

Applying New International Principles of Transboundary Water Allocation to *Florida v. Georgia's* Doctrine of Equitable Apportionment

ABSTRACT

Human conflicts over access to water often focalize around transboundary waterbodies. For example, in the United States, the “tri-state water wars” between Georgia, Alabama, and Florida are fights over the Apalachicola-Chattahoochee-Flint River Basin. These tri-state water wars demonstrate water’s economic and ecological value. Moreover, these conflicts are likely to escalate as the impacts of climate change decrease freshwater supplies globally.

Both in the United States and internationally, states traditionally address these conflicts through common law principles, such as the doctrine of equitable apportionment. The Supreme Court applied the doctrine most recently in Florida v. Georgia, reiterating the doctrine’s flexibility without extending its reach. In contrast, international legal principles of water allocation have evolved significantly in the last few decades, with a growing focus on intergenerational rights, humanitarian rights, equitable procedures, and rights for bodies of water themselves.

After considering the newly developed international principles, this Note proposes that some of those principles should be included in the interest-balancing test applied to equitably apportion water in the United States. Specifically, intergenerational considerations and humanitarian concerns should be incorporated into the doctrine of equitable apportionment to confront the shifting ecological, economic, and climatic conditions of the twenty-first century.

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I. INTRODUCTION

In 2018, Georgia revisited a centuries-old dispute with Tennessee over its border line.¹ Georgia claims that because of an error by mapmakers in an 1818 survey, Georgia's border arbitrarily lost land to Tennessee.² Now Georgia wants that land back.³ This border dispute is not grounded in a need for land, but rather in a need for water: a mile and a half from Georgia's current border-line is the Tennessee River, and Atlanta's demand for water would be met if Georgia were able to build a pipeline to the river.⁴

Meanwhile, in August of 2018, the Supreme Court remanded demands by Florida for an equitable apportionment of water in *Florida v. Georgia*.⁵ Florida sued Georgia after Georgia increased its water usage of the Apalachicola-Chattahoochee-Flint (ACF) River Basin, simultaneously limiting the amount of freshwater flowing to Alabama and Florida.⁶ The Supreme Court determined that Florida's injury by Georgia is redressable, and remanded the case to a special master who will make further determinations using factors enumerated by the court under the doctrine of equitable apportionment.⁷

However, the current United States usage of equitable apportionment allocates water based on factors that weigh immediate costs and benefits; this usage does not sufficiently address long-term

1. Molly Samuel, *Georgia Lawmakers Revisit Tennessee Border Dispute in Bid for Water*, WABE (Mar. 2, 2018), <https://www.wabe.org/georgia-lawmakers-revisit-tennessee-border-dispute-bid-water/> [<https://perma.cc/5RE8-WWKT>] (archived Aug. 11, 2019).

2. J.R. Lind, *Georgia Trying Again to Move Tennessee Border*, CHATTANOOGA PATCH (Mar. 27, 2018, 12:01 PM), <https://patch.com/tennessee/chattanooga/georgia-trying-again-move-tennessee-border> [<https://perma.cc/VFB2-EES5>] (archived Aug. 11, 2019).

3. *Id.*

4. *Id.*

5. 138 S. Ct. 2502, 2508 (2018).

6. *Id.* at 2508–09 (Georgia increased its usage according to regulations by the Army Corps of Engineers).

7. *Id.* at 2527 (“Where, as here, the Court is asked to resolve an interstate water dispute raising questions beyond the interpretation of specific language of an interstate compact, the doctrine of equitable apportionment governs our inquiry.”) (internal citations omitted).

climatic concerns.⁸ International law can fill this gap. International legal principles can both inform the Supreme Court's approach to analyzing state water disputes and provide a valuable perspective for American states embroiled in conflicts over water.⁹ Over two hundred watersheds are shared by two or more countries, while over three thousand watercourse¹⁰ treaties exist, providing a plethora of examples for the United States to draw from.¹¹ And certain more recently developed international principles for addressing interstate water disputes are of value for the US federal court system.¹² Specifically, humanitarian factors and intergenerational interests¹³ should be considered when weighing the equitable apportionment of water resources among states.¹⁴ If the international principles were applied on remand in *Florida v. Georgia*, humanitarian, economic, and ecological concerns might be mitigated to a greater degree.

This Note outlines the history of international and American legal principles for transboundary disputes over freshwater resources. Part II discusses the major international and American approaches. Part III considers how *Florida v. Georgia* furthers the principle of equitable apportionment in the United States. Finally, Part IV considers how newly developed international principles can be adopted by US courts, with a focus on specifying additional factors useful in weighing equitable apportionment, including intergenerational economic concerns, ecological interests, and humanitarian concerns. This Note ultimately concludes that the resolution of interstate water disputes—such as that of *Florida v. Georgia*—would more adequately address long-term distribution concerns if humanitarian issues and intergenerational interests were included in the balancing factors used to equitably apportion transboundary waterways.¹⁵

8. *See id.*

9. Compare William W. Van Alstyne, *International Law and Interstate River Disputes*, 48 CALIF. L. REV. 596, 616 (1960) (discussing the internationally developed doctrine of equitable apportionment), with *Kansas v. Colorado*, 206 U.S. 46, 118 (1907) (adopting the doctrine of equitable apportionment to govern interstate water disputes).

10. The Convention on the Law of the Non-Navigational Uses of International Watercourses defines the term watercourse as “a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.” Convention on the Law of the Non-Navigational Uses of International Watercourses art(2)(a), May 21, 1997, I.L.M. 36 [hereinafter UN Watercourses Convention].

11. *See* Tim Stephens, *Reimagining International Water Law*, 71 MD. L. REV. ENDNOTES 20, 25 (2011).

12. *See* Paulo Canelas de Castro, *Trends of Development of International Water Law*, 6 BEIJING L. REV. 285, 285–87 (2015).

13. Thank you to Professor Michael P. Vandenbergh for helping me consider intergenerational principles and providing insights into how they are considered both internationally and domestically.

14. *See* Edith Brown Weiss, *Principles of International Water Law*, 331 RECUEIL DES COURS 183, 185 (2009).

15. *See id.*; Canelas de Castro, *supra* note 12.

II. BACKGROUND: THE HISTORY AND PRINCIPLES OF WATER LAW

The global demand for water increased by 600 percent over the last century, even though the human population only tripled during the same period.¹⁶ Today, fresh water is used in a plurality of ways: land irrigation (composing 70 percent of global usage), industrial and urban use, energy production, navigation, human uses, and leisure.¹⁷

Yet there is a finite amount of fresh water available.¹⁸ The earth's continuous water cycle has rotated fresh water around the globe for millions of years, but global warming may lead to increased reservoir amounts in some areas, further depleting water supplies in already water-deprived areas, and heightening extreme weather patterns.¹⁹ In countries like India, plans are in motion to divert whole segments of rivers to drought-ridden areas.²⁰ Likewise, human activity can negatively impact water supplies.²¹ For example, toxic substances move downstream, and air pollution causes toxic rain, polluting drinking-water supplies.²²

These changes affect the United States: one report by the U.S. Government Accountability Office suggests that forty out of fifty states will have regions facing water shortages in the next decade.²³ And 1.6 million Americans do not have sufficient access to water because of droughts, fresh water mismanagement, and pollution concerns.²⁴ The

16. LAURENCE BOISSON DE CHAZOURNES, *FRESH WATER IN INTERNATIONAL LAW* 1 (Oxford Univ. Press 2013).

17. *Id.* at 2.

18. *Id.* at 3.

19. *Id.* at 3–5.

20. See Vindi Doshi, *India set to start massive project to divert Ganges and Brahmaputra rivers*, GUARDIAN, May 18, 2016, <https://www.theguardian.com/global-development/2016/may/18/india-set-to-start-massive-project-to-divert-ganges-and-brahmaputra-rivers> [<https://perma.cc/9X8Q-JB8G>] (archived Aug. 11, 2019) (“India is set to start work on a massive, unprecedented river diversion programme, which will channel water away from the north and west of the country to drought-prone areas in the east and south.”).

21. BOISSON DE CHAZOURNES, *supra* note 16, at 5.

22. *Id.*

23. Ellie Kincaid, *California Isn't the Only State With Water Problems*, BUS. INSIDER (Apr. 21, 2015), <https://www.businessinsider.com/americas-about-to-hit-a-water-crisis-2015-4> [<https://perma.cc/C9JM-ZKNP>] (archived Aug. 11, 2019).

24. George McGraw, *For millions of Americans, lack of access to water isn't just a drought problem*, L.A. TIMES, Mar. 22, 2018, <https://www.latimes.com/opinion/op-ed/la-oe-mcgraw-water-poverty-data-20180322-story.html> [<https://perma.cc/BKA2-9HJX>] (archived Aug. 11, 2019) (“Today, African Americans are twice as likely as whites to live without modern plumbing. In majority-black Lowndes County, Ala., for instance, only 20% of the community is connected to the municipal sewer system. On the Navajo Nation, where I work, 40% of the nearly 170,000 residents still haul water home in bottles or buckets, often at great expense. Impoverished rural communities in Appalachia face water-borne diseases at rates rarely seen in developed nations. Even

Southeast in particular is experiencing heightened disputes due to increased demand from economic growth and shifting water supplies.²⁵

Historic international approaches to interstate water disputes provide a framework for the United States to address growing domestic conflicts over water. International approaches include the absolute right to water through territorial sovereignty, the “no harm” doctrine, and the principle of equitable apportionment.²⁶ In contrast, courts in the United States focus primarily on equitable apportionment to resolve disputes, although jurisdictions divide over using riparianism or prior apportionment in the East and West, respectively.²⁷ This Part considers these international and domestic approaches.

A. *Historic Approaches to Interstate Water Disputes in International Law*

Around the world, roughly 280 transboundary watercourses supply 40 percent of the global population, and “180 run through two States, while the remaining 100 cross three or more States.”²⁸ These transboundary watercourses are often divided by principles of sovereignty and equitable apportionment using both hard and soft law.²⁹

1. International Regulation of Boundary Disputes Over Water

Treaties between riparian states often address international water disputes.³⁰ Such treaties, along with dispute resolution at the International Court of Justice (ICJ), are the two common ways that

here in California more than 1 million people rely on public drinking water systems that have violated state safety standards, threatening their health.”).

25. See, e.g., Fenly Foxen & Adam Ragusea, *Tri-State Water Wars Flow Into Tennessee*, GA. PUB. BROADCASTING (Apr. 18, 2018), <https://www.gpbnews.org/post/tri-state-water-wars-overflow-tennessee> [<https://perma.cc/QF3A-68M4>] (archived Aug. 11, 2019).

