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Is Water Property?

by Sandra B. Zellmer and Jessica Harder



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Introduction

One of the most controversial issues in natural resources law is whether interests in water are property. In the western United States, water is typically viewed by appropriators as a form of private property, while in the East it is not. In either case, the law is surprisingly unsettled, notwithstanding the important consequences that follow, particularly under constitutional takings jurisprudence.

Treating water as property has significant implications for investment, conservation and environmental protection as well. Establishing secure property rights can foster stewardship and wise investment of labor and capital. By the same token, the absence of property ownership can result in a “tragedy of the commons,” where a common resource is plundered as each selfish, yet economically rational, actor takes steps to promote self-interest with little regard for externalities that deplete the resource. On the other hand, public ownership of water is deeply embedded in western legal traditions, in recognition that water is essential to all life and must be safeguarded to prevent depletion and ensure satisfaction of a broad range of public needs.

This brief essay considers whether interests in surface water are property. Just over a year ago, in *Spear T. Ranch v. Knaub*,² the Nebraska Supreme Court held “no,” but provided scant analysis in support of its conclusion. We assess both the nature of property and the nature of water, and then turn to the implications of treating water as property (or not) in Nebraska. These topics are the subject of a longer article in progress, which looks at water rights nationwide.

I. What is Property and Why Do We Care?

Property law helps create and safeguard stable relationships between persons and things, allowing property owners to extract the greatest value from that relationship and to protect it against competing claims.³ Characterizing a thing as property has significant legal ramifications. First, it is essential for establishing a Fifth Amendment takings claim against the United States or an expropriation claim under international investment treaties.⁴ Characterization as property has many other important legal consequences. Take remedies, for example. Property rules are often enforced through injunctions, in contrast with tort or contract liabilities, which typically lead to monetary relief. Classification as property may also be determinative of issues involving mortgaging, the creation of present and future interests, and special treatment under federal or state tax laws (like conservation easements, amortization, or like-kind exchanges).

In spite of its importance, the concept of property is frustratingly ambiguous. According to the Restatement (First) of the Law of Property, the term describes “legal relations between persons with respect to a thing.”⁵ But of course, not all economic relationships give rise to property rights, and herein lies the rub, as they say. According to the Supreme Court, “only those economic advantages are ‘rights’ which have the law in back of them.”⁶ In *Klamath Irrigation District v. U.S.*, the federal claims court framed its struggle to define water rights as follows:

What is property? The derivation of the word is simple enough, arising from the Latin *proprietas* or “ownership,” in turn stemming from *proprius*, meaning “own” or “proper.” But, this etymology reveals little. Philosophers such as Aristotle . . . and Locke each, in turn, have debated the meaning of this term, as later did legal luminaries such as Blackstone, Madison and Holmes . . .⁷

Among the scholars and jurists cited by the court, surely Sir William Blackstone is the most familiar to property law aficionados. The American view of private property in land has been indelibly shaped by Blackstone, who described it as “that sole and despotic dominion . . . over the external things of the world, in total exclusion of the right of any other.”⁸ Ironically, it is highly unlikely that landowners enjoyed unfettered rights to real property when this phrase was penned, and Blackstone himself expressed some misgivings about the notion of exclusive dominion. Regardless, the concept is still influential today and has taken on near-mythical proportions among property rights proponents.

No doubt, exclusivity is a key feature of a property right; some have argued that it is in fact *the* key feature of property.⁹ One way to break down the concept of property is to consider

whether an interest in a thing enjoys the standard incidents of property ownership: the right to use (or not), the right to convey, and especially the right to exclude. Interests in water, as described below, are neither exclusive nor freely conveyable. Although such interests include usage, it is forbidden to *not* use water for speculative, aesthetic, or any other purpose. Yet, this begs the question—if exclusivity or one of the other incidents is lacking or severely diminished, are we dealing with something other than property?

