

**Chapter 11****Water Law in the Eastern United States:  
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**§ 11.01. Introduction.**

Historically, water disputes have been common in the 17 western states and rare in the rest of the United States. The reason for this is pretty obvious:<sup>1</sup> in the 17 western states, water often was relatively scarce, and demand for water quickly outstripped supplies. In such a setting, legal disputes became endemic. The rest of the country was much more humid and locally available supplies of fresh water were nearly always greater than local demand. In such a setting, legal disputes over water were rare and never occurred except in response to a (usually localized) short-term drought.

Because of their differing experiences regarding water, different parts of the United States developed very different approaches to property rights

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<sup>1</sup> See generally, Joseph W. Dellapenna, “Dual Systems,” 1 *Waters and Water Rights* ch. 8 (Robert E. Beck ed., repl. vol. 2001) [“Dellapenna, *Dual Systems*”]; Bernhard Grossfeld, “Geography and Law,” 82 *Mich. L. Rev.* 1510 (1984); Gregory J. Hobbs, Jr., “The Role of Climate in Shaping Western Water Institutions,” 7 *U. Denv. Water L. Rev.* 1 (2003).

relating to water. Riparian rights, predicated on treating waters as common property, evolved in the humid eastern states.<sup>2</sup> In contrast, the right to use water in the 17 western states came to be treated as private property under appropriative rights.<sup>3</sup> Today, water in the eastern states is no longer plentiful relative to supply. First, there was a nine-fold increase *per capita* in consumptive uses of water throughout the United States between 1950 and 1980<sup>4</sup> even while the population of the country was doubling. While there has been a small decline in the withdrawals of water since 1980 driven largely by the costs of treating wastewater required for compliance with the Clean Water Act,<sup>5</sup> overall water use nationally remains (whether measured absolutely or on a *per capita* basis) at levels far higher than anywhere else in the world. At the same time, supplies of water available for use have contracted—initially because of pollution, although that is actually a declining problem, but more recently because of changing patterns of precipitation<sup>6</sup> and because the increasing reservation of water from use in order to provide for ecological needs.<sup>7</sup>

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<sup>2</sup> See generally, Joseph W. Dellapenna, “Introduction to Riparian Rights,” 1 *Waters and Water Rights* (Robert E. Beck ed., repl. vol. 2001), § 6.01(b)(1) [“Dellapenna, *Introduction*”]; Joseph W. Dellapenna, “The Right to Consume Water under ‘Pure’ Riparian Rights,” 1 *Waters and Water Rights* ch. 7 (Robert E. Beck ed., repl. vol. 2001) [“Dellapenna, “*Pure*” *Riparian Rights*”].

<sup>3</sup> See generally, 2 *Waters and Water Rights* chs. 11-17 (Robert E. Beck ed., repl. vol. 2000)(written by several authors).

<sup>4</sup> “War over Water: The Crisis of the ‘80s,” *U.S. News & World Rep.*, Oct. 31, 1983, at 57. On similar global patterns of changing demand for water, see Commission on Sustainable Development, *Comprehensive Assessment of the Fresh Water Resources of the World*, UN Doc. No. E/CN.17/1997/9 (1997); Marq de Villers, *Water: The Fate of Our Most Precious Resource* (2000); Peter H. Gleick *et al.*, *The World’s Water, 2004-2005: The Biennial Report on Freshwater Resources* (2005); Mark W. Rosegrant, Ximing Cai, and Sarah A. Cline, *World Water and Food to 2025: Dealing with Scarcity* (2002); Jeffrey Rothfeder, *Every Drop for Sale: Our Desperate Battle over Water in a World about to Run Out* (2001); UN Environmental Programme, *Global Environmental Outlook 3: Past, Present and Future Perspectives 151-210* (2002).

<sup>5</sup> See *More People Using Less Water*, *Hydata: News & Views*, Nov. 1998, at 4.

<sup>6</sup> Heejung Chang, Barry M. Evans, and Daniel R. Easterling, “The Effects of Climate Change on Stream Flow and Nutrient Loading,” 37 *J. Am. Water Resources Ass’n* 973

One result of these changes has been a sudden upsurge in litigation over water allocation in the eastern states even as western states have struggled to cope with the rigidities of the appropriative rights system. We have seen

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(2001); Ashutosh S. Limaye *et al.*, "Macroscale Hydrologic Modeling for Regional Climate Assessment Studies in the Southeastern United States," 37 *J. Am. Water Resources Ass'n* 709 (2001); Eugene Z. Stakhiv, "Policy Implications of Climate Change Impacts on Water Resources Management," 1 *Water Pol'y* 159 (1998). *See also* Connie A. Woodhouse, "A Tree-Ring Reconstruction of Streamflow for the Colorado Front Range," 37 *J. Am. Water Resources Ass'n* 561 (2001). *See generally* Robert H. Abrams, "Charting the Course of Riparianism: An Instrumentalist Theory of Change," 35 *Wayne L. Rev.* 1381, 1405-1446 (1989); Joseph W. Dellapenna, "Adapting the Law of Water Management to Global Climate Change and Other Hydropolitical Stresses," 35 *J. Am. Water Resources Ass'n* 1301 (1999); Harry F. Lins and Eugene Z. Stakhiv, "Managing the Nation's Water in a Changing Climate?," 34 *J. Am. Water Resources Ass'n* 1255 (1998).

<sup>7</sup> Consider, for example, the turmoil created in the Klamath River Valley when a federal judge ordered long established water rights curtailed for the protection of endangered species. *See* Dep't of Interior v. Klamath Water Users Protective Ass'n, 532 U.S. 1 (2001); Klamath Water Users Protective Ass'n v. Patterson, 204 F.3d 1206 (9th Cir. 1999), *amended*, 203 F.3d 1175 (9th Cir.), *cert. denied*, 531 U.S. 812 (2000); Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313 (2001); United States v. Adair, 187 F. Supp. 2d 1273 (D. Or. 2002); Kandra v. United States, 145 F. Supp. 2d 1192 (D. Or. 2001); Pac. Coast Fed'n of Fishermen's Ass'ns v. U.S. Bureau of Reclamation, 138 F. Supp. 2d 1228 (N.D. Cal. 2001). *See generally* Roger E. Meiners and Lea-Rachel Kosnik, *Restoring Harmony in the Klamath Basin* (2003) (PERC Pol'y Ser. PS-27); Reed D. Benson, "Giving Suckers (and Salmon) an Even Break: Klamath Basin Water and the Endangered Species Act," 15 *Tul. Envtl. L.J.* 197 (2002); Marcilynn A. Burke, "Klamath Farmers and Cappuccino Cowboys: The Rhetoric of the Endangered Species Act and Why It (Still) Matters," 14 *Duke Envtl. L. & Pol'y J.* 441 (2004); Dow A. Davidson, Comment, "Who Wants Some Water: The Ongoing Battle for the Klamath River Basin and the Need for Moderate Institutional Change to End the War," 34 *Cumb. L. Rev.* 531 (2004); Brittany K.T. Kauffman, Casenote, "What Remains of the Endangered Species Act and Western Water Rights after *Tulare Lake Basin Water Storage District v. United States*," 74 *U. Colo. L. Rev.* 837 (2003); Matthew G. McHenry, Comment, "The Worst of Times: A Tale of Two Fishes in the Klamath River Basin," 33 *Envtl. L.* 1019 (2003); Cari S. Parobek, Note, "Of Farmers' 'Takes and Fishes' Takings: Fifth Amendment Compensation Claims when the Endangered Species Act and Western Water Rights Collide," 27 *Harv. Envtl. L. Rev.* 177 (2003); Christine Swift, "Comment, Crises in the Klamath: New Considerations for Managing Water under the Endangered Species Act," 22 *Temple Envtl. L. & Tech. J.* 65 (2003); Roy Whitehead Jr. and Walter Block, "Environmental Takings of Private Water Rights: The Case for Water Privatization," 32 *Envtl. L. Rptr.* 11162 (2002).

courts seeking to apply riparian rights to rival claims of two communities in Connecticut<sup>8</sup> and to resolve challenges to a Corps of Engineers permit to divert water from a reservoir for use by the City of Virginia Beach,<sup>9</sup> a major interstate dispute between Alabama, Florida, and Georgia over the waters of two transboundary river basins,<sup>10</sup> and the felt need to rewrite the agreements that determine water usage in the vast Great Lakes basin.<sup>11</sup> These and other disputes demonstrate that the factual premises of eastern water law no longer apply.

The sudden prospect of courts frequently applying riparian rights and having to supervise the use of water resources on a long-term basis have brought home the inadequacies of that system of law. Under common property systems like riparian rights, co-owners are left to their individual judgment to decide whether, when, and how to use the resource.<sup>12</sup> Each owner receives the full benefit of any added use, while the cost of the benefit is spread over all owners. Garrett Hardin explained 37 years ago that when a common property system approaches the carrying capacity of the resource, a “tragedy of the commons” ensues.<sup>13</sup> Acting purely rationally, each co-owner continues to place ever greater demands on the resource even as it

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<sup>8</sup> City of Waterbury v. Town of Washington, 800 A.2d 1102, 1147-60 (Conn. 2002).

<sup>9</sup> North Carolina v. FERC, 112 F.3d 1175 (4th Cir. 1997), *cert. denied*, 522 U.S. 1108 (1998); Roanoke River Basin Ass’n v. Hudson, 940 F.2d 58 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 1092 (1992), *attorney’s fees denied*, 991 F.2d 132 (4th Cir.), *cert. denied*, 510 U.S. 864 (1993); North Carolina v. City of Virginia Beach, 882 F. Supp. 77 (E.D.N.C. 1997), vacated mem., 1998 WL 34069374 (4th Cir. 1998).

<sup>10</sup> Georgia v. Corps of Eng’rs, 302 F.3d 1242 (11th Cir. 2002), *on remand*, 223 F.R.D. 691 (N.D. Ga. 2004); Southwest Fed. Power Customers, Inc. v. Caldera, 301 F. Supp. 2d 26 (D.D.C. 2004).

<sup>11</sup> See Gary Ballestros, “Great Lakes Water Exports and Diversions: Annex 2001 and the Looming Environmental Battle,” 32 *Env’tl. L. Rptr.* 10611 (2002); Brad A. Everhardt, Comment, “Great Lakes Water Resources: Planning for the Nation’s Future,” 3 *Tol. J. Great Lakes’ L. Sci. & Pol’y* 90 (2001); Jerome Hinkle, “Troubled Waters: Policy and Action in the Great Lakes,” 20 *T.M. Cooley L. Rev.* 281, 306-10 (2003); Sandra Zellmer, David Gecas, and Kori Anne Mann, “The Improvement of Water and Water-Dependent Resources under the Great Lakes Charter Annex,” 4 *Tol. J. Great Lakes’ L. Sci. & Pol’y* 289 (2002).

<sup>12</sup> Dellapenna, “Pure” Riparian Rights, *supra* note 2, §§ 7.02 to 7.03(e).

<sup>13</sup> Garret Hardin, “The Tragedy of the Commons,” 162 *Sci.* 1243 (1968). See also *Managing the Commons* (2nd ed. Garrett Hardin and John A. Baden eds. 1977).

is exhausted, if only because other co-owners are doing likewise. Adding demand is the only way to appropriate a share of a resource being grabbed by all. The many actual examples include the exhaustion of fisheries in the high seas, national park access, and even the Federal treasury.<sup>14</sup>

Just as with other common property systems, riparian rights leads to the tragedy of the commons as demand approaches the available supply. The resulting pressures on waters within the boundaries of about half of the eastern states have already forced them to abandon or to modify radically the system of riparian rights evolved on the assumption of permanent surpluses. These states have not, however, simply imported appropriative rights to solve these problems. Western states have struggled to find legal devices for introducing flexibility into a system the major effect of which was to freeze uses in place.<sup>15</sup> Rather, eastern states have evolved a new system of

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<sup>14</sup> See, e.g., Joseph L. Sax, *Mountains Without Handrails* (1980)(national parks); Rodney D. Fort and John Baden, "The Federal Treasury as a Common Pool Resource and the Development of a Federal Bureaucracy," *Bureaucracy vs. Environment* 9 (John Baden and Richard L. Stroup eds. 1981); Kristen M. Fletcher, "When Economics and Conservation Clash: Challenges to Economic Analysis in Fisheries Management," 31 *Envtl. L. Rptr.* 11168 (2001); Seth Macinko and Daniel W. Bromley, "Changing Tides in Ocean Management: Property and Fisheries for the Twenty-First Century: Seeking Coherence from Legal and Economic Doctrine," 28 *Vt. L. Rev.* 623 (2004); Ronald D. Fischer and Leonard J. Mirman, "The Compleat Fish Wars: Biological and Dynamic Interactions," 30 *J. Env'tl. Econ. & Mgmt.* 34 (1996); Patrick A. Nickler, "A Tragedy of the Commons in Coastal Fisheries: Contending Prescriptions for Conservation and the Case of the Atlantic Bluefin Tuna," 26 *B.C. Env't'l Aff. L. Rev.* 549 (1999).

<sup>15</sup> See, e.g., Michael C. Blumm, "Seven Myths of Northwest Water Law and Associated Stories," 26 *Env'tl. L.* 141, 145-46 (1996); Eric L. Garner and Janice L. Weis, "Water Management Options for the Future," *The Natural Resources Law Manual* 330 (Richard J. Fink ed. 1995); Thomas J. Graff and David Yardas, "Reforming Western Water Policy: Markets and Regulation," 12 *Nat. Resources & Env't.*, 165 (1998); Helen M. Ingram, "Lessons Learned and Recommendations for Coping with Future Scarcity," 39 *Nat. Resources J.* 179 (1999); Lawrence J. MacDonnell and Teresa A. Rice, "Moving Agricultural Water to the Cities: The Search for Smarter Approaches," 2 *Hastings W.-Nw. J. Env'tl. L. & Pol'y* 27 (1994); Janet C. Neuman, "Adaptive Management: How the Water Law Needs to Change," 31 *Env'tl. L. Rptr.* 11432 (2001); A. Dan Tarlock and Sarah B. Van de Wetering, "Growth Management and Western Water Law from Urban Oases to Archipelagos," 5 *Hastings W.-Nw. J. Env'tl. L. & Pol'y* 163 (1999).

law based on treating the water as public property, a system that is coming to be called “regulated riparianism.”<sup>16</sup> There are now three distinct systems of water law in use in the United States, each of which requires discussion in order to understand the present law relating to the allocation of the use of surface waters. The law of groundwater allocation exhibits similar changes, but is even more complex than the law of surface water allocation.