26. Van Altsyne, *supra* note 9, at 603, 605, 616.

27. Riparianism allows land owners adjacent to water to use as much water as is reasonable provided that they do not “unreasonably interfere” with others. Prior apportionment mandates that states and individuals who claimed access to the water source first have superior rights to states who arrived subsequently. See Eva Melody LaManna, *Three’s A Crowd: Examining Georgia’s Options in the Tri-State Water Wars Under Principles of International Law*, 39 GA. J. INT’L & COMP. L. 215, 224 (2010); see also *infra* Part II.B.2.a for a further discussion of riparianism and prior apportionment.

28. BOISSON DE CHAZOURNES, *supra* note 16, at 3 (“In the African continent alone there are sixty international watercourses, eleven of which are shared among four or more riparian States; eleven States share the Nile River and nine share the Congo River. On the American continent, the Amazon River is shared between nine countries, whereas six Asian States share the Mekong River. The Danube River, for its part, has a hydrographic basin that includes not less than seventeen States.”).

29. See *id.* at 7–8, 22–23; see also Van Altsyne, *supra* note 9, at 603, 605, 616.

30. BOISSON DE CHAZOURNES, *supra* note 16, at 7.

foreign countries handle disputes.³¹ Many treaties set specific waterways as boundaries between states, but, even when they do not, the waterways can serve as reference points for territorial delimitation if a river passes through multiple states.³² For example, the ICJ considered a boundary delimitation dispute in *Frontier Dispute (Burkina Faso/Niger)*, *Judgment of 16 April 2013*.³³ In that case, the ICJ based its recommendation of boundary delimitations on the basic needs of certain villages—the ICJ met the needs of the different villages by putting the delimitations in the middle of the river, not on its banks.³⁴

However, many international watercourses are not covered by treaties or are only partially covered through certain treaty provisions.³⁵ Some riparian states choose not to participate in water treaties.³⁶ Instead, broader conventions defining governing principles are adopted by some states, including the 1966 Rules on the Uses of the Water of International Rivers (Helsinki Rules), the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992 Helsinki Convention), and the 1997 United Nations (UN) Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention).³⁷ The International Law Commission also provides useful commentary on how international laws should be developed and applied.³⁸

First, the Helsinki Rules of 1966 were developed for both navigational and non-navigational water uses.³⁹ Written by the International Law Association (ILA), these rules responded to the twentieth century's growing demands for fresh water to provide for

31. Aaron Worthen, *Resolving International Water Disputes: Lessons from American and Canadian Federalism*, 11 *BYU L. & MGMT. REV.* 132, 133 (2015).

32. BOISSON DE CHAZOURNES, *supra* note 16, at 8–9 (citing *Kasikili/Sedudu Island (Bots. v. Namib.)*, *Judgment*, 1999 I.C.J. Rep. 1045 (Dec. 13)) (ICJ emphasizing that each state should avoid injuring the socio-economic activities around the area and should support human needs).

33. *Frontier Dispute (Burk. Faso v. Niger)*, *Judgment*, 2013 I.C.J. Rep. 149, ¶ 114 (Apr. 16) (setting boundary delimitations).

34. *Id.* at ¶ 100–01 (“In this regard, the Court notes that the requirement concerning access to water resources of all the people living in the riparian villages is better met by a frontier situated in the river than on one bank or the other.”); *see also* BOISSON DE CHAZOURNES, *supra* note 16, at 11 (emphasizing how human needs are used in water disputes and how they take precedence in this particular ICJ decision).

35. BOISSON DE CHAZOURNES, *supra* note 16, at 7.

36. *Id.*

37. *Id.* at 23, 25, 33.

38. *See, e.g., id.* at 22 (describing how the International Law Commission explained that riparian states in dispute should take into account “vital human needs”).

39. *Id.* at 25.

irrigation, industry, and recreation; the rules focus on “use, sharing, and management of international watercourses.”⁴⁰

In contrast, the 1992 Helsinki Convention is a regional instrument, setting a framework for more specific interstate water disputes in the European region.⁴¹ The 1992 Helsinki Convention uses several definitions that are broader than those of the UN Watercourses Convention (discussed below).⁴² For example, the 1992 Helsinki Convention also defines transboundary waters in a broad manner to cover both surface and groundwaters and both “confined” and “unconfined” aquifers.⁴³

Finally, the UN Watercourses Convention covers uses of waterways other than navigation, and it defines an international watercourse as “a watercourse, parts of which are situated in different States.”⁴⁴ The UN Watercourses Convention does not address the waters and lands in a drainage system.⁴⁵

The UN Watercourses Convention provides standards for negotiations by parties to the convention.⁴⁶ The convention provides that parties to it must use watercourses in an “equitable and reasonable manner.”⁴⁷ The convention also provides for several opportunities for state settlement.⁴⁸ Article 24 specifically articulates that watercourse states must “enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.”⁴⁹ Consequently, states can request the establishment of a fact-finding commission, or states can operate through traditional diplomatic and judicial dispute-settlement procedures.⁵⁰

2. International Principles Applying to Disputes Over Water Usage

International disputes over freshwater bodies were historically settled according to three main principles: the absolute right to water according to territorial sovereignty; the principle of restricted sovereignty, guided by the doctrine of doing no harm to neighbors without prior consent; and the equitable apportionment of a communal river's waters.⁵¹

40. *Id.* (describing the ILA as a group of experts who wished to codify state practices).

41. *Id.* at 33.

42. *Id.* at 33–34.

43. *Id.* at 34.

44. UN Watercourses Convention, *supra* note 10, at art. 2(b).

45. *Id.* at art. (2)(a)-(b); *see also* BOISSON DE CHAZOURNES, *supra* note 16, at 29.

46. BOISSON DE CHAZOURNES, *supra* note 16, at 26–27.

47. UN Watercourses Convention, *supra* note 10, at art. 5(1).

48. BOISSON DE CHAZOURNES, *supra* note 16, at 31.

49. UN Watercourses Convention, *supra* note 10, at art. 24.

50. BOISSON DE CHAZOURNES, *supra* note 16, at 31.

51. Van Altsyne, *supra* note 9, at 603, 605, 616.

First, the principle of territorial sovereignty suggests that each state has an absolute right to the waters in its jurisdiction.⁵² The Harmon Doctrine best exemplifies this concept.⁵³ In the 1800s, the United States and Mexico disputed usage of the waters in the Rio Grande River after ranchers and farmers in New Mexico and Colorado diverted water for their usage.⁵⁴ In response to Mexico's assertion that it had prior claims to the waters because it had been using the Rio Grande River much longer, U.S. Attorney General Harmon argued that absolute territorial sovereignty applied to the waters within the United States and that any exceptions result from explicit consent by the nation itself.⁵⁵ Thus, the absolute right to water assumes complete control of those waters while they pass through a territory.⁵⁶

However, since the mid-nineteenth century, states increasingly limited the doctrine of absolute territorial sovereignty in favor of a more restricted approach,⁵⁷ which insists that no harm should be done to another state without that state's prior consent.⁵⁸ Early international river treaties developed the notion of prior consent to injury,⁵⁹ and the approach was affirmed by the Permanent Court of International Justice in 1920, referring to the "community of interest of riparian states."⁶⁰

The UN Economic Commission for Europe further solidified the doctrine of prior consent in the 1950s during several conferences.⁶¹ According to a later report of the UN Economic Commission for Europe, each state has the right to develop water along its territory, as long as the state only causes "slight injury" to other states or "minor inconvenience compatible with good neighbourly relations."⁶² According to this doctrine, serious injury is acceptable only when states have a prior agreement.⁶³ Similarly, the Inter-American Bar Association resolved that states have a duty to refrain from changes to water systems that will adversely affect other states that are part of

52. *Id.* at 603.

53. Weiss, *supra* note 14, at 185.

54. *Id.*

55. *Id.*

56. *See id.*

57. *Id.* at 186.

58. Van Altsyne, *supra* note 9, at 611.

59. *Id.* at 610–11.

60. Weiss, *supra* note 14, at 194.

61. Van Altsyne, *supra* note 9, at 607–08 (citing the U.N. Economic Commission's efforts in 1952 at the 1956 Dubrovnik Conference and at the 1957 plenary session of the Inter-American Bar Association).

62. *Id.* at 608 (citing Rep. of the Econ. Comm'n for Europe, U.N. Doc. E/ECE/136, at 85 (1952)).

63. *Id.*

the same system, unless they have an agreement with the other state or a decision by a court or arbitration panel.⁶⁴

The UN Watercourses Convention also outlines the obligation not to cause significant harm, adopting the “no harm” doctrine in conjunction with the doctrine of prior consent.⁶⁵ The convention requires that parties to it (1) take all appropriate measures to prevent harm, and (2) if a party causes harm to another state, take “all appropriate measures” to “eliminate or mitigate” the harm or address compensation, unless there is a pre-existing agreement for how to address the harm.⁶⁶ While the UN Watercourses Convention focuses on harms done to specific states and parties, it also emphasizes respect for the environment.⁶⁷ Articles 20 and 23 specifically remind watercourse states to respect international watercourses through protection and preservation of their ecosystems and marine environments.⁶⁸

In 2004, the International Law Association adopted the Berlin Rules on Water Resources (Berlin Rules), emphasizing the “no harm” principle.⁶⁹ The Berlin Rules focus on modernizing freshwater-resource laws with a focus on avoiding harm and prevising equitable participation for all states involved in a matter.⁷⁰

Finally, the doctrine of equitable apportionment developed alongside the principles of absolute territorial sovereignty, prior consent, and no harm.⁷¹ The doctrine of equitable apportionment holds that equitable factors should be used to divide the waters of a communal river among states.⁷² Thus, this doctrine depends entirely upon the factors used for apportionment and how they are balanced.⁷³ For example, human needs are sometimes the focus of disputes for the shared natural resources, such as fish stocks, that come with the waterways.⁷⁴ Indeed, international custom tends to allow fishing by populations across boundaries, given the mobility of fish.⁷⁵ Watercourses provide “a reserve of further resources” in the form of “planned measures” such as “new project and programmes, as well as changes in the existing uses of a transboundary watercourse” for activities such as irrigation and energy production.⁷⁶

64. *Id.* at 607.

65. BOISSON DE CHAZOURNES, *supra* note 16, at 30.

66. UN Watercourses Convention, *supra* note 10, at art. 7.

67. *Id.* at arts. 20, 23.

