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OVERRULING THE RULE OF CAPTURE

*What Can Texas Learn From 10 Other States'
Groundwater Law Updates?*

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"Overruling the Rule of Capture: What Can Texas Learn From 10 Other States' Groundwater Law Updates?"

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Executive Summary

Texas groundwater common law is fundamentally based on principles developed in ancient Rome more than a millennium ago.¹ It has also been nearly 120 years since the state adopted the “rule of capture,” which, as described by the Texas Supreme Court “essentially allows, with some limited exceptions, a landowner to pump as much groundwater as the landowner chooses, without liability to neighbors who claim that the pumping has depleted their wells.”²

Since that landmark decision, Texas has grown into one of the largest economies and groundwater users in the world. Long-term water security is a necessary precondition for achieving another prosperous Texas century. Accordingly, the state acutely needs a common law system that can balance world-scale agricultural activity, industrial development, and urban growth while also protecting private property rights.

This analysis aims to provide a foundation for such discussions. It draws upon dozens of judicial and legislative decisions taken in 10 other American states that, at various points in the past 150 years, have transitioned from the rule of capture to another groundwater common law doctrine. Arkansas, Arizona, California, Florida, Kansas, Michigan, Nebraska, New Hampshire, Ohio, and Oklahoma offer a blend of unique and cross-jurisdictional insights that can provide an informed basis for policymakers in Texas, should they choose to update the state’s groundwater common law. In this group of 10 states, Ohio and Michigan offer especially relevant examples, as each adopted groundwater law doctrines that emphasize equitable balancing between competing uses while still respecting water owners’ property rights.

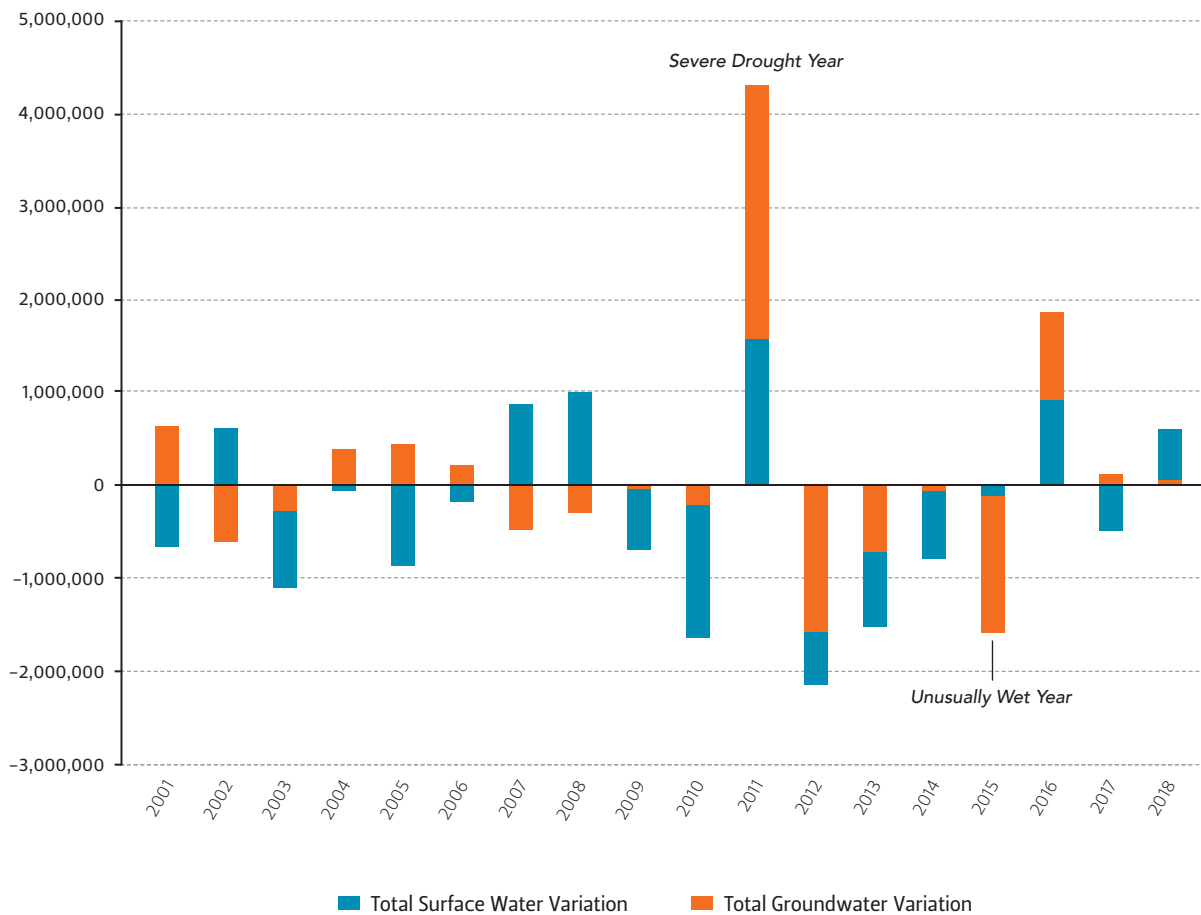
I. Introduction

The growing importance of groundwater supplies in Texas makes the stakes high for updating the state’s groundwater common law to reflect modern science and supply/demand conditions. It is the third-largest groundwater pumper in the United States, according to U.S. Geological Survey data. Data from the United Nations Food and Agricultural Organization indicate that based on the 1997–2017 median extraction volume, Texas would be the world’s 11th-largest groundwater pumper—extracting about 10 million acre-feet of water per year, or slightly less than what Turkey extracts and a bit more than Argentina. For perspective, one million acre-feet of water would cover the entire city of Houston roughly knee-deep.³

Non-interruptible water consumption activities (such as water used in towns, factories, and power plants) rely substantially on groundwater. Groundwater underpins water supplies in the El Paso and San Antonio areas and is the “surge” supply in much of the Greater Houston area.⁴ For much of rural Texas, groundwater is the primary source of water supply for most uses. And in the fast growing I-35 corridor, groundwater is becoming an increasingly important source of supply—a trend likely to accelerate when the next major drought strikes.

Accentuating that point, groundwater is the flywheel that balances the Texas water supply system. During 2011—the most recent statewide severe drought—groundwater accounted for nearly two thirds of the increase in water consumption as consumers sought to compensate for a lack of precipitation (Figure 1). Likewise, 2015—a historically wet year—saw groundwater account for more than 90% of the water usage decrease. Groundwater functions as the system’s swing supply, because in most cases (Edwards Aquifer excepted) it is protected from near-term precipitation cycles that influence surface water availability.

Figure 1: Groundwater Usage Swings to Accommodate Precipitation Fluctuations in Texas (Acre-Feet)



Sources: Texas Water Development Board, author's analysis

To govern the extraction of Texas’s vital groundwater (much of which is owned as private property), the common law rule of capture exists alongside a patchwork of 100 groundwater conservation districts, two subsidence districts, and one aquifer authority scattered across the state. Many are single-county districts, and multiple districts with substantially different rulesets often sit atop a common aquifer. In some cases, regulated districts sit adjacent to areas with no district, where pumpers’ extraction potential (and their ability to drain water from underneath their regulated neighbors) is limited only by the depth of their wells and the horsepower of their pumps. Furthermore, many parts of central and west Texas feature strong hydrological connectivity between groundwater and surface water resources, including vital, spring-fed riparian ecosystems throughout the Hill Country and Edwards Plateau.

Texas now hosts a debate over how much groundwater can be pumped without endangering critical economic and environmental interests. One camp—epitomized by a 2016 Texas A&M University degree capstone project—argues that “Texas suffers from a regulation-induced shortage of groundwater.”⁵ Toward the other end of the spectrum, a 2020 study published in the *Texas Water Journal* by a team from The University of Texas at Austin’s Jackson School of Geosciences concludes that the maximum economically recoverable storage volume of groundwater in Texas may in fact be far less than what is implied by physically available amounts.⁶ In this view, pumping costs matter, especially for agricultural interests who could find themselves, more quickly than expected, priced out of access to deep, confined aquifers such as the Carrizo-Wilcox.

A “biggest pump wins” groundwater common law system will ultimately fail at the monumental task of protecting private property rights, while also balancing city, farm, and industrial water use with growing ecosystem and environmental concerns.

A “biggest pump wins” groundwater common law system will ultimately fail at the monumental task of protecting private property rights, while also balancing city, farm, and industrial water use with growing ecosystem and environmental concerns. Adding to the pressure, the Texas population is already nearly 30 million strong and could become the largest in the United States within our lifetimes.

Some have argued for replacing the rule of capture in Texas. Corwin Johnson, on the 100th anniversary of the Texas Supreme Court’s official adoption of the rule of capture, argued that the Supreme Court could replace the rule with an alternative doctrine, preferably the Restatement (Second) of Torts, which emphasizes equitably balancing water extraction among competing users in the event of shortages. Others have expressed concerns that the rule of capture doesn’t recognize groundwater’s

link with surface water. Yet others have pointed out that the rule of capture is not necessarily the de facto rule for groundwater management in Texas, depending on the existence of a local groundwater conservation district.

Most American states have abandoned the rule of capture over the past 100 years, yet Texas has adhered to it. Interestingly, the infamous language in the Texas Supreme Court's 1904 decision that established the rule of capture in Texas—"groundwater is so secret, occult, and concealed"—came from an Ohio Supreme Court decision that established the rule of capture in that state. In 1984, Ohio abandoned the rule of capture for the Restatement approach.

Paradoxically, being a holdout confers an unexpected "last mover advantage." Namely, Texas policymakers do not need to reinvent the groundwater law wheel, as the experiences of other states offer compelling models and useful insights to consider. Of particular interest are Ohio and Michigan—both of which, in recent decades, updated their groundwater common law from the rule of capture to approaches based on balancing competing users. Engaging intensely with these concepts and exploring new ideas for groundwater common law reform should be a core political priority in Texas this year, next year, and beyond.

To help stimulate and inform such conversations, this report investigates the legal history of how 10 other states—including Ohio—moved away from the rule of capture and what lessons those movements have for Texas.

II. Meet the Rules: English, American, Restatement (and Correlative Rights), and Prior Appropriation

States presently govern groundwater extraction using one of five primary approaches:

Non-Liability Doctrines

1. The "English" rule of capture;
2. The "American" rule of reasonable use;

Common-Pool Doctrines: Compatible with Private Water Ownership

3. Correlative rights;
4. The Restatement approach (with a variant called "reasonable use balancing" employed in Michigan); and

Common-Pool Doctrine: Public Ownership of Water

5. Prior appropriation/administrative permit systems.

The Non-Liability Doctrines

A. The English Rule, a.k.a. the Rule of Capture

Under the rule of capture, “a possessor of land may withdraw as much underground water as he wishes, for whatever purposes he wishes, and let his neighbors look elsewhere than the law for relief.”⁷ The first U.S. decision on the rule of capture, *Greenleaf v. Francis*, came in 1836 when the Supreme Judicial Court of Massachusetts decided that one landowner—absent an agreement “subjecting his estate to another”—could “cut off the springs of water below the surface even to the detriment of neighboring well owners and still not be found liable to them.”⁸

Subsequent U.S. decisions—including the Texas Supreme Court’s 1904 opinion adopting the rule of capture—generally cited a more well-known English case decided in 1843. That decision, *Acton v. Blundell*, adjudicated a dispute between a coal mine that pumped away groundwater percolating into its shaft and pit, and the downslope landowner whose springs were dried up as a result. In a relevant part, *Acton* held that “the owner of land is the absolute owner of the soil and of percolating water, which is a part of, and not different from, the soil. No action lies against the owner for interfering with or destroying percolating or circulating water under the earth’s surface.”⁹

These decisions, and the present Texas common law governing groundwater, trace their jurisprudential heritage to ancient Rome. Approximately 15 centuries ago, the *Digest of Justinian* cited a prominent Roman jurist named Marcus Claudius Marcellus for the proposition that “no action, not even the action for fraud, can be brought against a person who, while digging on his own land, diverts his neighbor’s water supply.”¹⁰

Marcellus’ view that the landowner generally should not be found liable to neighbors for disruptions of subsurface water supplies caused by development activities, set the stage for decisions like *Greenleaf* and *Acton* in both England and the United States. *Acton* in turn paved the way for the 1904 Texas Supreme Court decision that made rule of capture the default mode of groundwater governance in the Lone Star State, because in 1840, Texas adopted English common law as the basis of its own legal system.¹¹

The Texas Supreme Court confirmed rule of capture as the law of the land in 1904 when it decided *Houston & T.C. Ry. Co. v. East*. In *East*, the defendant railroad operator sank a well on its property near the city of Denison to provide water for its steam locomotives.¹² The railroad company’s well produced 25,000 gallons daily, which dried up an adjoining landowner’s household supply well.¹³ The plaintiff landowner then brought suit, seeking damages in the amount of \$206.25 (approximately \$6,000 in 2020 dollars) for “past and prospective injury to himself and the lots described in his petition.”¹⁴

Two core public policy concerns—adopted essentially verbatim from the Ohio Supreme Court’s 1861 *Frazier* decision—animated the *East* court’s decision:

1. the belief that “the existence, origin, movement, and course of such waters, and the causes which govern and direct their movements, are so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would, therefore, be practically impossible;” and
2. the idea that “any such recognition of correlative rights would interfere, to the material detriment of the commonwealth, with drainage and agriculture, mining, the construction of highways and railroads, with sanitary regulations, building, and the general progress of improvement in works of embellishment and utility.”¹⁵

The Texas Supreme Court’s affirmation of the rule of capture arose from a dispute over the water itself, whereas decisions in the other jurisdictions adjudicated disputes over interruptions to percolating water supplies from mining and other activities.¹⁶ Yet part of its core logic—the idea that correlative rights could impede economic development—sprang from fact patterns in which water was an adjunct to some other type of activity, such as mining, where it was often viewed as a nuisance rather than an independently valuable commodity. In other words, the Texas rule of capture draws much of its DNA from high-precipitation English and then “East of the Mississippi” American environs.

