

William & Mary Environmental Law and Policy Review

Volume 43 (2018-2019)
Issue 3 *The Changing Landscape of
Regulations in the Mining Industry*

Article 4

March 2019

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Jacqueline Goodrum, *Taking On Water: Winters, Necessity And The Riparian East*, 43 Wm. & Mary Env'tl L. & Pol'y Rev. 807 (2019), <https://scholarship.law.wm.edu/wmelpr/vol43/iss3/4>

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TAKING ON WATER: *WINTERS*, NECESSITY AND THE RIPARIAN EAST

JACQUELINE GOODRUM*

INTRODUCTION

In the eastern United States, a natural abundance of water has historically satisfied regional water needs. However, rapid population growth and expansive development, as well as changing climate conditions, threaten to deplete and diminish regional water resources. Riparianism, the reigning water rights regime in the American East, is insufficient to address concerns arising from these emerging forces because it assumes sufficient water will be available for all users. Recent interstate disputes, such as *Virginia v. Maryland*¹ and *Florida v. Georgia*,² highlight a new hydrological reality characterized by not only increased consumption of eastern water resources, but also by increased competition between users. As eastern states seek to secure and protect their water rights, it is imperative that Native American tribes in the East do the same.

The *Winters* doctrine provides a powerful tool for securing and protecting Native American water rights. It also acts as a restraint on state control of water resources. Established in 1908 by the Supreme Court in *Winters v. United States*, the doctrine is one that tribes in the West have employed since the 1970s.³ In the East it has yet to be applied.⁴ Legal scholars have addressed whether and why *Winters* applies in the historically water-rich riparian jurisdictions of the eastern United States, and have concluded that nothing bars *Winters*'s applicability.⁵ Yet, *Winters* is a doctrine of necessity,⁶ invoked only when a "fear of leaving an Indian

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¹ *Virginia v. Maryland*, 540 U.S. 56, 56 (2003).

² *Florida v. Georgia*, 138 S. Ct. 2502, 2506 (2018); see *infra* note 234 and accompanying text.

³ See Daniel McCool, *Precedent for the Winters Doctrine: Seven Legal Principles*, 29 J. SOUTHWEST 164, 165 (1987).

⁴ Judith Royster, *Winters in the East: Tribal Reserved Rights to Water in Riparian States*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 169, 169–70 (2000).

⁵ See *infra* notes 164–71 and accompanying text.

⁶ *Cappaert v. United States*, 426 U.S. 128, 139 (1976).

reservation without sufficient water for sustenance and fulfilling its purposes” is present.⁷ The East’s natural abundance of water, combined with a water rights regime that guarantees each user a reasonable share of the available water, effectively created a presumption that necessity does not exist.

However, this is no longer the case. Although sufficient water has been available for all users in the past, the East’s present—and future—hydrological reality leaves many users dry, including Native American tribes.⁸ Riparianism cannot satisfy their needs because it only guarantees users reasonable use of the water instead of a specified amount.⁹ This means that, in times of water shortage, tribes may not have enough water to fulfill the purposes of their reservations. Necessity, therefore, can exist in the East. This Article examines the element of necessity in the *Winters* doctrine, imagining how necessity could arise in the East in a situation that would require a court to apply *Winters*. This Article begins by explaining the establishment and evolution of the *Winters* doctrine and federal reserved water rights. Then, it places *Winters* in context with state water law, briefly describing the prior appropriation and riparianism regimes as well as *Winters*’s relationship to these regimes. Next, this Article discusses necessity as a critical element for securing federal reserved water rights. Notably, this section identifies two factors—(1) hydrology and climate and (2) inadequate protection of water rights under state water law—analyzed by the United States Supreme Court in its four *Winters* decisions to determine the doctrine’s applicability. This Article then examines the element of necessity in the West. Finally, this Article briefly explains why *Winters* applies in the East, and concludes by discussing how tribes in the region could satisfy necessity.

I. THE *WINTERS* DOCTRINE

A. *Establishment and Evolution*

The Supreme Court established the doctrine of federal reserved water rights in *Winters v. United States*.¹⁰ Accordingly, this doctrine is commonly known as the *Winters* doctrine. Under the *Winters* doctrine,

⁷ *Mattaponi Indian Tribe v. Commonwealth*, 72 Va. Cir. 444, 460 (Va. Cir. Ct. 2007).

⁸ 25 U.S.C. § 1772e (2006) (stating that the Seminole Water Rights Compact provided federally recognized water rights to Seminoles due to water shortages and an inability of Florida’s riparian water rights regime to guarantee sufficient water for the Seminoles’ Reservations).

⁹ See T.E. Lauer, *Reflections on Riparianism*, 35 MO. L. REV. 1, 3–4 (1970).

¹⁰ *Winters v. United States*, 207 U.S. 564, 577 (1908).

when the federal government reserves land for federal use it impliedly reserves a sufficient quantity and quality of water necessary to fulfill the purpose of the reservation.¹¹ The date the federal government creates the reservation establishes the “priority date” for the reserved water right, giving the federal government priority of use over later-vesting state water rights.¹²

The *Winters* case concerned a dispute over the waters of the Milk River in Montana.¹³ There, the United States brought suit to prevent the construction of dams and reservoirs on the Milk River, alleging that such construction would obstruct the River’s water from flowing to the Fort Belknap Indian Reservation.¹⁴ The federal government had previously reserved and set aside the Reservation lands in 1888 as “a permanent home” for the Gros Ventre and the Assiniboine Tribes of Montana.¹⁵ The federal government’s stated purpose in creating the Fort Belknap Indian Reservation was “to train, encourage and accustom large numbers of Indians residing upon the said [R]eservation to habits of industry and to promote their civilization and improvement.”¹⁶ Specifically, it sought to accomplish this through the use of irrigated agriculture.¹⁷ Water, therefore, was essential. Accordingly, the Court held that when the federal government created the Reservation, it also impliedly reserved water rights to the Milk River on behalf of the Tribes.¹⁸ The Court reasoned it would be “extreme” to believe otherwise because the Reservation would become “a barren waste” without sufficient water.¹⁹

Since *Winters*, the doctrine of federal reserved water rights has continued to evolve. In *Arizona v. California*, the Court concluded that the quantity of water reserved by *Winters* for Native American reservations is the amount required to fulfill “the future as well as the present needs” of the reservation and that *Winters* reserved enough water to irrigate “all the practicably irrigable acreage on the reservations.”²⁰ In addition, the Court expanded the *Winters* doctrine to apply to all federal reserved lands, not just Native American reservations.²¹ In *Cappaert v. United States*, however,

¹¹ *Id.*

¹² *Id.*

¹³ *Id.* at 565.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Winters*, 207 U.S. at 566–67.

¹⁷ *Id.*

¹⁸ *Id.* at 577.

¹⁹ *Id.*

²⁰ *Arizona v. California*, 373 U.S. 546, 600 (1963).

²¹ *Id.* at 601.

the Court limited the extent of *Winters* rights to the minimum amount of water necessary to accomplish the purpose of the reservation.²² The Court further limited *Winters*'s reach in *United States v. New Mexico*, when it decided the doctrine reserves water rights only where water is necessary for the primary purpose of the reservation and not where water is "valuable" for a secondary purpose.²³ Notably, Native American reservations may have more than one primary purpose.²⁴ Courts interpret these purposes more broadly than those of non-Native reservations.²⁵

Agriculture is a primary purpose of most Indian reservations.²⁶ As such, "[t]he right to control and have access to available water has been one of absolute necessity for Indians living on arid reservations. Without reserving existing water rights, these reservations would be useless."²⁷ As noted, a primary purpose of the federal government in setting aside permanent homelands for Native Americans was to establish "civilized communities,"²⁸ generally "by attempting to transform [natives] into yeoman farmers."²⁹ Naturally, agriculture requires water, which makes water necessary to fulfill the purpose of such reservations.³⁰ The federal government, however, "can be kindly described as having been less than diligent in its efforts to secure sufficient water supplies for the Indian community to develop its arable lands and achieve meaningful economic self-sufficiency and self-determination."³¹ Accordingly, the Supreme Court's establishment of the federal reserved water rights doctrine in *Winters*

²² *Cappaert v. United States*, 426 U.S. 128, 139 (1976).

²³ *United States v. New Mexico*, 438 U.S. 696, 702 (1978).

²⁴ See Royster, *supra* note 4, at 175–76 (explaining "agriculture is universally recognized as a purpose" of Native American reservations, but that beyond agriculture "there is far less judicial agreement," although some courts have found intent to create a distinct homeland).

²⁵ *In re* General Adjudication of All Rights to Use Water in Gila River System and Source, 35 P.3d 68, 74 (Ariz. 2001).

²⁶ Royster, *supra* note 4, at 175.

²⁷ GOLDBERG ET AL., *AMERICAN INDIAN LAW: NATIVE NATIONS AND THE FEDERAL SYSTEM* 1225 (6th ed. 2010).

²⁸ *Arizona*, 373 U.S. at 600 (citing *Winters v. United States*, 207 U.S. 564, 576 (1908)).

²⁹ *Gila River*, 35 P.3d at 75 (quoting Walter Rusinek, *A Preview of Coming Attractions?* Wyoming v. United States and the Reserved Rights Doctrine, 17 *ECOLOGY L. Q.* 355, 406 (1990)).

