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Reconnecting Property Rights to Watersheds

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RECONNECTING PROPERTY RIGHTS TO WATERSHEDS

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I. INTRODUCTION: THE REEMERGENCE OF HYDROLOGICAL GOVERNANCE

This article examines the extent to which common law property rights¹ use watershed resources to promote watershed conservation. The modest thesis of the article is that for over two centuries, land and water law has functioned to detach property rights from specific landscapes and, thus, has contributed to landscape degradation. There is a need to redefine both land and water rights to include a landscape conservation component because property rights are entitlements that both represent exclusive and semi-exclusive abstract relationships and are specific in time and place.² It will be constitutionally easier to redefine water rights compared to land rights³ because the former has always been defined in relation to the hydrologic integrity of the larger stream system.⁴ The current Supreme

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¹ This category includes common law doctrines that have been legislatively modified.

² Professor Charles Wilkinson has pioneered the focus on the landscape from which property rights arise through his efforts to articulate an ethic of place. *See generally* CHARLES F. WILKINSON, *CROSSING THE NEXT MERIDIAN* (1992). Many of the themes in this article are developed in a recent article by Professor Lynda Butler. *See* Lynda Butler, *The Pathology of Living With Nature's Boundaries*, 73 S. CAL. L. REV. 927 (2000).

³ One of the major projects of environmental law is to develop a “green” or organic theory of property rights to counter the Supreme Court’s hostility toward environmental regulation of land and water use. Professor Eric Freyfogle of the University of Illinois, Champaign-Urbana is one of the intellectual leaders of this effort. *See, e.g.,* Eric Freyfogle, *Eight Principles for Property Rights in an Anti-Sprawl Age*, 23 WM. & MARY ENVTL. L. & POL’Y REV. 777 (1999). For an exploration of the reasons for the Supreme Court’s hostility or indifference toward environmental protection see Richard Lazarus, *Restoring What’s Environmental About Environmental Law and the Supreme Court*, 47 UCLA L. REV. 703 (2000).

⁴ *See* A. Dan Tarlock, *Reconnecting Property Rights to Watersheds*, 25 WM & MARY ENVTL. L. & POL’Y REV. 69 (forthcoming 2000, manuscript on file with author).

Court has interpreted the Fifth Amendment to include very restricted landscape protection duties,⁵ but the closer the connection of land to water, the greater the potential to include a landscape conservation component in the property right.⁶

A. A Brief History of Watershed Governance From 1891- 1981

Watershed resources include both the lands and waters within a defined ecological unit.⁷ This said, watershed is neither a legal term in the United States with a uniform meaning nor a functional political and resource management unit.⁸ The term is defined situationally in water law to protect downstream users,⁹ but outside of water law, property rights are generally not defined in relation to a specific geographic locale. Property rights are abstract universal relationships good across space and time.¹⁰

⁵ Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433, 1438 (1993).

⁶ In the 19th century, the 5th Amendment prohibition against the taking of property except for a public use was widely understood to mean that the condemnation would be for a use open to the public. However, the Court sustained a Utah statute that allowed an individual appropriator to condemn a right of way across all private lands to construct the necessary ditches to enjoy the water right. *See Clark v. Nash*, 198 U.S. 361, 365 (1905). (noting that the validity of the statute depended upon a number of considerations relating to the situation of the state and its possibilities for land cultivation). *Accord Kaiser Steel Corp. v. W.S. Ranch Co.*, 467 P.2d 986, 988 (N.M. 1970) (holding statutory right extends to all beneficial uses of water).

⁷ *See George Cameron Coggins, Watershed as a Public Natural Resource on the Federal Lands*, 11 VA. ENVTL. L.J. 1, 13 (1991).

⁸ Professor J.B. Ruhl argues that the watershed is a superior concept to the ecosystem because "we can define boundaries and sub-boundaries and the flow across each with some reasonable degree of precision." J.B. Ruhl, *The (Political) Science of Watershed Management in the Ecosystem Age*, 35 J. AM. WATER RES. ASS'N 519, 522 (1998).

⁹ *See, e.g., Anaheim Union Water Co. v. Fuller*, 88 P. 978, 982 (Cal. 1907). California has the most well developed law of the situational watershed. For example, a riparian landowner below the confluence of two streams may include both within the definition of the watershed, but riparians on a single stream above the confluence are limited to the use of waters that drain into that stream. To complicate matters, a riparian right is based on some contact with the stream but the water used need not drain back into the stream from which it was taken. *See Rancho Santa Margarita v. Vail*, 81 P.2d 533, 549 (1938) (explaining the complete exposition of the watershed rule).

¹⁰ For a lucid criticism of the post 17th century theory of property see Robert J. Goldstein, *Green Wood in the Bundle of Sticks: Fitting Environmental Ethics and Ecology into Real Property Law*, 25 B.C. ENVTL. AFF. L. REV. 347 (1998). The history of the modern theory of property as a commodity is traced in R.H. TAWNEY, *RELIGION AND THE RISE OF CAPITALISM* 16-50 (1926).

The watershed is not generally a formal functional planning unit. Unlike countries such as Australia, which have a rigorous catchment planning process,¹¹ there are no uniform, formal watershed planning processes in the United States to provide a framework integrated for land and water management and to include a landscape conservation component in individual property rights. Further, no consensus exists in the United States about either the scale or boundaries of such units or the proper allocation of control authority.¹² The terms watershed and river basin continue to be used indiscriminately, although "watershed" usually now refers to the catchment area of an individual stream or river and the older planning term, river basin, refers to the drainage area of a large river and its tributaries.¹³

The attempt to organize public policy along hydrologic rather than political units has a long history in the United States which is in part a function of the oscillations between progressive and conservative political dominance.¹⁴ Watershed protection was the original rationale for the creation of the national forests in 1891, although the Supreme Court has refused to acknowledge this legacy.¹⁵ In the Progressive Conservation Era and again in the New Deal, planners and reformers tried to use the river basin, which included all of a system's watersheds, as the basis for comprehensive physical and social development.¹⁶ During the New Deal, there were efforts to focus on the land use impacts of federal water

¹¹ See David Farrier, *Planning and Land Use in New South Wales*, in ENVIRONMENTAL LAW HANDBOOK 89-91 (2d ed. 1993).

¹² See Robert W. Adler, *Integrated Approaches to Water Pollution: Lessons From The Clean Air Act*, 23 HARV. ENVTL. L. REV. 203, 257-59 (1999).

¹³ See Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVTL. L. 973, 1088-1094 (1995).

¹⁴ See generally SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT 1890-1920 (1959).

¹⁵ *United States v. New Mexico*, 438 U.S. 696, 718-25 (1978) (Powell, J., dissenting in part) (explaining that congressional "interest" in establishing the national forest was not fully recognized by the majority in this opinion).

¹⁶ President Roosevelt hoped to use the Tennessee Valley Authority as a model for river basin authorities but after the Missouri basin states rejected a TVA-style authority, the idea died. See JOHN R. FERRELL, *THE BIG DAM ERA* 101-121 (1993).

development¹⁷ but these efforts were unsuccessful, as was another effort launched in the 1960s.¹⁸

Efforts to promote hydrologic governance were undermined both by deep political opposition to any transfer of power from the states to regional, federally created bodies and by the legal system.¹⁹ The law has gradually eroded the connection between humans and an actual physical space by making property a universal abstraction rather than a situation-dependent entitlement. In the United States, both land and water resources have been viewed as commodities²⁰ and this has allowed the law to "detach" rivers from their surrounding ecosystems. Both science and law have contributed to the "detachment" of rivers from their watersheds.

Science began the detachment, but law was ready to follow. Hydrology was developed as the science of river manipulation;²¹ dissenting geographers concerned with possible adverse effects of modified river behavior were relegated to a marginal status.²² Two major developments stand out in the legal transformation of landscape to commodity. First, water law was largely transformed from a watershed conservation law regime to one which reconceptualized the watershed into an area of origin - a source for more distant urban and agricultural demands. Rights were assigned to individuals rather than geographical entities. Second, the story with respect to land is much more complex, but the major development was to turn land into an abstract commodity where little if any weight was given to the ecological sensitivity of particular

¹⁷ See U.S. NATIONAL RESOURCES COMMITTEE, REGIONAL FACTORS IN NATIONAL PLANNING AND DEVELOPMENT 12-13 (1935).

¹⁸ NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 416-418 (1973).

¹⁹ See FERRELL, *supra* note 16, at 103.

²⁰ The influence of western European law and economic theory on the perception of all land and related resources as commodities from the time of settlement has been brilliantly explored by the environmental historian William Cronon. See generally WILLIAM CRONON, CHANGES IN THE LAND: INDIANS, COLONISTS, AND THE ECOLOGY OF NEW ENGLAND (1983); WILLIAM CRONON, NATURE'S METROPOLIS (1991). The adverse consequences of the "commodification" of nature is the central theme of modern environmentalism. See, e.g., Lester W. Milbrath, *The World is Relearning Its Story About How It Works*, in ENVIRONMENTAL POLITICS IN THE INTERNATIONAL ARENA: MOVEMENTS, PARTIES, ORGANIZATIONS AND POLICY 21 (Sheldon Kamienecki ed., 1993).

²¹ NATIONAL RESEARCH COUNCIL, COMMITTEE ON OPPORTUNITIES IN THE HYDROLOGIC SCIENCES, OPPORTUNITIES IN THE HYDROLOGIC SCIENCES 38-43 (1991).

²² See *id.*

units of land and to the cumulative impacts of land development on larger ecosystems and landscapes.²³

The goal of maximum physical development through multiple-use projects dominated water and public land use thinking until the late 1960s.²⁴ Scientific conservation did not set out to separate land from water; in fact, early proponents of conservation recognized the close relationship between land and water management and the importance of regulating land use in the watershed.²⁵ But the conservation movement set in motion the process of separation by making supply augmentation and the large-scale alteration of river systems paramount to integrated land and water watershed management.²⁶ The water resources debate has, in fact, been dominated by the idea of comprehensive and coordinated federal river basin development to promote efficiency and social equity. At the height of the Conservation Era, President Theodore Roosevelt appointed an Inland Waterways Commission, which recommended a federal waterways commission to coordinate all river basin development. But sadly, a fight between the older Corps of Engineers and new Bureau of Reclamation led to the rejection of coordinated river management.²⁷ Thus, any hope of integrated federal watershed planning died in Congress after a

²³ See Sax, *supra* note 5, at 1438.

²⁴ The movement to conserve water resources originated in scientific surveys of the American West and the need to find a formula to sustain the settlement of the country's arid and semi-arid areas. Scientific conservation theory was driven by theories of production efficiency and assumed that the entire river system should be intensively developed and managed to maximize their economic potential through large-scale, multiple-use projects. Multiple-use became the organizing principle of both public and private water development and management. The major uses were irrigation, municipal and industrial use, hydroelectric power generation, and flood control. Environmental values were largely absent from this calculation or, when present, were secondary. "Conservation" provided the scientific and political bases for the principle of maximum water development which flowered between the turn of the century and the mid 1960s. See generally Donald J. Pisani, *TO RECLAIM A DIVIDED WEST: WATER, LAW, AND POLICY 1848-1902* (Ray Allen Billington et al. eds., 1992); see also Barton H. Thompson Jr., *Water Federalism: Government Competition and Conflict Over Western Waters*, in *ENVIRONMENTAL FEDERALISM* 175, 177-197 (Terry Anderson and Peter J. Hill eds., 1997) (classifying federal policy with respect to water resource policy into four eras: (1) Gestation 1849-1901, (2) Embryonic National 1902-1914, (3) National Empire 1924-1968 and (4) Environmental 1968-present).

²⁵ See HAYS, *supra* note 14, at 24-25.

²⁶ See LAWRENCE J. MACDONNELL, *FROM RECLAMATION TO SUSTAINABILITY: WATER, AGRICULTURE, AND THE ENVIRONMENT OF THE AMERICAN WEST* 231-233 (1999).

²⁷ See Hays, *supra* note 14, at 199-218.

ten-year fight. As a result, the United States has a long history of failed attempts to integrate water and land use because we have always opted for structural river development rather than integrated resource management.²⁸

Intensive federal water resources planning programs were put in place between the 1930s and 1970s, but the objective was primarily to facilitate the construction of large, multiple-purpose reservoirs to subsidize regional development.²⁹ Non-consumptive uses and non-structural flood control measures remained secondary to engineering solutions to encourage maximum use and development.³⁰ The last effort to integrate land and water management occurred when the Kennedy and Johnson administrations tried to reinvigorate the progressive conservation tradition and adapt it to the dawning environmental movement.³¹ Between 1965 and 1980, seven river basin commissions with broad planning powers to coordinate federal and state water and related land use development were formed, but their promise was never realized. As the influential National Water Commission noted in 1973, "[w]ater planning sometimes appears to be an end in itself."³² Ultimately Congress ignored the experience by defunding the program.³³

River planning in general has fallen into disrepute in part because the environmental movement took full advantage of the economic criticisms of subsidized regional water development to virtually shut down large-scale federal dam construction.³⁴ The driving force behind national

²⁸ The basic reason for this is that it was easy for the central government-either state or federal-to construct water resources projects, but it was impossible for these governments to control the development of the basin because the river basin is not a political unit. Thus, land use control has been delegated to the most local, fragmented units of government. Cf. Norman Wengert, *The River Basin Concept as Seen From a Management Perspective*, in STRATEGIES FOR RIVER BASIN MANAGEMENT 299, 302-04 (Jan Lunquist et al. eds., 1985).