That the rule of capture has survived for more than a century in a jurisdiction where water itself is precious and often an object of conflict is remarkable and speaks volumes to the robust defense put up by largely rural, water-owning and -using interests. As a broader set of constituencies contemplates groundwater as a strategic resource—both in direct usage terms and based on its quantitative and qualitative value to unique ecosystems—the Texas debate has become more complex. Depending on how the state’s broader voting base and specific interest groups react to the next drought (a question of “when” in the Lone Star State), the prospect of groundwater law evolution through legislative—or potentially, judicial actions—becomes more plausible.

B. The American Rule—“Interference with Neighboring Groundwater Allowed, but More Restrictions Than English Rule”

The American rule is also known as the reasonable use rule. It emerged in the mid-19th century as courts throughout the United States deciding groundwater cases sought to soften the absolutism of the English rule’s non-liability provisions. But in practice, the reasonable use rule has frequently left adjoining landowners just as exposed to the adverse effects of their neighbors’ groundwater pumping as they would have been under the rule of capture used prior.

At least two factors help explain why, in practice, the American rule yields results that are often very similar to rulings that might have been expected under the English rule of capture. First, as referenced in the section above, many of the cases historically decided in the United States involved mining and other activities where development of an economically valuable asset did not at all focus on water (and often encountered it as an operational liability) but disrupted subsurface hydrology to the detriment of adjacent landowners who did use the water.¹⁷

Second, the definition of “reasonable use” is extremely broad. Reasonability often hinges on whether the water is being used on or off-tract, so long as the use is not wasteful.¹⁸ Courts are generally loathe to find an on-tract use of groundwater wasteful (often only doing so in the event of pumping motivated by a clearly malicious intent).¹⁹ Accordingly, many different pumpers each using water “reasonably” on their own tracts can collectively yield a tragedy of the commons when the shared aquifer is drawn down and the ensuing economic and environmental costs are imposed across the entire system.

Courts will sometimes use language stating that water must be put to “reasonable and beneficial use” and that “excess use” that injures adjacent landowners might be found unreasonable.²⁰ But such findings are rare, with activities including catfish farming, ethanol production, farming, and industrial de-watering all found “reasonable” under various circumstances (Figure 3).

One fact pattern has fairly consistently motivated judicial decisions *against* pumpers and *in favor* of adjacent landowners: exports of water for off-tract municipal and industrial usage.²¹ But in disputes involving on-tract use of groundwater, the reasonable use rule operates akin to what the Michigan Court of Appeals has called “a lesser modification” of the English rule that “involves applying the correlative rights rule to impose liability for unreasonable harm resulting from withdrawal of water for use on distant lands but retaining the English rule to permit unrestricted withdrawal for a useful purpose connected with the land from which it was withdrawn.”²²

Figure 3: Groundwater Uses Found to be “Reasonable” and “Unreasonable” Under the American Rule

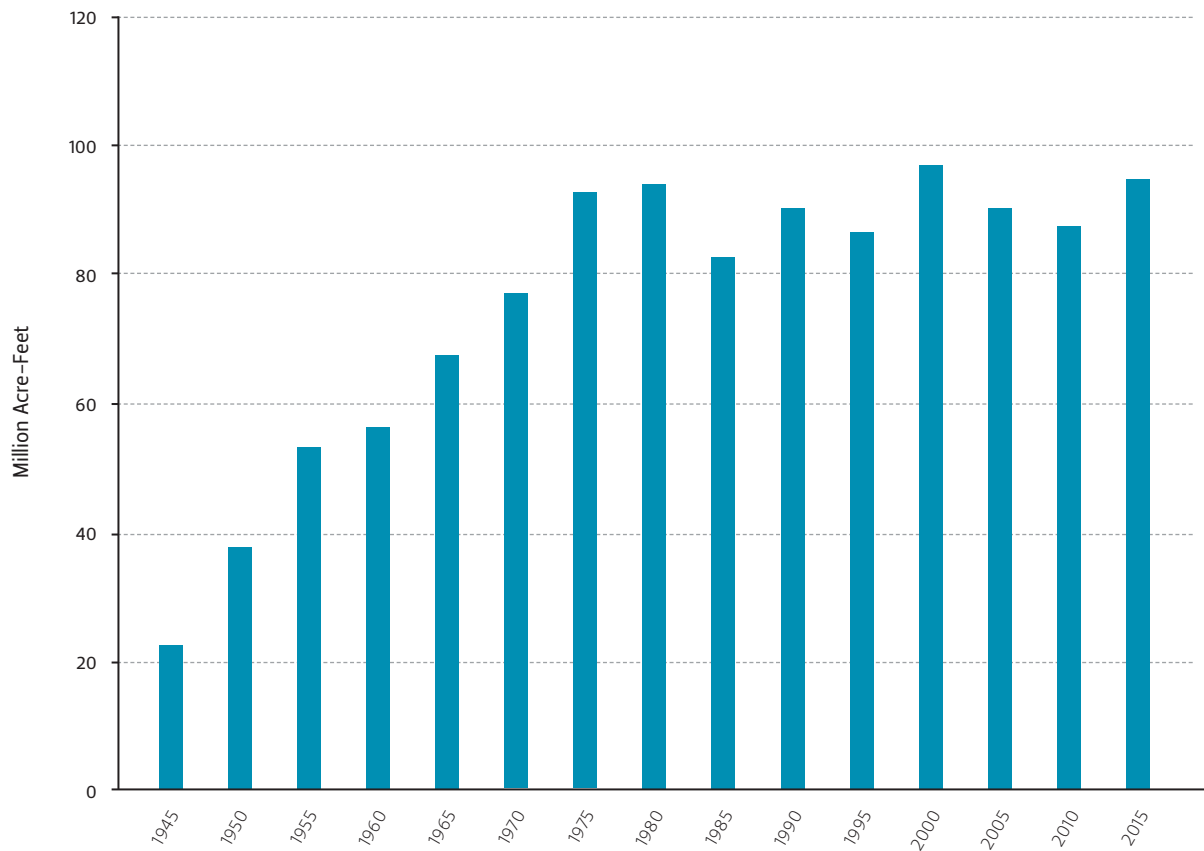
Decision Date	State	Use	Reasonable?	Citation
1900	New York	Municipal supply (off-tract)	No	Forbell v. City of New York, 164 N.Y. 522, 527, 58 N.E. 644, 646 (1900)
1909	New Jersey	Municipal supply (off-tract)	No	Meeker v. City of E. Orange, 77 N.J.L. 623, 625, 74 A. 379, 380 (1909)
1936	Oklahoma	Municipal supply (off-tract)	No	Canada v. City of Shawnee, 1936 OK 803, 179 Okla. 53, 64 P.2d 694, 698
1957	Arkansas	Chicken processing (off-tract)	No	Jones v. Oz-Ark-Val Poultry Co., 228 Ark. 76, 82, 306 S.W.2d 111, 115 (1957)
1989	Alabama	Catfish farming (on-tract)	Yes	Adams v. Lang, 553 So. 2d 89, 92 (Ala. 1989)
2005	Arizona	De-watering for construction	Yes	Brady v. Abbott Labs., 433 F.3d 679, 683 (9th Cir. 2005)
2008	Missouri	Ethanol plant (on-tract)	Yes	Citizens for Ground Water Prot. v. Porter, 275 S.W.3d 329, 351 (Mo. Ct. App. 2008)

Preferential treatment of on-tract groundwater use and disfavor of exports reflects longstanding thinking about subsurface water being primarily a vehicle for maximizing the productivity and economic value of the overlying lands. It also fundamentally reflects the fact that for much of recorded history (including the seminal era of Roman groundwater jurisprudential analysis that laid the foundations for the rule of capture), technological barriers made most groundwater (aside from flowing springs) practically inaccessible for high-volume use on the overlying lands, much less exportation.

This changed with the development and deployment of more effective groundwater pumping equipment during the Industrial Revolution and then especially, in the early 20th century. As Professor Joseph Dellapenna points out, “[b]efore the invention of the of the high-speed centrifugal (turbine) pump in 1937, the abstraction of groundwater was limited to small, shallow wells, and the abstraction usually had only small—if any—effect on neighboring landowners.”²³

The advent of private tubewells with pumps that can extract thousands of gallons per minute from an aquifer revolutionized agriculture, but also launched an era of groundwater mining. As just one example, the U.S. High Plains and Central Valley of California have experienced such intense groundwater abstraction that NASA satellites were able to measure substantial gravitational field changes.²⁴ The volume of groundwater pumped in the United States rose more than four-fold between 1945 and 1975 as deeper wells and better pumps proliferated throughout the country (Figure 4).

Figure 4: Deeper Wells and Better Pumps Facilitated an Explosive Increase in Groundwater Extraction across the Entire U.S. (Million Acre-Feet)



Source: Cheryl A. Dieter, et al., "Estimated use of water in the United States in 2015," U.S. Geological Survey, Circular 1441, 2018, <https://pubs.er.usgs.gov/publication/cir1441>.

Common Pool Doctrines: Private Property Compatible

This analysis adopts the definition of “common pool” advanced by Nobel laureate Elinor Ostrom, an expert on common access natural resources. Ostrom defines a common pool resource as “a natural or man-made resource from which it is difficult to exclude or limit users once the resource is provided by nature or produced by humans.”²⁵ Groundwater aquifers that span multiple (sometimes thousands) of discrete property tracts can be accessed by wells drilled from each tract. To boot, each superjacent property owner has little or no practical recourse to exclude or prevent others from drilling into the aquifer and pumping groundwater. Aquifers underlying many distinct surface owners (and water owners) are the rule in Texas and are, generally speaking, the apotheosis of a common pool resource.

C. Correlative Rights—“Common Aquifer-Level Rights, Don’t Harm Thy Neighbor”

Under a correlative rights system, landowners above a common aquifer pool each have a correlative right to beneficially use water upon their land. In a nutshell, “correlative rights” mean that “the rights of all landowners over a common basin, saturated strata, or underground reservoir are coequal or correlative, and one cannot extract more than his share of the water, even for use on his own land, where others’ rights are injured thereby.”²⁶

Correlative rights for groundwater in the United States were first judicially applied by the New Hampshire Supreme Court in the 1862 *Bassett* decision, where the court determined that “The rights of each land-owner being similar, and his enjoyment dependent upon the action of the other land-owners, these rights must be valueless unless exercised with reference to each other, and are correlative.”²⁷

The next signature case applying correlative rights came from the California Supreme Court’s 1903 *Katz v. Walkinshaw* decision, where it held that in “[d]isputes between overlying landowners, concerning water for use on the land, to which they have an equal right, in cases where the supply is insufficient for all, are to be settled by giving to each a fair and just proportion.”²⁸ Landowners over a common pool of groundwater were thus found to hold co-equal rights in the common pool. In the event of a shortage, water supplies would be apportioned based on “reasonable need.”²⁹

The correlative rights concept articulated in *Katz* prioritizes on-tract water usage, but the decision also notes that “the landowner’s right extends only to the quantity of water that is necessary for use on his land, and the appropriator may take the surplus.”³⁰ Unlike the American rule, this potentially implies that a much broader class of on-tract uses—like the proverbial rice farm in the desert—could realistically be deemed “unreasonable” and thus subject to judicially-imposed cutbacks, especially in arid climates where many users (including certain off-tract consumers) share an aquifer.

Correlative rights decisions have traditionally not granted landowners a proprietary interest in the water underneath their tracts. That said, the correlative rights approach is readily congruent with the idea of groundwater being an independent property estate that in many cases is de facto appurtenant to surface lands, but does not necessarily have to be in order for the system to still protect water owners from each other's over-pumping.

In Texas, at least one groundwater conservation district (Guadalupe County) has applied a unique correlative rights system—colloquially called “three-dimensional groundwater management.” In this system, the saturated sand under each tract is hydrologically modelled using 16-foot by 16-foot cells, thus yielding an actual saturated section volume correlated to a specific surface tract.³¹ Guided by this subsurface assessment, each owner is assigned a corresponding portion of annual recharge on a *pro rata* basis, depending on the water volume estimated to be in place under their property.

D. The Restatement Approach

The Restatement (Second) of Torts, Section 858 generally presumes that a property owner who “withdraws ground water from the land and uses it for a beneficial purpose” does so without incurring liability. That portion of the Restatement is thus essentially identical to the core principle of the American rule outlined earlier. But as the Nebraska Supreme Court expressed in a 2005 decision, “Although the Restatement rule is derived from principles of reasonable use, the rule differs from the American rule *because it balances the equities and hardships between competing users.*”³² [emphasis added] The Restatement and correlative rights approaches bear many similarities to riparian rights principles, in particular the concept that “a man may exercise his own right on his own land as he pleases, provided he does not interfere with the rights of others.”³³

The Restatement applies three core tests for balancing water-user interests:

1. Does groundwater pumping “unreasonably [cause] harm to a proprietor of neighboring land through lowering the water table or reducing artesian pressure?”
2. Does groundwater abstraction “exceed the proprietor’s reasonable share of the annual supply or total store of ground water?”
3. Does withdrawal of groundwater have “a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water?” (In other words, ground and surface water are treated as hydrologically connected).

The Restatement approach in many instances significantly improves upon the other common law systems. Perhaps most importantly, it incorporates a much more nuanced set of factors that can be applied to balance competing groundwater uses and avoid having to make absolute, binary decisions in favor of one user or another, as is generally the case when a dispute is adjudicated under the rule of capture or reasonable use “American” rule.

Relevant factors a court can use to determine “reasonableness” of groundwater use under the Restatement approach include: (1) its purpose, (2) the suitability of a given water use in the area, (3) the economic and social value of the uses in question, (4) the extent and amount of harm caused, (5) the practicality of balancing the method and volume of use between competing users, (6) protection of investment-backed expectations, and (7) the justice of requiring the user causing harm to bear the costs imposed by restrictions on the offending water use.³⁴ Through these diverse factors, the Restatement approach eschews “bright-line” determinations, but in practice, the initial tactical gray areas ultimately yield a broader strategic certainty in the defensibility and long-term sustainability of the groundwater one actually owns and controls.

