MISSISSIPPI V. TENNESSEE: ANALYSIS AND IMPLICATIONS

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INTRODUCTION

"So goes water, so goes society."[1]

Assuming the Supreme Court decides the issues in the case on the merits, *Mississippi v. Tennessee* will have an impact far beyond just those two states. At its most basic level, *Mississippi v. Tennessee*[2] involves a dispute over the groundwater within the Sparta-Memphis Aquifer,[3] which lies beneath both states, in addition to six others.[4] In the current incarnation of the litigation, which has been ongoing in one form or another for the last fourteen years,[5] Mississippi has sued not only the state of Tennessee, but also the border city of Memphis and its utility, the Memphis Light, Gas & Water district (MLGW). Mississippi has argued that the defendants have placed wells on the Tennessee side of the border in order to "forcibly extract" groundwater that lies beneath Mississippi.[6] While the Supreme Court has previously decided cases involving interstate surface waters through the application of the doctrine of equitable apportionment, it has yet to ever adjudicate a groundwater dispute

[1] Interview with Mark Davis, Director, Tulane Institute on Water Resources Law & Policy, in New Orleans, La. (Feb. 13, 2019).

[2] *See* Mississippi v. Tennessee, No. 143 (U.S. filed June 6, 2014).

[3] The Aquifer is referred to by different names, including the Sparta Aquifer and the Memphis Sand Aquifer. *See, e.g.*, Memorandum of Decision on Defendants' Motion for Summary Judgment at 14, Mississippi v. Tennessee, No. 143 (U.S. Nov. 29, 2018).

[4] *See* Motion of Defendants State of Tennessee, City of Memphis, and Memphis Light, Gas & Water Division for Summary Judgment and Memorandum of Law in Support Thereof at 5, Mississippi v. Tennessee, No. 143 (U.S. June 1, 2018) [hereinafter Defendants' 2018 Motion for Summary Judgment].

[5] *See* Complaint, Hood *ex rel.* Mississippi v. City of Memphis, 533 F. Supp. 2d. 646 (N.D. Miss. Feb. 1, 2005) (No. 2:05CV32-D-B).

[6] *See* The State of Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint in Original Action at 22, Mississippi v. Tennessee, No. 143 (U.S. June 6, 2014) [hereinafter Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint].

between states.[7] Therefore, this is a case of first impression,[8] and it remains to be seen whether the Supreme Court will officially extend the doctrine of equitable apportionment to groundwater.

Memphis originally began pumping water from the Aquifer in 1886,[9] and almost doubled its pumping operations between 1965 and 1985 alone,[10] making Memphis one of the largest cities in the world to rely exclusively on groundwater for municipal uses.[11] According to Mississippi, between 1965 and 2006, Memphis unlawfully redirected more than 252 billion gallons of water from Mississippi's share of the Aquifer, for a total of somewhere between 15 percent and 20 percent of the city's total supply of water.[12] Given the fact that Memphis is likely to continue growing and developing, Mississippi has argued that its demand for groundwater will almost certainly increase along with its population.[13] And, as Mississippi has pointed out, the city does not appear prepared to taper its use of the Aquifer in the future.[14]

It was therefore unsurprising when, in 2005, Mississippi officially filed suit against the city of Memphis and MLGW in the Northern District of Mississippi. Notably, the state of Tennessee was absent from the list of defendants. Mississippi's arguments were surprising, however, given their novelty. Rather than seeking an equitable apportionment of the water within the Aquifer, which is the means by which the Supreme Court has historically adjudicated interstate surface water disputes, Mississippi instead asked the district court to provide "damages and/or just compensation, declaratory judgment(s) and/or injunctive relief," to the state.[15] Throughout the last decade and a half of litigation, Mississippi has continued

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

[8] *See* Memorandum of Decision on Tennessee's Motion to Dismiss, Memphis and Memphis Light, Gas & Water Division's Motion to Dismiss, and Mississippi's Motion to Exclude at 20, Mississippi v. Tennessee, No. 143 (U.S. Aug. 12, 2016) [hereinafter 2016 Memorandum of Decision].

[9] *See* Brief for the United States as Amicus Curiae on Motion for Leave to File a Bill of Complaint at 5, Mississippi v. Tennessee, No. 143 (U.S. May 2015).

[10] *See* Complaint ¶ 19, Mississippi v. Tennessee, No. 143 (U.S. June 6, 2014).

[11] *See* Complaint, *supra* note 5, ¶ 8.

[12] *See* Complaint, *supra* note 10, ¶ 26.

[13] *See* First Amended Complaint ¶ 21, Hood *ex rel.* Mississippi v. City of Memphis, 533 F. Supp. 2d. 646 (N.D. Miss. 2008) (No. 2:05CV32-D-B).

[14] *See id.* ¶ 21.

[15] Complaint, *supra* note 5, ¶ 11.

to argue for relief based on its sovereign ownership of the groundwater within its borders under the equal footing doctrine. Therefore, Mississippi contends, the water in the Aquifer is not subject to equitable apportionment because Mississippi already has an existing property right to it. Importantly, however, Mississippi has never argued that MLGW's wells are actually situated on land within Mississippi's jurisdiction. Instead, Mississippi argues that Memphis's wells—on their own soil—have siphoned and diverted billions of gallons of water in the Aquifer towards Memphis and away from Mississippi. Mississippi contends that this has created a cone of depression in the state, but some more recent studies cited by the defendants have indicated that Tennessee may actually be the recipient of a reduced flow. This, however, is a factual issue that has yet to be adjudicated. Ultimately, Mississippi argues that it owns all of the groundwater that would have been under the state absent the unnatural conditions created by the defendants' pumping.[16]

The Supreme Court's ruling in this case will have broad ramifications if the Court holds that groundwater is, in fact, the sovereign and absolute property of the states, as Mississippi argues. Indeed, there are more than sixty "principal aquifers"[17] within the United States, and a not insignificant number of them are interstate resources.[18] Given the fact that some of these aquifers are already under threat of being overdrawn, more such disputes could certainly arise in the future.[19] This could create a race to the bottom of sorts, in which states are incentivized to use as much of their groundwater as possible, depleting their shared aquifers before their neighbors can do so.[20]

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[16] *See* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 19.

[17] U.S. GEOLOGICAL SURVEY, NATIONAL WATER-QUALITY ASSESSMENT (NAWQA) PROGRAM, GROUNDWATER STUDIES: PRINCIPAL AQUIFER SURVEYS (2014), https://pubs.usgs.gov/fs/2014/3024/pdf/fs2014-3024.pdf ("Principal aquifers are regionally extensive aquifers that can be used as a source of drinking water.").

[18] *See* Peter Berris, *Mississippi v. Tennessee: Resolving an Interstate Groundwater Dispute*, 12 DUKE J. CONST. L. & PUB. POL'Y SIDEBAR 1, 13 (2016).

[19] *See id*.

[20] *See* Hall & Regalia, *supra* note 7, at 11 ("If the Supreme Court sides with Mississippi and adopts the state ownership theory for groundwater, states may not be motivated to cooperate to manage interstate groundwater. Instead, they might choose to invest in determining their respective property and assessing damages for wrongful conversion.").

This Article begins with an explanation of the doctrine of equitable apportionment in Part I, followed by a brief history of the litigation throughout the years in Part II. Part III then centers on the implications of Mississippi's argument that the Supreme Court should grant its request for damages. Part IV addresses the practical implications of applying equitable apportionment to groundwater, after which the discussion turns, in Part V, to Mississippi's argument that this case must be decided based upon the equal footing doctrine, rather than equitable apportionment. Part VI turns to whether the Supreme Court's ruling in this case will also have some bearing on the fact that the law does not currently recognize that surface and groundwater are hydrologically connected. Part VII addresses the various ways in which the Supreme Court could avoid ruling on the substance of the litigation.

I. EQUITABLE APPORTIONMENT

Traditionally, there have been two means by which states have resolved interstate surface water disputes: negotiating a Congressionally-approved compact pursuant to Article I, Section 10 of the Constitution, or petitioning the Supreme Court for an equitable apportionment of the water at issue.[21] However, Congress can also choose to apportion interstate waters itself.[22] Currently, there are no compacts regulating the use of groundwater between states, but there are at least twenty-seven surface water compacts in existence.[23] And, "[w]hile no interstate compacts to date have focused on groundwater, some do address groundwater resources that are hydrologically connected to the subject surface-water system."[24] Since there is no compact regulating the use of the Aquifer shared

[21] *See* Memorandum of Decision on Defendants' Motion for Summary Judgment, *supra* note 3, at 19; *see also* Christine A. Klein, *Owning Groundwater: The Example of* Mississippi v. Tennessee, 35 VA. ENVTL. L.J. 474, 481 (2017).

[22] *See* Noah Hall & Joseph Regalia, *Interstate Groundwater Law Revisited:* Mississippi v. Tennessee, 34 VA. ENVTL. L.J. 152, 193 (2016).

[23] *See* 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, 1571 (2013).

[24] *Id.* at 1571–72 (footnotes omitted).

by Tennessee and Mississippi, the defendants have argued that the only avenue left to Mississippi is equitable apportionment.[25]

Equitable apportionment is therefore the doctrine under which the Supreme Court has traditionally allocated water in disputes between states over their shared surface water resources. However, the Court only applies the doctrine in situations in which the states at issue have not agreed to an interstate compact governing their water use. The Supreme Court has characterized equitable apportionment as a "flexible doctrine which calls for 'the exercise of an informed judgment on a consideration of many factors' to secure a 'just and equitable' allocation,"[26] in which "all the factors which create equities in favor of one state or the other must be weighed . . . ."[27] Examples of these 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, the practical effect of wasteful uses on downstream areas, the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former . . . .[28]

Equitable apportionment is thus predicated upon the idea that water is a "necessity of life that must be rationed among those who have power over it," and that states' "real and substantial interests" in their water "must be reconciled as best they may be."[29] In the first equitable apportionment case, *Kansas v. Colorado*, the Supreme Court recognized that it was "called upon to settle that dispute in such a way as will recognize the equal rights of both [States] and at the same time establish justice between them."[30]

Crucially, the doctrine considers "equality of right,"[31] rather than strict equality in terms of the amount of water apportioned.

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[25] *See, e.g.*, 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 21, 25, Mississippi v. Tennessee, No. 143 (U.S. Sept. 5, 2014).

[26] Colorado v. New Mexico, 459 U.S. 176, 183 (1982) (quoting Nebraska v. Wyoming, 325 U.S. 589, 618 (1945)).

[27] Colorado v. Kansas, 320 U.S. 383, 394 (1943).

[28] Nebraska v. Wyoming, 325 U.S. 589, 618 (1945).

[29] New Jersey v. New York, 283 U.S. 336, 342–43 (1931).

[30] Kansas v. Colorado, 206 U.S. 46, 98 (1907).

[31] *See id.* at 97.

And, in adjudicating claims under equitable apportionment, the territorial boundaries of states "are not dispositive."[32] This is particularly relevant in the context of the ongoing litigation between Mississippi and Tennessee, in which Mississippi has claimed sovereign ownership over the groundwater within its borders. It would appear that this contention is contrary to the principles underlying equitable apportionment.[33]

Equitable apportionment cases fall within the original jurisdiction of the United States Supreme Court.[34] In original jurisdiction cases, parties are first required to obtain leave to file a lawsuit, which "serves an important gatekeeping function."[35] Only cases of the utmost "seriousness and dignity" are allowed to proceed,[36] and a state must "allege, in the complaint offered for filing, facts that are clearly sufficient to call for a decree in its favor."[37] That being said, plaintiff states cannot simply plead a feasible cause of action—they must allege injury "clearly shown to be of serious magnitude and imminent."[38] Therefore, cases falling within the Supreme Court's original jurisdiction must meet a high threshold in order to be heard.

In an equitable apportionment case, the party seeking apportionment must first prove standing.[39] Next, the complaining state must demonstrate "real and substantial injury or damage" by "clear and convincing evidence."[40] And, the state requesting apportionment must make a showing, also by clear and convincing evidence, that the harms of any apportionment are "substantially outweigh[ed]" by the benefits.[41] This so-called balance of harms test is the threshold merits question that determines if equitable apportionment is appropriate.[42] Then, if the complaining state has sufficiently

[32] Berris, *supra* note 18, at 6.

[33] *See, e.g.*, Motion of Defendant State of Tennessee for Judgment on the Pleadings at 14–15, Mississippi v. State of Tennessee, No. 143 (U.S. Feb. 25, 2016).

[34] *See, e.g.,* Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1027 (1983).

[35] Nebraska v. Wyoming, 515 U.S. 1, 8 (1995).

[36] Illinois v. City of Milwaukee, 406 U.S. 91, 93 (1972).

[37] Alabama v. Arizona, 291 U.S. 286, 291 (1934).

[38] *Id.* at 292.

[39] *See* Florida v. Georgia, 138 S. Ct. 2502, 2534 (2018).

[40] Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1027 (1983).

[41] Florida v. Georgia, 138 S. Ct. at 2535.

[42] *See id.*

proven the above, the Court will equitably apportion the water at issue.[43]

The Supreme Court has stated that "[t]he doctrine of equitable apportionment is neither dependent on nor bound by existing legal rights to the resource being apportioned. The fact that no State has a pre-existing legal right of ownership in the [resource being apportioned] . . . does not prevent an equitable apportionment."[44] Under this logic, even if Mississippi were correct in its assertion that it owns the groundwater within its borders, its ownership would have no bearing on the Court's ability to fashion an equitable apportionment remedy, should it choose to apply the doctrine. And, relatedly, the fact that neither Mississippi nor Tennessee has already adjudicated their rights to the Aquifer does not foreclose the application of equitable apportionment.

So far, there have been no cases in which the Supreme Court has applied equitable apportionment to an aquifer. However, in *Texas v. New Mexico*, *Kansas v. Colorado*, and *Washington v. Oregon*, the Supreme Court equitably apportioned interstate surface waters that had a connection to groundwater. Thus, the Court has only ever applied the doctrine in cases in which a state's groundwater pumping somehow impacted surface water supplies. Additionally, the Supreme Court has also applied equitable apportionment to a case involving fish, characterizing fish as a natural resource "sufficiently similar" to water to warrant equitable apportionment. This demonstrates the Court's willingness to extend the doctrine beyond just surface water; and it goes without saying that groundwater is far more akin to surface water than fish. Therefore, these precedents will likely have some bearing on whether the Court is amenable to expanding the doctrine to also encompass aquifers.

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[43] *See id.*

[44] Idaho *ex rel.* Evans v. Oregon, 462 U.S. at 1025 (internal citation omitted).

