

WATER RUN AGROUND: *MISSISSIPPI V. TENNESSEE*, INTERSTATE GROUNDWATER CONFLICT, AND THE WEST

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*Groundwater is an essential water source for millions of Americans, and it is invaluable for those in the western United States. It is stored in underground aquifers, geological formations of permeable rock and pore space, which lie under every state in the country. But states have no uniform standard for how they manage the withdrawal of groundwater, and even states with somewhat similar legal regimes for water use allow users to extract groundwater differently. These disparities create a resource-use environment that is ripe for conflict. An interstate groundwater dispute, however, had never been decided in the U.S. Supreme Court until November 2021. For the aquifer at issue in *Mississippi v. Tennessee*, the Court endorsed equitable apportionment—a legal doctrine that it had historically applied only to interstate surface water disputes—in a myopic decision. The doctrine is ill-suited to emerging groundwater conflicts in the West not only because it is less feasible for a hard-to-measure resource like aquifers, but also because its emphasis on total consumption is unsustainable for the region’s arid future. The more suitable doctrine of interstate nuisance focuses on current use and works backward to determine how states can sustainably use a water resource while doing minimal harm to each other. Current and emerging conflicts in the West, including those involving the Snake Valley and Ogallala Aquifers, would benefit from the application of interstate nuisance.*

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* J.D. Candidate, University of Arizona James E. Rogers College of Law, 2023. Many thanks to my adviser, Professor Joy Herr-Cardillo, for her edits, feedback, and support throughout the writing process. Two titans of water law and policy—Professor Robert Glennon of Arizona Law and Professor Noah D. Hall of Wayne State University Law School—provided invaluable comments along the way.

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INTRODUCTION

In 1861, the Supreme Court of Ohio decided a dispute over a well between two farmers in rural Fairfield County.¹ Plaintiff Joseph Frazier alleged that the defendant Jacob Brown—knowing that Frazier’s farm had “a certain valuable spring of water which . . . from time immemorial, ran and oozed, out of the ground”—had “wickedly and maliciously dug” a well on his own property that disrupted the flow of water to Frazier’s farm.² But the Court refused to limit Brown’s use of the water, holding that, unlike a running stream, the groundwater was “to be enjoyed absolutely by the proprietor within whose territory it is.”³ Writing for the majority, Justice Jacob Brinkerhoff lamented that the characteristics of water from the ground were “so secret, occult and concealed, that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible.”⁴

In the 160 years after that decision, courts in Ohio and other states have acknowledged that scientific and legislative advancements provided judges with more capability to adjudicate groundwater disputes.⁵ Yet despite the progress that subverted any mystical explanations, U.S. jurisprudence lacks a doctrine for groundwater disputes that arise across state lines.⁶

1. Frazier v. Brown, 12 Ohio St. 294, 295 (1861), *overruled by* Cline v. Am. Aggregates Corp., 15 Ohio St. 3d 384 (1984).

2. *Id.*

3. *Id.* at 308.

4. *Id.* at 311.

5. See, e.g., Cline v. Am. Aggregates Corp., 474 N.E.2d 324, 327 (Ohio 1984) (overruling *Frazier* and adopting a reasonable use doctrine for groundwater); Friendswood Dev. Co. v. Smith-Sw. Indus., Inc., 576 S.W.2d 21, 29 (Tex. 1978) (acknowledging that state statute provided for regulation of groundwater use); Home v. Utah Oil Refin. Co., 202 P. 815, 824–25 (Utah 1921) (adopting a reasonable use doctrine wherein “each proprietor of land within an artesian district is entitled to water in proportion to his surface area, provided he makes beneficial use of it.”).

6. See generally Noah D. Hall & Joseph Regalia, *Lines in the Sand: Interstate Groundwater Disputes in the Supreme Court*, 31 NAT. RES. & ENV’T 8 (2016).

This doctrinal lacuna exists amid a national dependence—and interdependence—on groundwater, the source of drinking water for approximately half of the U.S. population.⁷ Major sources of the nation’s groundwater are principal aquifers, every one of which in the contiguous United States crosses state lines.⁸

One of these aquifer systems, the Mississippi Embayment, lies under several states bordering the Mississippi River, and its Middle Claiborne Aquifer has been at the center of an interstate dispute since the late 2000s.⁹ In June 2015, the U.S. Supreme Court granted Mississippi leave to file a bill of complaint in its dispute over water from that aquifer system.¹⁰ Not unlike the Ohioan farmer Frazier’s grievance, Mississippi’s claim rested upon whether Tennessee’s “knowing, intentional, and forcible pumping of groundwater” from under Mississippi violates “Mississippi’s retained sovereignty; constitutes a wrongful taking of Mississippi’s most valuable natural resource; and, supports monetary and equitable relief.”¹¹ Given this is the first interstate groundwater dispute before the Court, the decision will set precedent for future interstate aquifer conflicts.¹²

The most profound implication of the decision may be in its doctrinal approach to interstate groundwater management.¹³ In the past, the Court resolved conflicts over interstate surface waters using the doctrine of equitable apportionment, which would “apportion the waters of an interstate stream between States through which it flows.”¹⁴ The U.S. Solicitor General and the attorneys general of eight states implored the Court to view the dispute through this doctrine.¹⁵

7. *The Quality of Our Groundwater—Progress on a National Survey*, U.S. GEOLOGICAL SURV. (Apr. 2, 2021), https://www.usgs.gov/center-news/quality-our-groundwater-progress-a-national-survey-0?qt-news_science_products=3#qt-news_science_products [https://perma.cc/A359-T7LF].

8. *See Principal Aquifers of the United States*, U.S. GEOLOGICAL SURV. (Mar. 8, 2021), https://www.usgs.gov/mission-areas/water-resources/science/principal-aquifers-united-states?qt-science_center_objects=0#qt-science_center_objects [https://perma.cc/8U6P-PMN2].

9. *See Mississippi Embayment Aquifer System*, U.S. GEOLOGICAL SURV. (Mar. 7, 2021), https://www.usgs.gov/mission-areas/water-resources/science/mississippi-embayment-aquifer-system?qt-science_center_objects=0#qt-science_center_objects [https://perma.cc/JX9P-VL6M]; *Hood ex. rel. Mississippi v. City of Memphis*, Tenn., 570 F.3d 625, 632 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010).

10. *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015). In an action invoking the U.S. Supreme Court’s original jurisdiction under Article III of the U.S. Constitution, a party must file a motion for leave to file initial pleadings. U.S. Sup. Ct. R. 17; *see also* U.S. CONST. art. III, § 2.

11. Reply Brief of the State of Mississippi on its Motion for Leave to File Bill of Complaint in Original Action at 1, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

12. *See generally* Hall & Regalia, *supra* note 6.

13. *Id.*

14. *Hood ex. rel. Mississippi v. City of Memphis*, Tenn., 533 F. Supp. 2d 646, 648 (N.D. Miss. 2008) (quoting *Texas v. New Mexico*, 462 U.S. 554, 567 (1983)).

15. Brief for the United States as Amicus Curiae in Support of Overruling Mississippi’s Exceptions to the Report of the Special Master at 15, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143); Brief of Amici Curiae States of Colorado, Idaho,

In its pleadings, Mississippi asked the Court to disregard equitable apportionment and thereby open the door for financial remedy.¹⁶

But despite the decision in *Mississippi v. Tennessee*, the future of interstate groundwater disputes is far from certain.¹⁷ For the arid West, where competition for water has become more pronounced in the last several decades, transboundary groundwater allocation may be even more precarious.¹⁸ Although the groundwater codes in the Mountain West, Southwest, and Pacific Northwest may seem similar, the devil is in the details: management varies throughout the region.¹⁹

The ideal doctrine for courts to apply to interstate groundwater disputes in the West would be interstate nuisance.²⁰ Treating aquifer pumping as an interstate nuisance would establish a legal framework that incentivizes arid states to do minimal harm to each other in an era of water supply uncertainty.²¹ Rather than apportion groundwater between states, interstate nuisance would balance competing needs and steer management away from consumption and toward conservation.²²

Legal scholarship has not explored interstate nuisance from the standpoint of emerging groundwater conflicts in the West. This Note aims to show the imperative for examining it as an alternative to prevailing doctrine and as a solution to the disparities in groundwater law among states.

This Note will address the water law doctrines in play in *Mississippi v. Tennessee* and interstate groundwater disputes generally through the lens of western states. It will demonstrate that interstate nuisance is the most viable option for water-insecure environments. Part I will describe the nature of aquifers and groundwater law, including its intersections and differences with interstate surface water

Nebraska, North Carolina, North Dakota, Oregon, South Dakota, and Wyoming in Support of Defendant Tennessee at 3–4, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

16. See generally Bill of Complaint, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143). “Mississippi does not suffer from a water shortage itself, but argues that the pumping of groundwater has resulted in the wrongful conversion of its state property by Memphis.” Hall & Regalia, *supra* note 6, at 9.

17. See Jason N. Summerfield, *The Memphis Sand Aquifer and the Uncertain Jurisprudence Over Groundwater*, 50 UNIV. MEM. L. REV. 587, 589–90 (2020) (“This case is but one of many examples of litigation working its way through the judicial system, the results of which could have potentially harmful and irreversible consequences on vulnerable freshwater aquifers.”).