³⁰ Courts have recognized the agriculture purpose to encompass domestic uses and other uses of water. *In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 97 (Wyo. 1988), *aff'd sub nom.* Wyoming v. United States, 492 U.S. 406 (1989).

³¹ *Gila River*, 35 P.3d at 75 (internal quotation marks omitted) (quoting 134 CONG. REC. E562-02 (Mar. 8, 1988) (statement of Rep. Udall)).

ensured that Native Americans have a legal means to secure water for their reservation lands.³²

B. Relationship to State Water Law

The *Winters* decision “was a significant deviation from the established convention that water law was purely a state matter.”³³ *Winters* authorized the federal government, empowered by the Commerce Clause and the Property Clause, to regulate water rights on federal lands.³⁴ “The Supreme Court has held that water use on a federal reservation is not subject to state regulation absent explicit federal recognition of state authority.”³⁵ Regarding Native American reservations specifically, Public Law 280, which delegated some federal authority over Native affairs and Native American reservations to the states, “did not delegate this regulatory power to the state.”³⁶ Thus, the *Winters* doctrine exists both in the context of and separate from state water law. Federal reserved water rights “need not be created or exercised in accordance with state law.”³⁷ As such, the holder of a reserved water right need not divert water for beneficial use to secure her right.³⁸ Nor must she file with the state water agency or record her claim.³⁹ Moreover, even if a holder of a reserved water right does not exercise her right until decades after the federal government created the reservation, she still possesses the right because a reserved water right arises when the reservation is created and “is not subject to state laws on forfeiture and abandonment.”⁴⁰

³² Importantly, *Winters* did not distinguish between surface water or groundwater when considering whether the federal government reserved water rights for the purpose of establishing a home and supporting an agrarian society on the Fort Belknap Reservation. *Winters*, 207 U.S. at 577. Although the United States Supreme Court has not expressly held that the *Winters* doctrine applies to groundwater underlying a reservation, it is reasonable to conclude that the federal government would not limit reserved water rights to solely surface water because the reservation’s “survival is conditioned on access to water—and a reservation without an adequate source of surface water must be able to access groundwater.” *Agua Caliente v. Coachella Valley Water Dist.*, 849 F.3d 1262, 1271 (9th Cir. 2017), *cert denied* (holding that *Winters* applies to groundwater).

³³ Ryan Rowberry, *Drinking from the Same Cup: Federal Reserved Water Rights and National Parks in the Eastern United States*, 29 GA. ST. U. L. REV. 987, 991 (2013).

³⁴ *Cappaert*, 426 U.S. at 138.

³⁵ *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 52 (9th Cir. 1981) (citing *Fed. Power Comm’n v. Oregon*, 349 U.S. 435 (1955)).

³⁶ *Id.* at 53.

³⁷ GOLDBERG ET AL., *supra* note 27, at 1226.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

Furthermore, in times of shortage, the holder of a reserved water right receives water according to her place on the priority schedule.⁴¹ A water right that vested under state law prior to when the federal government created the reservation, however, maintains priority over a later-vesting federal reserved water right.⁴² Additionally, the McCarran Amendment limits federal authority to an extent by allowing the federal government to be sued in state court for issues involving federal reserved water rights.⁴³ The *Winters* doctrine gave the federal government certain authority over the control of water resources, upsetting federalism's balance of power; the McCarran Amendment draws the states even by returning water disputes to state courts.⁴⁴ In fact, federal courts must defer to ongoing state court proceedings involving federal reserved water rights even when cases are initiated in federal court.⁴⁵

II. STATE WATER LAW REGIMES

Prior appropriation and riparianism are the two legal regimes that govern the allocation of surface water resources in the continental United States. The former is prolific throughout the West, while the latter dominates the East.⁴⁶ Because the *Winters* doctrine exists apart from, yet also in the context of, state water law regimes, it is important to know how these regimes function to understand where *Winters* fits in the realm of water rights.⁴⁷ Additionally, it is important for understanding how, when, and why necessity can arise.

A. *Water Law in the West: Prior Appropriation*

Prior appropriation is the primary water rights regime in the western United States.⁴⁸ Prior appropriation developed in response to the region's water scarcity, specifically during the California Gold Rush when miners "needed to divert water from a stream to locations where it was

⁴¹ *Id.*

⁴² *Id.*

⁴³ 43 U.S.C. § 666 (2006).

⁴⁴ *Id.*

⁴⁵ *Colo. River Watch Conservation Dist. v. United States*, 424 U.S. 800, 809 (1976).

⁴⁶ JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 138 (4th ed. 2006).

⁴⁷ This Article does not discuss the legal regimes that govern groundwater. However, in *Cappaert* the Supreme Court held that the *Winters* doctrine applies to either surface water or groundwater. *Cappaert*, 426 U.S. at 143 (explaining that *Winters* is not limited to surface water because "the implied-reservation-of-water-rights doctrine is based on the necessity of water for the purpose of the federal reservation").

⁴⁸ SAX ET AL., *supra* note 46, at 138.

needed to process ore.”⁴⁹ Today, nine western states—Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming—follow a pure prior appropriation regime known as the Colorado doctrine.⁵⁰ The remaining western states—California, Kansas, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Texas, and Washington—follow the California doctrine, a modified regime that includes elements of both prior appropriation and riparianism.⁵¹

Under the prior appropriation doctrine, one acquires a water right by diverting the water from a natural stream and applying it to a “beneficial use.”⁵² “Beneficial use’ is a term of art in water law, and encompasses two principal elements of [an appropriative] water right. First, it refers to the purposes, or type of activities, for which water may be used Second, beneficial use determines the measure of a water right.”⁵³ The rationale for prior appropriation’s beneficial use requirement is to prevent waste in a region where water is scarce.⁵⁴ To constitute a beneficial use, the use in question must be recognized by the state as such.⁵⁵ Generally, states today recognize agriculture, livestock, mining, and recreation as beneficial uses.⁵⁶ Some states even recognize “preservation of fish and wildlife and aesthetic values as beneficial.”⁵⁷ In other states, however, the maintenance of instream flows for such uses constitutes waste.⁵⁸

The phrase “first in time, first in right” is a guiding principle of prior appropriation.⁵⁹ Under the prior appropriation regime, users who diverted the water from a stream at the earliest date have the earliest date of vestment (“senior appropriators”), and thus claim priority of use of the water over users who diverted the water at a later date (“junior appropriators”).⁶⁰

Practically, this hierarchy of use means that when there is not enough water to meet the demands of all appropriators, prior appropriation requires the most junior appropriator to stop taking water so that there is enough for the more senior appropriators.⁶¹ “If the situation were

⁴⁹ Rowberry, *supra* note 33, at 1001.

⁵⁰ SAX ET AL., *supra* note 46, at 138.

⁵¹ *Id.*

⁵² *Id.* at 125.

⁵³ State Dep’t of Ecology v. Grimes, 852 P.2d 1044, 1049 (Wash. 1993).

⁵⁴ SAX ET AL., *supra* note 46, at 159.

⁵⁵ *Id.* at 154–55.

⁵⁶ *Id.*

⁵⁷ *Id.* at 155.

⁵⁸ *Id.*

⁵⁹ *Id.* at 126.

⁶⁰ SAX ET AL., *supra* note 46, at 126.

⁶¹ *Id.*

such that the stream contained only enough water to satisfy the most senior appropriator, all junior appropriators would be required to terminate their uses completely, however severe the consequences for them.”⁶²

Additionally, prior appropriation does not limit the place of use of the water.⁶³ A holder of a water right may divert her allocation of water for use in any location.⁶⁴ The holder may also transfer the water interstate and out-of-basin provided the transfer will not injure other appropriators (this is known as the “no injury rule”).⁶⁵ The disassociation of the water and the land is a distinguishing characteristic of prior appropriation. Another is that an appropriator’s failure to put her diverted water to a beneficial use can result in the loss of her water right through nonuse or possibly through abandonment.⁶⁶ Notably, abandonment of a water right requires a concurrence of nonuse and intent to abandon.⁶⁷ An unreasonably long period of nonuse, however, establishes a prima facie case for abandonment, requiring the water right holder to show sufficient evidence to rebut this presumption.⁶⁸ The rationale for prior appropriation’s rule of abandonment is the large demand for appropriable water in the West and the “consequent high value” of water given its scarcity.⁶⁹

B. Water Law in the East: Riparianism

Riparianism is the primary water rights regime in the eastern United States.⁷⁰ Importantly, the assumption that water will be available for all users is a fundamental principle of riparianism.⁷¹ Riparianism is an historical outgrowth of America’s colonial legacy.⁷² “During the years before the American Revolution, the original colonies recognized water rights on the basis of the English common law.”⁷³ Following independence, the newly sovereign states adopted the riparian legal regime as their own.⁷⁴ Riparianism defines water rights in terms of water use in association with land

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.* at 125.

⁶⁶ 79 Ranch, Inc. v. Pitsch, 666 P.2d 215, 217 (Mont. 1983).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ CF&I Steel Corp. v. Purgatoire River Water Conservancy Dist., 515 P.2d 456, 458 (Colo. 1973).

⁷⁰ SAX ET AL., *supra* note 46, at 27.

⁷¹ *Id.*

⁷² *Id.* at 37.