### § 11.02. Riparian Rights.

Today, every state has regulatory statutes dealing with at least certain aspects of water allocation,<sup>17</sup> and thus no state relies solely on “pure” riparian rights. In the states that still basically follow common law riparian rights, regulation protects the public interest in water yet plays little part in the resolution of quantity disputes between such direct water users.<sup>18</sup> In about half of the eastern states, the common law of riparian rights continues to apply to disputes over the allocation of water between individual users who withdraw water directly from a natural surface source. In these states, regulation plays little, if any, part in quantity disputes between direct water users.

Riparian rights derive from the premise that the right to use water is a natural attribute of land, dependent on the natural availability of water to the land.<sup>19</sup> The word “riparian” itself comes from the Latin word “*ripa*,” meaning

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<sup>16</sup> See generally Joseph W. Dellapenna, “Regulated Riparianism,” 1 *Waters and Water Rights* ch.9 (Robert E. Beck ed., repl. vol. 2001). For a list of the regulated riparian states, with references to their statutes, see the text at notes 107-25.

<sup>17</sup> *Id.* § 9.02.

<sup>18</sup> Consider the example of Pennsylvania: The Water Power and Water Supply Permit Act, 32 Pa. Stat. §§ 591 to 641 (West 1997); The Clean Stream Act, Pa. Stat. Ann. tit. 35, §§ 691.1 to 691.1001 (West 2003); the Flood Plain Management Act, Pa. Stat. Ann. tit. 32, §§ 679.101 to 679.601 (West 1997); the Storm Water Management Act, 32 Pa. Stat. Ann. §§ 680.1 to 680.17 (West 1997); the Dam Safety and Encroachments Act, Pa. Stat. Ann. tit. 32, §§ 693.1 to 693.27 (West 1997).

<sup>19</sup> See *Tyler v. Wilkinson*, 24 Fed. Cas. 472, 474 (No. 14,312)(D. R.I. 1827)(“The natural stream, existing by the bounty of Providence for the benefit of the land through which it flows, is an incident annexed, by operation of law, to the land itself.”). Justice Story’s opinion in that case is often cited as the first true riparian rights case. For a modern expression of the view that riparian rights are a natural attribute of the land abutting a watercourse, see *Niagara*

a riverbank. Land abutting or underlying a watercourse is termed “riparian land.”<sup>20</sup> Courts in some early cases supported the theory that an owner of riparian land is entitled to have the natural flow of a watercourse come down to the land without change in quantity or quality.<sup>21</sup> Under the modern understanding of riparian rights, each owner of riparian land is entitled to use water from a contiguous watercourse regardless of the effect on the natural flow of the watercourse so long as each user does not transgress the equal right of other riparians to use the water.<sup>22</sup> While domestic uses are preferred over other uses, the only real restriction is that no use is legal if it “unreasonably harms” another riparian use.<sup>23</sup>

### [1] — The Reasonable Use Rule.

The case of *Harris v. Brooks*<sup>24</sup> illustrates modern riparian rights. The plaintiff operated a commercial dock on the shore of a small lake for renting boats to members of the general public for recreational fishing and boating. They also sold supplies and licenses to the renters. Brooks grew rice on land on the shore of the same lake—a crop that must be kept flooded during the growing season. Brooks pumped large quantities of water from the lake for his rice fields during a drought, lowering the lake level substantially. At about the same time, the public stopped renting boats, and the fish stopped biting. Brooks’ pumping clearly violated the natural flow theory, but for a court to apply that theory would have prohibited virtually all pumping for any purpose whatsoever. Instead, the court turned to the reasonable use

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*Mohawk Power Corp. v. Cutler*, 492 N.Y.S.2d 137 (N.Y. App. Div. 1985), *aff’d mem.*, 492 N.E.2d 398 (N.Y. 1986).

<sup>20</sup> For an analysis of what constitutes riparian land, see Dellapenna, “Pure” Riparian Rights, *supra* note 2, § 7.02.

<sup>21</sup> *Id.* § 7.02(c).

<sup>22</sup> Both the natural flow theory and the reasonable use theory trace back to Justice Story’s opinion in *Tyler v. Wilkinson*, 24 Fed. Cas. at 474. That opinion includes several references to the “perfect equality” of the rights of each riparian while mentioning both a right to the natural flow and a right to make a reasonable use. The two theories also appear in the even older case of *Merrit v. Parker*, 1 N.J.L. App. 460, 464-66 (1795).

<sup>23</sup> See Dellapenna, “Pure” Riparian Rights, *supra* note 2, §§7.02(b)(1), 7.03

<sup>24</sup> *Harris v. Brooks* 283 S.W.2d 129 (Ark. 1955).

theory, stressing that the court's goal was to assure the equal rights of each riparian "as near as may be."<sup>25</sup>

"Equality of right" needs explanation because the rights of different riparians in situations such as in *Harris* simply cannot be identical. A riparian, who makes a particular use that harms no one, is privileged to do so, while another riparian, making an identical use but with different effects, might be enjoined or have to pay damages. On the other hand, two riparians making dissimilar uses of water might be found entitled to equal—or vastly different—amounts of water. What reasonable use theory assures is that each riparian's interest is considered in making legal decisions allocating water to, in so far as possible, maximize socially beneficial uses while minimizing the harm to the others.<sup>26</sup> No riparian is free to disregard the needs of others, and no riparian's needs should be disregarded.

This is a more complex problem than simply enjoining a use of water that causes injury to another use. Each use necessarily interferes with the other, and whichever prevails in a case like *Harris* necessarily destroys the other.<sup>27</sup> Justice Paul Ward seemed to realize this, adopting the language of the first *Restatement of Torts*:

The determination in a particular case of the unreasonableness of a particular use is not and should not be an unreasoned, intuitive conclusion on the part of the court or jury. It is rather an evaluating of the conflicting interests of each of the contestants before the court in accordance with the standards of society, and a weighing of those,

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<sup>25</sup> *Id.* at 133.

<sup>26</sup> See generally Restatement (Second) of Torts § 850, cmt. d (1977) ["Restatement"]; Dellapenna, "Pure" Riparian Rights, *supra* note 2, §§ 7.03(a), 7.03(b)(2), 7.03(c)(2).

<sup>27</sup> R.H. Coase, "The Problem of Social Cost," 3 *J. Law & Econ.* 1, 3-15 (particularly at 12-13)(1960). Bill Rodgers has sought to make light of this insight by using as a model a chicken farmer competing with a neighboring fox rancher. See 1 William H. Rodgers, Jr., *Environmental Law: Air and Water* § 1.1B at 6 (1986)("Causation-neutrality that attributes the spillover damage in equal parts to the hunger of foxes and the tastiness of chickens is a hard sell among people who can tell the difference between aggressor and victim."). In a contest between a rice farmer and the operator of a boat livery, there is little, if any, of the intuitive sense of who is in the right that is so appealing in the fox/chicken example. See generally Dellapenna, *Introduction*, *supra* note 2, § 6.01(b)(1), at nn. 341-46.

one against the other . . . [I]t is only when one riparian proprietor's use of the water is unreasonable that another who is harmed by it can complain, even though the harm is intentional. Substantial intentional harm to another cannot be justified as reasonable unless the legal merit or utility of the activity which produces it outweighs the legal seriousness or gravity of the harm.<sup>28</sup>

This is a relational test, a weighing of the social value of the two uses against each other to determine which use is more valuable to society.<sup>29</sup> In *Harris*, as in many other cases, however, the court provided no more than a vague discussion of how to balance the uses against each other. Such a balancing requires a court to undertake a polycentric process that, at the very least, strains the capacity of courts to act in the traditional mode of disinterested umpire rather than actively involved manager.<sup>30</sup> The court ordered Brooks' pumping to be enjoined whenever the lake level fell below 189.67 feet above sea level—the “normal level” of the lake. Justice Ward was careful to insist that it chose that level not because the level was normal, but because it was the level at which Brooks' pumping for his rice fields unreasonably interfered with the plaintiffs' use of the lake.<sup>31</sup>

The opinion in *Harris* is unclear about how a court should determine that commercial recreational boating and fishing is a more reasonable use than growing rice.<sup>32</sup> Temporal priority is pretty much irrelevant:<sup>33</sup> Brooks had been irrigating his rice for more than 20 years and the plaintiffs had only begun the boat livery in the very year of the suit.<sup>34</sup> If the key is the relative economic value of the two activities, the court would have to reopen the suit whenever the product values change significantly. Such changes could occur

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<sup>28</sup> *Harris*, 283 S.W.2d at 135 (quoting Restatement of Torts § 852, comment c (1939)).

<sup>29</sup> See generally Dellapenna, “Pure” Riparian Rights, *supra* note 2, § 7.02(d)(2).

<sup>30</sup> Lon L. Fuller, “Adjudication and the Rule of Law,” 1960 *Proc. Am. Soc’y Int’l L.* 1.

<sup>31</sup> *Harris*, 283 S.W.2d at 135-36.

<sup>32</sup> On very similar facts, the Arkansas Supreme Court reached the opposite conclusion when the boating and fishing were for personal, rather than for commercial, recreation. Nilsson v. Latimer, 664 S.W.2d 447 (Ark. 1984).

<sup>33</sup> Dellapenna, “Pure” Riparian Rights, *supra* note 2, § 7.03(d).

<sup>34</sup> *Harris*, 283 S.W.2d at 130-31.

through changes in the market values of the two products, or if Brooks were to acquire more land and therefore was able to produce more rice—by pumping even more water. The court was aware of this problem, adopting a specific lake level as the point where the Brooks' pumping must cease precisely to avoid the possibility of the frequent relitigation of reasonableness.<sup>35</sup> Yet it remains impossible to believe that courts would refuse to reconsider its decision if the relevant facts were to change dramatically.<sup>36</sup>

Some courts have assumed that the rule of reasonable use requires a simple *pro rata* sharing among competing users when there is not enough water to go around.<sup>37</sup> That is not true, as *Harris* amply demonstrates—the rice farmer was ordered to stop pumping, rendering his crop a total loss. On the other hand, only minimal, if any, attention is given to such non-economic questions as the natural characteristics of the stream, general social concerns, or abstract justice.<sup>38</sup> On the other hand, the central concept of the right to use water as a consequence of the natural features of the land means that any use on non-riparian land is *per se* unreasonable.<sup>39</sup> Who began use of the water first is simply not relevant<sup>40</sup>—again, as *Harris* and numerous other cases demonstrate.

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<sup>35</sup> *Id.* at 136. Such an approach is more characteristic of dual-system states in which courts characteristically think in terms of specific appropriations of water even when they are dealing with vestigial riparian rights. See Dellapenna, *supra* note 1, § 8.03(b)(2).

<sup>36</sup> Forty-five years later, the Arkansas Supreme Court declined to rule on the need to maintain the “normal level” of *Horseshoe Lake*. *Taylor v. Zanone Props.*, 30 S.W.3d 74 (Ark. 2000).

<sup>37</sup> See, e.g., *Jones v. Oz-Ark-Val Poultry Co.*, 306 S.W.2d 111 (Ark. 1957); *White v. E. Lake Land Co.*, 23 S.E. 393 (Ga. 1895); *Bouris v. Largent*, 236 N.E.2d 15 (Ill. App. Ct. 1968); *Cozy Lake, Inc. v. Nyoda Girls' Camp*, 131 A. 892 (N.J. 1926). See Dellapenna, “*Pure*” *Riparian Rights*, *supra* note 2, § 7.03(c)(1).

<sup>38</sup> These principles figure prominently in the Restatement even if they do not figure prominently in the cases. Restatement, *supra* note 19, § 850A. See Dellapenna, “*Pure*” *Riparian Rights*, *supra* note 2, § 7.02(d)(3).

<sup>39</sup> See Dellapenna, “*Pure*” *Riparian Rights*, *supra* note 2, § 7.02(d)(1). For a critique of restricting the use of water to the overlying land, see Eric T. Freyfogle, “Water Justice,” 1986 *U. Ill. L. Rev.* 481, 488-92.

<sup>40</sup> Dellapenna, “*Pure*” *Riparian Rights*, *supra* note 2, § 7.03(d).

**[2] — The Weaknesses of Riparian Rights.**

Riparian rights are vague and unpredictable in any conflict over water.<sup>41</sup> Riparian rights lack any process for managing water during extreme shortages or for protecting public values, suffer from a systematic bias in favor of large users, and make it impractical to develop markets. Consider each problem in turn.

First, consider vagueness and instability. As in *Harris v. Brooks*, even long established uses can be cut off without compensation if a court decides that a recently begun use is more “reasonable.” Furthermore, courts cannot give a decision that is good for more than the day on which it is given, even as between the litigants themselves. If either of the competing uses changes in physical or economic terms, the calculus of reasonableness changes—what was reasonable may suddenly become unreasonable. Instability of result is a major problem for reasonable use theory.<sup>42</sup> Courts in several western states used instability in the right to use water as a reason to justify rejecting riparian rights.<sup>43</sup> Some observers consider this to be a serious impediment to private investment in water development.<sup>44</sup>

The lack of a process for managing water in times of extreme shortage or for protecting public values under riparian rights is arguably even more important than vagueness and instability.<sup>45</sup> The slow, laborious process of individual litigation is not adapted to such purposes, yet there is no

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<sup>41</sup> *Id.* §§ 7.02(d)(3) to 7.03(e). See also Frefogle, *supra* note 39, at 503-08.

<sup>42</sup> See Frank E. Maloney, Richard C. Ausness, and J. Scott Morris, *A Model Water Code* 189-191 (1972); Richard C. Ausness, “Water Rights, the Public Trust Doctrine and the Protection of Instream Uses,” 1986 *Ill. L. Rev.* 407, 416-418; William H. Farnham, “The Improvement and Modernization of New York Water Law within the Framework of the Riparian System,” 3 *Land & Water L. Rev.* 378 (1968); M. Mason Gaffney, “Economic Aspects of Water Resources Policy,” 28 *Am. J. Econ. & Sociology* 131, 137-38 (1969). See generally Dellapenna, *Introduction*, *supra* note 2, § 6.01(b); Dellapenna, “Pure” *Riparian Rights*, *supra* note 2, § 7.01; Dellapenna, *supra* note 9, § 9.01.

<sup>43</sup> *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882); *Drake v. Earhart*, 23 P. 541 (Idaho 1890); *Jones v. Adams*, 6 P. 442 (Nev. 1885).