Common Pool Doctrine: Public Ownership

E. Prior Appropriation—Governs Surface Water in Texas and All Waters in New Mexico, but Likely Infeasible for Texas Groundwater Governance

Prior appropriation is primarily used to govern groundwater extraction in certain Western states, such as New Mexico. Under prior appropriation, water is considered public property (i.e., controlled by the state), and private parties can only acquire the right to use water through a usufructuary claim—based on the principle of “first in time”—that is then recognized by the state.³⁵ Private parties cannot gain corporeal ownership in the subsurface waters themselves, as English (always) and American/correlative (sometimes) rule jurisdictions would allow them to. Prior appropriation for groundwater thus dramatically departs from existing Texas law, where both the Texas Legislature and Texas Supreme Court have clearly affirmed that subsurface waters, aside from subterranean rivers, are owned as private property.³⁶

Prior appropriation in Texas would thus require groundwater to be classified as public property. In the 1930s and 1940s, there was some degree of openness to this idea among legally-sophisticated parties in Texas—as evidenced by Senate Bill 38, which called for “declaring all underground waters in this State to be public water subject to appropriation.”³⁷ It survived a first reading and was sent to committee but did not become law. It did, however, progress much further than House Bill 606 10 years later. House Bill 606 also called for classifying underground waters in Texas as belonging to the public, but it was reported unfavorably after the first reading and wound up in the “Dead Box.”³⁸

The door to public status for underground waters in Texas was then slammed shut two years later with the 1949 Groundwater Conservation District Act, which proclaimed that “the ownership and rights of the owner of the land, his lessees and assigns, in underground water are hereby recognized” and further specified that “the priorities, regulations and provisions of the law relating to the use of surface waters shall in no manner apply to underground water.”³⁹ And thus the legal foundation was laid for a Texas in which the surface owner (or later, severed groundwater estate owner) could own water molecules *in situ* as real private property with protection from the Texas and United States Constitutions.

If the contemporary Texas Legislature chose to make the state’s underground water public property, the costs of compensating current groundwater owners for the resultant taking as required by the Texas and United States Constitutions would almost certainly be prohibitive. Billions of acre-feet of water in place multiplied by values that likely range from the low hundreds of dollars per acre foot to substantially higher would create a total compensation bill that could realistically exceed a trillion dollars. To put that in perspective, the state of Texas presently has an annual spending budget of approximately \$125 billion.⁴⁰

For readers’ convenience, Figure 5 recaps key principles of the groundwater governance systems other than prior appropriation.

Figure 5: Common Law Groundwater Governance System Key Point Summary

	Restriction of On-Tract Uses?	Restriction of Off-Tract Uses?	Pumping Curtailment During Supply Shortages?	Recognizes Conjunctive Relationship Between Ground and Surface Water?
Rule of Capture (“English Rule”)	Generally No	Generally No	No	No
Reasonable Use (“American Rule”)	Generally No	Yes	No	No
Correlative Rights	Yes (depends on supply)	Yes (depends on supply)	Yes	No
Restatement Approach	Yes (if adjoining water owners harmed or pumper exceeds reasonable share)	Yes (if adjoining water owners harmed or pumper exceeds reasonable share)	Yes	Yes

III. How Key States' Groundwater Governance Approaches Evolved

In contemplating updates to the Texas groundwater common law, it is critical to recognize that multiple states have already undertaken both judicially-driven and legislatively-driven transitions to new groundwater law regimes. These collectively offer examples spanning more than 150 years of how courts and legislatures moved from rule of capture to reasonable use and correlative governance of groundwater. Texas policymakers and courts can thus consider a rich set of persuasive and practical information as they consider updating our state's groundwater law to better protect all water owners.

While each case study draws upon unique local context that does not necessarily replicate across state lines, several of them still contain vital lessons and ideas that may prove useful in the event the Texas Legislature or Supreme Court decide to update Texas groundwater common law. Accordingly, of the 50 states shown in Figure 2, we will focus on 10 in particular.

The first state, New Hampshire, gets its spot based on chronology—it was the first U.S. judicial decision to abandon the rule of capture. Ohio is the second state. While its decision to move beyond the rule of capture came late (1984 to be specific), it is the most comprehensively relevant example for Texas policymakers who might consider updating our state's groundwater common law.

Texas' own continued judicial adherence to the rule of capture drew heavily upon the Ohio Supreme Court's 1861 *Frazier* opinion, and the Ohio Supreme Court has subsequently affirmed that landowners in the state "have a property interest in the groundwater underlying their land and that governmental interference with that right can constitute an unconstitutional taking."⁴¹ It is not quite the same as the clear judicial and statutory recognition of Texas water owners' corporeal ownership of water molecules in place under their lands, but it is close enough to suggest that correlative rights and full ownership of groundwater as real property are compatible. The Restatement approach and robust protection for private property rights in

The Restatement approach in many instances significantly improves upon the other common law systems. Perhaps most importantly, it incorporates a much more nuanced set of factors that can be applied to balance competing groundwater uses and avoid having to make absolute, binary decisions in favor of one user or another, as is generally the case when a dispute is adjudicated under the rule of capture or reasonable use "American" rule.

groundwater thus appear fundamentally compatible, which would be an overriding concern if Texas policymakers were to consider moving the state's ground water common law beyond the rule of capture.

Ohio's move also came as part of an approximately decade-long window in which near-neighbor Wisconsin (1974) adopted the Restatement (Second) approach to groundwater governance, while neighboring Michigan came very close to adopting the Restatement (1982). Today Michigan uses a very similar legal approach that it calls "reasonable use balancing." Michigan is the third state discussed in the analysis. Nebraska comes fourth. "Cornhusker" jurisprudence has special relevance, because Nebraska moved away from rule of capture and also applies the Restatement approach to groundwater pumping that affects hydrologically-connected surface water resources—which is a longstanding water management challenge in Texas as well. Like Texas, Nebraska also must reckon with a dry west and center and (relatively) humid eastern segment.

Arkansas is a doubly useful example, because while its signature case did not explicitly adopt the Restatement (Second) approach, it quoted the Restatement approvingly and did so immediately after explaining the American rule in a way that emphasized correlative rights much more than the non-liability provisions often cited by courts applying the American rule in other states.

Kansas, Oklahoma, and Arkansas come fifth, sixth, and seventh. They are neighbors or near-neighbors of Texas, have moved away from the rule of capture, and, in the cases of Kansas and Oklahoma, have a dry west and relatively wet east. Kansas also offers a cautionary tale of how certain types of legislative action coupled with subsequent judicial actions can warp precedent in ways that suit specific large water-user interests at the expense of property owners.

The Oklahoma Supreme Court adopted the American rule of reasonable use in 1936, and the decision appears to have co-existed well with private groundwater ownership in the state.⁴² Arkansas has large agricultural interests that are massive groundwater users (second in the U.S. by volume) but uses a traditionally light-touch

regulatory approach that nonetheless successfully transitioned from the English rule to the American rule of reasonable use. Arkansas is a doubly useful example, because while its signature case did not explicitly adopt the Restatement (Second) approach, it quoted the Restatement approvingly and did so immediately after explaining the American rule in a way that emphasized correlative rights much more than the non-liability provisions often cited by courts applying the American rule in other states.⁴³

Arizona is eighth. Like Kansas, Arizona has an example of courts treating large groundwater users in a way that exceeds the standard boundaries of the state's common law. And like Texas, Arizona grapples with a patchwork groundwater regulatory system that is failing to achieve long-term safe yield.

California and Florida are ninth and tenth, respectively. California abandoned the rule of capture in 1903 and adopted reasonable use with a strong correlative rights flavor. California is relevant, because like Texas, judicial decision-making was driven by concerns over direct competition for water supplies by powerful economic interests operating in an arid environment. Florida also offers a useful comparison given its size, population, and rapid growth that spawned competition for water resources, as has been the case for parts of Texas. Analogies from the Sunshine State are attenuated somewhat by the fact that Florida law does not recognize corporeal ownership rights in the groundwater itself. Florida has also adopted a comprehensive state-administered permitting regime for groundwater pumping that, for the foreseeable future, would likely be a political non-starter in Texas.

State #1–New Hampshire: Reasonable Use Comes to America

Signature Case: *Bassett v. Salisbury Mfg. Co.*, 43 N.H. 569, 573 (1862)

The 1862 *Bassett* decision was the product of 15 years of legal warfare and marked the first decisive move by a U.S. court away from the rule of capture as a mode of governing groundwater abstraction. The string of conflicts over the lands of Dr. Bassett commenced in 1847 when a dam on New Hampshire's Powwow River flooded the plaintiff's meadow and left him unable to harvest peat.⁴⁴ After five trials, the New Hampshire Supreme Court finally abolished the rule of absolute dominion over groundwater in the state in 1862.⁴⁵ The court opened its opinion with the pronouncement that "No land-owner has an absolute and unqualified right to the unaltered natural drainage or percolation to or from his neighbor's land."⁴⁶ A few pages later, it hammered the point home, stating that with respect to water found in the soil,

The rights of each land-owner being similar, and his enjoyment dependent upon the action of the other land-owners, *these rights must be valueless unless exercised with reference to each other, and are correlative*. The maxim, "*Sic utere,*" &c., therefore applies, and, as in many other cases, restricts each to a reasonable exercise of his own right, a reasonable use of his own property, in view of the similar rights of others.⁴⁷ [emphasis added]

Basset carries profound implications to this day. Many other states also ostensibly adopted the reasonable use rule, including California, Idaho, Iowa, Michigan, New Jersey, New York, Utah, and West Virginia.⁴⁸ But they did so with a definition of "reasonability" based on the location and purpose of groundwater use, rather than

determining reasonability by assessing the effects a given pumper's actions might have on a shared subsurface water resource. The reasoning of some of these decisions suggests that tying the "reasonability" of water use to the location stemmed directly from the reasonable use rule's roots in adjudicating conflicts between riparian water users. In these cases, return flows into the stream were an important consideration so as to avoid diminishment of resource access for downstream parties.⁴⁹

Bassett's decision was unique in that it untethered the location and purpose of groundwater use from the reasonability determination. The 19th century New Hampshire justices were also prescient in that they adopted into New Hampshire's common law an effects-based adjudication philosophy that many other states—including groundwater titans like California and Florida—would decades later incorporate through legislation.

While this vital doctrinal wrinkle may not have been an intended effect—and courts in other states have not used it this way as far as the author can ascertain—in the modern era, it may hold essential legal precursors for creating a reasonable use system for implementation in a state like Texas, where billions of dollars' worth of property rights rest upon more than a century of rule of capture groundwater governance. More than a thousand miles separate the state proclaiming "Live Free or Die" and the Lone Star State, while nearly 150 years divide the *Basset* decision from the present date. Nonetheless, *Bassett's* foundational decision to determine correlative rights at the resource pool, rather than at the land tract level, will likely make it one of the more important supporting precedents if Texas chooses to adopt a true reasonable use rule approach to groundwater extraction.

State #2—Ohio: Foundational Source of 1904 Texas Supreme Court Ruling Decides to Instead Adopt Restatement (Second) Approach

Signature Case: *Cline v. Am. Aggregates Corp.*, 15 Ohio St. 3d 384, 387, 474 N.E.2d 324, 327 (1984)

For more than 120 years, Ohio law was a cornerstone of adherence to the English rule. Indeed, the Ohio Supreme Court's 1861 decision in *Frazier v. Brown* affirmed the English rule as the law of the land. It also formed the heart of the Texas Supreme Court's reasoning 43 years later when it decided the *Houston* case and established the English rule as the default groundwater common law—in what would become the second most-populous state in the U.S. and one of the largest single groundwater-using jurisdictions on Earth.⁵⁰

This changed in 1984 with the *Cline* decision. In that case, a group of 26 landowners with properties near Canton, Ohio, had brought suit against American Aggregates' quarrying operation, whose pit dewatering activities they alleged had disrupted

their water wells.⁵¹ Lower courts had denied the plaintiffs' request for injunction and damages on the basis that existing Ohio common law adhered to the English rule of non-liability, and thus the plaintiffs had no cause of action for damages resulting from the neighbor's use or extraction of percolating waters as they developed their mine.

The case then found its way to the Ohio Supreme Court, where the justices resoundingly broke the English rule's long hold. In taking down the English rule, the court cited examples from other state decisions (including the *Katz* opinion from the California Supreme Court 80 years prior) that framed it as harsh and unjust. *Cline* then made the Restatement (Second) approach Ohio's new groundwater common law, with the majority noting that they were "persuaded" by the plaintiffs' suggestion that the Restatement was "the better standard to apply to ground water issues."⁵²

State #3—Michigan: "Reasonable Use Balancing, a.k.a Quasi-Restatement (Second)"

Michigan's first move away from the rule of capture came with the Michigan Supreme Court's 1917 *Schenk* decision. The *Schenk* dispute arose in 1915, when after a multi-year series of tests, the city of Ann Arbor bored a well 16 feet in diameter on a 130-acre tract and began pumping close to 4 million gallons of water per day.⁵³ Thereafter, a group of plaintiffs—adjacent landowners whose wells had dried up or suffered substantial lowering of water levels—sought to enjoin the city's extraction efforts. The court subsequently determined that the city's right to take water was "qualified by this rule of reasonable use," and that while it was "imperative that the people of the city have water; it is not imperative that they secure it at the expense of those owning lands adjoining lands owned by the city."⁵⁴

In its decision, the *Schenk* court laid—albeit subtly—foundations for what would ultimately evolve into the "reasonable use balancing test" that now forms the common law governing groundwater use in Michigan. Specifically, the court refused to grant the injunction against further pumping that the plaintiffs had requested, instead granting them the right to seek compensation for the costs of lowering their wells.