⁷³ *Id.*

⁷⁴ *Id.* at 38.

ownership; only landowners adjacent to bodies of water—riparians—possess water rights.⁷⁵ Thus, water users cannot transfer riparian water rights for use on other lands because these rights run with the land.⁷⁶ Moreover, under riparianism, water rights continue in perpetuity and are not contingent upon the riparian using the water.⁷⁷ Riparianism allows riparians to take water for domestic use, such as drinking, bathing, and “raising a small quantity of garden produce and livestock.”⁷⁸ Additionally, modern riparianism allows riparians to take water for state-specified artificial uses like hydropower, manufacturing, and large-scale agriculture.⁷⁹ Importantly, if there is not enough water to meet the demands of all the riparians on the water course, each riparian must reduce her water use *pro rata*.⁸⁰

The standard of “reasonable use” governs a riparian’s use of water.⁸¹ This standard entitles each riparian to a reasonable use of the water with respect to the rights of other riparians.⁸² No riparian may unreasonably interfere with another riparian’s right to use the water.⁸³ Reasonable use is determined on a case-by-case basis and varies from state-to-state.⁸⁴ For example, using water for irrigation can constitute reasonable use, rather than an unreasonable diversion.⁸⁵ Municipal water use, especially if borne out of public necessity, is also reasonable use.⁸⁶ Even polluting a river can constitute reasonable use, if the polluting act was a standard operating procedure and the pollution itself caused little or no damage downstream.⁸⁷ Section 850 of the Restatement Second of Torts establishes a factor-based test for reasonableness.⁸⁸ Generally, courts will consider a variety of factors

⁷⁵ *Id.* at 27.

⁷⁶ See SAX ET AL., *supra* note 46, at 27.

⁷⁷ *Id.*

⁷⁸ *Id.* at 32.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.* at 33.

⁸² Tyler v. Wilkinson, 24 F. Cas. 472, 474 (C.C. D.R.I. 1827).

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ Pyle v. Gilbert, 265 S.E.2d 584, 585 (Ga. 1980).

⁸⁶ North Carolina v. Hudson, 731 F. Supp. 1261, 1272–73 (E.D.N.C. 1990).

⁸⁷ Snow v. Parsons, 28 Vt. 459, 463 (1856). However, reasonable use does not mean unfettered permission to destroy streams, as this would unreasonably interfere with the rights of other riparians.

⁸⁸ RESTATEMENT (SECOND) OF TORTS § 850 (AM. LAW INST. 1979). Factors include: purpose of the use; suitability of the use to the water body; economic value; social value; the extent and amount of the harm caused; the practicality of avoiding the harm by adjusting the use; the practicality of adjusting the quantity of water used; the protection of existing

to determine whether a use constitutes reasonable use “including: ‘climate, customs and usages, velocity and capacity of the watercourse, nature and extent of improvements on the watercourse, amount of water taken, previous uses, social importance of the use, and rights and reasonable needs of other riparians.’”⁸⁹ Importantly, the standard of reasonable use tolerates substantial interference with others’ uses only if there is so little water available that neither riparian can pursue their competing uses without harming the other.⁹⁰

Today, regulated riparianism governs water law in many eastern states.⁹¹ This regime is a modified version of common law riparianism that incorporates some level of state regulation of water use.⁹² Under regulated riparianism, a riparian must obtain a limited-duration permit from the state before she has the right to use a specified quantity of water.⁹³ The state determines prior to issuing the permit—and thus before the use has begun—whether the riparian’s intended use is reasonable.⁹⁴ Riparianism—whether common law or regulated—favors a broad interpretation of reasonable use in order to accommodate as many reasonable riparian uses of a waterway as possible.⁹⁵ Notably, however, “the reasonableness of a particular mix of water uses can change over time, as co-riparians make changes in their uses, or as shifts in climate and overall patterns of regional development alter the flow or use characteristics of the water course.”⁹⁶

III. THE ELEMENT OF NECESSITY

The *Winters* doctrine “is based on the necessity of water for the purpose of the federal reservation.”⁹⁷ The term “necessity” means “the fact of being required,”⁹⁸ or “essential.”⁹⁹ It also refers to the necessities of life,

values of water uses, land, investments and enterprises; and the justice of requiring the user causing harm to bear the loss.

⁸⁹ Rowberry, *supra* note 33, at 1004 (quoting Richard C. Ausness, *Water Rights Legislation in the East: A Program for Reform*, 24 WM. & MARY L. REV. 547, 550 (1983)).

⁹⁰ SAX ET AL., *supra* note 46, at 33.

⁹¹ *Id.* at 104.

⁹² *Id.* at 105.

⁹³ *Id.*

⁹⁴ *Id.* at 116.

⁹⁵ *See id.* at 34.

⁹⁶ SAX ET AL., *supra* note 46, at 34.

⁹⁷ *Cappaert*, 426 U.S. at 129.

⁹⁸ *Necessity*, OXFORD ENGLISH DICTIONARY ONLINE, http://www.oxforddictionaries.com/us/definition/american_english/necessity?q=necessity [https://perma.cc/W7MH-E73Y] (last visited Apr. 3, 2019).

⁹⁹ *Id.*

such as food, shelter, and perhaps most importantly, water.¹⁰⁰ The Supreme Court has not expressly defined what constitutes “necessity” for the purpose of recognizing federal reserved water rights, but *Winters*, *Arizona v. California*, *Cappaert*, and *New Mexico* illustrate the concept.¹⁰¹ These decisions highlight two key factors that the Court considers to determine whether necessity is satisfied. First, the Court considers the hydrology and climate of the reserved lands in question.¹⁰² If water resources are scarce and the climate is arid, then the situation is more likely to satisfy necessity. Second, the Court considers the adequacy of the relevant state water law regime to guarantee sufficient water necessary to fulfill the purposes of the reservation.¹⁰³ If state water law cannot guarantee a sufficient quantity or quality of water, then the situation is likely one of necessity. When these two situations are present at the same time, the Court finds that federal reserved water rights are necessary to secure sufficient water for the reservation and subsequently applies the *Winters* doctrine.¹⁰⁴

In *Winters*, the Court described the Fort Belknap Indian Reservation as consisting of lands:

adapted for and susceptible of farming and cultivation and the pursuit of agriculture, and productive in the raising thereon of grass, grain and vegetables, but such [lands were] of dry and arid character, and in order to make them productive require[d] large quantities of water for the purpose of irrigating them.¹⁰⁵

The United States, representing its interests as well as those of the Gros Ventre and the Assiniboine Tribes, argued that “it [was] essential and necessary that all of the waters of the [Milk River] flow [to the Reservation] uninterruptedly and undiminished in quantity and undeteriorated

¹⁰⁰ See Press Release, Secretary-General, Access to Safe Water Fundamental Human Need, Basic Human Right, Says Secretary-General in Message on World Water Day, U.N. Doc. SG/SM/7738-OBV/200 (Mar. 12, 2001), <https://www.un.org/press/en/2001/sgsm7738.doc.htm> [<https://perma.cc/NU5Y-2RCZ>] (last visited Apr. 3, 2019).

¹⁰¹ See *infra* Part I.

¹⁰² *Winters*, 207 U.S. at 566; *Arizona*, 373 U.S. at 598–99; *Cappaert*, 426 U.S. at 131–32; *New Mexico*, 438 U.S. at 705.

¹⁰³ *Winters*, 207 U.S. at 567; *Arizona*, 373 U.S. at 555; *Cappaert*, 426 U.S. at 134; *New Mexico*, 438 U.S. at 705.

¹⁰⁴ *Id.*

¹⁰⁵ *Winters*, 207 U.S. at 566 (internal quotation marks omitted).

in quality.”¹⁰⁶ This situation was one of necessity because the “dry and arid character” of the reserved lands meant that the Reservation would be “a barren waste” without water.¹⁰⁷ Moreover, Montana state water law—which at the time followed riparian rights, rather than prior appropriation¹⁰⁸—could not guarantee sufficient water to fulfill the purposes of the Reservation because riparianism did not entitle the Gros Ventre and the Assiniboine to a specified quantity or quality of water of the Milk River.¹⁰⁹ Accordingly, the Court held that the federal government had impliedly reserved sufficient water necessary to fulfill the purpose of the Fort Belknap Indian Reservation.¹¹⁰

Following *Winters*, in *Arizona v. California*—a case concerning apportionment of the Colorado River and its tributaries—the Court upheld the finding that the federal government had reserved water rights to the Colorado River for Native American reservations in Arizona, California, and Nevada.¹¹¹ The Court emphasized the aridity of the reserved lands in explaining its rationale for recognizing *Winters* rights:

If the water necessary to sustain life is to be had, it must come from the Colorado River or its tributaries. It can be said without overstatement that when the Indians were put on these reservations they were not considered to be located in the most desirable area of the Nation. It is impossible to believe that when [the federal government created these reservations] they were unaware that most of the lands were of the desert kind—hot, scorching sands—and that water from the river would be *essential to the life of the Indian people* and to the animals they hunted and the crops they raised.¹¹²

Additionally, the Court concluded that *Winters* entitled the Tribes’ water rights to priority of use because the creation date of the Reservations

¹⁰⁶ *Id.* at 567. Although the United States Supreme Court has not explicitly held as such, the plain language of *Winters* strongly suggests that the *Winters* doctrine protects water quality as well as water quantity. *Id.*

¹⁰⁷ *Id.* at 566, 577.

