permit to do so and without notifying ADEQ or MCESD. The storm sewers empty into Indian Bend Wash and eventually into the Salt River. The penalty also covers violations by the company between October 9-17, 2007, when the company distributed drinking water mixed with inadequately treated TCE-containing water and failed to notify ADEQ and MCESD until a month later in November 2007.

For info: Mark Shaffer, ADEQ, 602/ 771-2215 or website: www.azadeq.gov

GROUNDWATER USE WA

SURFACE WATER SUBSTITUED

RECLAMATION REPORT - COLUMBIA BASIN

The US Bureau of Reclamation (Reclamation) on April 1st announced the availability of the Odessa Subarea Special Study report which investigates replacing current groundwater use in the Odessa Ground Water Management Subarea with surface water from the Columbia Basin Project. The report documents the appraisal-level investigation and decisions that Reclamation announced in February 2008.

Of the four alternatives previously identified, Reclamation selected Alternative B for further study. This alternative proposes to construct a new East High Canal system north of Interstate 90 and expand the capacity of the existing East Low Canal south of Interstate 90 while also extending it a little over 2 miles. Reclamation also examined options replacing surface water supply for current groundwater irrigation by diverting Columbia River water in a manner that minimizes effects to fish listed under the Endangered Species Act. Reclamation decided to continue to study operational modifications at Banks Lake and Potholes Reservoir and the possible construction of Rocky Coulee Dam and reservoir as potential options to provide the replacement water supply.

The Odessa Subarea Special Study is scheduled for completion in 2011. It is one of several water management studies in the Columbia River basin being pursued by Reclamation in partnership with Ecology. Washington is a cost-share partner in the study. Reclamation will initiate additional data collection and analyses to further develop engineering designs and improve the accuracy of cost estimates for the selected alternatives and options. Economic analyses will occur to determine if the alternative and options are economically justified and financially feasible. Public scoping meetings will be held later this year in accordance with the National Environmental Policy Act. The report is available at the website listed below.

For info: Ellen Berggren, Reclamation, 208/ 378-5090, email: StudyManager@pn.usbr.gov

RECLAMATION WEBSITE: www.usbr.gov/pn/

REFINERY VIOLATIONS TX

$1.2 MILLION PENALTY

ConocoPhillips, an international energy company, has agreed to pay a $1.2 million civil penalty to resolve alleged violations of the Clean Water Act (CWA) related to over 2,000 effluent discharges from a petroleum refinery it operates in Borger, Texas, the Justice Department and Environmental Protection Agency (EPA) announced April 7th. A complaint, filed simultaneously with the consent decree in the case, alleges that ConocoPhillips violated effluent limits in its CWA permit on over 2,000 occasions between 1999 and 2006. The discharges from the facility involved two types of water pollutants — selenium and whole effluent toxicity. Effluent is wastewater and other byproduct that is discharged from refining and other industrial facilities. Whole effluent toxicity refers to the aggregate toxic effect to aquatic organisms from all pollutants contained in a facility's wastewater. After the United States took enforcement action, ConocoPhillips brought the refinery into compliance with its CWA permit limits for both these pollutants.

The consent decree, filed in the US District Court for the Northern District of Texas, requires the company to monitor surrounding waters for selenium levels, including Dixon Creek and the Canadian River, as well as for accumulation of selenium in fish tissue. It also requires ConocoPhillips to maintain the controls that it has already put into place to minimize its selenium discharges and to correct whole effluent toxicity violations. Additionally, ConocoPhillips will perform a Supplemental Environmental Project, estimated to cost approximately $600,000, which will reduce the amount of solids discharged into local waterways during storm events. The settlement was also signed by WRB Refining, the current owner of the ConocoPhillips-operated refinery. The agreement is subject to a 30-day public comment period and final judicial approval.

For info: DOJ at 202/ 514-2007 or EPA at 214/ 665-2200; Consent decree available on Justice Department website: www.usdoj.gov/enrd/Consent_Decrees.html.

WATER INTERACTIONS US

GROUNDWATER & SURFACE WATER

USGS MODEL RELEASED

A new model to simulate groundwater and surface-water interactions has been released by the US Geological Survey (USGS). The Ground-water and Surface-water FLOW (GSFLOW) model simultaneously accounts for climatic conditions, runoff across the land surface, subsurface flow and storage, and the connections among terrestrial systems, streams, lakes, wetlands, and ground water.

