

## GROUNDWATER ALLOCATION IN OHIO: THE CASE FOR REGULATED RIPARIANISM AND ITS LIKELY CONSEQUENCES UNDER *MCNAMARA*

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### I. INTRODUCTION

OHIO, traditionally considered a “water-rich” state, has recently experienced an increased demand for groundwater, prompting the need for a more comprehensive regulatory system. The advent of ethanol plants and other significant users of groundwater has increasingly strained the underground aquifers shared by overlying landowners. This increased demand has lowered the water table in aquifers, causing many wells to run dry. These groundwater issues have prompted many to question Ohio’s skeletal system of water regulation.<sup>1</sup>

Ohio, like nearly half of the states east of Kansas City, does not have a comprehensive system of allocating water rights, including groundwater rights.<sup>2</sup> With respect to groundwater rights, Ohio uses what is known as the “reasonable use” doctrine, which is derived from section 858 of the *Restatement (Second) of Torts* (“*Restatement*”).<sup>3</sup> The doctrine allows landowners to use water existing under their lands for reasonable purposes, so long as they do not unreasonably interfere with their neighbors’ water uses.<sup>4</sup> The imprecise *Restatement*

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1. This comment does not address issues of groundwater pollution or contamination, only groundwater allocation. For discussion of the interplay between water quality and water allocation, see A. Dan Tarlock, *Water Law Reform in West Virginia: The Broader Context*, 106 W. VA. L. REV. 495, 534 (2004). See generally R. Timothy Weston, *Harmonizing Management of Ground and Surface Water Use under Eastern Water Law Regimes*, 11 U. DENV. WATER L. REV. 239 (2008) (providing an overview of the evolution of groundwater/surface water issues in eastern water law regimes).

2. Joseph W. Dellapenna, *Legal Classifications*, in 3 WATERS AND WATER RIGHTS § 19.05(b)(2), at 19-47 & n.207 (Robert Beck ed., replacement vol. 2003).

3. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶¶ 23-24 (Ohio 2005) (citing RESTATEMENT (SECOND) OF TORTS § 858 (1979)).

4. *Id.* ¶¶ 10-34. See also OHIO REV. CODE ANN. § 1521.17 (LexisNexis 2004) (codifying the *Restatement* reasonable use rule).

reasonable use rule is reactive, not proactive, and better systems for groundwater management are available.

The time is right for Ohio to adopt a “regulated riparian” system of water allocation, as over half of the states east of Kansas City have done.<sup>5</sup> This system would require non-exempt water users to obtain time-limited, state-issued permits before withdrawing water.<sup>6</sup> While such a regulatory system better suits Ohio’s current needs, a question remains as to whether regulating groundwater use constitutes a regulatory taking under the U.S. and Ohio Constitutions.<sup>7</sup>

In *McNamara v. City of Rittman*,<sup>8</sup> the Supreme Court of Ohio established that landowners maintain property rights in groundwater, and governmental interference with those rights may result in an unconstitutional taking. A review of the regulatory-takings jurisprudence of the U.S. and Ohio Supreme Courts suggests that a regulated riparian system would withstand constitutional muster on several grounds, including that a regulated riparian system would (1) merely regulate, not take away altogether, landowners’ water uses; and (2) be a valid exercise of the State’s police power.<sup>9</sup> Therefore, Ohio should implement a regulated riparianism system.

Part II of this article begins with a brief historical survey of groundwater use in the United States, a discussion of ethanol plants as an example of emerging concentrated users of groundwater, and examples of litigation stemming from groundwater-allocation problems. Part III provides an overview of general water law doctrines, judicially created rules that specifically apply to groundwater use, and statutory and regulatory systems of groundwater allocation. Part IV reviews Ohio’s common and statutory law governing groundwater use and explains why Ohio should adopt a regulated riparian system. Part V discusses Ohio’s recognition of landowners’ property rights in groundwater. Part VI contains an overview of the regulatory-takings jurisprudence of the U.S. and Ohio Supreme Courts, as well as a discussion of other states’ positions on regulatory takings in the water context. Finally, Part VII analyzes whether Ohio’s adoption of a regulated riparian system would constitute a compensable regulatory taking of landowners’ property rights in groundwater.

## II. GROUNDWATER USE IN OHIO AND THE UNITED STATES

Understanding how groundwater uses have evolved over time is an important part of understanding the regulatory devices and legal doctrines governing groundwater use. Accordingly, this part first discusses the scientific advances and changing water needs that have forced legislatures and courts to

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5. Joseph W. Dellapenna, *Developing a Suitable Water Allocation Law for Pennsylvania*, 17 VILL. ENVTL. L.J. 1, 45-46 (2006).

6. Joseph W. Dellapenna, *Adapting Riparian Rights to the Twenty-First Century*, 106 W. VA. L. REV. 539, 586 (2004).

7. See *McNamara*, 107 Ohio St. 3d at ¶ 28.

8. *Id.*

9. See John Echeverria, *Is the Penn Central Three-Factor Test Ready for History’s Dustbin?*, LAND USE L. & ZONING DIG., Jan. 2000, at 3, 5.

adopt increasingly sophisticated systems of groundwater law. Next is a discussion of the ethanol boom, which serves as a fitting example of the problems posed by large-scale groundwater users. Finally, this part reviews examples of Ohio groundwater disputes.

*A. Background Information on Groundwater Use in the United States*

Before 1840, groundwater cases were virtually nonexistent due to a lack of large-scale groundwater use.<sup>10</sup> Between 1840 and 1940, most groundwater disputes arose in a “dewatering” context.<sup>11</sup> Dewatering is a term of art used to describe the extraction or pumping of groundwater for displacement, not consumption, purposes.<sup>12</sup> As scientific knowledge of groundwater grew, so did technologies allowing for advanced groundwater consumption and exploitation.<sup>13</sup> In 1937, the high-speed centrifugal (turbine) pump was invented, paving the way for large-scale extraction and making groundwater an important economic resource.<sup>14</sup> In 1940, litigation between competing groundwater users began.<sup>15</sup> The invention of the high-speed centrifugal pump also triggered a steady rise in nationwide groundwater withdrawal that continues to the present day.<sup>16</sup>

Between 1950 and 1980, groundwater extraction increased dramatically.<sup>17</sup> Extraction levels decreased slightly from 1980 to 1995<sup>18</sup> before reaching a new high in 2000.<sup>19</sup> What explains this increase in groundwater extraction? The short and general answer is that many regions with limited surface water supplies and high water-storage and transportation costs have increasingly turned to underground water supplies to satisfy their needs.<sup>20</sup> As a result, yearly groundwater extraction totals in the United States continually exceed yearly replenishment amounts.<sup>21</sup> In recent decades, water shortages in the humid eastern states<sup>22</sup> have become more prevalent and severe,<sup>23</sup> and many believe that

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10. Joseph W. Dellapenna, *The Physical and Social Bases of Quantitative Groundwater Law*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, § 18.04, at 18-42.

11. *Id.*

12. *Id.*

13. *Id.* § 18.01, at 18-4.

14. *Id.*

15. *Id.*

16. JOSEPH L. SAX ET AL., LEGAL CONTROL OF WATER RESOURCES 395 (4th ed. 2006).

17. Between 1950 and 1980, the amount of million acre-feet (MAF) of groundwater extracted in the United States increased from 38 MAF to 93 MAF, respectively. *Id.* An acre-foot is defined as “[t]he quantity of water required to cover 1 acre to a depth of 1 foot, or 325,851 gallons.” *Id.* at 1081.

18. From 93 MAF in 1980, the amount of groundwater extracted in the United States declined to 86 MAF in 1995. *Id.* at 395.

19. The level of groundwater extraction in the United States in 2000 was 93.4 MAF. *Id.*

20. *Id.* at 8.

21. *Id.*

22. “Eastern states” refers to the following thirty-one states: Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New

these supply shortfalls will become more common.<sup>24</sup> In sum, “[t]he enormous growth of groundwater extraction in the last half century has created problems throughout the country.”<sup>25</sup>

Among specific uses of groundwater, irrigation<sup>26</sup> necessitates the largest withdrawals, accounting for over two-thirds of all groundwater extracted in the United States in 2000.<sup>27</sup> Second to irrigation is public supply.<sup>28</sup> Other notable groundwater uses include industrial,<sup>29</sup> domestic,<sup>30</sup> aquacultural,<sup>31</sup> and livestock.<sup>32</sup>

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York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin. James N. Christman, *Riparian Doctrine*, in *WATER RIGHTS OF THE EASTERN UNITED STATES* 22 (Kenneth R. Wright ed., 1998).

23. Joseph W. Dellapenna, *Regulated Riparianism*, in 1 *WATERS AND WATER RIGHTS*, § 9.01, at 9-2 (Robert Beck ed., replacement vol. 2007). See also PRAIRIE RIVERS NETWORK, THE GREAT LAKES-ST. LAWRENCE RIVER BASIN WATER RESOURCES COMPACT: FREQUENTLY ASKED QUESTIONS 2 (2008), available at <http://media.prairierivers.org/2008/09/faq.pdf> (discussing groundwater shortage problems in South Elgin, Illinois; Lucas County, Ohio and Monroe County, Michigan; and Green Bay, Wisconsin).

24. See Dellapenna, *supra* note 23, § 9.01, at 9-2.

25. SAX ET AL., *supra* note 16, at 395.

26. “Irrigation water use” is defined generally as:

[W]ater that is applied by an irrigation system to sustain plant growth in all agricultural and horticultural practices. Irrigation also includes water that is applied for pre-irrigation, frost protection, application of chemicals, weed control, field preparation, crop cooling, harvesting, dust suppression, leaching salts from the root zone, and water lost in conveyance. Irrigation of golf courses, parks, nurseries, turf farms, cemeteries, and other self-supplied landscape-watering uses also are included.

SUSAN T. HUTSON ET AL., U.S. DEP’T OF INTERIOR, CIRCULAR NO. 1268, ESTIMATED USE OF WATER IN THE UNITED STATES IN 2000, at 20 (2004), available at <http://pubs.usgs.gov/circ/2004/circ1268/pdf/circular1268.pdf>.

27. *Id.* at 9 (indicating 56,900 million gallons per day of groundwater was extracted for irrigation purposes in 2000).

28. *Id.* (indicating 16,000 million gallons per day of groundwater was extracted for public supply purposes in 2000). “Public supply” is defined as “water withdrawn by public and private water suppliers that furnish water to at least 25 people or have a minimum of 15 connections.” *Id.* at 13.

29. *Id.* at 9 (indicating 3570 million gallons per day of fresh groundwater was extracted for industrial purposes in 2000). Water used for “industrial” purposes “includes water used for such purposes as fabricating, processing, washing, diluting, cooling, or transporting a product; incorporating water into a product; or for sanitation needs within the manufacturing facility.” *Id.* at 29.

30. *Id.* at 9 (indicating 3530 million gallons per day of groundwater was extracted for domestic purposes in 2000). “Domestic purposes” is defined as “water used for indoor and outdoor household purposes ... [delivered by] self-supplied withdrawals.” *Id.* at 16. The source for these self-supplied withdrawals is most often a private well. *Id.* In fact, nearly all of those persons in the United States not serviced by public supply (approximately fifteen percent of the total population) obtain their water from underground water supplies via a well. SAX ET AL., *supra* note 16, at 395.

31. HUTSON ET AL., *supra* note 26, at 9 (indicating 1060 million gallons per day of groundwater was extracted for aquaculture purposes in 2000). “Aquaculture purposes” is defined as water use “associated with raising organisms that live in water—such as finfish and shellfish—for food, restoration, conservation, or sport. *Id.* at 26.

32. *Id.* at 9 (indicating 1010 million gallons per day of groundwater was extracted for livestock purposes in 2000). “Livestock purposes” is defined as water use “associated with livestock

In Ohio, “42 percent of Ohioans depend on ground water for their drinking supply, and about 85 percent of the public water supply systems rely on ground water as their water source.”<sup>33</sup> The data demonstrates the far-reaching effects of groundwater-allocation problems and the increasingly prevalent need for more comprehensive water-management systems.

Despite the glaring concerns associated with present groundwater use, developing more comprehensive water-management systems is challenging because “[w]ater is an element too scarce to be a free good and too plentiful, at least in many areas, to be denied a broad scope for transferability.”<sup>34</sup> Nevertheless,

[w]ith “over 120 million people, including 90 percent of rural American citizens ... dependent upon ground water resources,” appropriate management techniques, the development of more information in an accessible database, and increased groundwater protection are serious concerns, even though “there is no question as to the apparent abundance of the resource.”<sup>35</sup>

### B. *The Ethanol Boom*

The current ethanol boom accentuates the need for a more a comprehensive groundwater-management system.<sup>36</sup> In his 2007 State of the Union Address, President George W. Bush announced his “Twenty in Ten” plan, which calls for the reduction of gasoline consumption by twenty percent in ten years.<sup>37</sup> Under the plan, fifteen percent of the twenty percent reduction will be achieved by increasing renewable and alternative fuel supplies to thirty-five billion gallons in 2017.<sup>38</sup> While it remains to be seen just how ethanol-friendly President Barack Obama will be, he was a “cheerleader for ethanol” during his presidential

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watering, feedlots, dairy operations, and other on-farm needs.” *Id.* at 23. “Livestock includes dairy cows and heifers, beef cattle and calves, sheep and lambs, goats, hogs and pigs, horses, and poultry.” *Id.*

33. OHIO DEP’T OF NATURAL RES. DIV. OF WATER, FACT SHEET NO. 93-20, GROUND WATER LEVEL MONITORING IN OHIO 2 (2004), available at <http://www.dnr.state.oh.us/Portals/7/pubs/pdfs/fetsht20.pdf>.

34. Dellapenna, *supra* note 2, § 19.04, at 19-21.

35. *Id.* § 19.04, at 19-21 to 19-22 (quoting Report to Accompany S. 2108, S. REP. NO. 100-489, at 2 (1988)).

36. See Michael W. Lore, *Subsidies for Corn-Derived Ethanol May Leave Us Thirsty*, 8 SUSTAINABLE DEV. L. & POL’Y 53, 53 (2007) (discussing “[a] new report from the National Research Council ... indicat[ing] that ethanol from corn production may have a substantial negative impact on the U.S. water supply”).

37. *Twenty in Ten: Strengthening America’s Energy Security* (White House Office of Commc’ns, Wash. D.C.), Jan. 23, 2007, at 1, available at <http://www.energy.gov/media/20in10FactSheet.pdf>.

38. *Id.*

campaign<sup>39</sup> and his Secretary of Agriculture, Tom Vilsack, has vowed to “aggressively pursue new fuel sources to produce ethanol.”<sup>40</sup>

In response to the Twenty in Ten plan and calls to reduce dependency on foreign energy sources, “[t]he U.S. ethanol industry is growing at an enormous rate,”<sup>41</sup> primarily in the Midwest.<sup>42</sup> As of February 2009, the United States had 169 operational ethanol plants totaling nearly 10.5 billion gallons of ethanol per year in operating capacity.<sup>43</sup> At least 21 other ethanol plants were under construction, providing a total expansion capacity of 2.07 billion gallons per year.<sup>44</sup> To put the “ethanol boom” in perspective, in January 2006, there were 95 operational ethanol plants with a total operating capacity of 4.3 billion gallons per year and 31 ethanol plants under construction with a total expansion capacity of 1.8 billion gallons per year.<sup>45</sup> In other words, nationwide ethanol production has more than doubled over the past three years.<sup>46</sup>

Ethanol is produced by one of three processes: dry grind, wet mill, or cellulosic.<sup>47</sup> The “dry grind” process is used to produce over eighty percent of the nation’s ethanol supply.<sup>48</sup> To make ethanol via the dry-grind process, water is required at least once and sometimes twice.<sup>49</sup> First, water is required if the

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39. Bob Sexter & Judith Graham, *Where They Stand*, CHI. TRIB., Oct. 28, 2008, at C8.

40. Andrew Martin, *Cabinet Choices Answer Questions from Senators*, N.Y. TIMES, Jan. 15, 2009, at A22.

41. Andy Aden, *Water Usage for Current and Future Ethanol Production*, SOUTHWEST HYDROLOGY, Sept./Oct. 2007, at 22, available at [http://www.swhydro.arizona.edu/archive/V6\\_N5/feature4.pdf](http://www.swhydro.arizona.edu/archive/V6_N5/feature4.pdf).

42. See Renewable Fuels Association, *Biorefinery Locations*, <http://www.ethanolrfa.org/industry/locations/> (last visited Feb. 26, 2009). See also DENNIS KEENEY & MARK MULLER, INST. FOR AGRIC. & TRADE POL’Y, *WATER USE BY ETHANOL PLANTS: POTENTIAL CHALLENGES 3* (2006) (discussing the effect the rapid increase of ethanol production in the upper Midwest has had on the region’s water consumption), available at <http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=89449>; David Adams & Janet Zink, *Ethanol Faces Big Hurdle: Water Use*, ST. PETERSBURG TIMES (Fla.), May 28, 2007, at 1B (“There are 120 ethanol plants in the United States with another 77 under construction, mostly in the Midwest.”); Aden, *supra* note 41, at 22 (“At least 73 corn ethanol plants are currently under construction with eight more under expansion....”). As of November of 2007, Ohio had twenty-one ethanol plants either “proposed, permitted, or under construction.” Ted Lozier, Ohio Dep’t of Natural Res., Presentation at the University of Toledo College of Law Great Lakes Water Conference: Ethanol Plants and Water Use in Ohio (Nov. 16, 2007) (on file with The University of Toledo Law Review), available at <http://utlaw.edu/ligl/pdf/2007/ETHANOL%20-%20Water%20Use-%20UT%20Law.pdf>.

43. Renewable Fuels Association, *Biorefinery Locations*, *supra* note 42.

44. *Id.*

45. Renewable Fuels Association, *Statistics*, <http://www.ethanolrfa.org/industry/statistics/> (last visited Feb. 26, 2009).

46. See *id.*; Aden, *supra* note 41, at 22.

47. See Renewable Fuels Association, *How Ethanol Is Made*, <http://www.ethanolrfa.org/resource/made/> (last visited Feb. 26, 2009); Aden, *supra* note 41, at 22-23.

48. Aden, *supra* note 41, at 22. For a helpful explanation and illustration of the “dry grind” process, see *id.*; Renewable Fuels Association, *How Ethanol Is Made*, *supra* note 47.

49. Aden, *supra* note 41, at 22; Burke W. Griggs, *Does Groundwater Management Work?*, 15 KAN. J.L. & PUB. POL’Y 391, 399 (2006). See also Russell Ray, *Ethanol Production Gulps Down Water*, TAMPA TRIB. (Fla.), Aug. 21, 2007, at Business 1 (noting that every step of the process of making ethanol fuel requires some water).

crop used to make the ethanol—almost always corn—was irrigated with groundwater.<sup>50</sup> Second, all dry-grind ethanol plants require water to make the “mash” from which ethanol is produced.<sup>51</sup> Modern dry-grind ethanol plants use between three and four gallons of fresh water per gallon of ethanol produced.<sup>52</sup> For a dry-grind ethanol plant producing 50 million gallons of ethanol per year, this rate of water consumption translates to over 400,000 gallons of water used daily, or 150 to 200 million gallons per year.<sup>53</sup>

The less common “wet mill” process also produces ethanol from corn or other starchy grains,<sup>54</sup> and it requires an average of 3.92 gallons of fresh water per gallon of ethanol produced.<sup>55</sup> The cellulosic process creates ethanol from “biomass” feedstocks, which include “agricultural and forestry residues, municipal solid wastes, industrial wastes, and terrestrial and aquatic crops grown solely for energy purposes.”<sup>56</sup> Cellulosic ethanol production can be biochemical, which requires about six gallons of water per gallon of ethanol, or thermochemical, which requires about two gallons of water per gallon of ethanol.<sup>57</sup> With twenty-four cellulosic ethanol plants under development or construction nationwide, cellulosic ethanol production is still in its infant stage.<sup>58</sup>

Regardless of which of these processes they use, commercial ethanol plants use massive amounts of water.<sup>59</sup> In the Midwest, home to the bulk of the nation’s

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50. Griggs, *supra* note 49, at 399; Ray, *supra* note 49, at Business 1. *See also* Aden, *supra* note 41, at 22 (stating that less than four percent of corn used in ethanol production is irrigated).