¹⁰⁸ *Id.* at 567.

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 577–78.

¹¹¹ *Arizona*, 373 U.S. at 595.

¹¹² *Id.* at 598–99 (emphasis added).

predated the Colorado River apportionment scheme.¹¹³ The fact that the Court considered *Winters's* application in the context of this apportionment scheme and not in the context of prior appropriation distinguishes *Arizona v. California* slightly from the other *Winters* decisions. However, the reason the states of the Colorado River Basin had entered into the apportionment scheme was out of fear that “they would not get their fair share of Colorado River water” under the doctrine of prior appropriation.¹¹⁴ The Court acknowledged that “[t]hese fears were not without foundation, since the law of prior appropriation prevailed in most of the Western States.”¹¹⁵ This strongly implies that state water law was insufficient to guarantee sufficient water for Native American reservations in the Colorado River Basin states. The combination of the arid desert climate and the inability of the prior appropriation-based state water regimes to guarantee the Tribes sufficient quantity and quality of water to fulfill the purposes of their reservations satisfied the factors required to show necessity. As such, the Court applied the *Winters* doctrine.¹¹⁶

Similarly, in *Cappaert* the Court held that the United States had impliedly reserved water rights when it created Devil’s Hole National Monument, a deep limestone cavern in Nevada containing an underground pool inhabited by a unique species of desert fish.¹¹⁷ The United States brought suit to protect the pool because nearby ranchers, the Cappaerts, had been pumping groundwater from the same aquifer that supplied water to Devil’s Hole, decreasing the level of water in the pool.¹¹⁸ The Court explained that *Winters* applied because “the purpose of reserving Devil’s Hole [was] preservation of the pool” and its inhabitant, the pupfish.¹¹⁹ Yet, the federal government could not fulfill the purpose of Devil’s Hole if the Cappaerts pumped the pool dry.¹²⁰ Although the Court permitted “the level of the pool . . . to drop to the extent that the drop [did] not impair the scientific value of the pool as the [pupfish’s] natural habitat,” it recognized the relationship between sufficient water for the pool and the pupfish as one of necessity.¹²¹ Decreased water levels due to pumping, as

¹¹³ *Id.* at 600.

¹¹⁴ *Id.* at 556.

¹¹⁵ *Id.* at 555.

¹¹⁶ *Id.* at 600.

¹¹⁷ *Cappaert*, 426 U.S. at 131–32.

¹¹⁸ *Id.* at 133.

¹¹⁹ *Id.* at 141.

¹²⁰ *Id.*

¹²¹ *Id.*

well as Devil's Hole's location in Death Valley—the hottest place in the world and the driest spot in North America¹²²—meant that sufficient water was not available to fulfill the purpose of Devil's Hole: protecting the pupfish and, in turn, its natural habitat.¹²³ Moreover, Nevada's prior appropriation water regime could not guarantee sufficient water for the reservation because, while the federal government reserved Devil's Hole in 1952, it did not divert the water for a beneficial use.¹²⁴ The Cappaerts, who began pumping groundwater in 1968, were the first to divert the water under prior appropriation.¹²⁵ Consequently, they held the senior water right to the aquifer that supplied the pool.¹²⁶ Once again, the combination of hydrology and climate, and an inadequate state water regime resulted in a situation where the water necessary to sustain the federal reservation was unavailable. Therefore, the situation of Devil's Hole and its resident pupfish satisfied necessity for the purposes of applying the *Winters* Doctrine.¹²⁷

In *New Mexico*, the Court explained that the *Winters* doctrine applies—and necessity exists—in situations where “the purposes of the reservation would be entirely defeated” without water and where water is essential.¹²⁸ In that case, the Court considered whether *Winters* applied to the Mimbres River in New Mexico's Gila National Forest and for what purpose the United States had intended to reserve water rights.¹²⁹ The Court emphasized that “[t]he quantification of reserved water rights for the national forests is of critical importance to the West, where . . . water is scarce and where more than 50% of the available water either originates in or flows through national forests.”¹³⁰ The scarcity of water and the fact that the Mimbres River was fully appropriated under New Mexico's prior appropriation regime meant it was necessary for the Court to recognize *Winters* rights in order to guarantee sufficient water to fulfill the purpose of the reservation.¹³¹

¹²² *Death Valley National Park*, NAT'L PARK SERV., <https://www.nps.gov/deva/index.htm> [<https://perma.cc/4NJW-TTFV>] (last visited Apr. 3, 2019).

¹²³ *Cappaert*, 426 U.S. at 133–34.

¹²⁴ *See id.* at 131–32. At the time, Nevada did not recognize instream flows as a beneficial use.

¹²⁵ *Id.* at 133.

¹²⁶ *Id.*

¹²⁷ *Id.* at 138–39.

¹²⁸ *New Mexico*, 438 U.S. at 705.

¹²⁹ *Id.* at 697.

¹³⁰ *Id.* at 705 (internal citations omitted).

¹³¹ *See id.*

As illustrated above, the hydrology and climate of a reservation and the water law regime of the state where the reservation is located are the two key factors that the Court analyzes to determine whether necessity is present. Historically, these factors have been satisfied more easily in the West than in the East. As such, a presumption of necessity exists in the West because the hydrology, climate, and water law of the western states are less likely to be able to guarantee sufficient water to fulfill the purposes of Native American reservations. In the East, however, there is no such presumption. Rather, there is a presumption *against* necessity. Therefore, it is critical for a party asserting *Winters* rights not only to show the lack or shortage of sufficient quantity or quality of water, but also to explain why state water law is inadequate. If a *Winters* claim in either region satisfies these two factors, then it satisfies the element of necessity.

IV. NECESSITY IN THE WEST

Winters v. United States, *Arizona v. California*, *Cappaert v. United States*, and *United States v. New Mexico* all concern water and lands in the western United States. This is no surprise; the scarcity of water in the West easily satisfies the hydrology and climate criteria for necessity. In *New Mexico*, the Court explained:

[W]ater is frequently necessary to achieve the purposes for which these reservations are made. But Congress has seldom expressly reserved water for use on these withdrawn lands. If water were abundant, Congress' silence would pose no problem. In the arid parts of the West, however, claims to water for use on federal reservations inescapably vie with other public and private claims for the limited quantities to be found in the rivers and streams. This competition is compounded by the sheer quantity of reserved lands in the Western States.¹³²

Additionally, state water law in the West is generally insufficient to address this need because it is founded on prior appropriation. Examining each of the necessity factors in turn, it becomes clear that necessity is presumptively satisfied in the West.

¹³² *Id.* at 699.

A. *Water Resources in the West*

“Water is scarce throughout most of the western United States.”¹³³ Such scarcity is a theme running through *Winters* claims. The West “is a vast area of mountain ranges, deserts, canyons, and grasslands with very little precipitation.”¹³⁴ Notably, “[t]he West has typically been defined by the 100th Meridian. On average, the region west of this longitude—which runs down the center of the Great Plains—receives less than 20 inches of annual rainfall, whereas more than 20 inches of precipitation falls east of this line.”¹³⁵ For example, the Colorado River Basin—the water resource at issue in *Arizona v. California*—is composed mostly of “arid or semiarid lands and rangelands.”¹³⁶ These lands “historically receive less than 10 inches of precipitation per year. In contrast, many of the mountainous areas that rim the northern portion of the Colorado River Basin receive, on average, over 40 inches of precipitation per year.”¹³⁷ Moreover, “[m]ost of the total annual flow in the Colorado River Basin results from natural runoff from mountain snowmelt.”¹³⁸ The regular cycle of these natural hydrological processes plays a critical role in providing water to the thirsty western states.

In parts of the West, current climate conditions already constrain water supplies.¹³⁹ “Water allocations in the region, some of which were agreed upon almost a century ago, have become difficult to meet.”¹⁴⁰ Climate change will strain western water resources further.¹⁴¹ Scientists predict changes in climate conditions in the West to include decreased precipitation, increased temperatures, increased frequency and severity

¹³³ Andrew Fahlund et al., *Water in the West*, 6 CALIF. J. POL. & POL'Y 61, 62 (2014).

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ BUREAU OF RECLAMATION, RECLAMATION, SECURE WATER ACT SECTION 9503(C)—RECLAMATION CLIMATE CHANGE AND WATER, REPORT TO CONGRESS 18 (Apr. 2011), <https://www.usbr.gov/climate/secure/docs/SECUREWaterReport.pdf> [<https://perma.cc/5PFS-N7F9>] [hereinafter RECLAMATION].

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Climate Impacts in the Southwest*, U.S. ENVTL. PROT. AGENCY, https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-southwest_.html#Water [<https://perma.cc/H7SW-VASR>] (last visited Apr. 3, 2019) [hereinafter *Climate Impacts in the Southwest*].

¹⁴⁰ *Climate Change: Southwest Impacts & Adaptation*, U.S. ENVTL. PROT. AGENCY, <https://www.rosemonteis.us/files/references/045743.pdf> [<https://perma.cc/BF7F-W5PQ>] (last visited Apr. 3, 2019) [hereinafter *Climate Change: Southwest Impacts & Adaptation*].