²⁹ See generally BEATRICE HORT-HOLMES, A HISTORY OF FEDERAL WATER RESOURCES PROGRAMS, 1800-1960 (1972); BEATRICE HORT-HOLMES, A HISTORY OF FEDERAL WATER RESOURCES PROGRAMS 1960-1970 (1979).

³⁰ INTERAGENCY FLOOD PLAIN MANAGEMENT REVIEW COMMITTEE, SHARING THE CHALLENGES: FLOOD PLAIN MANAGEMENT FOR THE 21ST CENTURY 142-143 (1994).

³¹ See BEATRICE HORT-HOLMES, A HISTORY OF FEDERAL WATER RESOURCES PROGRAMS, 1960-1970 42-51.

³² NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 366 (1973).

³³ JOHN E. THORSON, RIVER OF PROMISE, RIVER OF PERIL: THE POLITICS OF MANAGING THE MISSOURI RIVER 103 (1994).

³⁴ DAVID LEWIS FELDMAN, WATER RESOURCES MANAGEMENT: IN SEARCH OF AN ENVIRONMENTAL ETHIC 70-76 (1991).

river basin planning had exhausted itself by the end of the 1970s. Thus, in the 1980s, the use of the hydrologic unit to coordinate natural resources policy was a casualty of the environmental movement's opposition to new dams and Congress' growing lack of interest in subsidizing regional water resources development.³⁵ However, no idea ever dies, and in the 1990s, watershed protection re-emerged as a major public policy objective at all levels of government.³⁶

B. The Reemergence of the Watershed in An Age of "Gridlocked" and Minimalist Politics

Watershed management is once again in vogue but in a more decentralized, ad hoc, stakeholder-driven form than previous hydrologic governance efforts.³⁷ The current focus is on the use of the watershed as a basis to integrate the control of point and non-point sources of pollution to improve water quality and meet other environmental objectives such as endangered species conservation and forest management. The primary focus is on the restoration and protection of watersheds to realize the goals of the 1972 Clean Water Act which were to make all rivers fishable and swimmable.³⁸ Effluent limitations established by the Act have substantially reduced "gross" discharges from point sources such as industrial outfalls and publicly owned sewage treatment plants.³⁹ But, in many areas of the country progress in point source reduction has been offset by increases in non-point sources of pollution.⁴⁰ The successful citizen

³⁵ See RICHARD ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY* 189-191 (1999).

³⁶ See generally NATIONAL RESEARCH COUNCIL, *NEW STRATEGIES FOR AMERICA'S WATERSHEDS* (1999).

³⁷ See generally *FERTILE GROUND: THE IMPACTS OF PARTICIPATORY WATERSHED MANAGEMENT* (Fiona Hinchcliffe ed., 1998). I have explored the reasons for the revival in more detail in *Putting Rivers Back in the Landscape: The Revival of Watershed Management in the United States*, 6 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 167 (2000).

³⁸ See William J. Clinton, Address before a joint session of the Congress on the State of the Union (Jan. 27, 1998) in *Weekly Compilation of Presidential Documents* (asking Congress to assist the president in launching a new clean water initiative); See also <http://www.cleanwater.gov> (last visited Oct. 27, 2000).

³⁹ RUTH PATRICK, *SURFACE WATER QUALITY: HAVE THE LAWS BEEN SUCCESSFUL* 116-42 (1992).

⁴⁰ UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *NATIONAL WATER QUALITY INVENTORY, 1996 Report to Congress*.

suits to force the EPA and the states to implement Section 303 Total Maximum Daily Load (TMDL) programs have forced the EPA to adopt watershed protection as a way to encourage the federal government,⁴¹ states and units of local government to address both point and non-point sources of pollution.⁴²

Other watershed conservation goals include the use of watershed protection as a less costly alternative to filtration to comply with the public health standards established under the Safe Drinking Water Act and to conserve endangered species.⁴³ The 1996 Safe Drinking Water Act Amendments allow the use of watershed protection as an alternative to filtration.⁴⁴ New York City is the major user of watershed protection as an alternative to filtration,⁴⁵ and the Amendments have alerted many other communities that currently treat their drinking water to the possibilities of watershed protection. Water suppliers report that customers increasingly balk at the higher costs of treatment and demand that the city use watershed protection as a means of eliminating risks. Although watershed protection is primarily a pollution protection concept, it also has secondary objectives. In many places, watershed protection is seen as a means to address a wide range of aquatic ecosystem degradation issues that have put fish populations on the endangered species list or destroyed wetlands and thus accelerated downstream flooding.

Oregon's experiment with the use of watershed planning and management to conserve evolutionarily significant units of the coastal Coho salmon illustrates both the perils and promise of the "new" multi-stakeholder ecosystem-based watershed conservation. Coho have been declining for a variety of anthropocentric and natural causes.⁴⁶ The anthropocentric causes include timber harvest practices, livestock grazing,

⁴¹ The Secretaries of Agriculture and Interior recently announced their intention to develop a unified federal watershed management strategy. See <http://www.cleanwater.gov/ufp> (last modified Oct. 17, 2000). See also Brent Foster, *The Failure of Watershed Analysis Under The Northwest Forest Plan: A Case Study Of The Gifford Pinchot National Forest*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 337 (1999).

⁴² See generally OLIVER A. HOUCK, *THE CLEAN WATER ACT'S TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* (1999).

⁴³ Western Water Policy Review Advisory Commission, *WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY* xv-xvii (1998).

⁴⁴ 42 U.S.C. § 300j-14.

⁴⁵ See Michael Finnegan, *New York City's Watershed Agreement: A Lesson in Sharing Responsibility*, 14 PACE ENVTL. L. REV. 577, 578 (1997).

⁴⁶ The literature on this subject is vast. See, e.g., Michael C. Blumm & Greg D. Corbin, *Salmon and the Endangered Species Act: Lessons From the Columbia Basin*, 74 WASH. L. REV. 519 (1999).

and water diversions. The decision whether to list the Coho as a threatened species under the Endangered Species Act has been a political football throughout the 1990s because protection and restoration require intensive public and private land use and water management. There is no quick technological fix and the large-scale land reserve strategy applied to terrestrial fauna is not applicable to aquatic ecosystems.⁴⁷ In 1997, the National Marine Fisheries Service (NMFS) withdrew an earlier proposal to list the Coho as threatened because the Oregon Coastal Salmon Restoration Initiative (which supplemented the Northwest Forest Management Plan adopted in 1994 to save the Spotted Owl) would reverse the population decline. This voluntary effort was invalidated by a Magistrate Judge⁴⁸ because NMFS applied the wrong ESA standard in its decision not to list the Coho and because the state placed too much faith in future actions taken by the legislative and executive branches of Oregon and in voluntary compliance.⁴⁹ However, planning is moving forward and the state is trying to integrate all major aspects of land and water management to protect the Coho.⁵⁰

These new watershed conservation developments are supported by the emergence of a new river use ethic which challenges the view that water and river basins are simply under-developed commodities waiting to be exploited. Maximum development has been challenged and supplemented by the environmentally sustainable development paradigm. Today, two visions of river and watershed function, maximum development and maintenance of the ecological integrity of large river

⁴⁷ The issue is whether dams on the lower Snake River should be breached. In July, 2000 the Clinton administration announced that it would not make a decision for at least five years but that it would support an engineering study of the feasibility of breaching four Snake River dams in Washington state. THE SACRAMENTO BEE, Capitol Alert, http://www.capitol.news/old.capalert05_2000728.html (last visited Oct. 27, 2000).

⁴⁸ Oregon Natural Resources Council v. Daley, 6 F. Supp.2d 1139, 1152 (D. Or. 1998).

⁴⁹ A series of previous district court opinions held that the Fish and Wildlife Service (FWS) could not rely on possible future management actions by other agencies. See *generally* Biodiversity Legal Found. v. Babbitt, 943 F. Supp. 23 (D.D.C. 1996); Friends of the Wild Swan, 945 F. Supp. 1388 (D. Or. 1996). The Ninth Circuit has also held that the FWS could not excuse its duty to designate critical habitat for the California Gnatcatcher on an elaborate reserve system created under a voluntary state program. See *Natural Resources Defense Council v. U.S. Dep't of Interior*, 113 F.3d 1121, 1125-27 (9th Cir. 1997).

⁵⁰ See THE OREGON PLAN FOR SALMON AND WATERSHEDS (Annual Report 1999) (copy on file with author).

systems, compete for policy dominance.⁵¹ The newer vision still remains subordinate to maximum exploitation, but there are a number of recent national and grassroots efforts to implement ecologically sustainable watershed management practices. The first vision is supported by United States allocation rules which reinforce the detachment of land and water. As applied to water, this paradigm posits that river systems are dynamic, ever-changing ecosystems which serve a variety of purposes from consumptive uses to the maintenance of the river's historic natural functions for both anthropocentric and non-anthropocentric reasons.⁵²

The newer ecological integrity vision is less clearly articulated than the older vision because it rests on a complex and dynamic ethical perspective, informed by science,⁵³ nature, and humankind's role in the functioning of natural systems.⁵⁴ This newer conception is not a simple river preservation concept, but rather it starts from the premise that we should try to integrate human use of a river system with the maintenance of its natural environmental sustainability⁵⁵ and that integrated watershed planning and management will not be effective unless we find ways to incorporate the costs of watershed degradation into private entitlements.⁵⁶ This newer river basin vision seeks to provide framework for the

⁵¹ See A. Dan Tarlock, *River Management in the Twenty-First Century: The Vision Thing*, 6 RIVERS 43 (1997); A. Dan Tarlock, *Safeguarding International River Systems in Times of Scarcity*, 6 DENV. WATER L. REV. 231 (2000).

⁵² See generally Anthony Scott and Georgia Coustalin, *The Evolution of Water Rights*, 35 NAT. RESOURCES J. 821 (1995) (surveying the growing tension between the commodity and community-conservation visions and suggesting that new trusts will emerge to hold water rights for in-stream as well as out of stream uses and that river corporations will be created to manage water for the full range of uses).

⁵³ The leading United States exposition of this thesis is Daniel Botkin. See DANIEL BOTKIN, *DISCORDANT HARMONIES* (1991).

⁵⁴ For a good introduction to modern ecology and its influence on environmental management see Judith L. Meyer, *Changing Concepts of System Management*, in PROCEEDINGS: SUSTAINING OUR WATER RESOURCES 78 (Water Science and Technology Board Tenth Anniversary Symposium 1992) and Judith L. Meyer, *The Dance of Nature: New Concepts in Ecology*, 69 CHI.-KENT L. REV. 847 (1994). The changes build on the substitution of a non-equilibrium for an equilibrium paradigm in ecology. See A. Dan Tarlock, *The Non-equilibrium Paradigm in Ecology and the Partial Unraveling of Environmental Law*, 27 LOY. L.A. L. REV. 1121 (1994); see generally Fred P. Bosselman & A. Dan Tarlock, *The Influence of Ecological Science on American Law: An Introduction*, 69 CHI.-KENT L. REV. 847 (1994).

⁵⁵ See WESTERN WATER POLICY REVIEW ADVISORY COMMISSION, *WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY* 3.1-3.3 (1998).

⁵⁶ See Claudia Goetz Phillips & John Randolph, *The Relationship of Ecosystem Management to NEPA and Its Goals*, 26 ENVTL. MGMT. 1, 7 (2000).

integration of human use and environmental sustainability by identifying a river's hydrograph, the historic ecosystem services performed by the flow cycles, and by recognizing that property rights must be defined in relationship to individual right holders and the maintenance of a healthy watershed.⁵⁷ This new river basin vision has its roots in bioregionalism,⁵⁸ the hope that the long and ineffective history of watershed planning in the United States can be reversed, and the increasing interest in the implementation of environmental policy at both large and small scales.⁵⁹

II. THE LEGAL DECONSTRUCTION OF THE LANDSCAPE

Both land and water rights have a long history of detachment from a specific place. The concept of a watershed as a hydrologic unit is more advanced with respect to water than to land. As stated above, in contrast to land law,⁶⁰ water law has always had background principles which recognize that rights are a function of watershed conditions and that those rights are to some extent subordinate to the interests of other users and the state. The problem is that these principles were so modified in the nineteenth and twentieth centuries that their footprint on the landscape is dim. Modern water law is premised on the assumption that the manipulation of nature should be encouraged and thus does not incorporate the full social costs of altered flow patterns and degraded watersheds.⁶¹ Water law treats rivers as commodities separate and apart from land, which is itself a commodity, and has effectively created "quasi-

⁵⁷ See A. Dan Tarlock, *The Missouri River: The Paradox of Conflict Without Scarcity*, 2 GREAT PLAINS NAT. RESOURCES J. 1, 11-12 (1997); A. Dan Tarlock, *River Management in the Twenty-First Century: The Vision Thing*, 6 RIVERS 43 (1997). For a specific application of this thinking towards a major international river see The Independent Scientific Group, *Return to the River: An Ecological Vision for the Recovery of the Columbia River Salmon*, 28 ENVTL. L. 503 (1998).

⁵⁸ Australia is a leader in this movement. See, e.g., J. M. POWELL, THE EMERGENCE OF BIOREGIONALISM IN THE MURRAY-DARLING BASIN (Murray-Darling Basin Commission 1993). Bioregionalism is an example of the revival or interest in the geographical theory of landscape determinism. See generally PHILIP L. FRADKIN, THE SEVEN STATES OF CALIFORNIA: A HUMAN AND NATURAL HISTORY (1995).

⁵⁹ See Adler, *supra* note 12, at 204-05 for a comprehensive survey of the factors that contribute to the current interest in watershed-based protection strategies.

