Protecting the Middle Claiborne Aquifer and Other Interstate Groundwaters Through Interstate Compact

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INTRODUCTION

"*We think of our land and water and human resources not as static and sterile possessions but as life-giving assets to be administered by wise provision for future days.*"[1]

Almost ninety years ago, Justice Oliver Wendell Holmes stated that a river is a treasure that offers "a necessity of life that must be rationed among those who have power over it."[2] Today we know that, like American rivers, our nation's groundwaters must also be rationed, understood, and protected by those who have the power to do so. The ability to withdraw clean and abundant groundwater is inextricably linked to the health and economic success of many of our nation's regions.

For example, consider three individuals in America's Mid-South:[3] the Drinker, the Farmer, and the Developer. The Drinker lives in Memphis, Tennessee, and enjoys some of the finest tap water in the country. The Farmer lives in eastern Arkansas and uses water to irrigate her crops every day. The Developer has built cities from Louisiana to Missouri that depend on water to promote industry, agriculture, and a safe drinking supply. These three people share one thing in common: they all withdraw and depend on water from the Middle Claiborne Aquifer.[4] And they are withdrawing the Aquifer's

1. President Franklin D. Roosevelt, Message to Congress on the Use of Our Natural Resources (Jan. 24, 1935).

2. New Jersey v. New York, 283 U.S. 336, 342 (1931).

3. The Mid-South can loosely be defined as "the region covering West Kentucky, West Tennessee, part of the Tennessee River Valley in Alabama, the northern half of Mississippi, the eastern half of Arkansas and southeast Missouri. . . . Not only is [the Mid-South] well watered on the surface, but under a great part of it is a sheet of artesian water." C.P.J. Mooney, *Soil, Climate, and Production of the Mid-South*, *in* THE MID-SOUTH AND ITS BUILDERS 16, 16 (C.P.J. Mooney ed., 1920), https://hdl.handle.net/2027/yale.39002030689260.

4. The Middle Claiborne Aquifer rests below eight states: Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.

water faster than it can be replenished.[5] But fortunately—and unlike some other major groundwater resources across the country—the Aquifer has not been depleted.[6] It is not too late to ensure that future generations of Drinkers, Farmers, and Developers are able to utilize this precious groundwater supply for centuries to come.

Citizens living around the Mississippi River have long assumed there would always be ample water to sustain their populations.[7] But this assumption is rapidly changing as states confront the reality of climate change, drought, and increased water demands from their growing communities.[8] Today, the Drinker, the Farmer, and the Developer know that water is a finite resource shared by everyone and,

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Mississippi v. Tennessee, 142 S. Ct. 31, 36 (2021). For a detailed map of the Aquifer's location, flow, and metrics, see T.P. Schrader, *Potentiometric Surface in the Sparta-Memphis Aquifer of the Mississippi Embayment, Spring 2007* (illustration), *in U.S. Geological Survey*, USGS.GOV (2008), https://pubs.usgs.gov/sim/3014/pdf/sim3014.pdf.

5. Sharon B. Megdal & Ethan Vimont, *State-Level Groundwater Governance and Management in the U.S.: Summary of Survey Results of Groundwater Quality Strategies and Practices* 1, 5 tbl.1 (2018), https://perma.cc/PR6B-R9P5; Keely Brewer, *NASA Study Pinpoints Vulnerabilities in Memphis Aquifer*, DAILY MEMPHIAN (Dec. 23, 2022, 5:54 AM), https://dailymemphian.com/subscriber/section/metro/article/33069/memphis-sand-aquifer-recharge-vulnerable-nasa-study ("The study revealed a negative water balance in many areas, meaning water is being pumped from the aquifer more quickly than rainfall can replenish it.").

6. *See infra* notes 123–24, 178 and accompanying text.

7. In large part, this assumption is based on the region's wet climate and historical lack of understanding of groundwater. *See* TN H20, *Tennessee's Roadmap to Securing the Future of Our Water Resources* 1, 4 (2018), https://www.tn.gov/content/dam/tn/environment/water/tn-h2o/documents/plan-&-appendices/wr-tnh2o_plan-app_institutional-and-legal-framework-chapter.pdf (discussing eastern water right laws being grounded in the assumption that there would always be enough water for all users).

8. *E.g.*, Jacey Fortin, *Shrunken Mississippi River Snarls Barge Traffic and Imperils Drinking Supplies*, N.Y. TIMES (Oct. 6, 2022), https://www.nytimes.com/2022/10/06/us/mississippi-river-low-water-barges.html?searchResultPosition=1. Rivers and lakes are drying up in the Northeastern United States. Zach Rosenthal, *The Northeast is in the Middle of an Intense Drought*, WASH. POST (Aug. 16, 2022, 1:27 PM), https://www.washingtonpost.com/climate-environment/2022/08/16/northeast-drought-dry-rivers/; Jane M. Daily, *A Watershed Agreement: Fixing the Wild West of Water Usage*, 5 LSU J. ENERGY L. & RES. 341, 341–42 (2017).

like all other natural resources, is subject to the "tragedy of the commons."[9] Current conflicts in the American West demonstrate the difficulties that arise when states try to protect a rapidly depleting water supply.[10] Having failed to reach a solution to solve a problem that has been apparent for decades, these western states now face the daunting task of rationing limited water sources among themselves and among their growing populations.[11] Unlike other regions in the nation in which states were too late to realize the consequences of their failure to reach a compromise, the Mid-South still has a narrow time frame to protect the Middle Claiborne Aquifer.

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9. The "tragedy of the commons" refers to a situation where individuals use a public resource, and, in doing so, ultimately deplete the resource. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968). Originally an economic theory, this philosophy has had a wide-ranging impact on environmental law scholarship. *E.g.*, M. Alexander Pearl, *The Tragedy of the Vital Commons*, 45 ENV'T L. 1021, 1021 (2015) ("Not all commons are created equal; some are more important than others. If the common pasture where cows graze is overused and rendered barren, the community shifts to a vegan diet. But, if the *groundwater aquifer* used to grow soybeans and other foods is exhausted and no water remains for extraction, then individuals, families, and entire communities perish.") (emphasis added).

10. The conflict along the Colorado River is a premier example of states being aware of a declining interstate water resource but not working together to protect their limited supply. *See, e.g.*, Christopher Flavelle, *As the Colorado River Shrinks, Washington Prepares to Spread the Pain*, N.Y. TIMES (Jan. 31, 2023), https://www.nytimes.com/2023/01/27/climate/colorado-river-biden-cuts.html. Water reservoirs along the Colorado River that were full in the 1990s have reached dangerously low levels in the past few years. This outcome came by no surprise—the combination of overuse and a warming climate has created a two-decade drought, impacting forty million people. Yet the states could not come to an agreement, instead refusing to reduce their individual water usage. So, faced with the country's two largest reservoirs in danger of drying out, the federal government tasked the states to come up with their own collaborative solution or face federal intervention. Just before the federal deadline, California, Arizona, and Nevada agreed to cut water consumption by thirteen percent. *See* Joshua Parlow, *States Reach Deal with Biden to Protect Drought-Stricken Colorado River*, N.Y. TIMES (May 22, 2023, 5:52 PM), https://www.washingtonpost.com/climate-environment/2023/05/22/colorado-river-water-conservation-deal-states/.

11. Using the Colorado River conflict again, each state was aware of the river's depleting water supply for decades. Despite having multiple opportunities to renegotiate an interstate compact that allocated the river's waters, the states chose not to act. *See* Robert W. Adler, *Revisiting the Colorado River Compact: Time for a Change?*, 28 J. LAND RES. & ENV'T L. 19, 22 (2008).

Due to the well-documented strain on the United States' water supply, experts forecast that the coming decades will be marked by interstate water conflicts.[12] Despite previous assumptions, the Mid-South will not be immune from these types of conflicts. Indeed, interstate water litigation in the region has already begun. Although similar lawsuits around the country previously focused on surface water, such as rivers and lakes,[13] the United States Supreme Court ("Court") in *Mississippi v. Tennessee* extended its jurisprudence to groundwater for the first time.[14] After more than a decade of litigation between Mississippi and Tennessee over their shared groundwater resource, the Middle Claiborne Aquifer, the Court held that the Aquifer's waters were subject to the remedy known as "equitable apportionment."[15]

Equitable apportionment is the sole federal common law doctrine that the Court employs to settle conflicts when states have not worked together to regulate the usage of a shared water resource.[16] If

12. *E.g.*, Daily, *supra* note 8, at 341–42 ("With the upcoming challenges to secure water quickly approaching, water wars may be looming. Similar to how oil security and sustainability sharply defined the twentieth century, countries with water wealth will visibly shape the twenty-first century.") (internal citations omitted); Ellen M. Gilmer, *Water Wars at the Supreme Court: 'It's Only Going to Get Worse'*, Bloomberg Law (Sept. 17, 2020, 12:16 PM), https://www.bloomberglaw.com/bloomberglawnews/environment-and-energy/XASOS1ES000000?bna_news_filter=environment-and-energy#jcite.

13. *See* Wyoming v. Colorado, 259 U.S. 419 (1922); Nebraska v. Wyoming, 325 U.S. 589 (1945); South Carolina v. North Carolina, 558 U.S. 256 (2010); Florida v. Georgia, 138 S. Ct. 2502 (2018); Texas v. New Mexico, 141 S. Ct. 509 (2020) (interstate compact litigation).

14. Mississippi v. Tennessee, 142 S. Ct. 31, 37 (2021).

15. *Id.* at 40.

16. Darian B. Taylor, *Equitable Apportionment Among States as Applied to Water Resources*, 73 A.L.R. Fed. 3d § 7 (2022). With the addition of *Florida v. Georgia*, there are now ten "true" Supreme Court equitable apportionment cases. *See* Lauren D. Bernadett, *Equitable Apportionment in the Supreme Court: An Overview of the Doctrine and the Factors Considered by the Supreme Court in Light of Florida v. Georgia*, 29 J. ENV'T L. & LITIG. 511, 515–16 (2014). They are: Kansas v. Colorado, 185 U.S. 125 (1902); *Wyoming*, 259 U.S. 419; New Jersey v. New York, 283 U.S. 336 (1931); Connecticut v. Massachusetts, 282 U.S. 660 (1931); Nebraska v. Wyoming, 295 U.S. 40 (1935); Washington v. Oregon, 297 U.S. 517 (1936); Arizona v. California, 298 U.S. 558 (1936); Colorado v. New Mexico, 459 U.S. 176 (1982);

the state bringing suit can prove that its access to the water source has been substantially impaired by a competing user, the Court apportions allotments of the contested water resource among the states.[17] Despite holding that the Aquifer was subject to equitable apportionment, the *Mississippi* Court did not apply the doctrine.[18] Instead, the Court dismissed the case because Mississippi had expressly disavowed equitable apportionment as a remedy.[19]

The dismissal left the Aquifer judicially undisturbed, which is for the best. States, scholars, and the Court itself largely disfavor equitable apportionment as a remedy.[20] Instead, an interstate compact—a congressionally approved contract between two or more states[21]—is the preferred means for states to prevent future litigation while securing the sustainable usage of a shared water supply. The typical use of a compact is to create a regional level of regulation to resolve a problem that is interstate but does not merit, or for which states do not want, federal or judicial intervention.[22] These compacts provide an opportunity for states to overcome federal overreach on "local" matters, ensuring an adaptive and collaborative means for regional water regulation.[23]

South Carolina v. North Carolina, 552 U.S. 804 (2007); Florida v. Georgia, 571 U.S. 1235 (2014).

17. *Mississippi*, 142 S. Ct. at 39.

18. *Id.* at 41.

19. *Id.* ("Mississippi's initial pleadings in this case disavowed equitable apportionment entirely."). Because Mississippi was seeking damages under principles of tort law for Tennessee's water usage, the Court declined to apply the equitable apportionment doctrine here: "As Mississippi has neither sought leave to amend nor tendered a proposed complaint seeking equitable apportionment, we have no occasion to determine how these and other pertinent principles might apply." *Id.*

20. *See infra* notes 65–69 and accompanying text.

21. *See* discussion *infra* Section II.A.3.

22. Rex A. Mann, Note, *A Horizontal Federalism Solution to the Management of Interstate Aquifers: Considering an Interstate Compact for the High Plains Aquifer*, 88 TEX. L. REV. 391, 403 (2009).