¹⁴¹ See *Climate Impacts in the Southwest*, *supra* note 139.

of drought, and reduced snowpack resulting from increased winter temperatures, which will lead to reduced streamflows.¹⁴² Specifically, climate change is likely to result in “an 8 to 20 percent decrease in average annual stream flow in several river basins, including the Colorado, the Rio Grande, and the San Joaquin.”¹⁴³ The Colorado River “is a critical resource in the West,” as seven states and at least five Native American tribes depend on it for their water supply.¹⁴⁴ Yet, as climate change affects the Colorado River Basin, its impact “will drive changes in the availability of natural water supplies. These effects may occur as changes to annual runoff and changes in runoff seasonality.”¹⁴⁵ Notably, scientists expect warmer temperatures throughout the Basin “to lead to more rainfall-runoff during the cool season rather than snowpack accumulation. This logically leads to increases in December–March runoff and decreases in April–July runoff,” making the arid and semiarid lands of the Colorado River Basin more susceptible to drought.¹⁴⁶ In fact, scientists already have observed climate change impacts across the West, including rising temperatures, increased drought in the southwest, and changes in the timing of streamflows in the northwest—all of which have led to increased demand for water resources in the West.¹⁴⁷ Critically, with changing climate conditions, “Native Americans living on reservations could suffer from limited access to water resources . . . [especially] if reservation water supplies become scarce or contaminated.”¹⁴⁸

B. The Inherent Inadequacy of Prior Appropriation

The scarcity of water in the West necessitated the development of a water rights regime that discouraged waste.¹⁴⁹ However, prior

¹⁴² *Id.*; *Climate Impacts in the Northwest*, U.S. ENVTL. PROT. AGENCY, https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-northwest_.html#Water [<https://perma.cc/B633-3VCR>] (last visited Apr. 3, 2019) [hereinafter *Climate Impacts in the Northwest*].

¹⁴³ Press Release, U.S. Dep’t of the Interior, Share Interior Releases Report Highlighting Impacts of Climate Change to Western Water Resources (Apr. 25, 2011), <https://www.doi.gov/news/pressreleases/Interior-Releases-Report-Highlighting-Impacts-of-Climate-Change-to-Western-Water-Resources> [<https://perma.cc/D58P-LRSY>].

¹⁴⁴ RECLAMATION, *supra* note 136, at 17.

¹⁴⁵ *Id.* at 31.

¹⁴⁶ *Id.*

¹⁴⁷ UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 70, 73 (Jerry Melillo et al. eds., 2014).

¹⁴⁸ *Climate Change: Southwest Impacts & Adaptation*, *supra* note 140.

¹⁴⁹ Fahlund et al., *supra* note 133, at 63 (explaining that “[i]n the arid West, perennial

appropriation is inherently inadequate for protecting the water rights of Native American reservations because the regime cannot ensure sufficient quantity or quality of water to fulfill the reservation's purpose. "The *Winter's* [sic] doctrine is antithetical to the prior appropriation" systems utilized in the western states.¹⁵⁰ First, prior appropriation establishes a hierarchy of users based on the priority date.¹⁵¹ If a reservation has a later priority date than other users, the reservation is a junior user and would receive its appropriated amount of water last.¹⁵² Competition between users is at the heart of the regime. Climate change impacts, like changing streamflows, will only "worsen[] the existing competition for water."¹⁵³ As long as sufficient water is available for the senior user and all the junior users, there is no concern for the junior reservation-user. However, in times of shortage, prior appropriation allocates water on the basis of hierarchy until the water runs out.¹⁵⁴ Thus, junior users can be—and often are—left out to dry.¹⁵⁵ For a Native American reservation, this situation upsets the fulfillment of the reservation's purpose.

Second, prior appropriation limits an appropriator's use to a beneficial use.¹⁵⁶ This means the use must fall into a category of use recognized as beneficial use by the state.¹⁵⁷ Agriculture is a primary purpose of most Native American reservations and a recognized beneficial use.¹⁵⁸ However, prior appropriation does not recognize the homeland purpose as beneficial use.¹⁵⁹ The homeland purpose refers to practices essential for Native Americans to preserve culture and maintain tribal identity.¹⁶⁰ Water uses for the homeland purpose could include preserving instream

streams are fewer and farther in between and their flows are variable and uncertain. The need to allocate a scarce and unpredictable resource gave rise to the prior appropriation system").

¹⁵⁰ *United States v. Anderson*, 591 F. Supp. 1, 5 (E.D. Wash. 1982), *aff'd in part, rev'd in part*, 736 F.2d 1358 (9th Cir. 1984).

¹⁵¹ SAX ET AL., *supra* note 46, at 126.

¹⁵² *Id.*

¹⁵³ *Climate Impacts in the Northwest*, *supra* note 142.

¹⁵⁴ SAX ET AL., *supra* note 46, at 126.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* at 125, 154–55.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 154–55.

¹⁵⁹ See generally Jessica Lowrey, Note & Comment, *Home Sweet Home: How the "Purpose of the Reservation" Affects More Than Just the Quantity of Indian Water Rights*, 23 COLO. J. INT'L ENVTL. L. & POL'Y 201 (arguing for the use of homeland purpose to quantify Indian water rights).

¹⁶⁰ See *id.* at 204.

flows to maintain fish populations so that tribes may continue to fish their historic fishing grounds.¹⁶¹ For example, in *United States v. Adair* the Ninth Circuit explained that prior appropriation was inadequate to secure water for a homeland purpose because “[a] water right to support game and fish adequate to the needs of Indian hunters and fishers [was] not a right recognized as a part of the common law doctrine of prior appropriation followed in Oregon.”¹⁶²

Third, prior appropriation is inadequate because the regime permits interstate and out-of-basin water transfers.¹⁶³ Although prior appropriation subjects the user seeking to transfer the water to the no injury rule, it is unclear how the administrative agency making the transfer permit decision would evaluate injury in times of diminished flow.¹⁶⁴ For these reasons, prior appropriation is inherently inadequate to ensure sufficient water to fulfill the purposes of western-located Indian reservations. This fact, combined with the hydrological reality of limited water resources and a generally arid climate, means that necessity for *Winters* purposes is presumptively satisfied in the West.

V. WINTERS IN THE EAST

A. *Winters Applies*

According to the plain language of *Winters v. United States*, the *Winters* doctrine applies where the federal government has reserved lands, thereby impliedly also reserving sufficient quantity and quality of water necessary to fulfill the purpose of the reservation.¹⁶⁵ Yet, so far, courts have recognized *Winters* rights only in the West.¹⁶⁶ This is likely due to hydrological reality: water is scarce in the West. As a result, *Winters* claims are more likely to arise there than in the historically water-rich, riparian East.¹⁶⁷ However, the plain language of *Winters* suggests that the doctrine also applies in the East because it does not limit the doctrine to western reservations or only to arid lands.¹⁶⁸ Additionally, legal scholars offer

¹⁶¹ *United States v. Adair*, 723 F.2d 1394, 1410 (9th Cir. 1983).

¹⁶² *Id.*

¹⁶³ SAX ET AL., *supra* note 46, at 125.

¹⁶⁴ *Id.* at 268–69.

¹⁶⁵ *Winters*, 207 U.S. at 576–77.

¹⁶⁶ Royster, *supra* note 4, at 169.

¹⁶⁷ See *supra* Part IV.

¹⁶⁸ *Winters*, 207 U.S. at 576–77.

several reasons for why *Winters* applies to federal reservations beyond the arid western states.¹⁶⁹ Professor Judith Royster argues that *Winters* applies in the East because tribal reserved rights exist for two purposes and “[n]either purpose is confined to a line west of the 100th meridian.”¹⁷⁰ These purposes are: (1) to allow tribes to continue pre-existing or aboriginal practices and (2) to allow tribes to accomplish the purposes for which the government established the reservation.¹⁷¹ Furthermore, Royster argues that reserved water rights are neither appropriative nor riparian, but a third, distinct set of reserved water rights under federal law, and thus *Winters* rights exist outside the prior appropriation arena.¹⁷² Professor Hope Babcock posits normative reasons and utilitarian reasons for recognizing *Winters* rights in riparian jurisdictions.¹⁷³ Normative reasons include redressing the wrongs perpetrated against Native American tribes, distributive justice, fairness, and environmental justice.¹⁷⁴ Utilitarian reasons include promoting cultural survival and encouraging water conservation among non-tribal users by reserving water for tribal use.¹⁷⁵ Therefore, it is likely that *Winters* applies to Native American reservations in the East. It is also likely that *Winters* applies to non-Native American federal reservations in the East, such as National Parks and National Forests, as well as military installations.¹⁷⁶

B. *Winters Rights Litigation*

Regardless of the type of reservation, the element of necessity must be met for a court to recognize federal reserved water rights under *Winters*.¹⁷⁷ The East’s natural abundance of water and its riparianism regime that grants each user a reasonable share of the available water gives

¹⁶⁹ Hope M. Babcock, *Reserved Indian Water Rights in Riparian Jurisdictions: Water, Water Everywhere, Perhaps Some Drops For Us*, 91 CORNELL L. REV. 1203, 1240–47 (2006); Royster, *supra* note 4, at 191–95.

¹⁷⁰ Royster, *supra* note 4, at 191.

¹⁷¹ *Id.*

¹⁷² *Id.* at 193.