51. Griggs, *supra* note 49, at 399. *See also* Ray, *supra* note 49, at Business 1 (“Water is a critical component during the fermentation and cooling stages of ethanol production.”).

52. MAY WU, CTR FOR TRANSP. RESEARCH, ARGONNE NAT’L LABORATORY, ANALYSIS OF THE EFFICIENCY OF THE U.S. ETHANOL INDUSTRY 2007, at 4 (2008), *available at* [http://www1.eere.energy.gov/biomass/pdfs/anl\\_ethanol\\_analysis\\_2007.pdf](http://www1.eere.energy.gov/biomass/pdfs/anl_ethanol_analysis_2007.pdf); Adams & Zink, *supra* note 42, at 1B; Aden, *supra* note 41, at 22; Sue Kirchhoff, *Water Limitations Rain on Enthusiasm for Ethanol*, USA TODAY, July 19, 2007, at 2B.

53. Aden, *supra* note 41, at 22; Ray, *supra* note 49, at Business 1.

54. *See* Renewable Fuels Association, *How Ethanol Is Made*, *supra* note 47.

55. WU, *supra* note 52, at 4.

56. U.S. Department of Energy, Biomass FAQs, [http://www1.eere.energy.gov/biomass/biomass\\_basics\\_faqs.html](http://www1.eere.energy.gov/biomass/biomass_basics_faqs.html) (last visited Feb. 26, 2009).

57. Aden, *supra* note 41, at 23.

58. RENEWABLE FUELS ASSOCIATION, U.S. CELLULOSIC ETHANOL PROJECTS 1 (2008), *available at* <http://www.ethanolrfa.org/resource/cellulosic/documents/RFACellulosicPlantHandout.pdf>.

59. Adams & Zink, *supra* note 42, at 1B; Joe Barrett, *How Ethanol Is Making the Farm Belt Thirsty*, WALL ST. J., Sept. 5, 2007, at B1; Timothy Gardner, *U.S. Draining Giant Aquifer for Ethanol, Report Warns*, TORONTO STAR, Oct. 11, 2007, at B7; Kirchhoff, *supra* note 52, at 2B; Bill Lambrecht, *A Hidden Cost of Ethanol: It’s in the Water*, ST. LOUIS POST-DISPATCH (Mo.), Apr. 15, 2007, at A1 [hereinafter Lambrecht, *Hidden Cost*]; Bill Lambrecht, *Water Worries across Midwest*, ST. LOUIS POST-DISPATCH (Mo.), Apr. 15, 2007, at A11; Dennis Lien, *A Thirsty Fuel*, ST. PAUL PIONEER PRESS (Minn.), June 25, 2006, at 1A; Jim Paul, *Commentary, Ethanol’s Demand for Water*, CHI. TRIB., June 19, 2006, at C14; Ray, *supra* note 49, at Business 1. It should also be noted here that in addition to ethanol plants, more traditional producers of energy, such as coal-fired energy plants, continue to use vast amounts of groundwater with little or no recharge. Griggs, *supra* note 49, at 399.

ethanol plants, groundwater often serves as the water source<sup>60</sup> and “concerns abound as to whether the newly emerging biofuel industry is putting undue pressure on the region’s groundwater resources.”<sup>61</sup> In response to these concerns, many American states have hesitated before issuing construction permits to ethanol plant builders,<sup>62</sup> and some states have denied requests for permits.<sup>63</sup> The proponents of ethanol plants argue that the consumed groundwater is “recycled”<sup>64</sup> and that future innovations will decrease water requirements to only 1.5 gallons of water per gallon of ethanol.<sup>65</sup> Nonetheless, ethanol plants continue to extract significant amounts of groundwater from aquifers, often presenting aquifer-wide allocation issues.<sup>66</sup>

Ethanol plants serve as good examples of concentrated groundwater users, but they are not alone. Large livestock operations, urban centers, and agricultural processing facilities are also consuming groundwater at an increasing rate.<sup>67</sup> Solving the problems posed by concentrated groundwater users should involve better planning and more sophisticated allocation schemes and most likely will not require shutting them down altogether. At any rate, with a representative of the U.S. Geological Survey predicting that “over the next 50 to 75 years, water wars are going to make the oil wars look like kids’ games,”<sup>68</sup> the need for more comprehensive groundwater regulation is clear.

### C. *Recent Groundwater Use Disputes in Ohio*

Recent groundwater litigation further supports the argument that Ohio should adopt a regulatory system to manage groundwater allocation. These cases generally arise in two ways. The first type of dispute involves competing groundwater users.<sup>69</sup> The second type arises when a party conducts “dewatering” operations, adversely affecting another party’s access to groundwater.<sup>70</sup> Ohio has seen plenty of both types of cases in recent years. In the example cases that

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60. Aden, *supra* note 41, at 22; SHINEY VARGHESE, INST. FOR AGRIC. & TRADE POL’Y, THE EMERGING WATER CRISIS IN THE U.S. 2 (2008), available at <http://www.tradeobservatory.org/library.cfm?refid=102099>.

61. VARGHESE, *supra* note 60, at 2 (asserting that the groundwater depletion “issue came into focus for the first time in the late summer of 2006 in Granite Falls, MN where an ethanol plant in its first year of operation depleted the groundwater so much that it had to begin pumping water from the Minnesota River”).

62. Adams & Zink, *supra* note 42, at 1B; Barrett, *supra* note 59, at B1; Kirchhoff, *supra* note 52, at 2B; Lambrecht, *Hidden Cost*, *supra* note 59, at A1; Lien, *supra* note 59, at 1A.

63. Ray, *supra* note 49, at Business 1.

64. Kirchhoff, *supra* note 52, at 2B; Ray, *supra* note 49, at Business 1.

65. Ray, *supra* note 49, at Business 1. For potential water-saving methods for ethanol plants, see Aden, *supra* note 41, at 23.

66. See KEENEY & MULLER, *supra* note 42, at 3.

67. *Id.*; Aden, *supra* note 41, at 22.

68. *Ethanol’s Thirst for Water*, KIPLINGER’S PERS. FIN., May 2006, at 26.

69. Dellapenna, *supra* note 10, § 18.04, at 18-42.

70. *Id.*



follow, all of which are from Ohio, a comprehensive permit system would have prevented or at least helped to manage the issues arising in each case.<sup>71</sup>

*McNamara v. City of Rittman*<sup>72</sup> involved a dispute between competing users of groundwater.<sup>73</sup> In 1973, the City of Rittman purchased a parcel of land near the City of Sterling on which it drilled three wells.<sup>74</sup> The City extracted 500,000 to 750,000 gallons of groundwater daily to meet its water needs.<sup>75</sup> Homeowners in Sterling sued the City of Rittman in state and federal court, alleging that its operation of the wells lowered their aquifer and caused them to suffer water shortages, thus constituting an unconstitutional taking of their property and a violation of their procedural due-process rights.<sup>76</sup> After a complicated procedural posture,<sup>77</sup> the U.S. Court of Appeals for the Sixth Circuit upheld a dismissal of the case on statute of limitations grounds.<sup>78</sup>

Another Ohio well-field case is *Village of Brady Lake v. City of Kent*.<sup>79</sup> In 1969, the City of Kent installed the Breakneck Creek well-field to satisfy its water needs and by 1975 had doubled its groundwater pumping capacity.<sup>80</sup> The Village of Brady and forty-seven of its residents and landowners alleged that the City's groundwater pumping caused unreasonable harm by lowering the water table, and thereby adversely affecting the water levels of their private wells and nearby Brady Lake.<sup>81</sup> The court ultimately ruled in favor of the City, concluding that it was protected under sovereign immunity and other statutory grounds and that the plaintiffs made no allegations of negligence or bad faith that would otherwise destroy the City's immunity.<sup>82</sup>

In *State ex rel. Johnny Applesseed Metropolitan Park District v. City of Delphos*,<sup>83</sup> the City of Delphos began pumping significant amounts of groundwater from a well-field adjacent to Kendrick Woods State Nature Preserve, for which the plaintiff Park District was responsible.<sup>84</sup> The Park District sued to enjoin the City from continuing its groundwater withdrawals, alleging that these substantial extractions adversely affected Kendrick Woods's artesian springs and constituted an unreasonable use of the groundwater in the commonly shared aquifer.<sup>85</sup> The trial court granted the City's motion for

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71. In addition to its common-law system of governing water use, Ohio does have a basic set of statutes that address high-volume uses of water. For a discussion of these statutes, see *infra* Part IV.A.2.

72. 473 F.3d 633 (6th Cir. 2007), *cert. denied*, 128 S. Ct. 67 (2007).

73. *Id.* at 635-36.

74. *Id.* at 635.

75. *Id.*

76. *Id.* at 636.

77. The procedural posture of *McNamara v. City of Rittman* is discussed in *infra* Part V.

78. *McNamara*, 473 F.3d at 640.

79. 2006-Ohio-1693 (11th Dist. 2006).

80. *Id.* ¶ 2 & n.2.

81. *Id.* ¶¶ 3-4.

82. *Id.* ¶¶ 7-18.

83. 750 N.E.2d 1158 (Ohio Ct. App. 2001).

84. *Id.* at 1159.

85. *Id.*

summary judgment on sovereign immunity grounds, but the appellate court found for the Park District and reversed and remanded the matter for further proceedings.<sup>86</sup>

In addition to the cases between competing groundwater users, modern dewatering disputes also demonstrate the need for a comprehensive groundwater regulatory scheme in traditionally water-rich states like Ohio. *Hensley v. City of Columbus*,<sup>87</sup> *McNamara*'s companion case, involved a dewatering dispute arising from the City of Columbus's decision to install a sewer-line extension.<sup>88</sup> While installing the sewer pipes, the City and several private entities pumped groundwater from the area around plaintiffs' properties.<sup>89</sup> These dewatering activities caused the landowner plaintiffs' wells to run dry.<sup>90</sup> The plaintiffs sued the City in state and federal court, alleging in the latter an unconstitutional taking of their property and an unconstitutional violation of their procedural due-process rights.<sup>91</sup> As in *McNamara*, after a complex procedural history,<sup>92</sup> the Federal District Court for the Southern District of Ohio dismissed the case because the applicable statute of limitations had run.<sup>93</sup>

Another case, *Roadway Services v. Sponsler*,<sup>94</sup> involved dewatering operations at a permitted quarry owned by Roadway Services. The Ohio Department of Natural Resources (ODNR) deemed that these dewatering operations caused a neighboring landowner's well to run dry.<sup>95</sup> ODNR ordered the quarry operator to replace the adjacent property owner's well.<sup>96</sup> Roadway Services sued ODNR in the Federal District Court for the Northern District of Ohio, claiming that ODNR's order to replace the neighbor's well violated Roadway Services's due-process and equal-protection rights.<sup>97</sup> Because Roadway Services had not sought judicial review of ODNR's order in state court, the Northern District of Ohio chose to abstain from ruling on the merits of Roadway Services's claims and granted ODNR's motion to dismiss.<sup>98</sup>

In *Village of Byesville v. Northshore Coal, Inc.*,<sup>99</sup> the Village of Byesville, an operator of a public drinking water system, brought suit against Northshore

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86. *Id.* at 1162.

87. 433 F.3d 494 (6th Cir. 2006).

88. *Id.* at 495.

89. *Id.*

90. *Id.*

91. *Id.*

92. The procedural posture of *Hensley v. City of Columbus* is discussed in *infra* Part V.

93. *Hensley v. City of Columbus*, 2007 U.S. Dist. LEXIS 7317, at \*16 (S.D. Ohio Oct. 1, 2007).

94. *Roadway Servs., Inc. v. Sponsler*, No. 3:05CV7159, 2005 WL 1773946, at \*1 (N.D. Ohio July 25, 2005).

95. *Id.* at \*2-3.

96. *Id.* at \*3.

97. *Id.* at \*1.

98. *Id.* at \*3.

99. *Vill. of Byesville v. Northshore Coal, Inc.*, No. 03 CA 03, 2003 Ohio App. LEXIS 3668 (Ohio Ct. App. Aug. 1, 2003).

Coal, Inc., a coal mining company, and another business, E.K. Development.<sup>100</sup> The village claimed that the defendants' pumping water out of deep mines decreased groundwater levels, causing the wells supplying the Village's drinking water system to dry up.<sup>101</sup> Finding the defendants' water use unreasonable, the trial court issued a permanent injunction prohibiting further dewatering operations.<sup>102</sup>

Another Ohio dewatering case is *Carter v. American Aggregates Corp.*<sup>103</sup> The defendant, American Aggregates, pumped groundwater continuously, beginning in 1973, as part of its sand, gravel, and limestone mining operation.<sup>104</sup> The plaintiffs purchased nearby real estate in 1979 and were able to access groundwater until 1980 when their well went dry.<sup>105</sup> The court eventually found for American Aggregates on the ground that the applicable statute of limitations had run.<sup>106</sup>

### III. GROUNDWATER LAW AND REGULATION

This part begins with an overview of the general surface water law doctrines, riparian rights and prior appropriation.<sup>107</sup> These doctrines are wide ranging<sup>108</sup> and provide the background for water-law decisions made by eastern and western states, respectively.<sup>109</sup> Next, this part discusses the five groundwater-law doctrines that have received at least some acceptance in American states.<sup>110</sup> This part concludes by discussing comprehensive systems of surface water and groundwater regulation that some states now employ.

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100. *Id.* at \*1.

101. *Id.* at \*2.

102. *Id.* at \*6.

103. 611 N.E.2d 512 (Ohio Ct. App. 1992).

104. *Id.* at 514.

105. *Id.*

106. *Id.* at 516.

107. SAX ET AL., *supra* note 16, at 396 (referring to "riparianism and prior appropriation" as the "two primary surface water doctrines").

108. George A. Gould, *Water Rights Systems*, in WATER RIGHTS OF THE EASTERN UNITED STATES, *supra* note 22, at 7, 10.

109. Groundwater law and surface water law have, for the most part, developed separately. SAX ET AL., *supra* note 16, at 393. "While the dichotomy between the legal regimes applicable to groundwater and surface water is breaking down, some degree of separation continues to be the rule in a majority of American states." *Id.* at 394.

110. *Id.* at 396 ("[F]ive different doctrines of groundwater law have some acceptance.").

A. *General Surface Water Law Doctrines*<sup>111</sup>

1. *Riparian Doctrine*

Under the riparian rights system, which developed in the eastern states,<sup>112</sup> “water rights are an incident of land ownership.”<sup>113</sup> In allocating water rights, the riparian doctrine distinguishes between two types of land.<sup>114</sup> First, riparian land is that which directly abuts a watercourse, such as a stream or a lake.<sup>115</sup> Owners of riparian lands possess riparian rights, including the right to use the water from the watercourse.<sup>116</sup> The second type of land, non-riparian land, does not directly abut a watercourse,<sup>117</sup> and these landowners possess no riparian rights.<sup>118</sup>

Riparian land owners possess many rights, including: “(i) of access to the water; (ii) to build a wharf or pier into the water; (iii) to use the water without transforming it; (iv) to consume the water; (v) to accretions (alluvium); and (vi) to own the subsoil of nonnavigable streams and other ‘private’ waters.”<sup>119</sup> Two theories traditionally govern the extent to which a riparian owner may exercise these rights: the natural flow theory and the reasonable use theory.<sup>120</sup>

The natural flow theory is the older of the two theories.<sup>121</sup> This theory states that “[e]ach riparian owner on a waterbody is entitled to have the water flow across, or lie upon, the land in its natural condition, without alteration by others of the rate of flow, or the quantity or quality of the water.”<sup>122</sup> The natural flow

111. A third general water law doctrine, called a “dual system,” is a combination of the appropriative rights and riparian rights doctrines. Christman, *supra* note 22, at 122. Many variations of dual systems exist, including the California Doctrine, the Colorado Doctrine, and the Oregon Doctrine. Joseph W. Dellapenna, *Dual Systems*, in 1 WATERS AND WATER RIGHTS, *supra* note 23, § 8, at 8-1. Dual systems are prominent in western states and in six states straddling the 100th meridian. Christman, *supra* note 22, at 21. Mississippi is the only eastern state that has attempted a dual system, and it ultimately replaced it with a regulated riparian system in 1985. Joseph W. Dellapenna, *Issues Arising under Riparian Rights: Replacing Common-Law Riparian Rights with Regulated Riparianism*, in WATER RIGHTS OF THE EASTERN UNITED STATES, *supra* note 22, at 35, 40-41 [hereinafter Dellapenna, *Riparian Issues*]. Because this comment focuses on eastern states, dual systems require no more than a brief mention.

112. John C. Peck, *Property Rights in Groundwater: Some Lessons from the Kansas Experience*, 12 KAN. J.L. & PUB. POL’Y 493, 493 (2003).

113. Gould, *supra* note 108, at 10. See also Christman, *supra* note 22, at 22 (explaining that “the right to use water in riparian states is tied to ownership of dry land”); Joseph W. Dellapenna, *Introduction to Riparian Rights*, in 1 WATERS AND WATER RIGHTS, *supra* note 23, § 6.01, at 6-4 (discussing the origin of “riparian rights,” including the significance of landownership).

114. See Christman, *supra* note 22, at 22, Gould, *supra* note 108, at 10.

115. Christman, *supra* note 22, at 22; Dellapenna, *supra* note 113, § 6.01, at 6-4.

116. Christman, *supra* note 22, at 22.

117. *Id.*

118. Gould, *supra* note 108, at 10.

119. Dellapenna, *supra* note 113, § 6.01(a), at 6-7 to 6-8.

120. Christman, *supra* note 22, at 23.

121. *Id.*

122. Joseph W. Dellapenna, *The Right to Consume Water under “Pure” Riparian Rights*, in 1 WATERS AND WATER RIGHTS, *supra* note 23, § 7.02(c), at 7-37.

theory is no longer widely accepted and has given way to the reasonable use theory.<sup>123</sup>

The reasonable use theory states that “each owner of riparian land is permitted to make use of the water in a waterbody regardless of the effect the use has on the natural flow so long as each user does not transgress the equal right of other riparians to use the water.”<sup>124</sup> In other words, “every riparian owner has an equal right to make a reasonable use of the water.”<sup>125</sup> An unreasonable use is one that causes another riparian owner to suffer “substantial harm or unreasonable injury.”<sup>126</sup> In determining if a particular use is reasonable, courts consider the following general factors from the *Restatement*: “(1) its purpose; (2) its suitability to the waterbody; (3) its economic value; (4) its social value; (5) the harm it causes; (6) its potential for coordination with competing uses; (7) its temporal priority relative to competing uses; and (8) the ‘justice’ of imposing a loss on the user.”<sup>127</sup>

Beyond the *Restatement* factors, courts and state legislatures have developed preferences for some uses over others. Riparian rights were traditionally limited to “uses on or for the benefit of the riparian land itself,” which are otherwise known as “riparian uses.”<sup>128</sup> Some jurisdictions limit the use of water to the watershed from which it came.<sup>129</sup> Also, many courts have developed a preference for “natural” uses of water “necessary for the immediate sustenance of the home”<sup>130</sup> over “artificial” uses, such as “commercial irrigation, mining, manufacturing, power generation, and commercial recreation.”<sup>131</sup> Similarly, some states have adopted statutes recognizing preferences for certain non-domestic uses, such as agriculture.<sup>132</sup> Finally, in resolving disputes between water users, courts frequently distinguish between “consumptive” uses, such as pumping water for use in a public water supply, and “non-consumptive” uses,

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123. Christman, *supra* note 22, at 23.