23. *See Interstate Water Resource Management Agreements and Organizations*, INTERSTATE COUNCIL ON WATER POL'Y 1, 1 (Dec. 2020), https://icwp.org/wp-content/uploads/2020/12/Primer_ICWP-Interstate-Water-Agreements_FINAL_12_18_2020.pdf [hereinafter *Agreements*]; Noah D. Hall, *Interstate Water Compacts and Climate Change Adaptation*, 5 ENVT'L & ENERGY L. & POL'Y J. 237, 254 (2010).

Legal solutions for natural resource management exist on a spectrum. At one end, such solutions are well-intended yet too abstract to implement; and at the other end, such solutions focus on pragmatism, ignoring a natural resource's uniqueness in the process.[24] This Note strikes a balance between the two. It first raises awareness about the vulnerable groundwater resource shared by multiple states in the Mid-South, the Middle Claiborne Aquifer. By demonstrating that an interstate compact is the Mid-South's most appropriate long-term solution to protect the Aquifer, this Note then provides a framework for all interstate groundwater sources across the United States.[25]

And so, Part II of this Note discusses interstate water law generally before focusing on the Middle Claiborne Aquifer and the previous litigation concerning it. Part III examines the current lack of legal cooperation between states using the Aquifer. Part III further explains how states' failure to enter a compact now could lead the Court to apply equitable apportionment later, a remedy that would be unsatisfying to all parties affected. Part IV recommends instead that the eight states using the Middle Claiborne Aquifer voluntarily enter into an interstate compact.[26] Part IV also addresses how traditional hurdles impeding interstate collaboration—hurdles such as states' lack

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24. *Compare* CHRISTOPHER STONE, SHOULD TREES HAVE STANDING? (3d ed. 2010) (arguing that the natural environment should have legal standing), *with* Warigia M. Bowman, *Dustbowl Waters: Doctrinal and Legislative Solutions to Save the Ogallala Aquifer Before Both Time and Water Run Out*, 91 U. COLO. L. REV. 1081 (2020) (addressing groundwater scarcity through specific legislative recommendations).

25. Nearly all groundwater resources are interstate. *Principal Aquifers of the United States*, USGS (March 8, 2021), https://www.usgs.gov/mission-areas/water-resources/science/principal-aquifers-united-states [hereinafter *Principal*]; Sharon B. Megdal & Jacob D. Petersen-Perlman, *Decentralized Groundwater Governance and Water Nexus Implications in the United States*, 59 JURIMETRICS J. 99, 100, 103 (2018). In August 2023, the New York Times studied tens of thousands of groundwater monitoring wells across the United States, finding that "[e]very year since 1940 . . . more wells have had falling water than rising levels." And that "[t]hese declines are threatening irreversible harm to the American economy and society as a whole." Mira Rojanasakul, Christopher Flavelle, Blacki Migliozzi, & Eli Murray, *America is Using Up Its Groundwater Like There's No Tomorrow*, N.Y. TIMES (Aug. 28, 2023), https://www.nytimes.com/interactive/2023/08/28/climate/groundwater-drying-climate-change.html.

26. Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. Mississippi v. Tennessee, 142 S. Ct. 31, 36 (2021).

of foresight and federalism concerns—may be overcome. In its conclusion, this Note summarizes the arguments for protecting states' shared groundwater resource through interstate groundwater compacts. Importantly, this Note warns that considering climate change, drought, and increased water demands, states must act *now*.

I. INTERSTATE GROUNDWATER'S LEGAL LANDSCAPE

"*Water's unique importance is why the law treats it differently than it treats most everything else. An unbroken line of U.S. Supreme Court precedent agrees: Water does not fall under the neat label of 'good' or 'chattel.' Instead, it is a* res communes*; a unique public resource managed by states as trustees, not simple property owners*."[27]

Understanding groundwater regulation requires an understanding of groundwater itself. States collect water through two sources: surface water and groundwater.[28] Groundwater is water that soaks into underground layers of sand, gravel, and rock.[29] And when it "percolates between [those] spaces," an underground reservoir forms, known as an aquifer.[30] An aquifer's water levels are not stagnant—they are recharged through both rainwater and surface water.[31] Recharge rates are often very low, mere centimeters per year, while

27. Brief for Law Professors as Amici Curiae Supporting Defendants at *2, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2002 WL 4729972.

28. *Drinking Water*, CTRS. FOR DISEASE CONTROL AND PREVENTION (Apr. 6, 2022), https://www.cdc.gov/healthywater/drinking/public/water_sources.html.

29. *Groundwater*, ENV'T PROT. AGENCY, https://www.epa.gov/sites/default/files/documents/groundwater.pdf (last visited Sept. 24, 2022). Conversely, surface water is freshwater that is stored on the earth's surface. *Drinking Water*, *supra* note 28.

30. *Mississippi*, 142 S. Ct. at 36. "Water never stops moving. Aquifers are no exception. They are always gaining (recharging) water and losing (discharging) water." Report of the Special Master at *12, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2020 WL 11629023 (internal citations omitted).

31. *See* Rodrigo Villalpando-Vizcaino, Brian Waldron, Daniel Larsen, & Scott Schoefernacker, *Development of Numerical Multi-Layered Groundwater Model to Simulate Inter-Aquifer Water Exchange in Shelby County, Tennessee*, 13(18) WATER 1, 1, 11 (2021), https://doi.org/10.3390/w13182583.

well pumping can deplete groundwater levels by multiple feet per year.[32]

About fifty percent of municipal, domestic, and agricultural water supply in the United States now comes from groundwater,[33] leading to a shrinking supply.[34] But this is a relatively new phenomenon. Before modern technology enabled groundwater accessibility, many cities struggled to provide clean water to their residents.[35] After the mid-twentieth century, however, technological advancements enabled cost-efficient groundwater pumping, resulting in what is known as the "groundwater revolution."[36] Groundwater is sought after for many reasons: it is now widely available and inexpensive; it generally produces high quality water; and it avoids the typical surface water conflicts of navigation, recreational use, and fishery management.[37] It is no surprise then that since the mid-twentieth century the United States has seen a 240% surge in groundwater usage.[38]

While groundwater's importance cannot be overstated, its legal protections are surprisingly sparse. Surface water, likely due to its visible passage through land, has a long history of regulation and

32. Catherine Janasie & Rachel Buddrus, *Mississippi River Valley Alluvial Aquifer and Sparta Aquifer Comparison Report for the States of Mississippi, Arkansas, Louisiana, Tennessee, and Missouri*, SEA GRANT LAW CENTER 1, 5 (2018).

33. Water Science School, *Groundwater Use in the United States*, U.S. GEOLOGICAL SURV. (June 18, 2018), https://www.usgs.gov/special-topics/water-science-school/science/groundwater-use-united-states.

34. Boyce Upholt, *An Interstate Battle for Groundwater*, THE ATLANTIC 1, 4 (Dec. 4, 2015), https://www.theatlantic.com/science/archive/2015/12/mississippi-memphis-tennesee-groundwater-aquifer/418809/ ("NASA . . . found . . . 21 of the world's 37 largest aquifers are now running a deficit, with 13 categorized as particularly concerning.").

35. *See id.* (explaining that Memphis's lack of groundwater access led to the Yellow Fever crisis).

36. Christine A. Klein, *Groundwater Exceptionalism: The Disconnect Between Law and Science*, 71 EMORY L.J. 487, 492 (2022).

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

38. Klein, *supra* note 36, at 492. The United States pumps upwards of 75 billion gallons of groundwater per day. Water Science School, *supra* note 34.

interstate conflict.[39] Groundwater, however, due to its "hidden" qualities, does not have the same concrete regulation and history.[40] The lack of cohesive regulation has allowed drought, climate change, and population growth to increase demands on what is a fundamentally limited resource.[41] The discussion below provides context by explaining the main types of groundwater and surface water regulation. Next, the Middle Claiborne Aquifer is described, with an emphasis on the ways that states in the Mid-South use its waters. Finally, this section concludes by analyzing the case that brought the Aquifer before the United States Supreme Court: *Mississippi v. Tennessee.*

A. Current Interstate Water Body Regulation

Water is primarily governed by state law.[42] Because of this, individual state water law doctrines are a guiding principle when solving interstate disputes.[43] So before examining interstate water

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39. *E.g.*, Brian Waldron & Daniel Larsen, *Pre-Development Groundwater Conditions Surrounding Memphis, Tennessee: Controversy and Unexpected Outcomes*, J. AM. WATER RES. ASS'N 1, 2 (2014).

40. *Id.* A late nineteenth century case exemplifies this lack of concrete regulation manifesting itself through a *laisse faire* approach to groundwater regulation that had permeated the eastern United States until the past few decades: "In the absence of express contract, and of positive authorized legislation, as between proprietors of adjoining lands, the law recognizes no correlative rights in respect to underground waters percolating, oozing or filtrating through the earth; and this mainly from considerations of public policy. (1) Because the existence, origin, movement and course of such waters, and the causes which govern and direct their movements, *are so secret, occult and concealed*, that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible . . . ." Frazier v. Brown, 12 Ohio St. 294, 311 (1861), *overruled by* Cline v. Am. Aggregates Corp., 474 N.E.2d 324 (Ohio 1984) (emphasis added).

41. Scholars have written on the lack of groundwater regulation for decades. *See* WILLIAM GOLDFARB, WATER LAW 54–55 (Lewis Publishers 2d ed. 1988) ("With increased dependence on groundwater and heightened danger of groundwater overdrafts and pollution, the courts, states, and Congress will be increasingly called upon to reconcile interstate claims to groundwater resources."); FRANK E. MALONEY, RICHARD C. AUSNESS, & J. SCOTT MORRIS, A MODEL WATER CODE, at v (1972) (asserting increased groundwater demands require updated and robust regulation).

42. Gregory J. Hobbs, Jr. & Bennett W. Raley, *Water Rights Protection in Water Quality Law*, 60 U. COLO. L. REV. 841, 853–54 (1989).

43. Taylor, *supra* note 16.

regulation, a brief primer on *intrastate* regulation is necessary. When handling intrastate groundwater conflicts, state courts have often treated groundwater as a tributary to surface water.[44] The effect of this is that state courts apply surface water doctrines to groundwater use.[45] Intrastate groundwater law thus falls into two categories: prior appropriation in the Western United States,[46] and riparianism in the Eastern United States.[47] The West has always been faced with water scarcity, so prior appropriation evolved as an attempt to solve competing water user's interests, granting rights on a "first in time, first in right" basis.[48] Unlike prior appropriation, the riparian doctrine did not arise out of scarcity.[49] Instead, this doctrine allows a water user to withdraw from the resource as they wish, so long as the use is "reasonable" and does not adversely impact another user.[50] Unfortunately, both systems focus on use, not conservation.[51] Because eastern states have traditionally viewed themselves as water rich, there has been very little monitoring or control over how much water a riparian user is drawing.[52] But as many regions begin to face competing water usage with neighboring states, problems within both systems are emerging.[53]

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44. *See* Maricopa Cnty. Mun. Water Conservation Dist. No. 1 v. Sw. Cotton Co., 7 P.2d 254 (Ariz. 1932); Comstock v. Ramsay, 133 P. 1107 (Colo. 1913); City of Albuquerque v. Reynolds, 379 P.2d 73 (N.M. 1962) (treating groundwater the same as surface water).

45. *See* Nashville, Chattanooga & St. Louis Ry. v. Rickert, 89 S.W.2d 889 (Tenn. Ct. App. 1935) (applying Tennessee common law to groundwater).

46. Janasie & Buddrus, *supra* note 32, at 4; *see also* Montana v. Wyoming, 563 U.S. 368, 375–76 (2011).

47. Janasie & Buddrus, *supra* note 32, at 4.

48. *Id.*; *see Montana*, 563 U.S. at 375–76 ("[T]he doctrine provides that rights to water for irrigation are perfected and enforced in order of seniority, starting with the first person to divert water from a natural stream and apply it to a beneficial use . . . .").

49. Janasie & Buddrus, *supra* note 33, at 4.

50. *Id.*; JOHN M. GOULD, A TREATISE ON THE LAW OF WATERS, INCLUDING RIPARIAN RIGHTS, AND PUBLIC AND PRIVATE RIGHTS IN WATERS TIDAL AND INLAND 296–300 (3d ed. 1900).