⁶⁰ See Robert Ellickson, *Property in Land*, 102 YALE L.J. 1315 (1993) (arguing that exclusive versus collective ownership of land more efficient and socially desirable except for small-knit groups).

⁶¹ See Butler, *supra* note 2, at 934.

exclusive" property rights to put the right to exploit and consume water on the same footing as the right to develop land. Water law thus directly supported the destruction of the ecological integrity of rivers and their flood plains by allowing human alteration of watersheds through transbasin diversions.

Watershed protection is ultimately an experiment in the reconstruction of a legally fragmented landscape into a healthy, functioning ecosystem. It requires that land uses and water diversions which cause aquatic ecosystem degradation be limited to promote the restoration and conservation of the watershed resource.⁶² The hope is that these reductions will be voluntarily undertaken, but some level of mandatory reduction may be necessary. Thus, watershed protection, however defined, restricts the use and enjoyment of two systems of private property claims: the laws of land and of water rights. Private property rights are protected by the Fifth and Fourteenth Amendments of the federal constitution and by analogous state constitutional provisions. Justice Scalia's opinion in *Lucas v. South Carolina Coastal Council* suggests that environmental protection regulations which "wipe out" a land owner's development potential can only be constitutionally justified if they implement a common law background limitation on the owner's title.⁶³ Water law and water-related land law have a long history of limitations on individual use and enjoyment that form the starting point for modern "takings" issues.⁶⁴ Water rights are a strong candidate to recognize common law background principles or limitations because they historically contained inherent restrictions on exclusive enjoyment and thus, dampen expectations that new sharing rules interfere with investment backed- expectations.⁶⁵

The existence of a recognized private property claim, of course, does not prohibit government regulation of use and enjoyment of the

⁶² See Coggins, *supra* note 7, at 44.

⁶³ 505 U.S. 1003, 1020-29 (1992).

⁶⁴ For example, the navigation servitude has long put riparians on "notice" that the federal government can alter the beds and flow of navigable waters without compensating property owners for the loss of state-created property rights. See, e.g., *United States v. Willow River Power Co.*, 323 U.S. 499, 509-10 (1945).

⁶⁵ See Hope Babcock, *Should Lucas v. South Carolina Coastal Council Protect Where the Wild Things Are? Of Beavers, Bob-O-Links, and Other Things That Go Bump in the Night?*, 85 IOWA L. REV. 849, 890-95 (2000). Joseph L. Sax, *The Limits of Private Water Rights in Public Waters*, 19 ENVTL. L. 473, 482 (1989); Joseph L. Sax, *The Constitution, Property Rights and the Future of Water Law*, 61 U. COLO L. REV. 257, 260 (1988).

claim.⁶⁶ Private property claims can reinforce government regulation, because limitations on their use and enjoyment can be justified as the management of a common or public resource, or private property claims can chill regulation by increasing the risk that the regulation will be found unconstitutional. In modern watershed management experiments, the balance between public and private rights primarily affects the stakeholder bargains that may be struck. The driving force behind a watershed “deal” is often the fear that the stakeholder’s property claim will not be recognized should it be tested in litigation.

The common law of water rights is a land-based water allocation system which could serve as a watershed-based conservation regime.⁶⁷ Water law had an implicit vision of land and water as integrated units in a distinct physical space that still can be found in the modern law. Historically, water law was a static doctrine that promoted watershed conservation by preserving the natural flow, although the common law has generally performed this function only by default. A riparian right is a usufructuary property right to use a portion of the natural flow of a watercourse.⁶⁸ Riparian rights are limited to the ownership of land which abuts a stream; they have been traditionally characterized as a natural incident of land ownership.⁶⁹ The law of riparian rights has three principles, not found in land law, that reinforce watershed protection. First, the core idea of riparianism is that in situ uses consistent with natural background conditions are the norm because ex situ uses are the exception. Second, the watershed rule limits uses to a stream’s watershed or at least gives users in the watershed a preference over users outside the watershed. Third, the resource must be widely shared within the watershed. Common law riparian rights are correlative. Each riparian’s right must be exercised in relation to other similarly situated riparians, and this sharing principle makes it easier to require that riparian rights incorporate the idea that the ecological integrity of the watershed be conserved. The right was never a right to destroy the hydrologic integrity of a stream.

⁶⁶ *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922).

⁶⁷ See Lynda Butler, *Allocating Consumptive Water Rights in a Riparian Jurisdiction: Defining the Relationship Between Public and Private Interests*, 47 U. PITT. L. REV. 95, 105-09 (1987).

⁶⁸ See A. DAN TARLOCK, *LAW OF WATER RIGHTS AND RESOURCES* Section 3.10 (1988 with annual updates).

⁶⁹ NATIONAL WATER COMMISSION, *A SUMMARY-DIGEST OF STATE WATER LAWS* 32 (R. Dewsnap & D. Jensen eds., 1974).

A. *In Situ Use*

Riparian rights developed during the time in which the most valuable use of water was to power mills, and thus, the most valuable attribute of the right was the right to flow.⁷⁰ The natural flow rule required every riparian to maintain the current for all other riparians, but it was soon modified.⁷¹ The traditional modification story is that states replaced the wasteful natural flow rule with a reasonable use rule to allow the consumptive uses necessary to promote irrigation and municipal and industrial use.⁷² Mill Acts, for example, gave riparians the power to condemn flowage easements necessary to construct a dam and in some states these acts created a priority regime to allocate the right to use the flow.⁷³ Starting in the 19th century, per se property rules, which presumed injury from any diminution in flow, were replaced with tort rules which compare the reasonableness of competing uses and limit relief to proof of substantial injury.⁷⁴ The common law was modified to allow water to be used consumptively and in some cases away from the river corridor when there is no substantial injury to other users.⁷⁵ Watersheds were implicitly

⁷⁰ This legacy is still with us. In *Dorey v. Estate of Spicer*, 715 A.2d 182 (Me. 1998), the claimant asserted flowage rights acquired by the purchase of various parcels of land adjacent to the original mill property to flood lands on a pond partially maintained by a dam which dated from 1839 sawmill. The court held that flowage rights arose from the Maine Mill Act of 1821, modeled on the Massachusetts Mill Act of 1796. The claimant argued that flowage rights were a unique type of easement appurtenant which could be severed from the original cite. The original mill was no longer operation and the claimant did not own the land on which it originally stood. The court held that any flowage rights that still existed were appurtenant to the original sawmill lots "and cannot exist apart from those lots." 715 A.2d at 186.

⁷¹ Instream uses are recognized under the natural flow rule. A riparian may claim a right to enjoy the natural flow of a stream for recreational and aesthetic purposes under the natural flow theory. *Collens v. New Canaan Water Co.*, 234 A.2d 825, 831 (1967). Because riparian rights may be exercised at any time, it is theoretically possible for a present upstream riparian use to be enjoined in order to protect the future needs of a downstream riparian states, see *Pyle v. Gilbert*, 265 S.E. 2d 584, 587-88 (1979), but dual systems are limiting this possibility by converting unexercised riparian rights to low priority appropriations. See *In Re Water of Long Valley Creek System*, 599 P.2d 656, 668-69 (1979).

⁷² See generally MORTON HOROWITZ, *THE TRANSFORMATION OF AMERICAN LAW 1870 TO 1960* (1977).

⁷³ See John F. Hart, *Property Rights, Costs, and Welfare: Delaware Water Mill Legislation 1719-1859*, 27 J. LEGAL STUD. 455, 456 (1998).

⁷⁴ Eva M. Hanks, *The Law of Water in New Jersey*, 22 RUTGERS L. REV. 621, 627-32 (1968).

rather than explicitly protected by this rule. The right to the natural flow was limited⁷⁶ and upper watershed users became vulnerable to the interests of downstream and out of basin urban and agricultural development.

California is the classic case study of this change. The merits of riparian rights were extensively debated in California in the late 19th and early 20th century as the state's irrigation economy developed and the common law of riparian rights threatened to block industrial and urban development.⁷⁷ California courts vacillated between the reasonable use and natural flow theory and ultimately adopted the natural flow theory. Upstream users, especially electric utilities, were afraid that the natural flow theory would block access to water by preventing the construction of dams and reservoirs and contribute to the monopolization of the resource

⁷⁵ E.g., *Pyle v. Gilbert*, 265 S.E.2d 584, 587-88 (1980) (holding that water can be diverted from the river corridor for irrigation). However, the watershed rule continues to surface in new contexts. In 1994, Florida created a commission to review its water management law, which has liberal transbasin transfer rules. Water-rich counties convinced the commission to recommend to the legislature that local sources be favored. Before a trans-basin diversion could be authorized, the water management district with authority to authorize the transfer would have to consider the proximity of the source to the proposed destination and the availability of alternative sources of water. Two commentators have characterized the recommendation as "a partial revival of the common law rule that prohibited the diversion of water to use on nonriparian lands." Marcia Penman Parker & Sally Bond Man, *Water Management Reform: Mission Impossible?*, FLA. B. J., Oct. 1996, at 28.

⁷⁶ There is no right to the natural flow under the reasonable use theory. Recreational use and a limited right to view can be considered reasonable uses but, to prevail against other users a riparian must prove that there has been a total destruction of the use. See *City of Los Angeles v. Aitken*, 52 P.2d 585, 591-92 (Cal.App. 1935) (denying a hearing based upon a loss of view claim). Under the reasonable use theory, a riparian may not claim a right to the natural, uninterrupted, or unaltered flow for recreational use or view. *Kundel Farms v. Vir-Jo Farms, Inc.*, 467 N.W.2d 291, 293-95 (Iowa 1991) (holding that use of water to maintain a commercial wetland is artificial and subordinate to a natural stockwatering use); *Dunlap v. North Carolina Power & Light*, 195 S.E. 43, 46 (N.C. 1938) (holding that a riparian's right to a natural flow is qualified by others rights to make reasonable use); *Intracoastal North Condominium Ass'n v. Palm Beach County*, 698 So.2d 384, 385 (Fla.App. 1997), *cert. denied*, 703 A.2d 746 (Fla. 1997) (stating that appellants right of access was subservient to superior right of the public to navigate safely. Consequentially, the diminished access due to bridge construction is not a compensatory taking). *But cf.* *Alburger v. Philadelphia Electric Co.*, 535 A.2d 729, 732 (Pa. Comm. 1988) (holding that lower riparian owners can enjoin upper riparian owners discharging non-riparian water into the water course).

⁷⁷ See SAMUEL C. WIEL, *WATER RIGHTS IN THE WESTERN STATES* Section 822 (3d ed. 1911) for a discussion of prior California cases.

by downstream users.⁷⁸ California voters amended the constitution to adopt the reasonable use theory.⁷⁹ The reasonable use doctrine replaced the natural flow doctrine and allowed the appropriation of surplus water, water beyond that used by riparians, for storage and use outside the watershed.⁸⁰ Thus, the doctrine of riparian rights has not blocked access to consumptive uses by major users. Municipalities have exercised the power of eminent domain to condemn water rights outside of their territorial limits and to transfer water to areas of demand, and in many states it is becoming easier to sever water rights from riparian land.⁸¹

Despite this modification, the reasonable use doctrine still retains the idea that the flow of a stream must be preserved for the benefit of all riparians on the stream and thus is a basis for the recognition of instream rights. The category of reasonable riparian uses is an expansive one and includes many environmental uses.⁸² The California Supreme Court has held that the United States Forest Service, as a riparian landowner, may claim in-stream flow rights to support forest management.⁸³ Forest Service riparian rights are not subject to the "minimum amount necessary" standard of the federal reserved rights doctrine. However, the Court asserted that federal riparian rights, in contrast to federal reserved rights, are subject to state control and the general doctrine that all riparian rights are limited to uses that are reasonable in relation to other riparians. This rationale applies to all Forest Service land in riparian or mixed appropriative and riparian states and is an example of the flexibility that

⁷⁸ See generally *Herminghaus v. Southern California Edison Co.*, 252 P. 607 (1926).

⁷⁹ CA. CONST. art. XIV, § 3.

⁸⁰ See Clifford Schultz & Gregory S. Webber, *Changing Judicial Attitudes Towards California Water Resources: From Vested Rights to Utilitarian Reallocations*, 19 PAC. L. J. 1031, 1066-67 (1988).

⁸¹ See Richard Harnsberger, *Eminent Domain and Water Law*, 48 NEB. L. REV. 325, 366-69 (1969); Thomas Ziegler, *Acquisition and Protection of Water Supplies by Municipalities*, 57 MICH. L. REV. 349, 353-56 (1959).

⁸² See A. DAN TARLOCK, *LAW OF WATER RIGHTS AND RESOURCES* § 3.12[4] (1988). The Oklahoma Supreme Court has suggested, however, that riparian rights may not extend to the preservation of wildlife because wildlife remains unowned until captured. *Franco-American Charolaise Ltd. v. Oklahoma Water Resources Board*, 855 P.2d 568, 578 (Okla. 1990). Cf. *Yanrer v. Eaton* (Austl 1999), at http://www.Austlii.edu.au/cases/cth/high_ct/199/53.html (holding that an Aboriginal has customary right to kill an endangered species because State of Queensland did not own wildlife).