18. The Snake Valley Aquifer, which stretches across the Nevada–Utah line, is a source of conflict between growing Las Vegas and farmers in western Utah. Noah D. Hall & Benjamin L. Cavataro, *Interstate Groundwater Law in the Snake Valley: Equitable Apportionment and a New Model for Transboundary Aquifer Management*, 2013 UTAH L. REV. 1553, 1560–70 (2013).

19. GARY C. BRYNER & ELIZABETH PURCELL, *GROUNDWATER LAW SOURCEBOOK OF THE WESTERN UNITED STATES* 5–6 (2003).

20. See generally *Wisconsin v. Illinois*, 278 U.S. 367 (1929) (outlining the precepts of applying interstate nuisance to water resources).

21. This concept expands upon an idea mentioned briefly within the amici curiae brief filed in the *Mississippi v. Tennessee* case by a group of water law professors, including Noah D. Hall who served as Counsel of Record. Brief of Amici Curiae Law Professors in Support of Defendants at 19, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

22. *Id.* at 19–20.

adjudication. Part II will discuss the three doctrines—equitable apportionment, state ownership, and interstate nuisance—that are in play for how courts can view interstate groundwater conflict. It will then demonstrate how the interstate nuisance doctrine would work best within the patchwork of state groundwater statutes and to resolve emerging disputes in the West. Part III will analyze how the *Mississippi v. Tennessee* decision's endorsement of equitable apportionment fails to consider the realities of interstate groundwater disputes. Finally, Part IV will describe several existing and emerging interstate aquifer conflicts in the West and how interstate nuisance would be better suited to address them than its alternatives.

I. AQUIFERS, GROUNDWATER LAW, AND INTERSTATE JURISPRUDENCE

A. Aquifers

The United States increasingly relies on groundwater withdrawals to meet its water needs.²³ In 1950, groundwater withdrawals totaled 34 billion gallons of water per day, but by 2015, that figure had increased to 82.3 billion gallons per day.²⁴ That same year, most states extracting more than 2 billion gallons of groundwater per day were those west of the Mississippi River.²⁵

All-important but unseen freshwater sources, aquifers are composed not only of water but also of permeable rock and pore space under the ground.²⁶ To be considered an aquifer, a formation of groundwater must be able to provide economic quantities of water to springs or wells (e.g., for crop irrigation or drinking water).²⁷ These unconfined aquifers require pumping to extract water for consumption because they percolate at normal atmospheric pressure underground.²⁸ Aquifers recharge via precipitation from the land surface or through human-made avenues like reservoirs, unlined irrigation canals, or applied irrigation water not used in crops.²⁹ When users pump water to the surface, the water from within the aquifer replaces the water being withdrawn, creating a cone of influence, a depression

23. *Groundwater Use in the United States*, U.S. GEOLOGICAL SURV. (June 18, 2018), https://www.usgs.gov/special-topic/water-science-school/science/groundwater-use-united-states?qt-science_center_objects=0#qt-science_center_objects [<https://perma.cc/5ZCT-2GX7>].

24. *Id.*

25. *Groundwater Withdrawals in 2015*, U.S. GEOLOGICAL SURV. (2018), <https://www.usgs.gov/media/images/groundwater-withdrawals-2015> [<https://perma.cc/NM7A-MDZR>].

26. DAVID H. GETCHES, SANDRA B. ZELLMER & ADELL L. AMOS, *WATER LAW IN A NUTSHELL* 218 (5th ed. 2015).

27. PETER FOLGER ET AL., CONG. RSCH. SERV., *THE FEDERAL ROLE IN GROUNDWATER SUPPLY* 7 (updated May 2020).

28. GETCHES ET AL., *supra* note 26, at 218. In an unconfined aquifer, the water table moves up and down without a confining layer of rock or sediment. *Id.* By contrast, confined aquifers (which will not be discussed at length in this Note) have an impermeable layer atop them, which causes water to rise over the top of the aquifer when a well penetrates the aquifer. *Id.* Sometimes water in a confined aquifer will rise to the land surface in what is known as an artesian aquifer. FOLGER ET AL., *supra* note 27, at 7–8.

29. *See* FOLGER ET AL., *supra* note 27, at 7–8.

underground that may increase in size over time.³⁰ An expanding cone of influence may also force other users in the surrounding area to dig their wells deeper or relocate to preserve access to water.³¹

Given the way that water moves through pore space, unconfined aquifers also have direct connections to streams, which create an intertwined relationship between surface water and groundwater.³² When surface water is unavailable or during drought conditions where recharge declines, aquifers can experience excessive pumping and become stressed.³³ Long-term aquifer stress can cause the water table in a region to drop hundreds of feet, a phenomenon that can cause land surfaces to drop, imperiling land property and canals.³⁴ In the West, aquifers that were created in prehistoric periods (known sometimes as “fossil water”) are even more vulnerable to depletion because they are not able to be recharged at the same rate as they are depleted.³⁵

Aquifer composition can complicate how outer bounds are defined, an uncertainty that can in turn make their legal definition more tenuous.³⁶ Geologic borders between aquifers are delineated by confining units, which are semi-permeable barriers at the edge of aquifers that limit lateral water movement and protect the aquifer from contaminants.³⁷ But semi-permeable does not mean impermeable: the science—and the law—is imprecise as to whether confining units partition two aquifers or keep them as one aquifer system. Furthermore, aquifer confining units are site-specific, meaning that the geologic barriers in one region may be different from those in another part of the country.³⁸

To further complicate resource sharing, aquifer volumes are difficult to measure.³⁹ Although there are intricate modeling technologies, groundwater models simulate a mere portion of what exists unseen under the earth.⁴⁰ Groundwater models, therefore, are necessarily just that: a way to simplify the hydrogeologic understanding without knowing the full reality.⁴¹ This inability to quantify aquifer volumes creates a stark contrast with surface water measurement and adjudication:

30. GETCHES ET AL., *supra* note 26, at 222.

31. *Id.*

32. *See* FOLGER ET AL., *supra* note 27, at 7–8.

33. *Id.*

34. *Id.* at 10.

35. MICHAEL L. MCKINNEY & ROBERT M. SCHOCH, ENVIRONMENTAL SCIENCE: SYSTEMS AND SOLUTIONS 294 (1998); *see also* LEONARD F. KONIKOW, U.S. GEOLOGICAL SURV., GROUNDWATER DEPLETION IN THE UNITED STATES (1900–2008), at 22–41 (2013).

36. Summerfield, *supra* note 17, at 602.

37. *Id.* at 603.

38. *See generally* KONIKOW, *supra* note 35.

39. MARY P. ANDERSON ET AL., APPLIED GROUNDWATER MODELING: SIMULATION OF FLOW AND ADVECTIVE TRANSPORT 378 (2d ed. 2015).

40. *Id.*

41. *Id.*

courts have continually used surface stream volumes to apportion surface water between private parties or states.⁴²

B. State Groundwater Management

Although aquifers cross state boundaries, groundwater law is not uniform throughout the United States.⁴³ States' legal regimes for groundwater have elements that range from the rare and less-restrictive absolute dominion doctrine to the predominant reasonable use doctrine and the western-style correlative rights and prior apportionment doctrines. The disparities among state groundwater laws complicate the realities of groundwater use when states draw from the same aquifers.

The federal government plays a limited role in groundwater supply management.⁴⁴ Federal agencies are involved in securing supply for reservations of federal land such as national parks and monuments, military bases, and lands held in trust for Indian tribes.⁴⁵ Groundwater management is otherwise generally left to individual states.⁴⁶ Any given state's groundwater law derives from a mixture of court decisions, statutes of the last 70 years, and stubbornly, an understanding of groundwater from the nineteenth century.⁴⁷

Among the doctrines of groundwater law within the United States, the rule of absolute dominion is the closest that the common law has come to designating groundwater extraction as a property right.⁴⁸ Also known as the English rule, this doctrine gives no regard to quantity or place of use.⁴⁹ It permits anyone to pump as much groundwater as they want to obtain.⁵⁰ Although most U.S. jurisdictions no longer follow this simple and unrestrictive rule, the Texas Supreme Court has, as recently as the 1990s, declined to fully abandon it.⁵¹

New World modifications of this old English rule include the American reasonable use doctrine and the Restatement (Second) of Torts doctrine regarding reasonable use.⁵² First adopted in New Hampshire, the precept modifies the rule of

42. See, e.g., *Bean v. Morris*, 221 U.S. 485, 487 (1911); *Wyoming v. Colorado*, 259 U.S. 419, 488–89 (1922); *Nebraska v. Wyoming*, 325 U.S. 589, 640–41 (1945); *Florida v. Georgia*, 138 S. Ct. 2502, 2509–10 (2018).

43. See FOLGER ET AL., *supra* note 27, at 1.

44. See *id.*

45. *Id.*; see also *Winters v. United States*, 207 U.S. 564, 575–77 (1908) (establishing the doctrine that when the federal government reserves land for a purpose, it necessarily reserves water rights to serve the purpose behind creating the land reservation).

46. See Hall & Cavataro, *supra* note 18, at 1555; Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 267–68 (2013).

47. See Hall & Cavataro, *supra* note 18, at 1555; Dellapenna, *supra* note 46, at 267–68.

48. This is also known as the rule of absolute ownership or the rule of capture. Dellapenna, *supra* note 46, at 269.

49. BARTON THOMPSON ET AL., LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS 467 (5th ed. 2013).

50. *Id.*

51. *Id.* at 469. The decision, *Sipriano v. Great Spring Waters of Am.*, 1 S.W.3d 75 (Tex. 1999), deferred to legislative action before overruling the rule of capture in the instance of a bottled water company that had pumped its neighbor's wells dry.