<sup>44</sup> See, e.g., Carol M. Rose, “The Comedy of the Commons: Custom, Commerce, and Inherently Public Property,” 53 *U. Chi. L. Rev.* 711 (1986).

<sup>45</sup> See Dellapenna, “Pure” *Riparian Rights*, *supra* note 2, § 7.05(a).

mechanism for determining or reviewing the rights of all users on a particular watercourse. Courts normally consider only the interests of the parties to the actual litigation, and seem ill equipped to address unrepresented interests of non-participating riparians, let alone the interest of the public generally.<sup>46</sup> This lack of efficient, system-wide management creates a systematic bias in favor of large users.<sup>47</sup> Small users will be less able to afford to litigate, or to organize collectively for litigation, if the water they need is taken by another, more affluent riparian. Furthermore, the balancing process generally favors large users over smaller users: The economic value of the water to the large user usually will outweigh the economic loss of a small user with the temerity to challenge the large user. Smaller users can effectively aggregate their claims by receiving their water through a public system, but the effectiveness of this approach is limited by legal doctrines limiting the “riparianness” of public systems.<sup>48</sup> Moreover, aggregation is brought about only through submission to a different sort of large-scale enterprise.

Finally, persons seeking to acquire the right to use water sometimes seek to buy riparian rights without buying riparian land, attempting to create a non-appurtenant riparian right.<sup>49</sup> What a buyer obtains in such a transaction remains far from clear. The conveyance binds the seller not to contest use by the buyer so long as it is within the terms of the sale. Some courts have concluded that the buyer obtains no rights whatsoever against riparians other than the seller. In such cases, a non-appurtenant riparian right amounts only to a contract by the seller not personally to contest the buyer’s right to use water from the common source.<sup>50</sup> In a few cases, courts have

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<sup>46</sup> Lynda L. Butler, “Defining a Water Ethic through Comprehensive Reform: A Suggested Framework for Analysis,” 1986 *Ill. L. Rev.* 439, 451-54; George D. Marlow, “From Black Robes to White Lab Coats: The Ethical Implications of a Judge’s *Sua Sponte*, *ex Parte* Acquisition of Social and Other Scientific Evidence during the Decision-Making Process,” 72 *St. John’s L. Rev.* 291 (1998).

<sup>47</sup> See Dellapenna, “*Pure*” Riparian Rights, *supra* note 2, § 7.02(d)(3).

<sup>48</sup> See *Pernell v. City of Henderson*, 16 S.E.2d 449 (N.C. 1941); *Town of Purcellville v. Potts*, 19 S.E.2d 700 (Va. 1942). See generally Dellapenna, “*Pure*” Riparian Rights, *supra* note 2, § 7.05(c).

<sup>49</sup> See Dellapenna, “*Pure*” Riparian Rights, *supra* note 2, § 7.04(a)(3).

<sup>50</sup> *Borough of Media v. Edgmont Golf Club, Inc.*, 288 A.2d 803 (Pa. 1972).

held that a buyer of a non-appurtenant riparian right acquired the right to make a reasonable use along with all the other riparian landowners.<sup>51</sup> Yet it is not clear whether the right of use conveyed in these cases is measured by the reasonable needs of the seller (therefore avoiding possible prejudice to the other riparians) or of the buyer (thus treating the buyer as a full, equal riparian). As a result, a buyer of a non-appurtenant riparian right obtains little more than a hunting license that might or might not yield water. Such uncertainties explain the continuing dearth of such sales.

### § 11.03. Appropriative Rights.

Unlike the humid eastern states, “Anglo” settlers in the 17 western states found scant local supplies for the water they needed for mining, irrigation, industrial, and municipal uses. They concluded that these demands could not be satisfied under riparian rights, whether in its natural flow version or in its reasonable use version.<sup>52</sup> Yet from the earliest years of Anglo settlement, the newcomers generally displaced aboriginal and Spanish-Mexican law without much concern about its possible utility.<sup>53</sup> Aboriginal law, which

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<sup>51</sup> *Belvedere Dev. Corp. v. Department of Transp.*, 476 So. 2d 649 (Fla. 1985); *Pyle v. Gilbert*, 265 S.E.2d 584 (Ga. 1980); *Sundell v. Town of New London*, 409 A.2d 1315 (N.H. 1979); *Donaghey v. Croteau*, 401 A.2d 1081 (N.H. 1979); *Borough of Media v. Edgmont Golf Club, Inc.*, 288 A.2d 803 (Pa. 1972); *Thomas v. Clark*, 346 A.2d 189 (Vt. 1975).

<sup>52</sup> For a critique of the assumptions courts made on these issues, see Morton J. Horwitz, *The Transformation of American Law, 1780-1860*, at 33-53 (1977); Donald J. Pisani, *To Reclaim a Divided West: Water, Law, and Public Policy, 1848-1902* (1992) [“Pisani, Divided West”]; Gordon Morris Bakken, “The Influence of the West on the Development of Law,” 24 *J. of the West* 67 (1985); Robert G. Dunbar, “The Adaptability of Water Law to the Aridity of the West,” 24 *J. of the West* 57 (1985); Donald J. Pisani, “Enterprise and Equity: A Critique of Western Water Law in the Nineteenth Century,” 18 *Western Hist. Q.* 15, 19 (1987).

<sup>53</sup> The few apparent survivals of Spanish-Mexican law seem actually to have been fictions invented by the imagination of common-law judges or lawyers. See, e.g., *City of Los Angeles v. City of San Fernando*, 537 P.2d 1250, 1265-67, 1273-77 (Cal. 1975); *Lux v. Haggin*, 10 P. 674, 715 (Cal. 1886); *City of Albuquerque v. Reynolds*, 379 P.2d 73 (N.M. 1962); *In re Contests of Laredo*, 675 S.W.2d 257, 267-78 (Tex. Ct. App. 1984), writ ref’d, n.r.e. See Dellapenna, *supra* note 1, § 8.02(a), § 8.02(b), at nn. 92-108, and § 8.02(c), at nn. 200-22. See generally Norris Hundley, Jr., *The Great Thirst: Californians and their Water, 1770s-1990s*, at 1-77 (1992); Pisani, *Divided West*, *supra* note 52, at 38-46; Daniel Tyler, *The Mythical*

might have proven better adapted to local conditions, was altogether ignored. Even in Hawaii, where aboriginal law survived somewhat, that law became vestigial.<sup>54</sup>

Westerners developed their own approach to water allocation, an approach that came to be known as “prior appropriation.” The result was appropriative rights, a private property approach to water allocation in which the water right is defined as to quantity, time, place, and manner of use,<sup>55</sup> and according to its temporal priority relative to other uses.<sup>56</sup> Despite the apparent success of this system in western states, careful analysis suggests that it could not be adopted successfully in an eastern state.

### [1] — The Origins of Appropriative Rights.

Appropriative rights grew out of the simple fact that early miners in California and elsewhere were trespassers.<sup>57</sup> The sudden peopling of California occurred without an organized government in place.<sup>58</sup> Sweeping

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*Pueblo Rights Doctrine: Water Administration in Hispanic New Mexico* (1990); Peter L. Reich, “Mission Revival Jurisprudence: State Courts and Hispanic Water Law since 1850,” 69 *Wash. L. Rev.* 869 (1994) [“Reich, Mission Revival Jurisprudence”]; Peter L. Reich, “The ‘Hispanic’ Roots of Prior Appropriation in Arizona,” 27 *Ariz. St. L.J.* 649 (1995) [“Reich, Hispanic Roots”]; David A. Reichard, “The Politics of Village Water Disputes in Northern New Mexico, 1882-1905,” 9 *Western Legal Hist.* 9 (1996); Anastasia S. Stevens, “Pueblo Water Rights in New Mexico,” 28 *Nat. Resources J.* 535 (1988).

<sup>54</sup> See Joseph W. Dellapenna, “Related Systems of Water Rights,” in 2 *Waters and Water Rights* §§ 10.1 to 10.1(c) (Robert E. Beck ed., repl. vol. 2001), §§ 10.01 to 10.01(c); Elizabeth Ann Ho’oipo Kala’ena’auao Pa Martin *et al.*, “Cultures in Conflict in Hawai’i: The Law and Politics of Native Hawaiian Water Rights,” 18 *U. Haw. L. Rev.* 71 (1996); Douglas W. MacDougal, “Private Hopes and Public Values in the ‘Reasonable Beneficial Use’ of Hawai’i’s Water: Is Balance Possible?,” 18 *U. Haw. L. Rev.* 1 (1996).

<sup>55</sup> See, e.g., *Orr v. Arapahoe Water & Sanitation Dist.*, 753 P.2d 1217 (Colo. 1988); *Rominiecki v. McIntyre Livestock Corp.*, 633 P.2d 1064 (Colo. 1981); *Rencken v. Young*, 711 P.2d 954 (Or. 1985); *Basin Elec. Power Coop. v. State Bd. of Control*, 578 P.2d 557 (Wyo. 1978).

<sup>56</sup> See, e.g., *Tex. Water Code Ann.* § 11.027 (Vernon 2000); *Coffin v. Left-Hand Ditch Co.*, 6 Colo. 443, 446 (1882); *State ex rel. Cary v. Cochran*, 292 N.W. 239 (Neb. 1940).

<sup>57</sup> Dellapenna, *Dual Systems*, *supra* note 1, § 8.01.

<sup>58</sup> The non-aboriginal population of California jumped from around 15,000 to about 100,000 in the single year of 1849, and grew to 300,000 within five years. See *Hundley*, *supra* note

aside reliance on Spanish-Mexican law as well as any concern about aboriginal practices,<sup>59</sup> the Yankee intruders used the only law with which they were familiar—the common law of the eastern United States.<sup>60</sup> Yet for the two most important factors in their lives—land and water—they were unable to use that law. The lands were deemed to be public domain belonging to the federal government, and under riparian rights the right to use water was held by the owner of the land. Because “forty-niners” were unwilling to wait for the establishment of a regular government and the completion of comprehensive land surveys (necessary before the government would sell the land), the miners simply trespassed on the land and took the water they needed.<sup>61</sup> The miners quickly sought to bring order to their lives through vigilante law. The result is a national mythology of violent disputes, blood feuds, and sudden death. Vigilante law applied the most elementary notion of justice—first in time, first in right.<sup>62</sup> If someone were found occupying another person’s mining claim, the new occupant would hang if he could not prove justification for his presence. When governments were finally

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53, at 64; Andrew P. Morris, “Miners, Vigilantes and Cattlemen: Overcoming Free Rider Problems in the Private Provision of Law,” 33 *Land & Water L. Rev.* 581, 594 (1998). See also Pisani, *Divided West*, *supra* note 52, at 12-14.

59 While early statutes in several states, including California, sought to preserve the Spanish-Mexican irrigation law, such rights were subordinated to the needs of miners. Gordon Morris Bakken, *The Development of Law on the Rocky Mountain Frontier: Civil Law and Society, 1850-1912*, at 34 (1983); Betty Eakle Dobkins, *The Spanish Element in Texas Water Law* 136-39 (1959); Pisani, *Divided West*, *supra* note 52, at 38-44; Dellapenna, *Dual Systems*, *supra* note 1, § 8.02(b), at nn. 92-108, and § 8.02(c), at nn. 200-22.

60 See, e.g., John Phillip Reid, *Law for the Elephant: Property and Social Behavior on the Overland Trail* (1980). See also Pisani, *Divided West*, *supra* note 52, at 14; Mark T. Kanazawa, “Efficiency in Western Water Law: The Development of the California Doctrine, 1850-1911,” 27 *J. Legal Stud.* 159, 162-65 (1998).

61 *Moore v. Smaw*, 17 Cal. 199 (1861), overruling *Hicks v. Bell*, 3 Cal. 219 (1853).

62 See *Hundley*, *supra* note 53, at 67-73; Pisani, *Divided West*, *supra* note 52, at 31; Kanazawa, *supra* note 60, at 165-67. Historian Donald Pisani has documented the considerable support small miners gave to riparian rights in the face of the increasing concentration of water in the hands of large, capital intensive mining companies. Pisani, *Divided West*, *supra* note 52, at 23-26, 35-38.

organized (beginning in 1850), they could do little more than ratify the customs of the miners.<sup>63</sup>

The mining camps applied precisely the same principles to water as they did to land. Once again, organized governments had little choice but to follow along and ratify the customs of the miners.<sup>64</sup> After 150 years, the miners' rule has been developed with considerable elaboration into a complex and sophisticated system of water administration found, in one form or another, in every appropriative rights state.<sup>65</sup> Successive mineral rushes to other Western states brought many of the same miners who had started out in California, bringing the customs of the California mining camps with them. Sometimes these customs were blended with misunderstood principles of Spanish-Mexican law.<sup>66</sup> Eventually, appropriative rights displaced any other system in the 17 western states.<sup>67</sup>

## [2] — Evaluating Appropriative Rights.

Appropriative rights do not serve communities well in significant respects. The rights actually encourage waste and other bad practices under particular circumstances.<sup>68</sup> There is also more uncertainty than the underlying principle—first in time, first in right—suggests. The earliest priorities predate the establishment of the modern administrative machinery.<sup>69</sup> Despite expensive legal proceedings to put these claims on record, on some watercourses the oldest, and therefore most valuable,

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<sup>63</sup> *Jennison v. Kirk*, 98 U.S. 453, 457 (1878) (“[T]he miners . . . were emphatically the law-makers, as respects mining, upon the public lands in the State.”).

<sup>64</sup> *Irwin v. Phillips*, 5 Cal. 140 (1855).

<sup>65</sup> C. Peter Goplerud III, “The Permit Process and Colorado’s Exception, 2 *Waters and Water Rights* ch. 14 (Robert E. Beck ed., repl. vol. 2001).

<sup>66</sup> *Dobkins*, *supra* note 59; Reich, *Mission Revival Jurisprudence*, *supra* note 53; Reich, *Hispanic Roots*, *supra* note 53.

<sup>67</sup> Dellapenna, *Dual Systems*, *supra* note 1, §§ 8.02 to 8.02(c).

<sup>68</sup> See Janet C. Neuman, “Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use,” 28 *Envtl. L.* 919 (1998).