⁸³ *In Re Water of Hallett Creek Stream System*, 749 P.2d 324, 334-336 (1988), cert. denied, *California v. United States*, 109 S.Ct. 71 (1988).

water law provides to rediscover the landscape perspective.⁸⁴ This precedent is potentially limited in California because courts have asserted the power to convert long-unexercised riparian rights to low priority riparian rights in statutory adjudications.⁸⁵

B. *The Watershed Rule and Sharing*

The watershed rule historically limited use to riparians within a watershed.⁸⁶ As a corollary to the natural flow rule, courts distinguished between riparian and non-riparian uses.⁸⁷ All uses outside the watershed were per se non-riparian and could be enjoined without a showing of actual injury. The prohibition, which barred each riparian from diminishing the natural flow of the stream to the detriment of riparians in the watershed, was eroded both by state courts⁸⁸ and by two important New Deal Supreme Court precedents. First, *Iowa Hydro-Electric Cooperative v. Federal Power Commission*⁸⁹ held that the Federal Power Act impliedly preempted state water law and thus, Iowa could not apply a watershed protection statute. *Connecticut v. Massachusetts*⁹⁰ held that the law of equitable apportionment does not require the Supreme Court to apply a per se watershed protection rule. Thus, Massachusetts could divert water across the watershed to Boston.⁹¹

States have transformed the watershed rule from a property rule to a liability rule⁹² to make it compatible with the reasonable rule. Uses

⁸⁴ See Eric Freyfogle, *Context and Accommodation in Modern Property Law*, 41 STAN. L. REV. 1529, 1533 (1989).

⁸⁵ See *In re Water of Hallet Creek*, 749 P.2d at 336-338. However, *Pleasant Valley Canal Co. v. Borror*, 72 Cal. Rptr. 2d 1, 28-29 (Cal.App. 4th Dist. 1998) holds that *In re Waters of Long Valley*, 599 P.2d 656 (1979) applies only to statutory adjudications and that private actions to determine the extent of unexercised riparian rights will be decided by the principles articulated in *Tulare Irrigation Dist. v. Lindsay-Stratmore Irrigation Dist.*, 45 P.2d 972 (Cal. 1935).

⁸⁶ See, e.g., *Anaheim v. Fuller*, 88 P. 978, 980 (1907).

⁸⁷ The leading case articulating, but not applying, the common law rule is *Stratton v. Mt. Hermon Boys School*, 103 N.E. 87, 88 (Mass. 1913).

⁸⁸ *Id.*

⁸⁹ 328 U.S. 152, 181-83 (1946).

⁹⁰ 282 U.S. 660, 670-74 (1931).

⁹¹ *Stratton v. Mt. Hermon Boys School*, 103 N.E. 87, 88 (Mass. 1913).

⁹² Property rules protect entitlements by specific relief whereas liability rules protect them only by damages. Guido Calabresi & Douglas Melamed, *Property Rules, Liability*

outside the watershed are no longer per se non-riparian, but they are allowed absent a showing that other riparians suffered substantial injury.⁹³ Many states have retained the watershed limitation but have substituted environmental impact assessment or planning processes for per se prohibitions against the movement across watershed boundaries.⁹⁴

C. *The Special Case of Groundwater*

In most riparian states, groundwater is allocated by a separate regime and is often not integrated with surface rights. Ground water allocation is therefore a classic example of the use of water law to divorce land from water that is increasingly frustrating watershed protection efforts. Groundwater law helps to deplete streams and stress dependent riparian vegetation because the common law neither effectively constrains use on overlying land nor prohibits transfers to centers of demand.⁹⁵ The common law treats groundwater as a separate source of water from streams and primarily allocates it by capture rules modeled on the oil and gas analogy to things *ferae naturae* rather than by riparian sharing rules.⁹⁶ Ground water was initially allocated by the ownership of overlying surface land, but this has created serious conservation and environmental problems because no comparable riparian sharing limitations were imposed upon use. Under the pure common law rule, each overlying owner can capture as much water as he or she can pump subject only to the correlative rights of other overlying landowners to join a pumping race.⁹⁷

Rules and Inalienability: One View of the Cathedral, 85 HARV. L. REV. 1089, 1092 (1972).

⁹³ *Pyle v. Gilbert*, 265 S.E. 2d 584, 587 (1980).

⁹⁴ E.g., CONN. GEN. STATS. ANN. § 25-204(f)(2) (West 1999); VA. CODE ANN. § 62.1-246-248, 143-25.221 (Michie 1998).

⁹⁵ See NATIONAL RESEARCH COUNCIL, WETLANDS: CHARACTERISTICS AND BOUNDARIES 153-155 (1995).

⁹⁶ There are some efforts at integration, see A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES § 4.11 (1988), but in the majority of states, the two legal regimes often operate independently of each other.

⁹⁷ For example, Maine and Texas, recently reaffirmed the absolute ownership rule in the face of arguments that it was unfair, based on obsolete science and should be replaced by the reasonable use doctrine or the Restatement of Torts (Second). See *Maddocks v. Giles*, 728 A.2d 150, 152 (Me. 1999); *Sipriano v. Great Spring Waters of America, Inc.*, 1 S.W.3d 75, 80 (Tex. 1999). *Maddocks* noted the absence of reliable information that the absolute dominion rule is counterproductive and a hindrance to achieving justice, *Maddocks*, 728 A.2d at 154. One concurring justice in *Sipriano* recognized that the rule

In some states, this rule has been slightly modified by legislation or judicial decision,⁹⁸ but the law still encourages a pump first, assess the impact, second (if ever) strategy. Most states adhere to the reasonable use rule which prohibits non-overlying owners, usually municipalities, from damaging pumpers who overlie an aquifer.⁹⁹ Michigan, Ohio and Wisconsin have gone further and adopted the rule proposed by the Restatement of Torts (Second) which imposes a reasonable use or non-injury limitation on large overlying pumpers, usually mines or quarries, who damage small overlying owners.¹⁰⁰ This reasonable use modification is not a substantial limitation on pumping and provides few incentives for a pumper to consider the possible adverse impacts of a well or well field on a hydrologically related stream system.

The lack of integration is illustrated by a conflict which arose under the super-watershed protection regime of the Great Lakes, described below. A proposed lead and zinc mine in northern Wisconsin initially

of capture was based on bad hydrology and was the major impediment to groundwater management in the state and suggested that the court might be willing to abandon or modify the rule if the legislature failed to act, Sipriano, 1 S.W.3d at 81-83.

⁹⁸ Many courts modified the absolute ownership water rule by adopting the reasonable use rule, but this is not an effective limitation on most uses. A pumper may still use as much as he can pump, without regard to surface stream impacts, so long as the use is for a productive purpose and is confined to the overlying land. The major practical effect of this rule is to require municipal pumpers to compensate injured farmers. Neither the absolute ownership nor the reasonable use rule prevents rapid exploitation or prior use. Modern law only provides small pumpers who have been dewatered a right of compensation. The Restatement of Torts (Second) § 858 provides large-scale pumpers may be liable if "the withdrawal of ground water unreasonably causes harm to a proprietor of neighboring land" See also *American Aggregates Corp.*, 474 N.E.2d 324, 327 (Ohio 1984). Prior appropriation often produces the same result because it is difficult to apply priority principles to ground water, and thus priorities are seldom enforced. For example, most states have rejected a senior "right to lift" because it would freeze pressure levels and discourage subsequent use. *Wayman v. Murray City Corp.*, 458 P.2d 861, 866 (1969). Juniors have a right to lower pressure to a "reasonable" level. States have taken some steps to correct the anti-conservation incentives of these rules. In some states, ground and surface rights are integrated, but the purpose of the law is mainly to protect senior surface users not the ecological integrity of the watershed. See, e.g., *Fundingsland v. Colorado Ground Water Commission*, 468 P.2d 835, 838-40 (Colo. 1978). Many arid states have conservation regimes which could be used to promote integrated management, but they have not been historically so used.

⁹⁹ See *Martin v. City of Linden*, 667 So.2d 732, 737 (Ala. 1995).

¹⁰⁰ See *Maerz v. American Steel Corp.*, 323 N.W.2d 524, 530 (Mich. 1982); *Cline v. American Aggregates Corp.*, 474 N.E.2d 324, 327 (Ohio 1984); and *State v. Michaels Pipeline Construction Co.*, 217 N.W.2d 339, 350 (Wis. 1974).

planned to pump groundwater, extracted from dewatering the mine, into the Wisconsin River, a tributary of the Mississippi. Opponents of the mine argued that the proposals and the application for a Section 404 permit triggered gubernatorial review and a possible veto under the Great Lakes Charter and the Water Resources Act of 1986 (WRDA).¹⁰¹ The Corps of Engineers disagreed and initially decided that groundwater was not a "Great Lakes tributary" as defined in WRDA. The permit request was withdrawn before a final decision was reached.¹⁰²

1. The Law of Prior Appropriation

Prior appropriation is the ultimate river and watershed engine of destruction because it allows the last drop of a stream to be diverted and depleted to satisfy prior rights and allows trans-watershed diversions. Prior appropriation is therefore a user-based rather than land-based system of property rights. The system was developed in the mining camps of California to allocate water for placer mining and spread throughout the West because it was thought to promote irrigation economies.¹⁰³ Appropriative rights apply to direct flow diversions and to the storage of water for subsequent release.¹⁰⁴ A water right is perfected by diverting water and applying it to a beneficial use.¹⁰⁵ Rights are allocated by priority. In times of shortage, there is no pro rata curtailment. Junior rights must cut back so that senior right holders will obtain the full amount of their entitlement.¹⁰⁶ Holders of senior rights are entitled to take the full amount of their rights regardless of the comparative efficiencies of junior and senior uses.¹⁰⁷ For example, in the last major Western drought, small trout streams in Montana were dewatered to satisfy prior rights.¹⁰⁸

¹⁰¹ See INTERNATIONAL JOINT COMMISSION, *THE LEGAL CONTEXT FOR WATER USES IN THE GREAT LAKES BASIN* 86 (1999).

¹⁰² *Id.*

¹⁰³ WIEL, *supra* note 77, at Sections 66-73.

¹⁰⁴ See generally *Trans-County Water, Inc. v. Central Colorado Water Conservancy Dist.*, 727 P.2d 60 (Colo. 1986).

¹⁰⁵ See *State v. Morros*, 766 P.2d 263, 268 (Nev. 1988).

¹⁰⁶ See A. Dan Tarlock, *Prior Appropriation: Rule, Principle or Rhetoric?*, N.D. L. REV. (forthcoming 2001) (manuscript on file with author).

¹⁰⁷ The three NAFTA countries have agreed to exclude non-bottled water from the Agreement. The text provides in part:

The NAFTA creates no rights to natural water resources of any party to the Agreement unless water, in any form, has entered into commerce and become a good or product. And nothing in NAFTA would oblige an NAFTA Party to either exploit its water for commercial use, or to

There is no watershed limitation in the doctrine of prior appropriation. Appropriative water rights are theoretically the opposite of riparian rights: there need be no relationship between the source of water and the locus of use.¹⁰⁹ Water can be used any place to which it can be transported within a state.¹¹⁰ Courts rejected the common law of riparian rights in large part because the watershed rule was too restrictive. Los Angeles enjoys water appropriated on the Colorado and Owens Rivers hundreds of miles from the city.¹¹¹ The region's prosperity effectively foreclosed growth in the Owens Valley watershed and has done substantial environmental damage that is only now being partially redressed.¹¹² The growing communities doctrine, for example, reinforced watershed destruction because it allowed cities to appropriate water to meet the

begin exporting water in any form. Water in its natural state in lakes, rivers, reservoirs, aquifers, water basins and like is not a good or product, is not trade, and therefore is not and never has been subject to the terms of any trade agreement.

<http://www.Webmaster@scics.x400.gc.ca> (last visited Oct. 27, 2000).

Canada's North American Free Trade Implementation Act, R.S.C. 1993, c. 44, similarly provides that water in packages, products or tanks is a good but that natural surface or groundwater is not. This "soft" declaration does not, of course, settle the issue.

All Canadian provinces, with the exception of Quebec, have agreed to a ban on bulk water removal from the Canadian portion of the country's major drainage basins. Accord for the Prohibition of Bulk Water Removal From Drainage Basins, at <http://www.scics/gp.ca/pdf/accord.pdf> (last visited Oct. 27, 2000). The policy will be implemented by each province and contains several exemptions and exclusions such as bottled water, water packaged in small, portable containers, water used in food production, water to meet short term safety, security or humanitarian needs "and other purposes as determined by individual jurisdictions to meet environmental and other management needs consistent with the objective of the Accord."

¹⁰⁸ See Brian Morris, *When Rivers Run Dry Under The Big Sky: Balancing Agricultural and Recreational Claims to Scarce Water Resources in Montana and the West*, 11 STAN. ENVTL. L.J. 259, 276 (1992).

¹⁰⁹ See *California-Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 158 (1935).

¹¹⁰ Ironically, many states have imposed statutes which prohibit or restrict the export of water across state lines. Export prohibitions are unconstitutional discrimination against interstate commerce, but statutes which prefer in to out of state users may be constitutional. See *Sporhase v. Nebraska*, 458 U.S. 941, 956 (1982).

¹¹¹ See NORRIS HUNDLEY, JR., *THE GREAT THIRST: CALIFORNIANS AND WATER 1770'S - 1990'S* 1411 (1992).

