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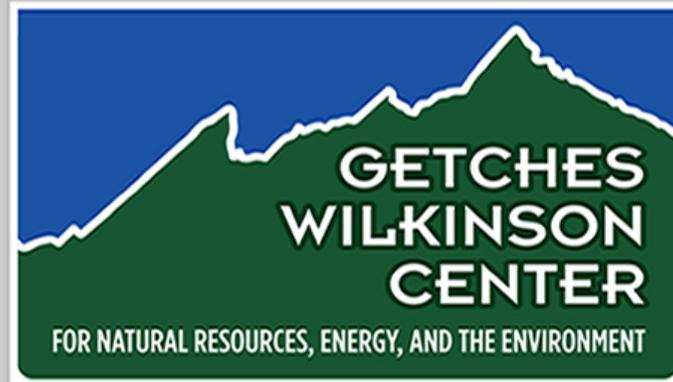
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**TWO DECADES OF WATER LAW AND POLICY REFORM
PROPOSALS: AN OVERVIEW**

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**TWO DECADES OF WATER LAW AND POLICY REFORM: A
RETROSPECTIVE AND AGENDA FOR THE FUTURE**

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**Natural Resources Law Center
University of Colorado School of Law
Boulder, Colorado**

Two Decades of Water Law and Policy Reform Proposals: An Overview

Larry MacDonnell

I. Summary

The federal and state laws and policies guiding allocation, development, use, and protection of water resources in the western United States have been the subject of intensive examination in the scholarly and popular literature during the past two decades. The vast majority of this literature has been critical of at least some of these laws and policies, often calling for extensive revision and even for wholesale reform.

This paper begins with an attempt to summarize the water policy context that spurred this enormous level of interest in reform at the end of the 20th Century.

It then summarizes primary criticisms of the existing framework, organized according to three general perspectives: economic; environmental; or equitable.

Next the paper discusses selected recommendations for change proposed in the legal and policy literature during the past two decades.

Finally the paper offers some general reflections on the reform process and its progress to date.

II. The Western Water Context in 1980

A. The End of an Era

For well over 100 years, human demands for water in the largely semi-arid West were met by enlarging the usable supply of water—largely at public expense. Especially important in the 20th Century was the construction of large, mainstem dams capable of capturing and holding the relatively large quantities of water available during spring runoff periods or other peak-flow events for use as needed. Primarily built with federal funds, these dams were justified as necessary for economic development and growth in

the western states. And, indeed, their dirt-cheap supplies of reliable water (coupled with cheap land) motivated widespread expansion of irrigated agriculture, while their equally cheap supplies of hydropower encouraged use of electricity in cities and industries.

By the 1960s, proposals for federally-supported water development had grown in scale to include plans to divert water from the Columbia River Basin into the Colorado River Basin, to move water from Canada to the Colorado, and to move water from Canada, the Great Lakes, or the Mississippi River to Texas. (Charles W. Howe & K. William Easter, *Interbasin Transfers of Water* (Baltimore: The Johns Hopkins Press, 1971). Professor Sax found it appropriate to devote a substantial portion of a 1968 text on water law and planning to the merits of growing cotton in Arizona with water from the Columbia River Basin. (Joseph L. Sax, *Water Law, Planning & Policy: Cases and Materials* (Indianapolis: The Bobbs Merrill Co., 1968).

By the 1970s, the “iron triangle” that had made federally-supported water development so politically popular began to weaken. (Daniel McCool, *Command of the Waters: Iron Triangles, Federal Water Development, and Indian Water* (Berkeley: University of California Press, 1987). The massive interbasin water transfer proposals generated surprisingly strong political resistance, especially from those in areas from which water was to come. Economists had begun subjecting water development proposals to rigorous cost-benefit analyses that demonstrated the enormous public subsidy they required. Some economists began suggesting that water use should be subject to the same marketplace requirements as other goods and services. Jack Hirshleifer, James C. DeHaven, and Jerome W. Milliman, *Water Supply: Economics, Technology, Policy* (Chicago: University of Chicago Press, 1960)

When President Carter issued his notorious “hit list” of proposed federal water projects to deauthorize in 1977, an era had come to an end.