51. Janasie & Buddrus, *supra* note 33, at 4.

52. *Id.*

53. *Cf.* Florida v. Georgia, 141 S. Ct. 1175, 1180 (2021) (Florida and Georgia both have riparian water law doctrines and the perceived abundance of water led to a

Interstate conflicts, however, are different. When interstate conflicts arise due to water appropriation by one state effectively restricting or threatening the water supply of a neighboring state, these state doctrines are subject to federal or judicial intervention.[54] The following subsections provide an overview of the three main sources of interstate water body regulation: equitable apportionment, congressional regulation, and interstate compacts.[55]

1. The Supreme Court: Equitable Apportionment

The United States Supreme Court has original jurisdiction to adjudicate interstate water-rights conflicts between states.[56] Thus, the Court is the only judicial forum in which states can settle disputes over contested interstate waterways. What is more, the Court applies the doctrine of "equitable apportionment" in such cases where no interstate compact or federal legislation controls the allocation of the waterway at issue.[57] Equitable apportionment is the sole federal common law doctrine that governs these interstate water disputes.[58]

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conflict with Georgia claiming harm through Florida's "reasonable use" of the Apalachicola-Chattahoochee-Flint River Basin).

54. *Cf.* Mann, *supra* note 23, at 402.

55. TN H20, *supra* note 7, at 54.

56. *See* U.S. CONST. art. III, § 2 (establishing the Supreme Court's jurisdiction).

57. Taylor, *supra* note 16; *see infra* Section II.A.2 (legislation); *infra* Section II.A.3 (compact). With the addition of *Florida v. Georgia*, there are now ten "true" Supreme Court equitable apportionment cases. *See* Bernadett, *supra* note 16, at 515–16. They are: Kansas v. Colorado, 185 U.S. 125 (1902); Wyoming v. Colorado, 259 U.S. 419 (1922); New Jersey v. New York, 283 U.S. 336 (1931); Connecticut v. Massachusetts, 282 U.S. 660 (1931); Nebraska v. Wyoming, 295 U.S. 40 (1935); Washington v. Oregon, 297 U.S. 517 (1936); Arizona v. California, 298 U.S. 558 (1936); Colorado v. New Mexico, 459 U.S. 176 (1982); South Carolina v. North Carolina, 552 U.S. 804 (2007); Florida v. Georgia, 571 U.S. 1235 (2014).

58. Taylor, *supra* note 16. With the addition of *Florida v. Georgia*, there are now ten "true" Supreme Court equitable apportionment cases. *See* Bernadett, *supra* note 16, at 515–16. They are: Kansas v. Colorado, 185 U.S. 125 (1902); Wyoming v. Colorado, 259 U.S. 419 (1922); New Jersey v. New York, 283 U.S. 336 (1931); Connecticut v. Massachusetts, 282 U.S. 660 (1931); Nebraska v. Wyoming, 295 U.S. 40 (1935); Washington v. Oregon, 297 U.S. 517 (1936); Arizona v. California, 298 U.S. 558 (1936); Colorado v. New Mexico, 459 U.S. 176 (1982); South Carolina v. North Carolina, 552 U.S. 804 (2007); Florida v. Georgia, 571 U.S. 1235 (2014).

A state seeking an equitable apportionment decree must demonstrate through "clear and convincing evidence" that another state's water consumption has caused an actual or threatened injury of "serious magnitude" to its own water supply.[59] The guiding principle of allocation is to ensure that states have "an equal right to make a reasonable use" of the shared water resource.[60] By its nature, the doctrine calls for a flexible approach based on numerous dispositive factors that aim to produce a fair allocation of the shared waterbody.[61] This multifactor approach also makes it extremely difficult for a state to predict the litigation's outcome.[62] Although equitable apportionment has only been used to allocate surface water, the Court in *Mississippi v. Tennessee* extended the doctrine to encompass groundwater as well.[63] Because the case was subsequently dismissed,[64] how equitable apportionment will ultimately apply to groundwater remains to be seen.

Despite the Court's holding that groundwater is subject to equitable apportionment, the doctrine is largely disfavored.[65] Indeed, when the Court first announced the doctrine of equitable apportionment, it anticipated that the threat of judicial intervention

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59. Colorado v. New Mexico, 459 U.S. 176, 188 n.13 (1982).

60. Mississippi v. Tennessee, 142 S. Ct. 31, 39 (2021).

61. The factors include: "physical and climatic conditions; the consumptive use of water in the several sections of the river; the character and rate of return flows; the extent of established uses; the availability of storage water . . . ." Nebraska v. Wyoming, 325 U.S. 589, 618 (1945).

62. "Whether by design or not, the Court later increased state incentives to negotiate water allocation compacts by developing its multifactor test for apportionment, thereby making it extremely hard for states to predict the outcome of litigation. The more unpredictable litigation is, the more the disputing states have an incentive to work out an allocation between themselves rather than take their chances in the Court." Douglas L. Grant, *Interstate Water Allocation Compacts: When the Virtue of Permanence Becomes the Vice of Inflexibility*, 74 U. COLO. L. REV. 105, 178 (2003). See *supra* note 61 for apportionment factors.

63. *Mississippi*, 142 S. Ct. at 39.

64. Mississippi had previously disavowed equitable apportionment as a remedy. *Id.* at 40.

65. *See infra* notes 204–09, 218–19 and accompanying text; Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 410 (2006); Grant, *supra* note 62, at 105.

would induce states to negotiate amongst themselves.[66] Since then, the Court has not changed its stance:

> Time and again we have counseled States engaged in litigation with one another before this Court that their dispute is one more likely to be wisely solved by co-operative study and by conference and mutual concession on the part of the representatives of the States so vitally interested in it than by proceedings in any court however constituted.[67]

Moreover, authority over water is a core attribute of state sovereignty, and the Court acknowledges that it "should pause before using [its] inherent equitable powers to intrude into the proper sphere of the States."[68] The Court, reluctant to "embark upon an enterprise involving administrative functions beyond [Article III's] province," views equitable apportionment as a last resort.[69] Put another way, relying on equitable apportionment means that the states have reached the point of "no return" in a conflict and cannot resolve the issue on their own.

As a means to limit these lawsuits and protect the Court from inefficient administrative overreach, the Court places a hard-to-meet burden on the state bringing suit.[70] The aggrieved state must show, by "clear and convincing evidence," that it has suffered an invasion of its rights that has caused a real and substantial injury.[71] This injury must

66. Kansas v. Colorado, 185 U.S. 125, 144 (1902) (quoting Rhode Island v. Massachusetts, 37 U.S. 657, 726 (1838)) ("[B]ut when it is known that some tribunal can decide on the right, it is most probable that controversies will be settled by compact.").

67. Texas v. New Mexico, 462 U.S. 554, 575 (1983) (internal quotation marks omitted) (quoting New York v. New Jersey, 256 U.S. 296, 313 (1921)).

68. Kansas v. Nebraska, 574 U.S. 445, 480 (2015) (Thomas, J., dissenting) (quoting Missouri v. Jenkins, 515 U.S. 70, 131 (1995) (Thomas, J., concurring)).

69. Nebraska v. Wyoming, 325 U.S. 589, 616 (1945).

70. Caroline Jaschke, Comment, *Florida v. Georgia (2021) Leaves Equitable Apportionment a Dripping Faucet for Downstream States*, 46 HARV. ENV'T. L. REV. 293, 313 (2022).

71. *New York*, 256 U.S. at 309; North Dakota v. Minnesota, 263 U.S. 365, 374 (1923); Connecticut v. Massachusetts, 282 U.S. 660, 667 (1931); Washington v.

be of "serious magnitude" that is not founded on a fear of injury at some indefinite time in the future.[72] Scholars note that the Court imposes this high burden as a means to encourage states to work together to avoid an injury in the first place, thereby obviating the need for an equitable apportionment lawsuit.[73] And so, the Court has only allocated water in three out of the ten equitable apportionment cases that have overcome this initial evidentiary burden.[74]

2. Vertical Federalism: Congressional Regulation

An even rarer way for interstate waterbodies to be regulated is congressional apportionment. Because vertical federalism principles restrict the federal government's power to regulate states, Congress has only involved itself in interstate water allocation issues through legislation in two instances.[75] The first time, Congress allocated water withdrawals along the lower Colorado River among Arizona, California, and Nevada through the Boulder Canyon Project Act of 1928.[76] The Act's purpose was to enable federal water projects along the Colorado River.[77] The second time was through the Truckee-Carson-Pyramid Lake Water Rights Settlement Act of 1990,[78] which settled a long history of conflicts involving Colorado, Nevada, and

Oregon, 297 U.S. 517, 524 (1936); Colorado v. New Mexico, 459 U.S. 176, 187 (1982).

72. Taylor, *supra* note 16, § 2.

73. *See* Grant, *supra* note 62, at 173; 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, 1603 (2013).

74. Jaschke, *supra* note 70, at 313. *See generally* Wyoming v. Colorado, 259 U.S. 419 (1922); New Jersey v. New York, 283 U.S. 336 (1931); *Nebraska*, 325 U.S. 589.

75. *E.g.*, Allan Erbsen, *Horizontal Federalism*, 93 MINN. L. REV. 493, 501–02 (2008).

76. 43 U.S.C. § 617. The Act authorized federal construction and operation of a dam along the Colorado River; it was not aimed at allocation. *Id.* Later, the Court held that Congress *had* allocated the River through the Act. Arizona v. California, 373 U.S. 546, 565–66 (1963) (analyzing congressional apportionment of interstate waters).

77. Grant, *supra* note 62, at 174.

78. Title II of the Act of Nov. 27, 1990, Pub. L. No. 101-618, 104 Stat. 3289 (1990).

Native American tribes.[79] Both instances involved unique circumstances, and commentators have been quick to note Congress's reluctance to further legislate in this manner.[80]

Although congressional apportionment of interstate waters is rare, states must comply with federal water quality and discharge regulations, such as the Clean Water Act.[81] The framework of federal laws regulating groundwater use, however, is highly decentralized.[82] For example, the Clean Water Act created a comprehensive federal scheme for water pollution control but emphasized the primacy of state law regarding water allocation and use.[83] As a result, preemption of a state's water use policy by federal law is exceptionally rare.[84] Because each state determines its own groundwater governance schemes, it is difficult to characterize the patchwork of federal priorities and approaches to groundwater governance.[85] Thus, while vertical federalism concerns restrict uniform groundwater regulation, the problem is exacerbated by the differing approaches and priorities to

79. George William Sherk, *The Management of Interstate Water Conflicts in the Twenty-First Century: Is It Time to Call Uncle?*, 12 N.Y.U. ENVT'L L.J. 764, 817 (2005).

80. Grant, *supra* note 62, at 175; Justin Newell Hesser, Comment, *The Nature of Interstate Groundwater Resources and the Need for States to Effectively Manage the Resource Through Interstate Compacts*, 11 WYO. L. REV. 25, 37 (2011).

81. Clean Water Act, 33 U.S.C. §§ 1251–1414 (2018); *see* Safe Drinking Water Act, 42 U.S.C. §§ 300f–300j-27 (1974) (establishing federal water purity standards).

82. Sharon B. Megdal, Adriana Zuniga Teran, Robert G. Varaday, Nathaniel Delano, Andrea K. Gerlak & Ethan T. Vimont, *Groundwater Governance in the United States: A Mosaic of Approaches*, *in* ADVANCES IN GROUNDWATER GOVERNANCE 484, 484 (Karen G. Villholth, Elena Lopez-Gunn, Kirstin I. Conti, Alberto Garrido & Jac van der Gun eds., 2018) [hereinafter *Groundwater Governance*].

83. Because water law has traditionally been a state matter, the Clean Water Act inflamed states' concerns of federal intrusion. Hobbs, *supra* note 42, at 853–54. Congress reacted by adopting the "Wallop amendment," securing state primacy over water allocation. *Id.*; *see* 33 U.S.C. §1251(g) ("It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this Act. It is the further policy of Congress that nothing in this Act shall be construed to supersede or abrogate rights to quantities of water which have been established by any State.").

84. GOLDFARB, *supra* note 41, at 49.

85. *Groundwater Governance*, *supra* note 82, at 484.

groundwater regulation engaged in by the states.[86] Worse still, almost all aquifers in the United States are shared among multiple states.[87]

3. Horizontal Federalism: Interstate Compacts

Horizontal federalism is a term that focuses on the relationships among states under a federal government.[88] The concept of horizontal federalism includes intrastate decisions with out-of-state effects.[89] To reduce or eliminate potential conflicts arising out of one state's unilateral decisions, horizontal federalism principles encourage states to work together to form interstate compacts—that is, a contract among states given validity through the Constitution's Compact Clause.[90] Before states used compacts to regulate shared waters, disputes were predominately settled in court.[91] Dissatisfied with the results, state stakeholders and officials searched for regional solutions outside the courtroom.[92] These advocates began to view interstate compacts as the superior method to resolve water conflicts.[93] The policy is sensible: instead of engaging in reactive court proceedings to be decided by a

86. *Id.*

87. *Principal*, *supra* note 25.