Later Michigan Supreme Court decisions built upon *Schenk* and expanded the principle of balancing competing uses, rather than imposing binary solutions (as was the tendency of many prior decisions throughout the United States), applying both the rule of capture and traditional reasonable use rule. For instance, the case of *Bernard v. City of St. Louis* (1922) found that the defendant city should not be entirely enjoined from pumping groundwater, but instead should (1) pump at an intensity that would not "interfere with an adequate supply of water for the plaintiffs' reasonable use" and (2) compensate the plaintiffs for the cost of further investments in equipment necessary for them to secure adequate water supplies.⁵⁵ Likewise, appellate decisions in *Hart v. D'Agostini* (1964), involving dewatering in advance of the construction of

a sewer line, and *Maerz v. U.S. Steel* (1982), where a limestone quarry's dewatering dried out the plaintiffs' domestic supply well, sought to balance competing uses in a way that maximized access to groundwater resources while protecting "certain traditional water uses" such as domestic supply.⁵⁶

The *Maerz* court explicitly sought to adopt the Restatement approach, holding that "the principles expressed in the Restatement ... should be followed in Michigan."⁵⁷ A 2005 decision (*Michigan Citizens*) walked that position back, saying, "we do not agree with defendant's contention that the *Maerz* Court intended to make a sweeping adoption of the entire Restatement approach to the resolution of water disputes."⁵⁸ Decided in 2005, *Michigan Citizens for Water Conservation v. Nestle Waters N. Am. Inc.*, which involved a dispute over the impacts of a bottled water plant's groundwater withdrawals, applied the reasonable use balancing test.⁵⁹

The court articulated three broad core principles that governed its application of the test: first, ensuring "fair participation" in water use by the greatest number of users; second, only protecting uses that were "reasonable" and not low value, excessive, or harmful; and third, requiring plaintiffs to show "substantial" harm.⁶⁰ More specifically, *Michigan Citizens* stated that in "every application" of the tests, courts should examine six dimensions: "(1) the purpose of the use, (2) the suitability of the use to the location, (3) the extent and amount of the harm, (4) the benefits of the use, (5) the necessity of the amount and manner of the water use, and (6) any other factor that may bear on the reasonableness of the use."⁶¹ These standards are fundamentally very similar to factors a court applying the Restatement approach would examine, a reality that makes Michigan's ongoing judicial oscillation between the Restatement and reasonable use balancing test more comprehensible for groundwater users needing to anticipate how a court might adjudicate disputes.

The *Michigan Citizens* court based its decision on a statute—MCR 7.215(J)(1)—which states that "A panel of the Court of Appeals must follow the rule of law established by a prior published decision of the Court of Appeals issued *on or after November 1, 1990*, that has not been reversed or modified by the Supreme Court, or by a special panel of the Court of Appeals as provided in this rule." [emphasis added] In the *Michigan Citizens* court's eyes, this meant that *Maerz's* adoption of the Restatement rule was "not binding." That position raises an important question: Since *Maerz* was published in 1982, how might the *Nestlé* court have treated the precedent case if it were published in, say, 1991? Under that set of circumstances, it would be very plausible to imagine Michigan adopting the Restatement approach *de jure*, as opposed to applying it *de facto* through subsequent case-by-case decisions.

For instance, a 2012 Court of Appeals decision found that "With respect to groundwater-interference claims, this Court has traditionally looked to groundwater-rights principles expressed in the Restatement of Torts."⁶² Then in 2017, another Court of Appeals decision instead found Michigan law on groundwater use applies a "reasonable use

balancing test” that seeks to “ensure the greatest possible access to water resources for all users while protecting certain traditional water uses.”⁶³ While each court semantically differentiated its approach, both aimed to equitably balance competing groundwater users and yielded practical results that would likely be virtually identical to the decisions reached, had the respective courts formally applied the Restatement (Second) of Torts.

State #4—Nebraska: Reasonable Use and Restatement to Manage Groundwater-Surface Water Competition

Nebraska governs groundwater extraction using what its courts call the “Nebraska rule,” which combines elements of the American reasonable use rule and the correlative rights doctrine.⁶⁴ In a 1933 decision finding that the city of Wahoo was not liable to a gravel pit whose sluice water was allegedly dried up by the city’s wells, the Nebraska Supreme Court explained that

The American rule is that the owner of land is entitled to appropriate subterranean waters found under his land, but he cannot extract and appropriate them in excess of a reasonable and beneficial use upon the land which he owns, especially if such use is injurious to others who have substantial rights to the waters, *and if the natural underground supply is insufficient for all owners, each is entitled to a reasonable proportion of the whole*, and while a lesser number of states have adopted this rule, it is in our opinion, supported by the better reasoning.”⁶⁵ [emphasis added]

While the court refers to the American reasonable use rule, it is articulating something that in fact much more closely resembles what a modern reader would consider “correlative rights”—particularly the idea that in the event of a water supply shortage, each water user would be “entitled to a reasonable proportion of the whole.” Specifically, the reasoning matches virtually word-for-word the principles advanced in the California Supreme Court’s Katz decision three decades earlier.⁶⁶

When courts apply the Nebraska rule, they do so under a set of statutory guidelines in which the state’s legislature has said that domestic water users have priority over all others and agricultural use is a higher priority than manufacturing or industrial uses.⁶⁷ In this way, although Nebraska has not explicitly adopted the Restatement (Second), Section 858 as groundwater common law, it has statutorily incorporated some of the key balancing principles. In doing so, the legislature provided a road map to help guide groundwater users and (ideally) help them resolve disputes without litigation, or if litigation does result, offer statutory guidance to expedite judicial resolution.

Nebraska has partially adopted the Restatement approach “to govern conflicts between users of hydrologically connected surface water and ground water.”⁶⁸ Like Texas, Nebraska has an arid west, generally dry center, and more humid eastern quarter with key river systems connecting all of these regions and running through active agricultural

zones. Therefore, conflict between groundwater pumpers and interconnected surface water users is not a theoretical notion, and the court knew it was formulating legal doctrine that would likely be repeatedly employed in the future. Acknowledging that reality, the court offered several noteworthy points of caution, including: (1) such disputes should be decided on a case-by-case basis, (2) trial courts should feel free to consider a broad range of relevant factors, and (3) courts should recognize that the remedies they prescribe may take years to have full effect and can have substantial secondary impacts on those who were not party to the case.⁶⁹ These cautionary points would likely apply to judicial and legislative action on the groundwater common law in Texas as well.

State #5—Kansas: Cautionary Tale for Property Rights Advocates

Kansas offers a highly relevant groundwater legal history for Texas policymakers. The reason is simple: The state chose in 1945 to adopt a Water Appropriation Act that superseded the rule of capture and made groundwater public property. Such a scenario likely arouses the worst fears of private property rights advocates in Texas, who might view updates to the common law as a potential Trojan horse by which the state gains greater control over their groundwater resources.

Accordingly, unpacking the history—and specific legal details—of what transpired in Kansas can hopefully (1) offer suggestions for actions to further protect private property rights in Texas groundwater and (2) in doing so, reassure certain constituencies that the Texas groundwater common law can be updated in ways that not only protect private property from undue state influence or expropriation, but even more immediately, from over-pumping by fellow private property owners—the most probable near-term threat to groundwater rights security in the Lone Star State.

The Kansas Supreme Court’s 1962 ruling on the constitutionality of the Water Appropriation Act referenced above is weighty and extensively argued. In addition, both the judgment and the dissent merit close attention, and so this discussion analyzes both components of the ruling.

Williams v. City of Wichita: “Communization Without Compensation and Dormant Rights Extinguished”

Kansas passed the Water Appropriation Act in 1945, which made “all water within the state of Kansas” public property that was “subject to the control and regulation of the state.”⁷⁰ The Act thus moved Kansas groundwater law from the rule of capture to one in which new appropriations would have to be approved by the chief engineer of the state.⁷¹ Accordingly, after 1945, one would assume that future Kansas decisions on groundwater issues would treat the water—unless grandfathered as a historical vested use—as public property.

But subsequent judicial decisions, as well as practical investment-backed decisions by major Kansas groundwater interests, in fact continued to treat groundwater as private property owned by the surface estate. For instance, a 1946 Kansas Supreme Court decision noted that “water in the land is a part of the land itself.”⁷² Furthermore, the city of Wichita purchased 10 tracts of land in the early 1950s for municipal water wells that would be located in the Equus Beds, a prolific aquifer system located near the city. In these transactions, Wichita paid \$400 per acre (approximately \$3,900 per acre in November 2020 dollars) for a bundle of groundwater rights that included exclusive ownership of “All of the water bearing sands and water rights” underlying the tract.⁷³

The judicial-hydrological ferment in southeast Kansas during the 1950s occurred as—and was likely fundamentally linked to—competition for water driven by explosive growth in the city of Wichita, whose population more than doubled between 1940 and 1960 as the local aerospace industry and others boomed.⁷⁴ Simultaneously, drought gripped Kansas from 1951 through 1957.⁷⁵ Perhaps unsurprisingly amidst such circumstances, litigation arose. In January 1958, local farmer Don Williams sought an injunction against Wichita and its well driller, after which the dispute was tried in the district court, where two important results emerged: (1) the 1945 Water Appropriation Act of Kansas was found unconstitutional, and (2) the city of Wichita was permanently enjoined from pumping the disputed wells, pending a determination on the merits by the Supreme Court of Kansas.⁷⁶

In 1962, the Kansas Supreme Court issued its opinion in *Williams v. City of Wichita*, 190 Kan. 317, 318, 374 P.2d 578 (1962). The majority ruled that the Water Appropriation Act was constitutional and that thus Williams did not deserve injunctive relief—Wichita was free to drill and pump. Williams then appealed to the U.S. Supreme Court, which granted the state of Kansas’ motion to dismiss on the basis that there was not a substantial federal question and then denied a subsequent petition for rehearing.⁷⁷

So how did the Kansas Supreme Court reach this decision, which effectively divested property owners of decades-old groundwater rights? The majority sought to justify the act’s constitutionality in large part by arguing that Williams had no vested historical right to groundwater under his lands because he had not reduced them to “possession and control.”⁷⁸ The majority noted that three prior decisions (reached in 1881, 1907, and 1944, respectively) had dealt with the question of whether percolating water belongs to the owner of the overlying lands, but that the court had “not defined” who owns “the corpus of the water.”⁷⁹

In essence, the Kansas Supreme Court decided that it would (1) only recognize use-based rights created “when water is applied to a beneficial use” and (2) allow the uncompensated forfeiture of “land-based” rights created when surface estate ownership also included an appurtenant right to pump groundwater and perhaps even ownership of water in place.⁸⁰ The reason for doing so was clearly rooted much more in the policy objective of ensuring water supplies to priority consumers, such as growing

municipalities, than it was in a rational legal basis. The majority admitted as much toward the end of its opinion, when it stated, “The notion that the surface owner is the owner of the underlying water greatly confounds the situation with respect to the power of the state to dedicate water to beneficial use and to regulate that use.”⁸¹

But the court’s arguments against recognizing “dormant” groundwater ownership rights contained the seeds of their own legal demise. Specifically, the majority took the position that “The right of the plaintiff to ground water underlying his land is to the usufruct of the water and not to the water itself.”⁸² It further stated that “the ownership of land does not carry with it any ownership of vested rights to underlying ground water not actually diverted and applied to beneficial use.”⁸³

Water ownership in place does not need to “trace” specific particles of water, and the more relevant metric is “the elevation of the water table beneath the surface of the land.” Many other commodities such as wheat, corn, oil, gasoline, and natural gas all recognize a corporeal right of ownership that is de-linked from any specific grouping of units.

The majority appears to have pointed this out to highlight what it believed—or wanted readers to believe—was the futility of arguing for water ownership in place amidst a rule of capture system. But the court did not delve deeply enough to realize that it actually characterized the Williams’ groundwater rights as being tied to the land.

As recent scholarship by Jennifer Harder points out, “a right based in property ownership is not forfeited for non-use.”⁸⁴ Neighboring groundwater pumpers could certainly lower an adjacent tract’s water table—or even dry it up entirely—but the moment pumping ceases and water returns to the subsurface pore space

under the tract, the surface owner owns it. To reverse paraphrase the ageless fugitive property case of *Pierson v. Post*, “if the fox comes back through the fence, Pierson once again has exclusive rights to the fox so long as it remains within his boundaries.”

Justice Schroeder saw these legal and logical flaws and attacked the majority’s arguments in a rapier dissent. The first thrust focused on the city of Wichita’s groundwater rights acquisitions executed five years prior to the litigation—and a full eight years after the Water Appropriation Act became law—noting that

By these written instruments of conveyance, *the city of Wichita recognizes the economic value of the property right of the common law owner to the ‘unused’ subsurface water in the land*, and such instruments of conveyance were all executed long after the enactment of the 1945 Water Appropriation Act. It is a fair indication the city of Wichita has not placed much faith in the constitutionality of the 1945 Water Appropriation Act.⁸⁵ [emphasis added]

The second thrust highlighted that water ownership in place does not need to “trace” specific particles of water, and the more relevant metric is “the elevation of the water table beneath the surface of the land.”⁸⁶ Many other commodities such as wheat, corn, oil, gasoline, and natural gas all recognize a corporeal right of ownership that is de-linked from any specific grouping of units. For instance, “One who holds a warehouse receipt for 1,000 bushels of wheat of a given grade and quality has a property right to such grain in the warehouse even though it is commingled with other grain of like grade and quality.”⁸⁷ Even though neither the owner of the grain or the elevator operator can “trace the precise kernels of wheat,” this does not diminish or eliminate the owner’s proprietary interest in a volume of grain equal to what they put into the facility.⁸⁸ Likewise for molecules of subsurface water.

Justice Schroeder’s third thrust emphasized the majority decision’s failure to appreciate that action by a political body in the state of Kansas could not retroactively revoke property rights granted by the United States’ federal government. As he explained, titles to land in the affected area—including clay, gravel, coal, oil, water, and other substances contained within it—“were not acquired from the state of Kansas, but from the public domain by a patent issued from the United States Government prior to the statehood of Kansas.”⁸⁹

Kansas was never subject to the federal Desert Lands Act of 1877, which granted homesteading rights in the states of California, Oregon, and Nevada, as well as the then-territories of Washington, Idaho, Montana, Utah, Wyoming, Arizona, New Mexico, and Dakota.⁹⁰ A 1935 U.S. Supreme Court decision found that the Desert Lands Act “effected a severance of all waters upon the public domain, not theretofore appropriated, from the land itself,” meaning that pursuant to “a patent issued thereafter for lands in a desert land state or territory, under any of the land laws of the United States, carried with it, of its own force, no common-law right to the water flowing through or bordering upon the lands conveyed.”⁹¹ But the act did not include Kansas, and so “all common law rights to the water in Kansas passed from the United States to the original owners by patent.”⁹²

Because state law (specifically the General Statutes of 1949, 77-109) provided that the common law “shall remain in force in aid of the General Statutes,” Kansas landowners thus possessed “common law vested property rights to ground waters of the state” in Justice Schroeder’s analysis.⁹³ In contrast, other states such as Idaho, New Mexico, and Utah could judicially adopt the prior appropriation doctrine for groundwater because the Desert Land Act of 1877 meant, in effect, that those states had never granted vested rights to water and thus were dealing with property owners who only held usufructuary rights, not a corporeal ownership interest. In non-Desert Land Act states, legislatures could take groundwater for public uses but would have to pay compensation to the property owners.