B. The Environment

Occurring simultaneously but along an entirely different track was the so-called environmental movement of the 1960s and 1970s. While the primary target of this environmental movement was industrial pollution, preservation of nature also was important. Loss of free-flowing rivers and inundation of canyons and valleys caused by dams had long been a special concern of preservationists, but the closing of the Glen Canyon Dam gates on the Colorado River in 1963 made it a national issue. Russell Martin, *A Story That Stands Like A Dam: Glen Canyon and the Struggle for the Soul of the West* (New York: Henry Holt and Company, 1989). The Wild and Scenic River Act of 1968 reflected a growing agreement at the national level that river segments with special wild, scenic, or recreational value should not be dammed.

The Federal Water Pollution Control Act Amendments of 1972 were predominantly pollution-control focused, but they did establish an enforceable program nationwide with a strong federal presence. Moreover, in Section 404 they provided a regulatory program controlling dredging and filling activities in the waters of the U.S.—a program interpreted to extend to wetlands.

Seemingly unrelated to water was passage of the Endangered Species Act in 1973, formalizing a national commitment to protect species threatened with extinction. The power of this law became crystal clear with the U.S. Supreme Court's decision in *Tennessee Valley Authority v. Hill* (437 U.S. 153(1978)), holding that the law's direction in Section 7 that no federal action jeopardize the continued existence of an endangered species prevented TVA from closing the gates of the already constructed Tellico Dam.

Also seemingly unrelated to western water was enactment of the National Environmental Policy Act in 1969. With its emphasis on environmental full disclosure and consideration of alternatives, this purely procedural law opened up all water-related actions with a federal nexus.

C. Reserved Water Rights

A third set of events important in setting the context for this discussion also was occurring in the courts—focusing here on a legal construct called “reserved water rights.” This legal doctrine originated in a 1908 U.S. Supreme Court decision, *Winters v. United States* (207 U.S. 564), holding that creation of a reservation of public lands carried with it an implied reservation of water necessary to accomplish the purposes of the reservation. When, in 1963, the U.S. Supreme Court quantified the extent of other tribal reserved right in terms of “practicably irrigable acreage” and explicitly extended the implied reserved right to other types of federal reservations such as wildlife refuges and national recreation areas, it cast a cloud over all existing water uses based on traditional state water rights that might have been established after a tribal or federal reservation. *Arizona v. California*, 373 U.S. 546 (1963).

D. The Changing West

In 1980 the West remained a sparsely populated region of the country on average, but its population increase during the 1960s and 1970s in the sunbelt states had been dramatic (27% and 29%). El-Ashry and Gibbons, “The West in Profile,” *Water and Arid Lands of the Western United States* (Cambridge: Cambridge University Press, 1988). The concentration of this population in cities meant that the West was the most urban region of the country. Irrigation accounted for 90% of all water consumed and 80% of all water withdrawn, but urban uses were increasing while agricultural uses were stabilizing after a century of almost continuous growth.

While urban uses generally require considerably less water than agricultural uses, cities want long-term assured water supplies in quantities sufficient to accommodate whatever growth may occur. Thus they are motivated to secure these supplies well in advance of actual need. They are motivated to secure supplies that will be available even during periods of drought.

Cities also are far more concerned about water quality than agricultural users. Even though only a relatively small portion of urban water is directly consumed by humans, all

urban water supplies are treated to drinking water standards—typically a very expensive process.

Urban water suppliers generally have much greater financial resources available to obtain water than do agricultural water suppliers. They often can afford to build water projects bringing water from considerable distance if necessary to ensure a reliable supply. Nevertheless urban water suppliers are sensitive to keeping the cost of delivered water to the consumers as low as possible—partly for political reasons and partly to encourage economic growth.

Moreover, western urban dwellers in 1980 were likely to have very different attitudes about water than their rural counterparts. They expected to be able to grow Kentucky bluegrass lawns and have landscaping appropriate to an English garden. They sought out places with water for weekend recreation. Instead of temporary containers for water they saw reservoirs as lakes for swimming, boating, and fishing. They started looking for rivers to raft and kayak. They wanted gold medal trout streams for fishing.

Thus, by 1980 it was clear that change was coming to western water. Competition between and among uses, largely successfully avoided in the past through federally funded water projects, seemed certain to increase. Cities, with their growing populations and political power, seemed likely to prevail. The fear of massive federal water rights had subsided somewhat with the U.S. Supreme Court decision in *United States v. New Mexico*, 438 U.S. 696 (1978), sharply limiting potential claims for national forests. Tribal reserved rights claims remained largely untested but potentially quite large. New environmental laws had demonstrated an unexpected ability to potentially block new water development (including the proposed Grayrocks project in Wyoming), but Congress had seemingly resolved that situation shortly thereafter by creating the “God squad.” The effect of these laws on existing uses remained uncertain. One thing was clear: laws like the National Environmental Policy Act, the Clean Water Act, and the Endangered Species Act now provided access to many water decisions for a whole new set of interests. And, despite the outrage expressed by virtually all western politicians to

President Carter's hit list, the consensus for federal funding of large water and power development projects had disappeared.

