

MISSISSIPPI V. TENNESSEE: RESOLVING AN INTERSTATE GROUNDWATER DISPUTE

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I. INTRODUCTION

Shortly after the immortal line “Call me Ishmael,” Herman Melville’s *Moby Dick* proceeds with a reflection on the attraction of water.¹ According to Melville, humans are drawn to water because “we ourselves see in all rivers and oceans. It is the image of the ungraspable phantom of life; and this is the key of it all.”² Should there be any doubt about the accuracy of Melville’s assessment, the news is filled with events that are reminders of the continuing centrality of water to modern civilization. For example, contaminated drinking water in Flint, Michigan led to a political controversy that spilled into the presidential primary.³ California’s multi-year lack of water occupied numerous newspaper headlines.⁴ In Toledo, Ohio, a summer algae bloom on Lake Erie briefly made the city’s water undrinkable and damaged public perception of the city.⁵

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1. See HERMAN MELVILLE, *MOBY DICK* 3–5 (1851) (ruminating about why humans are drawn to bodies of water).

2. *Id.* at 5.

3. See Amy Chozick & Patrick Healy, *In Democratic Debate, Bernie Sanders Pushes Hillary Clinton on Trade and Jobs*, N.Y. TIMES (March 6, 2016), <http://www.nytimes.com/2016/03/07/us/politics/democratic-debate.html> (discussing agreement between Democratic presidential hopefuls Bernie Sanders and Hillary Clinton over the Flint water crisis during a Democratic debate).

4. See, e.g., Matt Stevens, *Reservoirs are getting a big boost from ‘Miracle March’ — but the drought isn’t over yet*, L.A. TIMES (March 18, 2016), <http://www.latimes.com/local/california/lame-california-drought-20160318-story.html> (evaluating the state of the California drought in light of El Niño weather conditions).

5. See Tom Henry, *Toxic algae struggles leave Toledo’s reputation hanging in the balance*, THE BLADE (Aug. 2, 2015), <http://www.toledoblade.com/local/2015/08/02/Toxic-algae-strugglesleave-city-s-reputationhanging-in-the-balance.html> (summarizing the ramifications of the Lake Erie algae bloom for the city of Toledo).

Water is also at the heart of *Mississippi v. Tennessee*,⁶ an original jurisdiction case before the United States Supreme Court that involves a dispute over aquifer groundwater.⁷ The Court has addressed water disputes between states in the past, but never in the context of aquifers.⁸ *Mississippi v. Tennessee* provides an opportunity for the Court to do so. It could confirm the arguments of Mississippi, which defines the groundwater in the aquifer as an intrastate resource subject to its sovereign ownership.⁹ Alternatively, the Court could side with the defendants and label the aquifer as an interstate water resource subject to the equitable apportionment doctrine.¹⁰ Considering the prevalence of aquifers throughout the United States¹¹ and their importance for drinking water and agriculture,¹² the Court's decision may dramatically shape the distribution of access to water.

This commentary begins with a summary of the factual and procedural history of *Mississippi v. Tennessee*. It then offers a review of the relevant legal doctrine underpinning the case. Next, the commentary provides a synopsis of the parties' legal arguments before concluding with an assessment of how the Court may analyze them. This commentary argues that the Court should side with the defendants in treating the aquifer as an interstate resource, and apply equitable apportionment.

6. 135 S. Ct. 2916 (2015).

7. See Brief of the City of Memphis, Tennessee, and Memphis Light, Gas & Water Division in Opposition to the State of Mississippi's Motion for Leave to File Bill of Complaint in Original Action at 1, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015) (No. 220143, Original) [hereinafter *Brief of the City of Memphis in Opposition*] (characterizing the nature of the dispute with regard to the Sparta Aquifer).

8. See Michael D. Tauer, *Evolution of the Doctrine of Equitable Apportionment—Mississippi v. Memphis*, 41 U. MEM. L. REV. 897, 901 (2011) [hereinafter *Tauer*] (“While this doctrine has historically attended legal disputes over interstate waters, invocation of equitable apportionment in the context of exclusively subterranean water . . . represents an expansion of the doctrine beyond its historic contours.”).

9. Reply Brief of the State of Mississippi on its Motion for Leave to File Bill of Complaint in Original Action at 12–13, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015) (No. 220143, Original) [hereinafter *Reply Brief of the State of Mississippi*].

10. *Brief of the City of Memphis in Opposition*, *supra* note 7, at 11–12 (describing the aquifer as an interstate resource to which equitable apportionment applies).

11. United States Geological Survey, *Principal Aquifers*, USGS.GOV (April 14, 2015), <http://water.usgs.gov/ogw/aquiferbasics/alphabetical.html> (listing principal aquifers by name).

12. See, e.g., United States Geological Survey, *Regional Assessment of Groundwater Quality in the Basin and Range, Rio Grande, Coastal Basins, and Central Valley Aquifer Systems of the Southwestern United States*, USGS.GOV (March 4, 2014), <http://water.usgs.gov/nawqa/studies/praq/swpa/> (“Basin-fill aquifers are an important source of groundwater for many cities and agricultural communities in the arid and semiarid southwestern United States.”).