"GSFLOW can be used to analyze many complex water-resource questions faced by society that increasingly involve understanding the connectivity of surface water and ground water," said Robert Hirsch, USGS Associate Director for Water. GSFLOW can be used to examine issues such as: the effects of water-resource development on streamflow, wetlands, or groundwater resources of a watershed, how groundwater recharge and streamflow conditions will respond to changes in

WATER BRIEFS

land use throughout a watershed, and how hydrologic conditions and aquatic resources of a watershed change in response to climate variability.

USGS maintains that the GSFLOW model will be an invaluable tool in examining water availability under the Survey's proposed Water for America Initiative. A major aspect of the Initiative, which plans to complete a comprehensive census of US water resources in the next ten years, is to investigate how groundwater and surface water interactions affect the overall availability of the resource. GSFLOW is applicable to watersheds that range from a few square miles to several thousand, and for time periods that range from months to several decades. GSFLOW is based on the USGS Precipitation-Runoff Modeling System (PRMS) and the USGS Modular Ground-Water Flow Model (MODFLOW-2005). Many enhancements have been made to the PRMS and MODFLOW-2005 models to improve the simulation of watershed-scale processes, including enhanced representation of soil-zone and unsaturated-zone hydrologic processes.

Initial applications of GSFLOW are underway in Pennsylvania, Wisconsin, California, and Nevada through the USGS Cooperative Water Program. Because of the complexity of the GSFLOW model, interdisciplinary teams of scientists are working on these important initial applications. GSFLOW is available free to all users by visiting http://water.usgs.gov/nrp/gwsoftware/gsflow/gsflow.html.
For info: Paul Barlow, USGS, 508/ 490-5070

REGS ENFORCEMENT CA
SWRCB SEEKS COMMENTS

The California State Water Resources Control Board (SWRCB) released its draft Baseline Enforcement Report (FY 2006-2007) on March 28th for public comment. The Report provides a comprehensive overview of the Water Board's core regulatory compliance and enforcement activities. The five core regulatory programs discussed in the Report are: the National Pollutant Discharge Elimination System (NPDES) Wastewater Program; NPDES Stormwater Program; Wetlands and 401 Certification Program; Waste Discharge Requirements Program; and the Land Disposal of Waste. Staff has endeavored to compile a baseline of information against which to measure the effectiveness of future enforcement initiatives and strategies. The comment deadline is April 28th by noon.

The Report has five main purposes: identify the resources available for core regulatory enforcement and the enforcement actions achieved with those resources; illustrate the challenges faced by the Water Boards in bringing appropriate enforcement to ensure compliance; recommend metrics to measure the future effectiveness of the Water Boards' enforcement functions; recommend improvements to the Water Boards' enforcement capabilities; and provide statistics on rates of compliance for the core regulatory programs.

The information presented in this Report highlights the significant ongoing data and resource challenges of the Water Boards. For many of the core regulatory programs covered, key data elements are either missing or incomplete. Variation in data entry is apparent from region to region and a lack of data should not be interpreted as inactivity by individual Regional Water Boards. An outcome of the broader Water Board initiative to make the California Integrated Water Quality System (CIWQS) functional to meet internal and external data management needs is to provide useful data on compliance and enforcement activities. This Report recommends that CIWQS be required to maintain the data to support 10 specific measures of performance. These recommended performance measures will assist the Water Boards to monitor, manage and improve the Water Boards' enforcement activities.

The Report includes 13 recommended improvements to the Water Board's existing enforcement efforts based on the information included in the Report (see Executive Summary, pp. 1-2).
For info: Mark Bradley, SWRCB, 916/ 341-5891, email: MBradley@waterboards.ca.gov or website: www.waterboards.ca.gov/

WETLANDS MITIGATION US
NEW RULE RELEASED

The US Army Corps of Engineers (Corps) and EPA have released a new rule to clarify how to provide compensatory mitigation for unavoidable impacts to the nation's wetlands and streams. The rule is intended to enable the agencies to promote greater consistency, predictability and ecological success of mitigation projects under the Clean Water Act (CWA).

Each year thousands of property owners undertake projects that affect the nation's aquatic resources. Proposed projects that are determined to impact jurisdictional waters are subject to CWA review. The Corps reviews these projects to ensure environmental impacts to aquatic resources are avoided or minimized as much as possible. Consistent with the administration's goal of "no net loss of wetlands," a Corps permit may require a property owner to restore, establish, enhance or preserve other aquatic resources in order to replace those impacted by the proposed project. This compensatory mitigation process seeks to replace the loss of existing aquatic resource functions and area.