III. Perspectives on the Need for Reform

Reformers rarely come from inside the system they seek to change, and certainly this is true with water. Critics of existing water institutions, at least those who have published their criticisms, have come primarily from academia and nonprofits. Because my topic is an overview of reform proposals, the following presentation focuses solely on the views of the critics—largely as stated in their published works. It does not attempt to present countervailing perspectives.

This section organizes around three general perspectives on reform: economic, environmental, and equity. Primary criticisms of the existing framework are summarized.

A. Economic

In the 1970s and early 1980s economists generally predicted continuing increases in demand for water. U.S. Water Resources Council, *The Nation's Water Resources, 1975-2000: The Second National Water Assessment* (Washington, D.C: GPO, 1978). They assumed that agricultural demands would continue to increase as they had throughout the century, but at a slower rate of growth than previously. E.g., Kenneth D. Frederick and Allen V. Kneese, "Competition for Water," ch. 3 in *Water Scarcity: Impacts on Western Agriculture*, Ernest A. Engelbert with Ann Foley Scheuring, eds. (Berkeley: U. of California Press, 1984). Industrial uses of water, especially related to energy production, were expected to increase substantially, as were urban uses as western cities continued to grow. Moreover, in 1978 the U.S. Water Resources Council produced estimates of stream flows needed to sustain fish populations suggesting that existing human uses of water already exceeded minimum needs to support fisheries in the more arid regions of the West. U.S. Water Resources Council, *The Nation's Water Resources, The Second National Assessment*, vol. 3, app. II, 1978.

While there was general agreement that demands would increase, there was less agreement about supply. Some still held out hopes for continued large-scale, federally supported water projects. E.g., Harvey O. Banks et al., “Developing New Water Supplies,” ch. 4 in *Water Scarcity*. Others looked to weather modification, additional ground-water development, desalination, and water reuse. Most assumed that users with sufficient funds of their own such as cities and industries would be able to build additional water storage projects.

Supply and demand for water have not been analyzed in the same manner as for other goods and services. Because water is considered a public good, there has been no charge for its use. Because it has been regarded either as an entitlement or as a means to a social end, water has most often been publicly provided and at a considerably subsidized cost. As with use of other natural resources, environmental externalities associated with water development simply were not accounted for until the 1970s.

By disregarding economics—that is, that the economic value of the uses must be able to pay the full cost of those uses—we substantially overdeveloped our water supply. Particularly with the inclusion of environmental costs, most users (irrigators) are unable to pay the full costs of the water supply they have come to depend on. Continuing public subsidies are required, but political support for those subsidies has weakened substantially as their extent has become better understood.

1. The price paid by most water users is too low and does not reflect the cost of water supply, primarily because of policy decisions to subsidize the costs.
2. The “use it or lose it” provision of prior appropriation law is an incentive to divert water whether it is needed or not. Encourages wasteful use of water.
3. Water use entitlements are not readily transferable to new users and new uses.
4. Public allocation of water necessarily encourages “rent-seeking” behavior among interests groups that can lead to an inefficient allocation of the resource.

B. Environmental

Environmental and recreational interests in the West have perhaps been the vocal advocates for reform of western water law and policy over the past two decades. In addition to their general dislike of dams, they pointed to the nonexistent or very limited recognition of instream values included in water law. Most western streams had already been fully allocated to human uses without any protection for instream uses such as for fisheries or recreation. A water user could dry up a stream if necessary to get water authorized for diversion under a water right. Dams operated to meet commitments to water and power users, largely without regard for the environmental consequences. Most state systems of water law did not recognize instream uses of water as “beneficial” and thus subject to appropriation. Newly developing programs in many states attempted to address this situation, but their efforts were necessarily subject to preexisting water rights and water uses. Despite the increase of pollutant concentrations caused by water diversions and the increase of pollutant loadings caused by return flows, use of water rights was not conditioned to limit these harms. From an environmental perspective, there was very little to like about western water law.