Here is where the “bundle of sticks” metaphor may be useful. Though this conceptual tool has garnered its share of criticism, it has been employed by countless law professors to illustrate the nature of interests in property to first year students, and has become part of the “intellectual zeitgeist” of American property law.¹⁰ The bundle represents the sum total of rights one can have with respect to a parcel of land. The sticks in the bundle can be disaggregated without defeating the characterization of the parcel as property. A reversion, a life estate, a remainder, and a fee simple determinable each represent but one stick in the bundle of legally protected property interests. Likewise, a right to exclude, to use, and to convey are each but one stick in the bundle. Collectively, the various estates or, in the second example, the various incidents, add up to the whole bundle: the fee simple absolute.

What does the metaphor tell us about things other than land, specifically, water? For one thing, it illustrates that perhaps public rights in navigation, fisheries, recreation or water quality can comprise one of the sticks in the bundle without completely eviscerating the notion that a private interest to use the water is indeed property. But if we remove the exclusivity stick, which represents the very essence of property ownership, does the entire bundle fall apart, leaving us with a few scattered twigs, but not property? Conversely, are there still enough of the incidents or attributes of property left to justify treating the interest in water as property? In effect, this exercise brings us back to square one, but at the same time it prompts us to take a closer look at water and the various interests that are asserted in water.

II. Water is a Unique Public Trust Resource

There are at least two possible ways to unbundle the notion of property in water. The first is to consider whether water is a thing that is ever subject to ownership as a form of property. In other words, do water and relationships to water possess the essential characteristics of property: exclusivity, use, and transferability? Although this approach fosters stability in the rule of law, it is quite inflexible.¹¹ As first year law students learn, there are very few absolutes in the law. Yet, the Nebraska Supreme Court appears to have taken this path in the *Spear T* cases, described in Part III below.

An alternative path is to review the caselaw that has addressed the issue in various contexts and draw conclusions from those cases about the fundamental nature of water. Courts employ this method frequently, although they do not always articulate it as such. In *International News Service v. Associated Press*,¹² for example, the Supreme Court characterized the news as “quasi-property” for purposes of a dispute between newspapers, but refused to recognize property rights against the general public. This contextual approach allows decision-makers to treat a thing or relationship as property in one circumstance but not necessarily others, and in doing so it promotes flexible, equitable results.

Both alternatives require a close look at the elemental nature of water. Water is a unique resource. It is essential to all life. Its physical properties are unlike any other thing. There is no capacity for exclusive possession or use of water in a stream, a lake or even an irrigation ditch. It is constantly moving along the surface, seeping into the ground, evaporating into the air, and being taken up by plants, fish and other aquatic species. Quantities are never entirely certain; drought, precipitation, and even the practices of other users create ever-changing circumstances.

According to Professor Joseph Sax, who has written frequently on the nature of property rights, the uniqueness of water as a legal concern is universally acknowledged:

The roots of private property have never been deep enough to vest in water users a compensable right to diminish lakes and rivers or to destroy the marine life within them. Water is not like a pocket watch or a piece of furniture, which an owner may destroy with impunity. The rights of use in water, however long standing, should never be confused with more personal, more fully owned, property.¹³

In systems built on English common law, surface water is viewed as a type of “public trust” resource, where the sovereign retains rights and responsibilities to protect the resource for the public. The public trust doctrine traces its pedigree to Roman law. Because water is an essential resource upon which all life depends, navigable waterways, tidal areas, shorelines and stream beds cannot be held exclusively in private hands, but are impressed with the *jus publicum*, the public right. Although the doctrine was adopted in the United States through the incorporation of English common law, there is “an astonishingly universal regard for communal values in water worldwide.”¹⁴ A review of Asian, African, Islamic and Native American laws reveals rivulets of the public trust doctrine flowing from all reaches of the basins of the world.¹⁵

The public trust doctrine has enjoyed modern staying power in caselaw at both the federal and state level. In the eastern United States, it undergirds the law of “reasonable use,” where riparian land owners have usufructuary rights to water that flows through or past their land, but may not deplete the

flow in a way that harms other riparians or interferes with public access. In the West, the doctrine is embodied in provisions that give authority to the state to administer appropriative systems and ensure beneficial use of water resources. The public trust, however, has rarely acted a significant curb on private appropriators’ rights to water. In a marked deviation from this trend, the Supreme Court of California imposed it in *National Audubon Society v. Superior Court* (the Mono Lake case):