124. Dellapenna, *supra* note 122, § 7.02(d), at 7-49.

125. Christman, *supra* note 22, at 23.

126. *Id.*; Dellapenna, *supra* note 122, § 7.02(d), at 7-49.

127. Dellapenna, *supra* note 122, § 7.02(d)(3), at 7-62 to 7-63 (citing RESTATEMENT (SECOND) OF TORTS § 850A (1977)).

128. Christman, *supra* note 22, at 24, 25. Today, many states no longer have this restriction on riparian rights. See RESTATEMENT (SECOND) OF TORTS § 855 (1977) (“The reasonableness of a use of water by a riparian proprietor is not controlled by the classification of the use as riparian or nonriparian.”). An example of a “riparian use” is using water to irrigate the riparian land abutting that water body.

129. Christman, *supra* note 22, at 25; Dellapenna, *supra* note 122, § 7.02(a)(2), at 7-28 to 7-29.

130. Dellapenna, *supra* note 122, § 7.02(b), at 7-32.

131. Christman, *supra* note 22, at 26 (citing Dellapenna, *supra* note 122, § 7.02(b)(1), at 7-32 to 7-33).

132. Dellapenna, *supra* note 122, § 7.02(b)(2), at 7-35.

such as boating.<sup>133</sup> In these cases, courts' preferences most often depend on case-specific facts.<sup>134</sup>

## 2. *Appropriative Rights Doctrine (a.k.a. Prior Appropriation Doctrine)*

The appropriative rights water allocation system, used primarily in western states,<sup>135</sup> is rooted in private property principles.<sup>136</sup> In this system, "water rights are defined as to quantity, time, place, and manner of use, and most importantly, according to their priority relative to other uses."<sup>137</sup> European settlers in the West who needed water for mining and irrigation and then industrial and municipal purposes developed the appropriative rights doctrine.<sup>138</sup> Concluding that their water needs could not be satisfied under a riparian rights system, these settlers developed their own system tailored to their situation.<sup>139</sup>

The appropriation doctrine is a system of independent property rights—that is, not incident to land ownership—founded on two major principles: "beneficial use and priority in time."<sup>140</sup> First, beneficial use is the "backbone" of the doctrine because appropriative rights "are acquired by capturing water (appropriating it) and applying it to beneficial use."<sup>141</sup> If one ceases to use water beneficially, the appropriative right can be lost.<sup>142</sup> Second, "priority in time (first in time, first in right) provides the basic allocation rule of the doctrine."<sup>143</sup> If "the flow of water is insufficient to meet the demands of all who have water rights, appropriations are curtailed starting with the most recent appropriation and proceeding backward in time until remaining appropriations equal the flow."<sup>144</sup>

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133. Christman, *supra* note 22, at 27; Dellapenna, *supra* note 122, § 7.03, at 7-69. For the famous case involving consumptive and non-consumptive uses, see generally *Harris v. Brooks*, 283 S.W.2d 129 (Ark. 1955).

134. Christman, *supra* note 22, at 27.

135. Peck, *supra* note 112, at 493.

136. Dellapenna, *supra* note 6, at 566.

137. *Id.*

138. *Id.* at 565-66.

139. *Id.*

140. Gould, *supra* note 108, at 10. For an exhaustive discussion of the elements of prior appropriation, see generally Robert E. Beck et al., *Elements of Prior Appropriation, in 2 WATERS AND WATER RIGHTS* § 12 (Robert Beck ed., replacement vol. 2000).

141. Gould, *supra* note 108, at 10.

142. *Id.* Two elements must be satisfied for a use to be "beneficial." SAX ET AL., *supra* note 16, at 154. First, the use must be "permissible." *Id.* Use of water for the following purposes has traditionally been permissible: "irrigation, manufacturing, power production, and domestic and municipal." *Id.* at 155. The beneficial nature of less-productive uses of water—recreational and purely aesthetic purposes, for example—has been questioned, though many states recognize these as beneficial uses. *Id.* The second and more contentious element required for a use to be beneficial is that it not be wasteful. *Id.* at 154. This determination hinges on how significantly the amount of water wasted could be mitigated if modern facilities were installed or better management practices implemented. *Id.* at 159.

143. Gould, *supra* note 108, at 10.

144. *Id.*

The method of acquiring appropriative rights has evolved over time.<sup>145</sup> In the doctrine's early stages of development, individuals diverting water and using it beneficially acquired a "self-initiated" appropriation.<sup>146</sup> Today, except in Colorado, appropriative rights must be obtained through a state-issued permit.<sup>147</sup> State officials have the discretion, in consideration of the public interest, to deny or place conditions on a permit.<sup>148</sup> Finally, a holder of an appropriative right, whether self-initiated or permit based, will retain the interest as long as the water use continues to be beneficial.<sup>149</sup>

*B. Traditional Groundwater Rights Allocation Systems*<sup>150</sup>

1. *The Rule of Capture (a.k.a. the English Rule, the Absolute Dominion Rule)*

The rule of capture allows a landowner to "extract water almost without limit for any purpose and use it on or off the land above the aquifer of its withdrawal."<sup>151</sup> In its lengthy existence, the rule of capture has encountered several "revisions."<sup>152</sup> Most notably, nearly all American courts refuse to apply the rule if a landowner extracts groundwater maliciously, that is, for the purpose of harming the neighbor and not for the purpose of developing his own land.<sup>153</sup>

The rule of capture has existed in American common law since 1836.<sup>154</sup> American courts originally adopted it because scientists and hydrologists knew very little about "percolating groundwater" and how it behaved.<sup>155</sup> Today, very few American states still embrace the rule of capture,<sup>156</sup> and those that do have limited its application with legislation.<sup>157</sup> A major criticism of the rule of capture is that it has a "tragedy of the commons" effect, whereby landowners over a

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145. *See id.*

146. *Id.*

147. *Id.*

148. *Id.*

149. *Id.*

150. Unlike surface water law doctrine, which developed in a geographical fashion, groundwater-allocation doctrines have developed "in a less regular geographic fashion." Peck, *supra* note 112, at 494.

151. Dellapenna, *supra* note 5, at 62.

152. Joseph W. Dellapenna, *The Absolute Dominion Rule*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, § 20.05, at 20-18.

153. *Id.* at 20-19.

154. *Id.* § 20.01, at 20-1.

155. *Id.* § 20.04, at 20-14.

156. *Id.* § 20.01, at 115-16 (asserting that "[p]erhaps [the rule of capture] survives most strongly in Indiana, Maine, and Texas" and possibly in Massachusetts and Rhode Island); Patricia K. Flood & Kenneth R. Wright, *Summary of Water Rights Law in the 31 Eastern States*, in WATERS AND WATER RIGHTS OF THE EASTERN UNITED STATES, *supra* note 22, at 108-09 tbl.9-1 (indicating that of the thirty-one eastern states, Georgia, Maine, and Rhode Island are the only ones still using the rule of capture and that of these, Rhode Island is the only one that relies exclusively on the rule of capture to allocate groundwater).

157. Joseph W. Dellapenna, *Correlative Rights Today*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, § 21.01, at 21-5.

common aquifer place increasing demands on the water supply until it runs dry.<sup>158</sup> As such, the rule of capture is no longer widely accepted as the rule governing groundwater allocation.<sup>159</sup>

## 2. *Appropriative Rights Doctrine*

As mentioned, the appropriative rights doctrine is the method of governing surface water rights in western states.<sup>160</sup> The appropriative rights doctrine permits landowners to “extract groundwater consistent with a water right defined by amount, time, place, purpose and temporal priority of the use.”<sup>161</sup> The same principles of beneficial use and priority in time that apply to surface water under appropriative rights also apply to groundwater extraction. Applying appropriative rights to groundwater gives rise to additional problems not encountered in the surface water context.<sup>162</sup>

Today, groundwater-allocation systems in the West differ significantly. Some states, such as Idaho, apply prior appropriation to all groundwater, while other states, such as Arizona, only apply prior appropriation to stream subflow.<sup>163</sup> Mississippi is the only eastern state that has ever attempted to apply prior appropriation to groundwater or surface water allocation.<sup>164</sup> Mississippi ultimately abandoned prior appropriation and adopted a version of “regulated riparianism.”<sup>165</sup> Thus, the appropriative rights doctrine is essentially absent from eastern water law.

## 3. *The American Reasonable Use Rule*

Under the American reasonable use rule, occasionally referred to as a “modified rule of capture,”<sup>166</sup> a landowner is able to withdraw groundwater so long as it is withdrawn for a beneficial use “incidental to the enjoyment” of the

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158. *Id.* § 20.06, at 20-22.

159. *Id.* § 21.01, at 21-5.

160. Robert E. Beck et al., *Introduction and Background*, in 2 *WATERS AND WATER RIGHTS* *supra* note 140, § 11.01, at 11-1.

161. Dellapenna, *supra* note 5, at 62-63.

162. Peck, *supra* note 112, at 494 (suggesting that “the seasonable fluctuations of rivers and streams” works well under appropriative rights, but that the lack of seasonable fluctuations for groundwater and its tendency to more slowly recharge make delineation of prior appropriation rights much less precise).

163. Beck et al., *supra* note 160, at 11-3. Stream “subflow” is defined as “those waters which slowly find their way through the sand and gravel constituting the bed of the stream, or the lands under or immediately adjacent to the stream, and are themselves a part of the surface stream.” *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source*, 9 P.3d 1069, 1073 (Ariz. 2001) (quoting *Maricopa County Mun. Water Conservation Dist. v. Sw. Cotton Co.*, 4 P.2d 369, 380 (Ariz. 1931)). Arizona applies the “doctrine of reasonable use” to groundwater, so the distinction between “groundwater” and “stream subflow” is significant. *Id.* at 1073-74.

164. Dellapenna, *Riparian Issues*, *supra* note 111, at 40-41.

165. *Id.*

166. SAX ET AL., *supra* note 16, at 415.



land and used on the land above the aquifer from which it is withdrawn.<sup>167</sup> Of the five traditional groundwater doctrines, the American reasonable use rule imposes the greatest encumbrance on landowners.<sup>168</sup> At one time, this rule was the plurality rule in America regarding groundwater allocation; however, the number of states applying the American reasonable use rule, though still significant, is declining.<sup>169</sup> Scholars have suggested that the question confronting those states still using the American reasonable use rule is whether they should move closer to the *Restatement* version of the reasonable use rule or toward a permit, or “regulated riparian” system of groundwater allocation.<sup>170</sup>

#### 4. *The Restatement Reasonable Use Rule*

The *Restatement* reasonable use rule “holds a groundwater extractor liable for unreasonable harm to others that occurs by lowering the water table or withdrawing water in excess of a reasonable share of the annual supply or total store of groundwater.”<sup>171</sup> Courts use the same *Restatement* factors mentioned in the “Riparian Doctrine” section above regarding surface water rights to determine whether a given use of groundwater is reasonable.<sup>172</sup>

While Michigan, Ohio, Wisconsin, and Nebraska have adopted the *Restatement* reasonable use rule,<sup>173</sup> Indiana, Maine, and Texas have explicitly rejected it.<sup>174</sup> Thus, the *Restatement* approach is presently not a widely accepted groundwater allocation method.

#### 5. *Correlative-Rights Approach*

Under the correlative-rights approach to groundwater law, “landowners must share the yield of an aquifer in proportion to the extent of their land holdings.”<sup>175</sup> At least one author has suggested that correlative rights, in the

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167. *Id.*; Christman, *supra* note 22, at 30; Dellapenna, *supra* note 2, § 19.03, at 19-20; Dellapenna, *supra* note 5, at 64.

168. Dellapenna, *supra* note 2, § 19.03, at 19-20.

169. Joseph W. Dellapenna, *The Reasonable Use Rule*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, § 22.03, at 22-12.

170. *Id.* § 22.03, at 22-16, 22-17.

171. SAX ET AL., *supra* note 16, at 416. See also RESTATEMENT (SECOND) OF TORTS § 858 (1979) (setting forth the circumstances under which users of groundwater are liable for their uses).

172. See RESTATEMENT (SECOND) OF TORTS § 850A (listing the factors: “(a) The purpose of the use, (b) the suitability of the use to the watercourse or lake, (c) the economic value of the use, (d) the social value of the use, (e) the extent and amount of the harm it causes, (f) the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other, (g) the practicality of adjusting the quantity of water used by each proprietor, (h) the protection of existing values of water uses, land, investments and enterprises and (i) the justice of requiring the user causing harm to bear the loss”); Dellapenna, *supra* note 169, § 22.04(d), at 22-41.

173. Dellapenna, *supra* note 2, § 19.05(b)(2), at 19-47 & n.207.

174. *Id.* § 19.05(b)(2), at 19-47 & n.208.

175. Dellapenna, *supra* note 5, at 63.

term's pure sense, refers to "strict proportional sharing."<sup>176</sup> Another way of explaining correlative rights is that the rights of landowners overlying a common aquifer "are coequal or correlative, and one cannot extract more than his or her share of the water, even for use on his or her own land, if others' rights are injured."<sup>177</sup> California's approach is the purest form of correlative rights, although even it has adopted other rules of groundwater allocation.<sup>178</sup> Correlative-rights systems are not widely used outside of California.<sup>179</sup>

C. *Permit Systems and "Regulated Riparianism"*

A new water-allocation method, most often referred to as "regulated riparianism,"<sup>180</sup> emerged in the latter half of the twentieth century.<sup>181</sup> In this method, comprehensive<sup>182</sup> permit systems governing surface water and groundwater supplement a state's common-law water-allocation system. In 1997, the American Society of Civil Engineers drafted a comprehensive regulated riparianism system, the Regulated Riparian Model Water Code (Model

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176. Dellapenna, *supra* note 157, § 21.01, at 21-5. For discussion of the "strict proportional sharing" view, see SAX ET AL., *supra* note 16, at 432.

177. Christman, *supra* note 22, at 30.

178. Dellapenna, *supra* note 157, § 21.04, at 21-30.

179. *Id.* Dellapenna lists Arkansas, Hawaii, Minnesota, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Tennessee, Utah, and Washington as the states having proclaimed, at one time or another, to have used a correlative-rights system. *Id.* Yet Flood and Wright suggest that as of 1998, the only eastern states applying a correlative rights system to groundwater allocation were Arkansas, Delaware, Tennessee, and Vermont. Flood & Wright, *supra* note 156, at 108-09 tbl.9-1.

180. Dellapenna, *supra* note 5, at 46 & n.210. See also SAX ET AL., *supra* note 16, at 105-18 (excerpting and discussing the 1997 Regulated Riparian Model Water Code (Model Code)); Joseph W. Dellapenna, *The Regulated Riparian Approach to Groundwater*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, § 23.02, at 23-6 & n.21 (noting that although there is no agreed upon name, "the term 'regulated riparianism' is coming to be accepted"). The phrase "regulated riparianism" was coined by Professor Dellapenna, the editor of the 1997 Regulated Riparian Model Water Code (Model Code). AM. SOC'Y OF CIVIL ENG'RS, THE REGULATED RIPARIAN MODEL WATER CODE: FINAL REPORT OF THE WATER LAWS COMMITTEE (Joseph W. Dellapenna ed., 1997) [hereinafter MODEL CODE].

181. Dellapenna, *supra* note 6, at 583.

182. *But see* Janet C. Neuman, *Have We Got a Deal for You: Can the East Borrow from the Western Water Marketing Experience?*, 21 GA. ST. U. L. REV. 449, 452 n.18 (2004) ("Even though some describe regulated riparian states' water laws as "comprehensive," the description seems simply to mean that the state has more than a few isolated statutes governing water use. Western water codes ... are truly comprehensive, requiring advance permission for nearly every water use, creating state agencies with significant water allocation and enforcement authority, and outlining general water adjudication processes for straightening out water rights." (citations omitted)).

Code).<sup>183</sup> No state has adopted the Model Code letter for letter, although some have “come fairly close.”<sup>184</sup>

“Regulated riparianism borrows from eastern and western water doctrines and injects an element of command and control regulation into a common law that traditionally was characterized by enforcement of water rights through private judicial action.”<sup>185</sup> Regulated riparianism has three additional general purposes: “(1) to collect information about use, (2) to subject large ground and surface withdrawals to a permit system, and (3) to address the environmental and other impacts of trans-watershed diversions.”<sup>186</sup> Not all regulated riparian states achieve all three.<sup>187</sup>

The regulated riparian system’s “most central requirement”<sup>188</sup> and the “most fundamental departure from common law riparian rights”<sup>189</sup> under the system “is that water is not to be withdrawn from a water source without a time-limited permit from the state where the withdrawal occurs.”<sup>190</sup> As in the Model Code,<sup>191</sup> regulated riparian states typically exempt small users, such as domestic users, from the permit requirement.<sup>192</sup> Regulated riparian states vary on how much water per day a user may withdraw without a permit, ranging anywhere from 10,000 to 100,000 gallons.<sup>193</sup> The Model Code allows uses amounting to 100,000 or fewer gallons per day without a permit.<sup>194</sup> A user who wishes to withdraw more water than the exempt amount must apply for a permit.

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183. The Society of Civil Engineers endorsed the Model Code “as the proper approach to water law in states operating within the riparian tradition.” Dellapenna, *supra* note 5, at 48. Also, the doctrine of “regulated riparianism” applies generally to both groundwater and surface water allocation.

184. *Id.* at 48 & n.218 (suggesting that Florida, Georgia, Minnesota, Mississippi, and North Carolina have all adopted significant policies or regulatory schemes from the Model Code).

185. Jeremy Nathan Jungreis, “Permit” Me Another Drink: A Proposal for Safeguarding the Water Rights of Federal Lands in the Regulated Riparian East, 29 HARV. ENVTL. L. REV. 369, 371 (2005). See also Dellapenna, *supra* note 5, at 47 (arguing that the concept behind “regulated riparianism” has been misrepresented in what little has been written on the topic).

186. A. Dan Tarlock, *Reconnecting Property Rights to Watersheds*, 25 WM. & MARY ENVTL. L. & POL’Y REV. 69, 90-91 (2000) [hereinafter Tarlock, *Watersheds*]; A. Dan Tarlock, *Water Regulation along the Great Lakes Divide*, at 6, Presentation at Straddling the Divide: Water Supply Planning in the Lake Michigan Region (Feb. 15-16, 2005), at 8-10 [hereinafter Tarlock Presentation], available at [http://www.nipc.org/environment/slmrWSC/conferences/1B\\_Tarlock.pdf](http://www.nipc.org/environment/slmrWSC/conferences/1B_Tarlock.pdf).

187. Tarlock Presentation, *supra* note 186, at 8 (noting that some permit systems are not for water-allocation purposes but for the collection of information about water use).