II. HISTORY OF THE LITIGATION[45]

A. *District Court Litigation*

In its initial complaint in 2005, Mississippi raised a number of claims for relief, including unjust enrichment,[46] trespass,[47] conversion,[48] and nuisance.[49] It asked the court to impose a "constructive, implied, or resulting trust" over MLGW's revenues, a number of different declaratory judgments, and a permanent injunction barring MLGW from taking any groundwater beneath Mississippi.[50] At that juncture, however, only Memphis and MLGW (the Memphis defendants) were defendants.[51] For that reason, in their answer, the Memphis defendants argued that Tennessee was a necessary and indispensable party as the litigation would determine the "rights and interests" of the state in the Aquifer.[52] And, they argued, the rights to the Aquifer would have to first be determined before the court could reach any of Mississippi's claims.[53]

The district court ultimately came to a decision in 2008, making it the first reported case to involve an interstate aquifer.[54] The district court found the state of Tennessee to be a necessary and indispensable party,[55] but held that the district court could not, itself, join Tennessee.[56] Instead, the district court noted that controversies between states lie exclusively within the original jurisdiction of the Supreme Court, leaving the district court unable to join Tennessee.[57] In reaching this holding, the district court noted that "the doctrine of equitable apportionment has historically been the means by which

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[45] Some of the parties' arguments will not be mentioned here, as they are not relevant to the issues discussed in this Article.

[46] *See* Complaint, *supra* note 5, ¶¶ 23–26.

[47] *See id.* ¶¶ 31–34.

[48] *See id.* ¶¶ 35–39.

[49] *See id.* ¶¶ 45–49.

[50] *Id*. ¶¶ 53–60.

[51] *See id*. at 1.

[52] *See* Answer at 5, Hood *ex rel.* Mississippi v. City of Memphis, 533 F. Supp. 2d 646 (N.D. Miss. 2008) (No. 2:05CV32-D-B).

[53] *See id*. at 7.

[54] *See* Hood *ex rel.* Mississippi v. City of Memphis, 533 F. Supp. 2d 646, 648 (N.D. Miss. 2008).

[55] *See id.*

[56] *See id.* at 649.

[57] *See id.*

disputes over interstate waters are resolved," and that "absent apportionment, this court cannot afford relief to the Plaintiff and hold that the Defendants are pumping water that belongs to the State of Mississippi, because it has not yet been determined which portion of the [A]quifer's water is the property of which State."[58] The district court also concluded that it would not be able to grant relief to Mississippi without "engaging in a de facto apportionment" of the Aquifer, and that, again, equitable apportionment lies within the Supreme Court's original and exclusive jurisdiction.[59] For these reasons, the district court dismissed the case *without* prejudice.[60]

Importantly, the district court noted that the exhibits had demonstrated—and the parties had agreed—that the Aquifer was located beneath multiple states, including Mississippi and Tennessee.[61] As an aside, the district court pointed out in its decision that

> while the Plaintiff contends on the one hand that only Mississippi water is involved in this suit, it also contends that the sole basis for the court's jurisdiction is the existence of a federal question because interstate water is the subject of the suit. The Plaintiff cannot have it both ways.[62]

Yet Mississippi has changed its position on this point throughout the litigation. In the most recent phase, Mississippi claims that, while the Aquifer itself "straddles two states," the water at issue is located wholly and exclusively beneath the state of Mississippi, making it an entirely intrastate resource.[63] Thus, they argue that the water implicated in its claims is only that which is "stored naturally in the Sparta Sand formation underlying Mississippi which would not, absent Defendant's pumping, be available to Defendants."[64] Following discovery in the most recent incarnation of the case, Mississippi began to claim that the water at issue is actually located in

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58 *Id.* at 648.

59 *Id.*

60 *See id.* at 650.

61 *See id.* at 648.

62 *Id*. at 649; *see also* Complaint, *supra* note 5, ¶ 9 ("Jurisdiction in this interstate groundwater dispute is proper in this Court under 28 U.S.C.A. Sections 1331 & 1332 inasmuch as, *inter alia*, there are presented herein certain federal questions calling for application of federal and/or interstate common law, in addition to state law, and because there exists complete diversity of citizenship between the parties.").

63 Complaint, *supra* note 10, ¶ 41.

64 *Id.* ¶ 40.

one of a "group" of aquifers.[65] The distinctions that Mississippi attempts to make are significant, as they provide the foundation for much of the State's later arguments.

B. *Fifth Circuit Litigation*

Mississippi appealed the district court's ruling to the United States Court of Appeals for the Fifth Circuit.[66] Mississippi's arguments included that the District Court had erred in that it had based its opinion "entirely on its misplaced assumption that, because 'the Memphis Sands or Sparta [A]quifer lies under several States,'" the case was therefore "'between two States.'"[67] And, once again, Mississippi reiterated its position that the Aquifer was, in fact, interstate in nature.[68] Mississippi also raised what is here referred to as its equal footing argument:[69] that, upon Mississippi's admission to the Union in 1817, it was vested with full and complete ownership of the groundwater within its borders as an inherent function of its sovereignty.[70] Mississippi also argued that, because Mississippi owned its waters, tort law should apply.[71] Mississippi stressed its belief that equitable apportionment applies only to "a limited set of surface water" disputes and argued that equitable apportionment would not adequately redress its alleged damages.[72] That is because equitable apportionment does not provide monetary compensation for past harms; instead it only apportions resources for future uses.[73] This largely explains why Mississippi has expressly eschewed equitable apportionment throughout the litigation.

The Fifth Circuit ultimately found Mississippi's arguments unpersuasive. It upheld the district court's rulings, holding that "[t]he

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[65] *See* Plaintiff's Response to Defendants' Motion for Summary Judgment at 10–11, Mississippi v. Tennessee, No. 143 (U.S. July 6, 2018).

[66] *See* Brief for Appellant, Hood *ex rel.* Mississippi v. City of Memphis, 570 F.3d 625 (5th Cir. 2009) (No. 08-60152).

[67] *Id.* at 18.

[68] *See id.* at 21 ("The interstate nature of the [A]quifer confers federal question jurisdiction on the District Court.").

[69] The parties and Special Master refer to this theory by varying names, including the "boundary line" theory. *See, e.g.*, Brief for Appellees at 25, Hood *ex rel.* Mississippi, 570 F.3d 625 (No. 08-60152).

[70] *See* Brief for Appellant, *supra* note 66, at 39.

[71] *See id*. at 45–47.

[72] *Id*. at 38–39.

[73] *See id*. at 39 (citing Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1025–26 (1983)).

Aquifer is an interstate water source, and the amount of water to which each state is entitled from a disputed interstate water source must be allocated before one state may sue an entity for invading its share."[74] The Fifth Circuit held that the dispute fell "squarely" within the Supreme Court's original jurisdiction under the equitable apportionment doctrine, and the fact that the water body at issue was underground was "of no analytical significance."[75] The Fifth Circuit also held that Tennessee was, in fact, a necessary party, because the case "require[d] an allocation of water rights between states: Memphis's actions are not wrongful unless there is a defined allocation of water that it is allowed to pump."[76] Finally, the Fifth Circuit upheld the district court's ruling that the required joinder of Tennessee would destroy subject matter jurisdiction by placing the case within the original and exclusive jurisdiction of the Supreme Court.[77]

C. *2009 Supreme Court Litigation*

Following the Fifth Circuit's decision, Mississippi filed a petition for a writ of certiorari in the United States Supreme Court,[78] as well as a motion for leave to file a bill of complaint in an original action.[79] In its petition, Mississippi argued that the Fifth Circuit erred in finding that equitable apportionment was applicable for three different reasons:

> (a) the ground water residing within the aquifer in Mississippi is not a natural resource shared with another state; (b) there is no dispute between competing sovereigns holding legitimate claims to this ground water under the Constitution and Laws of the United States; and (c) equitable apportionment does not afford Mississippi a remedy for Memphis and MLGW's past wrongful conversion of Mississippi's natural resource.[80]

In their brief in opposition, the Memphis defendants argued that the Aquifer was, "on its face," an interstate body of water, and that,

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[74] Hood *ex rel.* Mississippi, 570 F.3d at 630.

[75] *Id*.

[76] *Id*. at 631.

[77] *See id*. at 632.

[78] *See* Petition for Writ of Certiorari, Mississippi v. City of Memphis, 559 U.S. 904 (2010) (No. 09-289).

[79] *See* Motion for Leave to File a Bill of Complaint, Mississippi v. City of Memphis, 559 U.S. 901 (2010) (No. 09-289).

[80] Petition for Writ of Certiorari, *supra* note 78, at *9.

as such, equitable apportionment must apply.[81] The Memphis defendants also pointed out that Mississippi had failed to cite any authority for its proposition that equitable apportionment does not apply to groundwater, and, importantly, that the Supreme Court had already apportioned interstate bodies of surface water "that include hydrologically connected underground water components."[82]

In January 2010, the Supreme Court denied Mississippi's motion for leave to file a bill of complaint without prejudice,[83] and denied its petition for a writ of certiorari.[84] The Court denied Mississippi's cert petition without explanation,[85] but in its two-sentence denial of the motion for leave to file a bill of complaint,[86] the Supreme Court simply cited footnotes in *Virginia v. Maryland*[87] and *Colorado v. New Mexico*.[88] The relevant footnote of *Virginia v. Maryland* states,

> [f]ederal common law governs interstate bodies of water, ensuring that the water is equitably apportioned between the States and that neither State harms the other's interest in the river. See, e.g., Colorado v. New Mexico, 459 U.S. 176, 183, 74 L. Ed. 2d 348, 103 S. Ct. 539 (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').[89]

It would appear that, in citing to this footnote, the Supreme Court was indicating that equitable apportionment would apply to this dispute, given the interstate nature of the Aquifer. Footnote thirteen of *Colorado v. New Mexico* is much more substantial and describes the burdens of proof required in an equitable apportionment case, perhaps suggesting that Mississippi had failed to make the required showing.[90]

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[81] Respondent's Brief in Opposition at 14, Mississippi v. City of Memphis, 559 U.S. 904 (2010) (No. 09-289).

[82] *Id*. at 19.

[83] *See Mississippi.,* 559 U.S. at 904.

[84] *See id.*

[85] *See id*.

[86] *See id.*

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

[88] *See* Colorado v. New Mexico, 459 U.S. 176, 187 n.13 (1982).

[89] *Virginia*, 540 U.S. at 74 n.9.

[90] *See Colorado*, 459 U.S. at 187 n.13.

D. *2014 Supreme Court Litigation*

In 2014, Mississippi filed a new motion for leave to file a bill of complaint with the Supreme Court, as well as a complaint and a brief in support of its motion.[91] This time, Mississippi brought the case under the Supreme Court's original jurisdiction. Mississippi also added Tennessee as a defendant, but still included the city of Memphis and MLGW as defendants.[92] In its complaint, Mississippi petitioned the Court for a declaratory judgment that Mississippi had the "sovereign right, title and exclusive interest in the groundwater stored naturally in the Sparta Sand formation underlying Mississippi which would not, absent Defendant's pumping, be available to Defendants."[93] Mississippi thus argued that "[t]he geologic formation in which the groundwater is stored straddles two states, but the groundwater at issue is an intrastate natural resource, not a naturally shared interstate resource,"[94] and that equitable apportionment was therefore inapplicable.[95] Relatedly, Mississippi also advanced various tort claims, including "trespass . . . and conversion, taking and misappropriation . . . ."[96] The State raised its equal footing argument once again, relying on its assertion that "[t]he groundwater at issue originated in Mississippi, was stored in the Sparta Sand formation in north Mississippi, and would have, under natural conditions, never been available in Tennessee. It is *neither* interstate water *nor* a naturally shared resource."[97]

Mississippi also delineated its requested damages, including an alleged 21 million gallons of water diverted from within Mississippi's borders each day.[98] Mississippi also claimed that Tennessee had "materially altered" the State's groundwater levels and effec-

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91 *See* Motion for Leave to File Bill of Complaint in Original Action, Mississippi v. Tennessee, 136 S. Ct. 499 (2015) (No. 143); *see also* Complaint, *supra* note 10; *see also* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 2.

92 *Compare* Complaint, *supra* note 10, *with* Motion for Leave to File a Bill of Complaint, *supra* note 79.

93 Complaint, *supra* note 10, ¶ 40.

94 *Id.* ¶ 41.

95 *See id.*

96 *Id.* at 23 (requesting as much in paragraph "B").

97 *Id.* ¶ 50.

98 *See id.* ¶ 54(a).

tively lowered the water table within the Aquifer, requiring Mississippi to drill significantly deeper wells at great cost.[99] Mississippi asked that the Court require the defendants to undertake an internal accounting and "disgorge and pay over to Mississippi all profits, proceeds, consequential gains, saved expenditures, and other benefits realized by Defendants, or any of them, due to their nonconsensual taking of and interference with Mississippi's property, plus prejudgment interest thereon . . . ."[100] Mississippi further requested that the Defendants "take all actions necessary to eliminate the cone of depression."[101]And, as an additional measure of damages, Mississippi requested joint and several damages equal to the amount of the water that the Defendants had taken since 1985, estimated to be over $615 million.[102] In its brief, Mississippi used United States Geological Survey modeling data to bolster its ownership argument, claiming that the water at issue first fell as rainwater within Mississippi's borders, after which it seeped down into the Aquifer.[103] Absent the Defendants' pumping, Mississippi argued, this rainwater "would never have been available within Tennessee's territorial borders."[104] Mississippi also asserted that the Court's precedent established that it could, in fact, award damages in original actions.[105]

In its brief, Mississippi also argued that equitable apportionment should not apply, given the fact that the Aquifer was an intrastate resource, characterizing Tennessee's arguments as mistakenly "rely[ing] on an image of the Sparta Sand geological formation as an underground river or a lake within a cave."[106] Mississippi also asserted that

> [t]he studies performed on the Sparta Sand since the mid-1960s have uniformly found pre-pumping groundwater storage, pressures, and directional movements in Mississippi across north Mississippi and not into Tennessee. This represents the natural

99 *See id.* ¶ 54.

100 *Id*. at 23 (requesting as much in paragraph "C").

101 *Id.* ¶ 57.

102 Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 25.

103 *See id*. at 8.

104 *Id*. at 8–9.

105 *See id*. at 24 (citing Kansas v. Colorado, 533 U.S. 1, 7 (2001)) ("[A] State may recover monetary damages from another State in an original action.").

106 *Id*. at 18.