52. *Id.* at 467.

capture by requiring that pumped water be put to beneficial use on the tract of land overlying the source.⁵³ Reasonable use is the rule that midwestern states like Ohio eventually adopted in the twentieth century.⁵⁴ Its rationale extends from a desire for both greater equity in groundwater pumping and further protection for agrarian use against high-capacity wells in nearby urban areas.⁵⁵

The reasonable use rule included in the Restatement (Second) of Torts creates liability for a groundwater user who pumps in a way that lowers the water table or exceeds a reasonable share based on annual supply.⁵⁶ In the Restatement, the lack of a strong distinction between where the water is extracted and where it is used distinguishes it from the broader reasonable use doctrine.⁵⁷

The correlative rights doctrine is another step toward equity.⁵⁸ It took on its modern meaning with a 1903 California decision that set aside both the rule of capture and the reasonable use doctrine.⁵⁹ The new rule required that competing landowners equitably share available groundwater for use on their overlying land tracts, at least for irrigation.⁶⁰ In outlining the meaning of correlative rights, the California Supreme Court described in detail the climate realities of various parts of the state and lamented the fierce competition for water resources that was already underway.⁶¹ Confusion continues to this day regarding the distinction between reasonable use and correlative rights. The uniqueness of the correlative rights doctrine stems from its continued use in California and its focus on scarcity: users must share a singular source in proportion to property ownership.⁶²

The final groundwater doctrine, prior appropriation, is the famous western states' tenet that water rights are guaranteed by the first user to lay claim to them, and water quantities are based on beneficial use.⁶³ Due to the doctrine's distinctive origin in surface waters used for goldmining, prior appropriation rules for groundwater developed nearly a century after they were first applied to streams.⁶⁴ Given the zero-sum way in which groundwater is extracted, prior appropriation cannot be applied to groundwater in the same way as surface water: senior users may always be able to demonstrate an effect that new pumping has on their existing wells.⁶⁵ Such a scenario would leave junior users—especially in arid regions—with few available water sources.⁶⁶

53. *Id.* at 476.

54. *See* *Cline v. Am. Aggregates Corp.*, 474 N.E.2d 324, 327 (Ohio 1984) (overruling *Frazier v. Brown*, 12 Ohio St. 294 (1861), and adopting a reasonable use doctrine for groundwater).

55. THOMPSON ET AL., *supra* note 49, at 476.

56. *See id.* at 467–68.

57. *Id.* at 468.

58. *See* Dellapenna, *supra* note 46, at 276–77.

59. *See id.*

60. *Id.*

61. *Katz v. Walkinshaw*, 74 P. 766, 768 (Cal. 1903).

62. *See* Dellapenna, *supra* note 46, at 278–80.

63. THOMPSON ET AL., *supra* note 49, at 468.

64. Dellapenna, *supra* note 46, at 297–99.

65. GETCHES ET AL., *supra* note 26, at 231.

66. *Id.*

Given this unworkability of a full application of the prior appropriation doctrine, western states have enacted statutes to identify and manage areas where drilling and pumping may be limited or banned.⁶⁷ Other states vary the remedy for overdraft and focus solely on guaranteeing rights for senior pumpers, others on active management of overall drafting.⁶⁸ California and Texas have discretionary permitting regimes for groundwater, which could become a factor in cross-border disputes with neighboring states that have mandatory regimes.⁶⁹

States tend to manage water use from groundwater sources (like aquifers) and surface water sources (like streams) differently, but some states have integrated ground and surface water management. For instance, California, Colorado, New Mexico, Utah, and Washington treat groundwater sources that have an impact on surface flow as part of the surface appropriation system and administer them accordingly.⁷⁰ Arizona, however, generally does not integrate groundwater into its surface water management.⁷¹

Western states have also enacted permitting regimes to protect groundwater resources and promote beneficial use.⁷² But where prior appropriation is in play, there is disparity among and even within states regarding legal use.⁷³ California only requires permits to extract groundwater where there are underground streams or the underflow of surface streams.⁷⁴ Even where most western states require a permit for groundwater withdrawals, small domestic and stock watering wells are exempted.⁷⁵ Arizona, for instance, established active management areas to curb excess withdrawals, but those zones do not solve the problem of over-pumping.⁷⁶ There are users in Arizona exempted from withdrawal permits due to prior use who need not replenish pumped groundwater.⁷⁷ By contrast, Texas does not generally require permitting for any groundwater withdrawals.⁷⁸

In the interest of sustainability, some states set plans not to withdraw from aquifers faster than they can be recharged.⁷⁹ Yet there is mixed support and resistance to this type of planning between states that draw from adjacent aquifers.

67. *See id.* at 246.

68. THOMPSON ET AL., *supra* note 49, at 486.

69. *License to Pump: Groundwater Permitting in the West: California*, STANFORD UNIV., <https://groundwater.stanford.edu/dashboard/california.html> [<https://perma.cc/7XEN-GHBC>] (last visited Nov. 1, 2021); *License to Pump: Groundwater Permitting in the West: Texas*, STANFORD UNIV., <https://groundwater.stanford.edu/dashboard/texas.html> [<https://perma.cc/59YL-XZ93>] (last visited Nov. 1, 2021).

70. GETCHES ET AL., *supra* note 26, at 252.

71. *See In re General Adjudication of All Rts. to Use Water in the Gila River Sys. and Source*, 9 P.3d 1069, 1073–74 (Ariz. 2000).

72. GETCHES ET AL., *supra* note 26, at 240–41.

73. *Id.*

74. *Id.* at 240.

75. *Id.* at 241.

76. KATHLEEN FERRIS & SARAH PORTER, ARIZ. STATE UNIV. KYL CTR. FOR WATER POL'Y MORRISON INST., *THE MYTH OF SAFE-YIELD: PURSUING THE GOAL OF SAFE-YIELD ISN'T SAVING OUR GROUNDWATER* 9, 22 (2021).

77. *Id.*

78. *See Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 831–32 (Tex. 2012).

79. GETCHES ET AL., *supra* note 26, at 245.

In Oregon, for example, the agricultural community largely disputes data that show aquifers are being over-pumped and has effectively opposed limitations on the drilling of new wells.⁸⁰ One state over—but governing the same aquifers—Idaho’s groundwater code “clearly prohibits the withdrawal of ground water beyond the average rate of future recharge.”⁸¹ This conflict of laws between states that share both border and aquifer could precipitate future disputes.

Finally, groundwater access pits growing urban areas in the West against the agricultural sector.⁸² Urban areas rely on water for domestic use such as drinking, bathing, and food preparation, and water may be supplied by a public water supplier or drawn from a private well.⁸³ Despite the reigning doctrine of prior appropriation, many western states have enshrined a preference for domestic use when water is too scarce to cover other uses.⁸⁴ The state constitutions of Colorado and Utah include provisions for domestic-use preference.⁸⁵ Statutes in other states, such as Arizona, California, and Wyoming, denote a similar preference.⁸⁶ These preferences are juxtaposed against agriculture in western states, where irrigation is often required to grow crops.⁸⁷ Irrigation relies in part on groundwater sources, which could set up a greater rivalry between farmers and urban dwellers as the region becomes drier.⁸⁸

C. *The Gaping Groundwater Hole in Interstate Water Jurisprudence*

These disparities among state groundwater laws create an uncertainty for federal courts that may adjudicate interstate groundwater disputes. Where there has been water resource allocation via the federal government, legal solutions regarding

80. Kelly House, *Draining Oregon: No Money to Measure State’s Water Levels*, THE OREGONIAN (Aug. 26, 2016), https://www.oregonlive.com/environment/page/draining_oregon_day_4.html [<https://perma.cc/9TD2-XHUE>].

81. Baker v. Ore-Ida Foods, Inc., 95 Idaho 575, 583 (1973).

82. See Hall & Cavataro, *supra* note 18, at 1557–58 (describing the conflict over the Snake Valley Aquifer between Utah farmers and metro Las Vegas).

83. *Domestic Water Use*, U.S. GEOLOGICAL SURV. (Mar. 1, 2019), https://www.usgs.gov/mission-areas/water-resources/science/domestic-water-use?qt-science_center_objects=0#qt-science_center_objects [<https://perma.cc/BV43-8B7G>].

84. Hall & Cavataro, *supra* note 18, at 1623.

85. COLO. CONST. art. XVI, § 6 (stating the primacy of prior appropriation but cautioning that “when the waters of any natural stream are not sufficient for the service of those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose”); IDAHO CONST. art. XV, § 3 (“When the waters of any natural stream are not sufficient for the service of all those desiring use of the same, those using the water for domestic purposes shall . . . have the preference over those claiming for any other purpose . . .”).

86. ARIZ. REV. STAT. § 45-157 (ranking “domestic and municipal uses” above all others in the relative value of uses); CAL. WATER CODE § 106 (“It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation.”); WYO. STAT. ANN. § 41-3-102 (listing “preferred water uses” starting with “water for drinking purposes” and “water for municipal purposes”).