68. *Id.*

69. LaManna, *supra* note 27, at 227.

70. *Id.*

71. Van Altsyne, *supra* note 9, at 616.

72. *Id.*

73. *Id.*

74. *See* BOISSON DE CHAZOURNES, *supra* note 16, at 19–20.

75. *Id.* at 19.

76. *Id.* at 20 (citing Int'l Law Comm'n, Rep. on the Work of Its Forty-Sixth Session, U.N. Doc. A/49/10 (1994)).

The 1956 Conference of the International Law Association outlined several factors for equitably apportioning communal water sources:

(a) the right of each [state] to a reasonable use of the water; (b) the extent of the dependence of each state upon the waters of that river; (c) the comparative social and economic gains accruing to each and to the entire river community; (d) pre-existing agreements among the states concerned; and (e) pre-existing appropriation of water by one state.⁷⁷

Typically, pre-existing uses hold significant weight when considering equitable apportionment.⁷⁸ Meanwhile, domestic uses of water tend to take priority over industrial or agricultural uses, which, in turn, take priority over recreational uses.⁷⁹

However, the UN Watercourses Convention emphasizes that no use of a waterway has inherent priority over another unless there is an agreement or custom in place.⁸⁰ If a conflict arises, the convention encourages states to resolve it according to the principles of the convention and “with special regard . . . to the requirements of vital human needs.”⁸¹ The UN Watercourses Convention also lists relevant factors for the principle of equitable utilization: “geographic considerations, social and economic needs, populations dependent on the watercourse, effects on other watercourse states, existing and potential uses, and the availability of alternatives.”⁸² The convention emphasizes “adequate protection”—resources should be distributed in a manner that benefits all parties involved.⁸³ Given that no single authority determines the influence of each factor, equitable apportionment depends upon how each state or governing body wishes to calculate the apportionment of water resources.⁸⁴

B. Historic Approaches to Interstate Water Disputes in the United States

In the United States, each state has sovereign power over the beds beneath each waterway, although the federal government can exercise

77. Van Altsyne, *supra* note 9, at 619.

78. *Id.* at 619–20.

79. *Id.* at 617–18.

80. BOISSON DE CHAZOURNES, *supra* note 16, at 23 (citing UN Watercourses Convention, *supra* note 10, at art. 10).

81. UN Watercourses Convention, *supra* note 10, at art. 10.

82. Stephens, *supra* note 11, at 23.

83. LaManna, *supra* note 27, at 227.

84. Van Altsyne, *supra* note 9, at 620–21.

power over waterways through the Commerce Clause.⁸⁵ Courts in the western United States rely heavily on the doctrine of prior appropriation, and courts in the eastern United States rely on riparianism.⁸⁶ The Supreme Court uses the doctrine of equitable apportionment when considering transboundary water disputes, thus incorporating regional differences into its analysis.⁸⁷

1. Water Regulation in the United States

The regulation of waterways in the United States is divided according to the principles of federalism.⁸⁸ Much of the federal authority over waterways extends from the Commerce Clause, which grants power to the federal government to regulate commerce.⁸⁹ The federal government draws its authority to regulate from the “navigability” of any waterway.⁹⁰ According to the federal test, if a body of water was “navigable in fact”—or used as an “avenue of commerce”—at the time the state was admitted to the Union, then the state gained title to the land beneath it at that time.⁹¹ However, the test of navigability varies depending on the context in which it is used, such as for determining private ownership or to consider whether jurisdiction exists for admiralty purposes.⁹² Water statutes often define navigability in a manner that considers the impact on quality of the water.⁹³ Likewise, agencies such as the U.S. Army Corps of Engineers—the agency with primary responsibility for “regulating the obstruction of navigable waters”—have their own definitions of navigability.⁹⁴ Some states also define “navigability” based on whether a body of water can “sustain commercial navigation.”⁹⁵

Waterways can be public or private.⁹⁶ Public waters include the waters of the United States, the waters of states that are navigable, and non-navigable waters under state law.⁹⁷ Private waters are not owned by the state.⁹⁸ However, the federal government still has

85. See JOHN W. JOHNSON, UNITED STATES WATER LAW: AN INTRODUCTION 1 (CRC Press 2009).

86. LaManna, *supra* note 27, at 224.

87. See, e.g., *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945) (“Since Colorado, Wyoming, and Nebraska are appropriation States, that principle would seem to be equally applicable here.”).

88. JOHNSON, *supra* note 85.

89. *Id.* (citing U.S. CONST. amend. X).

90. *Id.* at 2.

91. *Id.* at 2–3.

92. *Id.* at 3.

93. *Id.*

94. *Id.*

95. *Id.* at 6.

96. *Id.* at 4.

97. *Id.*

98. *Id.*

authority under the Commerce Clause to protect visitors and wildlife on nonpublic waters.⁹⁹

While state water rights extend from ownership of the bed beneath each waterway, the natural flow of water across state boundaries has led to numerous conflicts between states over the centuries.¹⁰⁰ States typically solve these disputes in one of three ways:

- (1) Congress, exercising its authority over interstate commerce, can legislate a division of water; or
- (2) the states can enter into a Compact agreeing to a division, which would have to receive congressional approval; or
- (3) the states can take their dispute to the U.S. Supreme Court, which may exercise its original jurisdiction over disputes between the states to arrive at an equitable apportionment of the water.¹⁰¹

Of these options, states historically have formed interstate compacts to resolve disputes.¹⁰² Once Congress approves these interstate compacts, they function as binding apportionments in courts.¹⁰³ While courts treat these compacts as contracts, the compacts are considered statutory federal law because they are passed by Congress, and thus courts interpret them according to statutory interpretation.¹⁰⁴ Furthermore, Congress has only twice appropriated water through legislation, making state compacts more prevalent.¹⁰⁵

Finally, while the Supremacy Clause grants the federal government the ability to preempt state actions, states can fill the gap of any missing regulations in the same field.¹⁰⁶

2. Principles for Water Dispute Resolution in the United States

Since the 1800s, US courts have consistently applied international legal principles for freshwater apportionment when dealing with interstate disputes.¹⁰⁷ The Supreme Court has made use of the equitable apportionment doctrine in multiple cases throughout the decades.¹⁰⁸ However, different regions in the United States diverge in

99. *Id.* at 2.

100. *Id.* at 9.

101. J.B. Ruhl, *Equitable Apportionment of Ecosystem Services: New Water Law for a New Water Age*, 19 J. LAND USE & ENVTL. L. 47, 49 (2003).

102. JOHNSON, *supra* note 85, at 11.

103. *Id.* at 11–12.

104. *Id.*

105. *See* Worthen, *supra* note 31, at 145 (“Although the Supreme Court has held that Congress has the authority to act in this manner, Congress has chosen to do so on only two occasions.”).

106. JOHNSON, *supra* note 85, at 7.

107. Van Altsyne, *supra* note 9, at 616.

108. *See generally* Colorado v. New Mexico, 459 U.S. 176 (1982); Wyoming v. Colorado, 259 U.S. 419 (1922); Kansas v. Colorado, 206 U.S. 46 (1907).

their respective approaches to local disputes.¹⁰⁹ The eastern United States historically makes use of riparianism, while the western United States uses prior apportionment.¹¹⁰ The Supreme Court typically considers these regional principles within the umbrella of equitable apportionment,¹¹¹ with a preference for states to settle these disputes on their own.¹¹²

a. Riparianism and Prior Appropriation

Riparianism most closely tracks the international principle of “no harm.”¹¹³ The principle provides that landowners adjacent to water can use as much water as is reasonable as long as they do not “unreasonably interfere” with the usage of others.¹¹⁴ However, while riparianism is prevalent in the eastern United States where freshwater is easier to come by, it functions poorly when there is not enough water available.¹¹⁵ In the latter circumstance, it becomes harder for states to argue why their particular water usage is reasonable beyond essential survival needs, whereas it is much easier to argue that usage is reasonable—for anything from concrete mixing to man-made lake maintenance—when ample water is available.¹¹⁶ Riparianism thus proves inadequate for settling water disputes when states face water shortages.¹¹⁷ The climate in the eastern United States may shift more rapidly than in other regions, and riparianism may not be a sufficient mechanism for handling water disputes.¹¹⁸

In contrast, prior appropriation—mainly used in the western United States—asks who beneficially used the water first, following the “first in time, first in right” principle.¹¹⁹ Applied across state lines, this principle suggests that states who used the water first have rights against states who arrived subsequently.¹²⁰ Meanwhile, within state

109. LaManna, *supra* note 27, at 224.

110. *Id.*

111. *See, e.g.*, *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945).

112. *Florida v. Georgia*, 138 S. Ct. 2502, 2509 (2018) (citing the Court’s longstanding preference for states to settle conflicts through their own agreements).

113. LaManna, *supra* note 27, at 224.

114. *Id.*

115. *Id.*

116. *See id.*

117. LaManna, *supra* note 27, at 224.

118. Brad Plumer & Nadja Popovich, *As Climate Changes, Southern States Will Suffer More Than Others*, N.Y. TIMES, June 29, 2017, <https://www.nytimes.com/interactive/2017/06/29/climate/southern-states-worse-climate-effects.html>

[<https://perma.cc/NBD8-WCRY>] (archived Aug. 11, 2019) (“In a new study in the journal *Science*, researchers analyzed the economic harm that climate change could inflict on the United States in the coming century. They found that the impacts could prove highly unequal: states in the Northeast and West would fare relatively well, while parts of the Midwest and Southeast would be especially hard hit.”).

119. LaManna, *supra* note 27, at 224.

120. Weiss, *supra* note 14, at 189.

lines, several states follow a more modern trend through which their governments grant water rights after receiving requests from individuals and companies.¹²¹ Prior appropriation is useful for economic stability in dry regions, but it can have a negative impact when states or individual actors rush to try and appropriate a particular water source first.¹²² Prior appropriation can incentivize individuals to divert as much water as possible to ensure seniority against future claimants.¹²³ Simultaneously, the doctrine also can discourage saving water or developing more efficient water-usage technologies.¹²⁴ Because climate change is linked to more variable droughts in western states,¹²⁵ the lack of flexibility in the doctrine of prior appropriation may create renewed conflicts among those states.¹²⁶

b. Equitable Apportionment in United States Case Law

Historically, the Supreme Court requires states to divide waterways in an equitable manner.¹²⁷ Many disputes have resurfaced regularly over the decades between specific states, but the Supreme Court intercedes only when one state can demonstrate a clear harm.¹²⁸ In the past, these disputes typically arose in the American West, although the Southeast is increasingly becoming a hotbed of litigation over transboundary water disputes.¹²⁹ And while the Supreme Court

121. LaManna, *supra* note 27, at 225–26.

122. Weiss, *supra* note 14, at 191–93.

123. *Id.*

124. *Id.* at 192–93.