> condition of Sparta Sand groundwater stored exclusively in Mississippi's sovereign territory and seeping predominantly east-to-west/southwest since before Mississippi became a state. This groundwater naturally stored in a confined aquifer within Mississippi's borders does not meet the first requirement for equitable apportionment. It is not naturally shared.[107]

This is crucial to Mississippi's argument; the State essentially claimed that water within its borders—despite being part of a larger aquifer system—would not have seeped into Tennessee absent MLGW's pumping, thus making it an intrastate resource. Rounding out this argument, Mississippi then pointed to Supreme Court precedent indicating that each state's sovereignty extends to its territorial boundaries.[108]

At this point in the litigation, the defendants began filing separate, but largely complementary briefs; the Memphis defendants filed their briefs together, and Tennessee usually filed separate briefs on its own behalf. Citing various Supreme Court precedents,[109] Tennessee, in its brief in opposition to Mississippi's motion for leave to file a bill of complaint, claimed that the Court had already "applied the equitable-apportionment doctrine broadly to all interstate 'disputes over the allocation of water.'"[110] Next, Tennessee argued that, because Mississippi had expressly disavowed equitable apportionment, it was left with no other cognizable claim under which it could seek damages.[111] Instead, Mississippi would only be able to recover damages *after* the Aquifer had been apportioned, either by an interstate compact or equitable apportionment.[112] Memphis and MLGW also filed their own brief on Mississippi's motion

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[107] *Id*. at 18–19.

[108] *See id*. at 20–21 (citing Rhode Island v Massachusetts, 37 U.S. at 733 (1838)).

[109] *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 18–20, Mississippi v. Tennessee, No. 143 (U.S. June 10, 2014) [hereinafter Tennessee's Opposition to Complaint] (citing Tarrant Reg'l Water Dist. v. Herrmann, 569 U.S. 614, 618–20 (2013); Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017 (1983); Colorado v. New Mexico, 459 U.S. 176 (1982); Washington v. Oregon, 297 U.S. 517 (1936); Kansas v. Colorado, 206 U.S. 46 (1907).).

[110] *Id*. at 17–18 (quoting *Tarrant Reg'l Water Dist.*, 569 U.S. at 619 ("Absent an agreement among the States, disputes over the allocation of water are subject to equitable apportionment by the courts").

[111] *See id*. at 21.

[112] *See id*.

for leave to file a bill of complaint in original action, in which they argued that Mississippi was attempting to "circumvent [the] Court's equitable apportionment jurisprudence,"[113] even going so far as to characterize Mississippi's tort claims, which were based upon its ownership arguments, as an attempt to "usurp" the Supreme Court's original jurisdiction over interstate water disputes.[114] And, they claimed that Mississippi was intentionally avoiding equitable apportionment because it knew that it could not meet the standard required for relief: "'real and substantial injury or damage.'"[115]

The case was distributed for conference in October 2014, and the Supreme Court then asked the Solicitor General to file a brief in the case outlining the United States' views. The United States' amicus brief largely dovetailed with the defendants' briefs, arguing that Mississippi did not request any form of relief by which it could recover, because Mississippi had "unequivocally disclaim[ed] equitable apportionment as a remedy"[116] and that the interstate nature of the water at issue was clear from Mississippi's pleadings.[117] The United States also addressed Mississippi's equal footing argument, expressly disavowing the idea that states own the waters within their borders, and citing Supreme Court precedent demonstrating that states own only the beds of their water bodies, not the waters themselves.[118]

In June 2015, the Supreme Court granted Mississippi's motion for leave to file a bill of complaint. The case was then distributed for conference in October 2015, and a Special Master was appointed the next month.

In February 2016, the defendants filed separate motions for judgment on the pleadings. The Memphis defendants argued that no

[113] Brief of the City of Memphis, Tennessee, and Memphis Gas, Light & Water Division in Opposition to the State of Mississippi's Motion for Leave to File Bill of Complaint in Original Action at 6, Mississippi v. Tennessee, No. 143 (U.S. June 10, 2014) [hereinafter Memphis and MGLW's Opposition to Complaint].

[114] *Id*. at 13.

[115] *Id*. at 21 (citing Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1027 (1983)).

[116] Brief of the United States as Amicus Curiae at 13–14, Mississippi v. Tennessee, No. 143 (U.S. June 10, 2014).

[117] *See id*. at 15.

[118] *See id*. at 18–19; *see also* United States v. Alaska, 521 U.S. 1, 5(1997); Kansas v. Colorado*,* 206 U.S. 46, 93 (1907).

Supreme Court precedent supported the idea that states can own water within an unapportioned multi-state aquifer.[119] In fact, according to the Memphis defendants, Supreme Court precedent indicated that natural resources that span multiple states are generally considered to be interstate resources.[120] The Memphis defendants characterized Mississippi's assertion that the water at issue is, in fact, intrastate as "an unsupported legal conclusion or inference," and pointed to instances in which Mississippi had indicated in its own pleadings that the water was actually interstate in nature.[121] And, they pointed out, Mississippi actually conceded that the groundwater involved was moving, and that some flowed from Mississippi into Tennessee under natural conditions.[122]

In Tennessee's motion, the state pointed to Mississippi's own pleadings throughout the litigation, in which Mississippi admitted that the Aquifer lies beneath both states, and that the Aquifer was "hydrologically interconnected such that no physical barrier prevents its groundwater from flowing naturally across State boundaries."[123] Tennessee also addressed Mississippi's argument that equitable apportionment only applies to surface water, pointing out that, in the past, the Court had equitably apportioned a number of varying types of water resources,[124] and that the Court had applied the doctrine to virtually every conflict over the allocation of interstate waters.[125]

The United States also filed an amicus brief arguing in favor of the defendants' motions. The United States argued that equitable apportionment should apply, also pointing out that Mississippi itself previously acknowledged that the Aquifer at issue lies beneath both

119 *See* City of Memphis, Tennessee and Memphis Light, Gas & Water Division's Motion for Judgment on the Pleadings and Memorandum of Law in Support at 14, Mississippi v. Tennessee, 143 (U.S. Feb. 24, 2016) [hereinafter Memphis and MLGW Motion for Judgment on the Pleadings].

120 *See id*. at 15.

121 *Id*. at 17–18.

122 *See id*. at 18.

123 *Id*. at 22.

124 *See id*. at 7.

125 *See id*. at 6–7.

states.[126] And, according to the United States, Mississippi's own expert had demonstrated the interstate nature of the Aquifer.[127] The United States also addressed Mississippi's equal footing argument, arguing that the Supreme Court had explicitly rejected the idea "that a State has title to subsurface groundwater within its borders that is flowing through an aquifer spanning multiple states."[128]

In August 2016, the Special Master filed his Memorandum of Decision on the defendants' motion for judgment on the pleadings. The Special Master stated that it is unclear whether equitable apportionment applies to groundwater as the Supreme Court has only decided surface water cases tangentially involving groundwater, but has not yet considered one in which groundwater was the primary resource to be apportioned.[129] That being said, the Special Master suggested that it seemed likely that equitable apportionment would apply to the Aquifer, stating that the fact that the water is subsurface did "not appear to have a meaningful impact" on the issue.[130] And, the Special Master noted, the Court had already extended the doctrine to other water disputes, and had applied it to cases in which one state had "'reache[d] through the agency of natural laws'" into another.[131] The Special Master also pointed out that groundwater and surface water pumping are largely similar processes, and both can have an effect on water supplies in neighboring states.[132]

The Special Master then turned to Mississippi's equal footing argument. First, the Special Master noted that Mississippi had mischaracterized *Kansas v. Colorado*[133] as standing for the proposition that states own their waters.[134] Instead, the Special Master pointed out, the Court in that case held only that states own their lands, including the *beds* of streams.[135] Ultimately, the Special Master found that "Mississippi's equal-footing theory does not appear to apply to

126 Brief of the United States as Amicus Curiae at 2–3, Mississippi v. Tennessee, No. 143 (U.S. June 10, 2014).
127 *See id*. at 17–18.
128 *Id*. at 19.
129 *See* 2016 Memorandum of Decision, *supra* note 8, at 20.
130 *Id.*
131 *Id.*
132 *See id.*
133 *See* Kansas v. Colorado, 206 U.S. 46, 93 (1907).
134 *See* 2016 Memorandum of Decision, *supra* note 8, at 21.
135 *See id.*

disputes over depletion of interstate water."[136] The Special Master then dispensed with Mississippi's state law claims quickly, stating that if the water at issue is actually an interstate resource, then federal common law (here, equitable apportionment) would instead apply.[137] Therefore, the threshold question for both Mississippi's state law claims and its equal footing argument is whether the Aquifer is an interstate resource.[138]

Turning to the factual allegations, the Special Master stated that Mississippi's claims that it had permanently lost its groundwater along with "'groundwater volume and pressure'" did not advance its case, largely because water depletion is typically the basis of all disputes over interstate waters.[139] Therefore, the fact that Mississippi allegedly has less groundwater does not necessarily demonstrate that the Aquifer is not interstate in nature.[140] However, the Special Master stated that there was "some logical appeal" to Mississippi's argument that water that stays within a single state is not, in fact, interstate.[141] Nonetheless, the Special Master tended to agree with the defendants and the United States, stating that Supreme Court jurisprudence stands for the idea that "[i]f a body of water is such that the removal of water within a State's borders can have a direct effect on the availability of water in another State, the resource is likely interstate in nature."[142] And, the Special Master stated, Mississippi's distinction between the larger Aquifer and the groundwater contained within Mississippi did not "appear to be material" to the question of whether the water is, in fact, an interstate resource.[143] The Special Master also pointed out that "no Supreme Court decision appears to have endorsed one State suing another State, without equitable apportionment, for the depletion of water that is part of a larger interstate resource by limiting its claims to a specific portion of the water."[144] The Special Master then noted that Mississippi had conceded in its complaint that the Aquifer extends

136 *Id.* at 24 (footnote omitted).
137 *See id.*
138 *See id.*
139 *Id.* at 29.
140 *See id.*
141 *Id.* at 30.
142 *Id.* at 31.
143 *Id.*
144 *Id.* at 32.

into both states, and that water percolates between them.[145] Thus, he stated, "the complaint appears to have failed to plausibly allege that the water at issue is not interstate in nature."[146]

Ultimately, the Special Master found that because of Mississippi's apparent failure to plausibly allege that the Aquifer is intrastate[147] and because Mississippi had expressly abandoned any claim for equitable apportionment, dismissal would probably be appropriate under Federal Rule of Civil Procedure 12(c).[148] However, the Federal Rules of Civil Procedure are only "permissive guides" within the context of original jurisdiction cases, and Special Masters are only authorized to *recommend* findings to the Supreme Court, which the Court is then free to adopt or reject.[149] As such, Special Masters are supposed to "err on the side of over-inclusiveness in the record for the purpose of assisting the Court in making its ultimate determination," while also proceeding with cases in a "timely and efficient manner.[150] Therefore, the Special Master ordered "an evidentiary hearing on the limited issue of whether the Aquifer and the water constitutes an interstate resource," given the fact that the interstate nature of the Aquifer appeared to be a threshold issue in the case.[151]

In June 2018, the defendants filed a joint motion for summary judgment. They first argued that the record had definitively demonstrated "that the Aquifer is a single, continuous hydrological body that lies beneath parts of Mississippi, Tennessee, and six other States."[152] At this phase in the litigation, the defendants also advanced a new claim: that the Aquifer is actually hydrologically connected to various interstate surface waters, possibly including the Mississippi River and its tributaries.[153] They argued that this fact weighed in favor of dismissal, as the Supreme Court had already applied equitable apportionment to disputes concerning interstate

145 *See id.*
146 *Id.*
147 *See id.* at 35.
148 *See id.*
149 *Id.*
150 *Id.* at 35–36.
151 *Id.* at 36.
152 Defendants' 2018 Motion for Summary Judgment, *supra* note 4, at 5.
153 *See id*. at 11–12.

waters "'with a groundwater component.'"[154] This argument is important in that, legally, the concept of hydrological connection between surface and groundwater is disputed. Finally, the defendants alleged that Mississippi had, for the first twelve years of the litigation, argued that there was a single Aquifer at issue in the case, but began to argue that there were two separate aquifers only upon the close of discovery.[155]

In its response, Mississippi claimed that the water at issue lies only beneath Mississippi, and is actually one of a "group" of aquifers.[156] It also argued that Tennessee's ability to pump Mississippi's groundwater from within Tennessee's borders did not necessarily make the Aquifer an interstate resource,[157] nor did the fact that a small amount of groundwater may naturally seep into Tennessee from Mississippi "over hundreds of years."[158] Mississippi also claimed that Tennessee's hydrological connection argument was bereft of supporting data.[159]

The Special Master issued a memorandum of decision on the defendants' motion for summary judgment in November 2018. The Special Master first noted that "Mississippi's arguments require some novel line drawing,"[160] which "finds no support in the case law."[161] He also found that Mississippi had "presented nothing to alter the Special Master's position" that Mississippi's complaint lacked a plausible allegation that the water is not, in fact, interstate.[162] That being said, the Special Master noted that "we have a lack of clarity: Sometimes people refer to one Aquifer with the same name; other times, people use different names for the Same Aquifer, and still other times people might be differentiating between what

154 *Id*. at 11 (citation omitted).

155 *See id*. at 12.

156 *See* Plaintiff's Response to Defendants' Motion for Summary Judgment, *supra* note 65, at 11–12.

157 *See id.* at 12.

158 *Id.* at 14.

159 *See id.* at 14–15.

160 Memorandum of Decision on Motion for Summary Judgment, *supra* note 3, at 8. "Summed up, Mississippi's position hinges on whether the Special Master can limit this case only to water that would remain in Mississippi for thousands of years but for MLGW's pumping." *Id*. at 9.

161 *Id.* at 14.

162 *Id.* at 13–14.

they suspect are different Aquifers."[163] Therefore, the Special Master found that a genuine dispute of fact existed as to whether the Aquifer was actually interstate, precluding the defendants from winning summary judgment on that claim.[164]

The Special Master then turned to what he characterized as the "pumping effects theory."[165] The Special Master first noted that Mississippi's claims amounted to an argument that "a resource could never be interstate in nature when a defendant State acted within its own borders but affected resources in the other State," and that this argument "clash[ed] with precedent and principles."[166] On this point, too, the Special Master found that an evidentiary hearing was necessary.[167] The Special Master then stated that, while the "historical flows" between the states seemed to suggest that the Aquifer is interstate, factual disputes over "the flow rate, residency time, and extent of water at issue" demonstrated the need for an evidentiary hearing.[168] Finally, the Special Master addressed the defendants' arguments that the Aquifer is connected to interstate surface waters.[169] Noting that equitable apportionment applies to interstate water disputes "with a groundwater component,"[170] the Special Master stated that an evidentiary hearing was required on this issue in order to determine "the extent of the connection, the residence time, and the amount of water connected to the surface."[171]

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163 *Id.* at 14.