87. *Irrigation & Water Use*, U.S. DEP’T OF AGRIC. ECON. RSCH. SERV., <https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use/> [<https://perma.cc/US4M-ZFNJ>] (last visited May 6, 2022).

88. See *id.*

water resources between states have generally been tied to surface water disputes.⁸⁹ These solutions have included acts of Congress, interstate compacts, and interstate litigation, but none of them provide a clear roadmap for how to deal with interstate groundwater conflicts.

The U.S. Constitution would suggest that states' competing claims for shared water resources would best be resolved by Congress.⁹⁰ As surface water disputes arose in the twentieth century, the Supreme Court endorsed congressional action to resolve interstate water conflicts.⁹¹ Although congressional involvement is the clearest form of interstate water dispute resolution, it is also the rarest: Congress has formally taken action only twice in the country's history.⁹² The Boulder Canyon Project Act of 1928 divided the waters of the Colorado River among Arizona, California, and Nevada.⁹³ The Truckee–Carson–Pyramid Lake Water Rights Settlement Act later apportioned the waters of the Carson and Truckee Rivers and Lake Tahoe between California and Nevada.⁹⁴ Neither federal law involved the distinct apportionment of groundwater.⁹⁵

Interstate resource compacts have been a more common tool for resolving interstate water disputes, but they have also rarely broached the issue of groundwater.⁹⁶ The Supreme Court has upheld these compacts between and among states regarding shared water resources, provided they have congressional approval.⁹⁷ The focus of most of the apportionment provisions, however, is surface water, not groundwater.⁹⁸ Of the 23 existing interstate water compacts, a mere 4 mention groundwater explicitly.⁹⁹ Among those four, two mention groundwater in

89. See generally THOMPSON ET AL., *supra* note 49, at 891–1021.

90. See U.S. CONST. art. I, § 8, cl. 3 (“The Congress shall have Power . . . To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.”). The Supremacy Clause further tethers states to the terms of a congressional act. *Id.* art. VI, cl. 2.

91. *Arizona v. California*, 373 U.S. 546, 564–66 (1963).

92. THOMPSON ET AL., *supra* note 49, at 892.

93. Josh Clemons, *Interstate Water Disputes: A Road Map for States*, 12 SE. ENV'T L.J. 115, 128 (2004) (describing how the intent to apportion the river was not explicit in the act but later affirmed by the U.S. Supreme Court). See also *Arizona v. California*, 373 U.S. 546, 560 (1963) (“The [Boulder Canyon Project] Act as finally passed did provide . . . a complete statutory apportionment intended to put an end to the long-standing dispute over Colorado River waters.”).

94. THOMPSON ET AL., *supra* note 49, at 894.

95. See Boulder Canyon Project Act, Pub. L. No. 70-642, 45 Stat. 1057 (codified as amended and supplemented at 43 U.S.C. §§ 617–617v). The law regarding Truckee–Carson–Pyramid Lake mentions groundwater but only as ancillary to the lake and river basin diversions. See Fallon Paiute Shoshone Indian Tribes Water Rights Settlement Act of 1990, Pub. L. No. 101-618, § 204, 104 Stat. 3294, 3296–304 (1990).

96. 3 WATERS AND WATER RIGHTS § 46.03 (Amy K. Kelley, ed., 3rd ed. LexisNexis/Matthew Bender 2023).

97. See, e.g., *Texas v. New Mexico*, 482 U.S. 124, 128 (1987) (“As we said . . . a compact when approved by Congress becomes a law of the United States . . .”). See also U.S. CONST. art. I § 10, cl. 3 (“No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State . . .”).

98. WATERS AND WATER RIGHTS, *supra* note 96, at § 46.03.

99. *Id.* at §§ 46.01, 46.03.

order to either exclude it from the interstate apportionment altogether¹⁰⁰ or denote it as tributary to the river.¹⁰¹ The remaining two, the Kansas–Nebraska Big Blue River Compact and the Upper Niobrara River Compact, stipulate only a potential future need to regulate groundwater (via, for instance, limiting irrigation wells in the upstream state) to meet delivery needs of the downstream state.¹⁰²

In a third recourse, the Supreme Court hears disputes between states when an interstate water compact is in dispute.¹⁰³ The Court has extended surface water compacts to groundwater where there was evidence of hydrological connection.¹⁰⁴ In *Kansas v. Colorado* in 1995, Colorado’s groundwater pumping adjacent to the Arkansas River violated its compact with Kansas, despite the compact’s omission of any mention of groundwater.¹⁰⁵ The Court later approved a settlement in an adjudication surrounding a 1943 compact among Kansas, Nebraska, and Colorado, which required the use of a water model to track the relationship between surface and groundwater and a moratorium on certain wells.¹⁰⁶ This decision was notable because, although the original compact did not address groundwater, the Court endorsed a remedy that acknowledged the hydrological connection between surface water and groundwater.¹⁰⁷

When litigating interstate surface water disputes in the absence of an interstate compact, the Supreme Court has determined that groundwater connected to a river should be considered part of the flow of a river.¹⁰⁸ But results have not always been consistent. Its landmark equitable apportionment decision¹⁰⁹ held that groundwater would not be considered separately in the apportionment of water between Kansas and Colorado.¹¹⁰ A few years later, however, the Court disregarded

100. See Klamath River Basin Compact, art. II(G), 71 Stat. 497, 498 (1957).

101. See Amended Bear River Compact, arts. V(A), VI(B), 94 Stat. 4, 10–11 (1980).

102. WATERS AND WATER RIGHTS, *supra* note 96, at § 46.03 n.57.

103. See, e.g., *Texas v. New Mexico*, 141 S. Ct. 509, 516 (2020) (examining New Mexico’s obligations to Texas under the Pecos River Compact).

104. See generally *Kansas v. Colorado*, 514 U.S. 673 (1995); *Kansas v. Nebraska*, 538 U.S. 720 (2003).

105. *Kansas v. Colorado*, 514 U.S. at 689–91.

106. THOMPSON ET AL., *supra* note 49, at 912–13.

107. *Id.* More recently, the Court has examined the connection between groundwater and surface water through the lens of discharges under the Clean Water Act. See *Cnty. of Maui, Haw. v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1477 (2020).

108. Hall & Regalia, *supra* note 6.

109. Discussed further in Part II, *infra*.

110. *Kansas v. Colorado*, 206 U.S. 46, 114–15 (1907) (“Evidence has been offered of an alleged underflow of the river as it passes through the state of Kansas, and it seems to be the contention on the part of Kansas that beneath the surface there is, as it were, a second river, with the same course as that on the surface, but with a distinct and continuous flow as of a separate stream. We are of the opinion that the testimony does not warrant the finding of such second and subterranean stream.”).

Washington's complaint that Oregon farmers' wells pumped groundwater in a way that diminished Washington's share of the diversion from the Walla Walla River.¹¹¹

Nevertheless, as competition for water has increased, interstate compacts have become the preferred method for deciding the rights to shared streams.¹¹² States have come to rely upon the certainty that compacts provide for economic development and for planning water infrastructure projects.¹¹³ But when compacts fail to resolve disputes, the Supreme Court has interpreted the terms of the compact or adjudicated where there is ambiguity or no agreement at all.¹¹⁴ What remains to be seen is the Court's approach to adjudicating groundwater disputes between states in the West, notwithstanding its endorsement of one approach for the Middle Claiborne Aquifer in *Mississippi v. Tennessee*.

II. POTENTIAL APPROACHES TO INTERSTATE GROUNDWATER DISPUTES

A. Equitable Apportionment

The Supreme Court has consistently used the doctrine of equitable apportionment to resolve conflicts over shared rivers and streams.¹¹⁵ Regarding an interstate river, the Court has said that states have "an equal right to make a reasonable use of the waters of the stream."¹¹⁶ This use prohibits an upstream state from dominating water use at the peril of a downstream state, and therefore the Court has found itself in the unique position of apportioning flowing water equitably between states.¹¹⁷

Equitable apportionment stems from the rationale that natural resources should be shared among states, especially those that share land boundaries.¹¹⁸ As the Supreme Court explained in its first *Colorado v. Kansas* decision, the total reclamation of the Missouri River in arid Colorado would deprive farmland in Kansas; yet, if the river were to "flow as it was wont to flow," the result would "have

111. *Washington v. Oregon*, 297 U.S. 517, 524–26 (1936) ("[C]omplainant [Washington] has been unsuccessful in supplying evidence of damage. As to that the master finds: 'There is no satisfactory proof that the use of the water from these wells materially lessens the quantity of water available for use within . . . Washington.' If any wrong has been done, it is unsubstantial and uncertain.").

112. Brief of Amici Curiae States of Colorado, Idaho, Nebraska, North Carolina, North Dakota, Oregon, South Dakota, and Wyoming in Support of Defendant Tennessee at 8, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

113. *Id.*

114. *See, e.g., Texas v. New Mexico*, 462 U.S. 554, 567–68 (1983) ("There is no doubt that this Court's jurisdiction to resolve controversies between two States . . . extends to a properly framed suit to apportion the waters of an interstate stream between States through which it flows . . . If there is a compact, it is a law of the United States . . . and our first and last order of business is interpreting the compact.")

115. *See, e.g., Colorado v. New Mexico*, 459 U.S. 176, 183 (1982); *Nebraska v. Wyoming*, 325 U.S. 589, 616 (1945); *Wyoming v. Colorado*, 259 U.S. 419, 456, 464 (1922).