¹¹² See A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: from Urban Oases to Archipelagos*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, 163, 182-183 (1999).

anticipated future capacity of its system.¹¹³ Most western states have also applied prior appropriation to ground water, but the large pumping states of California, Nebraska and Texas have not.¹¹⁴

III. THE LEGAL RECONSTRUCTION OF FRAGMENTED RIGHTS AND WATERSHEDS

A. *Riparian Rights*

Riparian rights have been partially reformed in many jurisdictions with mixed results from a watershed perspective. A prolonged regional drought often triggers efforts, usually unsuccessful, to "firm up" riparian rights with a comprehensive permit system, and therefore, to move them closer to appropriative rights.¹¹⁵ Newer water law reforms also reflect the idea that water use must be shared between individual right holders and the larger community and reincorporate a landscape perspective into water allocation regimes. Modern environmental statutes or state constitutional provisions can also promote watershed protection.¹¹⁶

1. Regulated Riparianism

Riparian rights have been modified in many riparian jurisdictions by statutes that regulate some or most aspects of water use to replace vague judicial rules with greater administrative certainty, although this regulation falls short of comprehensive regulation in most states. Regulated riparianism has three general purposes: (1) to collect information about use, (2) to subject large ground and surface withdrawals

¹¹³ However, the Washington Supreme Court has limited the reach of this doctrine by holding that actual application to beneficial use, rather than capacity of a private municipal water system, is the measure of the water right. *State of Washington Dept. of Ecology v. Theodoratus*, 957 P.2d 1241, 1245 (1998). The court left open the issue of whether the holding applies to municipal water suppliers. *Id.* at 1247. The growing communities doctrine was strongly endorsed in the dissenting opinion. *Id.* at 1257-1258 (Sanders, J., dissenting). See also *San Carlos Apache Tribe v. Superior Court*, 972 P.2d 179 (Ariz. 1999) (illustrating judicial willingness to limit water rights to actual use by holding a statute that mandates the use of maximum theoretical capacity violates the doctrine of separation of powers because it prevents a court from basing a decree on a factual determination of the amount of water actually diverted or stored)

¹¹⁴ See, e.g., *Sipriano v. Great Spring Waters of America*, 1 S.W.2d 75 (Tex. 1999).

¹¹⁵ See 2 ROBERT BECK, *WATERS AND WATER RIGHTS* § 9 (1991).

¹¹⁶ See, e.g., *Montana Env'tl. Info. Ctr. v. Dept. of Env'tl. Quality*, 988 P.2d 1236, 1249 (Mont. 1999). But see *Glisson v. City of Marian*, 720 N.E.2d 1034, 1045 (Ill. 1999).

to a permit system, and (3) to address the environmental and other impacts of trans-watershed diversions. As states have become more sensitive to the need to integrate environmental quality values into traditional state water management, some statutes accord some weight to minimum flow maintenance and the protection of the entire aquatic ecosystem, watersheds and wetlands.¹¹⁷ The 1989 Virginia statute is an example of a modern, environmentally-sensitive statute which allows the state to establish surface water management areas to protect in-stream values.¹¹⁸

The most common incremental common law reform is to give a state agency the power to restrict large uses, primarily of groundwater, in times of temporary shortage. For example, Indiana uses the common law as the base to regulate groundwater, but has supplemented it with administrative regulation. The state has the power to restrict the use of high capacity wells which interfere with lower capacity ones,¹¹⁹ and which cause environmental damage to public lakes. Several states have gone further and substituted a general permit system for post hoc litigation and these programs provide a forum to raise in-stream flow and watershed conservation issues. The constitutionality of regulated riparianism has been upheld against the charge that it constitutes a taking of property without due process of law.¹²⁰ The permit systems usually exempt small withdrawals and require a permit for all withdrawals over a per gallon per day or year threshold. Minnesota is one of the most representative regulated riparian states and requires permits for all consumptive withdrawals of 10,000 gallons per day and for all groundwater withdrawals.¹²¹ Wisconsin has a relatively comprehensive permit program which requires a permit for withdrawals that average 2,000,000 gallons per day over a thirty day period.¹²² New York requires a permit for public water supplies, agricultural irrigation and trans-watershed diversions.¹²³

¹¹⁷ See BECK, *supra* note 115, at § 9.

¹¹⁸ VA. CODE ANN. § 62.1-246(A)(1) (Michie 1998).

¹¹⁹ IND. CODE ANN. § 14-25-7 (Michie 1998).

¹²⁰ See *Crookston Cattle Co. v. Minnesota Dep't of Nat'l. Res.*, 300 N.W.2d 769, 775 (Minn. 1980); *Omernick v. State*, 218 N.W.2d 734, 743-44 (1974).

¹²¹ MINN. STAT. ANN. § 1036.271. (West 1997)

¹²² WIS. STAT. ANN. § 281.35(4)(b)(1) (West 1999).

¹²³ N.Y. ENVTL. CONSERV. LAW § 15-1501(Consol. 1997).

2. State Environmental Protection Laws

State environmental impact assessment legislation may be the basis for administrative and judicial in-stream flow and watershed protection. In 1970, Michigan adopted the public trust as a standard to limit the use and exploitation of natural resources. The Michigan Environmental Protection Act (MEPA) prohibits the destruction or impairment of the state's trust resources.¹²⁴ MEPA was initially vigorously enforced and then courts struck the balance in favor of agency interpretations after the agencies learned to accommodate their activities to the standard by better justifying their decisions.¹²⁵ MEPA applies to water diversions and other stream system alterations, although courts have not historically used the statute to limit water diversions.¹²⁶ However, in 1998, the Michigan Supreme Court defined impairment broadly,¹²⁷ and a widely noted trial court decision held that state approval of a golf course diversion violated the public trust.¹²⁸ State efforts may be supported by federal water quality initiatives. The establishment of total maximum daily loads (TMDLs) on streams that do not meet state water quality standards will require greater coordination between pollution control agency and reservoir construction and operation agencies. Increased flows may be necessary to meet applicable TMDL standards.¹²⁹

Although state constitutional provisions can serve as the functional equivalent of state environmental protection acts, historically they have not served this function. Several states enacted state constitutional provisions in the 1970s that guarantee a right to a clean or healthy environment.¹³⁰ These constitutional provisions have had almost no impact on environmental protection. Courts either held that they were not

¹²⁴ MICH. COMP. LAWS §324.1703 (1999).

¹²⁵ See generally *W. Mich. Env'tl. Action Council v. Natural Res. Comm'n*, 275 N.W.2d 538 (1979), *cert. denied sub. nom. Shell Oil Co. v. W. Mich. Env'tl. Action Council*, 444 U.S. 941 (1979).

¹²⁶ See, e.g., *Rush v. Steiner*, 373 N.W.2d 183, 186 (Mich. 1983); *Friends of Crystal River v. Kuras Properties*, 554 N.W.2d 328, 334 (Mich. 1996).

¹²⁷ See *Nemeth v. Abonmarche Dev. Inc.*, 576 N.W.2d 641, 649 (1998).

¹²⁸ See A. DAN TARLOCK, *LAW OF WATER RIGHTS AND RESOURCES* §3.20[6][d] (1988).

¹²⁹ See PAUL ROGERS, *AMERICA'S WATER: FEDERAL ROLES AND RESPONSIBILITIES* 202 (1993). In 1999, the Departments of Interior and Commerce and the federal EPA released a draft memoranda to coordinate enforcement of the Clean Water and Endangered Species Acts. W-98-32, Water Docket (MC4101).

¹³⁰ PA. CONST. art. I, § 27.

self-executing or gave them a cramped reading.¹³¹ A recent Illinois case is illustrative of the ability of courts to eviscerate a state constitutional guarantee which could have become a basis for watershed protection. *Glisson v. City of Marion* holds that Illinois' state constitutional provision does not apply to storage and diversion projects that threatened to destroy watershed values (the habitat of a state-listed endangered species) because the constitutional provision is limited to the protection of public health.¹³² In contrast, the Supreme Court of Montana recently held that its state constitutional provision, which guarantees a right to a clean and healthy environment, may be the basis to impose high environmental standards on state agencies. The case arose from a challenge to state water quality regulations which require that administrative agencies vigorously protect high quality waters from the risk of possible degradation.¹³³

Watershed conservation is also indirectly promoted by state river preservation programs. Many states have enacted state wild and scenic river programs modeled on the Federal Wild and Scenic Rivers Act of 1968.¹³⁴ Unlike the federal acts, state acts do not formally create new water rights; they are primarily concerned with preventing impoundments, diversions, and with the control of land use in the river corridor. Kentucky¹³⁵ and Minnesota¹³⁶ have upheld the constitutionality of this legislation.

3. Super Watershed Conservation: The Case of the Great Lakes

The evolving legal regime which governs the use of the Great Lakes is an interesting example of a modern watershed conservation regime. The law of the Great Lakes, incomplete and immature as it is, can be characterized as a super-watershed protection regime. The Lakes are

¹³¹ See Mary Ellen Cusack, *Judicial Interpretation of State Constitutional Rights to a Healthful Environment*, 20 B.C. ENVTL. AFF. L. REV. 33 (1993).

¹³² 720 N.E.2d 1034 (Ill. 1999).

¹³³ See, e.g., *Mont. Env'tl. Info. Ctr. v. Dep't of Env'tl. Quality*, 988 P.2d 1236, 1237 (Mont. 1999).

¹³⁴ See, e.g., KY. REV. STAT. ANN. §§ 146.200-.360 (Michie 1996); MINN. STAT. ANN. §§ 104.31.31-.40 (West 1997); N.Y. ENVTL. CONSERV. LAW § 15-0701 (McKinney 1982).

¹³⁵ See generally *Commonwealth ex rel Dept. for Natural Res. v. Stephens*, 539 S.W.2d 303 (Ky. 1976).

¹³⁶ See generally *County of Pine v. State Dept. of Natural Res.*, 280 N.W.2d 625 (Minn. 1979).

one of America's great fresh water reserves, but they are in effect a non-renewable resource and the law's most interesting feature is the preference it accords to in basin non-consumptive, or in situ, uses over in and out of basin consumptive ones. The emerging law of the Lakes gives considerably more weight to the conservation of the lakes' ecological services compared to other water allocation regimes.

The United States littoral states, the federal government of Canada, the two federal governments and the provinces of Ontario and Quebec are developing a legal regime to protect the most important regional component of the lakes: the maintenance of naturally fluctuating levels. Primarily the regime's focus is on conserving the lakes themselves rather than their tributaries and their watersheds, but the lake conservation regime is evolving into an effort to protect the ecological and hydrologic integrity of the waters and lands of the basin's entire watershed. Two factors drive this. Since 1978, Canada and the United States have been committed to an ecosystem approach for the lakes.¹³⁷ The ecosystem approach was initially adopted to eliminate toxic discharges, reduce pollution loads and to restore the productivity of Great Lakes ecosystem, but it has been extended as the framework to address all Great Lakes resource management and environmental degradation issues.¹³⁸ Second, ecosystem management, fragmented as it is, is complimented by the mutual, if exaggerated, fears of the lake states and Ontario and Quebec that waters of the lakes will be sold to non-basin United States and distant countries via bulk water transport and transbasin diversions.

The current law of the Great Lakes assumes the lakes are fully allocated. This assumption is reflected in the recent International Joint Commission (IJC) report which characterizes the lakes as a critical part of the region's natural heritage and as a "nonrenewable resource" because less than one percent of the lakes' waters are renewed annually by precipitation.¹³⁹ It concludes that "[i]f all interests in the Basin are considered, there is never a 'surplus' of waters in the Great Lakes system."¹⁴⁰ The conclusions that the lake states and sister Canadian provinces draw from this are that (1) there should be no major out of basin diversions, (2) other out of basin transfers such as bulk water sales should be limited, and (3) in basin consumptive use should not compromise the

¹³⁷ NATIONAL RESEARCH COUNCIL OF THE UNITED STATES AND THE ROYAL SOCIETY OF CANADA, THE GREAT LAKES WATER QUALITY AGREEMENT 13-16 (1985).

¹³⁸ *Id.*

¹³⁹ INTERNATIONAL JOINT COMMISSION, PROTECTION OF THE WATERS OF THE GREAT LAKES, FINAL REPORT OF THE GOVERNMENTS OF THE UNITED STATES 6 (2000).

¹⁴⁰ *Id.* at 43.

ecological integrity of the lakes. The final report of the 1999-2000 International Joint Commission reference on possible bulk water sales recommends that Great Lakes water policy be based on the integrity of the basin's fragile ecosystem, including both ground and surface waters, the use of the precipitation approach to support "a bias in favor of retaining water in the system and using it more efficiently and effectively" and sustainable water use.¹⁴¹

Lake use is controlled by three overlapping legal regimes: state, federal, and international. The basin is basically a closed, balanced system and there are only five major in- or out-of-basin diversions. Most diversions are non-consumptive and there is one major diversion into the basin, the Long Lac-Ogoki diversion from the James Bay Basin into Lake Superior. The Lakes flow very slowly from Superior to the Saint Lawrence River. At the present time, only Ontario's and Superior's levels are regulated by dams and locks.¹⁴² The lack of regulation is a function of the fact that "[f]or the most part, the Great Lakes act as a natural system and water will flow through the system only as quickly as nature will allow,"¹⁴³ this sometimes takes twelve to fifteen years and accounts for the vast quantity of water in this system. For this reason, the rights of users and littoral states remain largely inchoate, with the exception of the Chicago diversion. As a matter of United States federal common law, all littoral states have an equal right to a fair share of interstate waters along or within their borders, but these rights must be claimed and confirmed by a judicial proceeding, an interstate compact, or by Congressional legislation.¹⁴⁴

Aside from navigation protection,¹⁴⁵ the federal government has deferred to the state water policy. Congress has allowed the littoral states to prohibit new out-of-basin diversions if they are inconsistent with the protection of the Great Lakes ecosystem. The states have used their political power to control the use of the Lakes in two related ways to protect the integrity of the Great lakes aquatic ecosystem and to preserve

¹⁴¹ *Id.* at 46.