II. FACTUAL & PROCEDURAL HISTORY

Plaintiff, the State of Mississippi, brought this action against the City of Memphis, Tennessee; the Memphis Light, Gas & Water Division (MLGW); and the State of Tennessee (collectively the defendants) over their use of water from the Sparta-Memphis Aquifer¹³ (the Aquifer).¹⁴

The Aquifer is “an expansive, water-bearing sand formation” that “extends beneath a surface area of approximately 70,000 square miles.”¹⁵ It lies beneath portions of eight states, including Mississippi and Tennessee.¹⁶ The Aquifer is comprised of “unconsolidated sand, inter-stratified with silt and clay.”¹⁷ Water enters the Aquifer through outcroppings at its boundary, which “provide hydraulic connection between the aquifer and surface-water sources such as rivers, lakes, and percolation of rainfall.”¹⁸ There is some natural flow in the Aquifer, where “[u]nder natural conditions, the water . . . moves from east to west at a rate of approximately one inch per day, or 30.4 feet per year.”¹⁹

Memphis began using groundwater from the Aquifer in 1886.²⁰ Today, with a population of approximately 650,000, Memphis is the largest city in the Mississippi embayment,²¹ and it is “the largest city in the world that relies solely on ground water for its water supply.”²² Memphis uses 175 municipal wells “spread across 10 well fields” to

13. Brief for the United States as Amicus Curiae at 1–2, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015) (No. 220143, Original) [hereinafter *Brief for the United States*].

14. The Aquifer is identified by an assortment of names in the litigation. See e.g., *id.* at 3 (“[T]he Aquifer consists of Sparta Sand and the equivalent Memphis Sand . . .”). However, some of these titles, such as Sparta Sand and Memphis Sand, are “local names for what is essentially one sand layer that forms part of the middle Claiborne aquifer . . . [and that] the USGS considers . . . to be one hydrologic unit.” *Id.* Other articles have used titles such as “Memphis Sands Aquifer” as the descriptor. Tauer, *supra* note 8, at 899. Since these different terms are aliases for the same hydrologic unit, for clarity this commentary will refer to the aquifer at issue as “the Aquifer.”

15. *Brief for the United States, supra* note 13, at 2.

16. The Aquifer also “extends beneath” portions of Louisiana, Alabama, Arkansas, Missouri, Kentucky, and Illinois. *Brief for the United States, supra* note 13, at 2.

17. Paul W. McKee & Phillip D. Hays, *The Sparta Aquifer: A Sustainable Water Resource*, USGS.GOV (February 18, 2014), <http://pubs.usgs.gov/fs/fs-111-02/> [hereinafter *The Sparta Aquifer*].

18. *Id.*

19. Tauer, *supra* note 8, at 899.

20. BRIAN R. CLARK ET AL., GROUNDWATER AVAILABILITY OF THE MISSISSIPPI EMBAYMENT 17 (2011).

21. *Id.*

22. Tauer, *supra* note 8, at 899 (quoting Brief for Appellant at 6, *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625 (5th Cir. 2009) (No. 08-60152)).

obtain the water.²³ In 2005, the wells “churned out the [A]quifer’s water at a daily rate of more than 187 million gallons.”²⁴ As a result of MLGW’s pumping, Mississippi claims that there is a “cone of depression extending into Mississippi.”²⁵ In confined aquifers, such as the portion of the Aquifer in question,²⁶ “pumping causes a decrease in . . . water pressure in the aquifer within the cone of depression. This decrease in water pressure allows the water to expand slightly and causes a slight compression of the solid skeleton of earth material in the aquifer.”²⁷ These cones of depression can “alter the direction of ground-water flow,”²⁸ and Mississippi asserts that these changes have caused “water that had been located within the geographical boundaries of Mississippi [to be] drawn into the wells supplying Memphis.”²⁹

On June 6, 2014, Mississippi moved for Leave to File a Bill of Complaint in an Original Action against the defendants, asserting that the defendants’ pumping fields are “forcibly extract[ing] high quality groundwater from Mississippi into Tennessee for sale by MLGW. . . . Under natural conditions, [the groundwater] would not leave Mississippi’s Groundwater Storage.”³⁰ The defendants filed opposition briefs on September 5, 2014.³¹ The Court invited the Solicitor General of the United States to write an amicus brief, which was filed on May 22, 2015.³² The Court granted leave for Mississippi to file a bill of complaint on June 29, 2015.³³ The case was assigned to the Honorable Eugene E. Siler, Jr. as Special Master.³⁴

Mississippi seeks declarations that it has exclusive ownership and dominion “over groundwater located naturally in the [Aquifer]

23. See Boyce Upholt, *An Interstate Battle for Groundwater*, THE ATLANTIC (Dec. 4, 2015), <http://www.theatlantic.com/science/archive/2015/12/mississippi-memphis-tennesee-groundwater-aquifer/418809/>.

24. *Id.*

25. The State of Mississippi’s Motion For Leave to File Bill of Complaint in Original Action, Complaint, and Brief in Support of Motion at 11, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015) (No. 220143, Original) [hereinafter *The State of Mississippi’s Motion*].

26. See *The Sparta Aquifer*, *supra* note 17 (referring to the Aquifer as “confined as it dips toward the axis of the embayment . . . generally corresponding with the Mississippi River”).

27. W.M. ALLEY ET AL., SUSTAINABILITY OF GROUND-WATER RESOURCES 14 (1999).

28. See McKee & Hays, *supra* note 26, <http://pubs.usgs.gov/fs/fs-111-02/>.

29. Tauer, *supra* note 8, at 900.

30. *The State of Mississippi’s Motion*, *supra* note 25, at 5.