88. Erbsen, *supra* note 75, at 501, 503.

89. *Id.* at 503

90. 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 . . . ."); *see* Hall, *supra* note 65, at 410–11.

91. .*See* Edella Schlager & Tanya Heikkila, *Resolving Water Conflicts: A Comparative Analysis of Interstate River Compacts*, 37 POL'Y STUD. J. 367, 369 (2009), https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/j.1541-0072.2009.00319.x. Despite the best intentions, interstate compacts are still the subject of litigation. State *ex rel.* Dyer v. Sims, 341 U.S. 22, 28 (1951) ("Though the circumstances of [interstate compact] drafting are likely to assure great care and deliberation, all avoidance of disputes as to scope and meaning is not within human gift."); *see* Kansas v. Nebraska, 574 U.S. 445 (2015); Texas v. New Mexico, 138 S. Ct. 954 (2018); Florida v. Georgia, 138 S. Ct. 2502 (2018) (interstate compact litigation).

92. Schlager & Heikkila, *supra* note 91, at 369.

93. *Id.*; *see* Gregory J. Hobbs, Jr., *Delph Carpenter's Interstate Water Trials and Tribulations Led to the Water Compact Era*, 23 U. DENV. WATER L. REV. 1, 12 (2019).

generalist judge, states should negotiate among themselves to ensure certainty and regional input regarding their shared water resource.[94]

State preference toward compacts has not changed over the past century, and the Court even encourages their use.[95] This preference is evidenced by the number of current interstate water compacts. Since 1922, when the first interstate water compact—the Colorado River Compact—was enacted, Congress has ratified over twenty others.[96] Interstate water compacts now manage some of the most famous freshwater resources in the county,[97] including the Colorado,[98] Rio Grande,[99] Arkansas,[100] Snake,[101] and Yellowstone Rivers,[102] as well as the Great Lakes.[103]

Although no existing interstate water compact exclusively regulates an interstate aquifer, some address groundwater sources that are hydrologically connected to the compact's surface-water system.[104] For example, the Delaware River Basin Compact governs all water-resource activities within the Delaware River Basin, including the basin's underlying groundwater.[105] Similarly, when interpreting certain interstate compacts, the Court has found that, even in the

94. Schlager & Heikkila, *supra* note 91, at 369; *Dyer*, 341 U.S. at 27 ("The growing interdependence of regional interests, calling for regional adjustments, has brought extensive use of compacts.").

95. *See infra* text accompanying note 219.

96. Connor B. Egan, Note, *Shaping Interstate Water Compacts to Meet the Realities of the Twenty-First Century*, 6 KY. J. EQUINE, AGRIC. & NAT. RES. L. 327, 327 (2014).

97. *See* Hall, *supra* note 23, at 239 ("Over 95% of the available freshwater resources in the United States are interstate in nature and governed by interstate water compacts.").

98. Colorado River Compact, 70 Cong. Rec. 324 (1928).

99. Rio Grande Compact, Pub. L. No. 76-96, 53 Stat. 785 (1939).

100. Arkansas River Compact, Pub. L. No. 81-82, 63 Stat. 145 (1949); Arkansas River Basin Compact of 1966, Pub. L. No. 89-789, 80 Stat. 1409 (1966); Arkansas River Basin Compact of 1970, Pub. L. No. 93-152, 87 Stat. 569 (1973).

101. Snake River Compact, Pub. L. No. 81-464, 64 Stat. 29 (1950).

102. Yellowstone River Compact, Pub. L. No. 82-231, 65 Stat. 663 (1951).

103. Great Lakes-St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat. 3739 (2008).

104. Hall & Cavataro, *supra* note 78, at 1571 (citing the Great Lakes Compact and Delaware River Basin Compact).

105. Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961).

absence of the terms "groundwater" or "aquifer," specific compacts implicitly cover groundwater that is hydrologically connected to the regulated surface water system.[106]

Interstate water compacts typically follow either a western or eastern model.[107] The distinction is important because the two models function differently and serve different purposes. Western compacts focus primarily on distributing water rights amongst a shared water source to competing states.[108] These compacts divide waterways into agreed allotments, and then leave each state to create its own standards on usage and management.[109] Eastern states, on the other hand, typically create centralized management authorities comprised of stakeholders from the contracting states and the federal government to manage withdrawal levels, pollution, and diversions.[110] While these eastern compacts lessen state autonomy, they benefit from a uniform management of competing interests.[111]

States themselves typically use compacts to create regional interstate solutions without the help of Congress or the judiciary.[112]

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106. Kansas v. Colorado, 543 U.S. 86, 91 (2004) (interpreting the Arkansas River Compact to encompass irrigation wells); *see* Barton H. Thompson, Jr., *Beyond Connections: Pursuing Multidimensional Conjunctive Management*, 47 IDAHO L. REV. 273, 282 n.35 (2011) (citing Supreme Court cases interpreting certain interstate compacts to include groundwater governance). For example, in *Texas v. New Mexico*, a conflict over a preexisting interstate compact arose because groundwater pumping was depleting the water supply that had been allocated to downstream states. 462 U.S. 554, 557 (1983). Even though the compact did not regulate an aquifer *per se*, the Court concluded that the compact extended to groundwater. *Id.* at 557 n.2.

107. Hall, *supra* note 65, at 411–12. Diverging from these traditional models, the recent Great Lakes-St. Lawrence River Basin Water Resources Compact does not allocate specific quantities of water, nor does it give its compact commission allocation powers. Instead, it requires the party states to manage their water withdrawals with common minimum standards for water conservation and sustainable use. The compact commission also conducts research and collects data to support the water management work of the states. Hall, *supra* note 23, at 259.

108. Hall, *supra* note 23, at 258. For a thorough comparative analysis of western river compacts, see Schlager & Heikkila, *supra* note 91.

109. Hall, *supra* note 23, at 259.

110. *Id.* at 268–59. For a discussion on eastern river compacts, see Egan, *supra* note 96, at 336–37. The eastern model contains "clear benefits for ecosystem protection and comprehensive management." Hall, *supra* note 65, at 413.

111. Hall, *supra* note 23, at 258.

112. *See* Mann, *supra* note 22, at 403.

Once approved by Congress, the compact is considered federal law, preempting contradictory state law.[113] Further, the compact's effects are binding and cannot be unilaterally nullified.[114] So, at their best, these compacts provide an opportunity for states to overcome federal overreach on "local" matters, ensuring an adaptive and cost-efficient means for water allocation.[115] At their worst, these compacts can become outdated and ill-equipped to meet the realities of climate change and water scarcity.[116]

B. The Mid-South & the Middle Claiborne Aquifer

The warming climate, severe drought, turbulent weather, and increased water demands have adversely impacted the nation's water supply.[117] This has led experts to predict that the Mid-South—a region that has long been recognized for its fertile soil and agricultural promise[118]—holds the potential to become the dominant farming

113. State *ex rel.* Dyer v. Sims, 341 U.S. 22, 28 (1951); Christi Davis & Douglas M. Branson, *Interstate Compacts in Commerce and Industry: A Proposal for "Common Markets Among States"*, 23 VT. L. REV. 133, 138 (1998).

114. Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92, 106 (1938); State *ex rel.* Dyer, 341 U.S. at 28.

115. *See Agreements*, *supra* note 23, at 1 (stating that interstate compacts are the best way to ensure local control a shared water body).

116. *See* Egan, *supra* note 96, at 327 (analyzing existing compacts and their lack of climate change adaptability). *But see* Hall, *supra* note 23, at 240 ("[W]hile many water users and managers are focused on state water law, interstate compacts may be the most important legal consideration in assessing water supply risks from climate change.").

117. Tapan B. Pathak, Mahesh L. Maskey, Jeffery A. Dahlberg, Faith Kearns, Khaled M. Bali, & Daniele Zaccaria, *Climate Change Trends and Impacts on California Agriculture: A Detailed Review*, 8(3) AGRONOMY 25 (2018), https://doi.org/10.3390/agronomy8030025; *California Crops Under Climate Change*, USDA CALIFORNIA CLIMATE HUB, https://www.climatehubs.usda.gov/hubs/california/california-crops-under-climate-change# (last visited Dec. 20, 2022).

118. "The greatest agricultural empire in the known world, and the only one that surpasses the great Egyptian alluvial section, the gift of the Nile, with the advantages not to be compared with in climate, rainfall, variety and richness of soil, is the Mid-South. This lies on the Eastern and Western banks of the great Mississippi River." C. W. Watson, *Soil, An Agricultural Empire*, *in* THE MID SOUTH AND ITS BUILDERS 51, 51 (C.P.J. Mooney ed., 1920), https://hdl.handle.net/2027/yale.39002030689260.

region in the United States.[119] The future of the Mid-South as an agricultural hub depends, in large part, on the continued supply of water for irrigation.[120] This water supply is provided almost exclusively by the Middle Claiborne Aquifer.[121]

The Middle Claiborne Aquifer is located within the larger Mississippi Embayment Aquifer System that stretches from Missouri towards the Gulf of Mexico.[122] The Middle Claiborne Aquifer's waters are located hundreds of feet beneath the surface of eight states—Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee—covering over 70,000 square miles.[123] However, Arkansas, Louisiana, Mississippi, and Tennessee encompass the bulk of its territory.[124] Due to groundwater pumping, the United States Geological Survey (USGS) has found that water level declines are more dramatic in the Middle Claiborne Aquifer than the overlying Mississippi Embayment Aquifer.[125] Consequently, the Aquifer has

119. Pathak, Maskey, Dahlberg, Kearns, Bali, & Zaccaria, *supra* note 115; Julia Kurnik, *The Next California: Investigating Potential in the Mid-Mississippi Delta River Region*, THE MARKETS INSTITUTE AT WWF 1 (Feb. 28, 2020), https://files.worldwildlife.org/wwfcmsprod/files/Publication/file/34t96wfe6b_The_Next_California_Phase_1_ReporR_02_27_20.pdf.

120. Kurnik, *supra* note 119, at 2.

121. The Middle Claiborne Aquifer has a variety of regional names, including: "Sparta Aquifer," "Memphis Aquifer," and "Memphis Sand Aquifer." Brief for the United States as Amicus Curiae in Support of Overruling Mississippi's Exceptions to the Report of the Special Master at *4, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2021 WL 4729967.

122. *See* Report of the Special Master at *16 Diagram 2, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2020 WL 11629023 (diagram of the Middle Claiborne Aquifer).

123. Mississippi v. Tennessee, 142 S. Ct. 31, 36 (2021); Alec Sweet, Comment, *Addressing Interstate Ground Water Ownership: Mississippi v. Tennessee*, 17 DUKE J. CONST. L. & PUB. POL'Y SIDEBAR 215, 218 (2022).

124. *Mississippi*, 142 S. Ct. at 36.

125. *What is the Affect?*, USGS: MERAS GROUNDWATER AVAILABILITY STUDY 1, https://www2.usgs.gov/water/lowermississippigulf/lmgweb/meras/whatisaffect.html (last visited Nov. 5, 2022, 12:09 PM). For more studies on the Aquifer's water levels see *Water Levels and Water Quality in the Sparta-Memphis Aquifer (Middle Claiborne Aquifer) in Arkansas, Spring-Summer 2009*, USGS, https://pubs.usgs.gov/sir/2013/5100/pdf/sir2013-5100.pdf (last visited Nov. 5, 2022, 12:12 PM) [hereinafter *Water Levels*]; *The Sparta Aquifer: A Sustainable Water*

become the second fastest depleted groundwater system in the country.[126] The USGS has noted that the most significant declines are in southern Arkansas and northern Louisiana.[127] There, increased well pumping from the Aquifer has resulted in dramatically decreased water levels.[128]

The states drawing water from the Middle Claiborne Aquifer are aware of these declines.[129] A nationwide 2017 survey recorded states' concerns over groundwater governance.[130] Arkansas noted concerns over the Middle Claiborne Aquifer's depletion in both eastern and southern portions of the state.[131] Arkansas also forecasted that an interstate compact and water rights litigation will require more attention in the coming decade.[132] Mississippi's primary Aquifer

Resource?, USGS 1, 1 fig.1, https://pubs.usgs.gov/fs/fs-111-02/fs-111-02.pdf (last visited Nov. 5, 2022, 12:15 PM) [hereinafter *Sparta*].

126. Sweet, *supra* note 123, at 218.

127. *What is the Affect?*, *supra* note 125.