¹⁴² Michael J. Donahue et al., *Great Lakes Diversion and Consumptive Use: The Issue in Perspective*, 18 CASE W. RES. J. INT'L L. 19, 25-26 (1986).

¹⁴³ GREAT LAKES COMMISSION, WATER LEVEL CHANGES: FACTORS INFLUENCING THE GREAT LAKES 5 (1986).

¹⁴⁴ See A. DAN TARLOCK ET AL., WATER RESOURCE MANAGEMENT 831- 913 (1994).

¹⁴⁵ *United States v. Locke*, 467 U.S. 1135 (2000) reaffirms the federal government's traditional interest in navigation.

lake waters for the exclusive use of the basin states. First, in 1985, they agreed to the Great Lakes Charter which requires that all states consult with each other and the Province of Ontario before they approve an out of basin diversion.¹⁴⁶ Second, Congress ratified the Charter in the 1986 Water Resource Development Act (WRDA) which requires the consent of all of the littoral state governors to an out-of-basin diversion.¹⁴⁷ WRDA is a presumptive Congressional exemption of gubernatorial vetoes which prohibit out-of-state diversions from the negative or dormant commerce clause, but its constitutionality has never been tested.¹⁴⁸

There have been several diversion proposals since 1986, but no major out of basin diversion has been allowed. The potential use of the Charter to control lake use by preventing out of basin diversions to alleviate a prolonged drought is illustrated by the fate of then Illinois Governor James Thompson's proposal to triple Lake Michigan diversions in the drought summer of 1988. As the Mississippi dropped, barge navigation was impeded, and Governor Thompson wanted the transbasin diversion to augment the River's record low flow. The proposal, allegedly to help downstate grain exporters who were major campaign supporters, was blocked by protests from Ohio, Wisconsin, Minnesota and Canada, and Governor Thompson dropped it in the face of intense interstate and foreign opposition.¹⁴⁹ The chief legal basis of the objections to this proposed quick navigation fix was Illinois' failure to follow the Great Lakes Charter consultation procedures.¹⁵⁰

Two new international legal regimes may limit national, state, and provincial power. Some legal commentators have suggested that any national or sub-national effort to prohibit the export of raw water from its territory is illegal under GATT or NAFTA. This is ultimately an unlikely

¹⁴⁶ Peter V. MacAvoy, *The Great Lakes Charter: Toward A Basinwide Strategy for Managing the Great Lakes*, 18 CASE W. RES. J. INT'L L. 49, 55 (1986).

¹⁴⁷ 42 U.S.C. §§ 1962d-20 (1998).

¹⁴⁸ A widely circulated joint Canada-United States legal study prepared for the Great Lakes Governors has concluded that the Water Resources development Act of 1986 violates, inter alia, the dormant commerce clause, the non-delegation doctrine and the due process clause. See Joseph W. Dellapenna, *The International Joint Commission Considers Water Exports From the Great Lakes*, 3 ABA WATER RESOURCES COMMITTEE NEWS LETTER, Jan. 2000, at 10.

¹⁴⁹ WILLIAM E. RIEBSAME ET AL., DROUGHT AND NATURAL RESOURCES MANAGEMENT IN THE UNITED STATES: IMPACTS AND IMPLICATIONS OF THE 1987-89 DROUGHT 106 (1991).

¹⁵⁰ The Canadian Yearbook of International Law contains a summary of the Canadian parliamentary debates in opposition to the proposal. 28 CANADIAN YEARBOOK OF INTERNATIONAL LAW 407-409 (1989).

result. Classic international law gives a country complete control over the development and use of its resources so long as the country does not cause or allow transboundary pollution.¹⁵¹ There is no dormant commerce clause

¹⁵¹ For a history of the relationship between the right to develop and state sovereignty, see Bengt Broms, *Sovereignty Over Natural Resources*, in 10 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 306 (1987). Modern environmental law, of course challenges unlimited natural resources sovereignty, see for example KERSTIN ODENTHAL, *DIE UMWELTPFLICHTIGKEIT DER SOUVERAENITAET* [The Environmental Responsibility of Sovereignty] (1998), but the sovereign right to develop continues to be the "real" practice of the international community. The principle of sovereign control is beginning to play a role in water use controversies. The Canadian provinces and the American states which border the Great Lakes are concurrently concerned about the environmental and other risks posed by possible water withdrawals for bulk tanker shipments. The right to develop is the conceptual basis for an anti-export strategy because some international trade experts, especially in Canada, have opined that Article XI of GATT and NAFTA invalidate all flat export bans. Article XI bans "prohibitions other than duties, taxes or other charges" on exports and imports, but Article XX(g) allows a state to defend an export ban that is necessary to conserve exhaustible natural resources. The opposite argument is that neither GATT nor NAFTA change the basic principle that state sovereignty allows a state to decide whether or not to allow trade in raw natural resources.

Canadian, and to a lesser extent American, fears are triggered by several WTO decisions which have rejected the conservation defense when a nation has attempted to conserve marine resources outside of its territory. In my opinion, these decisions do not preclude the application of environmental and other conservation measures to a nation's internal waters because they are premised on the protection of state sovereignty over internal resources, but recent WTO Appellate decisions have interpreted Article XX to require that export restrictions must not only fall within the enumerated list in Article XX but they must also be consistent with the "chapeau" which provides that "such measures are not to be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions appear, or a disguised restriction on international trade." World Trade Organization Appellate Body Report, *United States Standards for Reformulated and Conventional Gasoline*, 35 I.L.M. 603, 611-12 (1996); World Trade Organization Appellate Body Report, *United States-Import Prohibitions of Certain Shrimp and Shrimp Products*, available in 1999 WL 720123 (1998) [hereinafter *Shrimp-Turtle* decision] (complaint by India, Malaysia, Pakistan, and Thailand). See Bret Puls, *The Murky Waters of International Environmental Jurisprudence: A Critique of Recent WTO Holdings in The Shrimp/Turtle Controversy*, 8 MINN. J. GLOBAL TRADE 343 (1999); GATT Secretarial Report, *United States-Restriction on Imports of Tuna*, available in 1991 WL 771248 (complaint by Mexico); GATT Secretarial Report, *United States-Restriction on Imports of Tuna*, available in 1994 WL 907620 (complaint by EEC & Netherlands). The *Shrimp-Turtle* decision limited its holding to the United State's failure to justify the application of different standards to different exporting countries and recognized the right of WTO members to preserve their environmental resources. Traditional water conservation management does not violate the fundamental premise of trade law that all trade partners

in international law or international trade law that requires a country to share its resources with other countries. GATT and NAFTA only embody the principle that *if* a country decides to turn a natural resource into a commodity, it must permit trade in a non-discriminatory manner.¹⁵² The NAFTA countries have addressed this issue by declaring that raw water is not a good,¹⁵³ but this declaration is soft rather than hard law and does not apply to the GATT.

be treated in a non-discriminatory manner. *See generally* INTERNATIONAL JOINT COMMISSION, PROTECTION OF THE WATERS OF THE GREAT LAKES: FINAL REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES (2000).

¹⁵² DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 1182 (1998).

¹⁵³ The three NAFTA countries have agreed to exclude non-bottled water from the Agreement. A 1993 statement by the governments of Canada, Mexico, and the United States provides in part:

The NAFTA creates no rights to the natural water resources of any Party to the Agreement. Unless water, in any form, has entered into commerce and become a good or product, it is not covered by any trade agreement including the NAFTA. And nothing in the NAFTA would oblige any NAFTA Party to either exploit its water for commercial use, or to begin exporting water in any form. Water in its natural state in lakes, rivers, reservoirs, aquifers, water basins and like is not a good or product, is not traded, and therefore is not and never has been subject to the terms of any trade agreement.

News Release: Environment Ministers Meet at Kananaskis, http://www.scics.gc.ca/cinfo99/83067000_e.html (last visited Oct. 27, 2000).

Canada's North American Free Trade Implementation Act, C.S.C. 1993, c. 44(7), similarly provides that water in packages, products, or tanks is a good but that natural surface or groundwater is not. This "soft" declaration does not, of course, settle the issue.

All Canadian provinces, with the exception of Quebec, have agreed to a ban on bulk water removal from the Canadian portion of the country's major drainage basins. *Accord for the Prohibition of Bulk Water Removal From Drainage Basins*, at <http://www.Scics.gc.ca/pdf/accord.pdf> (last visited Oct. 27, 2000). The policy will be implemented by each province and contains several exemptions and exclusions such as bottled water, water packaged in small, portable containers, water used in food production, water to meet short term safety, security or humanitarian needs "and other purposes as determined by individual jurisdictions to meet environmental and other management needs consistent with the objective of the Accord." *Id.*

B. *Prior Appropriation*

Prior appropriation states are increasingly adopting some riparian elements that support watershed protection.¹⁵⁴ The law has one important flow stabilization mechanism and other ones are being added. Prior appropriation protects the artificial flow regime produced by irrigation diversions. Junior appropriators have vested rights to return flows,¹⁵⁵ when senior rights are transferred and therefore stream systems enjoy de facto, but unsecure, artificial minimum flow levels in their lower reaches. A senior right holder may generally only transfer the amount of water actually consumed to protect downstream users.¹⁵⁶ This long standing rule can be the basis for some in-stream flow protection. For example, the Washington State Supreme Court¹⁵⁷ has held that the public trust does not apply to consumptive water rights, but the Washington Pollution Control Board achieved the same result under an application of the junior protection rule.¹⁵⁸ The Pollution Control Board ruled that the Department of Ecology has the authority to deny a change application that would decrease minimum flows because the change would be contrary to the public interest:

Ecology has an obligation to ensure that the change will not conflict with junior right holders and the public interest as it may have evolved since issuance of the original certificate . . . A perfected water right only vests the right to historic use and place. It does not vest any right to a change in place of use.¹⁵⁹

The return flow rule is, on balance, an inadequate watershed protection strategy. As the West turns to “water marketing”-large scale permanent or temporary transfers-to reallocate water from agricultural to

¹⁵⁴ See generally A. Dan Tarlock, *The West Returns to Riparianism*, 27 WATER RESOURCES RES. 987 (1991).

¹⁵⁵ See generally *McDonald v. Bear River and Auburn Water & Mining Co.*, 13 Cal. 220 (1856).

¹⁵⁶ For a recent reiteration of this rule, see *Santa Fe Trail Ranches Prop. Owners Assoc. v. Simpson*, 990 P.2d 46, 53 (Colo. 1999).

¹⁵⁷ *Rettkowski v. State*, 858 P.2d 232 (Wash. 1993).

¹⁵⁸ Pub. Util. Dist. No. 1 of Pend Oreille County v. State of Washington, Washington State Pollution Control Hearings Board (Sept. 23, 1998).

¹⁵⁹ *Id.*

urban and environmental uses,¹⁶⁰ return flows are diminishing.¹⁶¹ In addition, recent droughts in the western United States have exposed substantial fish populations and riparian vegetation to extreme stresses from the prior appropriation doctrine. More direct in-stream flow protection mechanisms are necessary. A number of states have tried to address this problem by recognizing various forms of in-stream flow rights to sustain fish populations in designated rivers. Initially, the law of prior appropriation did not recognize rights unless there was a diversion, but most western states now have in-stream flow protection programs that permit states to reserve or appropriate water for this use.¹⁶²

The public trust doctrine can also promote integrated watershed management by requiring the preservation of minimum flows necessary to sustain local fish populations and other ecosystem services in the watershed. In brief, the public trust doctrine posits that states hold navigable waters in trust for an expanding compass of public uses which can include watershed and environmental protection. A landmark California decision held that vested appropriative rights are subject to the public trust.¹⁶³ As a result, the right holder, the City of Los Angeles, had to cut back on diversions from the tributaries to a lake on the eastern slope of the Sierra Nevada because lower lake levels threatened the stability of Mono Lake's fragile ecosystem.¹⁶⁴ The case resulted in a negotiated settlement that will probably partially restore the Mono Lake ecosystem and watershed. A history of the litigation reports that the lake level was ultimately fixed at 6,392.6 feet; the original level was 6,405 feet and describes the likely post-litigation lake:

At the tufa groves, the rising tide will spread among the towers. Tufa masses now at the shoreline will become

¹⁶⁰ See generally NATIONAL ACADEMY OF SCIENCES, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY AND THE ENVIRONMENT (1992). Water marketing can support watershed restoration. In 1997, Texas created a water bank partially for this purpose. TEX. WATER CODE ANN. §§15.701-.708 (Vernon 2000). Water banks can temporarily reallocate water to in-stream flows during drought periods. See Ronald Kaiser & Shane Binion, *Untying the Gordian Knot: Negotiated Strategies for Protecting Instream Flows in Texas*, 38 NAT. RESOURCES J. 157, 173 (1998).

¹⁶¹ See NATIONAL ACADEMY OF SCIENCES, *supra* note 160, at 45-54.

¹⁶² See NATURAL RESOURCES LAW CENTER, INSTREAM FLOW PROTECTION IN THE WEST (Lawrence J. MacDonnell & Terese A. Rice eds., revised ed. 1993).

¹⁶³ See *National Audubon Soc. v. Superior Court of Alpine County*, 658 P.2d 709 (Cal. 1981), *cert. denied*, 464 U.S. 977 (1983). See also Gregory S. Weber, *Articulating the Public Trust: Text, Near-Text and Context*, 27 ARIZ. ST. L.J. 1155, 1160-64 (1995).