1. Protection of the natural environment and maintenance of flows necessary for recreation are not recognized beneficial uses of water in many states.
2. The physical diversion requirement of water law is a barrier to appropriating water for instream purposes.
3. Environment is not considered/protected when water rights are issued.
4. Existing water rights are not conditioned to protect the environment.
5. State programs protecting instream flows do not consider the full range of instream water requirements, are limited to minimum amounts, and are restricted to designated public entities.
6. The water quality problems associated with water use are not addressed in either water allocation or water quality protection proceedings.

C. Equity

This category is not as well defined as the previous two. It includes a variety of interests that rely primarily or heavily on equitable arguments in their proposals for reform. Generally, like environmentalists and recreationalists, these advocates point to the

exclusion or insufficient consideration of their interests under existing water law and policy. Charles F. Wilkinson, “Aldo Leopold and Western Water Law: Thinking Perpendicular to the Prior Appropriation Doctrine,” 24 **Land and Water L. Rev.** 1 (1989); David H. Getches, “From Askhabad, to Wellton-Mohawk, to Los Angeles: The Drought in Water Policy,” 64 **U. Colo. L.Rev.** 523 (1993).

They include tribal representatives—some of whom resist having to go through non-Indian legal processes to be able to use water (humans cannot own water or water rights), others who chafe under the rules and requirements of these processes (only be able to get water rights for irrigation), others who note the inequitable treatment of tribes in federal funding for water development (Daniel McCool, *Command of the Waters: Iron Triangles, Federal Water Development, and Indian Water* (Berkeley: U. of California Press, 1987), and still others who fear that aggressively pursuing the full extent of their legal rights might result in loss of their rights (Congressional or Supreme Court decision to disavow Indian reserved water rights).

They include residents of water-rich areas that are the target of large-scale water development for transfer to water-scarce regions. Most western state laws allow such transbasin diversions. Federal and state support for water development historically encouraged and enabled such development. Prior appropriation measures the validity of a claim to water by the appropriator’s financial ability to capture and use the water and rewards the earliest to do so with a senior priority. Other considerations enter, if at all, under a “public interest” review of new appropriations authorized in most states.

They include residents in rural areas with local economies still significantly dependent on use of water for farming and ranching. F. Lee Brown and Helen M. Ingram, *Water and Poverty in the Southwest* (Tucson: The University of Arizona Press, 1987) If water marketing closes down this part of their economy there are few other options available.

1. The values promoted in existing water policy (e.g., favoring consumptive uses over non-consumptive uses; favoring earlier appropriators over later users;

favoring those with money over those without money; favoring private uses over public values; favoring security over risk sharing; subsidizing irrigated agriculture but not tribal water development) are inconsistent with contemporary interests.

2. Areas from which interbasin transfers take water are insufficiently protected.
3. Tribal water rights are uncertain, are difficult and expensive to quantify and establish under state law, and may be limited to uses of little contemporary value or interest to a tribe.
4. Water decision-making, especially at the state level, offers limited opportunity for participation, except by appropriators.

IV. Selected Reform Proposals

A. Water Marketing

A major thrust of the reform efforts of the past two decades has centered on promoting the use of markets to facilitate reallocation of water. Economists were perhaps the most enthusiastic proponents of water marketing, but they were joined by many environmentalists who came to view markets as an acceptable alternative to new dam construction. Markets for reallocation of water from federal Reclamation projects received special attention. Terry L. Anderson, *Water Crisis: Ending the Policy Drought* (Baltimore: The Johns Hopkins University Press, 1983); *Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment*, Terry L. Anderson, ed. (Cambridge, Mass: Ballinger Publishing Co., 1983); Kenneth D. Frederick and Allen K. Kneese, “Competition for Water,” in *Water Scarcity: Impacts on Western Agriculture*, Ernest A. Engelbert with Ann Foley Scheuring, eds. (Berkeley: University of California Press, 1984); Mohamed T. El-Ashry and Diana C. Gibbons, *Troubled Waters: New Policies for Managing Water in the American West* (Washington D.C.: World Resources Institute, 1986); Bonnie Colby Saliba and David B. Bush, *Water Markets in Theory and Practice: Market Transfers, Water Values, and Public Policy* (Boulder: Westview Press, 1987); Rodney T. Smith, *Trading Water: An Economic and Legal Framework for Water Marketing* (Washington, D.C.: The Council of State Policy and Planning Agencies, 1988); Zach Willey and Tom

Graff, “Federal Water Policy in the United States—An Agenda for Economic and Environmental Reform,” in 13 **Columbia Journal of Environmental Law** 325, 1988; Richard W. Wahl, *Markets for Federal Water: Subsidies, Property Rights, and the Bureau of Reclamation* (Washington, D.C.: Resources for the Future, 1989); Marc Reisner and Sarah Bates, *Overtapped Oasis: Reform or Revolution for Western Water* (Washington, D.C.: Island Press, 1990).