31. Supreme Court of the United States, *NO. 220143 ORG*, SUPREMECOURT.GOV, (April 8, 2016), <http://www.supremecourt.gov/Search.aspx?FileName=/docketfiles/220143.htm>.

32. *Id.*

33. *Id.*

34. *Id.*

underlying the sovereign borders of Mississippi,” and that the defendants are responsible for “actionable trespass upon, and conversion, taking, and misappropriation of, property belonging to Mississippi and its people.”³⁵ It prays for damages equal to the value of the “groundwater taken wrongfully by Defendants” since 1985, estimated at \$615 million, or an accounting and payment of the “profits, proceeds, consequential gains, saved expenditures, and other benefits . . . plus prejudgment interest” retained by the defendants.³⁶ Finally, Mississippi seeks injunctive relief in the form of a requirement that “Defendants . . . prospectively take all actions necessary to eliminate the subject cone of depression” under Mississippi.³⁷

This is not the first time that Mississippi has turned to the courts to resolve disputes over water from the Aquifer.³⁸ In 2005, Mississippi sued Memphis and MLGW in the United States District Court for the Northern District of Mississippi, accusing them of “divert[ing] and unlawfully [taking] over 363 billion gallons of ground water owned by Mississippi” in violation of several tort and property theories.³⁹ The district court held that Tennessee was a necessary party to the case because it “involved ‘a proprietary or ownership interest in subsurface water,’” which required the Court to determine which portion of the water belonged to each state.⁴⁰ The district court “dismissed Mississippi’s lawsuit without prejudice” because joining Tennessee as a party triggers the original jurisdiction of the Supreme Court.⁴¹

Mississippi appealed to the United States Court of Appeals for the Fifth Circuit.⁴² There, Mississippi claimed that “contrary to the District Court’s opinion, its complaint did not constitute an action ‘between two states’ because it sought no relief from Tennessee and because it exclusively owned the water in the Aquifer within its territorial boundaries.”⁴³ The Court of Appeals disagreed with Mississippi and affirmed the district court, noting that “[t]he Aquifer is an interstate

35. *The State of Mississippi’s Motion*, *supra* note 25, at 23.

36. *Id.* at 22, 23.

37. *Id.* at 23.

38. *See Brief of the City of Memphis in Opposition*, *supra* note 7, at 1–2 (offering a history of Mississippi’s attempts to resolve this issue in court).

39. These theories included nuisance, unjust enrichment, and trespass. Tauer, *supra* note 8, at 897–898.

40. *Id.* at 919.

41. *Id.*

42. *Id.*

43. *Id.* at 920 (quoting Brief for Appellant at 16–17, Hood *ex rel.* Mississippi v. City of Memphis, 570 F.3d 625 (5th Cir. 2009) (No. 08-60152)).

water source, and the amount of water to which each state is entitled from a disputed interstate water source must be allocated before one state may sue an entity for invading its share.”⁴⁴ Mississippi filed a Petition for a Writ of Certiorari, and a Motion for Leave to File Bill of Complaint in Original Action, both of which the Court denied.⁴⁵ In denying the latter, the Court cited *Virginia v. Maryland*,⁴⁶ a case upholding the applicability of equitable apportionment to interstate water disputes.⁴⁷

III. LEGAL BACKGROUND

A. *The Federal Common Law Approach: Equitable Apportionment*

Interstate disputes over natural resources can be settled by congressionally approved compacts or by the Supreme Court.⁴⁸ When the Court is asked to resolve such disputes, it applies equitable apportionment,⁴⁹ a doctrine grounded in the “equality of right” of the states involved.⁵⁰ When “the action of one state reaches, through the agency of natural laws, into the territory of another state,” equitable apportionment is applied “to settle that dispute in such a way as will recognize the equal rights of both and at the same time establish justice between them.”⁵¹

Equitable apportionment is a flexible doctrine influenced by a range of factors.⁵² It is not grounded in “precise legal entitlements,” but rather “broad and flexible equitable concerns.”⁵³ As such, state borders are not dispositive in resolving competing claims under equitable apportionment.⁵⁴

44. *Hood*, 570 F.3d at 630.

45. Tauer, *supra* note 8, at 922.

46. 540 U.S. 56 (2003).

47. Tauer, *supra* note 8, at 922–23.

48. *See Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 106 (1938) (“Whether the apportionment of the water of an interstate stream be made by compact between the upper and lower States with the consent of Congress or by a decree of this Court, the apportionment is binding upon the citizens of each State and all water claimants.”).

49. *Id.*

50. *Kansas v. Colorado*, 206 U.S. 46, 97–98 (1907).

51. *Id.*

52. *See Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1027 (1983) (“Flexibility is the linchpin in equitable apportionment cases, and, in our prior decisions, we have based apportionment on the consideration of many factors to ensure a fair and equitable allocation.”).

53. *Id.* at 1025.