116. *United States v. Willow River Power Co.*, 324 U.S. 499, 505 (1945).

117. *Colorado v. Kansas*, 206 U.S. 46, 98 (1907).

118. *Id.*

the effect to perpetuate a desert condition in Colorado.”¹¹⁹ Equitable apportionment supports the notion that surface waters are “a necessity of life that must be rationed among those who have power over it.”¹²⁰

Starting with a dispute over the waters of the Laramie River between Colorado and Wyoming, the Court has consistently applied equitable apportionment in surface water disputes. In 1922, the Court rebuffed upstream Colorado’s claim that it could “divert and use . . . the waters flowing within her boundaries in this interstate stream, regardless of any prejudice that this may work to others having rights in the stream below her boundary.”¹²¹ The Court then enjoined Colorado from taking more than its share of the available supply, which was the amount of water available after Wyoming’s senior appropriation was met.¹²²

As equitable apportionment jurisprudence developed, the issue of what exactly equity means emerged as a recurring challenge.¹²³ In the West, that challenge created an atmosphere that made equitable apportionment rely on the state-law doctrines of prior appropriation.¹²⁴ The Court presciently acknowledged in the early part of the twentieth century that “different traditions and practices in different parts of the country may lead to varying results,” but the aim is to “secure equitable apportionment without quibbling over formulas.”¹²⁵ In the decades following the dispute between Colorado and Wyoming over the Laramie River, the Court affirmed that prior appropriation was the “guiding principle” in cases where all state parties employ the doctrine.¹²⁶

While the equitable apportionment doctrine may have grown up in the West throughout the twentieth century, it did little to address conservation as part of the multifactor equity equation.¹²⁷ In a dispute between Colorado and New Mexico in the early 1980s, the Court, for the first time, introduced a duty to conserve as part of a successful claim to an interstate river.¹²⁸ The factors that the Court remanded for factual findings included considerations of waste for an equitable apportionment analysis of the stream.¹²⁹ But equitable apportionment (barring stipulation in a

119. *Id.*

120. *New Jersey v. New York*, 283 U.S. 336, 342–43 (1931). *But see* *Florida v. Georgia*, 141 S. Ct. 1175, 1180 (2021). In the latest decision involving Florida and Georgia’s dispute over the Apalachicola–Chattahoochee–Flint River Basin, the Supreme Court affirmed the high burden of proof that a downstream state must meet to obtain equitable apportionment, which includes proving a threatened or actual injury “of serious magnitude” and showing that the benefits of equitable apportionment far outweigh the harmful effects that it may have. *Id.*

121. *Wyoming v. Colorado*, 259 U.S. 419, 466 (1922).

122. *Id.* at 496.

123. *See* Joseph W. Dellapenna, *Interstate Struggles over Rivers: The Southeastern States and the Struggle over the Hooch*, 12 N.Y.U. ENV’T L.J. 828, 883 (2005).

124. *Id.* at 883–84.

125. *New Jersey v. New York*, 283 U.S. at 343.

126. *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945).

127. A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381, 406 (1985).

128. *Id.*

129. The Court listed five factors to consider:

corresponding interstate compact) has not dictated a clear role for reducing waste or conserving resources in its applications to date.¹³⁰

Furthermore, equitable apportionment creates uncertainty that may be especially harmful for apportioning groundwater in the West. In the absence of an interstate compact (or when litigating a disputed compact), equitable apportionment's unpredictability spooks participants in surface water disputes, even in longstanding conflicts where multiple parties seek an elusive resolution.¹³¹ Notwithstanding the Court's recent decision in *Mississippi v. Tennessee*, equitable apportionment litigation lacks a precedential guiding principle for interstate groundwater that could rectify the incongruity in state laws.¹³²

Finally, in practical terms, measuring water supply is a long and costly process for equitable apportionment.¹³³ As noted in Part I, measuring aquifers requires an even more extensive process than measuring surface water, and the resulting data are much more uncertain.¹³⁴ The data that would serve a legal apportionment of an interstate aquifer may not be available—or it may be too dubious for states to rely upon it.¹³⁵ Equitable apportionment for interstate groundwater may therefore be an unachievable endeavor.

(1) the existing uses of water . . . and the extent to which present levels of use reflect current or historical water shortages or the failure of existing users to develop their uses diligently; (2) the available supply of water . . . accounting for factors such as variations in streamflow, the needs of current users for a continuous supply, the possibilities of equalizing and enhancing the water supply through water storage and conservation, and the availability of substitute sources of water to relieve the demand for water . . . ; (3) the extent to which reasonable conservation measures in both states might eliminate waste and inefficiency in the use of water . . . ; (4) the precise nature of the proposed interim and ultimate use . . . and the benefits that would result from a diversion . . . ; [and] (5) the injury, if any . . . as a result of any such diversion, taking into account the extent to which reasonable conservation measures could offset the diversion.

Colorado v. New Mexico, 459 U.S. 176, 189–90 (1982).

130. Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States' Proposal and Beyond*, 8 NEV. L.J. 964, 991 (2008).

131. *Id.* (“Two [Colorado River] Upper Basin advocates graphically called the unpredictability the ‘terror’ of equitable apportionment litigation.”).

132. The Court did not intimate that its holding could be broadly applied to aquifers other than the Middle Claiborne at issue in the case. *See generally* *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021).

133. *See Kansas Seeks to Recoup More from Colo. in Arkansas River Dispute*, ASSOCIATED PRESS (Apr. 12, 2008), <https://www.summitdaily.com/news/kansas-seeks-to-recoup-more-from-colo-in-arkansas-river-dispute/> [<https://perma.cc/E2FV-JFKK>].

134. ANDERSON ET AL., *supra* note 39, at 378.

135. *Id.*

B. State Ownership

In contrast to equitable apportionment, claims under state ownership rest upon the theory that each state should have control over the natural resources within its borders, absent a federal law stating otherwise.¹³⁶

The Supreme Court recently rebuked a theory of state ownership in the dispute between Mississippi and Tennessee over the Middle Claiborne Aquifer.¹³⁷ Nevertheless, there may be an opening for the doctrine in the West. It may depend on how future courts judge the nature of an aquifer as a groundwater resource that flows “naturally between the States” and where use in one state affects use in another.¹³⁸ An aquifer that does not meet these criteria may be subject to a successful state ownership claim, precluding equitable apportionment or other doctrines.¹³⁹

The application of the state ownership doctrine for aquifers may have general support in Supreme Court decisions from the nineteenth and twentieth centuries.¹⁴⁰ In an oyster bed ownership dispute between private parties, the Court ruled in favor of the party who had been granted permission to harvest oysters by New Jersey.¹⁴¹ Recognizing the sovereignty of the state government, the Court held that the state had “the absolute right to all their navigable waters, and the soils under them, for their own common use, subject only to the rights since surrendered by the constitution to the general government.”¹⁴² An early air pollution decision further consolidated the understanding that a state was entitled to defend its natural resources against interlopers that may harm its interests.¹⁴³

A natural resource deemed an interstate resource, however, would seem to preclude a state ownership claim.¹⁴⁴ In *Sporhase v. Nebraska*, a Nebraska statute that restricted out-of-state exportation of groundwater was an improper barrier to interstate commerce.¹⁴⁵ Nebraska’s reciprocity requirement, which required that any neighboring state that used Nebraska groundwater had to grant Nebraska the right to its own groundwater, was an overreach.¹⁴⁶ The Court reasoned that Nebraska’s

136. See, e.g., *Hudson Cnty. Water Co. v. McCarter*, 209 U.S. 349, 356–57 (1908) (holding that New Jersey’s police power over its resources justified a statute that outlawed the diversion of surface waters across state lines).

137. *Mississippi v. Tennessee*, 142 S. Ct. 31, 40 (2021).

138. *Id.*

139. See *id.* at 40–41.

140. See generally *Martin v. Waddell’s Lessee*, 41 U.S. 367 (1842); *Georgia v. Tenn. Copper Co.*, 206 U.S. 230 (1907).

141. *Waddell’s Lessee*, 41 U.S. at 410.

142. *Id.*

143. *Tenn. Copper Co.*, 206 U.S. at 237 (“When the states by their union made the forcible abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests; and the alternative to force is a suit in this court.”).

144. See, e.g., *Sporhase v. Nebraska*, 458 U.S. 941, 951–52 (1982); *Hughes v. Oklahoma*, 441 U.S. 322, 334 (1979); *Baldwin v. Mont. Fish & Game Comm’n*, 436 U.S. 371, 384–87 (1978).

145. *Sporhase*, 458 U.S. at 960.