188. Dellapenna, *supra* note 5, at 48.

189. Dellapenna, *supra* note 6, at 586.

190. *Id.* See also MODEL CODE, *supra* note 180, § 6R-1-01 (setting forth the permit requirement).

191. See MODEL CODE, *supra* note 180, § 6R-1-02 (exempting users of less than 100,000 gallons of water per day).

192. Dellapenna, *supra* note 5, at 48.

193. Jungreis, *supra* note 185, at 381 n.101.

194. MODEL CODE, *supra* note 180, § 6R-1-02.

Once a water user has applied for a permit, an administrative agency determines whether the proposed use is “reasonable.”<sup>195</sup> The Model Code incorporates the American and *Restatement* reasonable use rules’ consideration of a water use’s reasonableness in relation to other existing uses,<sup>196</sup> but also requires that an agency consider “abstract questions of the social utility or value of the proposed use.”<sup>197</sup> The Model Code and other regulated riparian statutes also differ from the common law in that a use’s reasonableness is established before the user can get a permit.<sup>198</sup> Thus, permitted users can safely invest in a given use, assured that a subsequent judicial ruling will not determine their use is unreasonable.<sup>199</sup>

Permits, however, do not give users unfettered access to water. The state administrative agency responsible for issuing permits places conditions on permits after considering social policy, water availability, and other lawful uses.<sup>200</sup> For example, where a water supply is insufficient to satisfy demand, the administrative agency must allocate water in accordance with certain preferences.<sup>201</sup> Additionally, some regulated riparian statutes authorize the agency to charge variable fees based on the “presumed ability of the user to pay” or flat fees irrespective of water use.<sup>202</sup> “[F]ees cannot be considered payment for the water itself.”<sup>203</sup> Further, the permits are temporary, lasting anywhere from three,<sup>204</sup> to twenty,<sup>205</sup> to fifty years.<sup>206</sup> Upon application for renewal of an expired permit, the administrative agency reevaluates the water use to determine whether it is still reasonable under the circumstances.<sup>207</sup>

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195. *See id.* §§ 2R-2-20, 6R-3-01(a) (requiring that the use be reasonable and setting forth the factors to be considered in determining whether a use is reasonable).

196. *Id.* § 2R-2-20 cmt.

197. *Id.* § 6R-3-02 cmt.

198. Dellapenna, *supra* note 5, at 49-50.

199. *Id.*

200. MODEL CODE, *supra* note 180, § 7R-1-01 (listing the various terms and conditions that must be indicated in the permit, such as “the location of the withdrawal,” “the authorized amount of the withdrawal,” “the dates or seasons during which water is to be withdrawn,” and “the uses for which water is authorized to be withdrawn”).

201. *Id.* § 6R-3-04 (listing the preferences among water rights). Of note is that under regulated riparianism, unlike under appropriation doctrine, the role of temporal priority in the permit process is “strictly limited.” Dellapenna, *supra* note 5, at 50.

202. Dellapenna, *supra* note 6, at 588.

203. *Id.* at 588 & n.262. *See also* Dellapenna, *supra* note 23, § 9.03(a)(5)(C), at 9-124 to 9-125 (“Nor can the fees in any state be considered payment for the water itself.”); Jungreis, *supra* note 185, at 383 (“Unlike prior appropriation system fees, regulated riparian fees are intended to partially offset the cost of state oversight and are generally set without regard to the volume of water used.”).

204. *See, e.g.*, MD. CODE ANN., ENVIR. § 5-511 (LexisNexis 2007).

205. *See* MODEL CODE, *supra* note 180, § 7R-1-02 (stating permits are to be issued for no more than twenty years, unless to a public entity, in which case the maximum is fifty years).

206. *See, e.g.*, GA. CODE ANN. § 12-5-31(h) (2006).

207. *See* MODEL CODE, *supra* note 180, § 6R-3-04.

The Model Code and other regulated riparian statutes employ various enforcement methods, including “criminal penalties,<sup>208</sup> civil penalties,<sup>209</sup> injunctions,<sup>210</sup> administrative orders,<sup>211</sup> and actions for public and private damages.”<sup>212</sup> In addition, these statutes often contain provisions authorizing administrative-agency hearings<sup>213</sup> and judicial review of administrative-agency decisions.<sup>214</sup> Many regulated riparian statutes allow for extensive water use data collection,<sup>215</sup> and the Model Code requires that the administrative agency “develop and adopt a comprehensive water allocation plan”<sup>216</sup> and “drought management strategies.”<sup>217</sup>

A state’s authority to institute a regulated riparian system is grounded in its “police power to regulate the withdrawal and use of water in order to protect the public health, safety and welfare.”<sup>218</sup> Regulated riparianism recognizes that water-allocation decisions should be subject to state oversight for the public good and that individual water users may obtain water rights from the state.<sup>219</sup> Some individuals favoring regulated riparian systems assert that water is a “public good.”<sup>220</sup> This view is predictably controversial and the subject of debate.<sup>221</sup>

Although the eastern trend is toward regulated riparianism, the degree of regulation varies among regulated riparian states, with some states having more

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208. *Id.* § 5R-5-01. “Criminal prosecutions are rare under regulated riparian statutes” containing criminal penalty provisions. Dellapenna, *supra* note 6, at 588. Most regulated riparian statutes are enforced through civil penalties and administrative orders. *Id.*

209. *See* MODEL CODE, *supra* note 180, § 5R-4-06.

210. *Id.* § 5R-4-04.

211. *Id.* § 5R-4-03.

212. *Id.* § 5R-4-05.

213. *See, e.g., id.* § 5R-1-01 to -03.

214. *See, e.g., id.* Courts are typically very deferential to administrative agencies. Dellapenna, *supra* note 6, at 587 n.257.

215. Dellapenna, *supra* note 5, at 54-55.

216. MODEL CODE, *supra* note 180, § 4R-2-01.

217. *Id.* § 4R-2-02.

218. Dellapenna, *supra* note 5, at 53. *See also* Dellapenna, *supra* note 180, § 23.04, at 23-62 (“The extensive statutory requirements in regulated riparian statutes ... are based on a state’s police power, the power to regulate water withdrawal and use in order to protect the public health, safety, and welfare.”); Barton H. Thompson, Jr., *Takings and Water Rights*, in *WATER LAW: TRENDS, POLICIES, AND PRACTICE* 46 (Kathleen Marion Carr & James D. Crammond eds., 1995) (discussing the view that water regulations are “legitimate exercises of the state’s police power”).

219. Tarlock Presentation, *supra* note 186, at 6.

220. *See, e.g.,* IOWA CODE § 455B.262(3) (West 2004) (“Water occurring in a basin or watercourse, or other body of water of the state, is public water and public wealth of the people of the state....”); Elizabeth Burleson, *Middle Eastern and North African Hydropolitics: From Eddies of Indecision to Emerging International Law*, 18 *GEO. INT’L ENVTL. L. REV.* 385, 413 (2006) (“Groundwater is a public good in that individual users cannot save water for their own future use.”); Dellapenna, *supra* note 6, at 545 (“Water is not only one of our most essential resources, it also has long been considered to be the quintessential ‘public good.’”); Thompson, Jr., *supra* note 218, at 47 (“Courts wishing to distinguish water from real property sometimes also emphasize state constitutional or statutory provisions reciting that water is the property of the public.”).

221. *See* Dellapenna, *supra* note 6, at 547 & n.26.

comprehensive systems than others.<sup>222</sup> This is due in part to many state legislatures incrementally adopting certain tenets of regulated riparianism rather than completely overhauling their water-rights systems all at once.<sup>223</sup> Consequently, commentators debate whether some eastern states' water regulations are "comprehensive enough" to be labeled regulated riparian.<sup>224</sup> Presently, general consensus is that eighteen of the thirty-one eastern states have "more or less comprehensive regulated riparian statutes" applying to surface water, and usually groundwater.<sup>225</sup> Another three eastern states apply regulated riparian statutes only to groundwater.<sup>226</sup> Iowa<sup>227</sup> has the most comprehensive water use permit system among the eastern states.<sup>228</sup> As of 2005, among the Great Lakes states,<sup>229</sup> Minnesota's<sup>230</sup> and Wisconsin's<sup>231</sup> permit systems are the most comprehensive.<sup>232</sup> Many believe that more eastern states will adopt some form of regulated riparianism in the near future.<sup>233</sup>

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222. Dellapenna, *supra* note 6, at 583.

223. *Id.*

224. *Id.*

225. Dellapenna, *supra* note 23, § 9.03, at 9-54. These are the states and the dates they adopted their respective regulated riparian statutes: Alabama (1993), Arkansas (1957), Connecticut (1982), Delaware (1959), Florida (1972), Georgia (1977), Iowa (1957), Kentucky (1966), Maryland (1933), Massachusetts (1985), Michigan (2006), Minnesota (1973), Mississippi (1985), New Jersey (1965), New York (1979), North Carolina (1967), Virginia (1989), and Wisconsin (1957). *Id.* at 9-54 & n.238. Although the text of 1 WATERS AND WATER RIGHTS, *supra* note 23, § 9.03, at 9-54 suggests nineteen eastern states have adopted regulated riparianism, a count of the states mentioned in the footnote only reveals eighteen. Also, "[t]he regulated riparian statutes in Alabama, Arkansas, Michigan, New York, and Virginia are more limited than the others, so much so in several of these states that one might reasonably conclude that they have not in fact made the transition to a full-fledged regulated riparian state." *Id.* § 9.03 at 9-54 n.242. Also of note, the states of Arkansas, Georgia, and Virginia have separate regulatory schemes for groundwater and surface water. Dellapenna, *supra* note 180, § 23.02, at 23-7, -13. Finally, Hawaii, though not an eastern state, has a regulated riparian system. *Id.* at 9-54 & n.239.

226. Dellapenna, *supra* note 23, § 9.03, at 9-54. These states are Illinois, Indiana, and South Carolina. *Id.* at n.240. Arizona and Nebraska also only apply regulated riparianism to groundwater, although these states are not considered eastern. *Id.*

227. IOWA CODE §§ 455B.261–281 (West 2004 & Supp. 2008).

228. See A. Dan Tarlock, *Supplemental Groundwater Irrigation Law: From Capture to Sharing*, 73 KY. L.J. 695, 719 (1984); Tarlock Presentation, *supra* note 186, at 6.

229. The "Great Lakes states" include Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. Council of Great Lake Governors, Great Lakes-St. Lawrence River Basin Water Resources Agreement (Dec. 13, 2005) (on file with the University of Toledo Law Review), available at [http://www.cglg.org/projects/water/docs/12-13-05/Great-Lakes-St-Lawrence-River\\_Basin\\_Water\\_Resources\\_Compact.pdf](http://www.cglg.org/projects/water/docs/12-13-05/Great-Lakes-St-Lawrence-River_Basin_Water_Resources_Compact.pdf).

230. MINN. STAT. §§ 103G.001–.315 (1997 & Supp. 2008).

231. WIS. STAT. §§ 30.18, 30.28, 30.292 to .298, 281.35 (2004).

232. Tarlock Presentation, *supra* note 186, at 7.

233. Jungreis, *supra* note 185, at 371 (citing Steven T. Miano & Michael E. Crane, *Eastern Water Law: Historical Perspectives and Emerging Trends*, 18 NAT. RESOURCES & ENV'T, Fall 2003, at 18).

## IV. WATER REGULATION IN OHIO

A. *The Status of Water Regulation in Ohio*

Ohio has not adopted a comprehensive regulatory scheme to govern surface water and groundwater allocation and is not considered a regulated riparian state.<sup>234</sup> Instead, Ohio relies on riparian common law.<sup>235</sup> Although Ohio originally employed the rule of capture to regulate groundwater,<sup>236</sup> it has since adopted the *Restatement* reasonable use rule.<sup>237</sup> To supplement the common law of water use, Ohio has a basic set of statutes designed to regulate high-volume water use.<sup>238</sup>

1. *Ohio's Common Law Regarding Groundwater Use*

In its first major groundwater-use case, the Supreme Court of Ohio in *Frazier v. Brown* adopted the absolute ownership rule,<sup>239</sup> or the rule of capture, which treats groundwater “as part of the land itself, to be enjoyed absolutely by the proprietor within whose territory it is.”<sup>240</sup> The Court in *Frazier* “refused to recognize any rule requiring the sharing of water among landowners overlying a common aquifer. Thus, any owner of property was entitled to use all the groundwater he could, without regard to how that use affected neighboring landowners.”<sup>241</sup>

The *Frazier* Court asserted two public-policy considerations.<sup>242</sup> First, due to the “secret, occult[,] and concealed” nature of groundwater’s “existence, origin, movement[,] and course, ... an attempt to administer any set of legal rules in respect to [groundwater] would be involved in hopeless uncertainty, and would be, therefore, practically impossible.”<sup>243</sup> Second, the *Frazier* Court stated that recognizing correlative rights among landowners overlying a common aquifer “would interfere ... with drainage and agriculture, mining, the construction of highways and railroads, with sanitary regulations, [and other utility projects].”<sup>244</sup> As advances in science allowed for insight into the behavior of underground

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234. Dellapenna, *supra* note 23, § 9.03, at 9-54.

235. See *Cline v. Am. Aggregates Corp.*, 474 N.E.2d 324, 325 (Ohio 1984).

236. *Frazier v. Brown*, 12 Ohio St. 294, 306 (1861). See also *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 13 (discussing *Frazier*'s adoption of the rule of capture); *Cline*, 474 N.E.2d at 325-26 (criticizing adherence to the absolute ownership doctrine).

237. OHIO REV. CODE ANN. § 1521.17 (LexisNexis 2004); *McNamara*, 107 Ohio St. 3d at ¶ 14.

238. OHIO REV. CODE ANN. §§ 1501.30-35.

239. 12 Ohio St. 294, 308 (1861).

240. *Id.*

241. *McNamara*, 107 Ohio St. 3d at ¶ 11.

242. *Frazier*, 12 Ohio St. at 311.

243. *Id.*

244. *Id.*

water, these policies, and the rule of capture standard they supported, lost their effectiveness.<sup>245</sup>

Over 100 years later, in *Cline v. American Aggregates Corp.*,<sup>246</sup> the Supreme Court of Ohio abandoned the rule-of-capture standard in favor of the “much more equitable” *Restatement* reasonable use doctrine.<sup>247</sup> In *Cline*, landowners sued American Aggregates Corp., the operator of a neighboring sand, gravel, and stone quarry.<sup>248</sup> Underneath the landowners’ properties and the quarry was a common aquifer.<sup>249</sup> The landowners alleged that by pumping water out of quarry pits in the course of limestone extraction, American Aggregates unreasonably caused their wells to run dry.<sup>250</sup> The trial court granted American Aggregates’ motion for summary judgment.<sup>251</sup> The landowners appealed.<sup>252</sup> The Court of Appeals affirmed, and the landowners moved to certify the record,<sup>253</sup> arguing that the Supreme Court of Ohio should adopt the *Restatement* reasonable use rule.<sup>254</sup>

Upon allowing the motion to certify the record, the Supreme Court of Ohio stated that “[o]ther American decisions have recognized that the advancement of scientific knowledge can insure the protection of a landowner’s property rights in ground water to the same degree that the riparian doctrine protects the interests of land owners adjacent to a stream.”<sup>255</sup> The Court then replaced the absolute dominion rule with the *Restatement* reasonable use rule.<sup>256</sup>

Recently, in *McNamara v. City of Rittman*, the Supreme Court of Ohio explained the evolution of the State’s groundwater law from the rule of capture to the *Restatement* reasonable use rule.<sup>257</sup> The Court noted that in searching for a “workable standard for the resolution of groundwater disputes in Ohio,” the *Cline* Court appropriately did away with the rule of capture and adopted instead the *Restatement* reasonable use rule.<sup>258</sup> The *McNamara* Court further acknowledged that after *Cline*, the Ohio General Assembly codified what constitutes a reasonable use of water.<sup>259</sup>

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245. See Dellapenna, *supra* note 10, § 18.01, at 18-4 (discussing scientific and technological advances allowing for increased knowledge of groundwater).

246. 474 N.E.2d 324 (Ohio 1984).

247. *Id.* at 327.

248. *Id.* at 325.

249. *Id.*

250. *Id.*

251. *Id.*

252. *Id.*

253. *Id.*

254. *Id.* at 327. See also RESTATEMENT (SECOND) OF TORTS § 858 (1979) (setting forth the *Restatement* reasonable use rule).

255. *Cline*, 474 N.E.2d at 326.

256. *Cline v. Am. Aggregates Corp.*, 474 N.E.2d 324, 327 (Ohio 1984).

257. 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶¶ 13-22 (Ohio 2005).

258. *Id.* ¶ 14.

259. *Id.* ¶ 34 (citing OHIO REV. CODE ANN. § 1521.17 (LexisNexis 2004)).



## 2. *Ohio's Statutory Water-Use Law*

Besides the common law of water use, Ohio has a basic set of water use statutes regulating high-volume uses.<sup>260</sup> Ohio requires permits for certain high-volume water diversions and consumptive uses, and Ohio Revised Code sections 1501.30 to 1501.35 establish standards for granting these permits, factoring in the public interest.

Section 1501.32 applies to Lake Erie and the Ohio River, stating that “[n]o person shall divert more than one hundred thousand gallons per day of any waters of the state out of the Lake Erie or Ohio river drainage basins to another basin without having a permit to do so issued by the director of natural resources.”<sup>261</sup> Section 1501.32 gives discretion to the director of natural resources<sup>262</sup> regarding holding public hearings prior to issuing permits, the duration of permits, and the revocation of permits.<sup>263</sup>

Section 1501.33 applies to all other Ohio waters, stating:

[N]o person shall allow a facility that the person owns to withdraw waters of the state in an amount that would result in a new or increased consumptive use of more than an average of two million gallons of water per day in any thirty-day period without first obtaining a permit from the director of natural resources.<sup>264</sup>

Section 1501.34(A) lists the circumstances under which the director of natural resources should deny a permit.<sup>265</sup> Section 1501.34 also grants discretion to the director of natural resources to hold public hearings regarding the issuance of permits, the duration of permits, and revocation of permits.<sup>266</sup>

Additionally, Ohio statutory law mandates that the Division of Water chief work with all levels of government and with private entities to create “a water resources inventory” of Ohio’s surface water and groundwater resources.<sup>267</sup> The inventory should contain “information on the location, type, quantity, and use” of the water resources, including consumptive uses and diversions of water.<sup>268</sup> Further, section 1521.15 specifies that the inventory should include “information to assist in determining the reasonableness of water use ... and [information to assist in] resolving water use conflicts.”<sup>269</sup> According to the Division of Water’s

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260. The Ohio statutes discussed in this section apply to both surface water and groundwater uses.

261. OHIO REV. CODE ANN. § 1501.32(A).

262. The Department of Natural Resources oversees water-use regulation and its Division of Water is charged with many of the “responsibilities for managing Ohio’s surface and ground water resources.” More About the Division of Water, <http://www.dnr.state.oh.us/water/tabid/3267/Default.aspx> (last visited Feb. 26, 2009).

263. OHIO REV. CODE ANN. § 1501.32.

264. *Id.* § 1501.33(A).

265. OHIO REV. CODE ANN. § 1501.34(A) (LexisNexis 2004).

266. *Id.* § 1501.34(B), (D).

267. *Id.* § 1521.15(A).