125. See Bobby Magill, *Climate Change Altering Droughts, Impacts Across U.S.*, CLIMATE CENT. (June 22, 2017) <https://www.climatecentral.org/news/climate-change-altering-droughts-us-21563> [<https://perma.cc/6GWU-SSDY>] (archived Aug. 11, 2019).

126. Robin Kundis Craig, *Drought and Public Necessity: Can a Common-Law “Stick” Increase Flexibility in Western Water Law?*, 6 TEX. A&M L. REV. 77, 80–83 (2018). Craig argues that the common law doctrine of public necessity should be adopted in the Western states during droughts to divide water supplies based on community survival priorities, such as power supplies and drinking water.

127. See JOHNSON, *supra* note 85, at 9–10 (citing *Washington v. Oregon*, 297 U.S. 517 (1936); *Connecticut v. Massachusetts*, 282 U.S. 660 (1931); *New York v. Illinois*, 274 U.S. 488 (1927); *Kansas v. Colorado*, 206 U.S. 46 (1907)).

128. *Id.* at 10.

129. William D. Bryan & Christopher J. Manganiello, *There’s a solution to the Southeast’s water crisis. But will Georgia and Florida agree to it?*, WASH. POST, Mar. 8, 2018, https://www.washingtonpost.com/news/made-by-history/wp/2018/03/08/theres-a-solution-to-the-southeasts-water-crisis-but-will-georgia-and-florida-agree-to-it/?utm_term=.625533a5e17f [<https://perma.cc/2D76-95XU>] (archived Aug. 11, 2019) (“It’s worth noting that since 2014, Florida has spent \$57 million litigating the water wars. Georgia has spent at least as much—tax dollars that could have been far better utilized. By contrast, the Stakeholders, a group of volunteers, spent a mere \$1.7 million to develop their plan.”).

will consider the doctrines of prior appropriation and riparianism as factors in its analysis, the court usually does not apply those doctrines in a literal manner, instead allowing equitable apportionment to override those concerns.¹³⁰

The Supreme Court developed its usage of equitable apportionment in 1907 with *Kansas v. Colorado*.¹³¹ In that case, Kansas sued Colorado for appropriating increased amounts of water from the Arkansas River for irrigation.¹³² However, the Court concluded:

the appropriation of the waters of the Arkansas by Colorado, for purposes of irrigation, has diminished the flow of water into the state of Kansas; that the result of that appropriation has been the reclamation of large areas in Colorado, transforming thousands of acres into fertile fields, and rendering possible their occupation and cultivation when otherwise they would have continued barren and unoccupied; that while the influence of such diminution has been of perceptible injury to portions of the Arkansas valley in Kansas, particularly those portions closest to the Colorado line, yet, to the great body of the valley it has worked little, if any, detriment, and regarding the interests of both states, and the right of each to receive benefit through irrigation and in any other manner from the waters of this stream, we are not satisfied that Kansas has made out a case entitling it to a decree.¹³³

In weighing the consequences of Colorado's appropriation, the court considered the costs and benefits to each state.¹³⁴ The court considered growth of populations in Colorado and Kansas counties,¹³⁵ the number of acres cultivated in Colorado,¹³⁶ the value of the farm products in Colorado,¹³⁷ and the overall production numbers in Kansas since the appropriations began.¹³⁸ The court ultimately concluded that the benefits outweighed the costs—although Kansas might in the future have a new reason for complaint, should Colorado continue to appropriate the waters at such a rate.¹³⁹

Over the century since *Kansas v. Colorado*, numerous cases developed a jurisprudence using equitable apportionment.¹⁴⁰ In one

130. See, e.g., *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945) (determining there is no need for a "literal application of the priority rule").

131. 206 U.S. at 118 ("[I]t 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.").

132. *Id.* at 117.

133. *Id.*

134. *Id.*

135. *Id.* at 108.

136. *Id.*

137. *Id.*

138. *Id.* at 110.

139. *Id.* at 117–18.

140. See, e.g., *Nebraska v. Wyoming*, 325 U.S. 589, 616–17 (1945) ("To begin with we are confronted with the problem of equitable apportionment.").

case, the court recognized that the states in dispute, Nebraska and Wyoming, used the doctrine of prior appropriation.¹⁴¹ However, the court determined that it did not need to use a “literal application of the priority rule.”¹⁴² Instead, the court laid out several commonly cited factors that courts may use for equitable apportionment:

the economy of a region may have been established on the basis of junior appropriations. So far as possible those established uses should be protected . . . But 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, [and] the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former.¹⁴³

Although the court listed these as relevant factors, it did not limit equitable apportionment to them alone, adding, “[t]hey are merely an illustrative not an exhaustive catalogue. They indicate the nature of the problem of apportionment and the delicate adjustment of interests which must be made.”¹⁴⁴ Consequently, many future cases involved the court slowly expanding its exploration of factors that can be considered when it equitably apportions waterways.¹⁴⁵ Equitable apportionment is flexible in that it might include “whatever seems relevant to a fair division of the resource between the states,”¹⁴⁶ whether those factors include economic considerations or the impact on the waterway itself.¹⁴⁷

For example, in *Colorado v. New Mexico*, the court maintained that water-use conservation considerations can be a factor for calculating equitable apportionment.¹⁴⁸ In that case, Colorado sought to have waters of the Vermejo River diverted to support its growing industrial pursuits.¹⁴⁹ New Mexico disputed this diversion based on the principles of prior apportionment because the population around the Vermejo River in New Mexico had a long history of using the river for farming.¹⁵⁰ The Supreme Court remanded the case to a special master to reconsider under more developed factors of equitable apportionment, thus rejecting the priority New Mexico claimed.¹⁵¹ The

141. *Id.* at 618 (“Since Colorado, Wyoming, and Nebraska are appropriation States, that principle would seem to be equally applicable here.”).

142. *Id.*

143. *Id.*

144. *Id.*

145. *See, e.g.*, *Colorado v. New Mexico*, 459 U.S. 176, 185–86 (1982).

146. Ruhl, *supra* note 101, at 52.

147. *See Nebraska*, 325 U.S. at 618.

148. *Colorado*, 459 U.S. at 185–86.

149. *Id.* at 178.

150. *Id.* at 182–83.

151. *Id.*

court explained, “We have invoked equitable apportionment not only to require the reasonably efficient use of water, but also to impose on states an affirmative duty to take reasonable steps to conserve and augment the water supply of an interstate stream.”¹⁵² Thus, the special master could consider the availability of water-use conservation measures in both states and the harms and benefits attached.¹⁵³

The court also considers the connection between natural resources and water apportionment when applying the doctrine.¹⁵⁴ Specifically, the court apportioned salmon runs as part of a river controversy in *Idaho v. Oregon*.¹⁵⁵ The court explained, “A dispute over the water flowing through the Columbia-Snake River system would be resolved by the equitable apportionment doctrine; we see no reason to accord different treatment to a controversy over a similar natural resource of that system.”¹⁵⁶ Thus, the court suggested that the natural resources provided by waterways are interrelated with water flows and should be considered as a factor in equitable apportionment.¹⁵⁷

While not exhaustive, the prominent factors used in equitable apportionment are summarized in the chart below. This Note in turn categorizes the factors based on how they are applied, whether they are principles of apportionment used on a regional level, economic factors, or ecological factors.

Case	Factor	Category
<i>Kansas v. Colorado</i> , 206 U.S. 46, 108 (1907).	Agricultural benefits	Economic
<i>Id.</i> at 117.	Occupational benefits	Economic
<i>Id.</i> at 110.	Population growth	Economic
<i>Nebraska v. Wyoming</i> , 325 U.S. 589, 618 (1945).	Prior appropriation	Regional apportionment principle
<i>Id.</i>	“consumptive use of water in the several sections of the river”	Economic
<i>Id.</i>	“availability of storage water”	Economic

152. *Id.* at 185.

153. *Id.* at 189.

154. *Idaho v. Oregon*, 462 U.S. 1017, 1024 (1983).

155. *Id.*

156. *Id.*

157. *Id.*

<i>Id.</i>	“physical and climatic conditions”	Ecological
<i>Id.</i>	“character and rate of return flows”	Ecological
<i>Id.</i>	“extent of established uses”	Ecological and Economic
<i>Id.</i>	“practical effect of wasteful uses on downstream areas”	Ecological and Economic
<i>Id.</i>	“damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former”	Ecological and Economic
<i>Colorado v. New Mexico</i> , 459 U.S. 176, 185–86 (1982).	“conservation measures”	Ecological
<i>Idaho v. Oregon</i> , 462 U.S. 1017, 1025 (1983).	Natural resources	Ecological

III. NEW DEVELOPMENTS IN WATER LAW: MODERN INTERNATIONAL PRINCIPLES AND *FLORIDA V. GEORGIA*

International law increasingly draws upon humanitarian and intergenerational interests when apportioning water resources.¹⁵⁸ The UN recognized the interests of future generations in freshwater resources in the 1990s¹⁵⁹ and solidified the human right to water in 2010 with a General Assembly resolution.¹⁶⁰ Meanwhile, the United States recently reaffirmed the doctrine of equitable apportionment in *Florida v. Georgia*.¹⁶¹ Yet the court reiterated that the doctrine of equitable apportionment remains flexible depending on the demands raised in each case, suggesting that new international principles might apply to future cases.¹⁶²

158. See Canelas de Castro, *supra* note 12, at 285–87; Weiss, *supra* note 14, at 185.

159. Weiss, *supra* note 14, at 225–26.

160. NANDITA SINGH, *THE HUMAN RIGHT TO WATER: FROM CONCEPT TO REALITY* 3 (Springer International Publishing 2016).

161. See *Florida v. Georgia*, 138 S. Ct. 2502, 2527 (2018).

162. See *id.* at 2525.

A. *New Trends in International Water Law*

At the international stage, water law is shifting to embrace more interdisciplinary concerns.¹⁶³ International developments include (1) an increased emphasis on humanitarian concerns, (2) a consideration of future generations, (3) the recognition of legal rights for bodies of water, and (4) a desire for more equitable procedures.¹⁶⁴ Furthermore, new developments in climate-change debates and international cases regarding environmental damages to ecosystems shed light on how future consequences are considered at the international level.¹⁶⁵ Specifically, future economic issues, access to resources, and usage of ecosystem goods and services may be adopted when international bodies settle water disputes.¹⁶⁶

1. Emphasis on Humanitarian Consequences

While the Berlin Rules are a helpful marker for the transition into the twenty-first century,¹⁶⁷ they anticipate but do not encapsulate the increased international focus on humanitarianism.¹⁶⁸ The Berlin Rules focus on modernizing the international approach to water disputes by emphasizing the no harm rule.¹⁶⁹ Likewise, the 1997 UN Watercourses Convention asks all states to take appropriate measures to avoid causing “significant harm” to other states by using shared watercourses equitably and reasonably.¹⁷⁰ However, the convention only had thirty-one contracting states as of 2013,¹⁷¹ and neither the

163. See, e.g., SINGH, *supra* note 160, at 3 (describing the development of the human right to water).

164. See *id.* (explaining the humanitarian developments around water law); Weiss, *supra* note 14, at 225–26 (discussing the adoption of intergenerational principles as applied to water); Canelas de Castro, *supra* note 12, at 289 (outlining ideas for more equitable procedures); Michael Safi, *Ganges and Yamuna rivers granted same legal rights as human beings*, GUARDIAN, Mar. 21, 2017, <https://www.theguardian.com/world/2017/mar/21/ganges-and-yamuna-rivers-granted-same-legal-rights-as-human-beings> [<https://perma.cc/9S7Q-8KZ3>] (archived Aug. 11, 2019) (outlining the adoption of legal rights for waterways).