128. *Id.*

129. The 2017 survey cited *infra* outlines the states' awareness of the Aquifer's decline. For another example, see *Sparta*, *supra* note 123, at 3 ("As early as the 1940's, substantial declines in water levels were documented in Union and Jefferson Counties in Arkansas. Substantial declines in Arkansas County have been documented only recently because of *increased agricultural use* from the Sparta [A]quifer.") (emphasis added) (citations omitted).

130. Megdal & Vimont, *supra* note 5, at 1.

131. Arkansas listed depletion of the Sparta and Alluvial aquifers as one of the state's primary concerns. *Id.* at 57–59. In 2022, the Arkansas Department of Agriculture released a report stating that: "Arkansas is withdrawing groundwater from the alluvial and Sparta aquifers in Eastern and Southern Arkansas at a rate far above that which is estimated to be sustainable. So long as water use from these aquifers continues to exceed sustainable yield, the resource will continue to be depleted." Corbin G. Cannon II, *2022 Arkansas Groundwater Protection and Management Report*, ARK. DEPT. OF AGRIC. 1, 78 (2022), https://www.agriculture.arkansas.gov/wp-content/uploads/2022-Groundwater-Report-Final.pdf.

132. Megdal & Vimont, *supra* note 5, at 70–71. Mississippi cited increased pumping and water quality monitoring as areas that will require more attention in the next decade. *Id.* at 69–70. Tennessee cited litigation and water rights. *Id.* Because *Mississippi v. Tennessee* had yet to be resolved at the time of the survey, Tennessee's response may be different now.

concerns were long-term quality, quantity, and contamination.[133] Overdrawing from portions of the Aquifer can lead to irreversible damage, reducing its water-yielding capacity and ability to recharge.[134] Currently, withdrawals exceed recharge in parts of the Middle Claiborne Aquifer located in eastern Arkansas, northern Mississippi, and western Tennessee.[135] And long-term pumping along the border of Arkansas and Louisiana has created extensive regional water-level declines.[136]

The survey also revealed that contamination was another top concern for the Aquifer's users.[137] Due to the use of the Aquifer's waters for public drinking supply, contamination has the potential to pose a profound public health risk.[138] Breaches—where the clay layer protecting an aquifer is weakened during well pumping, causing contaminates to pull down pollution into drinking water supply—are a known issue within certain areas of the Middle Claiborne Aquifer.[139] Aquifer contamination in Louisiana can impact Arkansas, just as contamination in Mississippi can impact Tennessee. The impact is thus not merely a local matter, but a shared concern of all Aquifer users.[140]

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133. *Id.* at 57–58, 60. Louisiana's primary concern was groundwater quality. *Id.* at 57. Tennessee cited internal communication and staffing as their primary concerns. *Id.* at 58–59. Missouri did not respond to the survey.

134. *Sparta*, *supra* note 125, at 3.

135. Megdal & Vimont, *supra* note 5, at 1, 5 tbl.1; Brewer, *supra* note 5.

136. *Sparta*, *supra* note 125, at 2.

137. *E.g.*, Megdal & Vimont, *supra* note 5, at 60–61.

138. GOLDFARB, *supra* note 41, at 42.

139. Villalpando-Vizcaino, Waldron, Larsen, & Schoefernacker, *supra* note 31, at 2 fig.1. The Byhalia Pipeline project that was set for construction in Memphis, Tennessee is an example of the increased awareness regarding the danger that breaches pose. *Victory for Southwest Memphis: Byhalia Pipeline is Canceled*, SOUTHERN ENVIRONMENTAL LAW CENTER (July 2, 2021), https://www.southernenvironment.org/news/victory-for-southwest-memphis-byhalia-pipeline-is-done/. And in 2022, a pipeline spill barely missed one of the Aquifer's recharge zones. Keely Brewer, *Oil From Ruptured Pipeline Barely Misses Memphis Aquifer Recharge Zone*, DAILY MEMPHIAN (July 7, 2022, 7:14 PM), https://dailymemphian.com/article/29697/200000-gallon-crude-oil-pipeline-misses-memphis.

140. *See* Villalpando-Vizcaino, Waldron, Larsen, & Schoefernacker, *supra* note 31, at 1, 21 ("As there are numerous potential surficial contaminant sources proximal to the breaches, this [interstate groundwater] exchange adds concern about water quality degradation.") (footnote omitted).

Each state pumps water from the Aquifer for different purposes. The three main purposes are irrigation, public supply, and industry.[141] Tennessee uses the Aquifer primarily for public supply, including drinking water.[142] The City of Memphis,[143] for example, pumps close to 120 million gallons of water from the Aquifer each day through 160 wells located around the city.[144] Arkansas is estimated to pump up to 170 million gallons of water daily, using the Aquifer mainly for rice and soybean crop irrigation, with some use for public drinking.[145] Louisiana's estimated pumping is at 68 million gallons of water each day, extending to public supply, livestock treatment, general irrigation, and industry purposes.[146] Mississippi uses the Aquifer primarily for crop irrigation and aquaculture, pumping close to 100 million gallons of water daily.[147] And so, the Aquifer is the "single hydrogeological unit"[148] that, while unseen, plays a major role in the region's health and economy.

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141. *Water Levels*, *supra* note 125, at 3 ("Irrigation used about 61.0 Mgal/d (35.9 percent), public supply used about 58.9 Mgal/d (34.6 percent), and industrial used about 48.0 Mgal/d (28.2 percent).").

142. Memphis is the largest city on the Mississippi River that derives its public drinking water solely from groundwater. CAESER University of Memphis, *Memphis Aquifer Research: Recharging the Groundwater Supply*, YOUTUBE (Nov. 27, 2019), https://www.youtube.com/watch?v=AV70-0_QMc8 (Dr. Brian Waldron at 0:09).

143. Memphis owes much of its success in defeating the Yellow Fever in the 1880s to the groundwater beneath it. *See*, *e.g.*, Waldron & Larsen, *supra* note 39, at 3 ("The water was clear and sparkling, tonic and palatable. People drank of it . . . . The news spread like wildfire. The elixir of life had been found. Memphians of all degrees, high and low, old and young, with buckets and jugs, coffeepots and tin cans, waited in long files to be served, each in turn, from the gushing, hygienic well. And so for days . . . . Physicians gave prescriptions: 'Let the baby drink artesian water.'") (citation omitted).

144. Mississippi v. Tennessee, 142 S. Ct. 31, 37 (2021).

145. Water estimates are based on a 2007 USGS survey. Schrader, *supra* note 4. *See* Janasie & Buddrus, *supra* note 32, at 3.

146. *Water Resources of Claiborne Parish, Louisiana*, USGS, https://pubs.usgs.gov/fs/2013/3029/FS2013-3029_Claiborne.pdf, (last visited Nov. 5, 2022 12:29 PM); Janasie & Buddrus, *supra* note 32, at 3; Schrader, *supra* note 4 (2007 estimate of Louisiana's pumping).

147. Janasie & Buddrus, *supra* note 33, at 8; Schrader, *supra* note 4 (2007 estimate of Mississippi's pumping).

148. *Mississippi*, 142 S. Ct. at 38.

C. Mississippi v. Tennessee

Due to the Mid-South's reliance on the Middle Claiborne Aquifer, it is no surprise that the Aquifer has recently been the focal point of interstate conflict.[149] The dispute behind *Mississippi v. Tennessee* began in 2005, when Mississippi sued the city of Memphis, alleging that Memphis had unlawfully removed 363 billion gallons of water from Mississippi through withdrawals from the Aquifer.[150] The suit was dismissed by a district court judge for Mississippi's failure to join Tennessee as an indispensable party.[151] Litigation renewed in 2014 with Mississippi invoking the Court's original jurisdiction by adding Tennessee as a defendant, along with the City of Memphis, and Memphis's utility company.[152] Mississippi again argued that Memphis altered the natural flow of the Aquifer through well pumping, allowing the city to syphon billions of gallons of water that otherwise would have remained under Mississippi.[153] Mississippi sought over $600 million in damages and requested declaratory and injunctive relief from Memphis's use of the Middle Claiborne Aquifer.[154]

Leave was granted and the Court appointed Sixth Circuit Court of Appeals Judge Eugene E. Siler, Jr. to serve as Special Master.[155] The Special Master found that while many of Memphis's wells are close to the Mississippi border, all wells were drilled straight down, and none crossed the physical border between the states.[156] These wells, however, contributed to a "cone of depression" under the City of

149. Although this recent conflict involved only Mississippi and Tennessee, due to the ongoing depletion along Arkansas and Louisiana border, it would seem to be only a matter of time before another interstate dispute arises. *See supra* notes 125, 129–30 and accompanying text.

150. *Mississippi*, 142 S. Ct. at 37.

151. Hood *ex rel.* Mississippi v. Memphis, 533 F. Supp. 2d 646, 650 (N.D. Miss. 2008), *aff'd*, 570 F.3d 625 (5th. Cir. 2009).

152. *Mississippi*, 142 S. Ct. at 38.

153. *Id.* at 37; *see infra* text accompanying notes 155–56.

154. *Mississippi*, 142 S. Ct. at 36.

155. *Id.* at 38. For more on a Special Master's role in original jurisdiction cases, see generally Anne-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Supreme Court's Original Jurisdiction Cases*, 86 MINN. L. REV. 625 (2002).

156. *Mississippi*, 142 S. Ct. at 37.

Memphis and DeSoto County, Mississippi.[157] Despite its ominous terminology, a cone of depression occurs almost anytime well pumping takes place.[158] And the cone of depression under Memphis and DeSoto County is not an isolated incident. Regional cones of depression have also been found in the areas of Jackson, Mississippi; Stuttgart, Arkansas; and nearby Louisiana.[159]

After receiving the Special Master's report and hearing oral arguments, the Court released its unanimous decision dismissing the complaint in November of 2021.[160] The Court held, on an issue of first impression, that the Aquifer's waters were subject to the remedy of equitable apportionment;[161] however, the Court declined to grant Mississippi leave to file an amended complaint.[162]

Noting the cone of depression created between Mississippi and Tennessee and its subsequent interstate effects from intrastate actions, the Court concluded that "[s]uch interstate effects are a hallmark of our equitable apportionment cases."[163] But because the Court was not allowing Mississippi to amend its complaint, it did not need to determine how the "pertinent principles" of equitable apportionment might apply to groundwater.[164] The Court further found that the Aquifer is an interstate water resource, as evidenced by its naturally

157. *Id.*

158. When groundwater is pumped it lowers the water level of the well. When this occurs, a slope forms between the water in the Aquifer and the surrounding well. Water flows from high to low levels and pressure; thus, the slope produces a flow from the surrounding groundwater into the well. The result is a cone-shaped depression that can impact areas far beyond the well. *See* Report of the Special Master at *22, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2020 WL 11629023. ("In sum, when Memphis pumps groundwater, effects from that action should be seen across the region. And they are. In fact, a regional cone of depression forms across the states of Arkansas, Mississippi and Tennessee. This cone of depression indicates that groundwater pumping from the Middle Claiborne Aquifer in the Memphis region creates a drawdown effect across state borders.") (citations omitted).

159. Brief for the United States as Amicus Curiae in Support of Overruling Mississippi's Exceptions to the Report of the Special Master at *4, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2021 WL 4729967.

160. *Mississippi*, 142 S. Ct. at 33.

161. *Id.* at 40.

162. *Id.* at 41–42.

163. *Id.* at 40.

164. *Id.* at 41–42.

flowing groundwater between state boundaries.[165] Because equitable apportionment has been the sole federal common-law principle for solving disputes over interstate waters, there was no compelling reason to adopt a different doctrine for groundwater.[166] While Mississippi argued that the Middle Claiborne Aquifer was distinguishable from interstate rivers and streams because its natural flow is "extremely slow," the Court found that the rate of water movement did not place the Aquifer beyond equitable apportionment's reach.[167]

The Court then declined to grant Mississippi leave to amend.[168] The Court found that Mississippi had never sought leave and had previously disavowed an equitable apportionment remedy entirely in the case.[169] Additionally, Mississippi and Tennessee are not the only states that rely on the Aquifer, leading the Court to reason that an equitable apportionment remedy would likely require the joinder of additional parties.[170]

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165. *Id.* at 40. The Court adopted the Report of the Special Master at *11, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2020 WL 11629023 (the Aquifer is an interstate resource because "[f]irst . . . [because] the groundwater inside it is a single hydrogeological unit underneath several states. Second, Tennessee's water pumping affected the groundwater underneath Mississippi, showing that the Aquifer is an interconnected resource. Third, natural flow patterns indicate that the water inside the Aquifer would ultimately-even if slowly-flow across Mississippi's borders. Fourth, the water inside the Aquifer interacts with, and discharges into, interstate surface waters.").