The Kansas Water Appropriation Act fundamentally re-classified ownership of groundwater and, in doing so, divested the property rights of a plethora of vested owners spanning millions of acres. The *Williams* decision rather disingenuously states that the Water Appropriation Act “does not compel or require a surface owner to obtain a permit in order to make use of the underlying water.”⁹⁴ However, a subsequent Kansas decision nearly 20 years later on disputed agricultural wells revealed the truth as it in fact existed from the moment the U.S. Supreme Court rejected *Williams*’ petition in 1963: The right to non-domestic groundwater in Kansas was no longer a question of property, but rather, hinged entirely on the chief engineer’s discretion.⁹⁵ Justice Schroeder—by then Chief Justice of the Kansas Supreme Court—again took on his colleagues in a dissent that, two decades after *Williams*, vigorously argued on behalf of the water owners’ position.

In the assessment of *Williams*’ majority, “the ownership of land does not carry with it any ownership of vested rights to underlying groundwater not actually diverted and applied to beneficial use.”⁹⁶ But is diversion (a proxy for reduction to possession) actually necessary to perfect (i.e., vest) an ownership right? Imagine how the court’s analysis might change if an adjoining landowner drilled a directional wellbore without permission and tapped the same water it did not consider property in *Williams*—it would no longer be the liability scenario the majority sought to create from *Acton* and other rule of capture precedents. On the contrary, it would face a question hard to characterize as anything other than one squarely derived from property and ownership.

Williams also reflects an unsettling prospect, albeit one strongly supported by the majority’s apparent mis-application of longstanding common law: that the court “curved” its legal analysis in deference to the parochial interests of Kansas’ fastest growing—and most groundwater-dependent—large city. A core fear of rural water owners (expropriation by a powerful city) thus came true.

Although *Williams* could not get a hearing on the takings issue in the state or U.S. Supreme Courts, water owners in Texas would likely encounter a much more favorable judiciary at their state’s supreme court. In the wake of *Kelo v. New London* and a 6-3 conservative majority on the U.S. Supreme Court, Texas water owners would also be far more likely to have their case heard and receive a favorable decision at the federal level.

State #6—Oklahoma: “Reasonable Use Under Statewide Legislative Police Power”

Oklahoma adopted the reasonable use rule in 1936. In that year, the state’s Supreme Court decided a dispute between the city of Shawnee, which had purchased a 70-acre tract upon which it sank 12 wells, and an adjoining landowner whose domestic wells were dried out when the city began producing large volumes of water and exporting them to the city.⁹⁷

In its analysis, the Shawnee court noted two factors. First, in a raft of decisions taken by courts in other states during the previous three decades, it was clear that “the rule of reasonable use as it is actually applied is not a different rule from the English rule at all, but is merely a limitation thereon.”⁹⁸ Second, off-tract water usage—often in the form of exports to municipalities—was generally frowned upon if it impinged upon adjacent landowners’ property interest in a shared underground water resource. To that point, Shawnee took the position that “it is the duty of this court to as zealously guard the rights of the individual as it is to facilitate the needs of the municipality.”⁹⁹

After Shawnee, Oklahoma groundwater extraction was governed by the reasonable use rule but under an umbrella of state-level regulation imposed by the legislature. The 1949 Groundwater Law took a conservation-based stance, mandating that withdrawals could not exceed the annual recharge of a basin.¹⁰⁰ For the first time with the 1949 Act, Oklahoma also recognized the idea of “critical groundwater areas,” which meant in essence any basin in which withdrawals—regardless of beneficial purpose—exceeded recharge rates.¹⁰¹

Oklahoma subsequently passed the 1972 Ground Water Act, which shifted the state’s stance to one encouraging *utilization* of groundwater, subject to reasonable use. The legislature sought an allocation system “based on hydrologic surveys of fresh ground water basins to determine a restriction on the production based upon the acres overlying the ground water basin or subbasin.”¹⁰² Notwithstanding the legislative gyrations over whether to favor conservation or use, Oklahoma law affirmed that the surface estate owns percolating groundwater underneath her tract.¹⁰³

What the legislature accomplished was thus two-fold: (1) it substantially loosened the common law reasonable use provisions favoring on-tract groundwater use and (2) it apportioned allowable production to land/water owners as a *pro rata* share of the basin’s “maximum annual yield.”¹⁰⁴ While still in many ways a “depletory” approach, the statutory regime brought a greater degree of order—and while flawed—sustainability to groundwater extraction. Subsequent litigation also affirmed that through the act, the Oklahoma Legislature was validly exercising its police power to manage and preserve the state’s water resources. That case—*Jacobs Ranch, L.L.C. v. Smith*—was decided in 2006 and involved a group that sought to export more than

60,000 acre-feet per year of groundwater from the Arbuckle-Simpson Groundwater Basin to municipalities in the Oklahoma City area. For reference, that volume is approximately the annual groundwater pumpage of El Paso Water Utilities, one of the largest municipal pumpers in Texas.¹⁰⁵

In Jacobs Ranch, the prospective water exporters challenged an Oklahoma Senate bill passed in 2003 (SB 288) that required a moratorium “on the issuance of certain temporary permits on certain sensitive sole source groundwater basins or subbasins to protect the health, safety and welfare of the people of Oklahoma.”¹⁰⁶ The Oklahoma Water Resources Board had issued the plaintiffs temporary permits in 1985 and 1986 to withdraw water for public and municipal use, which the board then revalidated each year prior to 2003.¹⁰⁷

The case drew seven municipal intervenors, reflecting a high level of interest among other water users. Senate Bill 288’s specific focus on “certain sole source groundwater basins” was unusual, because the Arbuckle-Simpson was in fact the only such basin in the state of Oklahoma at the time of the legislation. The plaintiffs appeared to believe they had been targeted and argued that the bill was designed to exclusively focus on the Arbuckle-Simpson Groundwater Basin without naming it explicitly. In doing so, they argued, the law was presented as being “general” and uniformly applicable statewide, when in fact it was a “special law” that functioned more like a bill of attainder.¹⁰⁸

The court found that the challenged law operated uniformly in Oklahoma, and thus it survived scrutiny of its constitutionality because the U.S. Environmental Protection Agency—which designates sole source aquifers—could conceivably make such designations in the future (even though the Arbuckle-Simpson was designated in 1989 and remains the only sole source aquifer in the state of Oklahoma).¹⁰⁹ It also denied the plaintiffs’ takings claims brought under the Fifth Amendment of the U.S. Constitution and the Oklahoma Constitution, art. 2, sec. 24.

In doing so, the majority determined that the anticipated five-year gap between the Oklahoma Water Resource Board’s 2003 denial of the plaintiffs’ permit revalidation and the agency’s estimated 2008 completion of a hydrological study was sufficient to determine the basin’s maximum annual yield and was only a “temporary moratorium on plaintiffs’/ appellants’ proposed use of water.” Along with additional permit requirements under the new law, the majority found that it did not “constitute a taking of private property for public use under the constitutions of the United States and the State of Oklahoma.”¹¹⁰

For Texas policymakers, the reasoning in the Jacobs Ranch decision raises pointed questions about how to balance concerns about hydrological sustainability with the concerns of water developers (and their customers) about the sanctity of contracts and the ability to deliver water supplies without undue administrative or judicial intervention on the basis of possible, as opposed to demonstrated, harms that could justify pumping cutbacks.

State #7—Arkansas: American Rule with a Strong Correlative Endorsement

Signature Case: *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 81, 306 S.W.2d 111, 115 (1957)

With its decision in *Jones v. Oz-Ark-Val Poultry Co.* (1957), the Arkansas Supreme Court adopted the American rule of reasonable use but also emphasized shared rights, rather than non-liability (i.e., landowners atop a common reservoir have qualified—rather than absolute—rights and privileges pertaining to subterranean waters).¹¹¹

Jones involved a couple living on their homestead near the town of Bloomer, a community located approximately 20 miles southeast of Fort Smith near the Oklahoma border, and a poultry processor that was conveying groundwater from the tract adjacent to the Jones' to its plant via a 2,000-foot pipeline.¹¹²

The Joneses claimed that when the poultry plant was pumping groundwater, their domestic wells, which normally flowed naturally under artesian pressure, would cease to yield water. When the case ascended to the Arkansas Supreme Court, the majority opinion noted that the state had adopted the reasonable use rule to govern the water rights of riparian owners and thus the court saw “no good reason why the same rule should not apply to a true subterranean stream or to subterranean percolating waters.”¹¹³

To justify its decision, the *Jones* court proffered its interpretation the American rule of reasonable use:

Where two or more persons own different tracts of land, *underlaid by porous material extending to and communicating with them all*, which is saturated with water moving with more or less freedom therein, each has a common and correlative right to the use of this water upon his land, to the full extent of his needs if the common supply is sufficient, *and to the extent of a reasonable share thereof, if the supply is so scant that the use by one will affect the supply of the others.*¹¹⁴ [emphasis added]

The court then built upon its “reasonable share” argument, quoting the Restatement (Second) of the Law of Torts, Sec. 858:

Therefore, each possessor’s rights and privileges with respect to the use of subterranean waters are qualified rather than absolute for the same reasons that each riparian proprietor’s rights and privileges with respect to the use of water in the watercourse or lake are qualified and not absolute.¹¹⁵

Jones’ majority then closed their opinion with a nod to competition between domestic and other uses of water, holding that “It is unreasonable to permit appellees to use thousands of gallons of water per day for the purpose of processing chickens, not leaving enough water for the domestic needs of the Joneses and Mrs. Ward.”¹¹⁶

Jones at first glance appears to be a straightforward adoption of riparian law principles to a groundwater fact pattern. But closer examination reveals at least one important gap that would potentially pose significant problems if Texas was to move from the rule of capture to some type of reasonable use doctrine.

Specifically, how courts should determine “reasonability” in the face of competing uses was only partially clarified in the *Jones* decision. In that instance, the court prioritized domestic supply over an industrial use. Twenty years hence, the Arkansas Supreme Court further elucidated how competing non-domestic uses might be balanced by noting that “It is permissible for a riparian owner to remove subterranean and percolating waters and use it away from the lands from which it was pumped if it does not injure the common supply of other riparian owners.”¹¹⁷ In other words, correlative rights only need to be applied if hydrological, meteorological, and demand-driven circumstances create scarcity. Such an approach likely works broadly in a high-precipitation jurisdiction like Arkansas, but it would be less uniformly applicable in Texas, where precipitation varies widely across a vast land area and where, in certain areas, including El Paso, the Permian Basin, and the I-35 corridor, large-scale water demand and population centers may be located in zones that are dry or have inconsistent rainfall and where water scarcity is the default condition.

The dissent in *Jones* also reflected dynamics similar to the longstanding status quo in Texas groundwater law, stating that “we should follow the common-law rule until the Legislature sees fit to change the common-law rule.”¹¹⁸ Texas decisions involving the rule of capture—for instance, *Sipriano* (1999)—have taken a similar position. In both cases, the judges likely perceived complex equities, like those described in the previous paragraph, and felt that for maximum legitimacy and sustainability, the disputes needed to be determined by elected representatives in a political process more broadly accountable to voters and affected interests.

State #8—Arizona: Patchwork Regulation Creates Sustainability Challenges

Arizona's adoption of the American rule as its groundwater common law commenced in the late 1940s when a farmer sank additional irrigation wells and used them to water a new tract of land three miles away. After adjacent landowners sued, the case rose to the Arizona Supreme Court, whose 1953 decision in *Bristor v. Cheatham* held that "reasonable use" was the appropriate common law doctrine for governing groundwater extraction in Arizona.¹¹⁹

As in other decisions throughout the United States that adopted the reasonable use rule, *Bristor's* majority tied the reasonableness of groundwater use to "beneficial enjoyment" of the overlying lands. Accordingly, so long as groundwater was pumped "for the purpose of making reasonable use of the land from which it is taken," pumpers would not incur liability to their neighbors.¹²⁰ Nearly twenty years later, a group of farmers in the vicinity of the area where the *Bristor* dispute occurred sought to enjoin the city of Tucson from exporting water from six city-owned wells near the farmers' land to a range of distant customers.¹²¹

In the first of three decisions on the dispute (*Jarvis v. State Land Dept.*), the Arizona Supreme Court (1) ordered the State Land Commissioner to cancel all right-of-way grants for Tucson to transport water from the disputed area to the city and (2) issued a permanent injunction against future grants of right-of-way, unless the city could show that the disputed zone was "no longer" a critical groundwater area under the state's laws.¹²² Foreshadowing a loosening, the *Jarvis I* court concluded by stating, "this injunction will be modified or dissolved as the facts warrant."¹²³

Approximately 18 months later, the court entered a second decision in response to the city's request for an equitable remedy. This opinion, henceforth "*Jarvis II*," first determined that one of Tucson's water delivery customers, the Ryan Field airport, was situated within the same critical groundwater area as the disputed wells and that the city could supply it with water on the basis that it was entitled "to withdraw water from the common supply for all purposes except agriculture."¹²⁴ The court then crafted a second solution: It allowed the city to purchase farmland in the disputed area, and so long as it did not exceed historical maximum pumping volumes or try to farm and transport water, it could export groundwater to distant municipal customers.¹²⁵ For practical purposes, this combined equitable remedy destroyed the reasonable use rule requirement that water be used only for the benefit of overlying lands.