¹⁷³ Babcock, *supra* note 169, at 1234.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ See Rowberry, *supra* note 33, at 1017–18 (advocating use of *Winters* rights to protect water for National Parks in the East); see also Jeremy Nathan Jungreis, “Permit” Me Another Drink: A Proposal for Safeguarding the Water Rights of Federal Lands in the Regulated Riparian East, 29 HARV. ENVTL. L. REV. 369, 385 (2005) (proposing *Winters* rights as a possible option to secure water for federal military installations).

¹⁷⁷ See *Cappaert*, 426 U.S. at 143.

rise to a presumption against necessity.¹⁷⁸ No court has recognized *Winters* rights in this region for *any* reservation.¹⁷⁹ Regarding Native American reservations, tribes have attempted to assert *Winters* rights in the East on only two occasions.¹⁸⁰ Both lawsuits—*Seminole Tribe of Indians v. Florida* and *Mattaponi Indian Tribe v. Commonwealth*—ultimately ended in settlement agreements.¹⁸¹ Nonetheless, a brief discussion of the cases is instructive for considering potential situations of necessity in the East.

1. *Seminole Tribe of Indians v. Florida*

Seminole Tribe of Indians v. Florida involved tribal water rights for federal Native American reservations in south Florida.¹⁸² The Seminole tribe initiated the lawsuit after the state enacted the Florida Water Resources Act of 1972, which “established a permit system in lieu of the previous riparian system.”¹⁸³ The Seminoles, a federally recognized tribe, argued that Florida lacked jurisdiction over the regulation of tribal water use, and that the Tribe possessed federally protected reserved water rights in its Indian reservations under the *Winters* doctrine.¹⁸⁴ Notably, “[i]n the past, state authorities had never precisely focused on the status of the Seminole Tribe vis-à-vis the state’s water system regulation. They generally assumed that the *Winters* doctrine did not apply in the East.”¹⁸⁵

The Seminoles attempted to assert a *Winters* claim because their Reservations’ water supply was under threat. For many years, “large-scale citrus operations and other development north of [the Seminoles’] West Big Cypress Reservation” had concerned the Tribe.¹⁸⁶ “Although no

¹⁷⁸ *Mattaponi*, 72 Va. Cir. at 461.

¹⁷⁹ *Id.*

¹⁸⁰ See 25 U.S.C. § 1772e (resolving *Winters* claim brought by Seminole Tribe of Florida against the State of Florida); *Mattaponi*, 72 Va. Cir. at 444.

¹⁸¹ 25 U.S.C. § 1772e. The Seminole Water Rights Compact is reprinted in *Seminole Indian Land Claims Settlement Act of 1987: Hearing on S. 1684 Before the Senate Select Comm’n on Indian Affairs*, 100th Cong., 83–122 (1987). The text of the Compact is also available at <https://digitalrepository.unm.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1063&context=nawrs> [https://perma.cc/9ACG-NTBN] (last visited Apr. 3, 2019). Allison M. Dussias, *Protecting Pocahontas’s World: The Mattaponi Tribe’s Struggle Against Virginia’s King William Reservoir Project*, 36 AM. INDIAN L. REV. 1, 96–97 (2011) (discussing settlement of *Mattaponi* lawsuit to claim *Winters* rights).

¹⁸² Jim Shore & Jerry C. Straus, *The Seminole Water Rights Compact and the Seminole Indian Land Claims Settlement Act of 1987*, 6 J. LAND USE & ENVTL. L. 1, 2 (1990).

¹⁸³ *Id.* at 9.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ *Id.* at 8.

present shortage of water existed on that reservation, the Tribe feared that [Florida] implementing [its] extensive plans for diverting groundwater to the north would affect both the quality and quantity of [the Seminoles'] only dependable source of water in the dry season—reservation groundwater.”¹⁸⁷ Additionally, development had already caused hydrological changes resulting in a lack of water.¹⁸⁸ Specifically, the water shortage had caused a lake, created by the state to help provide water to the Reservation, “to drastically recede.”¹⁸⁹ Furthermore, on one Seminole Reservation, “the Tribe was deprived for many years of water to which it was clearly entitled—even when sufficient water was actually available” due to poor water management by the state and “unauthorized and unlawful diversions of water by neighboring landowners.”¹⁹⁰

In bringing suit, the Seminoles “believed that the *Winters* doctrine’s rationale—to assure [Native Americans] on federally reserved lands sufficient water to sustain their reservations as homelands—applied with equal force to [eastern states].”¹⁹¹ However, the case ended in a settlement agreement, the Seminole Indian Land Claims Settlement Act of 1987, and thus the court never addressed *Winters*’s applicability.¹⁹² The settlement included a water rights compact between the Seminoles, the federal government, and the state of Florida.¹⁹³ Congress provided that “[t]he compact defining the scope of Seminole water rights and their utilization by the tribe shall have the force and effect of Federal law for the purposes of enforcement of the rights and obligations of the tribe.”¹⁹⁴ Interestingly, under the Compact, “the Tribe achieved state and federal recognition of substitute federal water rights in exchange for *Winters* doctrine rights.”¹⁹⁵ The Compact did not explain the difference between the “substitute federal water rights” that the Seminoles received and the *Winters* rights which the Tribe had originally sought.¹⁹⁶ Regardless, the Seminoles’ situation was such that the Tribe required particular legal protection to ensure a sufficient quantity and quality of water to sustain their reservations. It was a situation of necessity: Florida’s development

¹⁸⁷ *Id.*

¹⁸⁸ Shore & Straus, *supra* note 182, at 4–5.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.* at 18.

¹⁹¹ *Id.* at 9.

¹⁹² 25 U.S.C. § 1772e.

¹⁹³ *Id.*

¹⁹⁴ *Id.*

¹⁹⁵ Shore & Straus, *supra* note 182, at 12.

¹⁹⁶ *Id.*

and population growth had threatened the Seminoles' water resources, and the state's water rights regime was insufficient to protect them.

2. *Mattaponi Indian Tribe v. Commonwealth*

In *Mattaponi Indian Tribe v. Commonwealth*, the Mattaponi Tribe of Virginia brought suit against the commonwealth of Virginia to enjoin construction of a reservoir upstream from the Tribe's reservation on the Mattaponi River.¹⁹⁷ The Tribe argued that the reservoir would infringe usufructory rights reserved to them under the Treaty of Middle Plantation in 1677.¹⁹⁸ "Moreover, the Tribe assert[ed] that the [r]eservoir's construction [would] unlawfully infringe on the rights it possess[e]d in and to the waters of the Mattaponi River."¹⁹⁹ Notably, although at the time the Mattaponi was not a federally recognized tribe, but a tribe recognized by the state, the court found that this did not bar *Winters*'s potential applicability.²⁰⁰

The issue of whether *Winters* rights apply in Virginia presented a "novel and complex question" for the Virginia court.²⁰¹ The court noted that "[t]he reserved water rights doctrine [had] not been applied, nor its suitability formally addressed, in states like Virginia that subscribe to a riparian water rights system."²⁰² In its analysis, the court examined the basic tenets of riparianism and prior appropriation, highlighting the differences between the two water law regimes.²⁰³ The court considered the regimes' clear differences "critically important" in discerning *Winters* applicability in the East.²⁰⁴ However, the critical difference for the court was the fact that *Winters* is a doctrine "of necessity" and that "parties have asserted this necessity only in the context of prior appropriation, where the fear of senior appropriators precluding Indian reservations from having sufficient water arguably requires an implication of reserved

¹⁹⁷ *Mattaponi*, 72 Va. Cir. at 444.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 459–60. The court concluded that "the reasoning behind the *Winters* doctrine is equally applicable to state Indian tribes as it is to federally recognized tribes" because no government—state or federal—would establish a reservation for a tribe if the reservation "would not enjoy the amount of water needed to further the purposes behind its creation and sustain its inhabitants." *Id.* The Mattaponi have since received federal recognition. Thomasina E. Jordan Indian Tribes of Virginia Federal Recognition Act of 2017, Pub. L. No. 115-121, § 303, 132 Stat. 40 (2018).

²⁰¹ *Mattaponi*, 72 Va. Cir. at 449.

²⁰² *Id.*

²⁰³ *Id.* at 448.

²⁰⁴ *Id.* at 454.

water rights.”²⁰⁵ The court emphasized that “the abundance of water found in eastern states effectively creates a presumption that sufficient water will be available for all users,” including Native American tribes.²⁰⁶ For this reason, “the element of necessity essential to invoke the *Winters* doctrine was unsatisfied in these situations.”²⁰⁷ The court found that the Mattaponi had not pleaded sufficient facts to demonstrate necessity, thereby failing to overcome the presumption that sufficient water would be available for all users, and thus the *Winters* doctrine did not apply.²⁰⁸

Yet, the court did not hold that *Winters* may never apply in riparian jurisdictions.²⁰⁹ “Because reserved water rights hinge on the question of necessity, it is plausible that even in a riparian jurisdiction it may be necessary to imply reserved water pursuant to an Indian reservation or treaty-granted rights.”²¹⁰ The court reasoned as such because riparianism “only grants a riparian owner [reasonable use of water],” and not “sufficient water for a particular purpose,” as does the *Winters* doctrine.²¹¹ Accordingly, if a tribe could show that “riparian law would not provide [it] with the quantity or quality of water sufficient to sustain its Indian reservation, protect [treaty rights], or preserve its aboriginal practices,” then the tribe would “satisfy the *Winters* doctrine’s critical element of necessity” and would therefore be able to assert federal reserved water rights.²¹²

VI. SATISFYING NECESSITY IN THE EAST

Winters’s applicability in the East depends on the ability of a Native American tribe to satisfy the element of necessity, a fact-based showing.²¹³ As discussed in Part III, satisfying necessity requires a tribe to show: (1) that the hydrology and climate of its reservation is such that water is unavailable in sufficient quantity or quality to fulfill the reservation’s purpose; and (2) that state water law cannot ensure sufficient water for the reservation.²¹⁴ While the East’s natural abundance of water gives rise to a presumption against necessity, changes in regional water resources

²⁰⁵ *Id.* at 455.