The state as sovereign retains continuing supervisory control over its navigable waters and the lands beneath those waters. This principle, fundamental to the concept of the public trust, applies to rights in flowing waters as well as to rights in tidelands and lakeshores; it prevents any party from acquiring a vested right to appropriate water in a manner harmful to the interests protected by the public trust.¹⁶

The Mono Lake decision is frequently cited by courts all across the nation, but it has had relatively little on-the-ground impact on the exploitation of water resources outside of California and a handful of other jurisdictions. Even so, the public trust doctrine is expressed in western legislation and caselaw through constraints on the use and conveyance of water, both of which are heavily regulated.

III. The Nature of Water Rights in Nebraska

Over-appropriation has become an almost insurmountable problem throughout Nebraska and in many watersheds of the West. This is hardly surprising. Prior appropriation arose during the late 1800s as a way to maximize use and promote settlement and economic development, and in fact it did just that, with little regard for the long-term sustainability of the resource or the communities—ecological and human—that rely on it.¹⁷

The prior appropriation regime, often described as “first in time, first in right,” is an expedient means of determining who gets water, how much she gets and when. The Nebraska Supreme Court has described this system of distributing water according to appropriators’ respective priorities as “undoubtedly enacted in furtherance of a wise public policy to afford an economical and speedy remedy to those whose rights are wrongfully disregarded by others, as well as to prevent waste, and to avoid unseemly controversies that may occur where many persons are entitled to share in a limited supply of public water for the purposes of irrigation.”¹⁸

In the West, private interests in water use are typically enconced in state constitutions. The Colorado constitution, for example, provides that “the right to divert the unappropriated waters of any natural stream to beneficial uses shall never be



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denied.”¹⁹ Yet another provision specifies that water is “the property of the state, and the same is dedicated to the use of the people of the state, *subject to appropriation* . . .”²⁰ Courts have held that these provisions create compensable property rights to use water.²¹

Nebraska’s constitution is similar, with an important distinction. It first provides that the use of water is dedicated to the people of the state, and goes on to proclaim: “The right to divert unappropriated waters of every natural stream for beneficial use shall never be denied *except when such denial is demanded by the public interest*.”²² This language has been construed by the Nebraska Supreme Court as allowing the legislature to define the “public interest.”²³ Accordingly, statutes allow only beneficial use, require permits, forbid waste, and prohibit non-use through forfeiture provisions.²⁴ The legislature has also restricted transfers between domestic, industrial, and agricultural preference categories, and imposed strict requirements on transfers within each category to prevent harm to other appropriators.²⁵ More recently, the state has taken strides toward sustainable, integrated management of surface and groundwater resources through the enactment and implementation of LB 962 and other measures,²⁶ some of which might not have been possible if private interests in water were viewed as inviolate property rights.

In its 2005 opinion in *Spear T. Ranch v. Knaub*, the Nebraska Supreme Court summed up these provisions to conclude that “[a] right to appropriate surface water . . . is *not an ownership of property*.”²⁷ As unequivocal as this sounds, the court tempered its statement in the next line: “Instead, the water is viewed as a public want and the appropriation is a right to use the water.”²⁸ One might view this as a distinction without a difference, because rights to water have always been recognized as usufructuary—a right to use but not outright ownership in the corpus of the water *in situ*.²⁹ Given the usufructuary nature of water rights, appropriators’ expectations of exclusive enjoyment are far less than those of landowners.³⁰

The distinction between ownership of water and a mere right to use water, however, made a tremendous difference to the Spear T plaintiff, a surface water appropriator harmed by groundwater pumping. The court rejected Spear T’s attempt to protect its “property” under a theory of conversion (an act of dominion wrongfully asserted over another’s property), and left Spear T to tort remedies.³¹ Likewise, Spear T’s claim against the Department of Natural Resources for a taking of property under the Nebraska Constitution was dismissed.³²

Curiously, the court cited only groundwater-related precedent in holding that Spear T had no property interest in its surface water.³³ In Nebraska, groundwater is not subject to private ownership; rather, it is owned by the state for the benefit of the public.³⁴ Indeed, “Nebraska law has never

considered ground water to be a market item freely transferable for value among private parties.”³⁵