54. *See Colorado v. New Mexico*, 467 U.S. 310, 323 (1984) (concluding that even though

For interstate water disputes where there is no compact,⁵⁵ “[f]ederal common law governs . . . ensuring that the water is equitably apportioned between the States and that neither State harms the other’s interest”⁵⁶ As a result, equitable apportionment is applied.⁵⁷ The Court has employed the doctrine to water disputes in the context of rivers⁵⁸ and lakes.⁵⁹

Equitable apportionment has not been applied to groundwater or aquifers, however. Although the Court has used broad language that subjects “disputes over the allocation of water” to equitable apportionment, it was in the context of a water dispute involving the Red River.⁶⁰ Perhaps the closest that the Court has come was in *Kansas v. Colorado*,⁶¹ where the Court chose not to distinguish between a river and “an alleged underflow of the river . . . with the same course as that on the surface, but with a distinct and continuous flow as of a separate stream.”⁶² However, the Court’s refusal to differentiate was not based on the relative characteristics of groundwater and those of a river, but rather on “the testimony [which did] not warrant the finding of such second and subterranean stream.”⁶³ In other words, to the extent that there was groundwater involved in the case, the Court considered it a part of the river in question—an unlikely conclusion for the 70,000 square mile Aquifer at issue in *Mississippi v. Tennessee*.

“three-fourths of the water in the Vermejo River system is produced in Colorado,” the “source of the Vermejo River’s waters should be essentially irrelevant to the adjudication of these sovereigns’ competing claims”).

55. See *Tarrant Reg’l Water Dist. v. Herrmann*, 133 S. Ct. 2120, 2125 (2013) (“Absent an agreement among the States, disputes over the allocation of water are subject to equitable apportionment by the courts . . .”).

56. *Virginia v. Maryland*, 540 U.S. 56, 74 n.9 (2003).

57. See, e.g., *Colorado v. New Mexico*, 459 U.S. 176, 183 (1982) (“Equitable apportionment is the doctrine of federal common law that governs the disputes between States concerning their rights to use the water of an interstate stream.”).

58. See, e.g., *State of Connecticut v. Commonwealth of Massachusetts*, 282 U.S. 660, 670–71 (1931) (quoting *Wyoming v. Colorado*, 259 U.S. 419, 465, 470 (1922)) (noting that in the context of an interstate stream “the principles of right and equity shall be applied having regard to the ‘equal level or plane on which all the States stand, in point of power and right, under our constitutional system’ and that, upon a consideration of the pertinent laws of the contending States and all other relevant facts, this Court will determine what is an equitable apportionment of the use of such waters.”).

59. *Wisconsin v. Illinois*, 449 U.S. 48, 48 (1980) (applying equitable apportionment to “water diverted from Lake Michigan”).

60. See *Herrmann*, 133 S. Ct. at 2125 (providing background on the Red River as context for the case).

61. 206 U.S. 46 (1907).

62. *Id.* at 114–15.

63. *Id.*

B. *Sovereign Rights and Water Ownership*

Article Four, Section Three of the United States Constitution directs that:

New states may be admitted by the Congress into this union; but no new states shall be formed or erected within the jurisdiction of any other state; nor any state be formed by the junction of two or more states, or parts of states, without the consent of the legislatures of the states concerned as well as of the Congress.⁶⁴

When states enter the union in accordance with the article, they “acquire[] equivalent rights [to existing states] under the equal-footing doctrine.”⁶⁵ Under the equal footing doctrine, because the “shores of navigable waters, and the soils under them . . . were reserved to the states respectively,” the “new states have the same rights, sovereignty, and jurisdiction over this subject as the original states.”⁶⁶ According to the Supreme Court, a state has “full jurisdiction over the lands within its borders, including the beds of streams and other waters.”⁶⁷

State law also illustrates sovereign ownership of water. The 1985 Mississippi Omnibus Water Rights Act⁶⁸ states that:

All water, whether occurring on the surface of the ground or underneath the surface of the ground, is hereby declared to be among the basic resources of this state and therefore belong to the people of this state, and is subject to regulation in accordance with the provisions of this chapter.

Tennessee has a similar law, which announces that “waters of the state are the property of the state and are held in public trust for the benefit of its citizens.”⁶⁹ It defines groundwater as “water beneath the surface of the ground, whether or not flowing through known or definite channels.”⁷⁰ These laws align with precedent, such as *Georgia v. Tennessee Copper Co.*,⁷¹ which declares “in its capacity of quasi-sovereign . . . the state has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain.”⁷²

64. U.S. CONST. art. IV, § 3.

65. *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469, 486 (1988) (O’Connor J., dissenting).

66. *Oregon ex rel. State Land Bd. v. Corvallis Sand & Gravel Co.*, 429 U.S. 363, 373 (1977) (quoting *Pollard v. Hagan*, 44 U.S. 212, 230 (1845)).

67. *Kansas v. Colorado*, 206 U.S. 46, 89–93 (1907).

68. MISS. CODE ANN. § 51-3-1 (2003).

69. TENN. CODE ANN. § 68-221-702 (2013).

70. TENN. CODE ANN. § 68-221-703 (2013).

71. 206 U.S. 230, 237 (1907).

72. *Id.* at 237.

Similarly, the Court has declared that “States possess an ‘absolute right to all their navigable waters and the soils under them for their own common use,’”⁷³ and that “ownership of submerged lands, and the accompanying power to control . . . other public uses of water, ‘is an essential attribute of sovereignty.’”⁷⁴

IV. ARGUMENTS

Mississippi has two primary legal arguments. First, Mississippi asserts sovereign ownership and control over the groundwater within its borders, including that contained in the portion of the Aquifer underneath the state.⁷⁵ Second, according to Mississippi, the Aquifer is not subject to equitable apportionment.⁷⁶ Both of Mississippi’s arguments are dependent on its portrayal of the Aquifer as an intrastate water resource.