146. *Id.* at 957.

argument rested upon the “legal fiction of state ownership” for groundwater, and it stressed that balancing state interests amid the national issue of interstate commerce was essential to this groundwater dispute.¹⁴⁷

Nevertheless, the Court has affirmed state ownership to protect water rights where an interstate compact was silent on a specific interstate transfer of waters.¹⁴⁸ The terms of the Red River Compact, which included Texas and Oklahoma, gave states “equal rights” to use a surface water subbasin under certain availability conditions.¹⁴⁹ This section of the compact did not address cross-border rights, so a Texas permit applicant argued that the compact superseded Oklahoma state law that blocked such a transfer.¹⁵⁰ In *Tarrant Regional Water District v. Herrmann*, the Court disagreed, holding that the right to regulate use of water resources within a state’s territory was “an essential attribute of sovereignty.”¹⁵¹ The omission of such explicit cross-border withdrawals led to the conclusion that the Oklahoma law blocking the transfer was not pre-empted.¹⁵² Although the Supreme Court later rebuked the comparisons to this case in Mississippi’s arguments regarding the Middle Claiborne Aquifer, the case stands out as a demonstration of a state protecting its groundwater interests against out-of-state withdrawals.¹⁵³

C. *Interstate Nuisance*

An intriguing approach would be to view aquifer use across state lines as an interstate nuisance. An application of interstate nuisance law would involve acknowledgment of the shared resource, as in equitable apportionment, but—instead of fully apportioning the resource—determining equitable use by minimizing the harm to one state by another.¹⁵⁴

This view has judicial precedent in an interstate water dispute between a sewage district in Illinois and other Great Lakes and Midwestern states during the twentieth century.¹⁵⁵ Instead of apportioning an immeasurable volume or bestowing a multistate water source to one state alone, remedies under interstate nuisance target the harm stemming from shared use.¹⁵⁶ Given the state of the science, the law, and the climate, interstate nuisance could serve the interests of the West by focusing on balancing interests instead of allocating all resources for total consumption.¹⁵⁷ Applying interstate nuisance theory to interstate aquifer disputes could also reduce long periods of litigation among states over a shared groundwater resource.¹⁵⁸

147. *Id.* at 951.

148. *Tarrant Reg’l Water Dist. v. Herrmann*, 569 U.S. 614, 631–32 (2013).

149. *Id.* at 626.

150. *Id.* at 626–28.

151. *Id.* at 631 (quoting *United States v. Alaska*, 521 U.S. 1, 5 (1997)).

152. *Id.* at 640.

153. *See Mississippi v. Tennessee*, 142 S. Ct. 31, 41 (2021).

154. *See, e.g., Missouri v. Illinois (Missouri I)*, 180 U.S. 208 (1901); *Missouri v. Illinois (Missouri II)*, 200 U.S. 496 (1906).

155. *Wisconsin v. Illinois*, 278 U.S. 367, 418–19 (1929).

156. Brief of Amici Curiae Law Professors in Support of Defendants at 19, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

157. *Id.*

158. The recent dispute at the Supreme Court between Mississippi and Tennessee had its origins in the early 2000s. *See Mississippi v. Tennessee*, 142 S. Ct. at 38.

Alternatively, it could motivate states to negotiate and enact interstate compacts that could serve western states amid climate change.¹⁵⁹

In the Illinois litigation, the nuisance revolved around waste disposal and water levels of surface water bodies, but the resolution is nevertheless instructive.¹⁶⁰ In its decades-long efforts to rid the city of Chicago and Lake Michigan of industrial wastes and sewage, the state of Illinois created the Chicago Sanitary District in 1889.¹⁶¹ The Sanitary District started developing drainage projects that diverted the flow of the polluted Chicago River away from Lake Michigan and toward a river route that ultimately emptied into the Mississippi River.¹⁶² Concerned about the public health effects on its residents and using the common law theory of nuisance, Missouri filed suit.¹⁶³ The litigation marked the first time that the Supreme Court considered an interstate environmental harm dispute.¹⁶⁴ The nation's highest court went on to set the basic standard for interstate nuisance claims that it could hear: first, that the dispute must be "of serious magnitude, clearly and fully proved" and second, that the dispute must be able to be resolved by the courts.¹⁶⁵ In this instance, the lack of scientific evidence about the potential harm caused by Illinois precluded a judgment in favor of Missouri.¹⁶⁶ This proto-standard resembled Chief Justice Roberts's recent attempts to fashion a standard for interstate aquifer disputes.¹⁶⁷

Illinois's other foes, however, gave the Supreme Court a chance to refine its interstate nuisance standard.¹⁶⁸ Wisconsin, New York, Michigan, and other states that border the Great Lakes alleged that the Chicago Sanitary District's diversion projects were causing harm to the water levels in the lakes.¹⁶⁹ The Court-appointed special master found that following the construction of a drainage canal, the water levels of nearly all of the Great Lakes had declined to a point that substantially harmed the commerce of the plaintiff states.¹⁷⁰ Illinois mounted the defense that Congress—via a statute related to Great Lakes navigability regulation—had greenlit

159. See Noah D. Hall, *Interstate Water Compacts and Climate Change Adaptation*, 5 ENV'T & ENERGY L. & POL'Y J. 237, 252–53 (2010).

160. See *Missouri I*, 180 U.S. 208, 210–212 (1901); *Missouri II*, 200 U.S. 496, 521 (1906). See generally *Wisconsin v. Illinois*, 278 U.S. 367 (1929).

161. *Missouri I*, 180 U.S. at 210–12.

162. *Id.* at 211.

163. *Id.* at 216.

164. See Noah D. Hall, *Political Externalities, Federalism, and a Proposal for an Interstate Environmental Impact Assessment Policy*, 32 HARV. ENV'T L. REV. 49, 62 (2008).

165. *Missouri II*, 200 U.S. at 521.

166. *Id.* at 526.

167. Chief Justice Roberts fashioned the Court's equitable apportionment holding in Mississippi's dispute with Tennessee by fitting the square groundwater peg into a round surface-water hole. See *Mississippi v. Tennessee*, 142 S. Ct. 31, 40 (2021) ("[W]e have long applied equitable apportionment even to streams that run dry from time to time And although the transboundary flow here may be a mere 'one or two inches per day,' . . . that amounts to over 35 million gallons of water per day So the speed of the flow, at least in the context of this case, does not place the aquifer beyond equitable apportionment.").

168. See generally *Wisconsin v. Illinois*, 278 U.S. 367 (1929).

169. See *id.* at 399.

170. *Id.* at 408–09.

the Department of War's permit that authorized Chicago's diversion.¹⁷¹ But that defense was faulty: neither Illinois (nor Congress for that matter) had authority to "arbitrarily destroy or impair the rights of riparian owners" to effect a sewage project based on a law that had nothing to do with it.¹⁷² Most importantly, faced with a highly technical report of a special master, the Supreme Court did not divvy up the voluminous Great Lakes via equitable apportionment.¹⁷³ Instead, it remanded the case to the special master to examine "appropriate provisions" for the gradual "restoration of just rights" to the Great Lakes states that had opposed Illinois.¹⁷⁴ In subsequent litigation, Illinois's diversion was phased out in a way that allowed the Chicago area to build infrastructure to handle its own waste disposal while minimizing diversion of shared, interstate waters.¹⁷⁵

Although the Supreme Court employed interstate nuisance around the same period in resolving air pollution harms between states regarding private property,¹⁷⁶ the rise of federal environmental laws in the late twentieth century no doubt preempted common-law application in many natural-resource conflicts.¹⁷⁷ But the lesson of *Wisconsin v. Illinois* is that interstate nuisance can still be applied to large conflicts where a vast but precious resource has competing uses between states. The difference is the focus on use. Instead of needing to quantify the entire resource (like measuring a Great Lake or modeling an aquifer), interstate nuisance looks to how the states use the water and works backward to assign the equitable division of use.¹⁷⁸ As the climate changes (and notwithstanding the challenge of measuring aquifer volumes), the historical data used to model water resources may be less reliable.¹⁷⁹ It would behoove the courts to embrace a theory that examines the use between two party-states and apportions the resource that way. In *Mississippi v. Tennessee*, the Supreme Court had the opportunity to open the door to that approach, and it did not do so.¹⁸⁰

III. A MISSED OPPORTUNITY: *MISSISSIPPI V. TENNESSEE* (2021)

What makes *Mississippi v. Tennessee* extraordinary is that the Court granted the writ of certiorari to hear the case, especially given the outcome of the decision, because the Court appeared to have rebuffed arguments for absolute ownership of groundwater by denying certiorari for Mississippi in 2010.¹⁸¹ Even

171. *Id.* at 410–11.

172. *Id.* at 415.

173. *See id.* at 420 ("In our view of the permit . . . and in the absence of direct authority from Congress for a waterway from Lake Michigan to the Mississippi, they show no rightful interest in the maintenance of the diversion.").

174. *Id.* at 421.

175. *See generally* *Wisconsin v. Illinois*, 289 U.S. 395 (1933); *Wisconsin v. Illinois*, 388 U.S. 426 (1967); *Wisconsin v. Illinois*, 449 U.S. 48 (1980).

176. *See generally* *Georgia v. Tenn. Copper Co.*, 237 U.S. 474 (1915).

177. *See, e.g.*, Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251–1387.

178. *See* Noah D. Hall & Joseph Regalia, *Interstate Groundwater Law Revisited: Mississippi v. Tennessee*, 34 VA. ENV'T L.J. 152, 201–02 (2016).

179. *See id.*

180. *Mississippi v. Tennessee*, 142 S. Ct. 31, 41 (2021).

181. *Mississippi v. City of Memphis*, 559 U.S. 904 (2010).

more notable is how much the decision leaves open about the future of litigation on interstate aquifers, especially in other parts of the country.