²⁰⁶ *Id.* at 460.

²⁰⁷ *Mattaponi*, 72 Va. Cir. at 461.

²⁰⁸ *Id.* at 463.

²⁰⁹ *Id.* at 461.

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *Id.* at 462.

²¹³ *Mattaponi*, 72 Va. Cir. at 463.

²¹⁴ *See supra* Part III.

resulting from development, population growth, and climate change are likely to lead to situations of necessity where the state riparian regimes cannot ensure sufficient water.

A. *Water Resources in the East*

Historically, the eastern United States is a water-rich region. The “[a]nnual average precipitation [for northeastern states] ranges from less than 35 inches in parts of New York to over 50 inches along the New England coast.”²¹⁵ Inland locations, “particularly in West Virginia and New York . . . [as well as parts] of the Green and White Mountains” in Vermont and New Hampshire receive higher precipitation, including “amounts in excess of 60 inches.”²¹⁶ The Midwest—which is located east of the 100th Meridian and qualifies as the East for the purposes of this Article—receives a varied average annual precipitation, “ranging from less than 25 inches in northwest Minnesota to more than 46 inches in southern Missouri and along the Ohio River.”²¹⁷ In the southeast, “[t]he Gulf Coast regions of Louisiana, Mississippi, Alabama, and the Florida Panhandle receive over 60 inches of precipitation, while much of Virginia, northern Kentucky, and central sections of the Carolinas and Georgia receive between 40–50 inches of precipitation annually.”²¹⁸ The Atlantic coast and the Florida Peninsula receive even “[h]igher amounts of precipitation.”²¹⁹ Interestingly, locations “at the higher elevations of the southern Appalachians in North Carolina and Tennessee . . . can receive up to 100 inches of snowfall annually, which is comparable to annual snowfall amounts experienced across portions of New England.”²²⁰

Water is also present in the East in the form of major hydrological features. The Great Lakes—which border New York, Pennsylvania, Ohio, Illinois, Indiana, Michigan, Wisconsin, and Minnesota—form “the largest surface freshwater system on Earth.”²²¹ In fact, “[o]ne fifth of the world’s

²¹⁵ NAT’L OCEANIC & ATMOSPHERIC ADMIN., REGIONAL CLIMATE TRENDS AND SCENARIOS FOR THE U.S. NATIONAL CLIMATE ASSESSMENT: NORTHEAST 12 (2013) [hereinafter NOAA: NORTHEAST].

²¹⁶ *Id.*

²¹⁷ NAT’L OCEANIC & ATMOSPHERIC ADMIN., REGIONAL CLIMATE TRENDS AND SCENARIOS FOR THE U.S. NATIONAL CLIMATE ASSESSMENT: MIDWEST 12 (2013).

²¹⁸ NAT’L OCEANIC & ATMOSPHERIC ADMIN., REGIONAL CLIMATE TRENDS AND SCENARIOS FOR THE U.S. NATIONAL CLIMATE ASSESSMENT: SOUTHEAST 12 (2013) [hereinafter NOAA: SOUTHEAST].

²¹⁹ *Id.*

²²⁰ *Id.*

²²¹ U.S. ENVTL PROT. AGENCY, THE GREAT LAKES: AN ENVIRONMENTAL ATLAS AND RESOURCE BOOK 6 (3d ed. 1995), <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1004ICU.PDF?Doc>

fresh water resides in the Great Lakes,” making the Lakes an “important resource for [regional] water supply.”²²² The Great Lakes account for 90% of the United States’ water supply by volume, and provide drinking water to forty million people.²²³ The Mississippi River, which originates in northern Minnesota and empties into the Gulf of Mexico, also provides significant water to eastern states.²²⁴ Its watershed covers all or part of thirty-two states, including at least twenty states in the East.²²⁵

As long as water resources are plentiful and potable, it will be difficult for Native Americans in the East to satisfy *Winters’s* necessity requirement. Yet rapid population growth and expansive development throughout the region, as well as climate change, have begun to stress the East’s historically abundant water resources. Both scenarios have the potential to create situations of necessity in eastern states.

1. Development and Population Growth

“Rapid population growth and development has greatly increased the [East’s] demand for water” and its vulnerability to water shortage.²²⁶ Necessity as a result of development is a likely scenario for the eastern United States, specifically in the populous urban centers of the north and across the southern Sunbelt states. According to the most recent United States Census, three of the top five most populous states in the country—New York, Florida, and Illinois—lie east of the 100th Meridian.²²⁷ The eastern United States is also home to seven of the top ten most populous metropolitan areas²²⁸ in the country,²²⁹ and four of the nation’s fastest

key=P1004ICU.PDF [https://perma.cc/UQ4K-WVEG]; *The Great Lakes*, U.S. ENVTL. PROT. AGENCY, <http://epa.gov/greatlakes/> [https://perma.cc/5HV9-JNLQ] (last visited Apr. 3, 2019).

²²² NOAA: NORTHEAST, *supra* note 215, at 28.

²²³ See *About Our Great Lakes*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <https://www.glerl.noaa.gov/education/ourlakes/lakes.html> [https://perma.cc/3ADX-N22X] (last visited Apr. 3, 2019).

²²⁴ *Mississippi River Facts*, NAT’L PARK SERV., <http://www.nps.gov/miss/riverfacts.htm> [https://perma.cc/RC9C-AG2X] (last visited Apr. 3, 2019).

²²⁵ *Id.*

²²⁶ NOAA: SOUTHEAST, *supra* note 218, at 17.

²²⁷ PAUL MACKUN & STEVEN WILSON, POPULATION DISTRIBUTION AND CHANGE: 2000 TO 2010 3–4 (2011), <https://www.census.gov/library/publications/2011/dec/c2010br-01.html> [https://perma.cc/688S-6PM8]. Although the 100th Meridian runs through Texas, another top-five fastest growing state, Texas is considered the West for the purposes of this Article because it follows a prior appropriation regime.

²²⁸ *Id.* at 4 (defining a metropolitan area as an area containing “a core urban area population of 50,000 or more”).

²²⁹ Press Release, Census Bureau, New Census Bureau Population Estimates Show Dallas-Forth Worth-Arlington Has Largest Growth in the United States, Table 6 (Mar. 22, 2018),

growing metropolitan areas by population.²³⁰ Interestingly, all four of these metropolitan areas are located in southeastern states.²³¹ Florida boasts two (Orlando-Kissimmee-Sanford at #8 and Tampa-St. Petersburg-Clearwater at #10, respectively), Virginia and Maryland share one (Washington-Alexandria-Arlington at #5), and Georgia has one (Atlanta-Sandy Springs-Roswell at #3).²³²

Notably, Atlanta's sprawling growth is already straining regional water resources. A decades-long-running dispute between Florida and Georgia concerning use of the Apalachicola-Chattahoochee-Flint River Basin escalated in 2013, when Florida filed a lawsuit against Georgia in the United States Supreme Court seeking equitable apportionment of the Basin and alleging that Georgia's increased storage and consumption of water from the shared Basin has diminished Florida's water resources and "forc[ed] Floridians to shoulder the heavy burden of Georgia's growth."²³³ Florida's effort to secure an equitable apportionment continues today. Most recently, in June 2018, the United States Supreme Court held that the Court-appointed special master had applied too high a standard of review for redressability when rejecting Florida's argument that Georgia's water consumption should be limited by a cap.²³⁴ The Court remanded the case to the special master to determine, based on the evidentiary findings, whether "the benefits of the apportionment substantially outweigh the harm that might result."²³⁵ In the meantime, Atlanta's rising population and expanding development²³⁶ (to say nothing of Florida's own booming population growth)²³⁷ continues to stress regional water resources.

<https://www.census.gov/newsroom/press-releases/2018/popest-metro-county.html> [<https://perma.cc/D945-WELX>]. These metro areas are: New York-Northern New Jersey-Long Island, NY-NJ-PA (#1), Chicago-Naperville-Elgin, IL-IN-WI (#3), Washington-Arlington-Alexandria, DC-VA-MD-WV (#6), Miami-Fort Lauderdale-West Palm Beach, FL (#7), Philadelphia-Camden-Wilmington, PA-NJ-DE-MD (#8), Atlanta-Sandy Springs-Roswell, GA (#9), Boston-Cambridge-Newton, MA-NH (#10).

²³⁰ *Id.* at Table 7.

²³¹ *Id.*

²³² *Id.*

²³³ Complaint at 3, *Florida v. Georgia*, 138 S. Ct. 2502, 2506 (2018) (*petition for cert. filed* Oct. 1, 2013). Florida's complaint is available at <http://www.flgov.com/wp-content/uploads/2013/10/FLORIDA-v.-GEORGIA-Original-Action-Complaint.pdf> [<https://perma.cc/FL9K-4J46>] (last visited Apr. 3, 2019).