Previous surface water cases had concluded just the opposite: that appropriators who complied with statutory requirements did in fact possess vested property rights.³⁶ In 1952, *City of Scottsbluff v. Winters Creek Canal Co.* invalidated an ordinance that deemed open canals to be public nuisances and required owners to fill them or construct water pipes.³⁷ The court found that the ordinance was an arbitrary exercise of the police power, and opined in dicta that it would result in “confiscation of the company’s property without due process or payment of just compensation.”³⁸

The issue was addressed directly in *Enterprise Irrigation Dist. v. Willis*.³⁹ There, the court held that the 1895 Irrigation Act, which limited appropriations to three acre-feet per acre, was not intended to apply retroactively. It conceded that the state may control the distribution of water to ensure beneficial use and guard against waste by virtue of its police power, but concluded that the statutory limitation could not be applied to an appropriation that vested prior to enactment. “That an appropriator of public water, who has complied with existing statutory requirements, obtains a vested property right has been announced by this court on many occasions.”⁴⁰ The court continued that the state’s police power had never been expanded so far as to allow the legislature “to destroy vested rights in private property when such rights are being exercised and such property is being employed in the useful and in nowise harmful production of wealth” unless use of the property is “shown to be inimical to public health or morals or to the general welfare.”⁴¹

Perhaps *Spear T* evidences an evolution in the law to reflect modern social values, or perhaps the opinion is simply a more reasoned application of the long-standing notion that water is a “public want.” Whether an emerging trend in the law is a deviation or merely a reflection of background principles of property law is an issue often raised in regulatory takings cases. State law takings jurisprudence typically follows Supreme Court precedent under the U.S. Constitution, where a governmental regulation that goes “too far” in impacting private property will be considered a compensable taking.⁴² Once a property right is found to have been affected, courts employ a fact-based balancing approach that considers the effects of the regulation on reasonable investment-backed expectations and the character of government action.⁴³ In rare cases where a regulatory action causes a physical invasion of the property or denies all economically beneficial use, however, the balancing test is not applied; rather, a *per se* taking will be found.⁴⁴ That is, compensation must be paid unless the interest in question was already limited by a background principle of law that inheres in the claimant’s title.⁴⁵

Although background principles are generally found in state property law, when it comes to water, principles of federal law can also impose an inherent limitation on the claimant's interest. In *U.S. v. Rands*, the Supreme Court concluded that landowners adjacent to the Columbia River had no property rights as against the United States in any interests subject to the navigational servitude, including the flow of the water in the river, access to the water, and other values attributable to proximity to water: "these rights and values are not assertable against the superior rights of the United States, [and] are not property within the meaning of the Fifth Amendment . . ."46

Conversely, in *Tulare Lake v. U.S.*, the federal claims court awarded irrigators some \$20 million when the Bureau of Reclamation curtailed contract allowances to provide flow for endangered species.⁴⁷ The court concluded that the plaintiffs had vested property rights by virtue of their contracts and California water law. Although there was "no dispute that [the supplier's] permits, and in turn plaintiffs' contract rights, are subject to the doctrines of reasonable use and public trust and to the tenets of state nuisance law," the court concluded that only the state Water Resources Control Board could modify the permit terms to reflect changing needs.⁴⁸ Because the Board had not done so during the period in question, the court declined: the laws "require a complex balancing of interests . . . and an exercise of discretion for which this court is not suited and with which it is not charged."⁴⁹


The same court reached the opposite conclusion a few years later in a case arising in Oregon, *Klamath Irrigation District v. U.S.*⁵⁰ There, summary judgment was granted to the United States on the grounds that any interest the irrigators had in Reclamation water was contractual and not property. The court explicitly criticized the *Tulare* opinion for failing to assess the underlying nature of the interest in question to discern whether the plaintiffs in fact possessed property rights: "Tulare appears to be wrong on some counts, incomplete in others and, distinguishable, at all events."⁵¹