Interestingly, while support for marketing stayed generally strong, analysts started focusing on the “third party” effects associated with water transfers—parties other than water right holders benefiting in indirect ways from the existing water use who would not necessarily be compensated for their loss in the event of a transfer. National Research Council, *Water Transfers in the West: Efficiency, Equity, and the Environment* (Washington, D.C.: National Academy Press, 1992). Despite the fact that such third parties are not ordinarily compensated in market transactions, the prevailing view was that they should be for water transfers. U.S. General Accounting Office, *Water Transfers: More Efficient Water Use Possible, If Problems Are Addressed*, GAO/RCED-94-35 (1994).

B. The Public Trust

One avenue to reform explored actively over the past two decades has been the Public Trust doctrine. Resurrected by Professor Joseph Sax in 1970 (“The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention,” 68 **Mich. L. Rev.** 471), the doctrine potentially provides a legal basis for incorporating public trust (environmental) values into prior public grants of private rights in public resources such as water or, even in the absence of statutory direction, obligating those empowered to make such grants to include conditions to protect the public trust.

In *National Audubon Society v. Superior Court*, 658 P.2d 709, *cert denied*, 464 U.S. 977 (1983), the California Supreme Court determined that the state could not have granted water rights that would allow the drying up of Mono Lake.

This doctrine is extremely appealing from an environmental perspective. It provides a legal basis for asserting that public trust (environmental) values have precedence over other private and public interests in certain circumstances. It potentially trumps property rights. It does not depend on state legislators, state engineers, or county commissioners. Concerned environmentalists can make their case directly to a judge. *Symposium on the Public Trust and the Waters of the American West: Yesterday, Today and Tomorrow*, **Environmental Law**, vol. 19, no. 3, Spring 1989 (containing 13 papers).

C. Instream Flow Protection

Considerable attention has been placed since the 1970s on developing state programs or processes by which flows of water can be legally protected instream. Virtually all western states have now developed such programs legislatively or other means have been found by which this end can be accomplished. In addition to encouraging the creation of such programs in some states, reform efforts have focused on enlarging the possible purposes for which instream flows may be protected, increasing the amounts of water that can be protected, and extending the ability to establish such protections to more interests. *Instream Flow Protection in the West*, Lawrence J. MacDonnell, Teresa A. Rice, and Steven J. Shupe, eds (Boulder: Natural Resources Law Center, 1989; *Revised Edition*, Lawrence J. MacDonnell and Teresa A. Rice, eds. (Boulder: Natural Resources Law Center, 1993); David M. Gillilan and Thomas C. Brown, *Instream Flow Protection: Seeking a Balance in Western Water Use* (Washington, D.C.: Island Press, 1997).

D. Water Use Efficiency

Virtually everyone who has looked at western water issues with an eye to change has called for increased efficiency of water use. Charles F. Wilkinson, "Western Water in Transition," 56 **U. of Colorado Law Review** 317 (1985); Bruce Driver, *Western Water: Tuning the System, Report to the Western Governor's Association from the Water Efficiency Task Force* (Denver: Western Governors Association, 1987); David H. Getches, "Water Use Efficiency: The Value of Water in the West," 8 **Public Land**

Law Review 1 (1987); Marc Reisner and Sarah Bates, *Overtapped Oasis: Reform or Revolution for Western Water* (Washington, D.C.: Island Press, 1990); Long's Peak Working Group, *America's Waters: A New Era of Sustainability* (Boulder: Natural Resources Law Center, 1992). Attention has focused primarily on irrigation uses because they account for such a large share of all existing water uses. Steven J. Shupe, "Waste in Western Water: A Blueprint for Change," 61 **Oregon L. Rev.** 483 (1982). Three general approaches have been promoted:

1. Eliminate disincentives to efficiency and add incentives in existing water law and policy
 - Clarify that conserved water is not waste
 - Give legal right to transfer water conserved or salvaged without harm to other water rights
2. Provide direct financial incentives/disincentives
 - Subsidize installation of improved practices
 - Facilitate water marketing
 - Increase price of water use
3. Directly regulate water use
 - Legislatively require use of best technology or establish classes of water duties
 - Judicial enforcement of reasonable/beneficial use standards
 - Administrative enforcement

Janet C. Neuman, "Beneficial Use, Waste, and Forfeiture: the Inefficient Search for Efficiency in Western Water Use," 28 **Environmental Law** 919 (1998).