Equitable apportionment for the Middle Claiborne Aquifer was the prevailing wisdom throughout the case's procedural history. Before Tennessee was joined as a party, the Fifth Circuit had already declared that the disputed aquifer was a shared resource subject to equitable apportionment.¹⁸² The court-appointed special master found that "Mississippi presents no compelling reason to chart a new path for groundwater resources" and the differences between groundwater and surface water were not "legally meaningful" for purposes of the dispute.¹⁸³ The U.S. Solicitor General argued that "the groundwater here has the same characteristics as other resources that this Court has found to be interstate resources subject to equitable apportionment," citing a fishing dispute between Idaho and Oregon to show that the doctrine has been broadly applied to allocative resource disputes.¹⁸⁴ Perhaps most strikingly, the attorneys general of eight states filed an *amici curiae* brief in support of Tennessee, and all but one represented a state west of the Mississippi River.¹⁸⁵ Noting the complexities of water law in the West, they argued that a ruling in favor of Mississippi could motivate states to bring lawsuits in lieu of entering interstate compact negotiations.¹⁸⁶ The brief concluded that a precedent-setting assertion of Mississippi's state-ownership rights to the aquifer could undermine the water law regime in the West.¹⁸⁷

Mississippi exhorted a view that was firmly embedded in the state ownership theory.¹⁸⁸ It dismissed the equitable apportionment theory outright and disputed the application of the doctrine to the Middle Claiborne Aquifer, arguing that the water was inherent to the ground in Mississippi and would remain within the state, save for another state's taking of it.¹⁸⁹ Tennessee had "reach[ed] into Mississippi and engaged in forced, unnatural cross-border extractions of water physically located within Mississippi's borders" in violation of the state's

182. *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 629–30 (5th Cir. 2009) ("The Aquifer is an interstate water source, and the amount of water to which each state is entitled from a disputed interstate water source must be allocated before one state may sue an entity for invading its share Allocation of an interstate water source is accomplished through a compact approved by Congress or an equitable apportionment.") (quoting *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 104–05 (1938)).

183. Report of the Special Master at 26, 28, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 22O143).

184. See *Idaho ex rel. Evans v. Oregon*, 444 U.S. 380, 382 (1980); Brief for the United States as *Amicus Curiae* in Support of Overruling Mississippi's Exceptions to the Report of the Special Master 15, *Mississippi v. Tennessee*, 142 S. Ct. 31 (No. 22O143).

185. See generally Brief of *Amici Curiae* States of Colorado, Idaho, Nebraska, North Carolina, North Dakota, Oregon, South Dakota, and Wyoming in Support of Defendant Tennessee, *Mississippi v. Tennessee*, 142 S. Ct. 31 (No. 22O143).

186. *Id.* at 7.

187. *Id.* at 9.

188. Exceptions to Report of the Special Master by Plaintiff State of Mississippi and Brief in Support of Exceptions at 26, *Mississippi v. Tennessee*, 142 S. Ct. 31 (No. 22O143).

189. *Id.*

sovereignty.¹⁹⁰ Mississippi encouraged the Court to fashion a new rule for interstate aquifers that would preserve “the sovereign rights of Mississippi,” award damages to the state, and declare once and for all that groundwater within Mississippi’s “border” is part of the state—and regulating it was Mississippi’s prerogative alone.¹⁹¹

Chief Justice Roberts delivered the unanimous opinion of the Court, which rebuked Mississippi’s claims in favor of equitable apportionment.¹⁹² Noting that the Court had never applied equitable apportionment to interstate aquifers, the decision narrowed its analysis to the question of whether the dynamics of the Middle Claiborne Aquifer made it “sufficiently similar” to other applications of the doctrine.¹⁹³ The Court ruled that the nature of the dispute made the doctrine appropriate.¹⁹⁴ Foremost, it was apt because the aquifer was a “transboundary resource” that was also, as the special master acknowledged, “a single hydrogeological unit.”¹⁹⁵ Reaching to make equitable apportionment work, the decision found that the aquifer holds water that “flows naturally” between states.¹⁹⁶ The slow rate of flow that Mississippi asserted was dubious: the rate of more than 35 million gallons per day and 10 billion gallons per year made the relative speed of the flow significant “at least in the context of this case.”¹⁹⁷ Finally, it was clear that Tennessee’s pumping actions affected Mississippi, given the cone of depression and the alleged effects on groundwater in Mississippi.¹⁹⁸ Therefore, in the eyes of the Court, the Middle Claiborne Aquifer was ripe for equitable apportionment.¹⁹⁹

Mississippi’s contention that the aquifer was not an interstate resource was dubious, but the Court used surface-water-dispute logic that may not be applicable in future remedies.²⁰⁰ For instance, in dismissing the state ownership theory, the Court extrapolated that Mississippi’s arguments would “allow an upstream State to completely cut off flow to a downstream one.”²⁰¹ But the decision does not explain how or why the upstream–downstream dynamic would apply in a shared groundwater relationship where there is no stream per se.²⁰² Mississippi’s reliance on *Tarrant Regional Water District* was misguided for several overarching

190. *Id.* at 41.

191. *Id.* at 46. Mississippi relied heavily upon the Court’s decision in *Tarrant Reg’l Water Dist. v. Herrmann*, 569 U.S. 614 (2013). *See generally id.*

192. *Mississippi v. Tennessee*, 142 S. Ct. 31, 42 (2021).

193. *Id.* at 39 (quoting *Idaho ex rel. Evans*, 462 U.S. 1017, 1024 (1983)).

194. *Id.*

195. *Id.* at 39–40.

196. *Id.* at 40.

197. *Id.*

198. *Id.*

199. *Id.*

200. *See id.*

201. *Id.* at 41.

202. *See id.*

reasons,²⁰³ but the Court attacked the origin premise in particular.²⁰⁴ Once again likening surface water to groundwater, the decision reasoned that whether the water that Tennessee pumped may have been “previously located in Mississippi” was irrelevant because equitable apportionment in previous instances had been used to apportion river water and fish that were once upstream in another state.²⁰⁵ This reasoning, however, did not address the stark difference between the way that surface stream waters and migrating fish move, and the way that aquifer waters are drilled and move within the ground.²⁰⁶

Any consideration of interstate nuisance doctrine was absent from the decision.²⁰⁷ Only a brief exchange between Justice Sonia Sotomayor and Tennessee’s counsel during oral arguments touched upon interstate nuisance.²⁰⁸ Ignoring both the holdings in *Wisconsin v. Illinois*²⁰⁹ and the cone of depression in Mississippi in the present case, the attorney for Tennessee dismissed the idea of a nuisance claim because there was no “damage to the water” or “issue of subsidence or other water quality.”²¹⁰ He argued that Mississippi had not properly pleaded for a finding of nuisance and that the law professors’ amici curiae brief did not “say exactly how you would administer a nuisance claim.”²¹¹

It may be obvious why Tennessee’s defense counsel would not want the Court to entertain a nuisance action against his client. There are less obvious reasons for the Court to ignore interstate nuisance doctrine—other than a desire to keep the decision, based on a special master’s technical report, narrow.²¹² Despite the affirmation of equitable apportionment, however, the decision concluded with a dismissal of the case entirely.²¹³ Declining the special master’s recommendation, the Court did not grant Mississippi leave to amend the complaint to seek equitable

203. The Court reasoned that it evaluated the *Tarrant Regional District* dispute using equitable apportionment doctrine because “the affected States had taken it upon themselves to negotiate a compact that determined their respective rights to the resource in question.” *Id.*

204. *Id.*

205. *Id.* (finding that origin was “not dispositive” as it had not been for the river at issue in *Colorado v. New Mexico*, 459 U.S. 176, 181 (1982) or the anadromous fish in *Idaho ex rel. Evans*, 462 U.S. 1017, 1028 (1983)).

206. *See id.*

207. *See generally id.*

208. Transcript of Oral Argument at 38–39, *Mississippi v. Tennessee*, 142 S. Ct. 31 (2021) (No. 143), https://www.supremecourt.gov/oral_arguments/argument_transcripts/2021/143-orig_c1ne.pdf [<https://perma.cc/J95S-MBBY>].

209. 278 U.S. 367 (1929).

210. Transcript of Oral Argument at 39, *Mississippi v. Tennessee*, 142 S. Ct. 31 (No. 143).

211. *Id.*

212. *See Mississippi v. Tennessee*, 142 S. Ct. at 41 (“We conclude that *the waters contained in the Middle Claiborne Aquifer* are subject to equitable apportionment.”) (emphasis added).

213. *Id.* at 42.

apportionment of the aquifer.²¹⁴ Therefore, the justices sidestepped an opportunity to explore equitable apportionment for interstate aquifers, at least in this instance.²¹⁵

The opening that the Court created in *Mississippi v. Tennessee* may keep the door open for the interstate nuisance doctrine. The doctrine may be the ideal approach for future transboundary groundwater disputes, especially those in the West, where the case for harm may be clearer and an adjudicatory emphasis on use more prudent.

IV. PRESENT AND POTENTIAL INTERSTATE GROUNDWATER CONFLICTS IN THE WEST

The following interstate groundwater conflicts are existing and emerging disputes that the doctrine of equitable apportionment may fall short in resolving. Given the geological, climate, and political environment in the West, these disputes could lead to more complex adjudications than the decision in *Mississippi v. Tennessee* may allow. This disconnect could give credence to interstate nuisance theory as conflicts come to a head in the decades to come.