165. See *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicar.)*, Judgment, 2018 I.C.J. Rep. 150, ¶ 85 (Feb. 2) [hereinafter *Costa Rica v. Nicaragua*] (applying future considerations to damages to ecosystem goods and services); Anne-Sophie Brändlin, *Families hit by climate change sue the EU*, DEUTSCHE WELLE (May 25, 2018), <https://m.dw.com/en/families-hit-by-climate-change-sue-the-eu/a-43933608> [<https://perma.cc/6EVP-89GG>] (archived Aug. 11, 2019) (discussing climate change cases to do with damages to future resources).

166. See, e.g., *Costa Rica v. Nicaragua*, *supra* note 165.

167. LaManna, *supra* note 27, at 227.

168. See Canelas de Castro, *supra* note 12, at 286.

169. LaManna, *supra* note 27, at 227.

170. Stephens, *supra* note 11, at 23.

171. See U.N. Watercourses Convention: Online User’s Guide, *Frequently Asked Questions*, <http://www.unwatercoursesconvention.org/faqs/> (last visited Sept. 4, 2019) [<https://perma.cc/8NWX-W6W9>] (archived Aug. 11, 2019) (“As of September 2013, the

Berlin Rules nor the UN Watercourses Convention touch directly on the increased focus on humanitarian principles from the last two decades.¹⁷²

In 2010, the UN General Assembly solidified the humanitarian calls for access to water when it passed a resolution identifying the human right to water and sanitation.¹⁷³ While access to water was recognized as a right as early as 1977,¹⁷⁴ the 2010 resolution identifies water as essential to human rights.¹⁷⁵ In general, the human right to water implies universal entitlement to minimum amounts of safe drinking water, freedom from noninterference whether from “arbitrary and illegal disconnections” or pollution, sufficient and continuous access, safe and acceptable drinking water, and affordable water.¹⁷⁶ The 2010 resolution pushes states and international organizations to “provide financial resources, to help capacity building and technology transfer to particularly developing countries, and to provide safe, clean, accessible, and affordable drinking water and sanitation for all.”¹⁷⁷ That same year, the UN Human Rights Council affirmed the human right to water as a part of international law in a resolution.¹⁷⁸

Furthermore, the human right to water may face challenges in a number of areas to do with transboundary contexts.¹⁷⁹ These include the concern that when water availability is already scarce, competition may cause the right to be ignored.¹⁸⁰ Similarly, states may downplay the right if conflicting priorities, such as political statuses and historical conflicts, are at issue.¹⁸¹ Historic usage and other classic principles of international law, such as absolute sovereignty, may push back against the human right to water.¹⁸²

UNWC has 31 contracting states – 4 short of the number required for entry into force as stipulated in Article 36 of the Convention.”)

172. See Stephens, *supra* note 11, at 23 (arguing there should be a fair distribution of freshwater resources across the globe).

173. SINGH, *supra* note 160, at 3.

174. *Id.* at 1 (“Water was recognized as a right for the first time in 1977 at the United Nations (UN) Water Conference at Mar del Plata which declared that ‘All peoples, whatever their stage of development and social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs.’”) (internal citation omitted).

175. *Id.* at 3.

176. *Id.* at 3–5.

177. *Id.* at 3.

178. *Id.*

179. Nandita Singh, *Human Right to Water in Transboundary Water Regimes*, in *THE HUMAN RIGHT TO WATER: FROM CONCEPT TO REALITY* 205, 216–17 (Springer International Publishing 2016).

180. *Id.*

181. *Id.*

182. *Id.*

For example, international tribunals increasingly consider the need for water during interstate disputes.¹⁸³ In *The Question of Palestine*, the ICJ analyzed in part whether Israel's construction of a wall blocking water access to Palestinians was a violation of international law.¹⁸⁴ Palestinians lost access to their primary source of water: "51 per cent of the West Bank's water resources" were blocked, limiting opportunities for agricultural development, health, and general welfare.¹⁸⁵ The ICJ ultimately determined that Israel was not legally acting in self-defense in accordance with Article 51 of the Charter of the UN.¹⁸⁶ Because Israel could not impute the attacks against it to a foreign state, the ICJ determined that Article 51 was irrelevant.¹⁸⁷ Thus, it was unacceptable for Israel to block access to water for humanitarian reasons, and the ICJ determined that the wall was in violation of international law.¹⁸⁸

2. Applying Intergenerational Needs to Water Apportionment

Some scholars argue that water disputes should be considered from an intergenerational approach.¹⁸⁹ The legacy of water quantity, quality, and access will extend well into the future, such as in Lake Superior in North America, where the flushing of toxic chemicals will take more than a century.¹⁹⁰ The diversion of surface water from watersheds can lead to negative impacts on economies, the destruction of ecological systems (for example, if water flow decreases and salt water encroaches upstream), and reductions of overall amounts of water for downstream communities.¹⁹¹

183. Canelas de Castro, *supra* note 12, at 289.

184. Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion, 2004 I.C.J. 136, ¶ 123, 139 (July 9) [hereinafter *Palestine v. Israel Advisory Opinion*].

185. *Id.* at ¶ 133.

186. *Id.* at ¶ 139.

187. *Id.*

188. *Id.* at ¶ 133.

189. Weiss, *supra* note 14, at 225–26. For a further discussion of intergenerational considerations, see Michael P. Vandenberg & Kaitlin T. Raimi, *Climate Change: Leveraging Legacy*, 42 *ECOLOGY L. Q.* 139, 143 (2015) (arguing that private organizations should consider intergenerational legacy when making social, political, and business decisions). *But see* Eric A. Posner, *Agencies Should Ignore Distant-Future Generations*, 74 *U. CHI. L. REV.* 139, 143 (2007) (arguing that agencies are delegated the power to improve the lives of current generations and should not worry about future generations when making decisions).

190. Weiss, *supra* note 14, at 225–26.

191. EDITH BROWN WEISS, *IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY* 237–38 (1989).

a. Moral Concerns

Intergenerational rights are increasingly raised in the international legal community in connection to water resources as a moral concern.¹⁹² In 1992, the UN Economic Commission for Europe Watercourse Convention¹⁹³ provided for future generations in Article 2(5)(c): “One of the three principles that is to guide the interpretation of the Convention is that water resources ‘shall be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.’”¹⁹⁴ Likewise, the 1997 UN Watercourses Convention addressed the issue of legacy in its preamble, although explicit reference to future generations is not within the text itself.¹⁹⁵

More recently, intergenerational interests were addressed in US and foreign courts in connection with climate change. In 2015, Dutch citizens sued their government through the Urgenda Foundation to cut greenhouse emissions for future generations; in 2018, American children began a suit against the US government for failing to protect their future public trust resources; and, in 2018, families from five European Union (EU) countries sued the EU for inadequately addressing climate change and the rights of current and future citizens.¹⁹⁶ Worldwide, over one thousand climate lawsuits are now active.¹⁹⁷ While not expressly related to water, these suits demonstrate the recent trend toward contemplating future generations when confronting environmental issues.

192. Weiss, *supra* note 14, at 225–26.

193. While compatible with the UN Watercourses Convention, the United Nations Economic Commission for Europe Watercourse Convention is a separate convention. The latter is generally considered to be broader in its scope than the U.N. Watercourses Convention. See generally Attila Tanzi, *The Economic Commission for Europe Water Convention and the United Nations Watercourses Convention: An analysis of their harmonized contribution to international water law*, in WATER SERIES NO. 6 (U.N. Econ. Comm’n for Eur. 2015).

194. Weiss, *supra* note 14, at 225 (citing U.N. Econ. Comm’n for Eur., Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Mar. 17, 1992, 1936 U.N.T.C. 269).

195. *Id.*

196. Brändlin, *supra* note 165 (noting that in the United States, “The teenagers accuse the federal government of violating the younger generations’ constitutional rights to life and liberty by failing to take action against global warming. They argue that the government is failing to protect essential public trust resources like air and water, which are vital to survival.” Whereas in the EU, “[o]ne of the goals of the lawsuit is for the EU court to rule that climate change is a human rights issue and that the EU is responsible for protecting the rights of current citizens as well as future generations.”).

197. *Id.*

b. Economic Concerns

The apportionment of water will have a direct economic impact on future generations.¹⁹⁸ Water apportionment affects freedom of navigation, irrigation, hydroelectric power,¹⁹⁹ infrastructure development,²⁰⁰ private investment,²⁰¹ and international transfers of water.²⁰² Furthermore, “fresh water as a natural resource is increasingly seen as a source of profit.”²⁰³ One modern trend is to view water as a commodity.²⁰⁴ Those who emphasize the economization of water encourage states to apply international trade law and international investment law.²⁰⁵ States are increasingly adopting this market perspective.²⁰⁶ Thus, a consideration of intergenerational impacts could be incomplete without considering the long-term economic results of freshwater apportionment.²⁰⁷

However, not all scholars believe intergenerational rights should be considered during state decision-making because of economic uncertainty.²⁰⁸ Some warn that the rights of future generations should be considered at a discounted rate, while others believe they should not be considered at all.²⁰⁹ For example, one author explains that agencies should not consider the needs of distant-future generations because the voting public does not value those generations, and if state actors, such as agencies, take into account those needs, then “[c]onsumers would respond by saving less and spending more at the margin,” instead hurting future generations.²¹⁰

c. Ecosystem Goods and Services

Although the ICJ did not directly address a water dispute, it explicitly addressed future interests when it considered the long-term consequences of damages to an ecosystem’s goods and services.²¹¹ Ecosystem services encompass “the benefits humans receive from

198. See BOISSON DE CHAZOURNES, *supra* note 16, at 54–55.

199. *Id.* at 55.