E. Decision Making and Governance

To address the perceived exclusion of important values and interests not presently reflected in water decision making several approaches have been proposed:

1. Planning

David H. Getches, "Water Planning: Untapped Opportunity for the Western States," 9 **Journal of Energy Law and Policy** 1 (1988); Charles F.

Wilkinson, "Aldo Leopold and Western Water Law: Thinking Perpendicular

to the Prior Appropriation Doctrine,” 24 **Land and Water Law Review** 1 (1989).

2. Basin-Level Integration

David H. Getches, “From Askhabad to Wellton-Mohawk, to Los Angeles: the Drought in Water Policy,” 64 **U. of Colorado Law Review** 523, 549-51 (1993); Western Water Policy Review Advisory Commission, *Water in the West: Challenge for the Next Century*, June 1998.

3. Watershed Initiatives

Natural Resources Law Center, *The Watershed Source Book: Watershed-Based Solutions to Natural Resource Problems* (1996); *The New Watershed Source Book: A Directory and Review of Watershed Initiatives in the Western States* (2000).

V. **Reflections on Reform Efforts**

A. **It’s easier to identify problems than to come up with implementable proposals for change.**

From my perspective, the reform literature makes a strong and generally convincing case that there are problems with the existing water law and policy framework. From an economic and environmental perspective we have substantially overdeveloped our limited water supply. We have neglected the ecological impacts of that development. We have not met our treaty-based, legal obligations to most tribes. We do not use water efficiently from a present-day perspective.

Most reform proposals are presented in broad policy terms that propose concepts and directions for change. Proposers of reform are not typically in a position to actually implement change and so are less concerned about the practical problems such proposals might raise. For similar reasons, reformers generally do not consider the entrenched nature of the commitments already made, the dependencies formed on the basis of the commitments, and the difficulties economically (not to mention, politically) of putting in place the proposed changes.

Every drop of western water is claimed, at least once, by somebody—states on behalf of their citizens, water rights holders on behalf of their users and uses, contract beneficiaries such as hydropower operators, inchoate reserved right holders, agency regulators on behalf of their legal responsibilities, recreational users, and so on. Proposed changes of water law and policy are assessed by each of these claimants for effects, positive or negative.

In such a context, voluntary change is most likely only in the face of a “crisis” or an immediate threat to the status quo that could produce worse consequences. Such an overriding threat or crisis has not presented itself during the past two decades. Despite some predictions to the contrary there have not been any major problems with meeting new consumptive use demands during the past two decades. Water has been available. Agricultural demands have stabilized and are apparently declining somewhat. Water to meet identified environmental needs also has been found—though not without considerable effort, often through regulatorily-driven processes.

B. Change is happening because the traditional water law/policy framework has expanded rather than changed.

The overriding themes of the reform effort—water reallocation to meet new needs and increased participation in water-related decision making—are occurring despite the fact that there have been few significant changes to water law itself. Historically water law concerned itself with matters of allocation of human use, and water policy concerned itself with public support to encourage development and use of allocated water. The end of federal support for Reclamation projects and the creation of an overlay of federal environmental law have driven changes despite determined efforts by western states and the traditional water user community to maintain the status quo.

The pervasiveness of federal influence respecting new western water development became evident during the Two Forks process. Even though this was a project without federal subsidies it did require federal permits. These permit processes opened up the decision-making processes and turned the appropriateness of this

project into a full public debate. In the end a federal regulatory process, emboldened by the surprising degree of public opposition to the proposed project that emerged in the public debate, denied the project.

During that same period a proposed non-federal irrigation project on Wildcat Creek in the lower South Platte drainage of Colorado ran directly into endangered species concerns 200 miles downstream on the mainstem Platte River in Nebraska. The Fish and Wildlife Service had determined that any additional depletions of water in the Platte Basin would jeopardize the continued existence of the whooping crane and several other species dependent on this habitat. Driven largely by the ESA, there are substantial public processes underway in every major river basin in the West searching for ways to change existing water management to make it more compatible with the needs of native species. Western Water Policy Review Advisory Commission.