The *Jarvis II* court used Arizona statutes governing appropriation of water to justify its decision to loosen the injunction against the city of Tucson, arguing that "the relative value of uses in appropriable waters has been fixed by the Legislature as first, domestic and municipal uses, and second, irrigation and stock watering."¹²⁶ The

problem is that under longstanding Arizona law, the subsurface water at issue in the *Jarvis* decisions would almost certainly qualify as “percolating” groundwater, which was not subject to prior appropriation.¹²⁷

In the third *Jarvis* decision (1974), the city of Tucson found itself on the losing end of judicial discretion. After an appeal by the farmer plaintiff whose challenge had touched off the original litigation in the “*Jarvis* trilogy,” the court determined that because irrigated farmland in the area returned approximately half the applied water back to the local water table, Tucson could only pump and transport an amount equal to the historical “consumptive” use, or 50% of the total pumped while a tract was under cultivation.¹²⁸

When the Arizona Supreme Court decided a dispute between a farming company and copper producer in 1976, it repeated the statutory misapplication made by *Jarvis* II. However, in its new opinion—*Farmers Inv. Co. v. Bettwy*—the majority sought to ring fence the *Jarvis* decision, saying that “Those cases are not, however, precedent for a doctrine that a court will prefer one economic interest over another on an ad hoc basis where there are not enough of the material goods of existence to go around.”¹²⁹ The court then punted and named the state legislature as “the appropriate body to designate when and under what circumstances” disparate interests such as farming and mining should be preferred against each other.

Amidst robust growth, increasing demands on the state’s water resources, and calls for the legislature to provide guidance for resolution of groundwater disputes, Arizona passed the Groundwater Management Act in 1980. The Groundwater Management Act divided the state into three core groundwater zones:

1. Active management areas centered on the Greater Phoenix, Prescott, and Tucson areas that imposed the strictest irrigation limits and other conservation-oriented usage limitations (Ariz. Rev. Stat. Ann. § 45-411).
2. Irrigation non-expansion areas (Ariz. Rev. Stat. Ann. § 45-431).
3. All other areas, where “reasonable and beneficial use” would remain the standard law governing groundwater pumping, with transport of groundwater governed by statute (Ariz. Rev. Stat. Ann. § 45-453; Ariz. Rev. Sta. Ann. § 45-541, 551).

The Arizona Supreme Court’s decision in *Davis v. Agua Sierra Resources, LLC* (2009) affirmed these categories and held that “landowners outside of [active management areas] do not have a real property interest in the potential future use of groundwater that may be severed from the overlying land.”¹³⁰ The court’s *Davis* holding illustrated how the “cap” imposed by non-expansion of irrigation and other use restrictions has effectively rendered property rights in the active management areas and irrigation non-expansion areas more defensible—and presumably more valuable. Simultaneously, it

highlighted the incentives of users outside the active management areas to maximize present water use—much as the original rule of capture would encourage them to. A 2020 article by University of Arizona Law Professor Kirsten Engle (who is also a sitting state senator) makes clear that water thinkers in the state recognize the growing economic and environmental costs imposed by a patchwork groundwater governance system that restricts pumpage in some areas while allowing virtually unfettered extraction in others, to the detriment of property owners, riparian habitat, and other vital concerns. Professor Engle’s piece discusses Arizona’s need for a more comprehensive groundwater governance system and suggests that both property rights-based approaches (i.e., cap and trade) and more “traditional” statutory schema could both be on the table in the coming years’ policy discussions.¹³¹ As the Lone Star State’s own discussion on groundwater governance amidst a checkerboarded regulatory environment evolves, it will make sense to monitor developments in our Grand Canyon peer.

State #9—California: Transition from Capture to Correlative Rights Signature Case: *Katz v. Walkinshaw*, 141 Cal. 116, 137, 74 P. 766, 773 (1903)

The California Supreme Court decided *Katz v. Walkinshaw* with two opinions, *Katz* #1¹³² was decided in 1902, and *Katz* #2¹³³ (a re-hearing of the first decision) in 1903. With remarkable foresight, *Katz* recognized both the threat to groundwater property rights inherent in an unfettered capture-based management regime as well as the need to think conjunctively about ground and surface water resources.

In *Katz*, the plaintiffs had long irrigated their property near contemporary San Bernardino—which the court described as “growing trees, vines, shrubbery, and other plants, which are of great value to plaintiffs”—from wells fed by artesian pressure generated by water percolating into the basin from nearby mountains.¹³⁴ The defendant, a water speculator, sought to abstract water from a location upslope of the plaintiffs and divert the water for sale to and use upon “lands of others distant from the saturated belt from which the artesian water is derived.”¹³⁵ The plaintiffs filed suit on the basis that the artesian water emanated from an underground stream and that they were thus riparian, meaning the defendant should not be allowed to cut off water flows.¹³⁶

The defendant water seller, for its part, countered with an argument that the water was in fact percolating and was thus part and parcel of its property and eligible for extraction and sale without regard to plaintiffs’ supplies being dried up.¹³⁷ The court then embarked upon a detailed discussion of the area’s hydrogeology and set the basis for an opinion that (1) questioned the traditional English rule of capture articulated in *Acton v. Blundell* and then (2) outlined a modified rule that sought to account for different local hydrological conditions, as well as the perceived unfairness of a doctrine that would allow tracts downdip from large-volume water pumpers to be “clandestinely sapped, and their value impaired.”¹³⁸

Katz's Innovation: Correlative Groundwater Rights When Required by Local Circumstances

The central proposition first set forth in *Katz #1* and supported and expounded upon in *Katz #2* was that the non-liability rule of capture articulated by the English court in *Acton v. Blundell* 60 years prior should not be applied in California. This was because local scarcity made water a prized commodity, whereas in a wetter climate like England, "water, instead of being of almost priceless value, is a substance that in many cases is to be gotten rid of rather than preserved. Drainage is there an important process in the development of the productive capacity of the land, and irrigation is unknown."¹³⁹

Water near San Bernardino was not quite "priceless" in literal terms in the early 1900s, but it was extremely valuable, as California by that time was already becoming the U.S. (and in some cases, global) epicenter for high-value citrus, grape, nut, and vegetable production. The unreliable natural rainfall, plus the fact that an orchard might take the better part of a decade to become economically productive, made obtaining irrigation water supplies an existential issue for farmers, and *Katz #2* found at least one farmer willing to pay \$50,000 for a stream that yielded "one cubic foot per second."¹⁴⁰

On an inflation adjusted basis, that would mean the farmer paid approximately \$1.4 million to secure the rights to 724 acre-feet of water per year, a sum of \$1,965 per acre-foot for what appears to be something akin to a "permanent" water rights (although the court does not explicitly tell us the seniority of such a stream).¹⁴¹ To put a value of \$1,965/acre-foot for "raw" (i.e., "untreated") water into contemporary perspective, consider that the Metropolitan Water District of Southern California charged customers less than \$350/acre-foot for raw water in 2020.¹⁴² Farming water is more valuable. Approximately 100 miles west of San Bernardino, the Santa Paula Basin has recently seen water rights sell for as much as \$20,000 per acre-foot.¹⁴³

Katz #1 avoided a bright-line ruling against the English rule of capture, noting that "the American cases do not require us to hold that the maxim, 'Sic utere tuo,' does not limit the right of the landowner to the use of subsurface water, but, on the contrary, all the cases in which the question has been discussed held or admit that such maxim should limit such right where justice requires it."¹⁴⁴ This approach of correlative rights defined on an ad hoc basis according to local circumstances could be useful in Texas.

Upon a rehearing the following year, the *Katz #2* court essentially affirmed the circumstantially-defined rights approach. More than a century later, the basic principle still endures in California common law regulation of groundwater withdrawals. Indeed, a 2016 case in the same area *Katz* arose stated that "Under the 'correlative rights doctrine,' as between the owners of land overlying strata of percolating waters,

*the rights of each to the water are limited, in correlation with those of others, to his 'reasonable use' thereof when the water is insufficient to meet the needs of all."*¹⁴⁵ [emphasis added]

Katz emphasized the adverse practical impacts of a non-liability rule of capture approach on groundwater owners' property rights in a water-constrained location. Most pointedly, the court emphasized the reality that "We do not see how the doctrine contended for by defendant could ever become a rule of property to any value."¹⁴⁶ It pointed out that if "no property rights exist in such waters except while they remain in the soil of the landowner ... *Such right as he has is therefore one which he cannot protect or enforce by resort to legal means, and one which he cannot depend on to continue permanently or for any definite period.*"¹⁴⁷ [emphasis added] The Katz #2 decision also acknowledged the conjunctive impacts on ground and surface water resources likely to arise from a "pumpers keepers" race to the bottom of local aquifers, noting that the exhaustion of groundwater supplies "*in this way threatens surface streams as well as underground percolations and reservoirs.*" [emphasis added] The court further recognized that in a capture-based groundwater world, sheer size of landholdings is the only recourse to protect one's water rights and that even while maximizing the protective moat afforded by size "*[o]wing to the uncertainty in the law, and the absence of legal protection, there has been no security in titles to water rights.*"¹⁴⁸ [emphasis added]

Understanding the Historical Context of Katz—and How It Shaped Contemporary California Groundwater Management

California and Texas have, in demographic and economic terms, been part of the "quad"¹⁴⁹ leading the United States for the past 120 years. Yet they have very different histories with respect to water—which has arguably helped shape the atmosphere in which judicial and political authorities made decisions pertaining to the ownership and governance of water and groundwater resources.

For both of California's two core population hubs and economic dynamos—the Bay Area in the north and Greater Los Angeles in the south—water was a scarce resource to be prized and conserved. Indeed, by the time the California Supreme Court was hearing *Katz*, influential Angelenos were already concerned with procuring large-scale water supplies to ensure their dry metropolis' future growth prospects. In 1904, the

If no property rights exist in such waters except while they remain in the soil of the landowner ... Such right as he has is therefore one which he cannot protect or enforce by resort to legal means, and one which he cannot depend on to continue permanently or for any definite period.

Los Angeles Board of Water Commissioners authorized William Mulholland, head of the city's Department of Water and Power to secure new water sources to quench LA's increasing thirst.¹⁵⁰ This move culminated in the 1913 opening of a 233-mile aqueduct (the world's longest at the time) to convey water from the Owens Valley to Los Angeles.

For the growth engines in the "Texas Triangle,"¹⁵¹ the set up was vastly different—water was a resource that was often in surplus. The most existential factor for large Texas cities—especially Houston—was not procuring water for drinking or irrigation, but instead defending against inundation from tropical storms and thunderstorm complexes that could in hours unleash rainfall exceeding what Los Angeles would receive in a year. Against such a hydrological backdrop, it begins to make more sense why the Texas Supreme Court's 1904 East decision involving a groundwater dispute in Denison (40+ inches of annual precipitation) would prefer the English rule of *Acton v. Blundell* (where abundant percolating groundwater was actually an economic and operational liability to a coal miner), whereas the California Supreme Court deciding a case near San Bernardino (15 to 16 inches of annual precipitation) treated percolating water as a precious, finite resource whose continued presence was essential for the survival of local agricultural interests and cities.

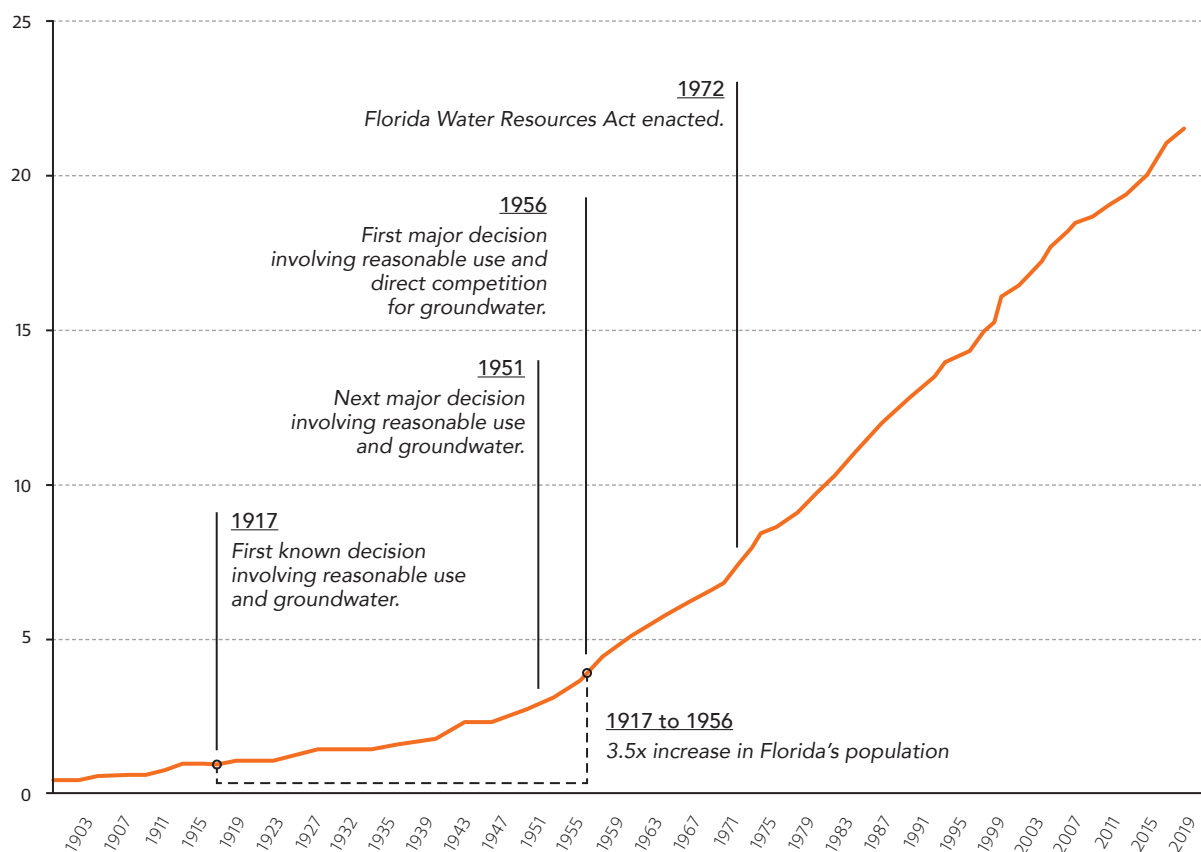
California and Texas also take dramatically different approaches to groundwater property rights. Groundwater in California is public property, managed by the state under a non-proprietary, regulatory ownership interest.¹⁵² Furthermore, for more than 100 years, California law has explicitly favored on-tract uses of groundwater.¹⁵³ Texas, in contrast, legislatively and judicially recognizes groundwater as being real private property that is owned in place. California water traders buy and sell the rights to use certain volumes of water, while Texas water transactions can sever, sell, or lease the vested ownership rights to specific subsurface formations and the water molecules they physically contain.