200. *Id.* at 65.

201. *Id.* at 96.

202. *Id.* at 104.

203. *Id.* at 54.

204. Canelas de Castro, *supra* note 12, at 290.

205. *Id.*

206. Weiss, *supra* note 14, at 227.

207. See BOISSON DE CHAZOURNES, *supra* note 16, at 54–55.

208. Posner, *supra* note 189, at 139.

209. *Id.* (“As Louis Kaplow, Dexter Samida and David Weisbach, and Cass Sunstein and Arden Rowell show, an intertemporal egalitarian should endorse discounting so that the choice among projects designed to benefit the future is not distorted—so that one does not choose a regulatory project that transfers wealth to the future less efficiently than saving does.”).

210. *Id.* at 142.

211. See *generally* Costa Rica v. Nicaragua, *supra* note 165.

natural resources in the form of flows of goods and services, such as groundwater recharge, flood mitigation, and salinity regulation, many of which are public goods and thus not easily accounted for in markets.”²¹² Because ecosystem services inherently relate to future interests and the resources available to future generations, this Note includes them within intergenerational interests.

In *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)*, the ICJ considered the impact of Nicaragua’s decision to occupy part of Costa Rica’s territory from the San Juan River to the Laguna los Portillos.²¹³ Nicaragua’s military presence there and excavation of three canals resulted in environmental damages to the protected rainforests and wetlands in the area.²¹⁴ The ICJ determined that these damages were compensable not only for the breach of territorial sovereignty²¹⁵ and the immediate “restoration” and “replacement” costs to the area, but also for the loss of ecological goods and services.²¹⁶ Costa Rica argued that it should receive compensation for the loss of goods and services in six areas: “standing timber; other raw materials (fibre and energy); gas regulation and air quality; natural hazards mitigation; soil formation and erosion control; and biodiversity, in terms of habitat and nursery.”²¹⁷ Furthermore, Costa Rica requested that the court calculate the total loss over a period of fifty years, using a net present value with a discount rate of four percent.²¹⁸

While the court determined that the region’s ability to mitigate natural hazards and continue soil formation had not been impaired, the other four categories were severely impacted in a negative manner.²¹⁹ The court ultimately decided to take an overall valuation approach to the damages to the ecosystem’s goods and services²²⁰ and used equitable considerations to determine the amount of

212. Motion of J.B. Ruhl for Leave to File an Amicus Brief on His Behalf in Support of the Plaintiff State of Florida at 1, *Florida v. Georgia*, 138 S. Ct. 2502 (2018) (No. 142).

213. *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua): Overview of the Case*, INT’L COURT OF JUST. (2019), <https://www.icj-cij.org/en/case/150> [<https://perma.cc/GP53-4EJ4>] (archived Aug. 11, 2019) [hereinafter *Overview*].

214. *Costa Rica v. Nicaragua*, *supra* note 165, at 5.

215. *Id.* at 10.

216. *Id.* at 14 (“The Court is therefore of the view that damage to the environment, and the consequent impairment or loss of the ability of the environment to provide goods and services, is compensable under international law.”).

217. *Id.* at 17 (Costa Rica actually identified twenty-two categories of goods and services that might have been impaired, but claimed compensation for only six).

218. *Id.*

219. *Id.* at 21 (“It is therefore the view of the Court that impairment or loss of these four categories of environmental goods and services has occurred and is a direct consequence of Nicaragua’s activities.”).

220. *Id.* at 22.

compensation due for the long-term loss.²²¹ However, the court determined that the period of recovery for each area varied, depending on the damages to the categories and the characteristics of each of the goods and services.²²² This reasoning could in turn be factored into water disputes.

3. Legal Rights for Bodies of Water

In the past few years, states such as India and New Zealand have chosen to recognize revered rivers as legal entities.²²³ In creating legal rights for bodies of water, countries would recognize that those bodies of water have the right to flow, survive, and prosper.²²⁴ In India, a court determined that the Ganges and Yamuna Rivers had the same legal rights as living beings because the Ganges River is considered sacred by many residents, along with its tributary, the Yamuna River.²²⁵ Similarly, New Zealand passed a law granting the Whanganui River on the North Island legal rights, honoring the local Māori tribe's recognition of the river as their ancestor.²²⁶

In the United States, efforts to gain legal rights for the Colorado River in federal court failed,²²⁷ but a recent ballot initiative in Toledo, Ohio, created legal rights equivalent to those of a person for Lake Erie.²²⁸ The ballot asked, “[s]hould a body of water be given rights normally associated with those granted to a person?”²²⁹ The ballot strategy in Ohio created opportunities for individuals to sue on behalf of the lake.²³⁰ The movement responded to “a string of environmental calamities at the lake — poisonous algal blooms in summer, runoff containing fertilizer and animal manure, and a constant threat from invasive fish.”²³¹

However, while the ballot successfully passed on February 26, 2019,²³² it was invalidated by an amendment within the Ohio state

221. *Id.* at 13.

222. *Id.* at 23.

223. Safi, *supra* note 164.

224. See Timothy Williams, *Legal Rights for Lake Erie? Voters in Ohio City Will Decide*, N.Y. TIMES, Feb. 17, 2019, <https://www.nytimes.com/2019/02/17/us/lake-erie-legal-rights.html> [<https://perma.cc/Q6RK-269H>] (archived Aug. 11, 2019).

225. Safi, *supra* note 164.

226. *Id.*

227. See Reed B. Benson, *Is there a right to life for the Colorado River?*, DENVER POST, Dec. 15, 2017, <https://www.denverpost.com/2017/12/15/is-there-a-right-to-life-for-the-colorado-river/> [<https://perma.cc/FDN4-U8KZ>] (archived Aug. 11, 2019).

228. Sigal Samuel, *Lake Erie Now Has Legal Rights, Just Like You*, VOX (Feb. 26, 2019, 11:00 PM), <https://www.vox.com/future-perfect/2019/2/26/18241904/lake-erie-legal-rights-personhood-nature-environment-toledo-ohio> [<https://perma.cc/6JY7-LJRG>] (archived Aug. 11, 2019).

229. Williams, *supra* note 224.

230. *Id.*

231. *Id.*

232. Samuel, *supra* note 228.

budget.²³³ The amendment prevented standing for bodies of water and was signed into law with the rest of the state budget,²³⁴ demonstrating one of the many ways that US lawmakers can prevent legal rights for bodies of water.

4. Equitable Procedures

In addition to increased considerations of future interests, a humanitarian emphasis in water disputes, and the effort to gain legal rights for bodies of water,²³⁵ many argue for more equitable procedures for resolution of water disputes.²³⁶ Some suggest that states should have increased opportunities to participate in decision-making, access to information, and the right to participate in environmental impact assessments.²³⁷ In contrast, another scholar suggests that the UN should take on the water dispute features of the U.S. Congress, allowing unilateral appropriation between disputing nations by the UN Security Council.²³⁸

B. *New American Developments: Florida v. Georgia*

The Supreme Court's most recent usage of equitable apportionment in *Florida v. Georgia* did not expand the doctrine, but continued to emphasize that equitable apportionment should be flexibly applied.²³⁹ Under the majority's holding, future litigants have the opportunity to argue for prospective concerns to be included in the factors courts consider when equitably apportioning waterways.²⁴⁰ Yet Justice Thomas's dissent suggested that the court misapplied the principle of equitable apportionment because, under an appropriate analysis, Florida would never be able to demonstrate clear economic benefits in a balance-of-harms test.²⁴¹ His analysis demonstrates that the focus on immediate harms and benefits of water apportionment is still prevalent on the court.²⁴²

233. H. Claire Brown, *How Ohio's Chamber of Commerce Killed an Anti-Pollution Bill of Rights*, THE INTERCEPT (Aug. 29, 2019), <https://theintercept.com/2019/08/29/lake-erie-bill-of-rights-ohio/> [https://perma.cc/8GF4-Q3TJ] (archived Sept. 30, 2019).

234. *Id.*

235. *See* Canelas de Castro, *supra* note 12, at 289; *see also* Safi, *supra* note 164.

236. *Compare* Canelas de Castro, *supra* note 12, at 289, *with* Worthen, *supra* note 31, at 133–34.

237. Canelas de Castro, *supra* note 12, at 289.

238. Worthen, *supra* note 31, at 133–34.

239. *Florida v. Georgia*, 138 S. Ct. 2502, 2525 (2018).

240. *See id.* at 2527 (listing questions for the special master to address on remand).

241. *Id.* at 2535 (Thomas, J., dissenting).

242. *See id.*

1. The ACF River Basin

In June 2018, the Supreme Court remanded *Florida v. Georgia* to a special master to determine if an increased water flow to Florida would redress the economic and ecological damages suffered there²⁴³—in particular the damages to Florida’s formerly thriving estuary in Apalachicola Bay and the resulting freshwater oyster market.²⁴⁴ Florida, the downstream state, sued Georgia, the upstream state, for diverting increased amounts of water from the ACF River Basin under the direction of the Army Corps of Engineers through a series of dams and reservoirs: “since the 1940s the Corps has been implementing Congress’ mandates to tame the Chattahoochee and Apalachicola Rivers for navigation purposes.”²⁴⁵ Collectively, the ACF River Basin drains twenty-thousand square miles throughout the southeastern United States.²⁴⁶ Florida sought a cap on Georgia’s water usage through 2050.²⁴⁷ The Corps regulates the waterflow according to a manual, which determines how much water should be provided to the Apalachicola River from upstream based on “time of year, the amount of water in the Corps’ storage reservoirs, and the amount of additional water entering the basin.”²⁴⁸

The Supreme Court initially appointed a special master to consider Florida’s complaints and demand for a cap on Georgia’s water usage. The special master determined that Florida probably proved harm to its oysters, and Georgia probably was using too much water for its agriculture, but the agricultural use did not necessarily cause the damage to the oysters.²⁴⁹ Thus, while the special master first denied Georgia’s motion to dismiss, the special master eventually found that Florida did not prove through clear and convincing evidence that its injury was redressable through equitable apportionment.²⁵⁰

2. Equitable Factors Considered in *Florida v. Georgia*

After review, the Supreme Court remanded the case back to the special master, holding that the special master set too high a standard; states should instead show through “flexibility” and “approximation” that a water dispute is redressable.²⁵¹ Florida must demonstrate on remand that the benefits of decreased diversion to Georgia would outweigh the harms at stake. If on remand Florida meets its burden of

243. *Id.* at 2527.