The rules of the water development game have inalterably changed. It is no longer sufficient simply to have water rights and money. Water development (with a federal nexus) now has to pass through NEPA review and, at a minimum, meet the requirements of Section 404 of the Clean Water Act and the Endangered Species Act. Federally-licensed hydroelectric power facilities in need of license renewal are being scrutinized for ways to make their operations more environmentally compatible. Bureau of Reclamation and Corps of Engineers' water projects are being altered and reoperated to make them more environmentally friendly. Because of federal environmental law considerable progress is being made to better address the ecological needs of western rivers and streams. Reed D. Benson et al., "Recommendations for an Environmentally Sound Federal Policy on Western Water," 17 **Stanford Environmental Law Review** 247 (1998).

Moreover, water marketing is happening. Water is moving from the Imperial Irrigation District to cities in Southern California. Water banks are emerging to help facilitate transactions. Nonprofit water trusts are appearing to purchase water rights

and dedicate their use to instream purposes. These transactions are happening within the existing legal framework, for the most part.

There was some speculation, led by a certain scholar with close ties to the University of Colorado, that Prior Appropriation had died—probably of a heart attack because of this federal intervention. While there were vociferous denials, I think that Prior did in fact pass away at this time. His place has been taken by Prior, Junior. Now Prior, Jr. is really a chip off the old block in most respects but he is enough of this era to see the potential utility of leaving some water in streams under certain limited circumstances. He knows that the world has changed from Prior, Sr.'s time, that the federal government is no longer his partner in water development, that there are a large number of new participants wanting a say about what happens with water. He doesn't necessarily like what he sees, but he understands that things have changed from his father's day. Nevertheless, he still largely calls the shots on western rivers through all the thousands upon thousands of water rights that have been established over the past 150 years. Not in the unfettered manner of Prior, Sr. but in the very real sense that rivers are managed first to meet his dictates and then other values are included as possible.

C. States have little motivation to make significant changes in water law.

Much of the reform literature is directed at the need for changing state water law. One that makes most lists is the “use it or lose it” requirement. Another is the ill-defined “beneficial use” requirement. A third includes laws governing surface and ground water use that fail to acknowledge their physical relationship. Robert Jerome Glennon and Thomas Maddock, III, “In Search of Subflow: Arizona's Futile Effort to Separate Groundwater From Surface Water,” 36 *Arizona L. Rev.* 567 (1994). Fourth is the issuance of water rights measured only by a maximum rate of diversion without a volumetric quantification. Fifth is the existence of special water districts with narrow missions that may have taxing authority but may not have an elected board of directors. *Special Water Districts: Challenge for the Future*, James N. Corbridge, ed. (Boulder: Natural Resources Law Center, 1994). Sixth is the legal and institutional

separation of water quality and water quantity despite their important physical relationship. David H. Getches et al., *Controlling Water Use: The Unfinished Business of Water Quality Protection* (Boulder: Natural Resources Law Center, 1991). Seventh are proposals directed at ways that would facilitate water marketing. Eighth are proposals for planning processes or other mechanisms to allow broader participation and consideration of emerging water concerns.

In fact there have been some noteworthy efforts. California and New Mexico, for example, have clarified that conserved water is not wasted (Cal. Water Code §1011(a); New Mexico Statutes Annotated § 72-5-28), and California legislated several new provisions intended to encourage water marketing and water recycling. Oregon and Montana attempted to encourage water conservation by clarifying that conserved water could be marketed. Montana Code Annotated §§ 85-2-102(15), 85-2-402(2)(e), 85-2-419; Oregon Revised Statutes §§ 537.463-500. Texas initiated an ambitious water basin planning process. John R. Pitts and Janet L. Hamilton, "Texas Water Law for the New Millennium," **Natural Resources & Environment**, vol. 13, Summer 1999, pp. 35-41, 71; J.E. "Buster" Brown, "Senate Bill 1: We've Never Changed Texas Water Law This Way Before," **State Bar of Texas Environmental Law Journal**, vol. 28, no. 4, Spring 1998, 152-65. Nebraska required conjunctive management of groundwater pumping hydrologically-connected to surface water. Neb. Rev. Stat. §46-656.

By and large, however, states have been reluctant to take up the banner of water law reform. David H. Getches, "The Metamorphosis of the Western Water Policy: Have Federal Laws and Local Decisions Eclipsed the States' Role?" 20 **Stanford Environmental Law Journal** 3 (2000). Understandably states are sensitive to the interests of those hold water rights under the existing legal framework. Water rights holders and the special districts that represent them are the direct beneficiaries of the status quo. They are well organized, politically active because of the public nature of water, and vocal. Particularly the agricultural community perceives that it has much to lose from water reform and has generally chosen a strategy of aggressive resistance

to change. Unfortunately, much of the reform rhetoric has been cast in what is perceived to be “anti-agricultural” terms, focusing on the “wasteful” use of water in irrigation and the use of water for growing “low value” crops. Lawrence J. MacDonnell, *From Reclamation to Sustainability: Water, Agriculture, and the Environment in the American West* (Niwot: University Press of Colorado, 1999). Urban interests have been able to get the water they need within the existing framework and generally have chosen to support the system they know rather than the one they don’t.