¹⁶⁴ DANIEL BOTKIN ET AL., THE FUTURE OF MONO LAKE 1160-64 (1988).

islands; towers now standing in the bushes Negrit Island will regain isolation Though coyotes are known to swim, the widening waters should eventually discourage them, and the gull colony should return On the great arc of the lake's eastern rim, the alkali band will shrink until, in most cases, lakewater meets either the vegetation or dark-colored sand. From a distance the lake will appear "full." Dust will blow here and there, but the great regional storms should be no more. . . . Along the shore, wetlands will more commonly be found near open water, providing good habitat for ducks.¹⁶⁵

This said, *National Audubon* remains an isolated precedent, perhaps because the magnitude of the injury was so great and the right holder had the ability to obtain substitute supplies.

To counter the lack of a watershed rule in prior appropriation, some states have enacted area of origin protection statutes,¹⁶⁶ but these have functioned primarily as an equal development opportunity rather than environmental protection statutes.¹⁶⁷ The law of prior appropriation initially allowed areas of origin to be dewatered, but states have modified the doctrine so that the right is independent of the locus of use and the general principle of area of origin protection is expanding, both through legislation and judicial decisions.¹⁶⁸ Technically, area of origin legislation protects headwater counties' right to use the water in the future, although most states protect area of origin by liability rather than property rules.¹⁶⁹ The idea, however, can be applied to protect downstream uses from being reallocated out of the basin.

¹⁶⁵ JOHN HART, *STORM OVER MONO: THE MONO LAKE BATTLE AND THE CALIFORNIA WATER FUTURE* 177 (1996).

¹⁶⁶ See generally Lawrence J. MacDonnell & Charles W. Howe, *Area-of-Origin Protection in Transbasin Water Diversions: An Evaluation of Alternative Approaches*, 57 U. COLO. L. REV. 527 (1986).

¹⁶⁷ The statutes were passed to protect development opportunities not to protect watersheds. See Ronald Robie & Russel B. Kletzing, *Area of Origin Statutes: The California Experience*, 15 IDAHO L. REV. 419, 437-38 (1979).

¹⁶⁸ See A. Dan Tarlock, *New Water Transfer Restrictions: The West Returns to Riparianism*, 27 WATER RESOURCES RES. 987, 990-92 (1991).

¹⁶⁹ COLO. REV. STAT. § 37-45-118(1)(b)(II) (1990) (state must build compensating reservoir on West Slope of the Rockies when water diverted to the Front Range).

Area of origin protection legislation was developed in California to preserve the options of headwaters "cow counties" and to prevent another Owens Valley from being dewatered.¹⁷⁰ California law prohibits the state of California from transferring appropriations that it holds if the transfer will deprive the county in which the water originates of water necessary for its development.¹⁷¹ A broader statute protects watersheds of origin and adjacent areas from the export of water to supply projects such as the Central Valley Project (CVP).¹⁷² After the statute was passed the CVP became a federal project and subject to Section 8 of the Reclamation Act of 1902, which to some extent undermines state protection.¹⁷³ The Supreme Court initially held that area of origin legislation was merely a liability rather than a property rule and thus, only entitled counties whose rights were impaired to compensation rather than wet water.¹⁷⁴ But, the Court subsequently held that California could subject a federal reservoir to minimum flow releases absent a showing of federal preemption.¹⁷⁵ Thus, it is possible that areas of origin can now claim property rights and use them for watershed protection.

The principle that areas of origin have a preference over distant areas can be expanded to encompass system-wide watershed and river basin protection in appropriate circumstances. The California Delta Water Rights decision¹⁷⁶ used the public trust doctrine and state water quality law to extend area of origin protection law to both upstream and downstream diversions which threaten water quality and fish and wildlife. The Sacramento-San Joaquin Delta is the traffic circle for water on its way from northern to southern California and is beset by fisheries, water quality and other environmental problems, many of which require greater flows at critical times of the year.¹⁷⁷ The California Water Resources Board initially refused to consider water quality standards inconsistent with existing water entitlements from federal and state projects, but the court of appeals held that water quality protection standards must be set without regard to the vested water rights for all right holders, private,

¹⁷⁰ See Robie & Kletzing, *supra* note 167.

¹⁷¹ CAL. WATER CODE § 10505 (West 1992).

¹⁷² CAL. WATER CODE § 11460 (West 1992).

¹⁷³ 32 U.S.C. § 8 (1998).

¹⁷⁴ See *City of Fresno v. California*, 372 U.S. 627, 630 (1963).

¹⁷⁵ See *California v. United States*, 438 U.S. 645, 679 (1978).

¹⁷⁶ See *United States v. State Water Res. Control Bd.*, 182 Cal. App. 3d 82 (1986).

¹⁷⁷ JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 554 (2000).

federal and state.¹⁷⁸ This decision set in motion an on-going multi-stakeholder process to secure the necessary protection flows for the Delta, and upstream watershed restoration and protection initiatives are an integral part of the process.

C. Federal Water Rights

1. Indian and Non-Indian Reserved Water Rights

Most water rights are state-created, but limited federal water rights exist. On the whole, these rights have contributed to watershed destruction rather than to protection, but there is a modest counter-trend. Federal “reserved” water rights may be claimed by both Indian tribes and federal land managers when an Indian reservation is created or public land withdrawn and reserved for a water-related purpose. In *Winters v. United States*,¹⁷⁹ the Supreme Court held that the Indian tribes had superior rights to state appropriators because implied tribal rights exist from the creation of the reservation. The Court reasoned that reservations were set aside to transform Indians into settled irrigators and that the rights were thus necessary to fulfill Congress’ “civilizing” mission. Native American water rights have characteristics of both appropriative and riparian rights and are superior to most state-created rights. *Winters* rights are “quasi”-riparian because the right is based on land ownership, not, as in the case with appropriative rights, on the application of water to beneficial use. But *Winters* rights are also appropriative because the right has a priority date; the usual priority date is the date of the creation of the reservation.¹⁸⁰ Since most reservations were created to clear the way for non-Indian settlement, this date is sufficient to give the tribe a right superior to most state-created rights. True aboriginal rights based on immemorial practices would, of course, be superior to any state-created right. Initially, the net effect of *Winters* rights was to enable Indians to divert water away from watersheds.

¹⁷⁸ *United States v. State Water Res. Control Bd.*, 182 Cal. App. 3d 82.

¹⁷⁹ 207 U.S. 564 (1908).

¹⁸⁰ See Judith V. Royster, *A Primer on Indian Water Rights: More Questions Than Answers*, 30 TULSA L.J. 61, 70 (1994).

Until the 1960s, tribal rights were asserted by the federal government under its trust responsibility.¹⁸¹ As a result, small amounts of *Winters* rights were generally claimed only to support existing or planned tribal irrigation needs. *Winters* rights now are asserted directly by the tribes, and tribal-state tensions have risen. Tribes assert rights to large amounts of water long allocated by state law, for irrigation and non-irrigation purposes and for the right to lease the water for non-reservation uses.¹⁸² In 1963, the Supreme Court held that the right entitled the tribes to all the water necessary to irrigate the "practicable irrigable acreage" on the reservation.¹⁸³ This standard requires that the land must be (1) capable of irrigation and (2) at a reasonable cost.¹⁸⁴

Winters rights can be the basis for watershed conservation initiatives as well as for irrigation because many tribes want to use water for non-consumptive, non-irrigation uses. Courts have recognized *Winters* rights for in-stream flows and fisheries,¹⁸⁵ but the idea has not been universally accepted. A major Wyoming State Supreme Court opinion held that *Winters* neither applies to groundwater nor to the use of water for fisheries maintenance.¹⁸⁶ *Winters* rights are also a potential source of off-reservation transfers and thus, could frustrate watershed restoration or protection efforts. However, the legal power of tribes to transfer water remains disputed by states who, ironically, want to lock the water to reservations on the theory that Indian, but not non-Indian, uses are confined to the watershed.¹⁸⁷ The power to lease to non-Indians is often

¹⁸¹ See, e.g., *Nevada v. United States*, 463 U.S. 110 (1983) (stating that Department of Justice had a conflict of interest because it could trade Indian against Federal Reclamation Project rights but refusing to reopen prior decree that reserved no water for conservation of Indian fishery).

¹⁸² See WESTERN WATER POLICY REVIEW ADVISORY COMMISSION, *WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY* 3-48 (1998).

¹⁸³ *Arizona v. California*, 373 U.S. 546, 600 (1963).

¹⁸⁴ *In re General Adjudication of All Rights to Use Water in Big Horn River System*, 753 P.2d 76, 101 (Wyo. 1988), *aff'd sub nom Wyoming v. United States*, 492 U.S. 496 (1989)[hereinafter *Big Horn*]. Arizona has held that reserved rights extend to groundwater.

¹⁸⁵ See, e.g., *United States v. Adair*, 723 F.2d 1394, 1410 (9th Cir.) *cert. denied*, 467 U.S. 1252 (1983).

¹⁸⁶ See *Big Horn*, *supra* note 184, at 98-100.

¹⁸⁷ Western states have long argued that Indian reserved rights were recognized solely for the purpose of transforming nomadic into pastoral people, and thus, they can only be used for on-reservation irrigation. As Australia, Canada, New Zealand, and the United States confront the special problems of defining rights to protect unassimilated aboriginal groups and to give them a fighting chance of survival, the nature of aboriginal rights must

asserted but has never been directly judicially sanctioned. The transfer of tribal land and probably water rights requires Congressional consent under the Nonintercourse Act of 1790, and this may apply to leases as well as permanent title transfers.¹⁸⁸

Indian tribes may also protect their reservations against upstream pollution in the watershed and thus encourage good watershed management practices. Section 510 of the Clean Water Act allows tribes to adopt more stringent water quality standards than those required by the federal EPA or the state in which the reservation is located.¹⁸⁹ A Rio Grande River Pueblo, located below the city of Albuquerque, adopted, and the EPA approved, a more stringent sewage discharge standard for arsenic than New Mexico's by classifying its portion of the river for ceremonial use. As a result, Albuquerque's treated sewage discharge potentially violated the standards. The Tenth Circuit has held that tribes have the same power as states to adopt more stringent water quality standards and thus the EPA has the authority under Section 510 of the Clean Water Act to approve these standards.¹⁹⁰

The federal government may also assert reserved rights to carry out the water-related purposes of public land withdrawn for a water-related use, but the Supreme Court has effectively refused to allow the doctrine to be used for watershed protection.¹⁹¹ Federal land management agencies have tried to use these rights to protect river and stream corridors in national forests and grazing lands, but the Supreme Court has basically rejected the use of federal rights for this purpose except for national parks and monuments. Most non-Indian reserved rights claims are based on the implied, rather than the express, intent of Congress in withdrawing public land from entry. In a case denying reserved rights for national forests, the

be directly confronted. Canada, for example, limits aboriginal rights to pre-European practices. This suggests that aborigines remain frozen in the time which would be an efficient but inequitable watershed protection rule. See A. Dan Tarlock, *Can Cowboys Become Indians: The Protection of Western Communities as Endangered Cultural Remnants*, 31 ARIZ. ST. L.J. 539, 578 (1999).

¹⁸⁸ See Royster, *supra* note 180, at 82-83.

¹⁸⁹ 33 U.S.C. § 1370 (1998).

¹⁹⁰ *City of Albuquerque v. Browner*, 865 F. Supp. 733, 739-40 (D.N.M. 1993), *aff'd*, 97 F.3d 415 (10th Cir. 1996). *Accord* *Montana v. EPA*, 137 F.3d 1135, 1140 (9th Cir. 1997).

¹⁹¹ For a discussion of subsequent unsuccessful Forest Service attempts to claim reserved rights for watershed protection see Teresa Rice, *Colorado Water Court Denies Reserved Rights Claims for Channel Maintenance Flows*, 4 RIVERS 146 (1993).

Court developed a test with a high threshold: (1) there must be strong evidence of implied intent, (2) the water must be for the primary, not secondary purpose of the reservation, and (3) the right is limited to the minimum amount of water necessary to carry out the purpose of the withdrawal.¹⁹² The Forest Service has unsuccessfully asserted other theories for National Forests,¹⁹³ but the Idaho Supreme Court has held that federal reserved rights are necessary to fulfill the primary purpose of wilderness areas.¹⁹⁴

2. Federal Regulatory Water Rights

Federal pollution and biodiversity conservation mandates are an alternative, but inconsistent, potential source of watershed protection because they allow the federal government to mandate both the quantity and quality of stream flows. The conservation of biodiversity in river corridors requires the recognition of rights to some level of minimum flow.¹⁹⁵ In addition to state laws that create in-stream flow rights, the federal government has the power to mandate conservation flows through the assertion of federal regulatory water rights. Prior the 1970s, the federal government generally asserted only proprietary water rights. But regulatory water rights, which are *de facto* rather than *de jure* proprietary rights, may arise from federal programs that require flow releases to fulfill statutory mandates. These rights may preempt state water law.¹⁹⁶ The three most important federal programs that can supersede state water law are Sections 401¹⁹⁷ and 404¹⁹⁸ of the Clean Water Act and the Federal Endangered Species Act (ESA).¹⁹⁹

¹⁹² United States v. New Mexico, 438 U.S. 696 (1978).

¹⁹³ Rice, *supra* note 191.

¹⁹⁴ *In re SRBA*, Case No. 39576, 1999 WL 778325, (Idaho Oct. 1, 1999) holds, 3-2, that the Wilderness Act and the Hells Canyon National Recreation Area Act reserve water rights because adequate water flows are related to the primary purpose of the reservation. The court also held that the United States was entitled to the entire flow of unappropriated waters.