268. *Id.*

269. *Id.*

website, “the Water Inventory Program continually compiles and stores precipitation amounts, ground water levels, reservoir storage, Lake Erie levels, and stream flow data.”<sup>270</sup>

Finally, section 1521.17 codifies the *Restatement* reasonable use rule, as adopted by the Supreme Court of Ohio, to govern uses of surface water and groundwater.<sup>271</sup> The statute first states that “the determination of the reasonableness of a use of water depends upon a consideration of the interests of the person making the use, of any person harmed by the use, and of society as a whole.”<sup>272</sup> The statute also sets forth nine factors, derived from the *Restatement*, that a court must consider:

- (1) The purpose of the use;
- (2) The suitability of the use to the watercourse, lake, or aquifer;
- (3) The economic value of the use;
- (4) The social value of the use;
- (5) The extent and amount of the harm it causes;
- (6) The practicality of avoiding the harm by adjusting the use or method of use of one person or the other;
- (7) The practicality of adjusting the quantity of water used by each person;
- (8) The protection of existing values of water uses, land, investments, and enterprises;
- (9) The justice of requiring the user causing harm to bear the loss.<sup>273</sup>

#### B. Proposed Solution for Groundwater Allocation in Ohio

Though Ohio has a collection of case law and statutes that governs some surface water and groundwater allocation, it does not have a comprehensive regulated riparian system.<sup>274</sup> Ohio should adopt a form of regulated riparianism

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270. Water Inventory Programs, [http://www.dnr.state.oh.us/Water/Water\\_Inventory/Water\\_Inventory\\_Home/tabid/4237/Default.aspx](http://www.dnr.state.oh.us/Water/Water_Inventory/Water_Inventory_Home/tabid/4237/Default.aspx) (last visited Feb. 26, 2009).

271. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 34 (Ohio 2005). See also OHIO REV. CODE ANN. § 1521.17 (LexisNexis 2004) (“In accordance with section 558 of the Restatement (Second) of Torts of the American Law Institute....”).

272. OHIO REV. CODE ANN. § 1521.17(A).

273. *Id.* § 1521.17(B).

274. In addition to its existing statutes and case law governing water law, Ohio is bound by the Great Lakes-St. Lawrence River Basin Water Resources Compact (the “Compact”). President George W. Bush signed the Compact into law on October 3, 2008 after ratification by the legislatures of the Great Lakes states and approval by the U.S. Congress. Press Release, Council of Great Lakes Governors, President Bush Signs Great Lakes Compact (Oct. 3, 2008), available at <http://www.cglg.org/projects/water/docs/PressReleasePresidentSignsCompact10-3-08.pdf>. The Great Lakes states are presently implementing the Compact.

Generally speaking, the Compact’s “main thrust ... is to conserve and manage Great Lakes water, and their associated surface water and groundwater resources within the Great Lakes basin, by regulating new or increased diversions and withdrawals of those waters.” Letter from Kenneth K. Kilbert, Assoc. Professor of Law, Univ. of Toledo Coll. of Law, to Sean D. Logan, Director, Ohio Dep’t of Natural Res. 1 (Sept. 14, 2007) (on file with author). More specifically, the Compact prevents new or increased diversions to beyond the basin and subjects new or increased in-basin withdrawals that exceed threshold quantities to regulation. *Id.* at 4-5. Participating states will manage “withdrawals using a natural resource based standard while retaining flexibility regarding its application.” COUNCIL OF GREAT LAKES GOVERNORS, FREQUENTLY ASKED QUESTIONS 2 (2007), available at [http://www.cglg.org/projects/water/CompactEducation/Frequently\\_Asked\\_Questions\\_](http://www.cglg.org/projects/water/CompactEducation/Frequently_Asked_Questions_)

and overhaul its existing common-law groundwater allocation rules. A review of existing alternatives suggests that this is the best option.

1. *Alternatives to the Model Code Do Not Meet Ohio's Needs*

One alternative, the appropriative rights system, can be discarded as a potential groundwater-allocation system for Ohio. As noted above, the appropriative rights system developed in the West, and “[c]areful analysis suggests that [an appropriative rights system] could not be adopted successfully in an eastern state.”<sup>275</sup> Indeed, Mississippi is the only eastern state that has ever adopted an appropriative rights system for either groundwater or surface water allocation, and it eventually replaced it with a regulated riparian system.<sup>276</sup>

The rule of capture can likewise be discarded. This groundwater-allocation doctrine lost its glamour as advances in scientific knowledge revealed more about how underground waters behave.<sup>277</sup> This system was the law in Ohio until *Cline* replaced it with the *Restatement* reasonable use rule.<sup>278</sup> To adopt this system would certainly be a step backwards for groundwater-allocation rules in Ohio.

A correlative-rights system is also not a viable option. Adopting the pure version of the doctrine would result in “strict proportional sharing” of water resources based on land ownership above underground water supplies.<sup>279</sup> No eastern state maintains such a system,<sup>280</sup> and only California’s system resembles a pure correlative rights system.<sup>281</sup> For California, which is a large state encompassing both very dry and rather humid areas, correlative rights may work

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4-5-07.pdf. This standard is a relatively general one, requiring, for example, that uses within a state “not result in significant harm to the Basin’s waters or related natural resources.” *Id.* Individual states will develop their own plans for sustainable use within this “natural resource based standard,” subject to review by the “Regional Body and Compact Council.” *Id.* Finally, if a state does not adopt its own plan by October 3, 2018, “then all new or increased withdrawals over 100,000 gallons per day [will] be subject to management and regulation.” *Id.* Notably, this requirement largely mirrors that already codified in section 1501.32 of the Ohio Revised Code. *See* OHIO REV. CODE ANN. § 1501.32.

Although the Compact adds to the participating states’ existing groundwater-allocation statutes, it contemplates cooperation among several states and Canadian provinces and is therefore necessarily broad. The Compact does not provide for comprehensive groundwater management such as that in The Regulated Riparian Model Water Code. Therefore, independent of passage and implementation of the Compact, Ohio could adopt a comprehensive groundwater regulatory system to address statewide allocation issues.

275. Dellapenna, *supra* note 6, at 566. Professor Dellapenna suggests that, if adopted in eastern states, the appropriative rights system would, among other things, encourage wasteful practices and fail to provide certainty in water uses. *See id.* at 566-81.

276. Dellapenna, *Riparian Issues*, *supra* note 111, at 40-41.

277. *See* Dellapenna, *supra* note 152, § 20.04, at 20-14.

278. *Cline v. Am. Aggregates Corp.*, 474 N.E.2d 324, 327 (Ohio 1984).

279. Dellapenna, *supra* note 157, § 21.01, at 21-5.

280. *See id.* § 21.04, at 21-30. For a discussion of the states that use a correlative rights system, *see supra* note 179 and accompanying text.

281. Dellapenna, *supra* note 157, § 21.04, at 21-30.

well.<sup>282</sup> For the humid eastern states, the correlative-rights doctrine may not be the best option.<sup>283</sup>

Further, Ohio should not adopt the American reasonable use rule, which is declining in acceptance.<sup>284</sup> Although it may help conserve more groundwater than other traditional groundwater-rights systems,<sup>285</sup> it has its own drawbacks. The American reasonable use rule provides no reliable framework for resolving groundwater disputes,<sup>286</sup> reasonable uses are determined after the fact.<sup>287</sup> As demand for groundwater continues to increase, this system will not help curb the otherwise impending influx of litigation.

A fifth alternative would be to maintain the presently governing *Restatement* reasonable use rule. The problem with this alternative is that, as under the American reasonable use rule, reasonable uses are determined after a dispute arises.<sup>288</sup> Though it does provide factors for determining what a reasonable use is, the *Restatement* reasonable use rule is applied by courts with little knowledge of the current status of groundwater availability in the state.<sup>289</sup> Retaining this rule will not prove to be an efficient and effective method of groundwater allocation in the future.

## 2. *A Regulated Riparian System Will Best Serve Ohio's Needs*

Ohio's best alternative is a regulated riparian system that is similar to the Model Code.<sup>290</sup> First, a regulated riparian system would provide a more reliable framework for determining reasonable uses of water. Rather than courts deciding post hoc whether water uses are reasonable, an agency with specialized knowledge would determine the reasonableness of uses before they began.<sup>291</sup> In this way, a regulated riparian system would be proactive, not reactive.

Second, a regulated riparian system would be rooted in certainty. As part of the permit-granting process, an agency deems a use of water reasonable.<sup>292</sup> Water users, with permits in hand, would be certain that their uses were reasonable. Contrarily, in a *Restatement* reasonable use jurisdiction, a water user has no way of knowing whether his use is reasonable until a court determines its status.

Third, a regulatory scheme providing for certainty would allow permitted users to safely invest in their water uses without the possibility that a subsequent

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282. *See id.*

283. *See id.*

284. Dellapenna, *supra* note 169, § 22.03, at 22-12.

285. *See* Dellapenna, *supra* note 2, § 19.03, at 19-20.

286. Dellapenna, *supra* note 169, § 22.03, at 22-12.

287. *Id.*

288. *Id.*

289. *Id.*

290. A regulated riparian system would govern surface water as well as groundwater. *See* MODEL CODE, *supra* note 180, § 3R-1-01.

291. *See id.* §§ 2R-2-20, 6R-3-01.

292. *Id.*

court decision would find their uses to be unreasonable.<sup>293</sup> This possibility always exists under a *Restatement* system. Such uncertainty discourages investment and provides for economic instability in industries using large amounts of water.<sup>294</sup>

Fourth, a regulated riparian system would protect the public interest in water resources.<sup>295</sup> The permit-issuing state administrative agency would be responsible for allocating water in a way that ensures water availability, minimizes disputes, and guarantees sustainability.<sup>296</sup> In short, a regulated riparian system would promote the best societal uses of water.

Further, Ohio already has some statutes governing large users of water.<sup>297</sup> Although some consider these types of statutes to be aimed more at collecting water-use data rather than allocating water,<sup>298</sup> the fact that Ohio has at least partially implemented some of the tenets of regulated riparianism in its basic water-use statutes provides hope for more comprehensive regulation. Ohio requires, for example: (1) permits for out-of-basin water diversions greater than 100,000 gallons per day;<sup>299</sup> (2) permits for consumptive water uses exceeding 2 million gallons per day for greater than 30 days;<sup>300</sup> and (3) the creation of a water resources inventory by the division of water.<sup>301</sup> The existence of these statutes suggests that the Ohio General Assembly is not completely opposed to enhancing its statutory system governing water use.

Not all agree that Ohio should adopt a comprehensive regulatory system. Some may argue that Ohio, as a humid state, will always have enough water to go around, despite increases in demand.<sup>302</sup> While it may be true that Ohio's groundwater supplies are not currently a problem, a related concern is how to most efficiently and effectively allocate those supplies. Even if Ohio's overall groundwater supplies are adequate to satisfy demands, localized allocation problems can exist for particularly strained aquifers.<sup>303</sup>

Others may argue that implementing a regulated riparian system would be costly and difficult,<sup>304</sup> but over half of the eastern states have successfully

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293. Dellapenna, *supra* note 5, at 49-50.

294. *See id.*

295. *See id.* at 54.

296. *See* MODEL CODE, *supra* note 180, § 1R-1-01.

297. *See, e.g.*, OHIO REV. CODE ANN. § 1521.17 (LexisNexis 2004).

298. Tarlock Presentation, *supra* note 186, at 8.

299. OHIO REV. CODE ANN. § 1501.32.

300. *Id.* § 1501.33.

301. *Id.* § 1521.15.

302. *See* Dellapenna, *supra* note 23, § 9.01, at 9-14 (noting that one reason that the eastern United States has so few cases involving riparian disputes may be "because the usual situation in the humid east enables nearly all who want water to get it without concern over legal rights").

303. *See, for example, McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 2, in which local homeowners argued that a city's extraction of water "lowered their aquifer levels, causing water shortages and poor quality water."

304. *See* Dellapenna, *supra* note 5, at 57 (recognizing that a regulated riparian system requires substantial financial expenses).

implemented regulated riparian systems.<sup>305</sup> Further, Ohio already requires permits for certain water users,<sup>306</sup> and Ohio's current "reasonable use" standard requires litigation to establish whether a specific use is "reasonable."<sup>307</sup> A regulated riparian system would "preempt" litigation by determining a use's "reasonableness" before it began. This would reduce litigation costs and ease judicial caseloads.

### 3. *The Next Steps*

Ohio should take the next step and adopt a version of the Model Code or at least a system that authorizes a state agency to issue time-limited permits for reasonable uses of water before the uses begin. While the benefits outweigh the drawbacks, adopting such a system may not be a seamless transition. First, Ohio would need to gather more information about its water needs. Second, a comprehensive regulatory system may lead to regulatory-takings claims.

As part of a regulated riparian system, Ohio would need to develop a more comprehensive water-resources data inventory devoted to monitoring permitted diversions and consumptive uses of water, in addition to groundwater levels, precipitation amounts, water supplies, and other relevant data. This new comprehensive inventory would serve as the basis for Ohio's water-allocation plan. Support for a move to regulated riparianism lies in the fact that it is the trend among the eastern states, with eighteen out of thirty-one currently employing some variation on the theme.<sup>308</sup> As demand for groundwater continues to increase, and as continued strain is placed on groundwater supplies, a regulated riparian system would help resolve disputes before they begin.

Adopting a regulated riparian system would present a new issue: whether such a system would constitute a "regulatory taking" of groundwater rights under the U.S. and Ohio Constitutions. The following parts consider this multi-faceted question, first with a discussion of Ohio's stance regarding property rights in groundwater, then an examination of the regulatory-takings jurisprudence of the U.S. Supreme Court and the Supreme Court of Ohio, and finally a survey of

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305. *See id.* at 45.

306. *See, e.g.*, OHIO REV. CODE ANN. §§ 1501.30–35 (LexisNexis 2004) (requiring permits for certain high-volume water diversions and consumptive uses and discussing standards for issuing such permits).

307. *See generally id.* § 1521.17 (declaring "that the determination of the reasonableness of a use of water depends upon a consideration of the interests of the person making the use, of any person harmed by the use, and of society as a whole" and listing factors that shall be considered in determining reasonable use).

308. Dellapenna, *supra* note 23, § 9.03, at 9-54. These states and the dates they adopted their respective regulated riparian statutes are: Alabama (1993), Arkansas (1957), Connecticut (1982), Delaware (1959), Florida (1972), Georgia (1977), Iowa (1957), Kentucky (1966), Maryland (1933), Massachusetts (1985), Michigan (2006), Minnesota (1973), Mississippi (1985), New Jersey (1965), New York (1979), North Carolina (1967), Virginia (1989), and Wisconsin (1957). *Id.* at 9-54 & n.238. Although the text of 1 WATERS AND WATER RIGHTS, *supra* note 23, § 9.03, at 9-54 suggests nineteen eastern states have adopted regulated riparianism, a count of the footnote only reveals eighteen.

other states' views on property rights in groundwater and a brief analysis of states' rulings on regulatory-takings challenges to regulated riparian statutes. All of these aspects are then applied to the question of whether Ohio's adoption of a regulated riparian system would constitute a regulatory taking.

#### V. PROPERTY RIGHTS IN GROUNDWATER IN OHIO

A landowner must have a property right in groundwater use to successfully claim that a regulated riparian system constitutes a regulatory taking. The Supreme Court of Ohio held in *McNamara v. City of Rittman* that "an Ohio landowner has a constitutionally protected property interest in groundwater that regularly occupies an aquifer underlying his land," confirming what it implied in *Cline v. American Aggregates Corp.*<sup>309</sup> Three years later, Ohio voters passed a constitutional amendment that declares a landowner has a "property interest in the reasonable use of the ground water underlying the [landowner's] land"<sup>310</sup> and that this property interest is subject to state regulation.<sup>311</sup>

In both *McNamara* and *Hensley v. City of Columbus*, *McNamara*'s companion case, landowners sued municipalities on the theory that the municipalities used groundwater unreasonably.<sup>312</sup> The Sixth Circuit recognized that the critical issue in both cases was whether Ohio recognizes landowners' property rights in groundwater.<sup>313</sup> Acknowledging that the Supreme Court of Ohio had yet to rule on this issue, the Sixth Circuit presented the Court with the same certified question for both *McNamara* and *Hensley*: "Does an Ohio homeowner have a property interest in so much of the groundwater located beneath the land owner's property as is necessary to the use and enjoyment of the owner's home?"<sup>314</sup> As to both cases, the Supreme Court of Ohio answered the certified question.<sup>315</sup>

The Supreme Court of Ohio began its discussion by stating that "[t]he title to property includes the right to use the groundwater beneath that property."<sup>316</sup> In other words, "groundwater rights are a separate right in property."<sup>317</sup> The Court further explained that comment B to *Restatement* section 858 states that "the

309. *McNamara*, 107 Ohio St. 3d at ¶ 35 (Moyer, C.J., concurring).

310. OHIO CONST. art. I, § 19b(C). This amendment was passed by Ohio voters on November 4, 2008 and went into effect on December 1, 2008. See Am. Sub. S.J. Res. 8, 127th Gen. Assem., Reg. Sess. (Ohio 2008). Because "[t]he Supreme Court of Ohio already determined [in *McNamara*] that private property owners have rights to the ground water underlying their land," OHIO CONST. art. I, § 19b "is an unnecessary addition to the Ohio Constitution." OHIO BALLOT BOARD, ARGUMENT: VOTE NO ON ISSUE 3, at 1 (2008), available at <http://www.sos.state.oh.us/SOS/Upload/ballotboard/2008/3ArgAgainst.pdf>.

311. OHIO CONST. art. I, § 19b(E).

312. *Id.* ¶ 5.

313. *Id.*

314. *Id.* ¶¶ 7-8.

315. *Id.* ¶ 9.

316. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 22.

317. *Id.*

right to withdraw ground water is a property right that may be granted and sold to others.”<sup>318</sup> This right “is one of the most fundamental attributes of property ownership and an essential stick in the bundle of rights that is part of title to property.”<sup>319</sup>

The Court also supported its finding with an analogy to surface water rights.<sup>320</sup> The Court noted that it held in *State ex rel. Andersons v. Masheter* that “riparian rights are private property within the meaning of the Constitution” and that “[w]here the state makes an improvement for a purpose other than navigation, which destroys riparian rights, the owners of such rights are entitled to compensation for the loss they have suffered.”<sup>321</sup> The *McNamara* Court also pointed to the U.S. Supreme Court decision in *Dugan v. Rank*, in which the government constructed dams that “severely affected water flow in the San Joaquin River for riparian owners downstream.”<sup>322</sup> The *Dugan* Court found that the government’s subordination of the downstream riparian owners’ water rights, which deprived them of profitably exercising their riparian rights, constituted a servitude and thus “an appropriation of property for which compensation should be made.”<sup>323</sup>

After discussing *Masheter* and *Dugan*, the Supreme Court of Ohio in *McNamara* pointed to its decision in *Cline*, in which it determined that “the advancement of scientific knowledge can insure protection of a landowner’s property rights in ground water to the same degree that riparian doctrine protects the interests of landowners adjacent to a stream.”<sup>324</sup> The *McNamara* Court bolstered its decision by citing cases in other jurisdictions that “have held that landowners’ rights to groundwater are protected from interference by the government.”<sup>325</sup> The Court did not address whether a regulatory system limiting Ohio landowners’ access to groundwater would constitute a compensable regulatory taking.

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318. *Id.* (quoting RESTATEMENT (SECOND) OF TORTS § 858 cmt. b (1979)).

319. *Id.*

320. *Id.* ¶ 28.

321. *Id.* (quoting *State ex rel. Andersons v. Masheter*, 203 N.E.2d 325, 327 (Ohio 1964)).