<sup>69</sup> The first statute creating a formal administrative system was enacted in 1890 in Wyoming; the most recently enacted was in Oklahoma in 1963. See *Franco-Am. Charolaise, Ltd. v. Oklahoma Water Resources Bd.*, 855 P.2d 568 (Okla. 1990); *Farm Inv. Co. v. Carpenter*, 61 P. 258 (Wyo. 1900). See generally Dellapenna, *Dual Systems*, *supra* note 1, § 8.02(c). Anglo settlement, with claims of appropriative rights, began as early as 1849 in California,

rights to use water have never been quantified.<sup>70</sup> Prescriptive, abandoned, or forfeited rights also create gaps in the official record.<sup>71</sup> The following analysis briefly describes the shortcomings of the doctrine—shortcomings that became ever more pronounced unappropriated water disappears and with the growing recognition of the importance of non-consumptive uses of water.<sup>72</sup>

The “first in time, first in right” principle fosters premature development in order to capture unappropriated waters to enjoy their later rents.<sup>73</sup> To capture rents, appropriators want to use as much water as they possibly can.<sup>74</sup> Withdrawing water, a cost to society, is a private gain to an appropriator, creating a basis for a claim to water in the future. Capturing waters requires the investment of real social capital to divert and store water, diverting capital from socially productive uses to capture sub-marginal resources. Excessive diversion capacity is the rule.<sup>75</sup> Yet most appropriations of water are characterized by inadequate investment in post-diversionary aspects of development, especially those designed to save water.<sup>76</sup> The introduction

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and at later dates in other states, but always well before the creation of the administrative machinery.

<sup>70</sup> See generally C. Peter Goplerud III, “Adjudication of Water Rights,” 2 *Waters and Water Rights* ch. 15 (Robert E. Beck ed., repl. vol. 2001).

<sup>71</sup> See generally C. Peter Goplerud III, “Protection and Termination of Water Rights,” 2 *Waters and Water Rights* ch. 17, § 17.03 (Robert E. Beck ed., repl. vol. 2001).

<sup>72</sup> See generally Gaffney, *supra* note 42.

<sup>73</sup> See generally Amy Beatie and James Fosnaught, “The City of Golden’s Application for Surface Water Rights: A Kayak Course, Instream Flow, Dilution, or What?,” 2 *U. Denv. Water L. Rev.* 273 (1999). The notion of capturing rents has been developed in the body of political and economic theory that goes by the name of “public choice theory.” See Daniel A. Farber and Philip P. Frickey, *Law and Public Choice: A Critical Introduction* (1991); Iain McLean, *Public Choice: An Introduction* (1987); Dennis C. Mueller, *Public Choice II* (1989); *Public Choice and Public Law: Readings and Commentary* (Maxwell Stearns ed. 1997).

<sup>74</sup> Charles W. Howe, Paul Alexander, and Raphael Moses, “The Performance of Appropriative Water Rights Systems in the Western United States during Drought,” 22 *Nat. Resources J.* 379 (1982).

<sup>75</sup> See Neuman, *supra* note 68.

<sup>76</sup> See, e.g., *Salt River Valley Users’ Ass’n v. Kovacovich*, 411 P.2d 201 (Ariz. Ct. App. 1966); *Krieger v. Pac. Gas & Elec. Co.*, 173 Cal. Rptr. 751 (Ct. App. 1981); *Provo River*

of conditional rights makes it even easier to capture rents—by establishing an intent to appropriate that might not be realized for many years.<sup>77</sup> Much of the water shortage of the arid west would disappear if appropriators had to pay an economic price for water, or even if appropriators simply started to think in terms of a zero price, instead of, as now, regarding the price as negative because of the gain they realize by piling up a history of use.

Another problem arises from the ranking of appropriators as senior and junior to one another along a scale from first to last. When water is short, juniors drop out first and lose everything before the next senior appropriator loses anything.<sup>78</sup> Senior appropriators are protected by exaggerating the risk to junior appropriators. Two basic economizing principles are denied. One is marginal productivity.<sup>79</sup> A junior appropriator who loses all access to water loses some marginal units of high productivity, while the senior appropriator retains marginal units of low productivity. The other is pooling of risk. There is no pooling of risk whatever. One's supply is a piece of the larger common supply, but one's piece is defined in a way that greatly increases the aggregate variability of supply above its natural variability and that distributes these risks unequally.

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Water Users Ass'n v. Lambert, 642 P.2d 1219 (Utah 1982); Fuss v. Franks, 610 P.2d 17 (Wyo. 1980). Western courts recently have begun to penalize wasteful practices. Erickson v. Queen Valley Ranch Co., 99 Cal. Rptr. 446 (App. 1971); Glenn Dale Ranches, Inc. v. Shaub, 494 P.2d 1029 (Idaho 1972); Estate of Steed v. New Escalante Irrigation Co., 846 P.2d 1223 (Utah 1992). How effective these legal changes will prove to be remains to be seen.

<sup>77</sup> See, e.g., Pub. Serv. Co. of Colo. v. Bd. of Water Works of Pueblo, Colo., 831 P.2d 470 (Colo. 1992); City of Thornton v. City of Fort Collins, 830 P.2d 915 (Colo. 1992); *In re* Application No. 5189-3, 467 N.W.2d 907 (S.D. 1991); Green River Dev. Co. v. FMC Corp., 660 P.2d 339 (Wyo. 1983). See generally Jackson B. Battle, "Paper Clouds over the Waters: Shelf Filings and Hyperextended Permits in Wyoming," 22 *Land & Water L. Rev.* 673 (1987); Beatie and Fosnaught, *supra* note 73.

<sup>78</sup> For one of the most extreme examples, see *State ex rel. Cary v. Cochran*, 292 N.W. 239 (Neb. 1940).

<sup>79</sup> See generally Robin Paul Malloy, *Law and Economics: A Comparative Approach to Theory and Practice* 20-33 (1990); Richard A. Posner, *Economic Analysis of Law* § 1.1 (5th ed. 1998); Herbert Hovenkamp, "Marginal Utility and the Coase Theorem," 75 *Cornell L. Rev.* 783, 783 (1990).

Nor has there ever been a market for appropriative rights to any significant extent.<sup>80</sup> Appropriative rights are not bought and sold freely, despite crying needs for water transfers in every area.<sup>81</sup> The recognition and protection of third-party rights precludes true market transactions.<sup>82</sup> Even

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<sup>80</sup> Rodney T. Smith, *Trading Water: An Economic and Legal Framework for Water Marketing* 28-52 (1988); Richard W. Wahl, *Markets for Federal Water: Subsidies, Property Rights, and the Bureau of Reclamation* 197-289 (1989); Joseph W. Dellapenna, "The Importance of Getting Names Right: The Myth of Markets for Water," 25 *Wm. & Mary Envtl. L. & Pol'y Rev.* 317 (2000); Barton H. Thompson, Jr., "Institutional Perspectives on Water Policy and Markets," 81 *Cal. L. Rev.* 673, 723-39 (1993); Robert A. Young, "Why Are There so Few Transactions among Water Users?," 68 *Am. J. Agric. Econ.* 1143 (1986).

<sup>81</sup> On the need, see Terry L. Anderson and Pamela Snyder, *Water Markets: Priming the Invisible Pump* (1997); Clay Landry, *Saving Our Streams through Water Markets* (1998); National Research Council, *Water Transfers in the West: Efficiency, Equity, and the Environment* (1992); Smith, *supra* note 80; Wahl, *supra* note 80, at 140-44; Richard W. Wahl, *Water Marketing in California: Past Experience, Future Prospects* 11-12 (1993); James N. Corbridge, Jr., "Historical Water Use and the Protection of Vested Rights: A Challenge for Colorado Water Law," 69 *U. Colo. L. Rev.* 503 (1998); Thomas J. Graff and David Yargas, "Reforming Western Water Policy: Markets and Regulation," 12 *Nat. Resources & Env't* 165 (1998); Charles W. Howe *et al.*, "The Economic Impacts of Agriculture-to-Urban Water Transfers on the Area of Origin: A Case Study of the Arkansas River Valley in Colorado," 72 *Am. J. Agric. Econ.* 1200 (1990); Morris Israel and Jay R. Lund, "Recent California Water Transfers: Implications for Water Management," 35 *Nat. Resources J.* 1 (1995); Ronald A. Kaiser and Shane Binion, "Untying the Gordian Knot: Negotiated Strategies for Protecting Instreamflows," 38 *Nat. Resources J.* 157 (1998); Ronald A. Kaiser and Laura M. Phillips, "Dividing the Waters: Water Marketing as a Conflict Resolution Strategy in the Edwards Aquifer Region," 38 *Nat. Resources J.* 411, 436-43 (1998); Lawrence J. MacDonnell and Teresa A. Rice, "Moving Agricultural Water to the Cities: The Search for Smarter Approaches," 2 *Hastings W.-Nw. J. Envtl. L. & Pol'y* 27, 45-46 (1994); Jack Sterne, "Instream Rights and Invisible Hands: Prospects for Private Instream Water Rights in the Northwest," 27 *Envtl. L.* 203 (1997); A. Dan Tarlock and Sarah B. Van de Wetering, "Growth Management and Western Water Law: From Urban Oases to Archipelagos," 5 *Hastings W.-Nw. J. Envtl. L. & Pol'y* 163, 168-69 (1999); Gregory A. Thomas and Tara L. Miller, "Reflections on the 'Model Water Transfer Act'" by the National Heritage Institute, 4 *Hastings W.-Nw. Envtl. J. L. & Pol'y* 91, 99-101 (1996); Thompson, *supra* note 80.

<sup>82</sup> See, e.g., *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46 (Colo. 1999); *Thompson v. Harvey*, 519 P.2d 963 (Mont. 1974); *In re Sleeper*, 760 P.2d 787 (N.M. Ct. App. 1988); *Crandall v. Water Res. Dep't*, 626 P.2d 877 (Or. 1981); *White v. Bd. of Land*

the highly touted California Water Bank turns out, upon close examination, to have been an instance of administrative reallocation masquerading as a market.<sup>83</sup> The case of *City and County of Denver v. Fulton Irrigating Ditch Co.*<sup>84</sup> is a classic example of what happens when a buyer seeks water for a use that is fundamentally different or at a considerable remove from that of the seller.

The Coors Beer Co. was unable to produce enough beer to satisfy the demand for its product without a greatly enlarged supply of water. Being at the time unwilling to open satellite breweries, Coors' agreed to swap its "clear mountain stream" to the City of Denver to augment the city's municipal supplies in exchange for the right to use unlimited quantities of Denver sewage water in its brewery. The transaction failed not because of fears of possible outrage by beer drinkers, but because a group of farmers downstream from Denver (organized as the Fulton Irrigating Ditch Co.) obtained an injunction against the trade because it would deprive them of the water on which they were relying.<sup>85</sup> The outcome in the case is all the more remarkable as the City and Coors were contracting regarding "imported water"—water from outside the watershed—over which the City would have even greater rights than it would have had if it were merely claiming

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Comm'rs, 595 P.2d 76 (Wyo. 1979). See generally Harold O. Carter and Henry J. Vaux, Jr., *Third-Party Effects: The Research Challenge* (1994); David L. Mitchell, *Water Marketing in California: Resolving Third-Party Impact Issues* (1993); Smith, *supra* note 80, at 17-26; Bonnie G. Colby, "Transaction Costs and Efficiency in Western Water Allocation," 72 *Am. J. Agric. Econ.* 1184 (1990); Corbridge, *supra* note 81, at 507-13; Dellapenna, *supra* note 80, at 350-56; Charles W. Howe, Carolyn Boggs and Peter Butler, "Transaction Costs as Determinants of Water Transfers," 61 *U. Colo. L. Rev.* 393 (1990); Jay R. Lund, "Transaction Risk Versus Transaction Cost in Water Transfers," 29 *Water Resources Res.* 3103 (1993); MacDonnell and Rice, *supra* note 81, at 29-31; Kevin M. O'Brien and Robert R. Gunning, "Water Marketing in California Revisited: The Legacy of the 1987-92 Drought," 25 *Pac. L.J.* 1053, 1062-74 (1994); Young, *supra* note 80.

<sup>83</sup> Dellapenna, *supra* note 80, at 358-65.

<sup>84</sup> *City and County of Denver v. Fulton Irrigation Ditch Co.*, 506 P.2d 144 (Colo. 1972). See generally Stephen F. Williams, "Optimizing Water Use: The Return Flow Issue," 44 *U. Colo. L. Rev.* 301, 311-21 (1973).

<sup>85</sup> *City and County of Denver*, 506 P.2d at 151-53.

the rights of a senior appropriator.<sup>86</sup> In this case, the farmers had even contractually recognized the seniority of Denver's rights over their own in a settlement of an earlier dispute, in exchange for Denver's promise not to reuse any water, regardless of source, that "shall have been once used through its municipal water system."<sup>87</sup> The outcome in *Fulton Irrigating Ditch Co.* would not have depended on the existence of the contract if the water had not been "imported."<sup>88</sup>

Despite the third party rule, various commentators continue to insist that markets work under appropriative rights.<sup>89</sup> One of their favored "examples," the Imperial Valley Irrigation District "sale" to San Diego illustrates the unreality of such claims.<sup>90</sup> A five-year drought at the turn of the millennium covering the entire southwest of the United States provoked the attempt to transfer Colorado River water from several of the large irrigation districts in southern California to the large cities in southern California. The city of San Diego asked the Imperial Valley Irrigation District to sell 800,000 ac.-ft. of water—about 11 percent of its allocation from the Colorado River.<sup>91</sup>

When the District voted 3-2 in December 2002 to reject the proffered contract, the federal and state governments placed enormous pressure on the District.<sup>92</sup> The Secretary of the Interior cut the District's allocation of water

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<sup>86</sup> *Id.* at 146-49.

<sup>87</sup> *Id.* at 151.

<sup>88</sup> See *Santa Fe Trail Ranches Prop. Owners Assoc. v. Simpson*, 990 P.2d 46 (Colo. 1999); *Orr v. Arapahoe Water & Sanitation Dist.*, 753 P.2d 1217 (Colo. 1988); *C.F. & I. Steel Corp. v. Rooks*, 495 P.2d 1134 (Colo. 1972).

<sup>89</sup> See, e.g., Anderson and Snyder, *supra* note 81; Landry, *supra* note 81; National Research Council, *supra* note 81; Smith, *supra* note 80; Graff and Yardas, *supra* note 81; Howe *et al.*, *supra* note 81; Israel and Lund, *supra* note 81; Kaiser and Binion, *supra* note 81; Kaiser and Phillips, *supra* note 81; MacDonnell and Rice, *supra* note 81; Sterne, *supra* note 81; Thomas and Miller, *supra* note 81; Thompson, *supra* note 80.