166. *Mississippi*, 142 S. Ct. at 38.

167. *Id.* (reasoning that although the flow may be a "mere 'one or two inches per day' . . . that amounts to over 35 million gallons of water per day, and over ten billion gallons per year."). In reaching this conclusion, the Court hinted at the broad application of its equitable apportionment jurisprudence, *id.* at 39–40, citing Kansas v. Colorado, 206 U.S. 46, 115 (1907) (applying equitable apportionment to streams that run dry on occasion) and Idaho *ex rel.* Evans v. Oregon, 426 U.S. 1017, 1018–19 (1983) (applying the doctrine to anadromous migrating through several states in the Columbia-Snake River system).

168. *Mississippi*, 142 S. Ct. at 41–42.

169. *Id.* Mississippi had previously emphasized that it had not requested equitable apportionment, instead it sought financial damages under principles of tort law for Tennessee "unlawfully" removing billions of gallons of water from the Aquifer. *Id.* at 37. In the Court's own words: "As Mississippi has neither sought leave to amend nor tendered a proposed complaint seeking equitable apportionment, we have no occasion to determine how these and other pertinent principles might apply." *Id.* at 42.

170. *Id.* (Alabama, Arkansas, Illinois, Kentucky Louisiana, and Missouri).

Yet, the case is still important for users of the Middle Claiborne Aquifer and other states who share groundwater resources. States along the Middle Claiborne Aquifer are now on notice that the Aquifer is legally categorized as an interstate resource. And all users of interstate groundwaters are now on notice that unilateral actions which adversely impact other states can give rise to equitable apportionment litigation.

II. AN INTERSTATE COMPACT CAN SECURE WATER FOR THE MID-SOUTH'S FUTURE

"*[T]he nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value; and behaves badly if it leaves the land poorer to those who come after it.*"[171]

Often, legal solutions are implemented only to react to problems. When problems are too far gone to remedy, the law applies band aids over bullet wounds. But the problems facing the Middle Claiborne Aquifer have not reached such extremes—yet. Protecting the Middle Claiborne Aquifer through an interstate compact obviates this all-too common and unfortunate situation. At the same time, a compact ensures the Mid-South's water supply is protected for future generations, even as other regions find it is too late to mitigate the impact of their own water scarcity. This section contends that an interstate compact is the best way for states to protect the Aquifer. It then shows why inaction and waiting for inevitable conflict to arise is

171. President Theodore Roosevelt, Conservation, Speech at Denver Before the Colorado Livestock Association (Aug. 29, 1910), *in* THE NEW NATIONALISM 49, 52 (1910). For the nation to behave well, it must have foresight: "In utilizing and conserving the natural resources of the Nation, the one characteristic more essential than any other is foresight. Unfortunately, foresight is not usually characteristic of a young and vigorous people, and it is obviously not a marked characteristic of us in the United States. Yet assuredly it should be the growing nation with a future which takes the long look ahead . . . . Yet hitherto as a nation we have tended to live with an eye single to the present, and have permitted the reckless waste and destruction of much of our natural wealth." President Theodore Roosevelt, Utilizing Our Natural Resources, Address Delivered Before the National Editorial Association in Jamestown, Virginia (June 10, 1907), *in* 2 THE ROOSEVELT POLICY: SPEECHES, LETTERS AND STATE PAPERS, RELATING TO WEALTH AND CLOSELY ALLIED TOPICS OF THEODORE ROOSEVELT 546, 548–49 (1908).

short sighted and inadequate. This section concludes with an explanation of why short of a compact, interstate agreement is unlikely.

A. The Middle Claiborne Aquifer Requires Interstate Management

Because it is one of the most important agricultural regions in the United States,[172] the entire nation depends on farming production of the Mid-South.[173] And because of the water scarcity problems other agricultural regions are facing, the Mid-South's role in crop production will only become more important. The Mid-South's ability to farm is inextricably linked to its water supply—the Middle Claiborne Aquifer. This regional and national dependence on the Aquifer requires interstate regulation. Unfortunately, the groundwater system is poorly understood and shows sign of decline.[174] The economic and environmental costs that result from declining water availability are apparent, yet the region is not working together to form a cooperative solution.[175] The solution is attainable; the solution is an interstate compact.

The reasons for the states who share the Middle Claiborne Aquifer to enter into a compact are (1) to ensure sustainability; (2) to prevent contamination; and (3) to create a uniform regulatory body, comprised of stakeholders from participating states, to sufficiently protect the Aquifer. The primary concern for the Aquifer is

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172. And has the potential to become *the* most important agricultural region in the United States. *See supra* note 119 and accompanying text.

173. *See* TN H20, *supra* note 7, at 59 ("Arkansas is the largest producer of rice in the United States, and the majority of Arkansas' rice cultivation occurs in the eastern portion of the state. Arkansas' rice production requires significant water resources, which in eastern Arkansas primarily involves accessing groundwater via aquifers that also underlie Tennessee including the Mississippi River Alluvial Aquifer and Memphis Sands Aquifer.").

174. *Mississippi Alluvial Plain (MAP) Regional Water Availability Study*, USGS, https://www2.usgs.gov/water/lowermississippigulf/map/index.html (last visited Dec. 21, 2022) [hereinafter *MAP*].

175. For example, the USGS has further stated that, "Lack of regionally consistent monitoring efforts, focused groundwater modeling on the alluvial aquifer, and sub-regional hydrogeologic characterization have resulted in a limited capability to quantify the conjunctive use of groundwater and surface water in the region." *National Water Census: Regional Groundwater Availability Studies*, USGS (Feb. 28, 2019), https://www.usgs.gov/mission-areas/water-resources/science/national-water-census-regional-groundwater-availability#MAP.

sustainability—the development and use of its waters for an indefinite time without causing harmful environmental, economic, or social consequences.[176]

Regulating groundwater allocation and pollution protects all states using the Aquifer by mitigating the harmful effects of groundwater depletion through cooperative environmental and economic sustainability.[177] Over-pumping or contaminating the Aquifer can result in significant harms to each state, which manifests itself through litigation, water scarcity, and increased financial burdens.[178] Additionally, the lack of shared and standardized data among states results in a patchwork of policies that undermines the ability of experts to react and regulate the resource.[179] These issues can be categorized as problems for individual states to solve themselves. Due to groundwater's inherent interstate nature, however, interstate cooperation is required. States are aware of the concerns, and now is the time to act.

Although the Aquifer's withdrawal rates are greater than its recharge rates, the compact should not arise solely from a scarcity mindset.[180] Instead, the basis should be one of cooperative engagement and study. Indeed, groundwater governance, like all areas of water governance, is receiving global attention.[181] Gone are the days when it

176. *Sparta*, *supra* note 125, at 3.

177. *See* Emily Brophy, Feature, *The Importance of Regulating Transboundary Groundwater Aquifers*, 10 SUSTAINABLE DEV. L. & POL'Y 19, 19 (2009).

178. *See* J.R. Bartolino & W.L. Cunningham, *Groundwater Depletion Across the Nation*, USGS 1 (Nov. 2003), https://pubs.usgs.gov/fs/fs-103-03/JBartolinoFS(2.13.04).pdf.

179. *Cf.*, Megdal & Petersen-Perlman, *supra* note 25, at 100, 102 (noting the lack of federal policy or direction regarding "best practices" for groundwater leads to differing approaches to regulations among states who share groundwater).

180. This Note discusses some of the areas of the Aquifer where withdrawal is happening faster than recharge rates, but the Middle Claiborne Aquifer is not in as dire of a situation as some other national groundwater sources. This contrast cannot a motivating factor for inaction. Instead, this understanding should spur on the states that share the Aquifer to protect it so that the situation in the Mid-South does not turn out to be as bleak as other areas in the country. The Ogallala Aquifer is one such aquifer that is in serious jeopardy. *See* Mann, *supra* note 22.

181. The Global Environmental Facility (GEF), the Food and Agriculture Organization of the United Nations (FAO), the World Bank, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and other global entities have undertaken the GEF Project to develop a framework to raise awareness

was acceptable to use a precious resource without understanding or regulating its sustainability and protection.[182] The conversation surrounding the sustainability of the Aquifer has been ongoing for at least a century,[183] and continues to this day.[184] It is time to turn this conversation into action.

Pumping has caused changes in groundwater movement from Mississippi and Arkansas into Tennessee.[185] However, studies suggest that this may not be permanent.[186] The urban growth occurring in northwestern Mississippi will likely result in the Aquifer's waters reversing course and moving from Tennessee to Mississippi in the future.[187] The demand for the Aquifer will only increase,[188] demonstrating a need for all users of the Aquifer to work together to manage, understand, and protect their shared water supply. Armed with this foresight, an interstate compact has the potential to achieve this needed regional regulation.

To properly ensure sustainability and prevent contamination of the Aquifer, an interstate compact is needed to create a uniform regulatory body that can achieve these goals. Although states traditionally refrain from sharing resources, horizontal federalism principles encourage collaboration.[189] After the Court declared the Middle Claiborne Aquifer an interstate groundwater body, each state is aware that the groundwater they rely on is not solely theirs—it is a common waterbody that demands collaboration. Currently, there is no such collaboration. The USGS recognizes this and notes, "Technical

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of the importance of best groundwater governance practices. GROUNDWATER GOVERNANCE, https://www.thegef.org/projects-operations/projects/3726 (last visited Dec. 20, 2022).

182. *See*, Clean Water Act, 33 U.S.C. §§ 1251–1414 (2018); *see also* 33 U.S.C. § 1251(a)(6) ("[I]t is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans.").

183. *Cf.*, J.N. Chester & D.E. Davis, *The Water Supply of Memphis, Tennessee*, 8(4) AMERICAN WATER WORKS ASSOCIATION 377, 379 (July 1921).

184. *Sparta*, *supra* note 12**5**, at 3.

185. Report of the Special Master at *21, Mississippi v. Tennessee, 142 S. Ct. 31 (2021) (No. 143), 2020 WL 11629023.

186. Waldron & Larsen, *supra* note 39, at 3.

187. *Id.* at 3, 19.

188. *Id.* at 19.

189. *See* discussion *supra* Section II.A.3.

specialists working in various Federal and State agencies and universities have worked individually and in partnership over many years to address aspects of particular water issues in the [Aquifer], but no single agency or group has had the resources to support a broad-based and comprehensive scientific effort."[190] An interstate compact would pool federal and state resources to provide a focused and comprehensive approach to ensuring the sustainability of the Aquifer.

This current status quo of patchwork policies independently regulating the Aquifer is not an effective, or efficient, means to promote the Aquifer's needed sustainability and prevent future conflict.[191] For example, Mississippi laws governing groundwater operate under a prior appropriation system[192] while Arkansas emphasizes a reasonable use theory[193] and Tennessee[194] regulates

190. *Map*, *supra* note 174.

191. The federal government seems to lament the patchwork of state policies as well. *See* CONG. BUDGET OFFICE, HOW FEDERAL POLICIES AFFECT THE ALLOCATION OF WATER 4 (2006), https://www.cbo.gov/sites/default/files/109th-congress-2005-2006/reports/08-07-waterallocation.pdf ("For interstate groundwater, the laws of each state govern access to and use of an aquifer's resources withdrawn in its jurisdiction, even if those resources are accessible from multiple states.").

192. MISS. CODE ANN. § 51-3-5(3) (West 2022) ("Any person using groundwater prior to April 1, 1985 for a beneficial use shall be entitled to continue such use . . . .").

193. Because the Arkansas Supreme Court in 1955 found that the state had "an abundant supply of water" this is similar to the riparian doctrine, but with some distinction. Instead of requiring that the water levels of a shared resource be maintained at a "normal" level, the Arkansas reasonable use theory allows for "each riparian owner equality in the use of water as near as may be by requiring each to exercise his right reasonably and with due regard to the rights of others similarly situated." Harris v. Brooks, 283 S.W.2d 129, 134 (Ark. 1955). This appears to apply to both surface and groundwater. Janasie & Buddrus, *supra* note 32, at 9. Arkansas requires annual reports of water usage of 325,900 gallons of water "in any water" per year. ARK. CODE ANN. § 15-22-215 (West 2022).