State #10—Florida: Big State, Fast Growth, Hands-Off Regulatory Philosophy (Except for Water)

In Florida, the initial judicial decisions that paved the way for adopting the reasonable use doctrine for groundwater were based on "non-trespassory invasion of a person's water rights by another's use of his property in which the effect on subterranean water is only incidental."¹⁵⁴ Put differently, while the early groundwater decisions in California and Texas both involved neighbors putting "too many straws" in the glass, the initial Florida cases arose when the neighbor either overflowed the glass or broke the straw that the plaintiff was using to access her water.

As expounded upon below, four decades elapsed between the Florida Supreme Court’s initial reasonable use decision (where the defendant’s actions incidentally affected the plaintiff’s groundwater) and the court’s first reasonable use decision, involving direct competition for the groundwater itself. During this period (1917 to 1956), Florida’s population grew by a factor of 3.5, with much of this growth driven by urban settlement (Figure 6). Large-scale urban population increases in turn caused cities to seek groundwater sources outside their boundaries, resulting in high-volume wellfields being situated on disproportionately small plots of land and triggering agricultural neighbors’ fears that the groundwater underpinning their agricultural operations would be dried up. This very fact pattern drove the Florida Supreme Court’s 1956 *Koch v. Wick* decision, explored in more detail below.

Figure 6: Timeline of Florida’s Population Growth and Major Groundwater-Related Legal Events (Million Persons)



Sources: Westlaw, Federal Reserve Bank of St. Louis, author’s analysis

The First Florida Reasonable Use Case: Interference with Percolation Yields Too Much Water

Florida's move toward reasonable use groundwater governance began in 1910 when the Florida Power Company constructed a dam and generation facilities on the Withlacoochee River approximately 80 miles north of Tampa to power nearby phosphate mines.¹⁵⁵ The dam created Lake Rousseau (which still exists) and, in doing so, obstructed the percolative drainage of water through the riverside farm of H.I. Cason, causing it to become saturated with water and impossible to cultivate.¹⁵⁶ Here it bears noting the irony that the seminal early groundwater dispute decisions in California and Texas arose from water scarcity, while Florida's first case arose from too *much* water on a tract.

Cason brought suit seeking damages in the amount of \$15,000 (approximately \$331,000 in 2020 dollars), and the trial court directed a verdict for Florida Power, after which the matter came to the Florida Supreme Court on appeal.¹⁵⁷ The court ultimately determined that Cason's allegations that the dam interfered with percolation of groundwater through his lands and destroyed their cultivability "should have been submitted to the jury with appropriate instructions" and sent the matter back to the trial court.¹⁵⁸

The court acknowledged the ad hoc nature of correlative rights cases, noting that "The reasonableness of the use of property by its owner must of necessity be determined from the facts and circumstances of particular cases as they arise, by the application of appropriate provisions or principles of law and the dictates of mutual or reciprocal justice."¹⁵⁹ A concurring opinion unpacked the ruling's reasoning a bit further, stating that "What in any case is a reasonable use is ordinarily a mixed question of law and fact to be submitted to the jury under proper instructions from the court."¹⁶⁰

Examining the Cason decision now with the benefit of 20/20 hindsight illustrates that calls for predictability in an increasingly populated and thirsty state likely helped motivate the 1972 passage of the Florida Water Resources Act and the promulgation of subsequent administrative guidance. The paper will now discuss subsequent cases in Florida that influenced the development and application of reasonable use principles. It will then elaborate on the Florida Water Resources Act and accompanying administrative guidance, and how it likely helps groundwater users understand the parameters of their rights without needing to discover them through expensive, time-consuming litigation.

The Next Florida Cases: Interference with Percolation Harms by Curtailing Groundwater Supplies

A. "No partially good deed goes without liability"—Labruzzo v. Atl. Dredging & Const. Co., 54 So. 2d 673, 674 (Fla. 1951)

In *Labruzzo*, the defendant construction company's operations to dredge a yacht basin along the St. Johns River near the city of Palatka disrupted subterranean channels feeding springs on the plaintiff's property.¹⁶¹ In deciding the dispute, the *Labruzzo* court straddled the non-liability rule of capture and the emerging American rule of reasonable use.

On the first count in the plaintiff's declaration (the defendant's negligent excavation interrupted the flows to the plaintiff's spring), the court found that the dredging company's actions were not negligent, because "If the plaintiffs' spring was fed by percolating waters, it could not 'plainly be anticipated' that the defendant's excavations and pumping activities would dry up the spring; and if the spring was fed by an underground stream, in a well-defined channel, such stream might have come in to plaintiffs' spring from any direction and not necessarily under the defendant's land."¹⁶² Thus, the court's finding on the plaintiff's first count is remarkably similar to what one might have expected from a traditional application of the non-liability rule of capture (even though the subterranean water in question was actually a burden to the dredging operation, and not something it sought to produce).

What brought the dispute back into "reasonable use" territory (saving the plaintiff's case in the process) was the allegation that the defendant dredger (1) located and found the underground limestone channel of the waters of the plaintiffs' spring, (2) recognized and identified the waters from said underground channel as the waters of the plaintiffs' spring, (3) admitted to the plaintiffs that the underground stream fed their spring and even agreed to pay them \$100 per month for their loss of the spring's use during the dredging operation, and then (4) continued excavating and pumping, which disrupted the natural channel and ended spring flows on the plaintiff's property.¹⁶³

On the basis of these facts pled, the court noted that "If an injury to a neighbor's rights in wells or a water supply is plainly to be anticipated, and can be avoided by the exercise of reasonable care and at reasonable expense, a land owner is not exempt from all obligation to pay regard to the effect of his operations on subterranean waters."¹⁶⁴ The court then remanded the case noting that the "reasonability" of the dredging company's actions was for a jury (trier of fact) to determine.¹⁶⁵

B. “My neighbor, not my filter”—Koch v. Wick, 87 So. 2d 47, 47 (Fla. 1956)

Koch is the first Florida case located by the author that directly addresses competition over the groundwater itself, as opposed to the interference with subterranean water flows that drove the disputes in *Cason* and *Labruzzo*. Plaintiff Koch owned a 2,600 acre block of farmland in Pinellas County (home to St. Petersburg and its northern suburbs), which he claimed was “extremely fertile” and contained “several hundred million gallons” of percolating water that originated from rainfall and seepage from other sources.¹⁶⁶ The defendant leased 3.63 acres from a neighboring landowner and proceeded to sink multiple wells that pumped 3 million gallons per day of groundwater “for distribution to individuals and to municipalities in Pinellas County including the county seat, Clearwater.”¹⁶⁷ Figure 7 (below) illustrates the disparity in area between the adjacent tracts.

Koch sought to enjoin the small-tract wellfield’s pumping on the basis that it would impair his land and “reduce its productivity to such degree that it will become a ‘desert waste’ causing him to suffer irreparable injury.”¹⁶⁸ His concern was likely amplified by the Board of County Commissioners’ (BCC) study suggesting that the wellfield could yield 8 million gallons of potable water per day—2.5 times the pumpage at the time of suit.¹⁶⁹ For context, consider (1) that 1 million gallons of water per day could potentially support more than 10,000 mature orange trees under summertime conditions in Florida¹⁷⁰ and (2) the city of Clearwater, a key project customer, had experienced a 50% increase in its population between 1940 and 1950. When the case was decided, Clearwater was also in the midst of a more than 120% population expansion, which took place between 1950 and 1960.¹⁷¹

Figure 7: Scaled Illustration of Koch’s Farmland Area versus Board of County Commissioners’ Wellfield



Note: Koch lands are blue; BCC's are orange.

Koch applies the reasonable use rule, which bounds the right to withdraw percolating water according to “reasonableness and beneficial use of the land.”¹⁷² Beneficial use of the land is quickly ruled out, given that the average daily pumpage would submerge the defendant’s tract under two and a half feet of water.¹⁷³ The court did not analyze reasonability in the opinion, but noted that “the appellant should have been given the opportunity of producing evidence” to support his claim that the board’s pumpage was unreasonable.¹⁷⁴ While the Koch court did not render a decision on reasonability, its analysis of beneficial use (pumpage disproportionate relative to what could have actually been used on-tract) suggests the board’s pumpage would likely have been considered unreasonable.

C. Time for courts to yield to a statutory groundwater governance remedy—Vill. of Tequesta v. Jupiter Inlet Corp., 371 So. 2d 663, 665 (Fla. 1979)

In *Village of Tequesta v. Jupiter Inlet Corp.*, the Florida Supreme Court established at least two baselines that helped water users in the state better understand the parameters of their property rights (or lack thereof) in groundwater, as well as anticipate how a court defines the reasonability of water use during a dispute between competing pumpers. The decision is also potentially instructive for policymakers in Texas, if they consider a move toward reasonable use groundwater governance.

Defendant Tequesta operated a field with seven wells that extracted approximately 1 million gallons per day from a shallow aquifer.¹⁷⁵ Plaintiff Jupiter Inlet Corp. owned property approximately 400 yards from Tequesta’s wellfield upon which it sought to construct a 120-unit condominium project.¹⁷⁶ Jupiter desired to tap the shallow aquifer to supply its development with water from shallow wells. But its permit application under the Florida Water Resources Act was denied because the shallow aquifer was at risk of saltwater intrusion from the nearby intracoastal waterway, a risk that, in the court’s recounting, was driven by Tequesta’s pumping.¹⁷⁷ Jupiter subsequently moved to enjoin Tequesta’s water withdrawals and also instituted an action for inverse condemnation under the theory that the village’s pumping deprived Jupiter of the beneficial use of its property rights in the shallow aquifer’s water.¹⁷⁸

The court ultimately decided the dispute in Tequesta’s favor. In doing so, it first rebutted the idea of a corporeal ownership interest in groundwater that has not yet been reduced to possession. A 1976 decision by an intermediate Florida appeals court had found that for eminent domain purposes, groundwater in place was a compensable property interest.¹⁷⁹ But in *Village of Tequesta*, the Florida Supreme Court overruled that decision and specified that a party can only possess the right to use water underneath her land and does not own subsurface water molecules as property.¹⁸⁰

The court then turned to the question of what constituted a “reasonable” use of the groundwater and how that interfaced with Jupiter Inlet Corp.’s rights as a water user. In its analysis, the court noted that “[t]he property rights relative to waters that

naturally percolate through the land of one owner to and through the land of another are correlative. Reasonableness could only be determined after the conflict arises between users.”¹⁸¹ It further emphasized that the determination of “reasonableness” is a dynamic, fact-intensive process in which factors, such as “the reasonable demands of other users; the quantity of water available for use; [and] the consideration of public policy,” could be relevant variables.¹⁸²

The reasonableness inquiry highlighted a longstanding flaw in the common law rule of reasonable use—namely, the reality that “[e]ven an allocation between conflicting users has no durability, for the decision by another land owner to exercise his previously neglected right to use water could easily render all other uses unreasonable. *A person developing his own land could make a substantial investment with no way of determining whether reasonable use by others would limit or destroy his development right even though it was the first in time.*”¹⁸³ [emphasis added]

The court then discussed the Florida Water Resources Act, which had been adopted in 1972 to provide a broader umbrella of administrative rules and standards to govern groundwater extraction rather than a system reliant on ad hoc judicial determinations. It concluded with an eight-part holding that ultimately informed Jupiter its only remedy was a “proper application for a permit under the Florida Water Resources Act.”¹⁸⁴

IV. Conclusion: What If Texas Decides to Overrule the Rule of Capture?

Water is an underappreciated and irreplaceable component of the Texas growth model. At the same time, significant droughts in the state are a question of “when,” not “if.” Water policy can certainly wait until a more sustained supply crunch emerges and then respond reactively. But it is far better to address a known risk in a proactive manner—one that builds in the time and space needed to craft solutions and create the legal, market, and physical infrastructure needed to implement them over decades. Reforming groundwater law falls precisely into such a space and should be approached not from the perspective of Texas as it exists today, but instead from the real prospect of a Texas in 2050 that will have millions more people, many of whom may reside in the already water-stressed I-35 corridor.

Two of the most serious groundwater management challenges Texas faces are (1) the rule of capture’s tendency to create a “tragedy of the commons” and (2) the fact that the rule of capture is interspersed with a largely patchwork groundwater conservation district system that, with a few exceptions, diverges from hydrologic realities. Dealing effectively with the first issue by updating Texas’ groundwater common law could help alleviate broad pressures on groundwater resources in key areas and, in doing so, potentially mitigates the most distortionary aspects of the current groundwater

conservation district system. Groundwater common law reform thus reshapes the environment in a way that addresses acute issues posed by unrestrained extraction in areas not covered by groundwater conservation districts, especially those where a restrictive district borders an ungoverned space whose denizens can over-pump at the expense of property owners within district boundaries.

The examples of Ohio and Michigan’s transitions to a Restatement or balancing approach likely offer the best software patches for Texas groundwater law, as both balance the protection of property rights, a quest for fair economic value distribution, and ecosystem and environmental sustainability concerns. In 1984, the Ohio Supreme Court “adjusted the course of Ohio groundwater law” with the *Cline* decision, overturned 122 years of rule of capture, and made the Restatement approach the state’s default mode of groundwater governance.¹⁸⁵

The common law adjustment sought “to create a workable standard for the resolution of groundwater disputes in Ohio.”¹⁸⁶ To that end, the Ohio Supreme Court’s 2005 decision in *McNamara v. Rittman*, the initial signature case under the new doctrine, suggests the Restatement approach has indeed enhanced groundwater owners’ property rights while also creating a workable basis for dispute resolution. In *McNamara*, the court noted that

A property owner has a potential cause of action against anyone who unreasonably interferes with his property right in groundwater. That cause of action arises only from the effect on the landowner’s water rights—*no other effect on the overlying property is necessary for the cause of action to proceed.*¹⁸⁷
[emphasis added]

The passage—“no other effect on the overlying property is necessary”—illustrates the heightened protections that would be afforded to Texas groundwater owners if the Supreme Court adopted the Restatement or another equitable balancing approach. Groundwater owners would retain a wide fairway for development and economic use of their property. Most pointedly, property owners would likely discover that what initially appear to be restrictions, in fact, ultimately increase the value of the resource by defending it from being pumped away with no recourse.