²³⁴ *Florida v. Georgia*, 138 S. Ct. 2502, 2506 (2018).

²³⁵ *Id.* at 2507 (quoting *Colorado v. New Mexico*, 459 U.S. 176, 187 (1982)).

²³⁶ See Census Bureau, *supra* note 229.

²³⁷ See MACKUN & WILSON, *supra* note 227, at 2.

Development-induced water stress was a primary reason that both the Seminole Tribe and the Mattaponi Tribe asserted *Winters* claims. The Seminoles alleged that development had negatively impacted water resources on the Tribe's Reservations, resulting in water shortage.²³⁸ Notably, the Seminoles' receipt of special federal reserved water rights in exchange for *Winters* rights suggests that development had contributed to a situation where sufficient water was unavailable for the Reservations' purposes.²³⁹ Similarly, the Mattaponi sought to protect its water rights against the construction of "a large reservoir [planned to be built] upstream from [its reservation] for the purpose of supplementing the water supplies of the City of Newport News and neighboring localities."²⁴⁰ Because development can create a hydrological situation that increases competition for and consumption of water resources, thereby decreasing availability of water resources, it is one scenario that is likely to satisfy necessity.

2. Climate Change

Climate change is another scenario that is likely to create necessity in the East because it will impact the availability of eastern water resources.²⁴¹ In the northeastern states, scientists predict wetter, warmer winters with less snow, and thereby reduced streamflow into the spring and summer.²⁴² This will result in lower-than-normal water levels in the fall, when streamflow is typically replenished, stressing water supply.²⁴³ Scientists also expect northeastern states to experience increased frequency and duration of drought during summer months.²⁴⁴ Importantly, "[d]rought creates increased competition for limited water resources."²⁴⁵ This will be particularly true in southeastern states, where droughts will become more intense and more frequent as temperatures increase.²⁴⁶

²³⁸ Shore & Straus, *supra* note 182, at 4–5.

²³⁹ *See id.* at 5.

²⁴⁰ *Mattaponi*, 72 Va. Cir. at 444.

²⁴¹ *See* UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT: SUMMARY FINDINGS 27 (2018) ("Future warming will add to the stress on water supplies and adversely impact the availability of water in parts of the United States.").

²⁴² UNION OF CONCERNED SCIENTISTS, THE CHANGING NORTHEAST CLIMATE 1, 5 (2006), http://www.ucsusa.org/assets/documents/global_warming/The-Changing-Northeast-Climate.pdf [<https://perma.cc/YHG5-52TB>].

²⁴³ *Id.* at 5.

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ *Climate Impacts in the Southeast*, U.S. ENVTL PROT. AGENCY, <https://19january2017>

“Despite the abundance of moisture, the [southeast] is prone to drought as deficits of precipitation lead to a shortage of freshwater supplies.”²⁴⁷ Moreover, although such droughts are typically of “a relatively shorter duration (i.e., one to three years) as compared to the multi-decadal droughts sometimes experienced in the western and central parts” of the United States, climate change will worsen drought in the southeast.²⁴⁸

Overall, “[c]lean water availability is expected to decline in the future” across many southeastern states.²⁴⁹ This decline will likely result from higher temperatures, which increase evaporation; rising temperatures leading to increased demand for agricultural irrigation water; and sea level rise, which will accelerate the rate of saltwater intrusion into coastal drinking water supplies.²⁵⁰ Additionally, “[p]rojected changes in surface water runoff to the coast and groundwater recharge will likely allow saltwater to intrude and mix with shallow aquifers in some coastal areas of the [s]outheast, particularly in Florida and Louisiana.”²⁵¹ Saltwater intrusion will disrupt regional water supplies by diminishing water quality, thereby also depleting the quantity of clean water resources available.²⁵² Miami, for example, faces a particularly perilous situation because the Biscayne Aquifer on which it relies for drinking water consists of “unusually shallow and porous limestone whose tiny air pockets are filled with rainwater and rivers running from the swamp to the ocean.”²⁵³ Sea level rise not only threatens to inundate Miami’s water supply with saltwater, but also to “push toxins from Superfund sites” into this critical underground water source.²⁵⁴ This matters because “[w]ithout this abundant source of fresh water, made cheap by its proximity to the surface, this hot, remote city could become uninhabitable.”²⁵⁵ Because climate change can create ecological conditions that deplete or diminish water resources, it is a scenario that is likely to satisfy necessity.

snapshot.epa.gov/climate-impacts/climate-impacts-southeast_.html#Water [https://perma.cc/UCL8-W33W] (last visited Apr. 3, 2019).

²⁴⁷ NOAA: SOUTHEAST, *supra* note 218, at 17.

²⁴⁸ *Id.*

²⁴⁹ *Climate Impacts in the Southeast*, *supra* note 246.

²⁵⁰ *Id.*

²⁵¹ *Id.*

²⁵² *Id.*

²⁵³ Christopher Flavelle, *Miami Will Be Underwater Soon. Its Drinking Water Could Go First*, BLOOMBERG BUSINESSWEEK (Aug. 29, 2018), <https://www.bloomberg.com/news/features/2018-08-29/miami-s-other-water-problem> [https://perma.cc/C7SG-C82S].

²⁵⁴ *Id.*

²⁵⁵ *Id.*

B. *Riparianism Is Insufficient*

The natural abundance of water in the East fits a water rights regime founded on the “presumption that sufficient water will be available for all users.”²⁵⁶ However, riparianism is insufficient to ensure necessary water for Native American reservations when the quantity of water is decreased or the quality of water is diminished to the extent that there is a water shortage. Such shortage situations satisfy necessity because riparian state water regimes cannot guarantee sufficient water to fulfill the purpose of the reservation.

First, riparianism’s fundamental assumption of abundance ignores hydrological fluctuations in water availability. Riparianism does not account for increased competition for or increased consumption of water resources. Also, in times of shortage, all riparian users must restrict their use pro rata.²⁵⁷ Yet, this situation could require a riparian Native American reservation to restrict its use to the amount where the tribe can no longer fulfill the purpose of its reservation. Moreover, riparianism does not entitle a user to a specified amount of water; rather it “only grants a riparian owner a reasonable use of the water.”²⁵⁸ However, reasonableness “does not necessarily comport with a riparian owner having a sufficient quantity or quality of water to achieve a certain purpose.”²⁵⁹ For example, the court explained in *Mattaponi* that the riparian Mattaponi Reservation was “guaranteed only the reasonable use of the river’s water under riparian law. Riparian law, however [did] not guarantee the Tribe the required quantity or quality of water needed to satisfy the purposes for which the Reservation was created.”²⁶⁰ Riparianism, by assuming that sufficient water will be available for all users and granting each user only the reasonable use of that water, cannot necessarily ensure sufficient water for Native American reservations in times of water shortage.

Further, “the key criterion upon which water usage is based in riparian systems—reasonable use—is inherently vague and unpredictable.”²⁶¹ This standard gives the states authority to determine whether a use is reasonable and “vests priority of use in no one.”²⁶² Under riparianism, a use that is socially beneficial, cultural, or environmentally just is

²⁵⁶ *Mattaponi*, 72 Va. Cir. at 460.

²⁵⁷ See GOLDBERG ET AL., *supra* note 27, at 1226.

²⁵⁸ *Id.* at 461 (internal citations omitted).

²⁵⁹ *Id.*

²⁶⁰ *Id.* at 462.

²⁶¹ Rowberry, *supra* note 33, at 1007.

²⁶² *Mattaponi*, 72 Va. Cir., at 460.

on par with all other reasonable uses.²⁶³ Thus, water use for Native American reservations—even if the water is necessary to fulfill the purpose of the reservation—receives no favor. Additionally, the reasonable use standard limits the riparian owner’s use of the water flowing through or adjacent to her land to use which does not unreasonably interfere with that of other riparians.²⁶⁴ Yet, “[o]ne can imagine a situation of a riparian landowner wishing to use his land for a *particular* beneficial purpose, but finding the quantity of water sufficient for that purpose to be unreasonable under riparian law.”²⁶⁵ Also, what constitutes “reasonable use” can change over time.²⁶⁶ For these reasons, riparianism cannot guarantee sufficient quantity or quality of water to fulfill the purpose of Native American reservations. Accordingly, the necessity required by *Winters* can arise in the East.

CONCLUSION

The *Winters* doctrine provides a powerful tool to secure and protect Native American water rights, one which tribes can employ as competition over regional water resources increases. Although the East’s natural abundance of water has historically met regional water needs, the dual threats of rapid development and climate change are creating a new hydrological reality characterized by water shortage—and possibly even water scarcity. Riparianism’s assumption that sufficient water resources will be available for all users, therefore, no longer holds water. The decrease in water availability and riparianism’s inability to address this issue means it is likely that eastern Native American tribes can satisfy *Winters*’s necessity requirement.

²⁶³ *Id.*

²⁶⁴ SAX ET AL., *supra* note 46, at 33.

²⁶⁵ *Mattaponi*, 72 Va. Cir. at 461 (emphasis added).

²⁶⁶ SAX ET AL., *supra* note 46, at 34.