194. TENN. CODE ANN. § 68-221-702 (West 2022). Tennessee operates under a riparian permit system through the Tennessee Water Resources Information Act, TENN. CODE ANN. § 69-7-302 (West 2022), the Inter-Basin Transfer Act, TENN. CODE ANN. § 69-7-204, and the Water Quality Control Act, TENN. CODE ANN. § 69-3-102. And similar to Arkansas, reasonable use is a focal point of Tennessee groundwater law. Nashville, C. & St. L. Ry. v. Rickert, 89 S.W.2d 889, 897 (Tenn. App. 1935) ("It is apparent from the record that defendant can pump a considerable quantity of water from his 'well' without materially reducing the flow of water from complainant's

groundwater through a riparian system.[195] Louisiana can be broadly categorized as a riparian state, but Louisiana Civil Code provides for limited groundwater law.[196] Similarly, Missouri, which lies over the upper portions of the Aquifer, has no formal doctrine and relies on state case law to dictate intrastate water disputes.[197] The result is a network of irreconcilable management programs, although they impact an interconnected body of underground water. For all these reasons, an interstate compact that creates a cohesive system of legal processes and rules led by a regional regulatory body ensures the Aquifer's sustainability and longevity. And by entering a compact, the Mid-South can avoid future conflict and an undesired equitable apportionment decree.

B. Equitable Apportionment Is an Inadequate Solution

Equitable apportionment rarely leads to an outcome that successfully addresses the concerns of all affected parties.[198] The

spring, and this he has a lawful right to do."). For a more in-depth analysis of Tennessee's water regimes, see TN H20, *supra* note 7.

195. For more on prior appropriation and riparianism, see *supra* Section II.A.

196. LA. STAT. ANN. § 9:1104 (2022) (establishing riparian doctrine for "running surface waters"). There are no Civil Code provisions addressing groundwater use, and Louisiana state courts have not extended its law to groundwater. *See* Janasie & Buddrus, *supra* note 32, at 10.

197. Missouri is not a major user of the Aquifer, but its lack of water law is notable to show the varying regulations, or lack thereof, that govern intrastate Aquifer use. The Missouri Supreme Court has previously applied the rule of reasonable use to determine the rights of riparian owners. Bollinger v. Henry, 375 S.W.2d 161 (Mo. 1964). The state appellate court later applied that standard to "subterranean streams and subterranean percolating waters," Higday v. Nickolaus, 469 S.W.2d 859, 869 (Mo. App. 1971), noting that "Missouri is notable for the fact that it has almost no statutory law concerning rights of individual members of the public and the public generally in public waters and watercourses." Higday v. Nickolaus, 469 S.W.2d 859, 869 n.15 (Mo. App. 1971) (quoting Bollinger v. Henry, 375 S.W.2d 161, 166 (Mo. 1964). The Missouri Department of Natural Resources has noted this as well. *Frequently Asked Missouri Water Resources Questions – PUB1350*, MISSOURI DEPARTMENT OF NATURAL RESOURCES, https://dnr.mo.gov/document-search/frequently-asked-missouri-water-resources-questions-pub1350/pub1350 (last visited Dec. 20, 2022) ("There are no state laws, regulations or policies that specify the quantity of water that any diverter may use.").

198. Emily Jeffers, *Creating Flexibility in Interstate Compacts*, 36 ECOL. L.Q. 209, 211 (2009).

United States Supreme Court lacks the experience, expertise, and resources to resolve these disputes in a satisfactory manner.[199] For example, in *New Jersey v. New York*, New Jersey sought to enjoin New York from diverting a large amount of water from the Delaware River to increase the water supply for New York City.[200] The Court denied New Jersey's request and instead applied equitable apportionment to allocate a portion of the river's waters to New York, which was about two-thirds of what the state had originally sought.[201]

Neither state was satisfied with the Court's equitable apportionment.[202] The unfavored water allocation aside, the states did not believe the Court succeeded in solving the underlying problem that started the conflict—each state along the Delaware River Basin acting as "independent, interest-driven entities."[203] Further, the states were concerned that the lack of comprehensive interstate management of the water basin would lead to future conflict. And if such conflict occurred, they were not confident in the slow-moving Court's ability to adequately revisit the issue if circumstances changed.[204] Instead of engaging in further legal battles, Delaware, New Jersey, New York, and Pennsylvania entered into an interstate compact. The compact's purpose was to coordinate "policies for water conservation, control, use and management in the basin" and to remove causes of present and future controversy.[205]

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199. GOLDFARB, *supra* note 41, at 53 ("The Court feels uncomfortable making legislative-type judgments based on a concept as vague as equitable apportionment. Moreover, the High Court lacks the technical resources to cope with the complicated hydrologic, economic, and sociological questions involved."); Jenny Huang, *Finding Flow: The Need for A Dynamic Approach to Water Allocation*, 81 N.Y.U.L. REV. 734 (2006) ("Adjudicatory bodies lack expertise to effectively address technical water issues, and parties are constrained by agreements they made without knowledge of how conditions would change.").

200. New Jersey v. New York, 283 U.S. 336, 341 (1931).

201. *Id.* at 346; Joseph W. Dellapenna, *Interstate Struggles over Rivers: The Southeastern States and the Struggle over the 'Hooch*, 12 N.Y.U. ENVT'L. L.J. 828, 841 (2005).

202. Jeffers, *supra* note 198, at 211.

203. Dellapenna, *supra* note 201, at 841.

204. *Id.*

205. Delaware River Basin Compact, Pub. L. No. 87–328, § 3.1 75 Stat. 688, 692 (1961). The current Delaware River Basin Compact is the second compact that was formed after the apportionment. For more background, see Dellapenna, *supra*

Although equitable apportionment is aimed to ensure that states have "an equal right to make a reasonable use" of the shared water resource,[206] relying on the Court to determine what "equity" means in this context is a highly uncertain affair.[207] Even when a waterbody is apportioned, each state is likely to be frustrated. States have goals beyond mere allocation, and as *New Jersey v. New York* demonstrates, equitable apportionment is ill-equipped to meet those goals. Fortunately, states do not have to wait for the frustrating results of litigation to spur on cooperation. An interstate compact is readily available.

Further, equitable apportionment requires the balancing of multiple factors that are highly fact dependent.[208] With limited precedent on how to weigh these factors, unpredictability is guaranteed in litigation.[209] The Court itself seems to acknowledge this unpredictability: the factors are meant to guide a just and equitable apportionment without "quibbling over formulas."[210] As Professor Noah Hall points out:

> Determining what "equity" means in water law is highly challenging. The adaptive nature of equity allows flexibility in a range of highly fact-dependent and often technical interstate apportionment cases, but makes articulating standards and deciding cases difficult. The intrinsically subjective nature of equity, along with a

note 201, at 841–45. The Delaware Compact was so successful that the Susquehanna River Basin Compact adopted it as a model with only a few minor changes. *See id.* at 849 (discussing the Susquehanna River Basin Compact, Pub. L. No. 99–468, 100 Stat. 1193 (1986)).

206. Mississippi v. Tennessee, 142 S. Ct. 31, 39 (2021).

207. Jerome C. Muys, George William Sherk, & Marilyn C. O'Leary, *Utton Transboundary Resources Center Model Interstate Water Compact*, 47 NAT. RESOURCES J. 17, 23 (2007).

208. *See supra* note 59.

209. Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States' Proposal and Beyond*, 8 NEV. L.J. 964, 991 (2008) ("Equitable apportionment requires the weighing of multiple factors that are incommensurable, and there is a dearth of precedent on how to weigh competing factors.")

210. Colorado v. New Mexico, 459 U.S. 176, 183 (1982) (quoting New Jersey v. New York, 459 U.S. 336, 343 (1931)).

> relative small body of interstate water law cases, means that equitable apportionment cases are frequently unpredictable.[211]

Thus, equitable apportionment's application to regional disputes is often frustrating and inconsistent. Regulating an interstate waterbody requires expertise, policy, and cooperation—none of which are satisfied through judicial rulings.[212]

In addition to equitable apportionment's unpredictability, one of the doctrine's other major pitfalls is its time consuming nature. The significant time associated with equitable apportionment's protracted litigation is evidenced by the fact it can take over a decade to finally reach a resolution.[213] For example, a dispute between Nebraska and Wyoming over the North Platte River reached the Court in 1934.[214] The Court's initial equitable apportionment decree was issued in 1945, eleven years later.[215] Since then, the case has been reopened multiple times to relitigate various issues; most recently in 2012.[216] Because the Court will only entertain an equitable apportionment claim after finding there has been a substantial injury,[217] the impacted states do not have the luxury of sitting idly for such an indefinite period of time—the substantial injury has already occurred.

Further, litigation in equitable apportionment cases is expensive. It is estimated that due to the uniqueness of equitable apportionment claims, litigation can cost each state upwards of four million dollars per year.[218] The vast sum of taxpayer money spent on otherwise preventable litigation means that money cannot be spent on

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211. Hall & Cavataro, *supra* note 73, at 1605–06.

212. Hall, *supra* note 23, at 257.

213. Muys, Sherk, & O'Leary, *supra* note 207, at 23. This is largely due to the Special Master's slow work. It takes years for the Special Master to work through discovery, evidence, and testimony before preparing a final report. *See generally* Carstens, *supra* note 155.

214. Nebraska v. Wyoming, 325 U.S. 589, 591 (1945).

215. *Id.*

216. Nebraska v. Wyoming, 565 U.S. 1108 (2012).

217. *See supra* notes 57, 69–70 and accompanying text.

218. Alyssa S. Lathrop, Comment, *A Tale of Three States: Equitable Apportionment of the Apalachicola-Chattahoochee-Flint River Basin*, 36 FLA. ST. U.L. REV. 865, 899 (2009); Dellapenna, *supra* note 201, at 888.

much needed conservation measures. The Court has also taken note: In litigation between Texas and New Mexico, the Court stated, "it is difficult to believe that the *bona fide* differences in the two States' views of how much water Texas is entitled to receive justify the expense and time necessary to obtain a judicial resolution of this controversy."[219]

Because equitable apportionment is a looming and ominous alternative, states should seek instead to determine their Aquifer's destiny by agreement and common understanding, rather than have it decided by a Court not familiar with the states' varied interests.[220] Again, the Court agrees and has made its position abundantly clear—equitable apportionment is meant as a last resort:

> Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the federal Constitution [interstate compacts]. We say of this case, as the court has said of interstate differences of like nature, that such mutual accommodation and agreement should, if possible, be the medium of settlement, instead of invocation of our adjudicatory power.[221]

The states using the Aquifer have the ability to avoid this adjudicatory power. Because the Middle Claiborne Aquifer requires more than mere allocation, equitable apportionment is inadequate to tackle the complex logistics required for regional planning, study, and cooperation.

C. Short of a Compact, Effective Management Is Unlikely

One option short of an interstate compact is a non-binding agreement among states.[222] Unlike the statutory framework of an interstate compact, which once approved by Congress becomes

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219. Texas v. New Mexico, 462 U.S. 554, 575–76 (1983) (emphasis added).

220. *See* Jerome C. Muys, *Approaches and Considerations for Allocation of Interstate Waters*, *in* WATER LAW: TRENDS, POLICIES, AND PRACTICE, 311, 312 (Kathleen Marion Carr & James D. Crammond, eds., 1995).

221. Colorado v. Kansas, 320 U.S. 383, 392 (1943).

222. Hall, *supra* note 65, at 423.

enforceable law, a voluntary agreement is more politically palatable due to its non-binding nature.[223] And due to this non-binding nature, most of these agreements fail.[224]

A rare but successful example of an agreement can be found through the Platte River Recovery Implementation Program, which is an agreement for wildlife protection among the US Department interior and the states of Colorado, Wyoming, and Nebraska.[225] The success and longevity of this agreement can be attributed to the heavy federal incentives to protect endangered species along the Platte River.[226] Because this agreement arose out of the need to re-license a dam which conflicted with the Endangered Species Act, its success is unique.

The Middle Claiborne Aquifer being a groundwater resource, however, does not have the Endangered Species Act or similar piece of federal legislation that pressures states to work together for a solution. When faced with the need to regulate a water resource without similar

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223. *Cf. id.* at 424–26 (discussing the Great Lakes Charter and its "unfulfilled" agreement).

224. *Id.* at 424 ("[H]andshake agreements . . . are not sanctioned by the Constitution, and thus these informal horizontal federalism approaches have limited legal value."); *id.* at 424 n.106 ("Unlike a compact, which is approved by Congress pursuant to Article I of the Constitution, the [agreement] lacks congressional approval and thus has no force of law.").

225. COOPERATIVE AGREEMENT FOR PLATTE RIVER RESEARCH AND OTHER EFFORTS RELATING TO ENDANGERED SPECIES HABITATS ALONG THE CENTRAL PLATTE RIVER, NEBRASKA 1, 3 (1997), https://platteriverprogram.org/sites/default/files/PubsAndData/ProgramLibrary/Cooperative%201997_Coop%20Agreement%20for%20Platte%20River.pdf [hereinafter COOPERATIVE]. For more on the agreement see Allan Jenkins, *The Platte River Cooperative Agreement: A Basin-wide Approach to Endangered Species Issues*, 9 GREAT PLAINS RES. 95, 95–96 (1999), https://unlcms.unl.edu/ianr/snr/calmit/pdf/platteRiverCooperativeAgreement.pdf.