164 *See id.* at 14 (denying summary judgment on the grounds that "a genuine dispute exists regarding the extent of the Aquifer at issue and whether it constitutes an interstate resource.").

165 *Id.* at 14.

166 *Id.* at 17.

167 *See id.* at 18 (denying summary judgment and noting that an evidentiary hearing would help determine whether "this case involves an interstate resource.").

168 *Id.* at 19 (denying summary judgment and noting that an evidentiary hearing "would assist in resolving" "disputes…regarding the flow rate, residency time, and extent of water at issue.").

169 *See id.*

170 *Id*.

171 *Id*. at 20. (denying summary judgment and noting that an evidentiary hearing would resolve "dispute…regarding the extent of the connection, the residence time, and the amount of water connected to the surface.").

The Special Master then turned to Mississippi's two alternative theories: state ownership—also referred to as the "equal footing argument"—and nuisance.[172] As for Mississippi's ownership argument, the Special Master stated that "[n]othing suggests Mississippi has lost rights to the water. Instead, the Special Master is tasked with determining the *extent* of those rights."[173] Noting that Mississippi's ownership argument is incompatible with Supreme Court jurisprudence,[174] the Special Master stated that, while states have regulatory power over their natural resources, they do not own them outright.[175] The Special Master did concede that MLGW cannot "pump without limits," but that Mississippi's equal footing argument failed nonetheless as it was predicated on an erroneous conception of state power.[176]

The parties then filed their pre-hearing briefs, and the evidentiary hearing was held from May 20, 2019 to May 24, 2019.[177] Closing arguments were held in February of 2020.[178]

III. ISSUES ASSOCIATED WITH MISSISSIPPI'S REQUEST FOR DAMAGES

A. *Mississippi's Factual Allegations and Request for Damages*

As for its measure of monetary damages, Mississippi has alleged that it has been permanently deprived of roughly 21 million gallons of water from the Aquifer per day, and that, as a result of MLGW's pumping, the Aquifer is being overdrawn.[179] Thus, Mississippi has had to sink wells to significantly greater depths, at its

[172] *See id.*

[173] *Id*. at 21.

[174] *See id.* at 21–23 (citing Tarrant Reg'l Water Dist. v. Herrmann, 569 U.S. 614, 631 (2013); Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1027 (1983); Sporhase v. Nebraska, 458 U.S. 941 (1982); Hughes v. Oklahoma, 441 U.S. 322, 327 (1979); Toomer v. Witsell, 334 U.S. 385, 402 (1948); Missouri v. Holland, 252 U.S. 416 (1920); Hudson County Water Co. v. McCarter, 209 U.S. 349, 353 (1908).

[175] *See id*. at 23.

[176] *Id*. at 24.

[177] *See generally* Transcript of Evidentiary Hearing, Mississippi v. Tennessee, No. 143 (U.S. May 20, 2019).

[178] *See* Transcript of Closing Argument, Mississippi v. Tennessee, No. 143 (U.S. Feb. 25, 2020).

[179] *See* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 20.

own cost.[180] Mississippi also alleges that MLGW's pumping has "materially altered" Mississippi's groundwater inventory.[181] Mississippi therefore asked for joint and several damages of at least $615 million along with prejudgment interest, or what it alleged to be the value of the water that the Defendants have diverted. Mississippi also requested that the Defendants "render an accounting and disgorge and pay over to Mississippi all profits, proceeds, consequential gains, saved expenditures, and other benefits realized by Defendants . . . plus prejudgment interest thereon . . . ."[182] Mississippi has pointed out that, even if MLGW were to halt its pumping operations, Mississippi would still have suffered a permanent loss of the groundwater that MLGW has already pumped.[183] Mississippi therefore argues that a prospective injunctive order would not fully ameliorate its past harms.[184]

B. *Equitable Apportionment and Damages*

One of the main issues associated with Mississippi's arguments lies in its request for damages, primarily because of the novelty of this claim. Supreme Court jurisprudence in this area is scant, if not nonexistent, and Mississippi's request for damages is best understood in the context of the limitations of equitable apportionment. So far, equitable apportionment has been the only way in which the Supreme Court has resolved interstate water disputes over the last century—absent a controlling interstate compact—and equitable apportionment does not allow for monetary damages for past injuries.[185] Thus, no state has ever received pecuniary damages for another state's past water diversions, except in a single case involving violation of an interstate compact, which is another issue entirely.[186] In fact, the Supreme Court has explicitly held that equitable apportionment cannot be a basis on which a state may receive compensation for past harms, finding that "[e]quitable apportionment is directed at ameliorating present harm and preventing future injuries to

[180] *See id.* at 21.
[181] *Id.*
[182] *Id.* at 23.
[183] *See id.* at 3.
[184] *See id.* at 10.
[185] *See* Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1025–26 (1983)*; see also* Brief for Appellant, *supra* note 66, at 38–39.
[186] *See* Kansas v. Colorado, 533 U.S. 1, 39, 41 (2001) (O'Connor, J., dissenting).

the complaining State, not at compensating that State for prior injury."[187] Therefore, Mississippi will only be able to recover monetary damages if the Supreme Court finds that it owns its groundwater, or otherwise fails to apply equitable apportionment.

The forward-looking nature of equitable apportionment[188] is exactly why Mississippi would prefer to avoid application of the doctrine altogether.[189] Mississippi has argued in the past that, "equitable apportionment will not redress Mississippi's injuries. Mississippi seeks monetary damages for retroactive periods."[190] However, according to the Memphis defendants, Mississippi's request for damages is nothing more than an attempt to "'provide a windfall to the public treasury [of Mississippi].'"[191] Thus, since damages for past actions are not recoverable under equitable apportionment, Mississippi has instead asked the Court for relief under a property rights theory that would enable it to receive monetary compensation for the defendants' prior withdrawals. Indeed, equitable apportionment can be a double-edged sword for states; given the vague and case-by-case nature of the factors the Court considers, it is certainly possible that Mississippi could actually end up receiving less water, if the Supreme Court were to apportion the Aquifer. Additionally, one of the equitable apportionment factors that the Supreme Court considers is existing uses,[192] which would weigh heavily in favor of prioritizing the defendants' current uses. Finally, the Court may be more likely to give more deference to Memphis's higher-value (and longer-established) municipal uses than to Mississippi's agricultural

187 Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1028 (1983).

188 *See id*. at 1025–26 ("Because apportionment is based on broad and flexible equitable concerns rather than on precise legal entitlements . . . a decree is not intended to compensate for prior legal wrongs. Rather, a decree prospectively ensures that a State obtains its equitable share of a resource. A decree may not always be mathematically precise or based on definite present and future conditions. Uncertainties about the future, however, do not provide a basis for declining to fashion a decree. Reliance on reasonable predictions of future conditions is necessary to protect the equitable rights of a State.") (citations omitted).

189 This is in addition to the fact that preexisting uses may be taken into account in the equitable apportionment analysis, and water from the Aquifer has been the "primary water source" in Memphis for over 125 years. Memphis and MLGW Motion for Judgment on the Pleadings, *supra* note 119, at 1.

190 Brief for Appellant, *supra* note 66, at 38.

191 Respondent's Brief in Opposition, *supra* note 81, at 2 (citations omitted).

192 *See* Nebraska v. Wyoming, 325 U.S. 589, 621 (1945).

uses.[193] It is therefore unsurprising that Mississippi has disclaimed equitable apportionment, as it would almost certainly stand to gain more from pecuniary damages instead.

The Memphis defendants have argued that Mississippi cannot make a sufficient showing of the substantial injury and balance of harms required under equitable apportionment.[194] This is also perhaps another reason why Mississippi has argued against the application of equitable apportionment. The Supreme Court itself has indicated this in its denial of Mississippi's first motion for leave to file,[195] citing *Virginia v. Maryland*[196] and *Colorado v. New Mexico*.[197] This tends to suggest that Mississippi may find it difficult to demonstrate that it has actually been harmed in any definitive and quantifiable way, which would further complicate the damages analysis.

C. *Issues Associated with the Calculation of Damages in this Case*

Yet the question remains as to how the Court could actually calculate damages in this case. This is largely because a government's interest in the water flowing within its borders cannot be easily reduced to concepts such as market value. Nonetheless, Mississippi has requested $615 million, arguing that this is the value of the water the defendants have diverted.[198] Their expert has stated that he would use a "market value determination" as a basis for the state's damages, arguing that,

> MLGW could have approached Mississippi in order to contract for the purchase of water from Mississippi's portion of the Sparta Sand Aquifer. Instead, MLGW continued to pump Mississippi ground water into its water distribution system. Mississippi

193 *See* Burke Griggs, *Interstate Water Litigation in the West: A Fifty-Year Retrospective*, 20 U. DENV. WATER L. REV. 153, 200 (2017).

194 *See* Respondent's Brief in Opposition, *supra* note 81, at 21. *See also* Florida v. Georgia, 138 S. Ct. 2502, 2535 (2018); *see also* Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1027 (1983).

195 *See* Mississippi v. City of Memphis*,* 559 U.S. 901 (2010).

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

197 *See* Colorado v. New Mexico, 459 U.S. 176, 187, n.13 (1982).

198 *See* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 3.

> should have been compensated for its water by means of a wholesale purchase contract. The market value of a wholesale water contract is the price that a buyer and a seller negotiate at a given time. The amount owed to Mississippi is the price multiplied by the volumes diverted by MLGW.[199]

However, it is unclear if any state has ever actually sold water to another, thus providing a basis for the expert's valuation.[200] And, water flowing on or in the earth does not have a market value in the same way as other commodities, and it is not traditionally compensable.[201] Surface water can be used for recreational activities such as fishing and swimming, and aquifers can help prevent land subsidence;[202] the non-monetary value of such uses defies quantification. Indeed, according to Chief Justice Rehnquist's dissent in a seminal water law case,

> [i]t is difficult, if not impossible, to conclude that "commerce" exists in an item [water] that cannot be reduced to possession under state law and in which the State recognizes only a usufructuary right. "Commerce" cannot exist in a natural resource that cannot be sold, rented, traded, or transferred, but only *used*.[203]

If water cannot be sold or rented, it would thus be almost impossible to quantify a market value for it. Further, the fact that equitable apportionment does not allow for damages based on past water

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199 *Id.* at 137a.

200 Louisiana has a law, for example, that allows for the sale of water between governmental entities, but it is unclear if this would apply to entities outside of the state, as well. *See* LA. STAT. ANN. § 33:4164(A) (2019). However, Louisiana also has a statute that explicitly forbid the levying of any charges for the use of waters of the state for any purpose. *See* LA. STAT. ANN. § 9:1101 (2019) ("The waters of and in all bayous, rivers, streams, lagoons, lakes and bays, and the beds thereof, not under the direct ownership of any person on August 12, 1910, are declared to be the property of the state. There shall never be any charge assessed against any person for the use of the waters of the state for municipal, industrial, agricultural or domestic purposes.").

201 California, for example, has a "water market," in which individuals may trade water rights. *See* ELLEN HANAK ET AL., PUB. POLICY INST. CAL., CALIFORNIA'S WATER MARKET 1 (2019), https://www.ppic.org/publication/californias-water-market/.

202 *See* S.A. Leake, *Land Subsidence from Ground-Water Pumping*, U.S. GEOLOGICAL SURVEY, https://geochange.er.usgs.gov/sw/changes/anthropogenic/subside/ (last modified Dec. 9 2016).

203 Sporhase v. Nebraska, 458 U.S. 941, 963 (1982) (Rehnquist, J., dissenting).

diversions demonstrates how difficult it would be to quantify an actual value for water and suggests that the Court may be loath to do so.

"Water is an exception to the certainty of property law."[204] This is, perhaps, largely because it is necessary for human life, unlike other natural resources, such as oil and minerals. In fact, municipal governments generally charge users for the cost of treatment and distribution of water, as well as other costs such as capital investments, but they typically shy away from making much of a profit in supplying water to their citizens.[205] This is particularly pertinent given the fact that the groundwater at issue is distributed by Memphis and MLGW for municipal uses. Presumably, neither the city nor the utility actually makes much of a profit on the water they supply to Memphis residents. Additionally, some have even gone so far as to argue that it is a human rights violation for government to impose additional fees on water services or to shut off municipal water service to delinquent accounts.[206] Ultimately, if there is no *traditional* market value for flowing water, it is unclear how the Supreme Court would actually calculate damages based upon the value of the groundwater at issue, as Mississippi requests.

In the most recent iteration of the litigation, Mississippi argues that,

> [t]he Court's precedent confirms the propriety of damages awards in actions brought by a state against another state. In *Kansas v. Colorado*, the Court held that "a State may recover mone-

[204] Interview with Mark Davis, Director, Tulane Inst. on Water Res. Law & Policy, in New Orleans, La. (May 30, 2019).

[205] *See* Mikhail Guttentag, *A Light in Digital Darkness: Public Broadband after Tennessee v. FCC*, 20 YALE J. L. & TECH. 311, 329 (2018) ("Many cities and counties empower publicly owned utilities to supply, manage and deliver water and electricity services as cost-efficiently as possible. Public provision of both electricity and water generally saves consumers money relative to provision by private providers."); *see also* Rhett Larson, *Adapting Human Rights*, 26 DUKE ENVTL. L. & POL'Y F. 1, 12 (2015) ("While there are many approaches to rate setting, the process typically involves setting tariffs to allow the utility to recover the cost of service and provide a rate of return for the utility company on its large initial fixed-cost capital investment (called the rate base) to satisfy investors and creditors. The rate of return must be sufficient to ensure institutional confidence in the financial integrity of the utility company. Therefore, the object of price regulation is to achieve a balance of production and profit for the utility company while ensuring that prices charged to consumers are reasonable.") (footnotes omitted).

[206] *See* Larson, *supra* note 205, at 2–4.

> tary damages from another State in an original action," and accepted the Special Master's recommendation that Kansas be awarded monetary damages against Colorado for violation of the Arkansas River Compact.[207]

But, while monetary damages are allowed in original actions generally,[208] they are prohibited in a specific subset of original actions: equitable apportionment cases.[209] And while the Supreme Court did actually award damages in *Kansas v. Colorado*, an original jurisdiction case involving interstate waters, that case involved adjudication under a *preexisting* interstate compact. Unlike in *Mississippi v. Tennessee*, the states involved in *Kansas v. Colorado* were already bound by a compact, and damages were allowed due to a *violation* of that compact. The Supreme Court has held that "[a] Compact is, after all, a contract,"[210] and damages were therefore allowed in *Kansas v. Colorado* because damages are generally allowed in breach of contract cases.[211] *Kansas v. Colorado* thus does not stand for the proposition that a state may be granted monetary damages based on its neighbor's past diversions of water, absent an interstate compact. And, the damages provided for in *Kansas v. Colorado* are not mandatory authority with respect to the damages Mississippi requests, largely because the damages available for a breach of contract vary fundamentally from the damages typically allowed for intentional torts.[212]

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[207] Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 24 (citation omitted).