¹⁹⁵ See N. LeRoy Poff et al., *The Natural Flow Regime: A Paradigm for River Conservation and Restoration*, 47 BIOSCIENCE 769, 771 (1997).

¹⁹⁶ See, e.g., *Riverside Irrigation Dist. v. Andrews*, 758 F.2d 508, 514 (10th Cir. 1985).

¹⁹⁷ 33 U.S.C. § 1341 (1998).

¹⁹⁸ 33 U.S.C. § 1344 (1998).

¹⁹⁹ 16 U.S.C. §§ 1531-1544 (1998).

Section 401 of the Clean Water Act²⁰⁰ is another source of new regulatory rights that give the states increased power to protect their watersheds from the adverse water-quality related effects of federally licensed projects. The section requires state certification that a federal facility or licensed facility complies with state water quality standards and thus allows States to use federal law to incorporate state watershed conservation duties. A 1994 United States Supreme Court decision holds that a state may refuse to certify a hydroelectric facility because the proposed minimum flow schedules are inadequate to meet the state's anti-degradation standard. The Court refused to confine state certification to chemical pollution and called the distinction between water quantity and quality "artificial."²⁰¹

Federal reclamation water rights are equally subordinate to the ESA and to many state environmental protection mandates. The Endangered Species Act applies to both new and existing federal water projects, to federally licensed projects, and to the exercise of state water rights.²⁰² The ESA confers discretion on the Secretary of the Interior to negotiate renewal Reclamation Act contracts to redefine the amount of supply available for irrigation. The Ninth Circuit held that the Bureau of Land Reclamation cannot renew a contract until National Marine Fisheries Service or the Fish and Wildlife Service has concurred with the Bureau's conclusion that the renewal is not likely to affect a threatened species or a proper "no jeopardy" biological opinion is issued. FWS ultimately issued a no jeopardy opinion after the execution of a contract renewal. However, for the first time, the court held that the failure to respect mandated processes cannot be corrected by post hoc actions because post hoc actions preclude possible mitigation options and the remedy is a rescission of the contract.²⁰³ Section 8 of the Reclamation Act of 1902 requires that federal agencies defer to state law, and the Supreme Court has held that this includes compliance with environmental mandates in the operation of new federal projects unless there is a clear showing of federal preemption.²⁰⁴ The Ninth Circuit extended the principle of deference to the reoperation of

²⁰⁰ 33 U.S.C. § 1341 (1998).

²⁰¹ See *PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 719 (1994).

²⁰² See *United States v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126 (E.D. Cal. 1991).

²⁰³ See *Natural Res. Def. Council v. Houston*, 146 F.3d 1118, 1127-28 (9th Cir. 1998).

²⁰⁴ See *California v. United States*, 438 U.S. 645, 675 (1978).

dams for ecosystem restoration by holding that Section 5937 of the Fish and Game Code is not facially preempted by federal law.

IV. EQUITABLE APPORTIONMENT AS AN AREA OF ORIGIN PROTECTION DOCTRINE

Area of origin riparianism has even been put forward as a constitutional doctrine, inherent in the federal common law of equitable apportionment, but there is no basis for prohibiting consensual interstate transfers of water and the Supreme Court has constantly refused to use the doctrine as a barrier to transbasin diversions. Anti-trust litigation in South Dakota, growing out of the failure of a coal slurry pipeline project,²⁰⁵ illustrates an attempt to find a constitutional footing for expanded riparianism. After the pipeline project was abandoned, South Dakota sued the Kansas City Southern Railroad for conspiring to block the pipeline through the railroad's extensive intervention in numerous environmental and water proceedings, thus interfering with the contract South Dakota had with ETSI to supply Missouri River water from the Ohae reservoir north of Pierre. One of Kansas City Southern's arguments was that South Dakota had no water to transfer for out of state use. As the railroad put it in its brief appealing from a \$600 million dollar judgment that South Dakota won in 1988:

Two key principles governing [equitable apportionment] are (1) that only citizens of states with natural access to an interstate water source may make the claim to that source and (2) that existing uses at the time of apportionment are accorded a high level of protection. . . . These principles of equitable apportionment require the prohibition of interstate, interbasin transfers. Water transfers outside a basin — prior to apportionment and absent the consent of all basin states — deprive citizens of their natural right to an interstate stream. Recipients of out of basin water will build up equities . . . [that] will undermine the principle of natural access.²⁰⁶

²⁰⁵ See *ESTI Pipeline Co. v. Missouri*, 480 U.S. 902, 905 (1988).

²⁰⁶ Brief for Appellant, *South Dakota v. Kansas City S. Indus., Inc.* 889 F.2d 40 (8th Cir. 1989) (No. 88-5422). The verdict was reversed on a non-water law issue, but the issue will continue to be pressed.

Interstate compacts are designed to protect states of origin, but they may also be a source of constraints on voluntary transfers by a compact beneficiary state. Interstate compacts allocate water among states, but there is increasing pressure on headwater states to sell or lease their interstate allocation. Opponents of transfers argue that interstate compacts restrict state shares to uses within the state.²⁰⁷ A compact may bar interstate transfers, and congressional approval may be treated as a waiver of the Dormant Commerce Clause.²⁰⁸ However, absent an express prohibition, advocates of water marketing argue that a state is free to use its share as it chooses so long as it fulfills its compact obligations to other states.²⁰⁹

V. A PRELIMINARY NOTE ON REATTACHMENT OF LAND RIGHTS TO WATERSHEDS

With limited exceptions such as air rights, property rights are inherently attached to land. From a watershed conservation perspective, the problem is that property rights may be exercised with little regard for the impacts of specific uses on surrounding land. Thus, they are detached from a specific landscape. This problem is somewhat easier to overcome in watershed conservation initiatives because the closer the connection to the water the greater the possible limitations to reattach land rights to the broader landscape.²¹⁰ The Constitution gives governments more

²⁰⁷ See Richard Simms & Jennifer Davis, *Water Transfers Across State Systems*, 31 ROCKY MTN. MIN. L. INST. 22-1 (1985).

²⁰⁸ *Intake Water Co. v. Yellowstone River Compact Comm.*, 769 F.2d 568 (9th Cir. 1985), *cert. denied*, 476 U.S. 1163 (1986).

²⁰⁹ For a history of the shifting basin state positions see David H. Getches, *Colorado River Governance: Sharing Federal Authority As An Incentive to Create A New Institution*, 68 COLO. L. REV. 573, 643-45 (1997). The case for inter-basin and inter-state water marketing is made by David E. Lingren, *The Colorado River: Are New Approaches Possible Now That The Reality of Reallocation is Here*, 38 ROCKY MTN. MIN. L. INST. 25-1 (1992).

²¹⁰ The evolution of Washington state drainage law illustrates this statement. Washington adheres to the common enemy rule of surface water drainage. See *Phillips v. King County*, 968 P.2d 871 (1998); and *Snohomish County v. Postema*, 95 Wash. App. 817, 978 P.2d 1101, 1104 (1998), *review denied*, 994 P.2d 848 (1999) (containing dicta that surface waters may not be artificially collected and discharged in a greater quantity or manner than normally would occur). In 1999, the Washington State Supreme Court expressly refused to adopt the reasonable use rule, but added a new exception to the common enemy rule which imposes significant constraints on watershed degradation

discretion to regulate water use compared to land use.²¹¹ User expectations to exploit the resource absent the incorporation of public interest or landscape conservation considerations have historically been less crystallized. For example, this rationale leads to the conclusion that water rights do not confer the right to drain wetlands.²¹² The denial of a federal or state wetland fill permit can always be challenged as a taking, and there are cases so holding, but more recent federal and state cases recognize that property owners have more limited expectations of total development for these water-dependent resources. The Federal Circuit has recently held that a land owner who purchases wetland property with the knowledge that federal and state permits are required to develop has no investment backed expectations when permission to fill is denied to protect an endangered species.²¹³ A New Jersey intermediate appellate court has held that there is no taking if riparian and upland tracts form a single property.²¹⁴ The Michigan Supreme Court recently extended this principle beyond wetland conservation to dry water-related land. *Nemeth v. Abonmarche Development Co.*²¹⁵ held that a construction project that stripped thirty acres of barrier dunes along Lake Michigan and damaged surrounding property when a storm disturbed the piles of earth at the site violated the Michigan Soil Erosion and Sedimentation Control Act²¹⁶ and

which causes downstream damage. An improving upperland owner may not invoke the common enemy rule if he or she (1) blocks a watercourse, (2) alters the natural drainage pattern by collecting and discharging it and (3) fails to act in good faith and to use due care in preventing unnecessary injury to neighboring landowners. *Currens v. Sleek*, 983 P.2d 626 (Wash. 1999), *amended by* 993 P.2d 900 (1999). The court held that lower landowners were entitled to a trial on the issue of whether clear cutting on upper land in violation of a Department of Natural Resources check list triggered the good faith-due care exception. The court concluded that failure to comply with the check list was not a per se lack of due care, but the trier of fact could consider the failure as evidence of bad faith and lack of due care and that unlike the reasonable use rule, there is no inquiry into the utility of the upper's activity. The trier of fact can only decide "whether the method employed . . . minimized any unnecessary impacts upon adjacent land." 983 P.2d at 631.

²¹¹ See Joseph L. Sax, *The Constitution, Property Rights and the Future of Water Law*, 61 U. COLO. L. REV. 257, 260 (1990).

²¹² See *In re Application of Christensen*, 417 N.W.2d 607, 613 (Minn. 1981) (no riparian right to drain public wetland).

²¹³ See *Good v. United States*, 189 F.3d 1355, 1361-62 (Fed. Cir. 1999), *cert. denied*, 120 S. Ct. 1554 (2000); Fred P. Bosselman *Limitations Inherent in the Title to Wetlands at Common Law*, 15 STAN. ENVTL. L.J. 247 (1996).

²¹⁴ *Karam v. Department of Env'tl. Prot.*, 705 A.2d 1221, 1228 (N.J. Super. Ct. App. Div. 1998), *aff'd*, 723 A.2d 943 (1999).

²¹⁵ 576 N.W.2d 641 (Mich. 1998).

²¹⁶ MICH. COMP. LAWS §§ 324.9101 et seq. (1994).

was also an impairment of natural resources under the Michigan Environmental Protection Act.²¹⁷ The court noted that erosion was a major source of water pollution, and concluded that MEPA, which allows courts to develop a common law of environmental quality, applies equally to non-scarce and non-unique natural resources such as sand.

VI. CONCLUSION

As environmental protection moves into the second generation, the accommodation of economic and environmental property rights will take place within the framework of sustainable water use and management.²¹⁸ Sustainable development incorporates both the idea of use to satisfy human needs and environmental protection and restoration. As the Report of the Western Water Policy Review Advisory Commission concluded, "available supplies must be sustainably managed to ensure that adequate resources are available for future generations."²¹⁹ Sustainable development is currently more of a process than a standard, although it is evolving toward the articulation of legal principles that will allow regulators to distinguish between sustainable and unsustainable uses and to give great weight to place-based solutions, such as watershed conservation initiatives.²²⁰ Sustainable water management has four primary elements: (1) the accurate pricing of water resources so that most users will pay the true or unsubsidized cost of providing the water,²²¹ (2) increased efficiency in using and storing water, (3) the incorporation of equity claims for historically marginal groups such as Native Americans,²²² and (4) the establishment of "hydrologic baselines for individual basins" (and watersheds) against which consumptive uses can be measured.²²³ Applied to watershed conservation, these baselines would

²¹⁷ MICH. COMP. LAWS §§ 324.1701 et seq. (1994).

²¹⁸ See Terry Frazier, *Protecting Ecological Integrity Within the Balancing Function of Property Law*, 85 ENVTL. L. 53, 104 (1998).

²¹⁹ WESTERN WATER POLICY ADVISORY REVIEW COMMISSION, *supra* note 182, at 3-1.

²²⁰ See generally J.B. Ruhl, *The Seven Degrees of Relevance: Why Should Real-World Environmental Attorneys Care about Sustainable Development Policy?*, 8 DUKE ENVTL. L. & POL'Y F. 273 (1998).

²²¹ See SANDRA POSTEL, *LAST OASIS: FACING WATER SCARCITY* 165-182 (1997).

²²² WESTERN WATER POLICY ADVISORY REVIEW COMMISSION, *supra* note 182, at 3-2.

²²³ See Poff, *supra* note 195.

reflect ecological values. They would not, however, necessarily seek to return stream systems to pre-diversion and storage backgrounds.²²⁴

Watershed conservation must ultimately incorporate a vision of a holistic healthy landscape, as Aldo Leopold and his followers define it, into historic conceptions of property rights.²²⁵ Voluntary and mandatory land and water use practices will have to be integrated into property to conserve the traditional ecosystem services that watersheds long provided before they were degraded through intensive development and commodity production. Ideally, law should support this integration by permitting, encouraging and in some cases mandating consistent conservation practices. This will not be easy, but in recent years, the law has contributed by conserving and restoring the flow of river systems in various, ad hoc and often uncoordinated ways. It has also slowly and unevenly limited the use of land which degrades water-related ecosystem services. Property has always been a dynamic concept which has tried to strike a balance between individual and community interests and watershed conservation is another chapter in effort to find a balance that is both fair and sensitive to the interrelationship between individual land use and larger landscapes.

²²⁴ *Id.*

²²⁵ See Eric T. Freyfogle, *A Sand County Almanac At 50: Leopold in the New Century*, 30 ENVIRONMENT REPORTER NEWS AND ANALYSIS (BNA) 10058 (Jan. 2000).