<sup>90</sup> Megan Hennessy, "Comment, Colorado River Water Rights: Property Rights in Transition," 71 *U. Chi. L. Rev.* 1661 (2004).

<sup>91</sup> Michael Gardner, "San Diego County Needs More Water, Imperial Valley Has a Lot," *San Diego Un.-Trib.*, Dec. 8, 2002, at A1. An acre-foot of water is the amount of water necessary to cover an acre of land to a depth of one foot—325,851 gallons.

<sup>92</sup> Michael Gardner, "Imperial Rejects Water Transfer, San Diego Un.-Trib.", Dec. 10, 2002, at A1; Seth Hettena, "Water War? Tiny Imperial County Says No to Big Neighbors," *Long*

by 11 percent, to be restored only if it was sold under the terms of the rejected contract.<sup>93</sup> The Irrigation District continued to resist the deal, even initiating an ultimately unsuccessful lawsuit against Secretary Gale Norton.<sup>94</sup> The state legislature also threatened to intervene to take the water from the District.<sup>95</sup> In the end, the District gave in and “accepted” the contract by another 3-2 vote.<sup>96</sup> This, of course, is hardly evidence of a market transaction.<sup>97</sup>

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*Beach Press-Tele.*, Dec. 12, 2002, at A17; Dean E. Murphy, “California Vote Threatens Deal on Colorado River,” *N.Y. Times*, Dec. 11, 2002, at A24; Daniel Wood, “In Water Transfer, Farmers v. Sprawl,” *Christian Sci. Mon.*, Dec. 11, 2002, at 1. On the pressures, see Margaret Kitz, “The New Water War: U.S. vs. California,” *Cal. J.*, Apr., 2003, at 40-44, 46; Seth Hymon, “Surplus Water Losing Appeal, MWD Suspects: Agency Might Bow out of Talks to Regain Use of Colorado River Supplies That Just Aren’t Flowing,” *L.A. Times*, Feb. 20, 2003, § 2, at 8; Don Thompson, “Sides Submerged in Water Talks: Blaming Each Other for Loss of Colorado River Surplus, Agencies Call for State Funding,” *Long Beach Press Tele.*, Jan. 22, 2003, at A15.

<sup>93</sup> Jose Luis Jimenez, “Feds Seek Imperial Water Cut; Unprecedented Decision Concludes Valley Farmers Waste Water,” *San Diego Un.-Trib.*, July 4, 2003, at A1.

<sup>94</sup> Michael Gardner, “Interior’s Powers Upheld: Ruling Could Settle Colorado River Fight,” *San Diego Un.-Trib.*, Apr. 19, 2003, at A3; Jose Luis Jimenez, “Judge Backs Imperial District, Restores Water Supply: Injunction Overrules Cutback by Interior,” *San Diego Un.-Trib.*, Mar. 19, 2003, at A1; Dean E. Murphy, “Judge’s Ruling on Water Gives Imperial Valley Farmers Hope,” *N.Y. Times*, Mar. 23, 2003, at A20; James Sterngold, “U.S. Says Imperial Valley May Lose More Water,” *S.F. Chron.*, Jan. 17, 2003, at A2.

<sup>95</sup> Bettye Wells Miller, “Water Worries Intensify Dispute: Pressure on an Imperial County District and a Planned Bill Have Farmers Concerned,” *Press-Enterprise* (Riverside, CA), Jan. 23, 2003, at A1.

<sup>96</sup> Michael Gardner, “Imperial OKs Historic Water Deal: 3-2 Vote Should Mean a San Diego Supply for Decades to Come,” *San Diego Un.-Trib.*, Oct. 3, 2003, at A1. See also Seth Hettena, “Four Water Agencies Finalize Accord,” *Contra Costa Times* (Walnut Creek, CA), Oct. 11, 2003, at 4; Shaun McKinnon, “Interior to Sign Colorado River Water Deal: Arizona Winner in Lengthy Battle,” *Ariz. Rep.*, Oct. 16, 2003, at B12; Dean E. Murphy, “Thirsty U.S. Cities Win Larger Share of Colorado River,” *N.Y. Times*, Oct. 17, 2003, at A1; “Thirst for Colorado River Water Is Shifted: Pact Ends Debate, Redirects Usage from Farms to California Cities,” *Wash. Post*, Oct. 17, 2003, at A16.

<sup>97</sup> In contrast with the Imperial Irrigation District “sale,” the Coachella Valley Irrigation District reached a relatively quiet settlement to sell part of its water. “Last California District Approves Pact on Colorado River Water,” *N.Y. Times*, Oct. 4, 2003, at A8. This is hardly a

The transaction provides an infusion of cash to the owners of the farms served by the district, but it provides nothing but unemployment for the farm workers on those farms as land is idled in order to free up water to transfer to San Diego,<sup>98</sup> and disaster to the ecosystems that depend on return flow from the farms.<sup>99</sup> Moreover, the Irrigation District held out against consenting to the transaction because even the landowners believed they were being short-changed.<sup>100</sup> Taking into account the effects on farm workers about to lose their jobs, we see, as is usually the case in “water markets,” a transfer of wealth from the poor to the rich.<sup>101</sup>

Grouping users within an irrigation district somewhat ameliorates the third party problem, for the irrigation district can at least manage the water with efficiency in mind. Where administered by irrigation districts, appropriative rights are applied within contained service areas. Where claimed by individuals, or smaller districts, service areas from given streams

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better example of a market, both in terms of process and in terms of effects. After all, with the Imperial Valley Irrigation District’s experience happening right before their eyes, a vote by the directors of the Coachella District hardly proves that the transaction was, in a real sense, voluntary. Michael Gardner, “River Entitlement Cut in Region Is Affecting Coachella Valley First,” *San Diego Un.-Trib.*, May 10, 2003, at A3.

<sup>98</sup> Michael Gardner, “Farm Workers Fear Water Sale Could Cost Jobs,” *San Diego Un.-Trib.*, Dec. 8, 2002, at A10; Aaron Ralph, “Comment, Drain the Water and Pull the Plug on One Community So That Another Community Can Brim over with Economic Development: Is It Any of the State Water Resources Control Board’s Business?,” 34 *McGeorge L. Rev.* 903 (2003).

<sup>99</sup> Kathryn Balint, “Appellate Court Rules Imperial Valley Has Serious Air Pollution Problem,” *San Diego Un.-Trib.*, Oct. 1, 2003, at A4; Michael Gardner, “Time Runs Short on Salton Sea: Decaying Desert Lake Is Key to Water Pact,” *San Diego Un.-Trib.*, Dec. 30, 2002, at A1; “Snub for the Salton Sea,” *L.A. Times*, Feb. 15, 2003, at 26; Benjamin Spillman, “Salton Sea Caretakers in Tug-of-War with State over Water Inflow,” *Desert Sun*, Jan. 23, 2005, at B2.

<sup>100</sup> Harry Cline, “Peace Elusive along the Colorado River,” *Western Farm Press*, Dec. 6, 2003, at 9.

<sup>101</sup> Elaine Robbins, “Winning the Water Wars: In the West, They Say That Water Flows Uphill to Money,” 69 *Planning* no. 6, at 69 (2003). See generally Carl J. Bauer, *Siren Song: Chilean Water Law as a Model for International Reform* (2004); Dellapenna, *Introduction*, *supra* note 2, §§ 6.01(b)(2), 6.01(b)(3).

are generally scattered. “First in time, first in right” puts a premium on jumping the gun. The farther one is from a source and the more convenient it is to others, the greater the motive to get there first to preclude the others. Typically, the first claimants on a source are scattered; soon the supply is fully claimed, and the included dry lands can never get water from this source.<sup>102</sup> They can, however, search for more remote sources. The results may be observed throughout the arid states. Recent legal innovations designed to protect areas of origin have had very limited impacts.<sup>103</sup>

Finally, the amount of water that courts recognize as being used “beneficially” is a function of, among other things, the amount of land that a user has.<sup>104</sup> Moreover, courts traditionally made no effort to protect the public interest in the waters of the State or to distribute their fruits among the disadvantaged of society.<sup>105</sup> Many appropriative rights states have now enacted statutes requiring consideration of the public interest in evaluating applications for new appropriation.<sup>106</sup> Such statutes do not apply to existing water rights and thus have little practical effect in the many water basins in which most or all available water is already appropriated.<sup>107</sup> And whether

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<sup>102</sup> See, e.g., *State ex rel Carey v. Cochran*, 292 N.W. 239 (Neb. 1940).

<sup>103</sup> See generally Lawrence J. MacDonnell *et al.*, *Guidelines for Developing Area-of-Origin Compensation* (1985); Robert H. Abrams, “Interbasin Transfer in a Riparian Jurisdiction,” 24 *Wm. & Mary L. Rev.* 591 (1993); Gregory S. Weber, “Twenty Years of Local Groundwater Export Legislation in California: Lessons from a Patchwork Quilt,” 34 *Nat. Resources J.* 657 (1994).

<sup>104</sup> This is made explicit in laws defining a “duty of water”—amount of water that may be used lawfully to irrigate an acre of a particular crop. See, e.g., *Farmers Highline Canal & Reservoir Co. v. City of Golden*, 272 P.2d 629 (Colo. 1954); *McDonald v. State*, 722 P.2d 598 (Mont. 1986); *State Dep’t of Ecology v. Grimes*, 852 P.2d 1044 (Wash. 1993).

<sup>105</sup> Gaffney, *supra* note 42, at 138.

<sup>106</sup> See, e.g., *E. Bay Mun. Util. Dist. v. Dep’t of Public Works*, 35 P.2d 1027 (Cal. 1934); *Collins Bros. v. Dunn*, 759 P.2d 891 (Idaho 1988); *Shokal v. Dunn*, 707 P.2d 441 (Idaho 1985); *Young & Norton v. Hinderlider*, 110 P. 1045 (N.M. 1910). See generally Goplerud, *supra* note 70, § 15.03(c)(3).

<sup>107</sup> See, e.g., *Collins Bros. v. Dunn*, 759 P.2d 891 (Idaho 1988); *Shokal v. Dunn*, 707 P.2d 441 (Idaho 1985). Two states seem to have defined the “public interest” as depending upon a cost-benefit analysis rather than a more wide-ranging analysis. Alaska Stat. § 46.15.80(b) (Michie 2000); Wash. Rev. Code Ann. § 90.54.020(2) (West 2001); *Stempel v. Dep’t of Water Res.*,

today the public interest supports protecting endangered species and providing water for other public values rather than for irrigation is at least an open question.<sup>108</sup>

### [3] — The Failure of Appropriative Rights in the East.

While miners were inventing appropriative rights in the 17 western states, farmers settling in other parts of those states applied riparian rights. Only in the Mountain Time zone states did courts conclude that riparian rights never played a role in the state's water law.<sup>109</sup> The Pacific coast states, from Alaska to California, and the high plains states, from North Dakota to Texas, all eventually chose to embrace appropriative rights and to end riparian rights.<sup>110</sup> The change generally was brought about by legislation. Legislatures were unable to abolish riparian rights completely through inability or unwillingness to compensate the owners of riparian rights. Instead, legislatures chose to preserve uses under riparian rights that existed on the effective date of the appropriative rights statute.<sup>111</sup> Vestigial

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508 P.2d 166 (Wash. 1973). *See generally* Norman K. Johnson and Charles T. DuMars, "A Survey of the Evolution of Western Water Law in Response to Changing Economic and Public Interest Demands," 29 *Nat. Resources J.* 347 (1989).

<sup>108</sup> *See, e.g.*, Reed Benson, "A Watershed Issue: The Role of Streamflow Protection in Northwest River Basin Management," 26 *Envtl. L.* 175 (1996); Lawrence J. MacDonnell, "Managing Reclamation Facilities for Ecosystem Benefits," 67 *U. Colo. L. Rev.* 197 (1996); Michael R. Moore, Aimee Mulville, and Marcia Weinberg, "Water Allocation in the American West: Endangered Fish Versus Irrigated Agriculture," 36 *Nat. Resources J.* 319 (1996); Carmen Sower-Hall and Holly I. Holder, "Water Quality Issues in Augmentation Plans and Exchanges," 1 *U. Denv. Water L. Rev.* 96 (1998); Alexandra E. Viscusi, "Conflicting Directives: Water Quality and Appropriative Water Rights in the West," 20 *Wm. & Mary Envtl. L. & Pol'y Rev.* 121 (1995); Wendy Weiss, "The Federal Government's Pursuit of Instream Flow Water Rights," 1 *U. Denv. Water L. Rev.* 151 (1998).

<sup>109</sup> *See* Dellapenna, *Dual Systems*, *supra* note 1, § 8.02(b).

<sup>110</sup> *Id.* §§ 8.02 to 8.02(c).

<sup>111</sup> *See* Cal. Ore. Power Co. v. Beaver Portland Cement Co., 295 U.S. 142 (1935); *Baumann v. Smrha*, 145 F. Supp. 617 (D. Kan.), *aff'd mem.*, 352 U.S. 863 (1956); *F. Arthur Stone & Sons v. Gibson*, 630 P.2d 1164 (Kan. 1981); *Hickman v. Loup River Pub. Power Dist.*, 113 N.W.2d 617 (Neb. 1962); *Baeth v. Hoisveen*, 157 N.W.2d 728 (N.D. 1968); *City of Stillwater*

riparian rights thus survive in the Pacific coast states and the high plains states with little actual impact on how water is managed in those states.<sup>112</sup> These transitions occurred when existing riparian uses were relatively few, yet they resulted in a dual system that combined the worst features of both bodies of law.<sup>113</sup>

Mississippi is the only state east of Kansas City to adopt a dual system, which it did in 1956.<sup>114</sup> Mississippi's experience suggests why it would be futile to import appropriative rights into the hydrologically more developed regions east of Kansas City.<sup>115</sup> During the 30 years that Mississippi had appropriative rights on the books, not one court in Mississippi ever referred to that statute in legal disputes over the allocation of water.<sup>116</sup> In 1985, Mississippi repealed its appropriative rights statute, giving all persons claiming rights vested under the appropriation statute one year to file a document expressing their intention to preserve their appropriative right.<sup>117</sup> No such documents were filed.