[208] *See* Kansas v. Colorado, 533 U.S. 1, 7–9 (2001). Mississippi also cites *South Dakota v. North Carolina*, 192 U.S. 286, 320–21 (1904) for the proposition that damages are allowed in original actions. However, that case concerns property rights and bonds, not interstate waters. *See* Reply Brief of The State of Mississippi on its Motion for Leave to File Bill of Complaint in Original Action at 8, Mississippi v. Tennessee, No. 143 (U.S. Sept. 24, 2014). [hereinafter Mississippi Reply on Motion for Leave to File Bill of Complaint].

[209] *See* Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1028 (1983).

[210] Petty v. Tennessee-Missouri Bridge Comm'n, 359 U.S. 275, 285 (1959); *see also, e.g.,* Kansas v. Colorado, 533 U.S. 1, 20 (2001) (O'Connor, J., dissenting); Texas v. New Mexico, 482 U.S. 124, 128 (1987).

[211] *See* William Dodge, *The Case for Punitive Damages in Contracts*, 48 DUKE L.J. 629, 630 (1999) (citing OLIVER WENDELL HOLMES, JR., THE COMMON LAW 301 (1881) for the quotation, "The only universal consequence of a legally binding promise is, that the law makes the promisor pay damages if the promised event does not come to pass.").

[212] *Compare, e.g.*, Aristocrat Leisure Ltd. v. Deutsche Bank Trust Co. of Americas., 618 F. Supp. 2d 280, 292 (S.D.N.Y. 2009) ("There are two categories of damages available in a breach of contract case, (1) general or market damages,

D. *Precedent on which the Supreme Court Could Potentially Base an Award of Damages*

If Mississippi were to prevail on its ownership argument, the Court could look to its decision in *Kansas v. Colorado* as persuasive authority on the issue of damages. Crucially, the Special Master in *Kansas v. Colorado* noted that, at that time, there was "no precedent for the calculation of money damages for violation of an interstate water compact,"[213] and that, on the rare occasion that the Court had required payment of monetary damages in an original action, these awards "involved only liquidated amounts."[214] Nonetheless, the Court agreed with the Special Master's recommendations "that damages be measured by Kansas's losses, rather than Colorado's profits, attributable to Compact violations after 1950; that the damages be paid in money rather than water; and that the damages should include prejudgment interest . . . ."[215] If the Court ultimately decides to follow the example of *Kansas v. Colorado*, Mississippi's request for disgorgement of the defendants' profits would likely fail, as the Court concluded in *Kansas v. Colorado* that the appropriate measure of damages was Kansas's losses, not Colorado's profits.[216] However, as the United States has pointed out in one of its amicus filings, "Mississippi does not allege that its residents would have used that groundwater themselves or have had any definite future

and (2) special or consequential damages."), *with* Mgmt. Computer Servs. v. Hawkins, Ash, Baptie & Co., 206 Wis. 2d 158, 188 (Wis. 1996) ("[A]n owner of converted property generally may recover its value at the time of the wrongful taking, plus interest to the date of trial."), *and* RESTATEMENT (SECOND) OF TORTS § 927 (AM. LAW INST. 1979) (Damages for conversion are either "(a) the value of the subject matter or of his interest in it at the time and place of the conversion, destruction or impairment; or (b) in the case of commodities of fluctuating value customarily traded on an exchange to which traders customarily resort, the highest replacement value of the commodity within a reasonable period during which he might have replaced it.").

[213] Arthur L. Littleworth, Special Master Third Report at 10, Kansas v. Colorado, 533 U.S. 1 (2001) (No. 105), https://www.supremecourt.gov/specmastrpt/ORG105-8-2000.pdf.

[214] *Id.* (citing South Dakota v. North Carolina, 192 U.S. 286 (1904); Virginia v. West Virginia, 220 U.S. 1 (1911); 238 U.S. 202 (1915), 246 U.S. 565 (1918); Maryland v. Louisiana, 452 U.S. 456 (1981)).

[215] *Kansas*, 533 U.S. at 6. The Supreme Court did not agree with the Special Master, however, on the date from which to begin calculating prejudgment interest. *Id.* at 14–16.

[216] *See id*. at 6.

plans to use that groundwater."[217] Therefore, it would likely be difficult for Mississippi to articulate and quantify a specific measure of damages based on its *actual harm* or the water Mississippi residents would have used absent Tennessee's pumping. Given the fact that Mississippi's losses are so speculative, its harms may only be limited to the cost it has incurred to drill deeper wells, due to the allegedly lowered water table.

Additionally, the Supreme Court has contemplated that damages may be available for the diversion of water, albeit in cases involving non-state actors.[218] In fact, the Supreme Court indicated well over a century ago in a non-equitable apportionment case that "[s]ometimes in the same action both legal and equitable relief may be sought, as for example, where damages are claimed for a past diversion of water, and an injunction prayed against its diversion in the future."[219] Thus, the Supreme Court has previously held that damages for the diversion of water "are to be measured by the difference in market value of the respondents' *land* before and after the interference or partial taking."[220] This is, however, a far cry from the market value of the diverted water itself, as Mississippi has requested. Nonetheless, this could provide the Court with a more easily calculable measure of damages than the market value of flowing water. The question of whether damages can be sought for diverted water has also already been considered by various state courts, although none of those cases involved equitable apportionment and none involved state actors.[221] Therefore, they only provide limited persuasive authority for the Court in *Mississippi v. Tennessee*.

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[217] Brief for the United States as Amicus Curiae on Motion for Leave to File a Bill of Complaint, *supra* note 9, at 22.

[218] *See* Schroeder v. City of New York, 371 U.S. 208, 214 (1962) (noting as an aside that "that the appellant had a right to be heard on a claim for compensation for damages resulting from the diversion" of a river); *see also* Sears v. Akron, 246 U.S. 242, 252 (1918) ("[T]he city's act in damming and diverting water would be that of an ordinary wrongdoer, for which riparian proprietors above or below, who are injured, would have only the usual remedy for a tort by an action at law for damages, unless exceptional circumstances render resort to a court of equity appropriate.").

[219] Basey v. Gallagher, 87 U.S. 670, 680 (1874).

[220] Dugan v. Rank, 372 U.S. 609, 624–25 (1963) (emphasis added).

[221] *See* City of Waterbury v. Town of Washington, 260 Conn. 506, 582 (Conn. 2002) ("Because a party can recover for a violation of its riparian rights whenever the natural flow of a watercourse is diminished in quantity, without having to prove any perceptible damage, we conclude that the mere presence of a dam is sufficient to infringe on the rights of a downstream riparian owner."); *see also* Plumleigh v.

E. *Implications of Mississippi's Request for Damages*

The Supreme Court's treatment of Mississippi's request for damages will have broad ramifications beyond just this case. If Mississippi prevails, it is entirely possible that "Mississippi's purported substitution of damages for injunction and apportionment would chill water use unless states adopt a costly and time-consuming 'litigate first, use later' approach."[222] Essentially, if the Court allows for damages in interstate groundwater disputes, this will serve as an incentive for states to adjudicate their rights to their groundwater before they pump, in order to avoid costly damages awards against them in the future. And, if states are suddenly allowed to bring claims against one another for past uses of interstate aquifers, then the proverbial floodgates may open and every state may attempt to line its coffers with damages claims from years past. The fact that equitable apportionment forecloses monetary damages for past withdrawals ensures that states only bring claims in which their waters are presently threatened, which essentially prevents states from litigating past withdrawals that have no bearing on current water supplies. Because states know that they may actually lose the right to some of their waters under equitable apportionment, they are incentivized to only bring cases in which there are serious, current risks to their water supplies, and where Supreme Court intervention is absolutely necessary. To allow for damages in *Mississippi v. Tennessee* would therefore remove some of the existing barriers to this sort of litigation.

IV. PRACTICAL ISSUES APPLYING EQUITABLE APPORTIONMENT TO GROUNDWATER

The Special Master in *Mississippi v. Tennessee* has decided that, if the water at issue actually proves to be interstate, then equitable apportionment will apply, regardless of the fact that the water

Dawson, 6 Ill. 544, 547 (Ill. 1844) ("Thus an injury is likely to ensue from such an invasion of his right [diversion of water], and which is sufficient damage to sustain this action for the recovery of nominal damages at least and so establish his right."); *see also* Lyon v. Binghamton, 281 N.Y. 238, 245 (N.Y. 1939) ("Accordingly, Lyon had not reduced the waters to possession so as to acquire a property right therein, but possessed only a right to damages if the natural flow of the water was diminished so as to affect his usufructuary right.").

[222] Klein, *supra* note 21, at 514.

at issue is groundwater.[223] While the Special Master's recommendations are just that—recommendations—and are not binding for the Supreme Court, his opinion will certainly be relevant to the case's ultimate disposition. Still, the Supreme Court is nonetheless free to decide whether groundwater merits different treatment than surface water and to fashion a new rule for groundwater disputes.

Ultimately, there *are* "inherent differences" between surface and groundwater resources.[224] Surface water tends to flow more quickly than groundwater, and groundwater pumping by one state may not necessarily reduce the quantity of water available to its neighbors.[225] It may instead only lower the water table, making it more costly for neighboring states to drill deep enough wells.[226] Mississippi has made this argument, claiming that Tennessee's pumping has lowered the Sparta-Memphis Aquifer's overall water table.[227] Withdrawals of surface water, on the other hand, tend to reduce the overall supply available, but generally do not increase the cost of pumping for other states (unless the resource is completely depleted, of course). Pumping groundwater within an aquifer can also cause cones of depression,[228] as Mississippi argues has happened in the Sparta-Memphis Aquifer.[229] But these concerns are not at issue when the Court apportions surface waters; while overpumping groundwater may have unintended physical consequences on the earth itself, the depletion of surface water stores has different repercussions, such as the loss of plant life and wildlife habitat. Thus, the physical effects of pumping groundwater and diverting surface water vary.

Importantly, however, equitable apportionment is, at its roots, a "flexible doctrine,"[230] and it could certainly be modified to account

223 *See* Memorandum of Decision on Defendants' Motion for Summary Judgment, *supra* note 3, at 10.

224 John B. Draper et al., *The Evolving Role of the Supreme Court in Interstate Water Disputes*, 31 NAT. RES. & ENERGY 3, 7 (2016).

225 *See id.*

226 *See id.*

227 *See* Complaint, *supra* note 10, ¶ 54.

228 *See Cone of depression: Pumping a well can cause water level lowering* U.S. GEOLOGICAL SURVEY (July 24, 2018) https://www.usgs.gov/media/images/cone-depression-pumping-a-well-can-cause-water-level-lowering.

229 *See* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 13–14.

230 Colorado v. New Mexico, 459 U.S., 176, 183 (1982).

for the practical implications of allocating groundwater.[231] Groundwater and surface water are not so fundamentally different that equitable apportionment could not be modified to adequately redress the challenges posed by groundwater, including the unique implications of over-pumping. Indeed, in *Idaho ex rel. Evans v. Oregon*, the Supreme Court applied the doctrine to anadromous fish, finding that they were "sufficiently similar to make equitable apportionment an appropriate mechanism for resolving allocative disputes."[232] If fish populations are "sufficiently similar" to surface water to warrant the application of equitable apportionment, then groundwater is almost certainly comparable enough as well. And, the Supreme Court has already equitably apportioned surface waters with a connection to groundwater resources,[233] so the application of the doctrine to a subsurface aquifer would not be much of a departure from precedent.

Nonetheless, equitable apportionment is also predicated on the notion that it is actually possible to identify and apportion the extent of the water supply at issue, which may prove somewhat more difficult in the context of groundwater.[234] That being said, it is technologically possible to accurately monitor and model groundwater,[235] as is evidenced by the wealth of data produced in this litigation. In fact, the United States Geological Survey already monitors and models the Sparta-Memphis Aquifer, demonstrating that monitoring is, in fact, feasible.[236] And, while the inability to actually see groundwater flowing beneath the surface may have precluded equitable apportionment in years past, the reality today is that the technology to monitor groundwater does exist,[237] even if many states and communities currently choose not to invest in monitoring. Data about many aquifers in the United States is currently scant, not because of technological impossibility, but because many states do not

231 *See* Draper et al., *supra* note 224, at 7.

232 Texas v. New Mexico, 462 U.S. 1017, 1024 (1983).

233 *See id.* at 556, 569; *see also* Washington v. Oregon, 297 U.S. 517, 524–26 (1936); Kansas v. Colorado, 206 U.S. 46, 114–15 (1907).

234 *See* Draper et al., *supra* note 224, at 7.

235 *See id.*

236 *See* Griggs, *supra* note 193, at 203.

237 *See, e.g.*, Timothy C. McMillan et al., *Utilizing the Impact of Earth and Atmospheric Tides on Groundwater Systems: A Review Reveals the Future Potential*, 57 REVS. GEOPHYSICS 281, 281–82 (2019) (describing new methods for monitoring groundwater); *see also* Chloe Gustafson et al., *Aquifer Systems Extending Far Offshore on the U.S. Atlantic Margin*, 9 SCI. REPS. 8709, 8709–10 (2019) (describing monitoring of groundwater aquifers beneath the ocean floor).

actively invest in groundwater monitoring.[238] Thus, while it may be more difficult to model and apportion groundwater than surface water, it is not impossible. Ultimately, it is unlikely that the unique physical realities of groundwater, and aquifers more generally, would foreclose the Court from applying equitable apportionment in this case.

V. MISSISSIPPI'S EQUAL FOOTING ARGUMENT AND STATE OWNERSHIP OF GROUNDWATER

Mississippi contends that this case must be decided under Article IV, Section 3, Clause 1 of the United States Constitution (the Admissions Clause), rather than by application of the doctrine of equitable apportionment. Mississippi argues that "[o]n December 10, 1817, Mississippi was admitted as the twentieth state 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."[239] To back up its claim, Mississippi has cited to a Supreme Court case from 1838, stating that "Mississippi is sovereign over all matters not ceded to the federal government under the Constitution of the United States."[240] "It holds all right, title, and interest in, and lawfully possesses 'full jurisdiction over the lands within its borders, including the beds of streams and other waters.'"[241] As such, Mississippi requests monetary damages under tort law theories such as trespass and conversion.[242] Mississippi has also argued that the Aquifer at issue is thus not subject to equitable apportionment, characterizing Tennessee's arguments as calling for the "perfunctory, unlimited expansion"[243] of the doctrine.

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238 *See* Jacob D. Petersen-Perlman et al., *Critical Issues Affecting Groundwater Quality Governance and Management in the United States*, 10 WATER 735, 745 (2018).