226. Although labeled an agreement, the Platte River Recovery Implementation Program is much more than that. Failure to work together would have prevented the dam at issue from being operable. "Rather than engaging in years of courtroom battles over limited water supplies and individual river species, the governors of the three basin states joined with the Secretary of Interior in July 1997 to sign the [agreement]." *Program Information*, PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM, https://platteriverprogram.org/about/program-details (last visited Dec. 22, 2022). The states agreed to participate and implement the agreement to protect the interior least tern, whooping crane, piping plover, and pallid sturgeon which are listed as threatened or endangered species under the Endangered Species Act. COOPERATIVE, *supra* note 220, at 1; *see also* Endangered Species Act 16 U.S.C. § 1531.

federal legislation, other agreements have failed due to their non-binding nature. This is true even in the face of heavy federal pressure.[227] And this makes sense: states are unlikely to sacrifice time, resources, and political influence in the absence of repercussions or binding provisions. Thus, an interstate compact overcomes this dilemma by requiring states to participate long after the political bodies that promulgated the compact pass.[228] Anything less than entering into a binding compact now falls short of the permanent protections the Aquifer will need later.

IV. THE MIDDLE CLAIBORNE AQUIFER INTERSTATE COMPACT

"*Even before the Constitution we find that the common interest in natural resources, of a region embracing two States, was furthered by an agreement between such States. . . . Conservation of natural resources is thus making a major demand on American statesmanship. An exploration of the possibilities of the compact idea furnishes a partial answer to one of the most intricate and comprehensive of all American problems.*"[229]

The most effective way for the Mid-South to protect its precious groundwater resource is through an interstate compact. The process of drafting a compact would ensure a collaborative effort among the states sharing the Aquifer.[230] Best practices for regulating the Middle Claiborne Aquifer should be developed with the perspectives and guidance of regional scientists, legal experts, and state decision-

227. Hall, *supra* note 65, at 423–27 (discussing failed "handshake agreements" in the Great Lakes region); *see* Joshua Partlow, *Disaster Scenarios Raise the Stakes for Colorado River Negotiations*, WASH. POST (Dec. 17, 2022 7:00 AM), https://www.washingtonpost.com/climate-environment/2022/12/17/colorado-river-crisis-conference/ (failed Colorado River negotiations despite a federal mandate to do so).

228. *Cf.* Felix Frankfurter & James M. Landis, *The Compact Clause of the Constitution—A Study on Interstate Adjustments*, 34 YALE L. J. 685, 699 (1975) (promoting the use of interstate compacts to conserve natural resources).

229. *Id.*

230. For more on the specifics of compact drafting, see Jerome C. Muys, *Interstate Compacts and Regional Water Resources Planning and Management*, *in* 6 NATURAL RESOURCES LAWYER 2, 153 (1973).

makers.[231] To begin this needed discussion and provide a framework for the compact, this section provides key recommendations while leaving specific compact language to be decided upon during the actual drafting process.[232] This section concludes by addressing the flawed reasoning in opposition of a compact.

A. Recommendations

Although portions of the Middle Claiborne Aquifer are being depleted, the compact should not focus exclusively on water allocation.[233] Instead, like other eastern compacts, it should emphasize cooperative study and water-quality protection.[234] First, the compact should be rooted in provisions of shared research and cohesive groundwater management. Such efforts are currently being completed individually by states in uncollaborative echo chambers.[235] Not only does this waste financial resources,[236] but requires redundant research and planning. This inefficiency could be eliminated by concerted research through one regional governing body, created by compact. Further, this effort can establish best practices for groundwater use in the region and predict changes to the regional water cycle on a rolling

231. Noah D. Hall, *Political Externalities, Federalism, and A Proposal for an Interstate Environmental Impact Assessment Policy*, 32 HARV. ENVT'L L. REV. 49, 84 (2008); Hall & Cavataro, *supra* note 78, at 1573.

232. For more detailed compact language, see Muys, Sherk, & O'Leary, *supra* note 207. This model compact was funded by the Committee on Energy and Natural Resources of the U.S. Senate to "promote ways for states to resolve interstate water disputes short of protracted, costly, and often bitter litigation." *Id.* at 21.

233. Sweet, *supra* note 123, at 218.

234. See Hall & Cavataro, *supra* note 73, at 1571 for an in-depth analysis of how research and water-quality can be imbedded in a compact applied to groundwater.

235. *See supra* text accompanying notes 189–95.

236. *See* Marlissa S. Briggett, Comment, *State Supremacy in the Federal Realm: The Interstate Compact*, 18 B.C. ENVT'L AFF. L. REV. 751, 763 (1991) ("Federal cooperation in interstate compacts offers significant advantages over pure interstate compacts without such federal participation. For instance, an interstate-federal compact offers greater financial resources. The federal financing of projects and contribution to the regional compact agency, however, does not necessitate federal control over the agency. Rather, the financial resources are considered a form of state aid that is not necessarily conditional upon advance adherence to federal policies. Therefore, the interstate compact retains its independence in substantive matters while satisfying its need for federal resources.").

basis.[237] Foresight and preparation are the hallmarks of sustainability for the region's dependence on the Aquifer.

Second, a water quality protection program is critical to ensure the Aquifer's long-term quality. Breaches and contaminants already threaten various portions of the Aquifer.[238] A compact ensures that each user of the Aquifer is aware of and takes part in efforts to ensure water quality protection. For example, if a project from one state poses the threat of contaminating the Aquifer, each state should have the ability to review and ensure regional conformity and consensus.[239] The creation of a governing body that includes stakeholders from each participating state to ensure water quality protection increases administrative efficiency by replacing these overlapping state authorities with a single guiding entity.[240]

Third, the compact must contain dispute resolution mechanisms. Interstate compacts have previously resulted in conflict and litigation, and provisions to encourage litigation alternatives and dispute resolutions are critical to long-term success.[241] Similarly, a sunset limitation on compact duration should be included.[242] By including a sunset provision, states can use determined periods of review to assess the compact's effectiveness and impact. Just as compacts in the past have required updates, so too may changing circumstances in the

237. The Great Lakes Compact requires the signatory states to work in conjunction to develop strategies that strengthen the scientific basis for sound water management decision making. Great Lakes–St. Lawrence River Basin Compact, Pub. L. No. 110–342, 122 Stat. 3739 (2008).

238. *See supra* note 137 and accompanying text.

239. Marilyn C. O'Leary & George William Sherk, *Reinventing the Interstate Water Compact: A New Model*, 52 ROCKY MTN. ROCK. MIN. L. INST, 21-1 § 2(b) (2006).

240. For further discussion on the benefits of a groundwater management scheme, see Hall & Cavataro, *supra* note 78, at 1576–80.

241. *See* Emma Easley, Note, *Improving Interstate Water Compacts One ADR Provision at A Time*, 37 OHIO ST. J. ON DIS. RES. 369, 375–77 (2022).

242. The first interstate water allocation compact, the Colorado River Compact, made its water apportionments in perpetuity; since then, almost all subsequent compacts have been set to a similar "indeterminate duration." O'Leary & Sherk, *supra* note 233, § 2(b). Because of the absence of a sunset provision in the Colorado River Compact, state water allocations have not been updated to reflect the river's current conditions. This has resulted in a disastrous drought that impacts the entire region. *See, e.g.*, Flavelle, *supra* note 10.

Aquifer convince signatory states that the pact should be modified.[243] Because there is no current groundwater compact in the United States, users of the Middle Claiborne Aquifer can provide a working model for the rest of the nation.

B. Flawed Reasoning: Opposition to Compact

If a state does not want to join an interstate compact, it has no duty to do so.[244] Because the Middle Claiborne Aquifer encompasses eight states across the Mississippi Basin, agreement may be difficult to procure. States currently operate under the status quo of taking as much water as desired and dealing with water quality issues on an independent basis. After all, the Aquifer remains judicially undisturbed after sixteen years of litigation. But as other regions in the United States have found, this status quo is manifestly unsustainable.[245] By electing to simply proceed as usual, the Aquifer will eventually become depleted and polluted. Thus, sharing pooled resources would enable states to better understand the water beneath their feet and protect regional, state, and local interests.

The fundamental tension inherent in an interstate compact proposal is states' rights—a compact requires a state to relinquish some level of control.[246] It has not been the purpose of this Note to examine competing federalism philosophies. Rather, the purpose of this Note is to encourage states to seek legal protection of the Aquifer in a way that meets the reality of the Mid-South's growing cities, industries, and agriculture. Promoters of interstate compacts have often been met with opposition, with states zealously warning against any infringement of their sovereignty. Regarding states' rights, former Supreme Court

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243. O'Leary & Sherk, *supra* note 233, § 2(b).

244. States must voluntarily ratify the compact before congressional approval is given. *See generally* Kansas v. Nebraska, 574 U.S. 445, 449 (2015) ("[T]he States negotiated and ratified the Republican River Compact."); Montana v. Wyoming, 563 U.S. 368, 372 (2011) ("Draft[s] were produced in 1935, 1942, and 1944, but none was fully agreed upon. Finally, [the states] ratified the Yellowstone River Compact, and Congress consented . . . .").

245. *See supra* notes 10–11 and accompanying text.

246. Dominic B. King, *Interstate Water Compacts*, *in* WATER RESOURCES AND THE LAW 355, 355 (University of Michigan, 1986).

Justice Felix Frankfurter and former Harvard Law School Dean James M. Landis wrote in an often-cited article:

> The overwhelming difficulties confronting modern society must not be at the mercy of the false antithesis embodied in the shibboleths 'States-Rights' and 'National Supremacy.' We must not deny ourselves new or unfamiliar modes in realizing national ideals. Our regions are realities. Political thinking must respond to these realities. Instead of leading to parochialism, it will bring a fresh ferment of political thought whereby national aims may be achieved through various forms of political adjustments.[247]

This remains true for the users of the Middle Claiborne Aquifer. The disadvantages of interstate cooperation must be balanced against the possibility that without such state action, the non-consenting state relies on the federal government or Supreme Court for an inadequate remedy.[248]

Opposition to a compact ignores the unique milieu users of the Aquifer are in. Litigation has already reached the Court once, and based on the trajectory of the region, it is very possible that conflict will occur again. By working together through an interstate compact, the Mid-South can demonstrate the region's pride, resilience, and adaptability over the shared groundwater resource. A compact would serve not only to protect the Aquifer in perpetuity, but also to signify the region's ability to work together for a shared purpose. If anything, states' rights advocates should recognize that the states themselves, not the federal government or the Court, should control their destiny. It is not too late; now is time for the Mid-South to act.

V. CONCLUSION

"*Conservation, as I use the term, does not mean nonuse or nondevelopment. It does not mean tying up the natural resources of*

247. Frankfurter & Landis, *supra* note 228, at 729.

248. Hesser, *supra* note 80, at 43.

> *the states. It means the utilization of these resources under such regulation and control as will prevent waste, extravagance, and monopoly; but at the same time, not merely promoting, but encouraging such use and development as will serve the interest of the people generally*."[249]

All growing regions face a common issue: how to effectively manage nonrenewable, complex, and misunderstood natural resources across state boundaries. *Mississippi v. Tennessee* put all eight states withdrawing from the Middle Claiborne Aquifer on notice that the region's groundwater supply is such a resource. Further, the Court held that interstate groundwater resources are now subject to equitable apportionment. The current status quo of state-by-state management of the Aquifer is unsustainable and inefficient. As this Note has demonstrated, among the few management strategies available, an interstate compact is by far the most effective to support long-term water security for the region.

For users of this resource in an era of drought, climate change, and increased water demand, it is critical to work together to understand and regulate the Aquifer. If states choose to do nothing and wait for future conflicts to arise, the Mid-South will have missed its unique and timely opportunity to preserve its most precious resource. The Aquifer is not yet depleted. And through an interstate compact, the states can ensure that it never will be. These principles, of course, are not limited to the Middle Claiborne Aquifer; they reach and should encourage other users of other shared groundwaters facing similar threats to do the same. The effect of a compact secures the region's permeance in agricultural leadership and protects the Aquifer so that the Drinker, the Farmer, and the Developer can leave the region in a better place for future generations.

249. President Theodore Roosevelt, *supra* note 171, at 50.