A. Nevada, Utah, and the Snake Valley Aquifer

The dispute over the Snake Valley Aquifer pits not only Nevada and Utah against each other but also the interests of burgeoning metropolitan water users against rural farmers.²¹⁶ The Snake Valley Aquifer contains roughly 132,000 annual acre-feet of water, and it straddles the Nevada–Utah border in the Great Basin Desert.²¹⁷ Protests from Utah farmers regarding their groundwater source began after the city of Las Vegas began applying for permits from the state of Nevada in the late 1980s to pump water from the aquifer.²¹⁸ Years of negotiation between Nevada and Utah authorities yielded the 2009 Snake Valley Agreement, a proposal to split the unappropriated water from the aquifer, enact a comprehensive water management and environmental protection plan, and continue collecting data about aquifer volume quantity and quality.²¹⁹ Political uproar in western Utah sank the proposal, and in 2013 the Utah governor refused to join the compact.²²⁰ Without the agreement, the Southern Nevada Water Authority pursued legal claims that would

214. *Id.*

215. *Id.* (“As Mississippi has neither sought leave to amend nor tendered a proposed complaint seeking equitable apportionment, we have no occasion to determine how these [principles of equitable apportionment] and other pertinent principles might apply.”).

216. *See generally* Hall & Cavataro, *supra* note 18. This article is the most comprehensive history of the dispute in the early 2010s.

217. *Id.* at 1558–60.

218. *Id.* at 1564–65.

219. *Id.* at 1572.

220. Christopher Smart et al., *Herbert Rejects Snake Valley Water Pact with Nevada*, SALT LAKE TRIB. (Apr. 4, 2013, 10:25 AM), <https://archive.slttrib.com/article.php?id=56090274&itype=CMSID> [<https://perma.cc/6THG-WHM3>].

allow it to build a pipeline to pump groundwater to Las Vegas from the aquifer until plans stalled in early 2020.²²¹

Although litigation has stalled, there is no telling what the future will hold for sharing the Snake Valley Aquifer. The need is still there. Drought conditions in the mid-2010s prompted the Southern Nevada Water Authority to build drinking water infrastructure that can siphon water from the Colorado River's Lake Mead, which is at historically low levels.²²² While western Utah residents celebrate a short-term delay, they recognize that Nevada will continue to be interested in shared groundwater.²²³

The interstate compact attempt failed.²²⁴ If litigation were to continue over the next several years or decades, the ruling might apply equitable apportionment, although the decision in *Mississippi v. Tennessee* provides no clear standard to do so. Although the framework and analysis may be the same, the result would be an endeavor to apportion the Snake Valley Aquifer for total consumption. That scenario may not be realistic on either end of the argument, especially given the domestic use preference within both Nevada and Utah statutes.²²⁵

Interstate nuisance provides a better solution because it would avoid a protracted quantification of the Snake Valley Aquifer in an attempt to inaccurately and controversially divvy up all of the water beneath the valley. Farmers and ranchers in western Utah have mounted a decades-long fear campaign that Las Vegas wants to steal their water,²²⁶ but what is their actual usage in relation to the size of the aquifer? If a court were to focus on specified, desired use of the groundwater for Las Vegas, there could be a way to meet both constituencies' needs in a quantifiable, sustainable way.

B. New Mexico, Texas, and the Ogallala Aquifer

The Great Plains Aquifer, known as the Ogallala, is located underneath eight states and "supports nearly one-fifth of the wheat, corn, cotton, and cattle produced in the United States."²²⁷ It is also the main water supply for communities throughout the Plains states, and it is being drawn at an unsustainable rate.²²⁸

221. *SNWA Drops Appeal, Ending Its Controversial Pipeline Project*, NEV. PUB. RADIO (Apr. 17, 2020), <https://knpr.org/knpr/2020-04-17/snwa-drops-appeal-ending-its-controversial-pipeline-project> [<https://perma.cc/T5BZ-BZ6F>].

222. *Intake No. 3*, S. NEV. WATER AUTH., <https://www.snwa.com/our-regional-water-system/intake-3/index.html> [<https://perma.cc/253C-UG7L>] (last visited Jan. 30, 2022).

223. See Annette Garland, *Opinion, Residents of Utah's West Desert Continue Their Fight for Water*, DESERET NEWS (May 7, 2020, 4:00 PM), <https://www.deseret.com/opinion/2020/5/7/21248500/west-desert-utah-nevada-water-lawsuit-pipeline> [<https://perma.cc/JC5T-2ET3>].

224. Smart et al., *supra* note 220.

225. Hall & Cavataro, *supra* note 18, at 1624.

226. Garland, *supra* note 223.

227. *Ogallala Aquifer Initiative*, U.S. DEP'T OF AGRIC. NAT. RES. CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/initiatives/?cid=stelprdb1048809> [<https://perma.cc/27U7-W59B>] (last visited Sept. 25, 2021).

228. *Id.*

Where the Ogallala Aquifer crosses New Mexico and Texas, its waters find competing uses and regulations.²²⁹ Oil and gas development dominates water use in western Texas near the New Mexico border, in addition to ranching and farming.²³⁰ New Mexico farmers rely upon groundwater, especially during the current period of prolonged drought.²³¹ Elsewhere along the border, Texas has brought a claim against New Mexico for violating the Rio Grande Compact, alleging that New Mexico farmers are over-pumping the groundwater near the Rio Grande.²³² Texas alleges that New Mexico has been violating the agreement by failing to deliver joint water project volumes to El Paso.²³³ Even with the interstate compact in place, the total cost of the equitable-apportionment litigation²³⁴ to the state governments has exceeded \$30 million.²³⁵

There is no interstate compact governing New Mexico and Texas' shared use of the Ogallala Aquifer, but the water levels in their area of the aquifer have experienced the steepest drops since the groundwater started to be used for agriculture.²³⁶ New Mexico farmers and local water authorities are already looking for a new source, and they may turn to drilling that could affect water levels in nearby Texas.²³⁷

There is no easy mechanism to apportion the dwindling resource between the states. Given the state of the aquifer, water levels may run too low for use by the time that equitable apportionment runs its course in a prolonged legal battle like the one concerning the Rio Grande Compact. By targeting use—and remaining feasible use—a remedy using interstate nuisance could provide for some agricultural allotments while preserving a part of the shared resource. Given that the Ogallala Aquifer underlies six other states, a plan for New Mexico and Texas that focuses on

229. Jeremy Frankel, *Crisis on the High Plains: The Loss of America's Largest Aquifer—the Ogallala*, RENEWABLE RES. J., vol. 33, no. 3, at 14, <https://nmrf.org/wp-content/uploads/2020/03/RRJV33N3.pdf> [<https://perma.cc/B7VS-XSZZ>] (last visited Apr. 7, 2023).

230. *Id.*

231. Hannah Grover, *EBID Officials, Farmers Testify During Virtual Texas v. New Mexico Water Trial*, N.M. POL. REP. (Oct. 8, 2021), <https://nmpoliticalreport.com/2021/10/08/ebid-officials-farmers-testify-during-virtual-rio-grande-groundwater-trial/> [<https://perma.cc/BH72-E2B4>].

232. *Id.*

233. *Id.*

234. Hall & Cavataro, *supra* note 18, at 1624–25.

235. Danielle Prokop, *States Spend Big Money in the Texas v. New Mexico Supreme Court Fight*, EL PASO MATTERS (Nov. 29, 2021), <https://elpasomatters.org/2021/11/29/states-spend-big-money-in-the-texas-v-new-mexico-supreme-court-fight/> [<https://perma.cc/ACU3-XXEM>].

236. Virginia L. McGuire, *Water-Level and Recoverable Water in Storage Changes, High Plains Aquifer Predevelopment to 2015 and 2013–15*, 12, U.S. GEOLOGICAL SURV. (2017), <https://pubs.usgs.gov/sir/2017/5040/sir20175040.pdf> [<https://perma.cc/Q97X-TSPT>].

237. Kendra Chamberlain, *Amid Groundwater Declines, Water Data Gains Importance*, N.M. POL. REP. (Mar. 2, 2020), <https://nmpoliticalreport.com/2020/03/02/amid-groundwater-declines-water-data-gains-importance/> [<https://perma.cc/VBV3-GGMX>].

doing minimal harm to each other's withdrawals could also reduce the stress upon the aquifer in other parts of the country.

CONCLUSION

The Supreme Court is no stranger to interstate water disputes involving surface water. *Mississippi v. Tennessee* was the first interstate groundwater dispute before the Court, and the decision could portend potential precedent for interstate aquifers, resources that may be more frequently disputed across the West in the near future.

Despite the outcome of *Mississippi v. Tennessee*, the issue remains: how do courts rectify the multitude of state groundwater legal regimes? Arid western states may share prior appropriation doctrine in water law generally, but interstate aquifer conflicts magnify the subtle regulatory and situational differences. The technical difficulties in quantifying aquifers, the dependence upon groundwater in the West, and the political rancor of water disputes preclude substantive interstate compacts. The decades to come will inevitably lead to more litigation among the states.

Although interstate nuisance has not been applied to date, the doctrine could be applied to interstate groundwater management. In an era of likely increased interstate water disputes in the West, this approach would solve the problem of apportioning aquifers: because it is difficult to measure how much water an aquifer holds, it may be more prudent to restrict a state's water use to levels that minimize harm to other states. By focusing on sustainable use instead of total consumption, interstate nuisance could force states to think more creatively about how to manage shared groundwater. As the West learns how to do less with less, interstate nuisance may be the doctrine that allows states to slowly adapt to the new climate reality.