244. *Id.* at 2509.

245. Ruhl, *supra* note 101, at 50.

246. *Florida*, 138 S. Ct. at 2508.

247. *Id.* at 2532 (Thomas, J., dissenting).

248. *Id.* at 2530.

249. *Id.* at 2534.

250. *Id.*

251. *Id.* at 2527.

showing real or substantial injury, then the court must be “flexible, not formulaic” in finding an equitable apportionment by considering “all relevant factors.”²⁵² The court then specifically cited the factors listed in *Nebraska v. Wyoming*.²⁵³ The special master thus must weigh these factors using “specific factual findings.”²⁵⁴ Finally, the court prompted the special master to potentially investigate further:

To what extent does Georgia take too much water from the Flint River? To what extent has Florida sustained injuries as a result? To what extent would a cap on Georgia's water consumption increase the amount of water that flows from the Flint River into Lake Seminole? To what extent (under the Corps' revised Master Manual or under reasonable modifications that could be made to that Manual) would additional water resulting from a cap on Georgia's water consumption result in additional streamflow in the Apalachicola River? To what extent would that additional streamflow into the Apalachicola River ameliorate Florida's injuries?²⁵⁵

Thus, the court provided the special master and future litigating states with a series of factors and questions to weigh when bringing a dispute forward over the equitable apportionment of water.²⁵⁶

However, the court recognized that “both Georgia and Florida have an equal right to make a *reasonable use* of the waters of the stream,” keeping its holding in line with the riparianism principles typically followed in the southeastern United States.²⁵⁷ The court further explained that states have sovereign status as well as “equal dignity,”²⁵⁸ such that the complaining state has to bear a burden “much greater” than that of a normal private party seeking an injunction.²⁵⁹

3. Justice Thomas's Dissent and the Balance-of-Harms Test

In his dissent, Justice Thomas suggests that the court dismantled its past equitable apportionment jurisdiction, which he feels the special master correctly followed in emphasizing the lack of appreciable benefit for Florida's economic concerns, even if the court held for

252. *Id.* at 2515 (emphasis removed) (internal quotations and citations omitted).

253. *Id.* at 2515 (citing *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945)) (“These factors include (but are not limited to): ‘physical and climatic conditions, the consumptive use of water in the 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, and the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former.’”).

254. *Id.* (internal citations omitted).

255. *Id.* at 2527.

256. *Id.*

257. *Id.* at 2513.

258. *Id.* at 2514.

259. *Id.*

Florida.²⁶⁰ Justice Thomas argues that the court lost sight of its balance-of-harms analysis, which typically determines whether a state is entitled to increased water when it can “prove that it would appreciably benefit from the apportionment.”²⁶¹ To Justice Thomas, the appreciable-benefit requirement “reflects the fact that a minimal benefit cannot outweigh the heavy costs that inevitably accompany equitable-apportionment decrees,” and his analysis relies heavily on the economic factors used in prior cases.²⁶² For example, Justice Thomas argues that setting a cap on Georgia’s water usage may mean more water will flow into the ACF Basin, but it does not mean that the Army Corps of Engineers will then distribute that water to Florida or that Florida’s freshwater oyster industry will return.²⁶³ Thus, Florida failed to demonstrate that it met the appreciable-benefit requirement and instead only demonstrated *de minimus* benefits.²⁶⁴

4. Analysis

In *Florida v. Georgia*, the 5–4 majority used the same factors historically relied on in water-dispute precedents.²⁶⁵ These factors focus primarily on past use and present issues.²⁶⁶ While the court’s benefits and damages are somewhat forward looking, they do not reach the same level of attention that intergenerational considerations receive in the international arena.²⁶⁷ For example, the court again cited the same factors from *Nebraska v. Wyoming*,²⁶⁸ and those factors allowed the court to focus on the immediate consequences of changes to the water supply for both Georgia’s growing industries and Florida’s Apalachicola Bay.²⁶⁹ Under this approach, the balance-of-harms test arguably weighs heavily in Georgia’s favor because the immediately measurable economic impact (using conventional metrics) of increased apportionment to Florida is so minute.²⁷⁰

However, on remand to the special master, the questions the court raised could implicate future concerns for both Florida and Georgia,

260. *Id.* at 2535 (Thomas, J., dissenting).

261. *Id.*

262. *Id.* at 2536.

263. *Id.* at 2541–42.

264. *Id.* at 2547–48.

265. *Id.* at 2515 (citing *Nebraska*, 325 U.S. at 618).

266. *See, e.g., id.* (noting that these factors focus on present-tense issues, such as the current physical and climatic conditions of the waterway).

267. *Compare id., with* Weiss, *supra* note 14, at 225–26 (discussing the development of intergenerational approaches to water disputes internationally).

268. *Florida v. Georgia*, 138 S. Ct. 2502, 2515 (2018) (citing *Nebraska*, 325 U.S. at 618).

269. *Id.* at 2525 (“Our final question is this: Would the amount of extra water that reaches the Apalachicola significantly redress the economic and ecological harm that Florida has suffered?”).

270. *Id.* at 2536 (Thomas, J., dissenting).

instead of just focusing on immediate redress.²⁷¹ The court specifically encouraged flexibility²⁷²—a hallmark of the equitable apportionment doctrine—which leaves room for questions such as, “[t]o what extent would that additional streamflow into the Apalachicola River ameliorate Florida’s injuries?” prompting considerations of future consequences and intergenerational concerns.²⁷³

IV. APPLICATION OF NEW INTERNATIONAL PRINCIPLES TO THE AMERICAN DOCTRINE OF EQUITABLE APPORTIONMENT

While *Florida v. Georgia* did not expand the doctrine of equitable apportionment in a significant way, it reiterated the expectation that its application should be flexible, leaving the door open for the incorporation of international developments in water law.²⁷⁴ Given that the doctrine of equitable apportionment originally developed on the international stage, it seems reasonable to consider whether other international developments could be useful in the US context, such as on remand in *Florida v. Georgia*.²⁷⁵

This Part describes how intergenerational principles and humanitarian concerns can be applied to the doctrine of equitable apportionment, identifies those concerns more likely to be adopted, and analyzes how they could affect the outcome of *Florida v. Georgia* on remand. Upon consideration, US courts might be more amenable to factoring intergenerational and humanitarian considerations into the doctrine of equitable apportionment. Courts can achieve this by considering future ecosystem goods and services²⁷⁶ and adopting the human right to water when confronted with competing states.²⁷⁷

A. Equitable Procedures

First, the concerns many states and legal scholars have with dispute resolution internationally may not apply in the United States.²⁷⁸ Many of the requests—increased opportunities to

271. For example, the Court asks, “[t]o what extent would a cap on Georgia’s water consumption increase the amount of water that flows from the Flint River into Lake Seminole?” *Id.* at 2527. This raises future implications.

272. *See id.* at 2515 (internal quotations and citations omitted).

273. *See id.* at 2527.

274. *See id.* at 2525.

275. *See* Van Altsyne, *supra* note 9, at 616.

276. *See, e.g.,* Ruhl, *supra* note 101, at 53 (“[F]or increasingly today we understand that ecological injury in fact *is* economic injury”).

277. *See* Singh, *supra* note 179.

278. *See* Canelas de Castro, *supra* note 12, at 289.

participate, access to information, participation in environmental impact assessments,²⁷⁹ and unilateral appropriation by a governing body²⁸⁰—already theoretically exist in the United States, such as through the Environmental Assessment program created by the National Environmental Policy Act.²⁸¹ Given this reality, this particular international movement would have little impact in the United States.²⁸²

B. Legal Rights of Waterways

Likewise, efforts to gain recognition of independent legal rights for bodies of water may not gain much headway in the court systems of the United States. For example, the complaint lodged on behalf of the Colorado River did not even make it into court.²⁸³ While legal experts recognized that the arguments in that case—like those in India and New Zealand—raised valid legal questions, few believed they would succeed in a federal court.²⁸⁴ The success in creating legal rights for bodies of water in India and New Zealand is due in part to those rivers' religious and cultural significance, independent of environmental concerns.²⁸⁵

The Lake Erie ballot initiative successfully passed, but the conferral of rights was rapidly nullified.²⁸⁶ The recognition of legal rights for bodies of water like Lake Erie appears to be evolving state-by-state and county-by-county in the United States, creating the potential for new types of transboundary conflicts, should governments refuse to recognize the rights conferred by neighbors.²⁸⁷ Any legal rights for waterways might supersede the doctrine of equitable apportionment entirely, making this particular international development less useful for the doctrine of equitable apportionment.

279. *Id.*

280. Worthen, *supra* note 31, at 133.

281. See U.S. ENVTL. PROT. AGENCY (EPA), SUMMARY OF THE NATIONAL ENVIRONMENTAL POLICY ACT, <https://www.epa.gov/laws-regulations/summary-national-environmental-policy-act> (last visited Sept. 4, 2019) [<https://perma.cc/Z3LV-QE8G>] (archived Aug. 11, 2019).

282. See Canelas de Castro, *supra* note 12, at 289; Worthen, *supra* note 31, at 133.

283. See Benson, *supra* note 227.

284. See Julie Turkewitz, *Corporations Have Rights. Why Shouldn't Rivers?*, N.Y. TIMES, Sept. 26, 2017, https://www.nytimes.com/2017/09/26/us/does-the-colorado-river-have-rights-a-lawsuit-seeks-to-declare-it-a-person.html?_r=0 [<https://perma.cc/Y3WQ-KFWG>] (archived Aug. 11, 2019) (“Several environmental law experts said the suit had a slim chance at best.”).

285. Safi, *supra* note 164.

286. See Brown, *supra* note 233.

287. See *id.*

C. Intergenerational Principles

The new international emphasis on considering the rights of future generations can be translated to water disputes between US states.²⁸⁸ The US water wars implicate future generations from an economic and ecosystem services perspective. Thus, intergenerational factors can and should be included in the doctrine of equitable apportionment.