Property owners required to complete mitigation are encouraged to use a watershed approach and watershed planning information. The new rule establishes performance standards, sets timeframes for decision making, and to the extent possible, establishes equivalent requirements and standards for the three sources of compensatory mitigation: permittee-responsible mitigation, mitigation banks and in-lieu-fee programs.

The new rule changes where and how mitigation is to be completed, but maintains existing requirements on when mitigation is required. The rule also preserves the requirement for applicants to avoid or minimize impacts to aquatic resources before proposing compensatory mitigation projects to offset permitted impacts.
For info: Gene Pawlik, Corps, 202/ 761-7690, email: eugene.a.pawlik@usace.army.mil or website: www.usace.army.mil/cw/cecwo/reg/citizen.htm; Shakeba Carter-Jenkins, EPA, 202/ 564-4355, email: carter-jenkins.shakeba@epa.gov or website: www.epa.gov/wetlandsmitigation

WATER BRIEFS

303(D) REVERSAL CA/OR
EPA KLAMATH RIVER DECISION

The US Environmental Protection Agency (EPA) has reversed itself and withdrawn a prior decision to approve the state of California's decision not to include the "Klamath River HU, Middle HA, Oregon to Iron Gate" on its 2006 Section 303(d) List due to microcystin toxin. EPA's decision was made in response to pending litigation filed by Klamath Riverkeeper, a conservation group based in California. Klamath Riverkeeper's press release claimed a major victory. "Given the fact that the concentration of algal toxin exceeds international safety standards by as much as 4,000 fold, we could not believe that the EPA failed to act. We hope [the] announcement signals a commitment by the agency to stop PacifiCorp's toxic pollution of the Klamath River and will ultimately drive another nail in the coffin for PacifiCorp's dams," said Regina Chichizola of the Klamath Riverkeeper.

In the March 13th letter by Alexis Strauss, Water Division Director of EPA Region 9, to California's State Water Resources Control Board, EPA noted that "we have reconsidered our prior approval of the omission of microcystin toxin listings for three segments of the Klamath River, and have determined to add a listing for microcystin toxin for one of those segments." EPA set forth various documents it reviewed and then stated that "EPA has concluded that one Klamath River segment is impaired due to the presence of elevated concentrations of microcystin toxins, specifically the Oregon to Iron Gate segment which includes the Copco and Iron Gate reservoirs...Pursuant to 40 CFR 130.7(d)(2), EPA is hereby identifying for inclusion on California's Section 303(d) List 'microcystin toxins' as an additional cause of impairment for that Klamath River segment." California's 2006 Section 303(d) List already identifies this river section as impaired due to Nutrients, Organic Enrichment/Low Dissolved Oxygen, and Temperature. The letter included an attached "Staff Report" detailing the EPA decision.

The Staff Report included the notation that "EPA's reconsideration of the omission of microcystin toxin listing for the subject Klamath River segments is based on a number of exceptional factors." After reviewing those factors, which dealt with evidence in the record, EPA went on to discuss the public health and environmental impacts associated with Microcystin Toxins. "Many species of cyanobacteria or blue-green algae produce toxins that are human health hazards if ingested in water or food, inhaled or absorbed via direct skin contact. The cyanobacterial species *Microcystis aeruginosa* produce microcystin toxins which are capable of inducing skin rashes, sore throat, oral blistering, nausea, gastroenteritis, fever, and liver toxicity."

EPA's announcement comes at a critical time with PacifiCorp's dams in the final steps of a federally mandated relicensing process. To receive a new license from the Federal Energy Regulatory Commission, PacifiCorp must obtain water quality certifications from the states of California and Oregon. The listing of the reservoirs and river as impaired by toxic algae could jeopardize PacifiCorp's clean water permit applications.
For info: Alexis Strauss, EPA, 415/ 972-3572; Regina Chichizola, Klamath Riverkeeper, 541/ 951-0126, or website: www.klamathriver.org/

BROWNFIELDS GRANTS US
EPA PROGRAM

The US Environmental Protection Agency (EPA) announced on April 7th that communities in 43 states will share more than $74 million in brownfields grants to help revitalize former industrial and commercial sites. The grants also go to two tribes and two US Territories. Brownfields are sites where expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. In January 2002, President Bush signed the Small Business Liability Relief and Brownfields Revitalization Act, which authorizes up to $250 million in funds annually for brownfields grants. The 2002 law expanded the definition of what's considered a brownfields, so communities may now focus on mine-scarred lands or sites contaminated by petroleum or the manufacture and distribution of illegal drugs. The brownfields program encourages redevelopment of America's estimated 450,000 abandoned and contaminated waste sites.