It is remarkable that not one judge (and presumably not one lawyer) considered the appropriative rights statute worth mentioning in any relevant reported case decided during the period it was on the books. The reason is

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v. Okla. Water Res. Bd., 524 P.2d 938 (Okla. 1974); *In re Hood River*, 227 P. 1065 (Or. 1924), *appeal dismissed sub nom.* Pac. Power Co. v. Bayer, 273 U.S. 647 (1926); *Belle Fourche Irrigation Dist. v. Smiley*, 176 N.W.2d 239 (S.D. 1970); *In re Medina River*, 670 S.W.2d 250 (Tex. 1984); *In re Deadman Creek*, 694 P.2d 1071 (Wash. 1985). *But see* Franco-Am. Charolaise, Ltd. v. Okla. Water Res. Bd., 855 P.2d 568 (Okla. 1990) (the attempt to cut-off unused riparian rights is void as an attempted taking without compensation).

<sup>112</sup> See, e.g., *Lux v. Haggin*, 10 P. 674 (Cal. 1886). See generally Dellapenna, *Dual Systems*, *supra* note 1, ch. 8.

<sup>113</sup> Dellapenna, *Dual Systems*, *supra* note 1, §§ 8.03, 8.04.

<sup>114</sup> Miss. Code Ann. §§ 51-3-3(g)(3) to 51-3-7 (1972). See generally William M. Champion, "Prior Appropriation in Mississippi—A Statutory Analysis," 39 *Miss. L.J.* 1 (1967).

<sup>115</sup> Dellapenna, *Dual Systems*, *supra* note 1, § 8.05.

<sup>116</sup> See *Anderson-Tully Co. v. Franklin*, 307 F. Supp. 539 (N.D. Miss. 1969); *Haisch v. Southaven Land Co.*, 274 F. Supp. 392 (N.D. Miss. 1967); *Phillips v. Davis Timber Co.*, 468 So. 2d 72 (Miss. 1985); *Black v. Wniliams*, 417 So. 2d 911 (Miss. 1982); *Hinds-Rankin Metrop. Water Ass'n v. Reid*, 256 So. 2d 373 (Miss. 1971); *Downes v. Crosby Chem., Inc.*, 234 So. 2d 916 (Miss. 1970).

<sup>117</sup> Miss. Code Ann. §§ 51-3-5(2), (3), 51-3-29(a), (b), (c)(2002).

fairly obvious. Many consumptive uses of water had begun before 1956, and claiming an appropriative right would only concede priority to an opponent claiming a riparian right. Either the riparian right would prevail as the earliest appropriation,<sup>118</sup> or the appropriative right would be a permissive non-riparian use that must fail in competition with a riparian use.<sup>119</sup> The best that an appropriator could hope would be that the appropriative use would be balanced against a complaining riparian's use, which brings us full circle back to the reasonable use version of riparian rights.<sup>120</sup> If an acute general water shortage should develop, the appropriator rather than having a more secure title than a riparian, would simply find no water to fulfill the appropriation.

Professor George Gould, a champion of appropriative rights, has argued that water is so plentiful in Mississippi that there simply is no need, yet, for any kind of administered water rights in Mississippi.<sup>121</sup> Mississippi is a wet state with lots of water. Yet Mississippi did not simply repeal its appropriative rights statute and return to more or less unregulated riparian rights. Instead, Mississippi enacted a regulated riparian system, suggesting that the people in the state felt strongly enough about the need for administered water rights that they were willing to continue to pay the price for a permit system, but not an appropriative rights permit system. They even extended the permit system to groundwater as well as to surface waters.<sup>122</sup>

Gould has argued that in a properly implemented dual system, nearly all riparian rights would simply disappear.<sup>123</sup> But the western states in which this happened all had small populations, vast areas, and few existing riparian uses when they made the transition. Vesting existing riparian uses would, as

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<sup>118</sup> See Dellapenna, *Dual Systems*, *supra* 1, § 8.04(a).

<sup>119</sup> *Id.* § 8.04(b).

<sup>120</sup> See, e.g., *Wasserburger v. Coffee*, 141 N.W.2d 738 (Neb.), modified on other grounds, 144 N.W.2d 209 (Neb. 1966); *Franco-Am. Charolaise, Ltd. v. Okla. Water Res. Bd.*, 855 P.2d 568 (Okla. 1990). See Dellapenna, *Dual Systems*, *supra* note 1, § 8.04(b), at nn. 441-47.

<sup>121</sup> George A. Gould, "A Westerner Looks at Eastern Water Law: Reconsideration of Prior Appropriation in the East," 25 *U. Ark. Little Rock L. Rev.* 89, 105 (2002).

<sup>122</sup> Al Sage, "Mississippi," 6 *Waters and Water Rights* at 445, 446 (Robert E. Beck ed., replacement ed. 1994).

<sup>123</sup> Gould, *supra* note 121, at 105-08.

the states' populations grew and their economies developed, result in most water uses being under appropriative rights. If a court were aggressively committed to eliminating even those ancient riparian rights, it could find means of doing so.<sup>124</sup>

Mississippi, and most eastern states, already have large population densities and highly developed economies with myriad established water users. Existing water users are simply too numerous for the water rights in question to be eliminated easily; and if they are not eliminated, they will continue to trump "junior" appropriative rights. Gould in fact concedes that appropriators would always lose in a dispute with someone exercising riparian rights and that generally there will be little water available for an appropriative right holder in times of acute shortage.<sup>125</sup> While he does claim that markets will develop to take care of such problems, he nowhere explains why markets should develop more effectively under a dual system (with its inherent uncertainties) than they did under the considerably more certain appropriative rights systems of the West.<sup>126</sup>

In short, the Mississippi example strongly suggests that adding appropriative rights to an economically mature, humid eastern state hitherto committed to riparian rights would gain little, if anything, in terms of rational water management at a cost of establishing and maintaining the considerable bureaucratic machinery inherent in appropriative rights today. This reality ought to be quite enough to preclude serious consideration of appropriative rights as an alternative to riparian-based systems in the eastern United States even without considering the further arguments about the monopolistic and environmentally unsound biases of appropriative rights.<sup>127</sup> As a result, eastern states making a sharp departure from more or less pure riparian rights have all gone to regulated riparianism rather than to appropriative rights.

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<sup>124</sup> Dellapenna, *Dual Systems*, *supra* note 1, §§ 8.03(b) to 8.03(b)(5).

<sup>125</sup> Gould, *supra* note 121, at 107-08.

<sup>126</sup> *Id.* at 108. On the dearth of true markets for water, see the authorities collected *supra* at note 80. See generally *supra* at nn. 49-51, 80-88 and accompanying text.

<sup>127</sup> See *supra* at nn. 68-79, 89-108 and accompanying text.

**§ 11.04. Regulated Riparianism.**

Since the 1950s, about half of the states east of Kansas City, along with Hawaii, have enacted administrative permit systems to replace tradition riparian rights.<sup>128</sup> Rather than importing appropriative rights into the east, these states have developed a highly regulated system of water administration based on riparian principles that amounts to a transition to a public property system.<sup>129</sup> The transition from extremely limited regulatory intervention to more or less comprehensive regulation often occurred incrementally rather than from a conscious design to transform the system of water rights. There thus is disagreement over when a true regulated riparian system emerged in a particular state and even today one could debate whether certain states have in fact crossed over from largely unregulated common law riparian rights to a regulated riparian system. Bearing this in mind, the following list indicates the states that have enacted regulated riparian systems and the approximate date of that step: Alabama (1993);<sup>130</sup> Arkansas (1957);<sup>131</sup> Connecticut (1982);<sup>132</sup> Delaware (1959);<sup>133</sup> Florida (1972);<sup>134</sup> Georgia (1977);<sup>135</sup> Hawaii (1987);<sup>136</sup> Iowa (1957);<sup>137</sup> Kentucky (1966);<sup>138</sup> Maryland (1957);<sup>139</sup> Massachusetts (1985);<sup>140</sup> Minnesota (1973);<sup>141</sup> Mississippi (1985);<sup>142</sup> New

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<sup>128</sup> See generally Dellapenna, *Regulated Riparianism*, *supra* note 16.

<sup>129</sup> See Dellapenna, *Introduction*, *supra* note 2, § 6.01(b)(1).

<sup>130</sup> Ala. Code §§ 9-10B- 1 to 9-10B-30 (LexisNexis 2001).

<sup>131</sup> Ark. Code Ann. §§ 15-22-201 to 15-22-622 (LexisNexis 2003).

<sup>132</sup> Conn. Gen. Stat. §§ 22a-365 to 22a-380 (1995 & Supp. 2005).

<sup>133</sup> Del. Code Ann. tit. 7, §§ 6001-6031 (2001 & Supp. 2004).

<sup>134</sup> Fla. Stat. §§ 373.012-373.202 (West 2000 & Supp. 2005), 373.203-373.619 (West 2005).

<sup>135</sup> Ga. Code Ann. §§ 12-5-20 to 12-5-31, 12-5-43 to 12-5-53 (2001 & Supp. 2005).

<sup>136</sup> Haw. Rev. Stat. §§ 174C-1 to 174C-101 (1993 & Supp. 2004).

<sup>137</sup> Iowa Code Ann. §§ 455B.261 to 455B.281 (West 2004).

<sup>138</sup> Ky. Rev. Stat. Ann. §§ 151.010 to 151.600, 151.990 (LexisNexis 2001 & Supp. 2004).

<sup>139</sup> Md. Code Ann., Emt. §§ 5-501 to 5-514 (1996 & Supp. 2004).

<sup>140</sup> Mass. Gen. Laws ch. 21G, §§ 1-19 (2002).

<sup>141</sup> Minn. Stat. Ann. §§ 103G.001 to 103G.315 (West 1997 & Supp. 2005).

<sup>142</sup> Miss. Code Ann. §§ 51-3-1 to 51-3-55 (1999 & Supp. 2004).

Jersey (1965);<sup>143</sup> North Carolina (1973);<sup>144</sup> New York (1979);<sup>145</sup> Virginia (1989);<sup>146</sup> and Wisconsin (1957).<sup>147</sup> In addition, several states have applied a regulated riparian system to groundwater without applying it to surface waters.<sup>148</sup>

Even now, there is no fully recognized name for the new system of water allocation law. Peter Davis once suggested that the new regulatory system should be called “non-temporal priority permit systems.”<sup>149</sup> This term aptly describes the new system, but it is a bit much to expect people to say or write very often. Others have simply given up on a name that tells you anything about the system, calling the new system simply “Eastern permit systems.”<sup>150</sup> The name “regulated riparianism,” which I devised some twenty years ago,<sup>151</sup> offends those to whom the words “regulate” and “riparian” are polar opposites.<sup>152</sup> The name has the virtue, however, of emphasizing both that the administrative permit process proceeds on essentially riparian principles, and that the new system is a regulation of—rather than a taking

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<sup>143</sup> N.J. Stat. Ann. §§ 58:1A-1 to 58:1A-17 (West 1992 & Supp. 2005).

<sup>144</sup> N.Y. Env'tl Conserv. Law §§ 15-1501 to 15-1529 (McKinney 1997 & Supp. 2005).

<sup>145</sup> N.C. Gen. Stat. §§ 143-215.11 to 143-215.22K (LexisNexis 2003).

<sup>146</sup> Va. Code Ann. §§ 62.1-242 to 62.1-253 (LexisNexis 2001).

<sup>147</sup> Wis. Stat. Ann. §§ 30.18, 30.28, 30.292 to 30.298, 281.35 (West 2004).

<sup>148</sup> Ariz. Rev. Stat. Ann. §§ 45-401 to 45-655 (1A-1 to 58:1A-17 (West 1992 & Supp. 2005); N.Y. Env'tl Conserv. Law §§ 15-1501 to 15-1529 (McKinney 1997); N.C. Gen. Stat. §§ 143-215.11 to 143-215.22K (2001); Va. Code Ann. §§ 62.1-242 to 62.1-253 (West 1994); 525 Ill. Comp. Stat. Ann. 45/1 to 45/7 (West 1993); Ind. Code §§ 14-25-4-1 to 14-25-4-21 (1998); S.C. Code Ann. §§ 49-5-10 to 49-5-150 (Law. Co-op. 1987 & West Supp. 2001). See Joseph W. Dellapenna, “The Regulated Riparian Approach to Groundwater,” 3 *Waters and Water Rights* ch. 23 (Robert E. Beck ed. 2003 replacement vol.).

<sup>149</sup> Peter N. Davis, “Australian and American Water Allocation Systems Compared,” 9 *B.C. Indus. & Com. L. Rev.* 647, 697-705 (1968).

<sup>150</sup> See, e.g., *A Summary Digest of State Water Laws* 22-23 (Richard L. Dewsnup and Dallin W. Jensen eds. 1973).

<sup>151</sup> Joseph W. Dellapenna, “Owning Water in the Eastern United States,” 6 *E. Min. L. Inst.* at 1-33 to 1-34 (Eastern Mineral Law Foundation 1985).

<sup>152</sup> See, e.g., Frank J. Trelease, “The Model Water Code, the Wise Administrator, and the Goddam Bureaucrat,” 14 *Nat. Resources J.* 207, 211-13 (1974).

of—riparian rights.<sup>153</sup> Regulated riparianism is also succinctly descriptive and has begun to gain general acceptance.<sup>154</sup>

Little has been written about regulated riparianism, and most of what has been written has viewed regulated riparian statutes as minor modifications superimposed on the riparian rights that the authors saw as the remaining core of the law in these states.<sup>155</sup> Others have seen regulated riparian statutes as inartfully drafted appropriative rights statutes.<sup>156</sup> Few commentators have realized that regulated riparianism represent a truly different model of water law. The following summary description of regulated riparianism is based on the common core of principles found from examining the actual regulated riparian statutes and also by examining the *Regulated Riparian Model Water Code* of the American Society of Civil Engineers—an official

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<sup>153</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.01.

<sup>154</sup> *See, e.g.*, *City of Waterbury v. Town of Washington*, 800 A.2d 1102, 1149 n.44, 1150 n.45, 1155-57 (Conn. 2002); Joseph L. Sax *et al.*, *Legal Control of Water Resources* 80-92 (3rd ed. 2000); Robert E. Beck, “The Regulated Riparian Model Water Code: Blueprint for Twenty First Century Water Management,” 25 *Wm. & Mary L. & Pol’y Rev.* 113 (2000); William S. Cox, III, *The Alabama Water Resources Act: A Hybrid Model of “Regulated Riparianism,”* in *Water Law: Trends, Policies, and Practices* 151, 163 n.4 (Kathleen Marion Carr and James D. Crammond eds., 1995); Douglas W. MacDougal, “Private Hopes and Public Values in the ‘Reasonable Beneficial Use’ of Hawai’i’s Water: Is Balance Possible?,” 18 *U. Haw. L. Rev.* 1, 18 (1996); Judith V. Royster, “Winter in the East: Tribal Reserved Water Rights to Water in Riparian States,” 25 *Wm. & Mary Envtl. L. & Pol’y Rev.* 169, 188-91 (2000); George William Sherk, “The Regulated Riparian Model State Water Code: Perspectives on the Relationship between Water Quantity and Water Quality,” 7 *Rivers* 1 (1999); A. Dan Tarlock, “Reconnecting Property Rights to Watersheds,” 25 *Wm. & Mary Envtl. L. & Pol’y Rev.* 69, 90-91 (2000).