Reluctant to delve into the nuances of the reasonable use and public trust doctrines, [in *Tulare*,] the Court of Federal Claims seized on [the Board's previous decision to grant the permit] . . . as the conclusive definition of the water rights . . . In essence, the court decided that an appropriator is legally entitled to engage in (and has property rights to) any conduct that is authorized by its water rights permit or license. This interpretation oversimplifies—and therefore misapprehends—the nature of California water rights.⁵²

Notably, the public trust doctrine is an inherent limitation on interests in water, the exercise of which is not a taking.⁵³ In California, at least, the public trust doctrine forms a fundamental component of the water rights system. One distinction between California and Nebraska water law,

however, is that the California code has been construed as providing the Board with continuing jurisdiction over water permits.⁵⁴ Although the Nebraska Department of Natural Resources has no parallel authority, it must remain vigilant against forfeiture or waste and scrutinize new appropriations and transfers to ensure that the public interest is satisfied.

Conclusion

What of the Nebraska Supreme Court's bold stance that "[a] right to appropriate surface water . . . is not an ownership of property?" It appears legally defensible, at least as between an appropriator and the state, on either of two grounds: (1) interests in water are not property at all when asserted against the state, acting to protect the public trust, or (2) interests in water are only quasi-property, restricted by inherent public trust requirements and the innate physical limitations of water. Arguably, the second rationale also justifies the dismissal of Spear T's property-based claims against groundwater pumpers, although this result seems less convincing. The court's sweeping conclusion is most difficult to justify as applied to disputes between individual surface water appropriators. An appropriator's right to use surface water *vis a vis* other appropriators is the very essence of the prior appropriation system, and the strongest stick in the appropriator's bundle of rights. In order for appropriators to execute water transfers, engage in water banking, conserve instream flows, or engage in the myriad of conventional beneficial uses, a clear characterization of what (if any) incidents of property inhere in a water right must be delineated in law and interpreted consistently by the courts. Moreover, adequate remedies for real world disputes between users must be available to water rights holders in order for the prior appropriation system to function and to evolve in a fashion that promotes both stability and the full range of values associated with water. 

Endnotes

- ¹ The views presented here are solely those of the authors.
- ² 269 Neb. 177, 185, 691 N.W.2d 116, 127 (2005).
- ³ Abraham Bell and Gideon Parchomovsky, A Theory of Property, 90 Cornell L. Rev. 531, 580-581 (2005).
- ⁴ U.S. Const. Amd. V; North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 612 (entered into force Jan. 1, 1994).
- ⁵ Restatement (First) of Property (1936). See *Wood v Security Mut. Life Ins. Co.*, 112 Neb 66, 198 NW 573 (1924) (for purposes of construing a lease, "property" includes every interest that one may have in anything that is the subject of ownership); *U.S. v. General Motors Corp.*, 323 U.S. 373 (1945) (for purposes of the Fifth Amendment, "property" denotes the group of rights inhering in the relation to a thing, as the right to possess, use, and dispose of it).
- ⁶ *United States v. Willow River Power Co.*, 324 U.S. 499, 502 (1945).
- ⁷ *Klamath Irrigation Dist. v. U.S.*, 67 Fed. Cl. 504, 515 (2005), cert. denied, 69 Fed.Cl. 160 (2005).