322. *Id.* ¶ 29 (citing *Dugan v. Rank*, 372 U.S. 609, 612-13 (1963)).

323. *Id.* ¶ 30 (quoting *Dugan*, 372 U.S. at 625-26).

324. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 31 (quoting *Cline v. Am. Aggregates Corp.*, 474 N.E.2d 324, 326 (Ohio 1984)).

325. *Id.* ¶ 32 (citing *State by State Highway Comm. v. Ponten*, 463 P.2d 150, 156 (Wash. 1969) (holding that where groundwater was allowed to escape during a highway construction project, the state was liable for causing nearby wells to run dry); *Dermody v. Reno*, 931 P.2d 1354, 1358 (Nev. 1997) (“[A]ppurtenant water rights are a separate stick in the bundle of rights attendant to real property. As such, they may be condemned separately.”); *Volkman v. Crosby*, 120 N.W.2d 18, 24 (N.D. 1963) (“[W]here a landowner has applied [groundwater] to reasonable beneficial use on his overlying land and has thereby acquired a vested right to that use, the state may not by subsequent legislation authorize its impairment or destruction without compensation.”); *Schick v. Florida Dep’t of Agric.*, 504 So. 2d 1318, 1320-21 (Fla. 1987) (holding that “governmental interference with an existing use of groundwater is sufficient to state a cause of action for inverse condemnation”)).



The groundwater property right is not without limits. In another case addressing property rights in groundwater, *Ketchel v. Bainbridge Township*, the Supreme Court of Ohio considered whether a township zoning ordinance that cited groundwater preservation as its purpose resulted in an unconstitutional taking of the affected landowners' groundwater rights.<sup>326</sup> The purpose of the zoning ordinance was to "provide for the development of lands ... in accordance with the ability of such lands to support development without central water supply and/or central sewerage disposal facilities, to prevent pollution of such lands and the underlying aquifers by excessive development, and to protect the aquifer recharge areas."<sup>327</sup>

Finding that *Cline* supported "the view that groundwater is a resource which must be conserved and protected,"<sup>328</sup> the *Ketchel* Court held "that a local zoning authority may consider the conservation of underground water resources when enacting zoning regulations."<sup>329</sup> Therefore, because a purpose of zoning is "to protect public health and safety" and "[a]n adequate supply of safe water for domestic use is vital to public health," Bainbridge Township's ordinance was based on legitimate interests and did not amount to a regulatory taking of plaintiff landowners' groundwater rights.<sup>330</sup>

Thus, Ohio landowners have a property right in the groundwater underlying their land. At the same time, because groundwater is an essential resource, the Supreme Court of Ohio has upheld zoning regulations that may interfere with landowners' rights to their groundwater.

## VI. REGULATORY-TAKINGS JURISPRUDENCE

### A. U.S. Supreme Court Regulatory-Takings Jurisprudence

As appropriately characterized by the Supreme Court of Ohio, "[r]egulatory takings issues are complex and difficult and have defied attempts to provide a simple solution."<sup>331</sup> Not even *Black's Law Dictionary* attempts to define "regulatory taking."<sup>332</sup> The U.S. Supreme Court "has been unable to develop any 'set formula' for determining when 'justice and fairness' require that economic injuries caused by public action be compensated by the government, rather than remain disproportionately concentrated on a few persons."<sup>333</sup> Nevertheless, the

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326. 557 N.E.2d 779, 782-83 (Ohio 1990).

327. *Id.* at 782.

328. *Id.* at 783.

329. *Id.*

330. *Id.* at 782.

331. State *ex rel.* R.T.G., Inc. v. State, 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 1. See also *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005) (stating that "[U.S. Supreme Court] regulatory takings jurisprudence cannot be characterized as unified").

332. See BLACK'S LAW DICTIONARY 1311, 1493-94 (8th ed. 2004).

333. Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978) (citing *Goldblatt v. Hempstead*, 369 U.S. 590, 594 (1962)).

Court has attempted to establish some rules and balancing tests for dealing with regulatory-takings cases under the Fifth Amendment to the U.S. Constitution.

First, the Fifth Amendment states, “nor shall private property be taken for public use, without just compensation.”<sup>334</sup> This clause is known as the “Just Compensation Clause”<sup>335</sup> or “Takings Clause”<sup>336</sup> and applies to the states via the Fourteenth Amendment.<sup>337</sup> The Just Compensation Clause’s purpose is “to bar Government from forcing some people alone to bear burdens which, in all fairness and justice, should be borne by the public as a whole.”<sup>338</sup>

The Just Compensation Clause applies to physical takings, whether by “condemnation proceeding[s] or a physical appropriation,” and to regulatory takings.<sup>339</sup> Just-compensation jurisprudence relating to physical takings is well defined and guided by per se rules because the Fifth Amendment’s plain language requires compensation in cases where property is in fact “taken.”<sup>340</sup> Conversely, the Fifth Amendment’s language is less clear regarding government regulations that prohibit landowners from using property in a certain way.<sup>341</sup> In large part, this inquiry hinges on the definition of the word “taken” as it is used in the Fifth Amendment.<sup>342</sup> The Supreme Court has attempted to answer this question in its relatively recent regulatory-takings jurisprudence, which has mostly been “characterized by ‘essentially ad hoc, factual inquiries’ designed to allow ‘careful examination and weighing of all the relevant circumstances.’”<sup>343</sup>

Justice Holmes, in his oft-quoted statement from *Pennsylvania Coal Co. v. Mahon*,<sup>344</sup> first considered the idea of a regulatory taking, saying “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.”<sup>345</sup> The U.S. Supreme Court in *Penn Central Transportation Co. v. New York City*<sup>346</sup> established a set of ad hoc balancing factors courts should consider in deciding whether a regulation has gone too far.<sup>347</sup> These factors include: (1) the extent to which the regulation diminishes the value of the claimant’s property;<sup>348</sup> (2) “the character of the governmental

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334. U.S. CONST. amend. V.

335. *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 306 n.1 (2002).

336. *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001).

337. *Id.* (citing *Chicago, B. & Q.R. Co. v. City of Chicago*, 166 U.S. 226 (1897)).

338. *Armstrong v. United States*, 364 U.S. 40, 49 (1960).

339. *Tahoe-Sierra*, 535 U.S. at 321.

340. *Id.* at 302, 321, 322 n.17.

341. *Id.* at 302, 321-22.

342. *Id.* at 322 n.17.

343. *Id.* at 322 (quoting *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978); *Palazzolo*, 533 U.S. at 636 (O’Connor, J., concurring)).

344. 260 U.S. 393 (1922).

345. *Id.* at 415.

346. 438 U.S. 104 (1978).

347. *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 326-27 (2002).

348. *Penn Cent.*, 438 U.S. at 124 (considering the “economic impact of the regulation on the claimant”). See also *Pennsylvania Coal*, 260 U.S. at 413 (considering the “extent of the diminution”).

action;”<sup>349</sup> and (3) “the extent to which the regulation has interfered with distinct investment-backed expectations.”<sup>350</sup> Though not explicitly mentioned in *Penn Central*, another balancing factor that the Court has recognized as pertinent is “the average reciprocity of advantage” conferred on the claimant’s property by the regulation.<sup>351</sup>

In addition to the ad hoc balancing approach of *Penn Central*, the U.S. Supreme Court has adopted “at least two discrete categories of regulatory action as compensable without case-specific inquiry into the public interest advanced in support of the restraint.”<sup>352</sup> The first categorical rule, established in *Loretto v. Teleprompter Manhattan CATV Corp.*,<sup>353</sup> “encompasses regulations that compel the property owner to suffer a [permanent] physical ‘invasion’ of his property.”<sup>354</sup> In these situations, “no matter how minute the intrusion, and no matter how weighty the public purpose behind it,” the Court has required compensation under the Fifth Amendment.<sup>355</sup> As a second categorical rule, the Court set forth in *Lucas v. South Carolina Coastal Council* that “where a regulation denies all economically beneficial or productive use of land,” compensation is required regardless of any policy supporting the regulation.<sup>356</sup> An important exception to this second categorical rule exists where the governmental regulation is designed to proscribe a “harmful or noxious use” of property “akin to [a] public nuisance[.]”<sup>357</sup> This exception is rooted in the states’ ability to pass land-use regulations pursuant to their police powers to promote “the health, safety, morals, or general welfare” of their citizens.<sup>358</sup>

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349. *Penn Cent.*, 438 U.S. at 124.

350. *Id.* at 124.

351. *Pennsylvania Coal*, 260 U.S. at 415 (finding that “average reciprocity of advantage ... has been recognized as a justification of various laws”). See also *Keystone Bituminous Coal Ass’n v. DeBenedictis*, 480 U.S. 470, 488, 491 (1987) (considering the “average reciprocity of advantage” enjoyed by a claimant); *Penn Cent.*, 438 U.S. at 134-35 (considering whether the Penn Central Transportation Company had in any way benefited from the regulation).

352. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015 (1992).

353. 458 U.S. 419 (1982). In *Loretto*, the owner of a five-story apartment building, Loretto, challenged a New York law that required landlords to “permit a cable television company to install its cable facilities” on the landlords’ properties. *Id.* at 421. Teleprompter Manhattan CATV installed a cable and additional equipment that “occupied portions of [Loretto’s] roof and the side of her building.” *Id.* The Court found that because the New York law effectuated a physical occupation of Loretto’s property, it was a taking requiring just compensation. *Id.*

354. *Lucas*, 505 U.S. at 1015.

355. *Id.* (citing *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435-40 (1982)).

356. *Id.* (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 260 (1986)).

357. *Id.* at 1022-24.

358. *Id.* at 1023-24 (quoting *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 125 (1978)). “The ‘harmful or noxious uses’ principle was the Court’s early attempt to describe in theoretical terms why government may, consistent with the Takings Clause, affect property values by regulation without incurring an obligation to compensate—a reality we nowadays acknowledge explicitly with respect to the full scope of the State’s police power.” *Id.* at 1022-23 (citations omitted). “‘Harmful or noxious use’ analysis was ... simply the progenitor of our more contemporary statements that ‘land-use regulation does not effect a taking if it substantially advances legitimate state interests....’” *Id.* at 1023-24 (citations and internal quotations omitted).

In the case of a regulation that does not effectuate a *Loretto*-style permanent physical invasion of property, the Court described in *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency* when to apply the second categorical rule described in *Lucas* or the *Penn Central* balancing factors.<sup>359</sup> The *Lucas* categorical rule applies in situations where a landowner has suffered a “complete elimination in value” or a “total loss” due to a government regulation.<sup>360</sup> This categorical rule only applies where the diminution in value is 100%.<sup>361</sup> As one might imagine, situations involving a “complete elimination of value” are rare.<sup>362</sup> The *Penn Central* balancing factors apply in all other circumstances, that is, where the property owner suffers “anything less than a ‘complete elimination of value,’ or a ‘total loss.’”<sup>363</sup>

“The regulatory-takings analysis requires a court to compare the value of the property that has been taken by the regulation against the value of the property that remains.”<sup>364</sup> This analysis involves a fraction.<sup>365</sup> The denominator of the fraction, “or the ‘relevant parcel,’ is the property interest that is subject to the regulation.”<sup>366</sup> The numerator “is the value of the property that has been taken due to the regulation.”<sup>367</sup> When this fraction equals one, a *Lucas* categorical taking has occurred and compensation is required because the property owner has suffered a complete loss in value (“i.e., the value of the property taken equals the value of the relevant parcel”).<sup>368</sup> When the fraction equals any number less than one, there has not been a *Lucas* categorical taking and the *Penn Central* balancing factors apply.<sup>369</sup> The critical question in determining which test to apply is how to define the relevant parcel that will serve as the denominator.<sup>370</sup>

Justice Brandeis, in his dissenting opinion in *Pennsylvania Coal*, set forth a method to determine the relevant parcel that has since become the majority rule.<sup>371</sup> This view was applied in *Penn Central*.<sup>372</sup> When applying the *Penn Central* balancing factors, courts should “not divide a single parcel into discrete

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359. *Tahoe-Sierra Pres. Council v. Tahoe Reg'l Planning Agency*, 535 U.S. 302, 330 (2002).

360. *Id.*

361. *Id.*

362. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1018 (1992) (stating there are “relatively rare situations where the government has deprived a landowner of all economically beneficial uses”).

363. *Tahoe-Sierra*, 535 U.S. at 330.

364. *State ex rel. R.T.G., Inc. v. State*, 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 40 (citing *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 497 (1987)).

365. *Id.*

366. *Id.*

367. *Id.*

368. *Id.* (citing *Lucas*, 505 U.S. at 1027-29).

369. *Id.*

370. *Id.* ¶ 41. For a discussion of the “denominator question,” see *Lucas*, 505 U.S. at 1016 n.7. See generally John E. Fee, Comment, *Unearthing the Denominator in Regulatory Taking Claims*, 61 U. CHI. L. REV. 1535 (1994) (analyzing the “denominator question” and the problems associated with defining the relevant parcel).

371. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 419 (1922) (Brandeis, J., dissenting).

372. See *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 130 (1978).

segments and attempt to determine whether rights in a particular segment have been entirely abrogated.<sup>373</sup> Instead, courts are to focus on both “the character of the [governmental] action and on the nature and extent of the interference with rights in the parcel as a whole.”<sup>374</sup> The Court further explained this view in *Keystone Bituminous Coal Ass’n v. DeBenedictis*, saying “where an owner possesses a full ‘bundle’ of property rights, the destruction of one ‘strand’ of the bundle is not a taking because the aggregate must be viewed in its entirety.”<sup>375</sup> Most recently, the Court confirmed this view as the majority rule in its *Tahoe-Sierra* decision.<sup>376</sup>

In his majority opinion in *Pennsylvania Coal*, Justice Holmes set forth what has become the minority position on determining the relevant parcel.<sup>377</sup> Under this theory, the denominator is the portion of the parcel that is subject to the regulation, not the parcel as a whole.<sup>378</sup> In the case of a temporary moratorium that burdens a parcel, proponents of the minority view suggest that the denominator should be the burdened property during the temporary deprivation, not the entire parcel over its “infinite life.”<sup>379</sup>

#### B. Supreme Court of Ohio Regulatory-Takings Jurisprudence

Like the Fifth Amendment to the U.S. Constitution, the Ohio Constitution states, “where private property shall be taken for public use, a compensation therefor shall first be made in money.”<sup>380</sup> The Supreme Court of Ohio recently addressed regulatory-takings issues in *State ex rel. R.T.G., Inc. v. State*<sup>381</sup> and *State ex rel. Shelly Materials v. Clark County Board of Commissioners*.<sup>382</sup>

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373. *Id.*

374. *Id.* at 130-31.

375. 480 U.S. 470, 497 (1987) (quoting *Andrus v. Allard*, 444 U.S. 51, 65-66 (1979)).

376. *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 331 (2002). *Tahoe-Sierra* involved temporary moratoria on the development of Lake Tahoe properties so that the Tahoe Regional Planning Agency could develop a comprehensive land-use plan. *Id.* at 306. The property owners argued that the “denominator” should consist of the properties during the temporal segments established by the moratoria. *Id.* at 331. This, the landowners argued, would result in a *Lucas* categorical taking for those segments of time. *Id.* The Court rejected this argument, however, pointing out that “defining the property interest taken in terms of the very regulation being challenged is circular.” *Id.* Instead, the Court applied the “parcel as a whole” method of *Penn Central* and determined that the relevant parcel for temporal purposes included the property during and after the moratoria. *Id.* at 331-32.

377. See *Pennsylvania Coal*, 260 U.S. at 414 (“To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it.”) (emphasis added).

378. See, e.g., *Keystone Bituminous Coal*, 480 U.S. at 517 (Rehnquist, C.J., dissenting) (“Similarly, there is no need for further analysis where the government by regulation extinguishes the whole bundle of rights in an identifiable segment of property, for the effect of this action on the holder of the property is indistinguishable from the effect of a physical taking.”).

379. *Tahoe-Sierra Pres. Council*, 535 U.S. at 355-56 (Thomas, J., dissenting).

380. OHIO CONST. art. I, § 19.

381. 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 1.

382. 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 1.

R.T.G., Inc. (RTG), a coal-mining company, surface-mined land in eastern Ohio, some of which it owned in fee and some to which it possessed only coal rights.<sup>383</sup> A nearby village, Pleasant City, was concerned that RTG's mining operations would adversely affect the aquifer serving its well-field.<sup>384</sup> Accordingly, the village petitioned the Ohio Department of Natural Resources, Division of Reclamation (DOR) to designate 833 acres of land in Guernsey County, including much of RTG's property, as "unsuitable for mining" (UFM).<sup>385</sup> The DOR granted the petition for 275 of the 833 acres,<sup>386</sup> and on appeal, the Ohio Reclamation Board of Review designated all 833 acres as UFM.<sup>387</sup>

Alleging that the UFM designation constituted a regulatory taking of its coal rights, RTG sought "a writ of mandamus [in the Franklin County Court of Common Pleas] to compel the state to appropriate the coal located within the UFM-designated area."<sup>388</sup> After the trial court dismissed RTG's complaint, the Tenth District Court of Appeals reversed and remanded so that the trial court could determine whether the UFM designation constituted a regulatory taking of RTG's coal rights.<sup>389</sup> On remand, RTG dismissed its complaint.<sup>390</sup>

Two years later, RTG sought a writ of mandamus in the Tenth District "to compel the state to initiate appropriation proceedings."<sup>391</sup> Ultimately, the appellate court held that a regulatory taking of coal occurred against the land designated "unsuitable for mining" to which RTG held only coal rights because the regulation resulted in a categorical taking of 100% of the value of RTG's interest.<sup>392</sup> On the other hand, as to the land to which RTG held fee title, the appellate court held that no regulatory taking of coal occurred.<sup>393</sup>

In deciding *RTG*, the Supreme Court of Ohio focused quite heavily on how to calculate the "relevant parcel" or the denominator of the regulatory-takings fraction.<sup>394</sup> The Court explained that "[t]he determination of the relevant parcel can include consideration of the vertical divisions of property (e.g., surface rights, air rights, and mineral rights) and horizontal divisions of property (e.g., surface divisions of property, such as can be shown on a map)."<sup>395</sup>

The Supreme Court of Ohio rejected the appellate court's division of RTG's land into two relevant parcels: (1) all of the land in which RTG held fee title; and

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383. *State ex rel. R.T.G., Inc.*, 98 Ohio St. 3d at ¶ 2.

384. *Id.* ¶ 10.

385. *Id.*

386. *Id.* ¶ 11.

387. *Id.* ¶ 13.

388. *Id.* ¶ 14.

389. *Id.* ¶ 15.

390. *Id.*

391. *State ex rel. R.T.G., Inc. v. State*, 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 16.

392. *Id.*

393. *Id.*

394. *Id.* ¶¶ 40-56.

395. *Id.* ¶ 42.