According to Mississippi, the “groundwater at issue was naturally collected and stored in a distinct deep sandstone geological formation known as the ‘Sparta Sand.’”⁷⁷ For Mississippi, the water did not just land within its borders, but, crucially, it was trapped there.⁷⁸ The state notes that “[u]nder natural conditions, this groundwater volume and pressure would have remained within Mississippi.”⁷⁹ The groundwater entered Tennessee only as a result of the unnatural conditions created by MLGW’s pumping.⁸⁰ Mississippi asserts that “Defendants’ mechanical pumping is intended to and does pull Mississippi’s groundwater out of natural storage in a northward direction, altering the water’s natural east-to-west path.”⁸¹ For evidence, Mississippi points to a “hydrologic feature called a ‘cone of depression’” under the state, which is caused by “a substantial drop in pressure and corresponding drawdown of stored groundwater in the Sparta Sand.”⁸² Mississippi estimates that the defendants pump between 20 and 27

73. Tarrant Reg’l Water Dist. V. Herrmann, 133 S. Ct. 2120, 2132 (2013) (quoting *Martin v. Lessee of Waddell*, 16 Pet. 367, 410 (1842)).

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

75. See *The State of Mississippi’s Motion*, *supra* note 25, at 3, 5 (describing Mississippi’s ownership of the water under the equal footing doctrine then later referring to the water at issue as “Mississippi’s groundwater”).

76. *Id.* at 17–19.

77. *Id.* at 5.

78. See *id.* at 6 (“This high quality groundwater stored in Mississippi would never be available within Tennessee’s territorial borders . . .”).

79. *Id.*

80. See *id.* at 7–8 (outlining the effects of MLGW’s pumping efforts over time).

81. *Id.* at 9.

82. *Id.*

million gallons per day of “Mississippi’s natural groundwater storage” from the Sparta Sand.⁸³

Based on this understanding of the Aquifer, Mississippi’s first main legal argument is premised on the equal footing doctrine under Article Four, Section Three of the United States Constitution.⁸⁴ The state argues that “Mississippi was admitted . . . to the Union on an equal footing with the original thirteen colonies and, thereupon, became vested with ownership, control[,] and dominion over the land and waters within its territorial boundaries.”⁸⁵ Mississippi relies on cases such as *Kansas v. Colorado*,⁸⁶ where the Court held that a state has “full jurisdiction over the lands within its borders, including the beds of streams and other waters.”⁸⁷ Since that point, Mississippi has claimed ownership of the water within its borders through legislation such as the Omnibus Water Rights Act.⁸⁸ Mississippi emphasizes that the groundwater was trapped within its borders and is therefore its property.

Mississippi also refutes Tennessee’s argument that equitable apportionment should apply.⁸⁹ Specifically, Mississippi distinguishes the Aquifer from other bodies of water that are subject to equitable apportionment by pointing out that unlike those resources, “[t]he groundwater at issue here is . . . trapped within Mississippi in a deep confined sandstone formation under natural conditions.”⁹⁰ Mississippi contends that “none of the cases cited by [the defendants] provide authority for applying the doctrine of equitable apportionment to intrastate groundwater which is not hydrologically connected to interstate surface water already apportioned by the Court or an interstate compact.”⁹¹ In particular, Mississippi questions the applicability of *Kansas v. Colorado*. Mississippi construes the issue in that case as limited to the “Court’s authority to resolve a conflict between two states over the water in a river which naturally ran between and among several states, but was not navigable.”⁹²

83. *Id.* at 8.

84. *See id.* at 3 (stating Mississippi’s theory with regard to the equal footing doctrine).

85. *Id.* at 3.

86. *Id.* at 5.

87. *Kansas v. Colorado*, 206 U.S. 46, 89–93 (1907).

88. *The State of Mississippi’s Motion*, *supra* note 25, at 4.

89. *Id.* at 3.

90. *Id.* at 4.

91. *Id.*

92. *Reply Brief of the State of Mississippi*, *supra* note 9, at 5.

The defendants, meanwhile, treat the Aquifer as an interstate water resource.⁹³ Based on that understanding, they argue that equitable apportionment is dispositive for the groundwater in question and dispute Mississippi's claim of sovereign ownership of the groundwater.⁹⁴ They also assert that Mississippi's claims are barred by issue preclusion as a result of the state's unsuccessful 2005 litigation over the Aquifer.⁹⁵

The defendants argue that “[t]he fact that Mississippi and Tennessee citizens in their respective states withdraw water from the same Aquifer confirms it is ‘an interstate natural resource shared by the competing states under the conditions put into place by nature.’”⁹⁶ Tennessee compares the Aquifer to the Arkansas River, relying on the Court's statement in *Kansas v. Colorado* that “[b]efore either Kansas or Colorado was settled the Arkansas River was a stream running through the territory which now composes these two states.”⁹⁷ The defendants note, “In the same way, before either Tennessee or Mississippi was settled, the Aquifer was a natural water resource underlying the territory that now composes those two states.”⁹⁸ For the defendants, the Aquifer is no different than the water resources addressed in other equitable apportionment cases, including lake water in *Wisconsin v. Illinois*, and subsurface water connected to a river in *Kansas v. Colorado*.⁹⁹

Since they view the Aquifer as an interstate water resource, the defendants consider equitable apportionment as the necessary tool to resolve the parties' conflicting interests.¹⁰⁰ Inherently, this means that the defendants reject Mississippi's sovereignty arguments, which they dismiss as “contrary to [the] Court's long-standing equitable

93. See Brief of Defendant State of Tennessee in Opposition to State of Mississippi's Motion for Leave to File Bill of Complaint in Original Action, at 18, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015) (No. 220143, Original) [hereinafter *Brief of Defendant State of Tennessee in Opposition*] (“Because the Aquifer is a shared interstate water resource . . .”).