239 Complaint, *supra* note 10, at 3 (citations omitted).

240 *See* U.S. CONST. art. IV, § 3, cl. 1; *id.* amend. X; Rhode Island v. Massachusetts, 37 U.S. 657, 733–35, 737–40 (1838).

241 Complaint, *supra* note 10, at ¶ 9 (citation omitted).

242 *See, e.g.*, Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 22–23.

243 Supplemental Brief of the State of Mississippi in Response to Brief for the United States as Amicus Curiae at 1–2, Mississippi v. Tennessee No. 143 (U.S. May 22, 2015) (citation omitted).

A. *History of the Public Ownership Theory*

The fact that the Supreme Court has already adjudicated the issue of public ownership of natural resources, including groundwater specifically, will certainly have precedential bearing in *Mississippi v. Tennessee*. While, as the Special Master in this case has pointed out, "the Supreme Court has, at times, discussed a state's water rights in ownership-like terms,"[244] the Court's rulings "could better be characterized, as a practical matter, in terms of police power principles and principles of state interest in local affairs. . ."[245] rather than absolute ownership over state waters. Additionally, the cases in which the Supreme Court has used such language are outdated, and in its more recent jurisprudence, the Court has explicitly held that "states do not own wild resources like migratory birds . . . and—relevant here—groundwater."[246] Supreme Court precedent weighs heavily against Mississippi on this claim.

Interestingly, Mississippi's ownership arguments in this case in some ways harken back to the absolute ownership claims made by Colorado in the early twentieth century in *Wyoming v. Colorado*.[247] In that case, the Court held that Colorado's contention "that she as a State rightfully may divert and use, as she may choose, the waters flowing within her boundaries in this interstate stream, regardless of any prejudice that this may work to others having rights in the stream below her boundary, cannot be maintained."[248] Mississippi's argument appears to be predicated upon the same idea that states have complete ownership over their natural resources. However, the Court pointed out in *Wyoming v. Colorado* that the river at issue was a single resource which extended between two states, and as such, each state should respect one another's interest in it.[249] The Court also noted that it had already rejected this same argument by Colorado in earlier litigation in *Kansas v. Colorado*.[250] Therefore, if the Court in *Mississippi v. Tennessee* ultimately holds that the Aquifer is an interstate resource, it is likely that it would reject Mississippi's

244 Memorandum of Decision on Defendants' Motion for Summary Judgement, *supra* note 3, at 22.
245 Hall & Regalia, *supra* note 22, at 179.
246 Memorandum of Decision on Defendants' Motion for Summary Judgement, *supra* note 3, at 22.
247 Wyoming v. Colorado, 250 U.S. 419, 466 (1922).
248 *Id*.
249 *See id*. at 568.
250 *See id*.

ownership claims for the same reasons it rejected them almost a century ago.

In the nineteenth century, the doctrine of absolute state ownership[251] of natural resources was generally accepted.[252] As the Supreme Court has characterized the doctrine's history:

> Many of the early cases embrace the concept that the States had complete ownership over wildlife within their boundaries, and, as well, the power to preserve this bounty for their citizens alone. . . . It appears to have been generally accepted that although the States were obligated to treat all those within their territory equally in most respects, they were not obliged to share those things they held in trust for their own people.[253]

In *Geer v. Connecticut*, decided in 1896, the Court's ultimate holding "followed in turn from the view that the State had the power, as representative for its citizens, who 'owned' in common all wild animals within the State, to control not only the *taking* of game but also the *ownership* of game that had been lawfully reduced to possession."[254] Thus, the absolute ownership of states over their natural resources was, at one time, the law, perhaps explaining the origins of Mississippi's ownership arguments.

However, "[t]he erosion of *Geer* began only 15 years after it was decided,"[255] and the doctrine of absolute ownership was already

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[251] Not to be confused with the doctrine of absolute dominion or the rule of capture. *See, e.g.*, Jack Tuholski, *Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources*, 9 VT. J. ENVTL. L. 189, 205 (2008) ("The absolute dominion rule permits the overlying landowner to take as much groundwater as the landowner desires, without limitation or liability to adjoining landowners.").

[252] *See, e.g.,* Geer v. Connecticut, 161 U.S. 519, 522 (1896) (detailing the history of the state ownership with respect to wild game, stating that "[f]rom the earliest traditions the right to reduce animals feroe naturoe to possession has been subject to the control of the law-giving power."); *see also* McCready v. Virginia, 94 U.S. 391, 394 (1877) ("The principle has long been settled in this court, that each State owns the beds of all tide-waters within its jurisdiction, unless they have been granted away."); Rosenfeld v. Jakways, 67 Mont. 558, 562 (Mont. 1923) ("That the ownership of wild animals is in the state, held by it in its sovereign capacity for the use and benefit of the people generally, and that neither such animals nor parts thereof are subject to private ownership except in so far as the state may choose to make them so, are principles now too firmly established to be open to controversy.").

[253] Baldwin v. Mont. Fish & Game Comm'n., 436 U.S. 371, 384 (1978).

[254] Hughes v. Oklahoma, 441 U.S. 322, 327 (1979).

[255] *Id.* at 329.

on shaky legal ground by the early twentieth Century.[256] In a 1920 opinion, the Supreme Court stated that, as related to ownership of wild animals, "[t]o put the claim of the State upon title is to lean upon a slender reed."[257] By 1948, the Supreme Court had explicitly rejected the idea that "the thirteen original colonies" and their "successor States" were the sovereign owners of animals within their borders.[258] In that case, *Toomer v. Witsell*, the Court held that "[t]he whole ownership theory, in fact, is now generally regarded as but a fiction expressive in legal shorthand of the importance to its people that a State have power to preserve and regulate the exploitation of an important resource."[259] This directly undercuts any reliance that Mississippi may have had on the theory of ownership that the Court first expressed in *Geer*. The Supreme Court then held in 1977 that "[a] State does not stand in the same position as the owner of a private game preserve and it is pure fantasy to talk of 'owning' wild fish, birds, or animals."[260] And, just two years later, the Court expressly overruled *Geer*, characterizing the theory of absolute ownership as no more than a "19th-century legal fiction."[261] It is therefore clear that the theory of state ownership has been unambiguously abandoned by the Supreme Court over the last century.

More importantly for the case at issue here, the Supreme Court has already decided that states do not own the waters within their borders. In *Sporhase v. Nebraska*, a dispute over interstate groundwater, the Supreme Court stated:

> In expressly overruling *Geer* three years ago, this Court traced the demise of the public ownership theory and definitively recast it as "but a fiction expressive in legal shorthand of the importance to its people that a State have power to preserve and regulate the exploitation of an important resource."[262]

The *Sporhase* Court explicitly held that the argument that groundwater may be treated as property of the states was "based on the legal fiction of state ownership."[263] Notably, the aquifer in question

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256 *See* Draper et al., *supra* note 224, at 7.
257 Missouri v. Holland, 252 U.S. 416, 434 (1920)
258 Toomer v. Witsell, 334 U.S. 385, 402 (1920).
259 *Id.*
260 Douglas v. Seacoast Prods., Inc., 431 U.S. 265, 284 (1977) (internal quotation omitted).
261 Hughes v. Oklahoma, 441 U.S. 322, 326, 336 (1979) (citation omitted).
262 Sporhase v. Nebraska, 458 U.S. 941, 950–51 (1982) (citations omitted).
263 *Id.* at 951.

in *Sporhase* also lay underneath the boundaries of several states, a fact which the Court held "confirms the view that there is a significant federal interest in conservation as well as in fair allocation of this diminishing resource."[264] Therefore, assuming that the water at issue is truly an interstate resource, it is likely that the Court would apply the same rationale in *Mississippi v. Tennessee*.

In more recent years, too, the Supreme Court has refused to rule that water is the sovereign property of the states. In *Idaho ex rel. Evans v. Oregon*, the Supreme Court stated that "a State may not preserve solely for its own inhabitants natural resources located within its borders."[265] And, in *Virginia v. Maryland*, the Supreme Court rejected Maryland's contention that it was the "sovereign over the [Potomac] River," instead holding that Maryland and Virginia were "coequal sovereigns," over their shared resource.[266] The Supreme Court has thus definitively—and repeatedly—ruled that the absolute ownership rule is no longer the law of the land.

Additionally, the Supreme Court has already found that, with respect to disputes arising over interstate water bodies, territorial boundaries are "essentially irrelevant to the adjudication of these sovereigns' competing claims."[267] This, of course, undercuts Mississippi's argument that it owns all of the water lying beneath its borders.[268] In that case, *Colorado v. New Mexico*, the Court found that "the mere fact" that the water at issue originated in Colorado did not automatically entitle[] Colorado to a share."[269] And, as the Supreme Court held in *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, "[t]he claim that on interstate streams the upper State has such ownership or control of the whole stream as entitles it to divert all the water, regardless of any injury or prejudice to the lower State . . . has been consistently denied by this Court."[270] Therefore, the Supreme Court is unlikely to find that Mississippi's territorial boundaries are relevant in the context of the allocation of

[264] *Id.* at 953.

[265] Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017, 1025 (1983) (citations omitted).

[266] Virginia v. Maryland, 540 U.S. 56, 73 (2003).

[267] Colorado v. New Mexico, 467 U.S. 310, 323 (1984).

[268] *See, e.g.*, Complaint, *supra* note 10, ¶ 9.

[269] Colorado v. New Mexico, 467 U.S. at 323.

[270] Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92, 102 (1938).

the Aquifer, if the water at issue is actually found to be an interstate resource.

B. *Not All of the Sticks in the Bundle: States' Regulatory Authority over their Waters as Distinguished from Complete Ownership*

States do have some rights to their own waters, albeit far less than absolute ownership. As the Special Master in this litigation has pointed out, citing a line of Supreme Court jurisprudence, "States have an important interest in, and may regulate and control natural resources, but they do not own those resources."[271] Indeed, the Supreme Court has held that "ownership of submerged lands, and the accompanying power to control navigation, fishing, and other public uses of water, 'is an essential attribute of sovereignty,'"[272] to which states are entitled. Therefore, while the states do have some regulatory authority over their waters, largely in order to preserve their natural resources for the public, this right does not entitle states to full ownership.

It is also important to note that Mississippi's ownership arguments are not entirely without precedent. Many states used to employ the absolute dominion rule,[273] under which "the overlying landowner [is allowed] to take as much groundwater as the landowner desires, without limitation or liability to adjoining landowners."[274] However, few states still employ the absolute dominion rule today.[275] Even under absolute dominion, the overlying landowner

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[271] Memorandum of Decision on Motion for Summary Judgment, *supra* note 3, at 23. *See also, e.g.,* Tarrant Reg'l Water Dist. v. Herrmann, 569 U.S. 614 (2013); Idaho *ex rel.* Evans v. Oregon, 462 U.S. 1017 (1983); Colorado v. New Mexico, 459 U.S. 176 (1982); Washington v. Oregon, 297 U.S. 517 (1936); Kansas v. Colorado, 206 U.S. 46 (1907).).

[272] *Tarrant Reg'l Water Dist.*, 569 U.S. at 631 (quoting United States v. Alaska, 521 U.S. 1, 5 (1997)).

[273] *See* Joseph W. Dellapenna, *The Rise and the Demise of the Absolute Dominion Doctrine for Groundwater*, 35 ARK. L. REV. 291, 292–93 (2013) (explaining that the absolute dominion rule also goes by other names, including the rule of capture and the absolute ownership rule.).

[274] Tuholske, *supra* note 251, at 205.

[275] *See* Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 307 ("Today, only a handful of states still adhere to the absolute dominion rule, and even in those states one can seriously question whether the state actually adheres to the rule."); *see also* Klein, *supra* note 21, at 518 ("Today, the rule is followed most forcefully in Texas (which recognizes ownership even prior to capture), but it is also followed in Indiana and Maine.").

does not have a full and complete property right in their groundwater,[276] although they do have an ownership interest.[277] That being said, the absolute dominion rule provides context for Mississippi's arguments and demonstrates that they are not entirely without justification.

Mississippi has argued that *Tarrant Reg'l Water Dist. v. Herrmann* supports its equal footing argument,[278] in that it stands for the notion that control and regulation of natural resources are "an essential attribute of sovereignty."[279] However, the Court actually stated in *Tarrant* that states have the "authority to control their waters," rather than their outright *ownership*. While control and regulation are certainly two of the sticks in the proverbial bundle of ownership, they alone do not vest their holder with a right to full ownership in the legal sense. As the Special Master in *Mississippi v. Tennessee* has pointed out, "the context of [*Tarrant*] is of paramount importance here."[280] That is because, in *Tarrant*, a party to an interstate compact attempted to enter the jurisdiction of another state and to then divert water away from that other state.[281] The facts of *Tarrant* are therefore a far cry from the case at issue here, in no small part because a compact was involved.[282] And, as the Special Master in this case has noted, "[i]f MLGW extended its pumping into Mississippi, instead of remaining in Tennessee, it would go too

[276] *See* Dellapenna, *supra* note 273, at 303–05 (discussing limitations on ownership under the American version of the absolute dominion rule); *see also, e.g.,* Klein, *supra* note 21, at 518 ("In contrast to any other surface water or groundwater doctrine, the absolute dominion rule establishes a *possessory* property right.") (emphasis added).

[277] *See* Kathleen Hartnett White, *Who Owns the Groundwater?*, TEX. PUB. POL'Y FOUND. (Apr. 14, 2011), https://www.texaspolicy.com/who-owns-the-groundwater/ ("SB 332 re-affirms and clarifies that the landowner has a vested *ownership interest* in the water below his land") (emphasis added). *See also* Dellapenna, *supra* note 275, at 269–70 ("The rule of capture…indicates by its terms that the water user has no property in the groundwater until the water is pumped from a well…").

[278] *See* Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 17.

[279] Tarrant Reg'l Water Dist. v. Herrmann, 569 U.S. 614, 631 (2013).

[280] 2016 Memorandum of Decision, *supra* note 8, at 22.

[281] *See Tarrant Reg'l Water Dist.*, 569 U.S. at 618.

[282] *See* Memorandum of Decision on Defendants' Motion for Summary Judgment, *supra* note 3, at 21 ("*Tarrant* involved an interstate compact—something that does not exist here.").

far."[283] However, this has not happened, as Mississippi itself concedes.[284] Mississippi's citation to *Tarrant* is thus bereft of relevance to its equal footing argument.