(2) all of the land to which RTG held only coal rights.<sup>396</sup> With regard to vertical divisions of property, the Court recognized that *Penn Central* and *Keystone Bituminous Coal Ass'n* established a “nonseverability rule,” requiring that the individual rights associated with a parcel not be separated for purposes of regulatory-takings analysis.<sup>397</sup> The Court noted that the U.S. Supreme Court’s discussion in *Lucas* emphasized inconsistencies with this “parcel-as-whole rule” and proposed that determining the relevant parcel “may lie in how the owner’s reasonable expectations have been shaped by the State’s law of property.”<sup>398</sup> The Supreme Court of Ohio ultimately found the *Lucas* discussion relevant in *RTG*.<sup>399</sup>

The *RTG* Court reasoned that “[u]nlike other individual rights within the bundle of rights that make up a complete property estate, mineral rights are recognized by Ohio law as separate property rights.”<sup>400</sup> Quoting Chief Justice Rehnquist’s dissent in *Keystone*, the Court found that “because ownership of the coal is ‘both severable and of value in its own right, it is appropriate to consider the effect of regulation on that particular property interest.’”<sup>401</sup> The Court concluded that coal rights are a severable property interest under the Ohio Constitution “if the property owner’s intent was to purchase the property solely for the purpose of mining the coal.”<sup>402</sup> In applying this test to RTG’s situation, the Court found that because RTG acquired all its property interests “for the sole purpose of surface-mining the coal[,] ... the relevant parcel for the takings analysis in the vertical context is the coal rights.”<sup>403</sup>

Turning to the issue of “the relevant parcel in the horizontal context,” the Court considered whether the land in which RTG held an interest that was outside of the area designated “unsuitable for mining” should be included in the relevant parcel.<sup>404</sup> The State argued that this land was part of the relevant parcel because it included coal rights.<sup>405</sup> RTG argued that although the land outside the “unsuitable for mining” area contained “fringe amounts of coal,” the “economies of scale” would have made mining these small amounts of coal by themselves “economically impracticable.”<sup>406</sup> The Court agreed with RTG, holding “that the relevant parcel in the horizontal context” was limited to RTG’s coal located within the area designated “unsuitable for mining.”<sup>407</sup> In merging its vertical

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396. *Id.* ¶ 43.

397. *Id.* ¶¶ 45-46.

398. *Id.* ¶ 47 (quoting *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1017 n.7 (1992)).

399. *Id.* ¶ 49.

400. *Id.* (citing *Moore v. Indian Camp Coal Co.*, 80 N.E. 6, 7 (Ohio 1907)).

401. *State ex rel. R.T.G., Inc. v. State*, 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 49 (quoting *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 520 (1987) (Rehnquist, C.J., dissenting)).

402. *Id.*

403. *Id.* ¶ 50.

404. *Id.* ¶¶ 51-55.

405. *Id.* ¶ 51.

406. *Id.* ¶¶ 51, 54.

407. *Id.* ¶ 55.

context and horizontal context analyses, the Court found that the relevant parcel was “the remaining coal located within the [“unsuitable for mining”]-designated area” and that this designation rendered RTG’s coal rights valueless, resulting in a compensable categorical taking of all value under *Lucas*.<sup>408</sup>

The Supreme Court of Ohio recently returned to the regulatory-takings question in *State ex rel. Shelly Materials v. Clark County Board of Commissioners*.<sup>409</sup> Shelley Materials, a gravel and sand extraction company, purchased a 306-acre parcel in Clark County to “mine the sand and gravel deposits beneath the surface.”<sup>410</sup> The parcel fell in an area of Clark County zoned as an agricultural district, where mineral extraction was allowed with a conditional-use permit from the Clark County Board of Zoning Appeals.<sup>411</sup> Aware that it needed a conditional-use permit to mine the sand and gravel at the time of purchasing the tract,<sup>412</sup> Shelley Materials applied for the permit and was denied by the zoning board.<sup>413</sup> Shelley Materials appealed the denial of its application and ultimately the Ohio Second District Court of Appeals upheld the County’s decision.<sup>414</sup>

On appeal to the Supreme Court of Ohio, Shelley Materials argued that *RTG* required the reversal of the court of appeal’s decision.<sup>415</sup> The Court first recognized that its *RTG* holding departed from the generally accepted “parcel as a whole” analysis and “was largely dependent on unique circumstances.”<sup>416</sup> The Court pointed out that *Moore v. Indian Camp Coal Co.*, a case cited in *RTG*, stated “that there *may be* a complete severance of the ownership of the surface of land from the ownership of the different strata of mineral which may underlie the surface” wherever the mineral rights are created as a “*separate interest ... whether by deed, grant, lease, reservation or exception.*”<sup>417</sup> The Court used this to distinguish *RTG*, finding that unlike in *RTG* where “a separate mineral estate had been created in at least a portion of the land,” Shelley Materials “purchased its land in its entirety” via a fee simple title.<sup>418</sup> The Court further stated that “sand and gravel are minerals that are subject to mining restrictions” and

*R.T.G.* should be clarified based on *Moore*’s holding: A mineral estate may be considered the relevant parcel for a compensable regulatory taking if the mineral estate was purchased separately from the other interests in the real property.

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408. *Id.* ¶¶ 56-57 (citing *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1029 (1992)).

409. 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 1.

410. *Id.* ¶ 2.

411. *Id.* ¶ 3.

412. *Id.* ¶ 24.

413. *Id.* ¶ 4.

414. *Id.* ¶ 11.

415. *Id.* ¶ 25.

416. *Id.* ¶¶ 26, 29.

417. *Id.* ¶ 31 (quoting *Moore v. Indian Camp Coal Co.*, 80 N.E. 6, 7 (Ohio 1907)).

418. *Id.* ¶ 32.



Otherwise, the property should be considered as a whole when a regulatory takings claim is made.<sup>419</sup>

Approving of the Second District's "property as a whole" analysis, the Supreme Court of Ohio affirmed the judgment of the appeals court.<sup>420</sup>

Two justices in *Shelley Materials* dissented.<sup>421</sup> Justice Pfeifer attacked the distinction made by the majority between mineral rights owned separately and those owned "as part of the property purchased in fee," arguing that in *RTG*, the Court "reversed the portion of the court of appeals' judgment that did not sever the mineral estate from the property owned by RTG in fee."<sup>422</sup> Justice Pfeifer asserted that by ignoring precedent, the majority "muddle[d] takings law in Ohio," and effectively overruled *RTG*.<sup>423</sup> Nevertheless, *Shelley Materials* is the current law in Ohio on regulatory takings and appears to have significantly limited the *RTG* holding.

### C. *Water-Rights Takings Jurisprudence in Other States*

Before determining whether Ohio's institution of a regulated riparian system would constitute a taking under *McNamara*, a review of the water-rights takings jurisprudence from other states will provide a national perspective. The following subsections discuss jurisprudence regarding property rights in water and challenges to regulated riparian systems.

#### 1. *Property Rights in Water*

Among the American states, only the Oklahoma Supreme Court has held that a statute limiting water use constitutes a taking.<sup>424</sup> *Franco-American Charolaise, Ltd. v. Oklahoma Water Resources Board* involved 1963 amendments to the Oklahoma water code statute that limited future riparian water uses to: (1) domestic uses, including household, livestock watering, and irrigation for up to three acres of land; and (2) pre-existing beneficial uses validated by the riparian owner with the state.<sup>425</sup> Under the 1963 amendments, "[a]ll subsequent rights to the use of stream water [were] to be acquired by appropriation," "[t]he stream's natural flow [was] considered public water," and a riparian owner was unable to assert his common-law riparian rights to the stream water except for domestic uses or pre-existing beneficial uses mentioned

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419. *Shelley Materials v. Clark County Bd. of Comm'rs*, 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 34.

420. *Id.* ¶ 42.

421. *Id.* ¶¶ 43-59 (Pfeifer, J., dissenting); *id.* ¶ 60 (Lundberg Stratton, J., dissenting).

422. *Id.* ¶¶ 45-48 (Pfeifer, J., dissenting).

423. *Id.* ¶¶ 43-44 (Pfeifer, J., dissenting).

424. *Franco-Am. Charolaise, Ltd. v. Oklahoma Water Res. Bd.*, 855 P.2d 568, 568 (Okla. 1990).

425. *Id.* at 573.

above.<sup>426</sup> The City of Ada applied for permission to divert 7842 acre feet of stream water from a nearby stream.<sup>427</sup> The Oklahoma Water Resources Board approved the application for 5340 acre feet, finding this to be the available amount.<sup>428</sup> Riparian owners and appropriative rights owners affected by the Board's decision appealed.<sup>429</sup>

The Oklahoma Supreme Court, in a five-to-four decision,<sup>430</sup> held that

the Oklahoma riparian owner enjoys a vested common-law right to the reasonable use of the stream. This right is a valuable part of the property owner's "bundle of sticks" and may not be taken for public use without compensation. We further hold that, inasmuch as 60 O.S.1981 § 60, as amended in 1963, limits the riparian owner to domestic use and declares that all other water in the stream becomes public water subject to appropriation without any provision for compensating the riparian owner, the statute violates Art. 2 § 24, Okla. Const.<sup>431</sup>

The Oklahoma Supreme Court divided the riparian right in question "into two parts: (1) any currently exercised portion of the right and (2) the unused portion of the right which, under common law, can always be exercised in the future."<sup>432</sup> The Court then found that of these two, the relevant water right for its takings analysis was the latter, the unexercised riparian right, and that the 1963 amendments "totally stripped riparians of this right rather than merely 'regulating' the right, thus taking riparians' property without compensation."<sup>433</sup> Professor Thompson suggested that *Franco-American* "represents an interesting example of how [*Lucas v. South Carolina Coastal Council*] might be applied to the water field."<sup>434</sup>

In stark contrast to *Franco-American*, some states have held that common-law rights to groundwater do not constitute property interests.<sup>435</sup> For example, the Florida Supreme Court, in *Village of Tequesta v. Jupiter Inlet Corp.*, held that a "landowner does not have a constitutionally-protected property right in the water beneath the property, requiring compensation for the taking of the water when used for a public purpose."<sup>436</sup> In an Arizona case, *Town of Chino Valley v. City of Prescott*, the Arizona Supreme Court held "that there is no right of

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426. *Id.*

427. *Id.* at 571.

428. *Id.*

429. *Id.*

430. Thompson, Jr., *supra* note 218, at 47.

431. *Franco-Am. Charolaise*, 855 P.2d at 571. Art. 2, § 24 of the Oklahoma Constitution contains Oklahoma's version of the Just Compensation Clause.

432. *Id.* at 48.

433. *Id.*

434. Thompson, Jr., *supra* note 218, at 47.

435. Dellapenna, *supra* note 180, § 23.04, at 23-63.

436. 371 So. 2d 663, 672 (Fla. 1979). In *Jupiter Inlet*, a landowner seeking to build a condominium on its land sued the City of Tequesta, which operated a nearby well-field, alleging that the City's excessive water withdrawal infringed on its property rights in the groundwater. *Id.* at 665.

ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and that the right of the owner of the overlying land is simply to the usufruct of the water.”<sup>437</sup> Moreover, at least four states extend the public trust doctrine to groundwater, most likely foreclosing takings claims.<sup>438</sup>

437. 638 P.2d 1324, 1328 (Ariz. 1981). The City of Prescott operated a well-field in the town of Chino Valley and pumped the groundwater seventeen miles in a pipeline. *Id.* at 1325. The town of Chino Valley sued to enjoin the City of Prescott from operating its well-field and alleged that a state statute authorizing the transportation of groundwater via pipeline constituted a taking of its groundwater rights. *Id.* at 1325-26.

438. See Jack Tuholske, *Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources*, 9 VT. J. ENVTL. L. 189, 216-21, 234-35 (2008). The public trust doctrine states that the state holds title to navigable waters and lands under navigable waters “in trust for the people of the State that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties.” Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 452 (1892). The state cannot transfer title to navigable waters or the land under navigable waters if doing so would “substantially impair” the public interest in these waters and lands. *Id.*

Professor Joseph Sax was one of the first to promote the idea that the public trust doctrine should be expanded to encompass additional natural resources. Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 556-57 (1970). Professor Sax argued that extending the public trust to natural resources is logical and that by doing so, constitutional-takings claims would be preempted. *Id.* at 557. Since Professor Sax’s 1970 article, some state courts have expanded the public trust doctrine geographically to apply to tidelands, dry sand beaches, lakes, marshlands, and unnavigable waterways such as streams. Barton H. Thompson, Jr., *The Public Trust Doctrine: A Conservative Reconstruction & Defense*, 15 SOUTHEASTERN ENVTL. L.J. 47, 52-54 (2006). Additionally, some state courts have expanded the public trust doctrine to protect recreational activities such as hunting, bathing, swimming, and boating. Kanner, *supra*, at 82.

Some commentators have argued that the public trust doctrine should be applied to groundwater. See, e.g., Allan Kanner, *The Public Trust Doctrine, Parens Patriae, and the Attorney General as the Guardian of the State’s Natural Resources*, 16 DUKE ENVTL. L. & POL’Y F. 57, 83 (2005); Eric Swenson, Comment, *Public Trust Doctrine and Groundwater Rights*, 53 U. MIAMI L. REV. 363, 380, 391 (1999); A. Dan Tarlock & Stuart L. Deutsch, Symposium, *Prevention of Groundwater Contamination in the Great Lakes Region: Forward*, 65 CHI.-KENT. L. REV. 345, 347 (1989); Tuholske, *supra*, at 226-31. Two states, California and Hawaii, judicially extended the public trust doctrine to include groundwater. Thompson, Jr., *supra*, at 52-53 (citing Nat’l Audubon Soc’y v. Superior Court, 658 P.2d 709 (Cal. 1983); *In re Water Use Permit Applications*, 9 P.3d 409 (Haw. 2000)); Tuholske, *supra*, at 217-20. Two other states, New Hampshire and Connecticut, legislatively extended the public trust doctrine to include groundwater. Tuholske, *supra*, at 220-21. Expanding the public trust doctrine to encompass groundwater, however, is certainly the minority view.

Ohio currently applies the public trust doctrine to navigable waters, including Lake Erie, and the land beneath them. See OHIO REV. CODE ANN. § 1506.10 (LexisNexis 2004); State *ex rel.* Brown v. Newport Concrete Co., 336 N.E.2d 453 (Ohio Ct. App. 1975). Fishing, commerce, navigation, and recreational boating are uses protected by the public trust doctrine in Ohio. See OHIO REV. CODE ANN. § 1506.10; Coleman v. Schaeffer, 126 N.E.2d 444 (Ohio 1955); *Newport Concrete Co.*, 336 N.E.2d at 453. Ohio courts have not applied the public trust doctrine to Ohio’s unnavigable surface waters or groundwater. Letter from Kenneth K. Kilbert, Associate Professor of Law, University of Toledo College of Law, to Sean D. Logan, Director, Ohio Department of Natural Resources, at 3 (Sept. 14, 2007) (on file with author). And Ohio’s recent constitutional amendment, OHIO CONST. art. I, § 19b, forecloses the possibility, stating that “[g]round water underlying privately owned land and nonnavigable waters located on or flowing through privately owned land shall not be held in trust by any governmental body.” OHIO CONST. art. I, § 19b.

The decisions in *Franco-American* and in *Jupiter Inlet* and *Chino Valley* present two divergent views on whether riparian and groundwater rights are subject to regulatory takings. Courts could also acknowledge property rights in water but find that a particular regulatory system does not rise to the level of a regulatory taking, a possibility discussed in part VI of this article. Insofar as the *Franco-American* Court acknowledged property rights in surface water,<sup>439</sup> the *McNamara* Court adopted this position for groundwater<sup>440</sup> and rejected the *Jupiter Inlet* and *Chino Valley* view that landowners do not have a protected property interest in groundwater beneath their land. While Ohio landowners have an established property interest in groundwater, Ohio courts have not yet decided whether a regulatory system governing groundwater use can constitute a regulatory taking.

## 2. *Challenges to Regulated Riparian Systems*

Challenges to regulated riparian permit systems are “remarkably sparse.”<sup>441</sup> Every court considering the takings argument has held that the adoption of a regulated riparian-permit system does not constitute a taking of property;<sup>442</sup> however, the reasoning used by the courts in striking down taking claims “has been rather thin.”<sup>443</sup> This subsection explores some of these cases challenging regulated riparian systems and the logic used by the deciding courts.

No court has ever upheld a constitutional takings challenge to a regulated riparian statute, but such challenges have been relatively few in number.<sup>444</sup> Surprisingly, in terms of surface water rights, “[o]nly one applicant who was denied a permit for the consumptive use ... has challenged the regulated-riparian permit requirement as an unconstitutional taking of property.”<sup>445</sup> In *Omernik v. State*, the defendant was charged with diverting water from two streams for irrigation purposes without the proper permit.<sup>446</sup> The defendant argued that the

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439. *Franco-Am. Charolaize, Ltd. v. Oklahoma Water Res. Bd.*, 855 P.2d 568, 571 (Okla. 1990) (holding that a riparian owner’s “right to the reasonable use of the stream ... is a valuable part of the property owner’s ‘bundle of sticks’ and may not be taken for public use without compensation”).

440. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶¶ 10, 15 (finding that a landowner’s property right in groundwater “is one of the fundamental attributes of property ownership and an essential stick in the bundle of rights that is part of title to property” and “that governmental interference with that right can constitute an unconstitutional taking”).

441. Dellapenna, *supra* note 23, § 9.04(a), at 9-174.

442. Dellapenna, *supra* note 180, § 23.04, at 23.63. *See also* Thompson, *supra* note 218, at 45 (discussing unsuccessful challenges to water regulation); Tarlock Presentation, *supra* note 186, at 10 n.12 (“The constitutionality of regulated riparianism has been upheld against the charge that it constitutes a taking of property without due process of law.”).

443. Dellapenna, *supra* note 152, § 20.06, at 20-27.

444. *SAX ET AL.*, *supra* note 16, at 383 n.1; Dellapenna, *supra* note 180, § 23.04, at 23-63.

445. Dellapenna, *supra* note 23, § 9.04(a), at 9-174 (citing *Omernik v. State*, 218 N.W.2d 734 (Wis. 1974)).

446. *Omernik*, 218 N.W.2d at 736-37.

regulated riparian statute requiring him to have a permit to divert surface water constituted an unconstitutional taking of his property.<sup>447</sup> The Wisconsin Supreme Court, in a unanimous decision,<sup>448</sup> found that the regulated riparian statute was passed pursuant to the State's "police power to protect public rights and to prevent harm to the public by uncontrolled diversion of water from lakes and streams."<sup>449</sup> The Court further pointed out that statutes passed pursuant to a state's police power, as opposed to the power of eminent domain, do not "recognize[] a right to compensation."<sup>450</sup> Stating that the challenged regulated riparian statute did not impose a "total ban or prohibition" but merely reasonably restricted the use of surface water, the Court held that the statute did not amount to an uncompensated taking.<sup>451</sup>

Others have challenged the denial of permits for groundwater consumption. In *Crookston Cattle Co. v. Minnesota Department of Natural Resources*, the Minnesota Department of Natural Resources (DNR), pursuant to the State's regulated riparian statute governing groundwater and surface water allocation,<sup>452</sup> granted the City of Crookston's application to drill two wells in an aquifer that the Crookston Cattle Company also sought to use.<sup>453</sup> The Crookston Cattle Company appealed the DNR's final order, alleging that it resulted in an unconstitutional taking "of its property rights to a reasonable use of the underground water."<sup>454</sup> The Minnesota Supreme Court found that the permit issued to the City adequately protected other groundwater users' rights by including a provision that required the City to obtain the written consent of any competing user upon whose interest the City might infringe.<sup>455</sup> Finding that any harm to the company was speculative, the Court held that the DNR's granting of the City's permit did not constitute a taking of the company's groundwater rights.<sup>456</sup>

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447. *Id.*

448. Dellapenna, *supra* note 23, § 9.04(a), at 9-175.

449. *Omernik*, 218 N.W.2d at 743.

450. *Id.*

451. *Id.*

452. 300 N.W.2d 769, 775 (Minn. 1981). The regulated riparian statute in question included a prioritization for competing uses, and, under that prioritization, the City's use (municipal water supply) had higher priority than the company's (agricultural irrigation). *Id.*

453. *Id.* at 771.