1. Ecosystem Services as an Economic Consideration

In *Florida v. Georgia*, Florida did not raise a future interest argument, but instead its amici touched on that argument.²⁸⁹ Specifically, the *Amicus Brief of J.B. Ruhl on His Behalf in Support of the Plaintiff State of Florida* argues that the ecosystem goods and services provided by the ACF River Basin should be part of the balancing test when courts consider how to equitably apportion water supplies.²⁹⁰ In fact, the court considered the connection between ecosystem services and water apportionment in the past when it apportioned salmon runs in *Idaho v. Oregon*.²⁹¹ The ecosystem services argument uses the same notion: the goods and services that result from waterways are interrelated in such a way to make them worthy of consideration as part of the factors of equitable apportionment.²⁹²

The amicus brief in *Florida v. Georgia* emphasized the interconnectedness of ecosystem services and waterways.²⁹³ The brief explains,

Water extracted from a river in its physical form is not the only ecosystem service humans consume from a river. They also consume flood mitigation services, estuarine salinity regulation services, habitat maintenance services for commercial fisheries, and a suite of other economically valuable benefits made possible in large part by the water flowing in its physical form down the river. The fact that some of these services seem “ecological” and are not easily monetized in commercial markets does not make them any less economically valuable when humans consume them.²⁹⁴

288. See Weiss, *supra* note 14, at 225; Brändlin, *supra* note 165.

289. See generally Amicus Brief of J.B. Ruhl on His Behalf in Support of the Plaintiff State of Florida at 1, *Florida v. Georgia*, 138 S. Ct. 2502 (2018) (No. 142) [hereinafter Amicus Brief of J.B. Ruhl].

290. See generally *id.*

291. 462 U.S. 1017, 1024 (1983).

292. Ruhl, *supra* note 101, at 53.

293. Amicus Brief of J.B. Ruhl, *supra* note 289, at 2.

294. *Id.*

Thus, the brief emphasizes the negative long-term consequences resulting from decreased apportionment of water to Florida for its Apalachicola Bay and even argues that ecological damages correspond with economic damages for Florida.²⁹⁵ In an article, Ruhl notes that the ACF River Basin “supports huge values in Florida in the form of flood control, nutrient regulation, food for estuary fishes, and other important services . . . the economic value of those ecosystem services [is estimated] to be well over \$5 billion per year.”²⁹⁶ As a result, the “ecological injury in fact *is* economic injury, because healthy functioning ecosystems provide immensely valuable services to human populations.”²⁹⁷

2. Long-term Economic Consequences of Ecosystem Services

The principles of ecosystem services can also be considered to be part of a future-oriented, intergenerational factor for equitable apportionment in the same manner that the ICJ recently applied considerations of ecosystem goods and services in *Costa Rica v. Nicaragua*.²⁹⁸ Just as in that case the ICJ considered the impact on ecosystem goods and services for the purposes of compensating environmental damages caused by Nicaragua, the same principles can be considered when US states attempt to divide up waterways.²⁹⁹ States can argue that the long-term impact on ecosystems of increased or decreased water supplies should be factored into how the way waterways are divided, and courts should consider the loss of goods and services to future generations.³⁰⁰ Furthermore, the losses may vary depending on the types of goods and services, and the time period considered should be altered accordingly.³⁰¹ Thus, the ecosystem services argument serves as one example of how the international interest in future generations can be adapted in a measurable manner to the American doctrine of equitable apportionment.

Costa Rica v. Nicaragua demonstrates how to calculate the economic impact of damages to ecosystem goods and services. Courts can adopt this intergenerational approach when applying the doctrine of equitable apportionment in multiple ways, such as applying the intergenerational approach strictly to economic concerns.³⁰² In *Florida v. Georgia*, Justice Kennedy voted with the 5–4 majority, leaving an

295. *Id.*

296. Ruhl, *supra* note 101, at 53 (citing Gregory W. Garrett, The Economic Value of the Apalachicola River and Bay (Jan. 6, 2003) (unpublished master’s degree paper, Florida State University) (on file with author)).

297. *Id.*

298. *Overview*, *supra* note 213.

299. *See Costa Rica v. Nicaragua*, *supra* note 165, at 13.

300. *See, e.g., id.*

301. *See, e.g., id.* at 23.

302. *See Overview*, *supra* note 213.

open question whether the newly appointed Justice Kavanaugh or other future justices might instead side with Justice Thomas's more economically focused dissent. Consequently, states with rapidly increasing urban populations, like Georgia, where Atlanta is the third fastest growing metropolitan area in the country,³⁰³ will likely emphasize their long-term economic projections, both in conjunction with ecosystem services and otherwise. For example, the Amicus Brief by the Atlanta Regional Commission in *Florida v. Georgia* specifically cited the growth of Atlanta as a factor that the court should consider.³⁰⁴

However, if ecosystem goods and services are considered on remand, Florida would probably have a stronger argument than it did previously.³⁰⁵ The ACF River Basin and Apalachicola Bay are hosts to a myriad of natural resources, not just a profitable oyster industry.³⁰⁶

D. Humanitarian Concerns and the Human Right to Water

While much of the United States does not face the kind of water shortages experienced in states like South Africa, where the statewide countdown to "Day Zero" without water in Cape Town garnered international attention,³⁰⁷ studies predict that water shortages will become increasingly prevalent in the next decade in the United States.³⁰⁸ Given this likely reality, international humanitarian approaches to disputes between states over water shortages provide helpful guidelines for any conflicting US states. Further, the doctrine of equitable apportionment should incorporate these international approaches.

303. Michael Kahn, *Atlanta declared third fastest-growing metro area in the nation*, CURBED ATLANTA (Mar. 23, 2018, 11:11 AM), <https://atlanta.curbed.com/2018/3/23/17154866/atlanta-fastest-growing-metro-area-in-us-country> [<https://perma.cc/P98J-QTWP>] (archived Aug. 11, 2019) ("Between 2016 and 2017, metro Atlanta packed on nearly 90,000 new residents, bringing the total population in the region to an estimated 5,884,736 people.").

304. *Id.* ("Metropolitan Atlanta is the economic engine of the Southeast. According to the U.S. Census Bureau, it is the ninth most populous metropolitan statistical area in the United States and the fourth fastest growing in the nation. It is home to approximately 5.8 million people; hundreds of thousands of businesses, including numerous Fortune 100 companies; major universities; military installations and defense contractors; and the world's busiest airport.").

305. *See, e.g.*, Ruhl, *supra* note 101, at 53.

306. *Id.*

307. Craig, *supra* note 126, at 78 (noting that other international cities facing similar concerns may include Mexico City, Melbourne, Jakarta, and Sao Paulo).

308. Kincaid, *supra* note 23 ("Many states—40 out of 50 according to the U.S. Government Accountability Office—have at least one region that's expected to face some kind of water shortage in the next 10 years.").

The doctrine of equitable apportionment can include the UN Human Rights Council's recognition of the human right to water.³⁰⁹ While the United States is not a signing party to the 1997 UN Watercourses Convention,³¹⁰ the treaty provides guidelines for any conflicting US states by calling for states to avoid causing "significant harm" through reasonable and equitable usage of water.³¹¹ The original factors laid out in *Nebraska v. Wyoming* do not speak directly to this approach,³¹² but questions such as, "[t]o what extent does Georgia take too much water from the Flint River? To what extent has Florida sustained injuries as a result?" might be answered based on humanitarian issues, if the injuries include loss of essential drinking water.³¹³ Courts can consider to what extent populations are not receiving sufficient access to clean drinking water as a result of current apportionment.³¹⁴ Just as the ICJ found Israel in violation of the human right to water when they built a wall that blocked Palestinian water access, the US judiciary can insist on access to water for humanitarian needs.³¹⁵

In future cases, studies could be conducted to consider to what extent, if any, populations will be deprived of their basic right to water. Should there be potential for a large segment of one state to be deprived of this right, this factor would protect its streamflow apportionment. However, the human right to water is a heavy factor in any balancing test, and some might argue that it does not incorporate well with the other factors of equitable apportionment.³¹⁶ Because it is based on basic survival needs, this right would theoretically trump any other factors, destroying any balancing principles.³¹⁷ But acceptable water is essential for each individual and for a successful society: adopting a humanitarian focus into the doctrine of equitable apportionment—whether through the explicit human right to water or otherwise—would be an important effort by the United States to make sure all individuals have access to water, in particular because studies suggest that all residents in the United States do not currently have access to

309. See SINGH, *supra* note 160, at 3.

310. Convention on the Law of the Non-Navigational Uses of International Watercourses art. 6–7, May 21, 1997, 2998 U.N.T.S. 6.

311. See Stephens, *supra* note 11, at 23.

312. *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945) ("But 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—these are all relevant factors.").

313. *Florida v. Georgia*, 138 S. Ct. 2502, 2527 (2018).

314. See *id.*

315. *Palestine v. Israel Advisory Opinion*, *supra* note 184, at ¶ 133.

316. See, e.g., *Nebraska*, 325 U.S. at 618 (laying out balancing factors for courts to apply when equitably apportioning waterways).

317. See SINGH, *supra* note 160, at 3–5 (noting that the 2010 U.N.G.A. resolution in part calls for all states to provide continuous, safe, and acceptable drinking water).

acceptable water supplies.³¹⁸ Moreover, US state conflicts over water for economic reasons might downplay the right to water unless courts make greater efforts to insist on protecting it.³¹⁹ Thus, adopting the human right to water as a factor could create an automatic check on states competing over water supplies.³²⁰

V. CONCLUSION

As disputes over water proliferate between US states, international approaches to handling similar conflicts may serve the US doctrine of equitable apportionment. While international movements to improve the equitable procedures for water apportionment and to grant rivers legal rights may not be feasible in the United States, other newly developed principles could be applied to the doctrine of equitable apportionment. The doctrine is intentionally flexible, allowing it to adapt to the changing climatic, economic, and ecological needs of the twenty-first century. Consequently, the international principles of intergenerational considerations and the human right to water could be included in the balancing factors that courts use. These intergenerational concerns have particular merit when ecosystem goods and services and economic needs are included in apportionment calculations. Likewise, the human right to water would protect fundamental survival rights in case of conflict and climate change.

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318. Agnel Philip et al., *63 million Americans exposed to unsafe drinking water*, USA TODAY (Aug. 14, 2017, 3:00 PM), <https://www.usatoday.com/story/news/2017/08/14/63-million-americans-exposed-unsafe-drinking-water/564278001/> [<https://perma.cc/59E8-UV2V>] (archived Aug. 11, 2019) (“As many as 63 million people — nearly a fifth of the United States — from rural central California to the boroughs of New York City, were exposed to potentially unsafe water more than once during the past decade, according to a News21 investigation of 680,000 water quality and monitoring violations from the Environmental Protection Agency.”).

319. See Singh, *supra* note 179, at 216–17.

320. See *id.*

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