<sup>155</sup> *See, e.g.*, Anthony Scott and Georgina Coustalin, “The Evolution of Water Rights,” 35 *Nat. Resources J.* 821, 899-901 (1995)(describing statutory—*i.e.*, regulated riparian—permit systems as hastily enacted and not fitting with other bureaucratic systems in the state or province of enactment, as well as being of little consequence and not robust enough to deal with any true crisis). *See also* Richard C. Ausness, “Water Rights Legislation in the East: A Program for Reform,” 24 *Wm. & Mary L. Rev.* 547 (1983); Peter N. Davis, “Eastern Water Diversion Permit Statutes: Precedents for Missouri,” 47 *Mo. L. Rev.* 429 (1982).

<sup>156</sup> *See, e.g.*, George William Sherk, “Eastern Water Law,” 1 *Nat. Resources & Env’t* 7 (1986); Frank J. Trelease, “A Water Management Law for Arkansas,” 6 *U. Ark. Little Rock L. Rev.* 369 (1983).

standard of the Society.<sup>157</sup> No state has a system precisely like the one described here, although several come very close.<sup>158</sup> References here are provided in the text to the *Regulated Riparian Model Water Code* and to the relevant chapter of the treatise *Waters and Water Rights*.<sup>159</sup> These are the most convenient sources for more detailed reading on the structure and application of regulated riparianism, containing explanations of the issues and exhaustive references to actual regulated riparian statutes and the few cases construing those statutes.

### [1] — Differences from Riparian Rights.

Under regulated riparian statutes, water generally is not to be withdrawn from a water source without a permit from the state within which the withdrawal occurs.<sup>160</sup> Exceptions mostly are limited to small users,<sup>161</sup> although two states exempt most or all agricultural users.<sup>162</sup> Because the substantial majority of the withdrawals of water for consumptive uses in both states are for agricultural uses, the exemption severely limits the utility of the regulatory system.<sup>163</sup> Apart from the exemptions, the right to use water is determined by the permits, not by the riparian nature of the use, yet the criteria by which permit applications are judged is whether the use would be “reasonable.”<sup>164</sup>

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<sup>157</sup> American Soc’y of Civil Eng’rs, *The Regulated Riparian Model Water Code* (ASCE Standard 40-03)(Joseph W. Dellapenna ed. 2003).

<sup>158</sup> See Fla. Stat. Ann. §§ 373.012-373.202, 373.203-373.619 (West 2000 & Supp. 2005); Ga. Code Ann. §§ 12-5-20 to 12-5-31, 12-5-43 to 12-5-53, 12-5-90 to 12-5-107 (2001 & Supp. 2005); Minn. Stat. Ann. §§ 103G.001 to 103G.315 (West 1997 & Supp. 2005); Miss. Code Ann. §§ 51-3-1 to 51-3-55 (1999 & Supp. 2004); N.C. Gen. Stat. §§ 143-215.11 to 143-215.22K (LexisNexis 2003).

<sup>159</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16.

<sup>160</sup> Model Code, *supra* note 157, § 6R-1-01; Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(a) to 9.03(a)(2).

<sup>161</sup> Model Code, *supra* note 157, § 6R-1-02; Dellapenna, *supra* note 16, § 9.03(a)(3).

<sup>162</sup> Ga. Code Ann. §§ 12-5-31(a)(3), 12-5-31(b)(3), 12-5-92(5.1), 12-5-105(a)(2001); Ky. Rev. Stat. Ann. § 151.140 (LexisNexis 2001).

<sup>163</sup> Joseph W. Dellapenna, “The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century,” 25 *U. Ark. Little Rock L. Rev.* 9, 70-73 (2002).

<sup>164</sup> Model Code, *supra* note 157, §§ 2R-1-01, 2R-2-20, 6R-3-01, 6R-3-02; Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(b) to 9.03(b)(3). Some jurisdictions would substitute the terms “beneficial,” “reasonable-beneficial,” or “equitable” for “reasonable.”

The criterion of reasonableness under regulated riparian statutes is applied by an administering agency that decides before a use begins whether it is reasonable, both in terms of general social policy and in terms of the effects of the proposed use on other permitted uses.<sup>165</sup> Water users therefore are able to know, for the duration of the permit, whether their use is reasonable; they cannot be caught unaware by a judicial decision wiping out their investment without compensation.<sup>166</sup> The permit allows a potential investor to gauge whether the investment can be profitable and the proper scale of investment. The result is very different from the situation at common law, where a judge makes the decision after a crisis has arisen.

The administering agency subjects permits to conditions designed to protect other lawful users and public values.<sup>167</sup> The statutes often contain preferences for certain classes of uses.<sup>168</sup> Temporal priority has a strictly limited role in the permit process.<sup>169</sup> Uses on non-riparian land are no longer unreasonable *per se*; often one of the principle motives of the enactment of a regulated riparian statute was to authorize the use of water on non-riparian land.<sup>170</sup> Finally, in many states, permits are issued only for a period of time (from three to 20 years, depending on the state).<sup>171</sup> When a permit expires,

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<sup>165</sup> Model Code, *supra* note 157, §§ 6R-2-01 to 6R-2-08, 6R-3-02, 6R-3-05; Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(a)(5)(A), 9.03(b)(1) to 9.03(b)(3). In most states, the majority of permits appear to be awarded almost automatically, without careful and extensive examination. See Alexander Lane, "N.J. Too Generous with Water, Critics Say—State Permits for Big Users Rose Last Year," *Star Ledger* (Newark, N.J.), Sept. 28, 2003, at 21; Gary D. Lynne *et al.*, "Water Permitting Behavior under the 1972 Florida Water Resources Act," 67 *Land Use Econ.* 340, 345-46 (1991).

<sup>166</sup> See, e.g., *Joslin v. Marin Mun. Water Dist.*, 429 P.2d 889 (Cal. 1967); *Harris v. Brooks*, 283 S.W.2d 129 (1955). *Harris* is discussed in the text *supra* at notes 24-40.

<sup>167</sup> Model Code, *supra* note 157, § 7R-1-01; Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(a)(5)(A), 9.05 to 9.05(c).

<sup>168</sup> Model Code, *supra* note 157, §§ 6R-1-02, 6R-3-04; Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(a)(3), 9.05(c).

<sup>169</sup> Model Code, *supra* note 157, §§ 6R-1-03, 6R-3-02; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(b)(3).

<sup>170</sup> Model Code, *supra* note 157, § 2R-1-02; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(2).

<sup>171</sup> Model Code, *supra* note 157, § 7R-1-02; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(4). For analysis of the merits of possible durations for the permits, see

the question of the continued reasonableness of the use can be reexamined.<sup>172</sup> The *Regulated Riparian Model Water Code* sets 20 years as the duration of the permits.<sup>173</sup>

Regulated riparian statutes contain elaborate enforcement provisions, including criminal penalties,<sup>174</sup> civil penalties,<sup>175</sup> injunctions,<sup>176</sup> administrative orders,<sup>177</sup> and actions for public and private damages.<sup>178</sup> Such statutes provide for hearings within the agency<sup>179</sup> and judicial review of agency decisions.<sup>180</sup> The *Regulated Riparian Model Water Code* also includes provisions designed to support alternative dispute

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Maloney, Ausness, and Morris, *supra* note 42, at 173-77; Ausness, *supra* note 155, at 584-87; Dellapenna, *supra* note 16, § 9.03(a)(4).

<sup>172</sup> See Freyfogle, *supra* note 39, at 515.

<sup>173</sup> Model Code, *supra* note 157, § 7R-1-02.

<sup>174</sup> Model Code, *supra* note 157, §§ 5R-5-01 to 5R-5-03; Dellapenna, *supra* note 16, § 9.03(a)(5)(B), at nn. 479, 484, 499-536, 547-50.

<sup>175</sup> Model Code, *supra* note 157, §§ 5R-4-06 to 5R-4-08; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(5)(B), at nn. 480, 534-41.

<sup>176</sup> Model Code, *supra* note 157, § 5R-4-04; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(5)(B), at nn. 478, 535, 542-46.

<sup>177</sup> Model Code, *supra* note 157, § 5R-4-03; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(5)(B), at nn. 482, 483, 537-38.

<sup>178</sup> Model Code, *supra* note 157, § 5R-4-05; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(5)(B), at nn. 485, 498.

<sup>179</sup> Model Code, *supra* note 157, §§ 5R-1-01 to 5R-1-03.

<sup>180</sup> Model Code, *supra* note 157, §§ 5R-3-01 to 5R-3-03. Courts generally have been very deferential to agency decisions under regulated riparian statutes. *See, e.g.*, City of Fort Smith v. River Valley Reg'l Water Dist., 37 S.W.3d 631 (Ark. 2001); Sw. Fla. Water Mgmt. Dist. v. Charlotte County, 774 So. 2d 903 (Fla. Ct. App. 2001); *In re* Water Use Permit Applications, 9 P.3d 409 (Haw. 2000); Oxon Hill Recreation Club, Inc. v. Water Res. Admin., 375 A.2d 567 (Md. 1977); *In re* Erickson Lake, 392 N.W.2d 636 (Minn. 1986); *In re* N. Jersey Dist. Water Supply Comm'n, 417 A.2d 1095 (N.J. Super. Ct.), *cert. denied*, 427 A.2d 539 (N.J. 1980); Save Easton Env't v. Marsh, 650 N.Y.S.2d 860 (N.Y. App. Div. 1996), *appeal denied*, 683 N.E.2d 335 (N.Y. 1997) Lovett v. Flacke, 442 N.Y.S.2d 635 (N.Y. App. Div.), *appeal denied mem.*, 432 N.E.2d 143 (N.Y. 1981); High Rock Lake Ass'n v. N.C. Env'tl. Mgmt. Comm'n, 276 S.E.2d 472 (N.C. 1982). *See generally* Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(b)(1).

resolution<sup>181</sup> and the administrative resolution of disputes involving permit holders<sup>182</sup>—provisions not generally found in most actual regulated riparian statutes.<sup>183</sup>

Users are sometimes required to pay fees to the agency for the permits based on the amount of water they will use, but these fees cannot be considered payment for the water itself.<sup>184</sup> This is clearly so when the fees are a uniform charge irrespective of the nature of the use or the amount of water used. Even when the fee is variable, however, it is usually set according to the presumed ability of the user to pay, rather than according to the value created through use of the water.<sup>185</sup> Such provisions can be seen as a form of distributive equity. Such equitable provisions will result in the continued use of water for low-valued uses rather than its transfer to higher valued uses that, in extreme cases, might find no water available for their needs. The *Regulated Riparian Model Water Code* breaks new ground in this respect, requiring water use fees that, to some extent at least, reflect the use value of the water.<sup>186</sup>

These statutory requirements are based on a state's police power to regulate water withdrawal and use in order to protect the public health,

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<sup>181</sup> Model Code, *supra* note 157, §§ 5R-2-01, 5R-2-02; Dellapenna, *Regulated Riparianism*, *supra* note 16, at nn. 486-88, 494-97.

<sup>182</sup> Model Code, *supra* note 157, § 5R-2-03; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(c). See generally Anne Deister, "Environmental Mediation Strategies for Success: Summaries of Two Consensus-Based Cases—Florida's Growth Management Act Legislation and the Los Angeles River Watershed Task Force," 32 *Urban Law* 73 (2000); Sarah Inderbitzin *et al.*, "The Use of Alternative Dispute Resolution in Natural Resources Damage Assessment," 20 *Wm. & Mary Envtl. L. & Pol'y Rev.* 1 (1995); Janet Neuman, "Run, River, Run: Mediation of a Water-Rights Dispute Keeps Fish and Farmers Happy—For a Time," 67 *U. Colo. L. Rev.* 259 (1996).

<sup>183</sup> A few regulated riparian statutes do provide for such remedies. See Del. Code Ann. tit. 7, § 6005(b)(2)(2000 & Supp. 2004); Ga. Code Ann. § 12-5-42(a)(2001); Haw. Rev. Stat. §§ 174C-10, 174C-11 (2004).

<sup>184</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(5)(C).

<sup>185</sup> See Frank E. Matthews and Gabriel E. Nieto, "Florida Water Policy: A Twenty-Five Year Mid-Course Correction," 25 *Fla. St. U. L. Rev.* 365, 373-75 (1998).

<sup>186</sup> Model Code, *supra* note 157, § 4R-1-08.

safety, and welfare.<sup>187</sup> Still, fear of political or legal repercussions from such interference with traditional water rights has led many state legislatures to exempt from the permit requirement some classes of users who were using water when the new statute came into effect.<sup>188</sup> This introduces a significant temporal element. A more sophisticated solution to this problem is to guarantee existing users an initial permit, thereafter subject to renewal on the same terms as any other permit,<sup>189</sup> limiting the temporal preference to a single permit cycle. Users who do not apply for a permit within a short time are conclusively presumed to have abandoned their claim.<sup>190</sup>

Regulated riparian statutes create mechanisms for long-term planning and to otherwise provide for the public interest in the waters of the State.<sup>191</sup> One major purpose of regulated riparian permits is to gather the necessary information to enable on-going planning. The *Regulated Riparian Model Water Code* also provides for a comprehensive statewide data system.<sup>192</sup> The administering agency also usually has broad discretion to plan for and to deal with crises brought on by extreme water shortages.<sup>193</sup> The agency

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<sup>187</sup> *State v. Braun*, 378 A.2d 640 (Del. 1977); *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So.2d 663 (Fla.), *cert. denied*, 444 U.S. 965 (1979); *Iowa Natural Res. Council v. Van Zee*, 158 N.W.2d 111 (Iowa 1968); *Crookston Cattle Co. v. Minnesota Dep't of Natural Res.*, 300 N.W.2d 769 (Minn. 1980); *Herschman v. State*, 225 N.W.2d 841 (Minn. 1975); *State v. Kuluvar*, 123 N.W.2d 699 (Minn. 1963); *Omernik v. State*, 218 N.W.2d 734 (Wis. 1974). *See generally* Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.04(a).