Most states have moved cautiously ahead with recognizing instream uses of water for environmental purposes, but only under limited circumstances with a high degree of state supervision. Water marketing, while it is happening, remains controversial and costly, and its future is still uncertain. Until more consensus develops around the manner in which such marketing should occur, states are likely to remain on the sidelines. Water use efficiency in irrigation appears to be a long-term policy objective. The considerable burden that a state-level regulatory program would place on water users has not yet been justified by the benefits it would produce, except in specific circumstances in which there are clearly identifiable needs that can be directly met through reduced diversions. Even such apparently technical matters as recognizing the linkage between surface water and ground water raise difficult problems of overcoming settled practices relied on by many water users in exchange for sometimes difficult to measure benefits.

Moreover, environmental concerns are being addressed in many respects at the federal level—to some degree, freeing states from this responsibility. Not only does this shift the burden, it also helps ensure that environmental requirements are somewhat equally imposed on all water users around the West—not just those in any particular state.

D. The reform dialogue has highlighted the dynamic tension between those who see water as a public resource and those who favor its privatization.

While there is almost unanimous agreement on water marketing as a reform proposal, reform proponents often diverge considerably on the need for public actions to accomplish reform objectives. The “New Resource Economists,” led by Terry Anderson, urge essentially full privatization of water—arguing that public control inevitably leads to the kind of “rent-seeking” behavior that reached its apogee (nadir?) with the federal Reclamation program. Terry L. Anderson and Pamela Snyder, *Water Markets: Priming the Invisible Pump* (Washington, D.C.: Cato Institute, 1997). By contrast, public trust doctrine proponents would subject all private interests in water to direct, ongoing public supervision to meet evolving public interests in that water.

Given the innumerable non-market physical and ecological functions performed by water as it moves through the hydrologic cycle, the case for total privatization of water seems weak to me. At the same time I am uncomfortable with the idea that private uses of water should be permanently subjected to an unbounded public supervision. Water is in fact a quintessential public resource, most of the time in nature’s service. For relatively short periods of time its use is commanded for direct human benefit. We need to increase the certainty associated with necessary human uses and reduce the degree to which these uses unnecessarily impair water’s other functions.

Thus we should consider fully privatizing that portion of water consumed in human uses and therefore not available to others. This quantity of water would be considered private property, usable in any manner desired by its owner(s). This quantity of water would be transferable to a new use and would be fully consumable in the new use. Carriage water associated with the old use, however, would stay with the stream or aquifer.

Reducing the burden of human water uses on water sources is a more difficult task. Numerous large and small scale efforts are underway, ranging from the big river stakeholder processes like CALFED to dam decommissioning to voluntary and

regulatory dam reoperation to local watershed restoration efforts. All these approaches and more will be needed to return our rivers to ecological sustainability.

Conceptually, we are moving from the view that streams and aquifers are simply sources of water for human use to the view that human uses should be compatible with the functionality of these complex natural systems. As we better understand these systems, our view is shifting from one that asks “how much water should be left instream” (Gillilan and Brown, at 95) to “how much water should be taken out of streams and when?” We are beginning to think in “upside down” terms, with necessary human uses subtracted from the total rather than the other way around. Nicole Silk, et al., “Turning Instream Flow Water Rights Upside Down,” **Rivers**, vol. 7, no. 4, 298-313 (2000).

Reform is well underway

We are moving actively towards many, perhaps most of the stated reform objectives—not necessarily in the manner foreseen by reform advocates and not necessarily with the desired speed. No revolution has occurred. Yes, Prior Sr. has passed away but Prior Jr. is still there. But so are lots of other people: tribes, environmental groups, urban greenways advocates, rafters, anglers, watershed councils, land trusts, and—of course—regulators. The dream of publicly-subsidized, big water development projects lives on, but economic and environmental realities are causing many who formerly shared that dream to move on. Accommodation is the name of the game: incremental steps that are acceptable and meet immediate needs. Not very dramatic but it works so long as there is sufficient slack in the system.