In all, 209 applicants were selected to receive 314 assessment, revolving loan fund, and cleanup grants: 194 assessment grants totaling $38.7 million to be used to conduct site assessment and planning for eventual cleanup at one or more brownfields sites or as part of a community-wide effort; 108 cleanup grants totaling $19.6 million to provide funding for grant recipients to carry out cleanup activities at brownfields sites they own; 12 revolving loan fund grants totaling $15.7 million to provide funding for communities to capitalize a revolving loan fund and to provide subgrants to carry out cleanup activities at brownfields sites. Revolving loan funds are generally used to provide low interest loans for brownfields cleanups. More information on the grant recipients is available at the website set out below.
For info: Roxanne Smith, EPA, 202/ 564-4355
or email: smith.roxanne@epa.gov
EPA WEBSITE: www.epa.gov/brownfields

WATER-CLIMATE CHANGE US
EPA SEEKS COMMENT

EPA is seeking public comment on a draft strategy that describes the potential effects of climate change on clean water, drinking water, and ocean protection programs and outlines EPA actions to respond to these effects. The *National Water Program Strategy: Response to Climate Change* focuses on actions designed to help managers adapt their water programs in response to a changing climate. Other elements of the draft strategy include steps needed to strengthen links between climate research and water programs, and to improve education for water program professionals on potential climate change impacts. The strategy also identifies contributions that water programs can make to mitigate greenhouse gases. Some of the potential impacts of climate change on water resources reviewed in the strategy include increases in certain water pollution problems, changes in availability of drinking water supplies, and collective impacts on coastal areas.
For info: Roxanne Smith, 202/ 564-4355 or email: smith.roxanne@epa.gov
EPA WEBSITE: www.epa.gov/water/climatechang

CALENDAR

April 18 CO
AWRA 2008 Annual Symposium: Water, Energy & Climate Change: Effects on Colorado's Water Availability & Quality, Golden. Mt. Vernon Country Club. For info: AWRA Colorado website: http://awracolorado.havoclite.com/

April 22-25 NV
Integrated Watershed Management: Partnerships in Science, Technology & Planning, Reno. Sponsored by American Institute of Hydrology. For info: AIH website: www.aihydro.org/

April 23 OR
Living Waters: Connection and Separation in Water from Physical, Legal, Political & Spiritual Perspectives Symposium, Corvallis. Memorial Union, Rm 208. For info: Todd Jarvis, Institute for Water & Watersheds, 541/ 737-4032 or email: todd.jarvis@oregonstate.edu

April 24 OR
"Making Renewable Energy Projects Happen" Conference, Portland. Presented by Northwest Environmental Business Council. For info: NEBC website: www.nebc.org or Sue Moir, 503/ 227-6361, email: sue@nebc.org

April 24 OR
Environmental Enforcement Regulations Public Hearing, Medford. DEQ Medford Office, 221 Stewart Ave., Suite 201, 4-6pm. RE: Proposed Rules on Procedures & Conditions For "Expedited Enforcement" of Various DEQ Programs Rulemaking Revisions & Relevant Documents Accessible via DEQ's website: www.deq.state.or.us/programs/enforcement/expenf.htm. Comment deadline May 15, 2008. For info: Courtney Brown, 503/ 229-6839 or email: brown.courtney@deq.state.or.us

April 24-25 OR
Oregon Environmental Quality Commission Meeting, Portland. For info: Wendy Simons, DEQ, 503/ 229-5301 or website: www.deq.state.or.us

April 24-25 WY
Wyoming Water Law Seminar, Cheyenne. For info: CLE International, 800/ 873-7130 or website: www.cle.com

April 25 WA
Water Quality Forum, Seattle. Washington State Convention & Trade Center. Sponsored by Puget Sound Partnership. For info: PSP, 800/ 547-6863, email: actionagenda@psp.wa.gov or website: www.psp.wa.gov/