94. *Id.* at 14, 17–18 (outlining an argument in support of the applicability of equitable apportionment, and noting that “a State has no inherent right to the portion of an interstate water resource that happens to reside within its territorial boundaries”).

95. *Id.* at 22.

96. *Brief of the City of Memphis in Opposition*, *supra* note 7, at 12 (quoting *The State of Mississippi's Motion*, *supra* note 25, at 15).

97. *Id.* at 12 (quoting *Kansas v. Colorado*, 206 U.S. 46, 98 (1907)).

98. *Id.*

99. *Id.* at 13.

100. See *id.* at 12–13 (accusing Mississippi of violating Tennessee's sovereignty because “Mississippi wrongly presumes its rights to the unapportioned water in the Aquifer are superior to Tennessee's rights to the same interstate resource”).

apportionment precedents.”¹⁰¹ The defendants rely on *Colorado v. New Mexico* and similar cases to support the assertion that “in the context of interstate water disputes, a state’s border is ‘essentially irrelevant.’”¹⁰² They argue that Mississippi’s territory-based argument conflicts with the multi-faceted considerations of equitable apportionment.¹⁰³ “Mississippi’s legal position is without merit,” according to the defendants, “because if a state’s boundary line alone determined that state’s allocation of an interstate resource,” then equitable apportionment by the Court would be “unnecessary.”¹⁰⁴

Furthermore, the defendants contend that Mississippi cannot own the groundwater at issue because the Court “[e]xplained groundwater is not subject to state ‘ownership’ in the proprietary or possessory sense.”¹⁰⁵ Although Mississippi cites *Kansas v. Colorado* for the proposition that a state has “full jurisdiction over the lands within its borders, including the beds of streams and other waters,”¹⁰⁶ the defendants dismiss sovereign ownership as a “legal fiction.”¹⁰⁷

Finally, the defendants contend that “[b]ecause Mississippi’s claims depend on the very same territorial property rights theory that it advanced and lost in [the 2005 litigation], issue preclusion bars its claims as a matter of law.”¹⁰⁸ According to the defendants, the Fifth Circuit already rejected and settled Mississippi’s arguments, including that “it owns the portion of the [A]quifer located within its borders,” that it has sovereign control of the water, and that the Aquifer is an intrastate resource.¹⁰⁹ As such, “Mississippi already had a full and fair opportunity to litigate those issues,” and the Court declined to revisit the Fifth Circuit’s holdings by denying Mississippi’s petition for certiorari.¹¹⁰

In response, Mississippi argues that its claims are not barred by issue preclusion.¹¹¹ First, it asserts that both the district court and the

101. *Id.* at 16.

102. *Id.* (quoting *Colorado v. New Mexico*, 467 U.S. 310, 323 (1984)).

103. *Id.* at 16.

104. *Id.* at 17.

105. *Id.* (quoting *Sporhase v. Nebraska*, 458 U.S. 941, 949–51 (1982)).

106. *Reply Brief of the State of Mississippi*, *supra* note 9, at 5 (quoting *Kansas v. Colorado*, 206 U.S. 46, 89–93 (1907)).

107. *Brief of the City of Memphis in Opposition*, *supra* note 7, at 17.

108. *Brief of Defendant State of Tennessee in Opposition*, *supra* note 93, at 22.

109. *Id.* at 22–25 (identifying Mississippi’s arguments that the defendants believe are barred by issue preclusion).

110. *Id.* at 26.

111. *Reply Brief of the State of Mississippi*, *supra* note 9, at 9.

Fifth Circuit lacked jurisdiction to resolve the claim. To the extent that the courts might have determined “the parameters of Mississippi’s rights vis-à-vis Tennessee,” they were inherently in the domain of “original and exclusive jurisdiction over controversies between the states,” which belongs to the Supreme Court.¹¹² Second, according to Mississippi, even if the lower courts ruled on its claims, the claims were not essential to the judgment because the only necessary issue “was that Mississippi’s claims of groundwater ownership implicated Tennessee’s sovereign interests.”¹¹³

IV. ANALYSIS

Mississippi v. Tennessee is the first Supreme Court case to address the applicability of the equitable apportionment doctrine to aquifers.¹¹⁴ Thus, the case has the potential to be enormously influential. According to the United States Geological Survey (“USGS”), there are over sixty principal aquifers in the United States,¹¹⁵ many of which cross state borders.¹¹⁶ Considering this, similar interstate disputes over water from these aquifers are plausible, especially because some are under strain.¹¹⁷

The Court has the opportunity to reaffirm the application of equitable apportionment, and hold that it is dispositive in the context of groundwater. Alternatively, the Court could place aquifers in the context of sovereign property ownership, much like land.