In its filings, Mississippi has also pointed to *Kansas v. Colorado* in support of the idea that "[o]n admission [to the Union] Mississippi was granted 'full jurisdiction over the lands within its borders, including the beds of streams and other waters.'"[285] However, it is worth noting that *Kansas v. Colorado* does not stand for the proposition that Mississippi actually owns its waters; instead, it dictates that states own the *beds* of their water bodies, meaning only the soil beneath the waters. Therefore, the Court has characterized this right as "the ownership of *land under navigable waters*," rather than an absolute, sovereign right to the water in question.[286] Consequently, Mississippi's citation to *Kansas v. Colorado* in support of its ownership arguments will likely prove unhelpful to its case.

Mississippi has also cited to another Supreme Court case, *Phillips Petroleum Co. v. Mississippi*, in support of its equal footing arguments. Yet its comparison to this case is similarly inapposite. In that case, the Supreme Court, "reaffirm[ed] [its] longstanding precedents which hold that the States, upon entry into the Union, received ownership of all lands under waters subject to the ebb and flow of the tide."[287] Again, citation to this particular case does little more than reiterate the principle that states own the *beds* of water bodies, and no more. Neither *Phillips Petroleum* nor *Kansas v. Colorado* explicitly or implicitly grant to the states the absolute sovereign ownership of their waters based upon the equal footing doctrine or any other legal rule.

Additionally, Mississippi has cited to *PPL Montana, LLC v. Montana*, as justification for its equal footing argument, pointing to that case for the proposition that "States retain residual power to determine the scope of the public trust over waters within their borders

283 *Id.* at 17.

284 *See* Mississippi Reply on Motion for Leave to File Bill of Complaint, *supra* note 208, at 8.

285 Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 5 (citing Kansas v. Colorado, 206 U.S. 46, 93 (1907)).

286 Montana v. United States, 450 U.S. 544, 551 (1981) (emphasis added). *See also, e.g.*, Choctaw Nation v. Oklahoma, 397 U.S. 620, 647 (1970) (White, J., dissenting) (stating that, in *Waddell*, "ownership of lands under navigable waters was deemed an incident of sovereignty.").

287 Phillips Petroleum Co. v. Mississippi*,* 484 U.S. 469, 476 (1988).

. . . ."[288] While this is true, the public trust doctrine also fails to establish that states have absolute ownership over the waters within their borders. In *Shively v. Bowlby*, the Supreme Court held that,

> [a]t common law, the title and the dominion in lands flowed by the tide were in the King for the benefit of the nation. Upon the settlement of the Colonies, like rights passed to the grantees in the royal charters, in trust for the communities to be established. Upon the American Revolution, these rights, charged with a like trust, were vested in the original States within their respective borders, subject to the rights surrendered by the Constitution to the United States. Upon the acquisition of a Territory by the United States, whether by cession from one of the States, or by treaty with a foreign country, or by discovery and settlement, the same title and dominion passed to the United States, for the benefit of the whole people, and in trust for the several States to be ultimately created out of the Territory.[289]

Therefore, the states, by virtue of the equal footing doctrine, all have obligations to hold waters in trust "for the benefit of the whole people."[290] But this is certainly a far cry from the absolute sovereign ownership that Mississippi claims over its waters. The states' power is instead exercised "as a trust for the benefit of the people,"[291] otherwise known as the public trust doctrine, which by no means gives states ownership over their waters. Ultimately, the Supreme Court's riverbed and public trust jurisprudence both demonstrate that the states' rights to their waters are not strictly absolute.

C. *Impact of Mississippi's Equal Footing Arguments Beyond* Mississippi v. Tennessee

One of the more practical issues associated with Mississippi's property rights argument is that, if accepted by the Supreme Court, such an approach would drastically change water law in the United States. It is possible that states may attempt to sell their groundwater reserves, if the Court concludes that they do, in fact, own their groundwater. Indeed, Louisiana has already contemplated selling

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[288] Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 5 (citing PPL Mont., LLC v. Montana, 565 U.S. 576, 604 (2012)).

[289] Shively v. Bowlby, 152 U.S. 1, 57 (1894).

[290] *Id.*

[291] Foster-Fountain Packing Co. v. Haydel, 278 U.S. 1, 11 (1928) (a case involving "the business of catching and canning shrimp for shipment and sale in interstate commerce.").

excess surface water to other states,[292] and at least one local government is considering a plan to do so.[293] One argument against allowing states to own their groundwater is that it would foment a "pay for pumping model,"[294] in which fiscally distressed states overdraw their own aquifers in an attempt to generate revenue by selling water to other states. This could serve to exacerbate existing over-depletion of aquifers, which carries its own set of issues, such as subsidence, saltwater intrusion, and lowering of the water table.[295] From a conservation standpoint, allowing states to sell their water also creates a perverse incentive for states to monetize what is arguably their most important natural resource.

As is discussed in more depth below, the law has been slow to accept the idea that surface and groundwater are hydrologically connected, such that they are a single resource.[296] Yet, if the Supreme Court were to hold that groundwater alone—as distinguished from surface water—is the property of individual states, this would sound the death knell for the legal argument that the two resources are hydrologically connected. How would it be sensible for states to own water trapped within an aquifer, only to relinquish their sovereign control as soon as that same water flows to the surface? Such an idea is absurd on its face, and Mississippi's property rights argument will almost certainly fail should the Court acknowledge that surface and groundwater are a single, hydrologically connected resource.

VI. THE CONCEPT OF HYDROLOGICAL CONNECTION AND ITS

[292] *See, e.g.*, Terrence Henry, *The Louisiana-to-Texas Water Deal is Off*, NPR: STATE IMPACT (Jan. 16, 2012), https://stateimpact.npr.org/texas/2012/01/16/the-louisiana-to-texas-water-deal-is-off/.

[293] Joe Ragusa, *See Herrin Plans to Send Treated Wastewater to Drought-Stricken Areas*, WSIL, http://www.wsiltv.com/story/40546344/herrin-plans-to-send-treated-wastewater-to-drought-stricken-areas ((last updated June 11, 2019).

[294] Brett Walton, *Mississippi's Claim that Tennessee is Stealing Groundwater is a Supreme Court First*, CIRCLE OF BLUE (Oct. 3, 2016), https://www.circleofblue.org/2016/groundwater/states-lag-management-interstate-groundwater/.

[295] *See Groundwater Decline and Depletion*, U.S. GEOLOGICAL SURVEY, https://www.usgs.gov/special-topic/water-science-school/science/groundwater-decline-and-depletion?qt-science_center_objects=0#qt-science_center_objects (last visited June 28, 2019); *see also* U.S. GEOLOGICAL SURVEY, GROUND-WATER DEPLETION ACROSS THE NATION 2 (2003), https://pubs.usgs.gov/fs/fs-103-03/.

[296] *See* Ruopu Li et al., *Evaluating Hydrologically Connected Surface Water and Groundwater Using a Groundwater Model*, 52 J. AM. WATER RES. ASS'N 799, 799–800 (2016).

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There is a long-held scientific consensus that surface and groundwater are hydrologically connected, such that they are a single, interrelated resource.[297] Nonetheless, "statutory and legal frameworks [have] often designated surface water and groundwater as separate water resources."[298] Therefore, it is unsurprising that "Mississippi seeks to draw a bright line between surface water and groundwater, contrary to the teaching of the hydrologic cycle."[299] That being said, both parties seem to acknowledge that the Sparta-Memphis Aquifer is hydrologically connected to surface waters, with the defendants in particular arguing that the water in the Aquifer is hydrologically connected to various interstate surface waters, potentially even including the Mississippi River.[300] Given the scientific consensus on the principle, Mississippi's argument that groundwater somehow merits different treatment from surface water is dubious,[301] at least from a scientific perspective. Yet, from a purely legal standpoint, given the uncertainty surrounding the law on the subject, Mississippi may be able to make a defensible argument that groundwater should be regulated differently.

The current state of the law on the issue of the hydrological connection between surface and groundwater is muddy, at best.[302] Much of the litigation and rulemaking in this area tends to be focused on the scope of the Clean Water Act, and whether its protec-

297 *See id.*

298 *Id.* (citation omitted).

299 Klein, *supra* note 21, at 502.

300 *See* Defendants' 2018 Motion for Summary Judgment, *supra* note 4, at 11–12 ("Here, Mississippi's experts agree that the Aquifer is hydrologically connected to surface streams such as the Wolf River and other tributaries of the Mississippi River. The Wolf River is an interstate river that originates in Mississippi and flows into Tennessee before emptying into the Mississippi River. Moreover, both of Mississippi's experts opined that a substantial amount of the water in the Aquifer discharges now (and did under natural conditions) to the Mississippi River itself, the paradigmatic interstate river. The Aquifer's undisputed hydrological connections to interstate surface waters further support a finding that the groundwater at issue is interstate and therefore subject to equitable apportionment.") (citations omitted).

301 *See* Draper et al., *supra* note 224.

302 *See, e.g.*, Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir. 1994) ("On several occasions EPA has noted the potential connection between ground waters and surface waters, but it has left the regulatory definition alone.").

tions apply to groundwater. For example, under the Obama administration, groundwater pollution was considered to be subject to the Clean Water Act if it was directly connected to a federally regulated waterway.[303] But, in an amicus brief filed in the Ninth Circuit Court of Appeals, the Obama EPA also argued that, in the context of the Clean Water Act (CWA), groundwater is "*neither* a point source *nor* a water of the United States regulated by the CWA" in and of itself.[304] To further complicate matters, the Trump EPA recently revised this policy,[305] issuing an interpretative statement "conclud[ing] that Congress excluded releases of pollutants to groundwater from the Act's permitting requirements and instead left regulation of those releases to the states and EPA's other statutory authorities."[306] Instead, the Trump EPA has "concluded that '[t]he interposition of groundwater between a point source and the navigable water thus may be said to break the causal chain between the two, or alternatively may be described as an intervening cause.'"[307] Thus, within the span of only three years, EPA's position on hydrological connection has varied significantly.

[303] *See* Clean Water Rule: Definition of "Waters of the United States," 80 Fed. Reg. 37053 (June 29, 2015). *See generally* David C. Johnston, *Trump's EPA Sides With Water Polluters In Major Hawaii Case*, (Aug. 9, 2019), https://www.dcreport.org/2019/08/09/trumps-epa-sides-with-water-polluters-in-major-hawaii-case/.

[304] Brief for the United States as Amicus Curiae in Support of Plaintiffs-Appellees at 11, Haw. Wildlife Fund v. County of Maui, 886 F.3d 737 (9th Cir. 2018) (No. 18-260).

[305] *See* Clean Water Act Coverage of "Discharges of Pollutants" via a Direct Hydrologic Connection to Surface Water, 83 Fed. Reg. 7126 (Feb. 20, 2018) (to be codified at 40 C.F.R. pt. 122).

[306] Press Release, EPA, EPA Issues Guidance on Clean Water Act Permitting Requirements (Apr. 15, 2019), https://www.epa.gov/newsreleases/epa-issues-guidance-clean-water-act-permitting-requirements.

[307] Brief for the United States as Amicus Curiae Supporting Petitioner at 10–11, County of Maui v. Haw. Wildlife Fund, 139 S. Ct. 1164 (2019) (No. 18-260).

In 2018 alone, the Fourth,[308] Sixth,[309] and Ninth Circuit[310] Courts of Appeals came to different conclusions on the issue of whether groundwater is subject to the Clean Water Act. Both the Fourth[311] and Ninth Circuit[312] opinions were the basis of petitions for writs of certiorari to the Supreme Court, and the Court ultimately granted the Ninth Circuit petition, *Hawai'i Wildlife Fund v. County of Maui*.[313] It is likely that the Supreme Court's decision in *Hawai'i Wildlife Fund*, which will almost certainly be decided before *Mississippi v. Tennessee* is heard by the Court, will have some bearing on the Court's opinion in *Mississippi*. If the Court decides in *Hawai'i Wildlife Fund* that surface and groundwater are not a single, hydrologically connected resource, then the Court would more easily be able to justify holding in *Mississippi v. Tennessee* that states may own their groundwater—despite the fact that this rule does not apply to surface water. If, however, the Supreme Court holds in *Hawai'i Wildlife Fund* that all water is hydrologically connected, then the Court would likely find it difficult to explain why groundwater

[308] *See* Upstate Forever v. Kinder Morgan Energy Partners, L.P., 887 F.3d 637, 652 (4th Cir. 2018), *petition for cert. filed*, No.18-268 (U.S. Aug. 28, 2018) ("We do not hold that the CWA covers discharges to ground water itself. Instead, we hold only that an alleged discharge of pollutants, reaching navigable waters located 1000 feet or less from the point source by means of ground water with a direct hydrological connection to such navigable waters, falls within the scope of the CWA.").

[309] *See* Ky. Waterways All. v. Ky. Utilities Co., 905 F.3d 925, 940 (6th Cir. 2018) ("The CWA does not impose liability on surface water pollution that comes by way of groundwater."); *see also* Tenn. Clean Water Network v. TVA, 905 F.3d 436, 446 (6th Cir. 2018), *petition for cert. filed*, No. 18-1307 (U.S. Apr. 15, 2019) ("[W]e hold that the district court erred in adopting Plaintiffs' theory that the CWA prohibits discharges of pollutants through groundwater that is hydrologically connected to navigable waters.").

[310] *See* Haw. Wildlife Fund v. County of Maui, 886 F.3d 737, 749 (9th Cir. 2018), *cert. granted* 139 S. Ct. 1154 (Feb. 19, 2019) (No. 18-260) (finding Maui County "liable under the CWA because (1) the County discharged pollutants from a point source, (2) the pollutants are fairly traceable from the point source to a navigable water such that the discharge is the functional equivalent of a discharge into the navigable water, and (3) the pollutant levels reaching navigable water are more than de minimis.").

[311] *See generally* Petition for Writ of Certiorari, *Upstate Forever*, 887 F.3d 637 (No. 18-268).

[312] *See generally* Petition for Writ of Certiorari, *Haw. Wildlife Fund*, 139 S. Ct. 1164 (No. 18-260).

[313] *See* Haw. Wildlife Fund v. County of Maui, 139 S.Ct. 619 (2018).

should escape the application of the rule applied to surface water if they are, after all, one resource.

Additionally, many formerly common law riparian states have begun to employ regulated riparianism to both surface and groundwater, which suggests a growing recognition at the state level of the hydrological connection between the two.[314] Currently, eighteen regulated riparianism states apply the rule to both surface and groundwater, while only four states apply it exclusively to groundwater.[315] This could, however, suggest nothing more than an acknowledgement by states that groundwater is, much like surface water, a scarce resource worth protecting and conserving. Alternatively, the regulation of both surface and groundwater within the same permitting system could demonstrate an increasing legal recognition that the two water sources are, in fact, hydrologically interconnected. Regardless of the motivation behind these laws, the fact that many states now regulate them both together may provide persuasive authority for the Supreme Court in the instant case. If eighteen regulated riparian states have chosen to regulate surface and groundwater under the same rules, then perhaps the Supreme Court should as well.