454. *Id.* at 771, 774. The plaintiff company challenged the state's action as a physical taking of its property. *Id.* at 771. Nevertheless, in dicta, the court indicated that it would not find a constitutional taking under a regulatory-takings analysis, stating that "[l]ike zoning legislation, legislation which limits or regulates the right to use underlying water is permissible" and that "[w]here regulation operates to arbitrate between competing public and private land uses, ... as does the water priority statute in this case, such regulation is upheld even where the value of the property declines significantly as a result." *Id.* at 774.

455. *Id.* at 774-75.

456. *Id.* at 775.

VII. APPLICATION OF REGULATORY-TAKINGS JURISPRUDENCE TO THE  
ADOPTION OF REGULATED RIPARIANISM IN OHIO

Implementing a regulated riparian system in Ohio would not result in a regulatory taking of groundwater rights. The logical beginning in the regulatory-takings analysis is to determine whether to apply: (1) the *Loretto* “permanent physical invasion” categorical rule, (2) the *Lucas* “loss of all economic value” categorical rule, or (3) the ad hoc balancing test from *Penn Central*. Because a regulated riparian statute would in no way physically invade a landowner’s property, the *Loretto* categorical rule can quickly be discarded.<sup>457</sup> Next, whether to apply the *Lucas* categorical rule or the *Penn Central* balancing test hinges on what constitutes the “relevant parcel,” or denominator, in the regulatory-takings analysis.<sup>458</sup>

The Supreme Court of Ohio in *Shelly Materials* clearly stated that for regulatory-takings purposes, a mineral estate itself can only be considered the relevant parcel “if the mineral estate was purchased separately from the other interests in the real property.”<sup>459</sup> If the mineral interest was not purchased separately, the property “as a whole” should be considered in regulatory-takings analysis.<sup>460</sup> Extending this view to the groundwater context, the relevant parcel could be groundwater rights alone only if those groundwater rights were purchased separately from other interests in the land.

In *McNamara*, the Supreme Court of Ohio referred to the *Restatement’s* position that “the right to withdraw ground water is a property right that may be granted and sold to others.”<sup>461</sup> The *McNamara* Court did not explicitly adopt the language of *Restatement* section 858 and did not rule on whether groundwater rights were severable from land, as this was not the issue before it.<sup>462</sup> The Supreme Court of Ohio has recently addressed this issue in the surface water context, finding that surface water rights are severable from land and may be bought and sold separately.<sup>463</sup>

Assuming Ohio also allowed groundwater rights to be bought and sold separately from land, under the *Shelley Materials* holding, groundwater rights alone could be the relevant parcel, or denominator, any time an individual purchased those rights separately from other interests in land.<sup>464</sup> The numerator

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457. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015 (1992).

458. See *State ex rel. R.T.G., Inc. v. State*, 980 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 40.

459. *Shelly Materials v. Clark County Bd. of Comm’rs*, 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 15.

460. *Id.*

461. *McNamara v. City of Rittman*, 107 Ohio St. 3d 243, 2005-Ohio-6433, 838 N.E.2d 640, at ¶ 22 (quoting *RESTATEMENT (SECOND) OF TORTS* § 858 cmt. b (1979)).

462. See *id.* ¶ 10 (stating that the question before the court is “whether Ohio recognizes a property right in that amount of groundwater beneath a landowner’s property that is necessary to the use and enjoyment of the owner’s home”).

463. *Portage County Bd. of Comm’rs v. City of Akron*, 109 Ohio St. 3d 106, 2006-Ohio-954, 846 N.E.2d 478, at ¶ 56 (citing *City of Mansfield v. Balliett*, 63 N.E. 86, 92 (Ohio 1902)).

464. See *Shelly Materials*, 115 Ohio St. 3d at ¶¶ 33-34.

in this case would be the groundwater rights subject to regulation. This fraction would equal one, which could be considered a taking of all economically viable use if the regulation completely prevented the groundwater rights holder from exercising rights to the groundwater.<sup>465</sup> In this “rare” case, a regulated riparian system could theoretically constitute a *Lucas* categorical taking,<sup>466</sup> however, arguments pertaining to the nuisance exception to *Lucas*, the states’ police powers to regulate, and the nature of groundwater being different than that of coal may eliminate the possibility of a *Lucas* categorical taking even under these circumstances.

The *Lucas* Court recognized an important exception to its categorical rule.<sup>467</sup> Where a regulation is designed to abate a “harmful or noxious use,” or a nuisance, it cannot be the subject of a regulatory taking.<sup>468</sup> Applied to groundwater, one could argue that withdrawing excessive amounts of groundwater constitutes a nuisance-like activity by decreasing water flow, drying up wells, and generally straining common aquifers.<sup>469</sup> These negative effects interfere with neighboring landowners’ use and enjoyment of their properties. Therefore, because a regulated riparian system would be designed to abate withdrawing excessive amounts of groundwater, it would fall under the “nuisance” exception to the *Lucas* categorical taking.<sup>470</sup>

Further, at least two situations, likely constituting the vast majority of scenarios, would result in application of the *Penn Central* balancing test and not the *Lucas* categorical rule.<sup>471</sup> First, regulated riparian statutes often merely regulate the amount of groundwater one is able to extract, as opposed to completely eliminating access to groundwater.<sup>472</sup> Continuing the assumption that groundwater rights were held separately from land and therefore constituted the denominator, the fraction would arguably result in something less than one because the regulated-groundwater rights, the numerator, would maintain value.<sup>473</sup>

Second, for the average homeowner or business owning a piece of real property in fee, groundwater rights would not be severable in the regulatory-takings analysis. According to *Shelley Materials*, the denominator would instead

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465. See *Lucas*, 505 U.S. at 1015 (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 260 (1986)).

466. *Lucas*, 505 U.S. at 1018 (stating that there are “relatively rare situations where the government has deprived a landowner of all economically beneficial uses”).

467. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1022-24 (1992).

468. *Id.*

469. See generally U.S. GEOLOGICAL SURVEY, U.S. DEP’T OF INTERIOR, FACT SHEET 103-03, GROUND-WATER DEPLETION ACROSS THE NATION (2003) (discussing groundwater depletion in the U.S. and its effects on areas experiencing depletion), available at [http://pubs.usgs.gov/fs/fs-103-03/JBartolinoFS\(2.13.04\).pdf](http://pubs.usgs.gov/fs/fs-103-03/JBartolinoFS(2.13.04).pdf).

470. See *Lucas*, 505 U.S. at 1022-24.

471. See generally *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978) (establishing a balancing test to determine whether a regulatory taking has occurred).

472. See, e.g., *Omerik v. State*, 218 N.W.2d 734, 743 (Wis. 1974).

473. See generally *State ex rel. R.T.G., Inc. v. State*, 98 Ohio St. 3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 40 (discussing “the denominator problem”).

be the “parcel as a whole” because the landowner did not purchase the groundwater rights separately from the land and hence retained many of the landownership sticks in the bundle.<sup>474</sup> The numerator would be the groundwater rights affected by the regulated riparian system. This would result in the fraction equaling something less than one, triggering the *Penn Central* multifactor balancing test.<sup>475</sup>

Applying the *Penn Central* balancing factors in either of the above situations would almost undoubtedly result in a finding of “no regulatory taking,” as is most often the case when courts apply the factors.<sup>476</sup> The first *Penn Central* factor is the extent to which the regulation diminishes the value of the claimant’s property.<sup>477</sup> An individual holding only severed groundwater rights would suffer a diminution in value only to the extent that he was unable to withdraw groundwater due to the regulation. As stated above, a regulated riparian system typically does not completely deny access to groundwater; it merely regulates it.<sup>478</sup> Thus, for an owner of only groundwater rights, the diminution in value of his property right would depend on the degree to which his use was restricted, which would frequently be minimal.<sup>479</sup> For an owner of real estate in fee, the diminution in value would be even less. Even assuming a regulated riparian system completely restricted a landowner’s ability to withdraw groundwater, he would continue to enjoy other sticks in the bundle accompanying landownership, and his real estate would remain valuable for other purposes. A landowner in fee, whose groundwater use was merely regulated, would arguably suffer little diminution in value.

The second factor in the *Penn Central* balancing test is the character of the governmental action.<sup>480</sup> A regulated riparian system would allocate groundwater use in a way that minimized or possibly eliminated availability problems.<sup>481</sup> In most cases, such a system would not completely deny one’s access to groundwater. Further, a regulated riparian system would be a valid exercise of the State’s general police power to promote “the health, safety, morals, or general welfare.”<sup>482</sup> The Supreme Court of Ohio embraced this view in *Ketchel v. Bainbridge Township*, noting that “[a]n adequate supply of safe water for

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474. See *Shelly Materials v. Clark County Bd. of Comm’rs*, 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 41.

475. See *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 326-27 (2002).

476. See Echeverria, *supra* note 9, at 4. “The closest the Court has come to finding a taking by applying the *Penn Central* test was in *Eastern Enterprises v. Apfel*, [524 U.S. 498 (1998),] in which a plurality of the Court applied the *Penn Central* test, joining in the judgment for the Court striking down federal coal legislation as unconstitutional.” *Id.*

477. See *Penn Cent.*, 438 U.S. at 124.

478. See, e.g., *Omernik*, 218 N.W.2d at 743.

479. See MODEL CODE, *supra* note 180, § 6R-1-02 (exempting uses of 100,000 gallons or fewer per day).

480. *Penn Cent.*, 438 U.S. at 124.

481. See, e.g., MODEL CODE, *supra* note 180, § 7R-1-01.

482. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1023 (1992) (quoting *Penn Cent. Transp. Co. v. New York City*, 438 U.S.104, 125 (1978)).



domestic use is vital to public health.<sup>483</sup> Finally, natural resources, including groundwater, have traditionally been subject to regulation by the State by statute or common law.<sup>484</sup> The Supreme Court of Ohio in *Shelley Materials* recognized the State's ability to institute and enforce restrictions of minerals such as sand and gravel.<sup>485</sup> Because "groundwater is a resource which must be conserved and protected,"<sup>486</sup> its regulation should likewise fall within the State's prerogative. In short, a regulated riparian system, rooted in the police power, would monitor and regulate a vital natural resource.

The third *Penn Central* factor is "the extent to which the regulation has interfered with distinct investment-backed expectations."<sup>487</sup> Important to this factor is whether Ohio recognizes the severability of groundwater rights from land. Ohio currently does not recognize this severability, but it may in the future.<sup>488</sup> Assuming Ohio did recognize this possibility, if an individual purchased groundwater rights separate from land and was later unable to withdraw groundwater due to a regulated riparian statute, his investment-backed expectations would be disrupted and this *Penn Central* factor would concededly cut in his favor.<sup>489</sup> This scenario would be rare.<sup>490</sup> Conversely, in the case of an individual owning land in fee and using it for purposes other than groundwater extraction, the landowner would face a more difficult time in arguing he had reasonable investment-backed expectations that were frustrated.<sup>491</sup>

The fourth factor in the *Penn Central* balancing test is "the average reciprocity of advantage" conferred on the claimant's property by the regulation.<sup>492</sup> Should Ohio adopt a regulated riparian system, all groundwater users would likely benefit from an uninterrupted groundwater flow because of

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483. 557 N.E.2d 779, 782 (Ohio 1990).

484. See, e.g., *State ex rel. Shelly Materials v. Clark County Bd. of Comm'rs*, 115 Ohio St. 3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 34 (recognizing the regulation of minerals subject to mining restrictions).

485. *Id.*

486. *Ketchel*, 557 N.E.2d at 783.

487. *Penn Cent.*, 438 U.S. at 124.

488. See *supra* notes 462-463 and accompanying text.

489. See *Penn. Coal Co. v. Mahon*, 260 U.S. 393, 414 (1922) (noting that the right to coal is essentially the right to extract it for profit). See also *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978) ("The economic impact of the regulation ... and ... interfer[ence] with distinct investment-backed expectations are ... relevant considerations [in finding a taking.]").

490. See *supra* notes 464-466 and accompanying text (concluding that governmental regulation that forecloses all right of an owner to extract groundwater is a rarity).

491. *Penn. Cent.*, 438 U.S. at 130-31 (stating that "taking" jurisprudence focuses "on the character of the action and on the nature and extent of the interference with rights in the parcel as a whole," and not on the abrogation of rights in any discrete segment).

492. *Penn. Coal*, 260 U.S. at 415 (finding that "average reciprocity of advantage ... has been recognized as a justification of various laws"). See also *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 488, 491 (1987) (considering the "average reciprocity of advantage" enjoyed by a claimant); *Penn Cent.*, 438 U.S. at 134-35 (considering whether the *Penn Central* Transportation Company had in any way benefited from the regulation).

the State's monitoring of groundwater allocation.<sup>493</sup> Groundwater users could rest assured that they would not encounter problems of decreased groundwater flow or outright shortages.<sup>494</sup> Additionally, a permit-holding groundwater user would receive protection from competing users' claims that the permit-holder's groundwater use was unreasonable.<sup>495</sup> For these reasons, a potential claimant alleging a regulatory taking would likely benefit from these average reciprocities of advantage. Upon weighing these four *Penn Central* balancing factors, regardless of whether an individual held severed groundwater rights or groundwater rights in conjunction with land ownership, a regulated riparian system would not constitute a regulatory taking.

A final but important point regarding the *Penn Central* balancing approach is that in *Penn Central* the Court did not discuss the "harmful or noxious use" exception mentioned in *Lucas*.<sup>496</sup> The Court did discuss the exception thoroughly in the subsequent case of *Keystone Bituminous Coal Ass'n v. DeBenedictis*.<sup>497</sup> The fact that the *Lucas* Court recognized the nuisance exception for the categorical rule it established suggests that this exception should logically extend to the *Penn Central* ad hoc balancing test.<sup>498</sup> The same reasons mentioned above in the discussion of the nuisance exception could be employed to find no regulatory taking in cases applying the *Penn Central* balancing factors.<sup>499</sup>

Another point that may get lost in applying Ohio's regulatory-takings jurisprudence, which involves mineral rights cases, to a regulated riparian system is the fact that groundwater is different than coal, sand, or gravel. Unlike minerals that are embedded in the ground until mined, groundwater is a natural resource that flows, transcends property lines, and constantly increases and decreases in availability. Many landowners rely on groundwater in ways that they do not rely on underground minerals.<sup>500</sup> Maintaining an adequate groundwater supply is arguably more important to society than maintaining coal, sand, or gravel levels.<sup>501</sup> All of these arguments strengthen the view that

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493. See Tarlock, *Watersheds*, *supra* note 186, at 90-91 (listing collection of information about water use as one of the three general purposes of regulated riparianism).

494. See Dellapenna, *supra* note 5, at 54-55.

495. See *id.* at 49-50.

496. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1022-26 (1987).

497. *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 491 (1987) (noting "[t]he Court's hesitance to find a taking when the State merely restrains uses of property that are tantamount to public nuisances").

498. See *Lucas*, 505 U.S. at 1022-24.

499. See *supra* notes 467-476 and accompanying text.

500. See SAX ET AL., *supra* note 16, at 2-3 (discussing various uses of water resources including human consumption, transportation, irrigation, and agriculture).

501. See WILLIAM M. ALLEY ET AL., U.S. DEP'T OF INTERIOR, CIRCULAR 1323, GROUND-WATER AVAILABILITY IN THE UNITED STATES 15 (2008) (stating that "the consequences of ground-water-level declines are increased pumping costs, deterioration of water quality, reduction of water in streams and lakes, and land subsidence), available at [http://pubs.usgs.gov/circ/1323/pdf/Circular1323\\_book\\_508.pdf](http://pubs.usgs.gov/circ/1323/pdf/Circular1323_book_508.pdf); Earl Finbar Murphy & C. William O'Neill, *Economics & Groundwater Interconnections*, in 3 WATERS AND WATER RIGHTS, *supra* note 2, at 35 (explaining that regions will suffer if groundwater supplies relied on diminish).

regulating groundwater is a valid exercise of the State's police power and further support the notion that a regulated riparian system would not constitute a regulatory taking.<sup>502</sup>

Finally, no court has ever found a regulated riparian system to constitute a regulatory taking of property, although challenges have been relatively few.<sup>503</sup> A regulated riparian system would result in a situation different than that in *Franco-American*—the only case to find that a system of water regulation constituted a compensable regulatory taking.<sup>504</sup> Whereas the Oklahoma Supreme Court in *Franco-American* found that surface water rights were taken altogether,<sup>505</sup> groundwater rights under a regulated riparian system would merely be regulated. The Wisconsin Supreme Court in *Omernik* suggested that regulated riparian systems result in reasonable restrictions on water rights, not complete takings.<sup>506</sup> Likewise, in *Crookston Cattle Co.*, the Minnesota Supreme Court pointed out that regulated riparian systems include checks and balances that ensure equitable allocation.<sup>507</sup>

Therefore, under either the *Lucas* categorical rule or the *Penn Central* balancing factors, Ohio's adoption of a regulated riparian system would not constitute a regulatory taking. A regulated riparian statute would constitute a valid exercise of the State's police power and regulate a natural resource vital to the State's health and welfare. This proposition is supported by the fact that no court has ever found a regulated riparian system to constitute a regulatory taking. Consequently, Ohio can adopt a regulated riparian system without fear of violating the Constitution.

#### VIII. CONCLUSION

Ohio and other eastern states have historically had plenty of groundwater to go around.<sup>508</sup> With an increasing number of ethanol plants and other large users of water, increased demands on common aquifers have raised concerns that more primitive systems of water regulation may not be adequate. Ohio's current system for governing groundwater use, which includes the *Restatement* reasonable use rule and a basic set of statutes, is an example of a more primitive system. Ohio should follow the trend of other eastern states and adopt a regulated riparian system. Such a system would provide a framework for addressing groundwater disputes that Ohio currently does not have.

Some may argue that the adoption of a system regulating groundwater rights would constitute a regulatory taking in light of the Supreme Court of Ohio decision in *McNamara v. City of Rittman*. A careful review of U.S. and Ohio

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502. See *Lucas*, 505 U.S. at 1023 (citing *Penn Cent.*, 438 U.S. at 125).

503. See *supra* Part VI.C.2.

504. See *Franco-Am. Charolaise, Ltd. v. Okla. Water Res. Bd.*, 855 P.2d 568, 571 (Okla. 1990).

505. *Id.* at 577.

506. *Omernik v. State*, 218 N.W.2d 734, 743 (Wis. 1974).

507. *Crookston Cattle Co. v. Minn. Dep't of Natural Res.*, 300 N.W.2d 769, 774-75 (Minn. 1981).

508. Gould, *supra* note 108, at 8.

regulatory-takings jurisprudence suggests otherwise. Only in the rare situation when Ohio recognizes the ability to buy and sell groundwater rights separate from land and the regulated riparian system in place completely denies access to groundwater could one even argue that the *Lucas* categorical-taking rule should be applied. In all other scenarios, the *Penn Central* balancing factors would apply, resulting in a finding of no regulatory taking.

Under both *Lucas* and *Penn Central*, strong arguments exist that a regulated riparian statute would abate the nuisance-like activity of excessive groundwater extraction, be a valid exercise of the State's police power, and serve an important function in regulating a unique and vital natural resource. For all of these reasons, adopting a regulated riparian system would not result in regulatory takings. Groundwater allocation is a timely issue not only for Ohio but for other eastern states as well. By adopting a regulated riparian system now, states like Ohio can avoid future water-allocation problems.