The path it selects depends upon which state’s interpretation of fact the Court finds more compelling, because both parties’ legal arguments are inherently linked to their respective portrayals of the Aquifer. Mississippi will be victorious if the Court is persuaded by its depiction of the Aquifer as an intrastate water resource. Conversely, if the Court

112. *Id.*

113. *Id.* at 11.

114. *See* Tauer, *supra* note 8, at 901.

115. *See* United States Geological Survey, *Principal Aquifers*, USGS.GOV (Tuesday, 14-Apr-2015 14:01:19 EDT), <http://water.usgs.gov/ogw/aquiferbasics/alphabetical.html> [hereinafter *Principal Aquifers*] (listing principal aquifers by name).

116. *See* United States Geological Survey, *Aquifers: Map of the Principal Aquifers of the United States*, USGS.GOV (Friday, 27-Feb-2015 17:44:51 EST) <http://water.usgs.gov/ogw/aquifer/map.html> (mapping U.S. aquifers, many of which cross state boundaries).

117. *See* United States Geological Survey, *Regional Assessment of Groundwater Quality in the Basin and Range, Rio Grande, Coastal Basins, and Central Valley Aquifer Systems of the Southwestern United States*, USGS.GOV, (Tuesday, 04-Mar-2014 14:45:25 EST) <http://water.usgs.gov/nawqa/studies/praq/swpa/> (“Basin-fill aquifers are an important source of groundwater for many cities and agricultural communities in the arid and semiarid southwestern United States. The quality of groundwater is of concern because of the general scarcity of renewable water supplies in the region.”).

analogizes the Aquifer to an interstate water resource, such as a river or a lake, then the defendants will likely succeed unless the Court holds that equitable apportionment doctrine is negated by their unnatural pumping of water.

In determining whether the groundwater in this case is covered by equitable apportionment or Mississippi's sovereignty, there are two main considerations. First, what is the aquifer—land or water? Second, does it matter that the defendants' actions have created unnatural conditions? Before resolving either main issue, the Court will have to resolve the threshold matter of whether Mississippi's claims are barred by issue preclusion.

A. *Issue Preclusion*

Most likely, the Court will side with Mississippi and hold that its claims are not barred by issue preclusion. First, although cases of original jurisdiction are different than cases in which the Court grants certiorari, the Court is still not required to grant leave for motions to file an original complaint.¹¹⁸ It decides which original jurisdiction cases to hear on a “case-by-case” basis, based on “the practical necessity of an original forum in [the] Court for particular disputes within [the Court’s] constitutional original jurisdiction.”¹¹⁹ That the Court has chosen to grant leave for Mississippi to file its complaint suggests that the Court considers the claim worthy of its resources. Granting leave for a claim, and then barring it based on issue preclusion, would seem like an odd exercise for the high court.

Second, as Mississippi asserts, the Fifth Circuit premised its decision on Tennessee being a necessary defendant to Mississippi's claim.¹²⁰ In holding so, the court noted that the case was “squarely within the original development and application of the equitable apportionment doctrine.”¹²¹ Considering that equitable apportionment between states is a tool for the Supreme Court, the Fifth Circuit lacked jurisdiction to address specific remedies in the case. As a result, Mississippi's claims should not be barred by issue preclusion.

118. See *Brief for the United States*, *supra* note 13, at 1–2 (“The Court has determined that its exercise of this exclusive jurisdiction is ‘obligatory only in appropriate cases.’”) (quoting *Mississippi v. Louisiana*, 506 U.S. 73, 76 (1992)).

119. *Id.* at 12.

120. See *Hood ex rel. Mississippi v. City of Memphis, Tenn.*, 570 F.3d 625, 631 (5th Cir. 2009) (“Therefore, we find no error in the district court’s conclusion that Tennessee’s presence in the lawsuit was necessary to accord complete relief to Mississippi and Memphis.”).

121. *Id.* at 630.

B. Defining the Aquifer: Land or Water?

Mississippi's arguments about sovereign ownership of groundwater work best if the Aquifer is analogous to land. Although the equal footing doctrine gives states sovereign ownership of the "shores of navigable waters, and the soils under them,"¹²² it offers little guidance about the water itself. In other words, although Mississippi may own the land under many of its water resources, it may not have control of the actual water.¹²³ Although its own laws recognize the ownership of water within its borders, these laws can have little influence over water that flows between states;¹²⁴ that is the traditional domain of equitable apportionment.¹²⁵ However, if the groundwater is indistinguishable from the land itself, then the state sovereignty approach is more convincing because the water would be a part of the land-based resources the state controls.

Conversely, if the Aquifer is more like a subterranean lake or river, where water flows between states, then equitable apportionment will likely control. Not only would the water be beyond Mississippi's sovereignty, but it would also implicate the conflicting state interests that equitable apportionment is meant to resolve.

The physical characteristics of the Aquifer suggest that it is more closely analogous to a river than it is to land. Aquifers present an intriguing problem, as they have characteristics of both land and water.¹²⁶ In the case of unconsolidated and semiconsolidated sand and gravel aquifers like the Aquifer, water is interspersed with "semiconsolidated sand interbedded with silt, clay, and minor carbonate rocks."¹²⁷ Nevertheless, both rivers and aquifers are conduits through which water moves. The main distinction is that rivers

122. *Pollard v. Hagan*, 44 U.S. 212, 230 (1845).