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- ⁸ 2 William Blackstone, Commentaries (Edward Christian ed., A Strahan 1823) (1800).
- ⁹ See J.E. Penner, The "Bundle of Rights" Picture of Property, 43 UCLA L. Rev. 711, 717, 742-743, 766 (1996); *Dolan v. City of Tigard*, 512 US 374, 384 (1994).
- ¹⁰ Penner, *supra* note 9, at 715. See Myrl L. Duncan, Reconceiving the Bundle of Sticks: Land as a Community-Based Resource, 32 Entl. L. 773, 774 (2002).
- ¹¹ Penner, *supra* note 9, at 723.
- ¹² 248 U.S. 215 (1918).
- ¹³ Joseph L. Sax, The Limits of Private Rights in Public Waters, 19 Env'tl. L. 473, 482 (1989). See Joseph L. Sax, Understanding Transfers: Community Rights and the Privatization of Water, 1 West N.W. 13 (1994); Joseph L. Sax, The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention, 68 Mich. L. Rev. 471 (1970).
- ¹⁴ Erin Ryan, Public Trust and Distrust: The Theoretical Implications of the Public Trust Doctrine for Natural Resource Management, 31 Env'tl. L. 477, 478 (2001).
- ¹⁵ Charles F. Wilkinson, The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine, 19 Env'tl. L. 425, 431 (1989).
- ¹⁶ *National Audubon Society v. Superior Court*, 658 P.2d 709, 727 (1983) (emphasis added).
- ¹⁷ Janet C. Neuman, Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use, 28 Env'tl. L. 919, 967 (1998).
- ¹⁸ *Enterprise Irrigation Dist. v. Willis*, 135 Neb. 827, 830, 284 N.W. 326, 329 (1939). See *Farmers' Canal Co. v. Frank*, 72 Neb. 136, 100 N.W. 286, 294 (1904).
- ¹⁹ Colo. Const. Art. XVI, § 6.
- ²⁰ Colo. Const. Art. XVI, § 5 (emphasis added).
- ²¹ *Public Service Co. of Colorado v. F.E.R.C.*, 754 F.2d 1555 (10th Cir. 1985), *cert. denied*, 474 U.S. 1081 (1986); *Ackerman v. City of Walsenburg*, 171 Colo. 304, 467 P.2d 267, 270 (1970); *Farmers Irr. Co. v. Game & Fish Comm.*, 149 Colo. 318, 369 P.2d 557 (1962). But see *Central Colorado Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 347 (Colo. 1994) (regulations that "somewhat . . . decrease" the amount of water available for use will not entitle an appropriator to compensation because there is no title to water flowing in the river).
- ²² Neb. Const. Art. XV, §§ 5-6 (emphasis added).
- ²³ See *In re Applications A-16642* 236 Neb. 671, 463 N.W.2d 591, 604-605 (1990); *In re Applications A-16027 et al.* 242 Neb. 315, 495 N.W.2d 23, 31-34 (1993); *Central Platte Natural Resources District v. City of Fremont* 250 Neb. 252, 549 N.W.2d 112, 116-118 (1996).
- ²⁴ Neb. Rev. Stat. §§ 46.229 – 46.229.04, 46.231, 46.233.01.
- ²⁵ Neb. Rev. Stat. §§ 46-289, 46-294.
- ²⁶ Laws 2004, LB 962, operative date July 16, 2004 (codified in various sections of chapter 46, *inter alia*, of the Nebraska Code).
- ²⁷ 269 Neb. 177, 186, 691 N.W.2d 116, 127 (2005) (emphasis added).
- ²⁸ *Id.*
- ²⁹ Richard S. Harnsberger, Josephine R. Potuto and Norman W. Thorson, Interstate Transfers of Water: State Options after *Sporhase*, 70 Neb. L. Rev. 754, 787 n.139 (1991).