April 28 WA
Habitat & Land Use Forum, Bremerton. Kitsap Conference Center. Sponsored by Puget Sound Partnership. For info: PSP, 800/ 547-6863, email: actionagenda@psp.wa.gov or website: www.psp.wa.gov/

April 28 OR
Governor's Climate Change & Renewable Energy Presentation, Portland. Port of Portland, 121 NW Everett Street. Call-In Option Available. For info: David Ashton, Port of Portland, 503/ 944-7090 or email: david.ashton@portofportland.com

April 28 WA
Urban Water: Sustainability in the Balance Documentary Excerpts and Discussion: AWRA Dinner Meeting, Seattle. Pyramid Ale House. For info: Steve Hughes, URS, 206/ 438-5129 or email: steven_hughes@urscorp.com

April 28-29 OR
28th United States Society on Dams Annual Meeting and Conference, Portland. RE: The Sustainability of Experience - Investing in the Human Factor. For info: USSD website: www.ussdams.org

April 29-30 OR
Columbia River Estuary Conference, Astoria. Liberty Theater. RE: Viability of Salmonid Populations, Recovery Plans, Biological Opinions, Wetlands. For info: Kathi Ruiz, Pacific NW National Lab, 503/ 417-7551 or Conference website: http://cerc.labworks.org/index.stm

April 30 WA
Pacific Northwest Section's Water Resources Committee Pre-Conference Seminar, Vancouver. Hilton Hotel. RE: Strategies, Information, Challenges, & Opportunities of Water Supply Alternatives. For info: Kimberly Swan, Clackamas River Water Providers, 503/ 723-3510 or PNWS website: www.pnws-awwa.org/

April 30 OR
Sustainability: Using The Natural Step Framework Workshop, Portland. Doubletree Hotel, 1000 NE Multnomah. For info: Oregon Natural Step Events, 503/ 241-1140 or website: www.ortns.org

April 30-May 2 WA
Pacific NW Section: American Water Works Assoc. Annual Conference, Vancouver. Hilton Hotel. RE: ASR, Climate Change Impacts, Asset Management, Water Efficiency Regs & More. For info: PNWS website: www.pnws-awwa.org/

May 1 WA
Species & Biodiversity Forum, Everett. TOC Conference Center. Sponsored by Puget Sound Partnership. For info: PSP, 800/ 547-6863, email: actionagenda@psp.wa.gov or website: www.psp.wa.gov/

May 1-2 OR
Oregon Wetlands Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 1-2 NM
Strategic Risk Management in the Natural Resources Industry Conference, Santa Fe. Sponsored by the Rocky Mt. Mineral Law Foundation. For info: RMMLF, 303/ 321-8100, email: info@rmmlf.org, or website: www.rmmlf.org

May 1-2 OR
Oregon Wetlands Seminar, Portland. World Trade Center. For info: The Seminar Group, 800/ 574-4852 or website: www.TheSeminarGroup.net

May 1-4 WA
Hazel Wolf Environmental Film Festival, Seattle. UW, Johnson Hall. For info: Festival website: www.hazelfilm.org

May 2 WA
Mitigation & Conservation Banking Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

May 4-9 OR
Western Division American Fisheries Society Annual Meeting, Portland. RE: Human Population Growth & Fisheries: The Western Challenge. For info: Neil Ward, CBFWA, 503/ 229-0191 or neil.ward@cbfwa.org or website: www.wdafs.org/meet/meet.htm

May 5 WA
Water Quantity Forum, Edmonds. Edmonds Conference Center. Sponsored by Puget Sound Partnership. For info: PSP, 800/ 547-6863, email: actionagenda@psp.wa.gov or website: www.psp.wa.gov/

May 5-7 CA
Fourth Biennial Nonpoint Source (NPS) Conference, San Diego. RE: Integrated Watershed Management: Reducing NPS Pollution, CA State Water Resources Control Board, CA Coastal Commission, and US EPA. For info: Lori Schmitz, 916/ 341-5903, email: lschmitz@waterboards.ca.gov, or website: http://www.waterboards.ca.gov/nps/conference2008.html

May 5-7 Greece
Athens Summit 2008: Global Climate & Energy Security, Athens. For info: Conference website: www.athens-summit.com/

May 5-7 CA
Integrated Watershed Management - Reducing Nonpoint Source Pollution: Fourth Biennial NPS Conference, San Diego. Mission Valley Marriott. For info: Lori Schmitz, SWRCB, 916/ 341-5903, email: lschmitz@waterboards.ca.gov or website: www.waterboards.ca.gov/