123. See *Brief for the United States*, *supra* note 13, at 1–2 (claiming that states have "ownership of the lands within their respective borders, not the waters themselves").

124. Tauer, *supra* note 8, at 904 (quoting *Kansas v. Colorado*, 206 U.S. 46, 95 (1907)) (although "each was able to choose the water use doctrine that would apply within its borders . . . "[n]either state can legislate for, or impose its own policy upon the other").

125. See *Kansas*, 206 U.S. at 97–98 (explaining that when "the action of one state reaches, through the agency of natural laws, into the territory of another state" equitable apportionment is applied "to settle that dispute in such a way as will recognize the equal rights of both and at the same time establish justice between them").

126. See United States Geological Survey, *Ground Water*, USGS.GOV, http://pubs.usgs.gov/gip/gw/gw_a.html ("Ground water is stored in, and moves slowly through, moderately to highly permeable rocks called aquifers.").

127. See United States Geological Survey, *Aquifer Basics: Unconsolidated and Semiconsolidated Sand and Gravel Aquifers*, USGS.GOV (Tuesday, 14-Apr-2015 13:39:55 EDT) <http://water.usgs.gov/ogw/aquiferbasics/uncon.html>.

represent the movement of water *over* land, while aquifers implicate the movement of water *through* land.¹²⁸ The groundwater implicated in *Mississippi v. Tennessee* is not an exception. It is uncontested that there is at least some flow of water in the Aquifer.¹²⁹ Furthermore, the USGS characterizes the Aquifer as an interconnected hydrologic unit.¹³⁰

Additionally, the alleged damages indicate that Mississippi views this dispute as one over water rather than land. Although Mississippi does ask for a remedy for the conical depression under its territory caused by the pumping, which is a potential injury to the land, the vast majority of the damages sought by the state relate to the taking of the water itself. Thus, the dispute is over the groundwater, not the ground.

Both the characteristics of the Aquifer and the nature of Mississippi's claims indicate that the Aquifer is more like water than land. Therefore, equitable apportionment should apply unless the doctrine is inapposite due to the unnatural conditions created by the defendants.

C. Does Equitable Apportionment Apply Despite Unnatural Conditions?

Although the Aquifer is more like an interstate water resource such as a river than a sovereign resource like land, Mississippi might still be victorious if the Court finds that the unnatural conditions involved here bar the application of equitable apportionment. Mississippi asserts that defendants' pumping activities have changed both the direction and flow of the water in the Aquifer.¹³¹

Nevertheless, unnatural conditions do not derail the application of equitable apportionment. Although the changes to direction and flow of water in *Mississippi v. Tennessee* might seem unique to aquifers, "it is conceptually no different from a claim that an upstream State has diverted river water that would naturally have flowed down-stream."¹³²

128. See *Principal Aquifers*, *supra* note 115 ("The word aquifer comes from the two Latin words, aqua, or water, and ferre, to bear or carry. Aquifers literally carry water underground. An aquifer may be a layer of gravel or sand, a layer of sandstone or cavernous limestone, a rubbly top or base of lava flows, or even a large body of massive rock, such as fractured granite, that has sizable openings.").

129. See *Brief of Defendant State of Tennessee in Opposition*, *supra* note 93, at 18 ("[Mississippi] further admits that the Aquifer is an interconnected hydrological formation and that, in its natural state, the water in the Aquifer flows, even if slowly, across state boundaries.").

130. *Brief for the United States*, *supra* note 13, at 1-2.

131. *Id.*

132. *Brief of Defendant State of Tennessee in Opposition*, *supra* note 93, at 19.

The Court applies equitable apportionment to traditional interstate water resources even in the face of unnatural conditions. For example, the Court applied equitable apportionment to a dispute over water flow in *State of Connecticut v. Commonwealth of Massachusetts*, where “Connecticut filed an original suit seeking to enjoin Massachusetts from diverting water from the Ware and Swift Rivers into the Wachusett reservoir.”¹³³ Although the unnatural conditions in *Mississippi v. Tennessee* involve an increase in water flow rather than a decrease, the same considerations of relative state interests clearly apply. Similarly, the water diversion in *State of Connecticut v. Commonwealth of Massachusetts* did not involve just a change in water flow, but also direction.¹³⁴ Nevertheless, equitable apportionment still applied,¹³⁵ so neither of the unnatural conditions cited in *Mississippi v. Tennessee* are relevant.

The Aquifer is most accurately described as an interstate water resource, as evidenced by the characteristics of the Aquifer itself and by the nature of the damage. As a result, it is irrelevant that the defendants’ actions have altered the natural characteristics of the resource. Such changes implicate exactly the kinds of conflicting state interests that the Court is best able to resolve with equitable apportionment.

CONCLUSION

The Supreme Court should side with the defendants and hold that the Aquifer is an interstate water resource and that equitable apportionment applies. The Aquifer is most accurately characterized as an interstate water resource based both on its attributes and the damages that Mississippi alleges. Although the activities of the defendants may have altered the characteristics of the Aquifer, these changes involve the conflicting state interests which equitable apportionment is best suited to balance.

133. See Tauer, *supra* note 8, at 909–10.

134. See 282 U.S. 660, 663 (1931) (“The proposed diversion will take water tributary to the Connecticut [River] entirely out of its watershed.”).

135. *Id.* at 671.