- ³⁰ A. Dan Tarlock, Law of Water Rights and Resources § 3:10 (2006 update), citing *inter alia* Eric Pearson, Constitutional Restraints on Water Diversions in Nebraska: The Little Blue Controversy, 16 Creighton L. Rev. 695, 707 (1983); *In re Applications A-16027 et al.*, 495 N.W.2d 23 (Neb. 1993), modified, 499 N.W.2d 548 (1993).
- ³¹ 269 Neb. at 185-186, 691 N.W.2d at 127. For commentary, see LeRoy W. Sievers, Nebraska Water Law Facing Dramatic Changes in our State: The Spear T Ranch Case, *Neb. Law.*, June 2005, at 14; Donald Blankenau et al., *Spear T Ranch v. Knaub*: The Reincarnation of Riparianism in Nebraska Water Law, 38 Creighton L. Rev. 1203 (2005); J. David Aiken, Hydrologically-Connected Ground Water, Section 858, and the Spear T Ranch Decision, 84 Neb. L. Rev. 962 (2006).
- ³² *Spear T. Ranch v. Nebraska Dept. of Natural Resources*, 270 Neb. 130, 139, 699 N.W.2d 379, 386 (2005).
- ³³ *Spear T Ranch*, 269 Neb. at 185-186, 691 N.W.2d at 127, citing Richard S. Harnsberger & Norman W. Thorson, Nebraska Water Law & Administration § 5.27 at 266-67 (1984); *State ex rel. Douglas v. Sporhase*, 208 Neb. 703, 305 N.W.2d 614 (1981), reversed on other grounds, 458 U.S. 941 (1982).
- ³⁴ Neb. Rev. Stat. § 46-702.
- ³⁵ *Sporhase*, 208 Neb. at 705, 305 N.W.2d at 616; *Bamford v. Upper Republican NRD*, 245 Neb. 299, 512 N.W.2d 642 (1992); *In re Application U-2*, 226 Neb. 594, 605, 413 N.W.2d 290, 298 (1987); *Prather v. Eisenmann*, 200 Neb. 1, 7, 261 N.W.2d 766, 770 (1978). But see *Sorensen v. Lower Niobrara Natural Resources Dist.*, 221 Neb. 180, 376 N.W.2d 539 (1985) (superseded by statute).
- ³⁶ Joseph A. Kishiyama, Note, The Prophecy of Poor Dick: The Nebraska Supreme Court Recognizes a Surface Water Appropriator's Claim Against a Hydrologically Connected Ground Water User in *Spear T Ranch, Inc. v. Knaub*, 85 Neb. L. Rev. 284, 285 (2006).
- ³⁷ 155 Neb. 723, 728-730, 53 N.W.2d 543, 547-548 (1952).
- ³⁸ 155 Neb. at 728-730, 53 N.W.2d at 547-548.
- ³⁹ 135 Neb. 827, 830, 284 N.W. 326, 329 (1939).
- ⁴⁰ *Id.*
- ⁴¹ *Id.* at 331, citing *Herminghaus v. Southern Cal. Edison Co.*, 200 Cal. 81, 252 P. 607, 622, *cert. dismissed*, 275 U.S. 486 (1927).
- ⁴² *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).
- ⁴³ *Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 123-24 (1978).
- ⁴⁴ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992).
- ⁴⁵ *Id.* at 1029.
- ⁴⁶ 389 U.S. 121, 126 (1967).
- ⁴⁷ 49 Fed. Cl. 313 (2001).
- ⁴⁸ *Id.* at 324.
- ⁴⁹ *Id.* at 323-24.
- ⁵⁰ 67 Fed.Cl. 504, *cert. denied*, 69 Fed. Cl. 160 (2005).
- ⁵¹ *Id.* at 538.
- ⁵² Brian E. Gray, The Property Right in Water, 9 Hastings W.-Nw. J. Env'tl. L. & Pol'y 1, 9 (2002), citing 49 Fed. Cl. at 324. For a contrary view, see Douglas L. Grant, ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?, 36 Env'tl. L. 1331 (2006).
- ⁵³ See Melinda Harm Benson, The Tulare Case: Water Rights, The Endangered Species Act, and the Fifth Amendment, 32 Env'tl. L. 551, 571 (2002).
- ⁵⁴ *Audubon Society*, 658 P.2d at 730-731, citing Water Code § 2501.