VII. LEGAL ARGUMENTS THE SUPREME COURT MAY EMPLOY TO BYPASS THE MERITS OF THE CASE

In spite of the above, there are a number of means by which the Supreme Court could avoid ruling on the merits of this case. For

[314] Under regulated riparianism, which has largely replaced traditional riparianism, riparians are required to receive a permit before they can actually withdraw water over the permitting threshold. *See* Joseph W. Dellapenna, *Developing a Suitable Water Allocation*, 17 VILL. ENVTL. L. J. 1, 45, 48 (2006); *see also, e.g.*, Lincoln Davies, *East Going West?: The Promise of Assured Supply Laws in Modern Real Estate Development*, 43 J. MARSHALL L. REV. 319, 345 (2010) ("By the end of the twentieth century, many eastern states had transitioned away from pure riparianism to systems of regulated riparianism that, for assured supply purposes, render eastern states sufficiently similar to western jurisdictions."); Scott Slater, *State Water Resource Administration in the Free Trade Agreement Era: As Strong as Ever*, 53 WAYNE L. REV. 649, 671 (2007) ("It is noteworthy that common law riparianism is rapidly giving way to regulated riparianism.").

[315] *See* Dellapenna, *supra* note 314, at 46–47.

example, issue preclusion has been raised throughout the case.[316] The defendants have essentially claimed that the Fifth Circuit has already found the Sparta Aquifer to be an interstate resource, thus necessitating the application of equitable apportionment.[317] Mississippi has urged the Special Master to find that issue preclusion is inapplicable here because "giving preclusive effect to the finding of the district court and court of appeals would impermissibly delegate the Supreme Court's exclusive authority over original actions."[318] While the Special Master noted that the Fifth Circuit did, in fact, decide that the aquifer is interstate in nature, requiring equitable apportionment,[319] he chose not to recommend dismissal on these grounds.[320] The Special Master acknowledged that, "[i]n actions within its exclusive jurisdiction, the Court does not appear to have definitively determined whether issues decided by other courts are given preclusive effect."[321] The Special Master also found that, absent "a clear indication from the court that issue preclusion attaches to determinations made by other courts on matters central to its exclusive jurisdiction," it would be inappropriate to recommend dismissal based on issue preclusion.[322] Nonetheless, the Supreme Court still has full authority to decide the case without any deference to the Special Master's recommendations, and it could still order dismissal based on issue preclusion.

316 *See, e.g.*, Memphis and MLGW Motion for Judgment on the Pleadings, *supra* note 119, at 14, 24–28; *see also* Motion of Defendant State of Tennessee for Judgment on the Pleadings, *supra* note 33, at 35–47; City of Memphis, Tennessee and Memphis Light, Gas & Water Division's Reply Memorandum in Support of their Motion for Judgment on the Pleadings at 22–23, Mississippi v. Tennessee, No. 143 (U.S. Apr. 28, 2016); Reply Brief for Defendant State of Tennessee in Support of its Motion for Judgment on the Pleadings at 22–29, *Mississippi*, No. 143 (U.S. Apr. 28, 2016); Answer of Defendant State of Tennessee at 18, *Mississippi*, No. 143 (U.S. Sept. 14, 2015); Answer of Defendants the City of Memphis, Tennessee, and Memphis Light, Gas & Water Division at 17–18, *Mississippi*, No. 143 (U.S. Sept. 11, 2015); Brief of Defendant State of Tennessee in Opposition to Mississippi's Motion for Leave to File Bill of Complaint in Original Action, *supra* note 25, at 22; Memphis and MGLW's Opposition to Complaint, *supra* note 113, at 22.

317 *See* 2016 Memorandum of Decision, *supra* note 8, at 25.

318 Plaintiff's Response to Defendants' Motions for Summary Judgment, *supra* note 65, at 36.

319 *See* 2016 Memorandum of Decision, *supra* note 8, at 26–28.

320 *See id.* at 28.

321 *Id.* at 27.

322 *Id.* at 28.

The Special Master also held an evidentiary hearing to determine whether the water at issue is actually an intrastate resource.[323] Throughout the various twists and turns of this case, Mississippi has varyingly referred to the Aquifer as both an inter- and intrastate resource,[324] although it has argued in the most recent phase of the litigation that the water at issue is intrastate.[325] Indeed, as the District Court noted in 2008, "while the Plaintiff contends on the one hand that only Mississippi water is involved in this suit, it also contends that the sole basis for the court's jurisdiction is the existence of a federal question because interstate water is the subject of the suit. The Plaintiff cannot have it both ways."[326] And, as the Special Master noted in his memorandum of decision on the defendants' motion for summary judgment, there is a "lack of clarity" as to the full geographic extent of the Aquifer, and even to its name.[327] The evidentiary hearing was held in May 2019 and was narrowly focused "on the limited—and potentially dispositive—issue of whether the Aquifer is, indeed, an interstate resource."[328] While the Special Mas-

[323] *See id.* at 1.

[324] *See, e.g.,* Memphis and MLGW Motion for Judgment on the Pleadings, *supra* note 119, at 2 ("In the first lawsuit, Mississippi asserted that the Aquifer's water was interstate water and that the Aquifer was an interstate resource. In fact, Mississippi relied on the 'interstate nature of the dispute' as the basis for asserting federal subject-matter jurisdiction. In this new lawsuit, Mississippi asserts the opposite."); *see also* Defendants' 2018 Motion for Summary Judgment, *supra* note 4, at 12 ("Since Mississippi filed its first complaint in federal district court against Memphis and MLGW in 2005, it has consistently taken the position that Memphis Sand and Sparta Sand were different names for the same resource—the Aquifer at issue in this case. Throughout, Mississippi and its experts have used these names interchangeably. Yet, after the close of discovery in this case, Mississippi, for the first time in the twelve years since this litigation began, appears to have changed its position to assert that the Memphis Sand and Sparta Sand are two 'distinct' but 'hydrologically connected' aquifers.").

[325] *See, e.g.*, Mississippi's Brief in Support of Motion for Leave to File Bill of Complaint, *supra* note 6, at 6.

[326] Hood *ex rel.* Mississippi v. City of Memphis, 533 F. Supp. 2d 646, 649 (N.D. Miss. 2008); *see also* Complaint, *supra* note 5, ¶ 9 ("Jurisdiction in this interstate groundwater dispute is proper in this Court under 28 U.S.C.A. Sections 1331 & 1332 inasmuch as, inter alia, there are presented herein certain federal questions calling for application of federal and/or interstate common law, in addition to state law, and because there exists complete diversity of citizenship between the parties.").

[327] Memorandum of Decision on Motion for Summary Judgment, *supra* note 3, at 14.

[328] 2016 Memorandum of Decision, *supra* note 8, at 1.

ter's recommendations stemming from the hearing will not be binding upon the Supreme Court, the record developed in the hearing will still help the Court to decide the issue.

This threshold question has direct bearing on the applicability of Mississippi's equal-footing and state law claims.[329] As pertains to Mississippi's equal-footing claim, the Special Master has stated that the doctrine "does not appear to apply to disputes over depletion of interstate water."[330] As for Mississippi's argument that state law applies, the question of whether the Aquifer is, in fact, interstate is relevant in that equitable apportionment only applies to interstate water disputes. Therefore, if the Aquifer is actually an intrastate resource, equitable apportionment will not apply and Mississippi will be free to bring its state law claims instead.[331] Ultimately, this threshold question of whether the Aquifer is an interstate resource will largely determine if the Supreme Court reaches the issue of whether equitable apportionment applies to groundwater.

The Supreme Court could also choose to invoke its equitable apportionment authority without actually apportioning the groundwater at issue, as it has done on more than one occasion in the context of the Arkansas River.[332] In *Kansas v. Colorado*, the Court declined apportionment and dismissed the complaint,

> without prejudice to the right of the plaintiff to institute new proceedings whenever it shall appear that, through a material increase in the depletion of the waters of the Arkansas by Colorado, its corporations or citizens, the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two states resulting from the flow of the river.[333]

In that case, the Court essentially found that equitable apportionment *did* apply to the river, but that Kansas had failed to make the threshold showings required to bring an equitable apportionment case. This means that the Court could hold in this case that equitable apportionment does apply to aquifers and groundwater, but neither Mississippi nor Tennessee had sufficiently demonstrated that equitable apportionment was warranted. Therefore, whether the Court

329 *See id*. at 25.
330 *Id.* at 24.
331 *See id.*
332 *See* Griggs, *supra* note 193, at 200.
333 Kansas v. Colorado, 206 U.S. 46, 117–18 (1907).

exercises the full extent of its authority under equitable apportionment will largely turn on whether Mississippi has made a sufficient showing of harm by Tennessee.

Finally, new data suggests that Memphis may, in fact, actually be experiencing a reduced flow from the Aquifer.[334] The defendants' expert has also found data supporting the claim that, under predevelopment conditions, water in the Aquifer actually flowed into Tennessee from Mississippi, not the other way around.[335] If this is demonstrably true, it is unclear if there would be any dispute left (aside from any claims Tennessee would then have against Mississippi). Indeed, it would be difficult for Mississippi to argue that Tennessee is diverting Mississippi's water (over which it alleges it has absolute and complete ownership) if they are the only party that is actually diverting water from another state. Again, however, this is another factual issue that must first be considered by the Special Master.

A. *Nuisance Law as an Alternative to Equitable Apportionment*

The potential inapplicability of the doctrine of equitable apportionment to groundwater may provide another potential "off ramp" for the Supreme Court, or a means by which it could attempt to avoid any jurisprudential discord. By fashioning a third doctrine to apply specifically to groundwater, the Supreme Court could avoid explicitly declaring that surface and groundwater are hydrologically connected, without also holding that states have a property right over natural resources within their borders. Instead, the Supreme Court could hold that, given that the water at issue is held within the confines of an aquifer, groundwater is sufficiently dissimilar in its natural state to warrant separate treatment. However, because surface and groundwater are hydrologically connected, the scientific authority for such a dismissal would be tenuous, at best.

Nonetheless, such a groundwater-specific rule could, perhaps, be based upon interstate nuisance law.[336] That being said, interstate

334 *See* Hall & Regalia, *supra* note 22, at 166.

335 *See* Reply Exhibits in Support of Defendants' Joint Motions in Limine at 24, Mississippi v. Tennessee, No. 143 (U.S. Dec. 7, 2018).

336 *See* Hall & Regalia, *supra* note 7, at 10; *see also* Hall & Regalia, *supra* note 22, at 162.

nuisance law is generally restricted to actions related to pollution[337] and seems largely inapplicable here. In fact, Mississippi has advanced a nuisance claim throughout the litigation, citing *Missouri v. Illinois*,[338] a case in which the Supreme Court applied nuisance law to an interstate disagreement over channel construction.[339] Yet, as the Special Master in this case has pointed out,[340] *Missouri v. Illinois* is largely irrelevant to *Mississippi v. Tennessee*, because it turned on Illinois's attempts to build a channel that would divert sewage into bodies of water outside of the state.[341] Nuisance was therefore applicable in *Missouri v. Illinois* because it involved direct pollution, rather the allocation of water between states.[342]

Nonetheless, the benefit of applying nuisance law, rather than equitable apportionment, is that it would allow the Court "to consider the benefits and harms of different uses of a shared interstate resource and then determine which uses are reasonable—without the full technical and legal process of quantifying and then apportioning the interstate aquifer."[343] The application of nuisance law would not require the Court to identify all of the water at issue, as would necessarily be needed for an equitable apportionment; instead, nuisance involves quantifications only of each *use*.[344] This would allow the Court to consider the impacts of each of the states' competing uses, without requiring a determination of the full extent of the water supply.[345] However, this idea is subject to some scholarly debate. Some have argued that, while nuisance law is generally used in cases concerning pollution, it could adequately address disputes over water quantity as well.[346] Still others have posited that

337 *Cf.* Wisconsin v. Illinois, 278 U.S. 367, 418 (1929) (applying interstate nuisance law to limit a state's water consumption so as to decrease harm to other states).

338 *See* Missouri v. Illinois, 180 U.S. 208, 247–48 (1901).

339 *See* Plaintiff's Response to Defendants' Motion for Summary Judgment, *supra* note 65, at 12–13.

340 *See* Memorandum of Decision on Motion for Summary Judgment, *supra* note 160, at 25–26.

341 *See Missouri*, 180 U.S. at 212.

342 *See* Memorandum of Decision on Motion for Summary Judgment, *supra* note 160, at 25–26.

343 Hall & Regalia, *supra* note 7, at 10.

344 *See* Hall & Regalia, *supra* note 22, at 202.

345 *See id*.

346 *See* Hall & Regalia, *supra* note 7, at 10.

nuisance law may be no "better suited to multistate use of transboundary aquifers than equitable apportionment."[347] But it is ultimately up to the Supreme Court whether or not to apply nuisance law in *Mississippi v. Tennessee*.

CONCLUSION

In many ways, controversy over a resource as important as the Sparta-Memphis Aquifer was almost unavoidable. No matter the ultimate outcome, *Mississippi v. Tennessee* will have significant precedential value and will have broad ramifications for water resources throughout the United States. Not only is this a case of first impression before the Supreme Court, but it is set to ascertain the extent of the rights of every state in the country with an interstate aquifer within its borders. As conflicts over water increase,[348] and climate change exacerbates drought conditions,[349] access to clean groundwater will only become more important. If Mississippi is allowed to collect damages for the defendants' past use of the Aquifer, this may lead to increased litigation throughout the country, as other states scramble to collect damages that were previously foreclosed to them under equitable apportionment.

Beyond these practical implications, this case may definitively sound the death knell for (or, alternatively, resurrect) the notion that states have absolute ownership over their groundwater. *Mississippi v. Tennessee* will also have some bearing on the legal recognition of the scientific reality of the hydrological connection between surface and groundwater. Ultimately, the Supreme Court's ruling will have implications not only for interstate aquifers and other water resources throughout the country, but for other areas of the law as well.

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347 Draper et al., *supra* note 224, at 7.

348 *See, e.g.*, Peter Gleick, *Water, Drought, Climate Change, and Conflict in Syria*, 6 WEATHER CLIMATE & SOC'Y 331, 338 (2014).

349 *See, e.g.*, Henry D. Adams et al., *Temperature Sensitivity of Drought-Induced Tree Mortality Portends Increased Regional Die-Off Under Global-Change-Type Drought*, 106 PROC. NAT'L ACAD. SCI. 7063 (2009); *see also* Colin P. Kelley et al., *Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought*, 112 PROC. NAT'L ACAD. SCI. 3241, 3245 (2015).