<sup>188</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(3). *See also* nn. 162, 163 and accompanying text.

<sup>189</sup> Model Code, *supra* note 157, § 6R-1-03; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(b)(3). This approach originated in the model code put together by Frank Maloney, Dick Ausness, and Scott Morris in 1972. *See* Maloney, Ausness, and Morris, *supra* note 42, at 182-85.

<sup>190</sup> *Cf. United States v. Locke*, 471 U.S. 84 (1985)(cutting off mining claims); *In re Deadman Creek Drainage Basin*, 694 P.2d 1071 (Wash. 1985)(cutting off riparian rights in favor of appropriative rights).

<sup>191</sup> Model Code, *supra* note 157, §§ 4R-2-01 to 4R-2-04; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.05(a) to 9.05(d).

<sup>192</sup> Model Code, *supra* note 157, § 4R-2-03.

<sup>193</sup> *Id.* §§ 7R-3-01 to 7R-3-07; Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.05(d).

can incorporate permit conditions based on its plans.<sup>194</sup> The administering agency also is often authorized to restrict uses should the agency's plans prove inadequate to an actual shortage notwithstanding any inconsistency with a permit.<sup>195</sup> There is some evidence, however, that administering agencies prefer to use temporal priority or *pro rata* sharing as the allocative method least likely to provoke litigation or other difficulties for the agency.<sup>196</sup> This sabotages the whole scheme of regulated riparianism, based as it is on expert appraisal of the uses that will best serve the needs of society, eschewing allocation without evaluation of social utility.

Today, the main threats to the availability of water in eastern states, as to both quantity and quality, are not pollution or withdrawal, but human-made physical and ecological transformation of the waters and the lands on or in which the waters are found. Regulated riparianism addresses these problems in two ways that are very different from appropriative rights. First, both the management of water allocation and water quality issues are usually vested in a single agency—an agency charged to integrate the consideration and granting of permits to use in light of both sets of policies.<sup>197</sup> Second, regulated riparian statutes usually require the agency to define and protect some minimum flow, whether an historic average low flow, the amount necessary for the preservation of certain kinds of wildlife, or the amount necessary to protect human health or well-being.<sup>198</sup> Other provisions authorize additional conditions designed to protect aesthetic or ecological concerns. Thus the *Regulated Riparian Model Water Code* requires the protection of the biological, chemical, and physical integrity of the water source, defined in terms of federal and other relevant legal standards.<sup>199</sup>

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<sup>194</sup> Model Code, *supra* note 157, § 7R-1-01.

<sup>195</sup> *Id.* § 7R-3-01.

<sup>196</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.05(d), at n. 954.

<sup>197</sup> Model Code, *supra* note 157, §§ 4R-3-04, 6R-4-04.

<sup>198</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.05(b). *See also* Lee P. Breckenridge, "Maintaining Instream Flow and Protecting Aquatic Habitat: Promise and Perils on the Path to Regulated Riparianism," 106 *W. Va. L. Rev.* 595 (2004).

<sup>199</sup> Model Code, *supra* note 157, §§ 3R-2-01 to 3R-2-05.

## [2] — Unsolved Problems.

Regulated riparianism does not solve all problems relating to the protection of private values and to the furtherance of public values. Two problems relate to private values: security of investment, and the transfer of water to higher valued uses. Investment security could be a problem if the time period of a permit is too short, leaving too little time for the initial cost of a project to be recovered before the permit expires.<sup>200</sup> Additional uncertainty could arise when the administering agency has the power, as it often does, to modify permits in light of new developments, such as unforeseen water shortages.<sup>201</sup> In the actual operation of regulated riparian systems, however, neither investment nor transfer insecurities seem to have caused actual difficulty. If anything, administering agencies might be accused of being too sensitive to the fears of large institutional investors. Administering agencies seldom flatly refuse to renew a permit, although new and more stringent conditions are sometimes attached at the time of renewal. Administering agencies also consult with major water users in crafting responses to water emergencies rather than making their own expert determinations regarding the matter.<sup>202</sup>

Regulated riparian statutes usually make no express provision for the transfer of water rights or permits between potential users.<sup>203</sup> The *Regulated Riparian Model Water Code* charges the administering agency to encourage market transfers of water.<sup>204</sup> Given the dearth of markets under appropriate

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<sup>200</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(4). *See also* Maloney, Ausness, and Morris, *supra* note 42, at 175-77; Ausness, *supra* note 155, at 568, 584-87; Gould, *supra* note 121, at 109-10.

<sup>201</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, §§ 9.03(d), 9.05(d). *See also* Ausness, *supra* note 155, at 581-84; Gould, *supra* note 121, at 117-21.

<sup>202</sup> *See, e.g.*, Tom Avril, "There Are No Limits on Biggest Water Users: Drought Rules Don't Apply to Industry and Farms. Officials Say Jobs Could Be at Stake," *Phila. Inquirer*, Mar. 11, 2002, at A1; Tom Avril and Edward Colimore, "The Drought and How We Got There: Lack of Rain a Factor; So Is Poor Planning," *Phila. Inquirer*, Apr. 14, 2002, at A1; John-Thor Dahlburg, "Drought Compounded by Error in Judgment," *Phila. Inquirer*, Apr. 22, 2001, at A21; Lesley-Ann Dupigny-Giroux, "Towards Characterizing and Planning for Drought in Vermont," 37 *J. Am. Water Resources Ass'n* 505 (2001).

<sup>203</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(d).

<sup>204</sup> Model Code, *supra* note 157, §§ 1R-1-07, 7R-2-01 to 7R-2-04, 7R-3-05, 9R-1-01, 9R-1-02.

rights, however, one should doubt whether a market could develop for the transfer of water used under regulated riparian permits.<sup>205</sup> Theoretically, one purpose of the regulated riparian system is to enable the administering agencies to force such transfers through the non-renewal of permits.<sup>206</sup> In practice, however, the agencies free up less water through the renewal process than theory suggests because the agencies prefer to tighten conditions on existing uses rather than to deny renewals outright.<sup>207</sup> Non-renewal of permits will remain an infrequent and cumbersome device unless states are willing to create a good deal of investment insecurity.

Finally, is such a system worth its costs?<sup>208</sup> Clearly there will be significant financial costs in administering a regulated riparian system, and the tendency of government bureaucracies to replicate their errors throughout a state is another substantial cost. Yet given the increasing failure of traditional riparian rights (a common property system) to cope with the needs of modern societies,<sup>209</sup> and the only slightly better performance of appropriative rights (as close to a private property system as we are likely to achieve), there seems little choice but to move to a regulated riparian system (a public property system).<sup>210</sup> Regulated riparianism is not a perfect system, but it would appear to be the best suited to the cultural, economic, legal, hydrologic, and political settings of eastern states.

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<sup>205</sup> See the authorities collected *supra* at note 80. See generally the text *supra* at nn. 49-51, 80-88.

<sup>206</sup> Model Code, *supra* note 157, § 7R-1-02.

<sup>207</sup> See Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.03(a)(4), at nn. 428-32.

<sup>208</sup> Dellapenna, *Regulated Riparianism*, *supra* note 16, § 9.05(a)(5)(D). See also Robert H. Abrams, "Water Allocation by Comprehensive Permit Systems in the East: Considering a Move Away from Orthodoxy," 9 *Va. Envtl. L.J.* 255, 257-70 (1990); Davis, *supra* note 155, at 453-56; Dellapenna, *supra* note 80, at 367-70, 375-77; Freyfogle, *supra* note 39, at 510-19; Rose, *supra* note 41; Carol M. Rose, "Energy and Efficiency in the Realignment of Common-Law Water Rights," 19 *J. Legal Stud.* 261 (1990); Trelease, *supra* note 152; Trelease, *supra* note 156; David W. Yoskowitz, "Markets: Mechanisms, Institutions, and the Future of Water," 13 *Envtl. L. Rptr.* 10237 (2001).

<sup>209</sup> See § 11.02 of this chapter.

<sup>210</sup> See § 11.03 of this chapter.

### § 11.05. A Few Words on Groundwater.

Space does not allow an extended analysis of the current state of groundwater law. While groundwater as a source of water usage is growing in importance,<sup>211</sup> the law relating to groundwater remains less developed and more complex than the water applicable to surface water.<sup>212</sup> Not so long ago, courts were convinced that, except in rare situations, it was impossible to know how groundwater behaved<sup>213</sup> and that therefore courts should leave the parties to a dispute over groundwater to their own devices for capturing or exploiting groundwater.<sup>214</sup> Unfortunately, this refusal by American courts to become involved was frequently referred to as a doctrine of absolute dominion over the water beneath an owner's land and therefore was conceived not as a refusal to decide but as a recognition of a property right of the overlying landowner.<sup>215</sup> As a result, some courts still insist that neither they nor the legislature can change how groundwater is managed under the law without providing compensation to affected landowners.<sup>216</sup>

Far more often courts conclude that they or the legislature can change the legal regime for groundwater in their state without the change being a taking of private property. The result is a proliferation of groundwater regimes,

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<sup>211</sup> See generally Joseph W. Dellapenna, *The Physical and Social Bases of Quantitative Groundwater Law*, 3 *Waters and Water Rights* § 18.01 (Robert E. Beck ed. 2003 replacement vol.) ["Dellapenna, *Physical and Social Bases*"].

<sup>212</sup> See generally Joseph W. Dellapenna, "Quantitative Groundwater," 3 *Waters and Water Rights* chs. 18-23 (Robert E. Beck ed. 2003 replacement vol.).

<sup>213</sup> See, e.g., *Frazier v. Brown*, 12 Ohio St. 294, 311 (1861)(the "existence, origin, movement and course of such waters, and the causes which govern and direct their movements, are so secret, occult and concealed, that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible."). See generally Joseph W. Dellapenna, "Legal Classifications," 3 *Waters and Water Rights* § 19.02 (Robert E. Beck ed. 2003 replacement vol.).

<sup>214</sup> See generally Joseph W. Dellapenna, "The Absolute Dominion Rule," 3 *Waters and Water Rights* ch. 20 (Robert E. Beck ed. 2003 replacement vol.) ["Dellapenna, *Absolute Dominion*"].

<sup>215</sup> See Dellapenna, *Absolute Dominion*, *supra* note 214, § 20.04.

<sup>216</sup> See *Wiggin v. Brazil Clay and Coal Co.*, 452 N.E.2d 958 (Ind. 1983); *Maddocks v. Giles*, 728 A.2d 150 (Me. 1999); *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d 75, 83 (Tex. 1999). See generally Dellapenna, *Absolute Dominion*, *supra* note 214, §§ 20.07 to 20.07(b).

three of which are directly parallel to the legal regimes for surface water: appropriative rights (private property);<sup>217</sup> the reasonable use rule (common property);<sup>218</sup> and regulated riparianism (public property).<sup>219</sup> Additionally, along with the survival of the so-call absolute dominion rule in some states, there is also a rule call “correlative rights” which allocates groundwater strictly in proportion to the amount of overlying land a groundwater user owns.<sup>220</sup>

In general, these regimes exhibit the same sort of strengths and weaknesses as do the comparable surface water regimes. The weaknesses, in particular, are accentuated by several particular qualities of groundwater. First, knowledge remains expensive (and sometimes difficult) to obtain.<sup>221</sup> Second, groundwater frequently is more vulnerable to long-term damage from overpumping or pollution than is surface water even from nearby sources, and often is more difficult to remediate when such damage occurs.<sup>222</sup> Third, groundwater depletion can cause far ranging subsidence and compaction affecting even landowners who are not using groundwater.<sup>223</sup> Finally, managing groundwater recharge is more frequently necessary than for surface water sources, leading to more intense pressure to impose constraints on the use of private lands for the benefit of aquifers as well as expensive and extensive programs of artificial recharge.<sup>224</sup>

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<sup>217</sup> See, e.g., J. David Aiken, “The Western Common Law of Tributary Groundwater: Implications for Nebraska,” 83 *Neb. L. Rev.* 541 (2004); John C. Peck, “Property Rights in Groundwater—Some Lessons from the Kansas Experience,” 12 *Kan. J.L. & Pub. Pol’y* 493 (2003).

<sup>218</sup> See generally Joseph W. Dellapenna, “The Reasonable Use Rule,” 3 *Waters and Water Rights* ch. 22 (Robert E. Beck ed. 2003 replacement vol.).

<sup>219</sup> See generally Joseph W. Dellapenna, “The Regulated Riparian Approach to Groundwater,” 3 *Waters and Water Rights* ch. 23 (Robert E. Beck ed. 2003 replacement vol.).

<sup>220</sup> See generally Joseph W. Dellapenna, “Correlative Rights Today,” 3 *Waters and Water Rights* ch. 21 (Robert E. Beck ed. 2003 replacement vol.).

<sup>221</sup> Dellapenna, *Physical and Social Bases*, supra note 211, § 18.03(a).

<sup>222</sup> *Id.* § 18.03(b).

<sup>223</sup> *Id.* at nn. 122-33.

<sup>224</sup> *Id.* §§ 18.02, 18.05, 19.05(b)(3).

The Convention is open to all United Nations Member States. This document describes the amendments to the Convention with definitions of its structure and intentions in English, French and Russian. (The) Global Opening of the 1992 Water Convention United Nations Economic Commission for Europe (UNECE).<sup>2</sup> 2003 This study discusses the relevance and role of international water law in the promotion of cooperation over shared transboundary watercourses. With its focus on actual case studies and through examination of contemporary state practice and detailed analysis of the UN Watercourses Convention, this work aims to provide water resource experts from all disciplines with an overview of the rules of international law that govern interstate relations over water. Sodomy laws in the United States were laws that made certain kinds of sexual activity illegal. In the past, there were federal laws against sodomy. Every state also had a sodomy law, even in the 20th century. Starting in the 1960s, some states began to repeal (throw out) their sodomy laws. In 2003, in a case called *Lawrence v. Texas*, the Supreme Court of the United States ruled that sodomy laws were unconstitutional. This means no sodomy law in the United States can be used to charge a person with a Water law in the United States refers to the Water resources law laws regulating water as a resource in the United States. Beyond issues common to all jurisdictions attempting to regulate water's uses, water law in the United States must contend with: Public regulation of waters, including flood control, environmental regulation<sup>3</sup> state and federal, public health regulation and regulation of fisheries.