Adaptive Management Sees Resilience, Uncertainty as Allies

Third Annual Conference Looks at Innovation in Water Management

By Charles Flowerday, Editor/Communications Coordinator
UNL School of Natural Resources

Sometimes a policy is a legally binding agreement. Sometimes, in an approach to natural resources policy called "adaptive management," it is a hypothesis, an experimental dynamic that helps people plan amid uncertainty.

Dealing effectively with environmental change and the resilience of policy systems is at the center of adaptive management. It was the focus of the University of Nebraska-Lincoln's third annual Water Law, Policy and Science Conference, May 4-5, 2006 at the Lied Lodge, Nebraska City.

Sponsored by UNL, UNL's Institute of Agriculture and Natural Resources, Water Center, School of Natural Resources, colleges of Law and Journalism, Water Resources Research Initiative and Department of Geosciences, "Adaptive Management for Resilient Water Resources" featured international, national and regional experts discussing a range of topics related to better managing water systems and natural resources.

Adaptive management (AM) has emerged in the last 20 years as a prominent means of dealing with complex resource issues involving non-linear systems and multiple tradeoffs. It focuses on uncertainty and resilience in social and ecological systems and tries to turn these factors into advantages, or at least work with, not against them.

Keynoter Lance Gunderson, professor of environmental studies at Emory University, Atlanta, GA, noted, "Humans for thousands of years have intervened in ecosystems. As we intervene, they change in ways we are essentially unable to predict. Our attempts to stabilize these systems (actually) lead to dramatic changes in ecology."

Gunderson listed AM's key characteristics: filling the knowledge-to-action gap, often with action; highlighting uncertainties versus ignoring or planning them away; learning while doing versus learning before doing; integrative science,

including social science, versus piecemeal science; policy as hypothesis; management actions as weak experimental treatments; and safe-to-fail versus fail-safe approaches.

The last three strategies in particular distinguish AM from more linear, problem-solving management. Its practitioners expect the policy process to be flexible enough to experiment with incremental changes, and then adjust when the results of those experiments become evident, Gunderson said.

He also contrasted passive AM with a more active variety. Passive AM wants to successively update and evaluate policy; its actions relate to the system's present state and historical constraints; it tries to resolve uncertainties; and it can fail due to conservatism in face of uncertainty.

Active AM involves deliberate experimentation; trade-offs between objectives and learning; and; and a design that can control actions and separate factors.

Gunderson noted that AM has been tried with the Columbia River; the Great Barrier Reef of Australia; the Colorado River and the U.S. waterfowl harvest. He also noted that it helped inform a change in management of the Florida Everglades but has suffered there from paralysis by analysis. More than 10 years of study and dialogue have not resulted in new management trials.

Karina Schoengold, assistant professor of environmental economics, UNL Department of Agricultural Economics and School of Natural Resources, said, "Adaptive management recognizes that there are multiple management options in natural resources, and that there are tradeoffs in choosing a particular strategy."

One of the promising aspects of AM, she added, has to do with the importance of input from all stakeholders, including local people; this input helps define an environmental management choice between multiple alternatives. Another is the analysis of marginal changes such as the difference between two different flow rates below a reservoir.

Schoengold listed three kinds of environmental decisions that have different economic implications: easily reversible, such as an increase in dam releases; reversible but very costly, such as building a new, large dam—or decommissioning one and restoring river habitat; and irreversible, such as depletion of groundwater and extinction of species. AM is most useful with



the first type, and the latter two should be approached with caution. Combining economics with AM can provide guidance about when to make such decisions, she said.

A panel responded to the morning's presentations. Mike Drain, Central Nebraska Public Power and Irrigation District, said AM, in its broadest sense, applies to anything that includes feedback, from workplace projects, to dress and hairstyles. He voiced some reservations: "I am suspicious that in some instances the focus on adaptive management is an effort, or a hope, of finding a technical solution when perhaps a technical solution doesn't always exist."


It may not help resolve problems among different sets of values, he explained.

Mike Jess, associate director of the UNL Water Center and former director of Nebraska's Department of Water Resources, said AM involves principles the private sector adopted long ago: if something doesn't sell, pull it.

"I think people, generally, want to accommodate one another. After all, that's what adaptive management is—attempting to find some sort of middle ground for all of us." he added.

One of the hard lessons of AM for the public sector may be that governments have to give up some level of equity or control. Speaking from his experience in state government, Jess said it can be difficult for elected officials to share water management. The Missouri River is a classic example, involving 10 states and many sovereign American Indian tribes. Another challenge relates to compacts that cement agreements on water allocations: how to get the law to adapt to social or ecological changes?

Steven Light of Adaptive Strategies, a consulting firm in St. Paul, MN said, "Adaptive management is the most profound change in water or natural resource history in the last 100 years. It's going to take another 20 years to roll out. I want to see somebody step up to the plate, a university that's willing to take on adaptive management resilience, and lead the country, and (even) lead internationally in this area." He challenged UNL to be that university.

Among other comments, he noted that AM is about collective learning; it requires an ecological, not engineering, design; and it treats action a way of knowing. He added that we need to move from seeing water as an enemy or victim to seeing it as an ally. 



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