May 6 OR
Klamath Dam Removal Speakers & Film, Eugene. U of O, 100 Willamette, 7pm. For info: Suzanne Hanlon, U of O, 541/ 346-3730

May 6-9 CA
2008 Association of California Water Agencies Spring Conference & Exhibition, Monterey. Portola Plaza & Marriot Hotels. For info: ACWA, 916/ 441-4545 or website: www.acwa.com

May 7 OR
Environmental Enforcement Regulations Public Hearing, Portland. DEQ Headquarters, 811 SW 6th Avenue (SW Sixth & Yamhill), 5:30pm. RE: Proposed Rules on Procedures & Conditions For "Expedited Enforcement" of Various DEQ Programs Rulemaking Revisions & Relevant Documents Accessible via DEQ's website: www.deq.state.or.us/programs/enforcement/expenf.htm. Comment deadline May 15, 2008. For info: Courtney Brown, 503/ 229-6839 or email: brown.courtney@deq.state.or.us

May 7-8 WA
Northwest Aquifer Management (ASR) Conference, Pasco. TRAC Center. For info: American Ground Water Trust website: www.agwt.org

May 8-9 OR
Oregon Department of Fish and Wildlife Commission Meeting, La Grande. For info: Director's Office ODFW, 503/ 947-6044, email: odfw.commission@state.or.us, or website: www.dfw.state.or.us

May 8-9 NE
Nebraska Water Law Conference, Lincoln. The Cornhusker Marriott. For info: CLE International, 800/ 873-7130 or website: www.cle.com

May 12 WA
Model Toxics Control Act Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

May 12-16 HI
2008 World Environmental and Water Resources Congress:Sustainability from the Mountains to the Sea Conference, Honolulu. Hawai'i Convention Center. For info: ASCE, 800-548-2723 or website: http://content.asce.org/conferences/ewri2008/

May 14-16 TX
Hydrogeology of Karst Aquifers Course, San Antonio. For info: NGWA, 800-551-7379 or website: www.ngwa.org

May 15 GA
Water Rights Conference, Atlanta. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 15-16 OR
Oregon State Board of Agriculture Meeting, TBA. For info: Madeline MacGregor, ODA, 503/ 986-4758 or email: mmacgreg@oda.state.or.us

May 15-16 CA
California Water Law Seminar, San Francisco. For info: CLE International, 800/ 873-7130 or website: www.cle.com

May 15-16 ID
Idaho Water Law Seminar, Coeur d'Alene. Coeur d'Alene Golf & Spa Resort. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

May 18-22 NJ
Sixth National Monitoring Conference, Atlantic City. Sheraton Convention Center. Sponsored by the National Water Quality Monitoring Council (NWQMC). For info: Laura Hughes, Water Education Foundation, email: Monitoring2008@wef.org or NWQMC website: http://lists.wefnet.org:80/t/48085/9999830/799/0/

May 18-23 NV
ASFPM 2008 Conference: Living River Approach to Floodplain Management, Reno-Sparks. Sponsored by the Association of State Floodplain Managers. For info: ASFPM website: www.floods.org

(continued from previous page)

May 19-20 CO
Colorado Wetlands Seminar, Denver. For info: CLE International, 800/ 873-7130 or website: www.cle.com

May 20-22 AZ
5th National Environmental Conflict Resolution Conference, Tucson. For info: ECR website: http://ecr.gov/ecr.asp?Link=604

May 21
Rish Management, Mitigation & Technologies: Insurance to Sophisticated Finance Conference, Teleconference. Sponsored by American Bar Association & ACORE. For info: ABA Section on Environment, Energy & Resources, 312/988-5724 or website: www.abanet.org/environ/

May 21 UT
Western Climate Initiative Stakeholder Workshop, Salt Lake City. Sheraton City Center. For info: WCI website: www.westernclimateinitiative.org/

May 21 WA
Solar Power: Projects & Permitting, Seattle. Red Lion Hotel on 5th. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 22 OR
Ecosystem Markets: Taking Action Conference, Portland. Sponsored by Northwest Environmental Business Council, OSU Institute for Natural Resources, and the Willamette Partnership. For info: NEBC, 800/ 985-6322, email: sue@nebc.org or website: www.nebc.org

May 22-23 WA
Ocean Law Conference, Seattle. RE: Environmental, Energy & Commercial Developments Impacting Ocean and Coastal Resources. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

May 23 CO
Moving Mountains Symposium, Telluride. RE: Global Water Crisis. For info: Website: mountainfilm.org

May 26-30 D.C.
Society of Wetland Scientists Annual Conference, Washington. Wardman Park Hotel. For info: SWS website: www.sws.org/

May 28-29 CA
Border Water Infrastructure Conference, San Diego. Mission Valley Hilton. RE: Infrastructure Needs, Funding, Financing Alternatives, Rehabilitating or Replacing Aging Facilities. For info: www.water-ed.org/BorderConferenceFlyer.pdf

May 28-29 OR
NEPA: Writing the Perfect EA/FONSI or EIS Course, Portland. Ecotrust Jean Vollum Natural Capital Center, Billy Frank Room (2nd Fl), 721 NW Ninth Avenue. For info: Renata Sobol, Northwest Environmental Training Center, 206/ 762-1976 or website: www.nwetc.org/training.htm

May 28-29 OR
Eminent Domain Seminar, Portland. World Trade Center. RE: Land Valuation Litigation, 2007 Initiative Restricting Eminent Domain (Ballot Measure 39), USPAP Changes, Opinion evidence & Appraisal Exchange Requirements. For info: Website: www.rivernetwork.org/call_for_proposal.php

May 28-31 AZ
Urbanization of Irrigated Land and Water Transfers: U.S. Committee on Irrigation and Drainage (USCID) Water Management Conference, Scottsdale. For info: USCID website: www.uscid.org/08conf.html

May 29-30 OR
Oregon Water Resources Commission Meeting, TBA. For info: Cindy Smith, WRD, 503/ 986-0876 or website: www.wrd.state.or.us

May 30 OR
Final Report to the Governor - A Framework for Addressing Rapid Climate Change Presentation, Portland. TBA. For info: David Ashton, Port of Portland, 503/ 944-7090 or email: david.ashton@portofportland.com

June 2-3 CA
Endangered Species Act Conference, San Diego. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 3-6 NV
New MODFLOW Course, Las Vegas. For info: NGWA, 800-551-7379 or website: www.ngwa.org

June 4-6 CO
Shifting Baselines and New Meridians: Water Resources, Landscapes and the Transformation of the American West Conference, Boulder. University of Colorado Law School. Natural Resources Law Center's 29th Annual Conference.

June 5-6 WA
Clean Water and Stormwater Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

June 6 OR
Oregon Department of Fish and Wildlife Commission Meeting, Salem. For info: Director's Office ODFW, 503/ 947-6044, email: odfw.commission@state.or.us, or website: www.dfw.state.or.us

June 9-10 CO
Environmental Forensics: Methods & Applications Course, Greenwood Village. For info: NGWA, 800-551-7379 or website: www.ngwa.org

June 9-12 NM
The WINTERS Centennial: Will Its Commitment to Justice Endure? 100th Anniversary Conference, Santa Ana. Pueblo of Santa Ana Hyatt Tamaya Resort. Sponsored by The Utton Center and the American Indian Law Center. For info: Ruth Singer, UNM, 505/ 277-5655, email: singer@law.unm.edu or Utton Center website: http://uttoncenter.unm.edu/

June 10-11 MT
Montana Water Policy Interim Committee Meeting, TBA. For info: Krista Lee Evans, Lead Staff, 406/ 444-1640; Committee website: leg.mt.gov

June 11 WA
Underground Storage Tank Installation Training, Seattle. For info: Renata Sobol, Northwest Environmental Training Center, 206/ 762-1976 or website: www.nwetc.org/training.htm

June 11 WA
Instream Values Symposium, Lacey. Lacey Community Center, 6729 Pacific Ave. SE, 8am-5pm. Sponsored by the Dept. of Ecology. For info: Tryg Hoff, Ecology, 360/ 407-6631, email: thof461@ecy.wa.gov or website: www.ecy.wa.gov

June 12-13 WA
Underground Storage Tank Inspection Training, Seattle. For info: Renata Sobol, Northwest Environmental Training Center, 206/ 762-1976 or website: www.nwetc.org/training.htm

June 13 WA
Hydropower Relicensing Conference, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

June 16-17 CA
Land Use & Climate Change Seminar, Los Angeles. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

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

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