The examples of Ohio and Michigan’s transitions to a Restatement or balancing approach likely offer the best software patches for Texas groundwater law, as both balance the protection of property rights, a quest for fair economic value distribution, and ecosystem and environmental sustainability concerns.

Sources

1. Dylan O. Drummond, Lynn Ray Sherman, and Edmond R. McCarthy, Jr., "The Rule of Capture in Texas-Still So Misunderstood After All These Years," *Texas Tech Law Review* 37, no. 1 (2004), [https://www.bpgulfspillclaims.com/portalresource/lookup/wosid/cp-base-4-88910/media.name=/Still%20So%20Misunderstood%20\(pdf\).pdf](https://www.bpgulfspillclaims.com/portalresource/lookup/wosid/cp-base-4-88910/media.name=/Still%20So%20Misunderstood%20(pdf).pdf).
2. *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d 75, 75 (Tex. 1999)
3. The City of Houston occupies an area of approximately 665 square miles, or 425,600 acres (665 sq miles X 640 acres per sq mile). 1 million acre-feet ÷ 425,600 acres = 2.34 feet. "Facts and Figures," City of Houston, <https://www.houstontx.gov/about/houston/houstonfacts.html>.
4. "Metropolitan and Micropolitan Statistical Areas Population Totals and Components of Change: 2010-2019," U.S. Census Bureau, <https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-metro-and-micro-statistical-areas.html>.
5. Ross Brady et al., "Reorganizing groundwater regulation in Texas," Bush School of Government and Public Service, College Station, Texas: Texas A&M University, 2016, <https://oaktrust.library.tamu.edu/bitstream/handle/1969.1/187041/2016%20Final%20Report%20Reorganizing%20Groundwater%20Regulation%20in%20Texas%20%283%29.pdf?sequence=1&isAllowed=y>.
6. Justin C. Thompson, Charles W. Kreitler, and Michael H. Young, "Exploring Groundwater Recoverability in Texas: Maximum Economically Recoverable Storage," *Texas Water Journal* 11 (2020), <https://twj.media/exploring-groundwater-recoverability-in-texas/>.
7. *Michigan Citizens for Water Conservation v. Nestle Waters N. Am. Inc.*, 269 Mich. App. 25, 58, 709 N.W.2d 174, 196 (2005), *aff'd in part, rev'd in part*, 479 Mich. 280, 737 N.W.2d 447 (2007).
8. *Greenleaf v. Francis*, 35 Mass. 117, 123 (1836). The Massachusetts court and Acton court in England both drew upon the ideas of Ulpian, a Roman jurist who lived approximately 250 years after Marcellus. See Drummond, Sherman, and McCarthy, "The Rule of Capture in Texas-Still So Misunderstood After All These Years."
9. *Houston & T.C. Ry. Co. v. East*, 98 Tex. 146, 150, 81 S.W. 279, 281 (1904), citing *Pixley v. Clark*, 35 N. Y. 520, 91 Am. Dec. 72.
10. Drummond, Sherman, and McCarthy, "The Rule of Capture in Texas-Still So Misunderstood After All These Years."
11. Drummond, Sherman, and McCarthy, citing act approved January 20, 1840, 4th Cong., R.S., reprinted in 2 H.P.N. Gammel, *The Laws of Texas 1822-1897*, at 177, 177-78 (Austin, Gammel Book Co. 1898) (later codified via Tex. Civ. Prac. & Rem. Code Ann. § 5.001(a)) ("The rule of decision in this state consists of those portions of the common law of England that are not inconsistent with the constitution or the laws of this state, the constitution of this state, and the laws of this state.")

12. *Houston & T.C. Ry. Co. v. East*, 98 Tex. 146, 148, 81 S.W. 279, 280 (1904).

13. *Ibid.* at 280.

14. *Ibid.* at 280.

15. *Houston & T.C. Ry. Co. v. East*, 98 Tex. 146, 149, 81 S.W. 279, 281 (1904).

16. See, for instance: *Wiggins v. Brazil Coal & Clay Corp.*, 452 N.E.2d 958, 964 (Ind. 1983) and *Clinchfield Coal Corp. v. Compton*, 148 Va. 437, 454, 139 S.E. 308, 313 (1927) (“In the instant case, the coal company was making a legitimate use of its land for mining purposes, even under the ‘reasonable use’ rule, and we are not called upon to decide between the different theories, but if the question shall again come before this court, we shall feel free to consider it *de novo*.”)

17. A pair of Kentucky cases 30 years apart illustrates how a court might characterize its decision as being governed by “reasonable use” when it was applying the law in a manner no different than what would pass for a “rule of capture” decision in Texas.

Kentucky’s Supreme Court decided *Wasioto & B.M.R. Co. v. Hensley* in 1912, finding that although the defendant railroad’s construction operations dried out the plaintiff’s water wells, it did not dig or build in a “negligent or unusual manner” and was thus operating within its rights.¹⁷ Thirty years hence, the Kentucky Supreme Court again took up a case involving dried up domestic water wells. In that decision, the court compared the “English” and “American” rules and specifically noted that it thought the “reasonable use rule” was “the sounder rule.”¹⁷

The court then found the defendant coal company was not liable to the plaintiffs because it “was using its land in a legitimate manner, and it drilled the [*exploratory bore*] hole for a necessary and useful purpose. There is nothing in the proof tending to show that the injury to the appellees’ well should have been anticipated by appellant, and there is no question of malice or waste.”¹⁷ [clarification added] In short, the evolution of time brought a semantic nod to the American rule but ultimately still yielded a decision that Marcellus would have recognized and agreed with in the 1st Century B.C. This pattern repeats itself across multiple states and decades of caselaw.

18. *Henderson v. Wade Sand & Gravel Co.*, 388 So. 2d 900, 902 (Ala. 1980), citing Restatement (Second) of Torts s 857 (1979), 256-257.

19. *Stillwater Water Co. v. Farmer*, 89 Minn. 58, 66, 93 N.W. 907, 910 (1903) (“He must not drain, collect, or divert such waters for the sole purpose of wasting them. Briefly stated, a landowner must not collect and wantonly waste percolating waters which would otherwise be, or have theretofore been, appropriated by his neighbor for the general welfare of the people. If he does, an action to restrain and prohibit such waste may be maintained by the party injured.”)

20. *Spear T Ranch, Inc. v. Knaub*, 269 Neb. 177, 187–88, 691 N.W.2d 116, 128 (2005).

21. As an example of a decision based on industrial water exports that favored adjacent landowners, see: *Canada v. City of Shawnee*, 1936 OK 803, 179 Okla. 53, 64 P.2d 694, 699. For a decision favoring adjacent owners in a dispute over adverse effects caused by water exports to a municipality, see: *Forbell v. City of New York*, 164 N.Y. 522, 527, 58 N.E. 644, 646 (1900) and *Schenk v. City of Ann Arbor*, 196 Mich. 75, 91, 163 N.W. 109, 114 (1917).

22. Maerz v. U.S. Steel Corp., 116 Mich. App. 710, 715, 323 N.W.2d 524, 527 (1982).
23. Joseph W. Dellapenna, "The Rise and the Demise of the Absolute Dominion Doctrine for Groundwater," *University of Arkansas Little Rock Law Review* 35, no. 2 (2013): 291, 294, <https://lawrepository.uarl.edu/lawreview/vol35/iss2/3>.
24. GRACE Tellus, Jet Propulsion Laboratory, California Institute of Technology, NASA, <https://grace.jpl.nasa.gov/mission/grace/>.
25. Elinor Ostrom, "Coping with Tragedies of the Commons," *Annual Review of Political Science* (1999): 493, 497, <https://www.annualreviews.org/doi/pdf/10.1146/annurev.polisci.2.1.493>.
26. State v. Michels Pipeline Const., Inc., 63 Wis. 2d 278, 299, 217 N.W.2d 339, 349, opinion supplemented on reh'g, 63 Wis. 2d 278, 219 N.W.2d 308 (1974).
27. Bassett v. Salisbury Mfg. Co., 43 N.H. 569, 577 (1862).
28. Katz v. Walkinshaw, 141 Cal. 116, 136, 74 P. 766, 772.
29. Katz v. Walkinshaw, 141 Cal. 116, 136, 74 P. 766, 772.
30. Katz v. Walkinshaw 141 Cal. 116, 135-36, 74 P. 766, 772.
31. Gabriel Collins and Hilmar Blumberg, "Implementing three-dimensional groundwater management in a Texas groundwater conservation district," *Texas Water Journal* 7, no.1 (2016): 69-81, https://journals.tdl.org/twj/index.php/twj/article/view/7037/pdf_17.
32. Spear T Ranch, Inc. v. Knaub, 269 Neb. 177, 190, 691 N.W.2d 116, 130 (2005).
33. Bassett v. Salisbury Mfg. Co., 43 N.H. 569, 577 (1862).
34. Restatement (Second) of Torts § 850A at 220 (1979) [from Spear T Ranch, Inc. v. Knaub, 269 Neb. 177, 192, 691 N.W.2d 116, 131 (Neb.,2005)].
35. See, for instance: N.M. Stat. Ann. § 72-12-1 (West) ("The water of underground streams, channels, artesian basins, reservoirs or lakes, having reasonably ascertainable boundaries, is declared to belong to the public and is subject to appropriation for beneficial use.")
36. Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 831-32 (Tex. 2012), citing Elliff v. Texon Drilling Co., 146 Tex. 575, 580, 210 S.W.2d 558, 561 (1948) ("In our state the landowner is regarded as having absolute title in severalty to the oil and gas in place beneath his land. The only qualification of that rule of ownership is that it must be considered in connection with the law of capture and is subject to police regulations. The oil and gas beneath the soil are considered a part of the realty. Each owner of land owns separately, distinctly and exclusively all the oil and gas under his land and is accorded the usual remedies against trespassers who appropriate the minerals or destroy their market value. ... We now hold that this correctly states the common law regarding the ownership of groundwater in place.") See also: Tex. Water Code Ann. § 36.002 (West) ("The legislature recognizes that a landowner owns the groundwater below the surface of the landowner's land as real property.")

37. S. 38, 45th Legislature, Regular Session (1937), <https://lrl.texas.gov/legis/billsearch/BillDetails.cfm?legSession=45-0&billTypeDetail=SB&billnumberDetail=38&submitbutton=Search+by+bill>.

38. H.B. 606, 50th Legislature, Regular Session (1947), <https://lrl.texas.gov/legis/billsearch/BillDetails.cfm?legSession=50-0&billTypeDetail=HB&billnumberDetail=606&submitbutton=Search+by+bill>.

39. H.B. 162, 51st Legislature, Regular Session (1951), Section D, https://lrl.texas.gov/LASDOCS/51R/HB162/HB162_51R.pdf#page=33.

40. General Appropriations Act for the 2020-21 Biennium, 86th Texas Legislature, Regular Session (2019), <https://www.lbb.state.tx.us/Documents/GAA/GeneralAppropriationsAct20202021.pdf>.

41. *McNamara v. Rittman*, 2005-Ohio-6433, ¶ 34, 107 Ohio St. 3d 243, 249, 838 N.E.2d 640, 646.

42. Okla. Stat. Ann. tit. 60, § 60 (West) (“The owner of the land owns water standing thereon, or flowing over or under its surface but not forming a definite stream. The use of groundwater shall be governed by the Oklahoma Groundwater Law”).

43. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 81, 306 S.W.2d 111, 115 (1957).

44. *Bassett v. Salisbury Mfg. Co.*, 28 N.H. 438, 440 (1854).

45. *Swett v. Cutts*, 50 N.H. 439, 445 (1870) (“This decision in Dr. Bassett’s case was on exceptions taken at the fifth trial”), noted in a 2013 article: Joseph W. Dellapenna, “A Primer on Groundwater Law,” *Idaho Law Review* 49 (2013): 265, 286. (“Within ten years, the case was back before the state supreme court, after its fifth trial.”)

46. *Bassett v. Salisbury Mfg. Co.*, 43 N.H. 569, 573 (1862).

47. *Ibid.* at 569, 577.

48. *Katz v. Walkinshaw*, 141 Cal. 116, 149, 70 P. 663, 668 (1902), *rev’d*, 141 Cal. 116, 74 P. 766 (1903) (citing *Forbell*); *Bower v. Moorman*, 27 Idaho 162, 147 P. 496, 501 (1915); *Willis v. City of Perry*, 92 Iowa 297, 60 N.W. 727, 730 (1894); *Meeker v. City of E. Orange*, 77 N.J.L. 623, 639, 74 A. 379, 385 (1909); *Forbell v. City of New York*, 164 N.Y. 522, 526, 58 N.E. 644, 646 (1900); *Horne v. Utah Oil Ref. Co.*, 59 Utah 279, 202 P. 815, 822 (1921); *Pence v. Carney*, 58 W. Va. 296, 52 S.E. 702, 705 (1905).

49. See, for instance, *Willis v. City of Perry*, 92 Iowa 297, 60 N.W. 727, 730 (1894) (“As to a surface stream, the riparian owner may use the entire stream for extraordinary purposes, provided he seasonably, and without sensibly diminishing its volume or impairing its quality, returns it to its accustomed channel.”)

50. *Frazier v. Brown*, 12 Ohio St. 294 (1861), overruled by *Cline v. Am. Aggregates Corp.*, 15 Ohio St. 3d 384, 474 N.E.2d 324 (1984); *Houst. & T.C. Ry. v. East*, 98 Tex. 146, 81 S.W. 279, 280 (1904).

51. Juliane R. Bourquin Matthews, “A Modern Approach to Groundwater Allocation Disputes: *Cline v. American Aggregates Corporation*,” *Journal of Energy Law and Policy* 7 (1986): 361, 369, https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/lrel7&id=367&men_tab=srchresults.

52. *Cline v. Am. Aggregates Corp.*, 15 Ohio St. 3d 384, 387, 474 N.E.2d 324, 327 (1984).
53. *Schenk v. City of Ann Arbor*, 196 Mich. 75, 78, 163 N.W. 109, 110 (1917).
54. *Schenk v. City of Ann Arbor*, 196 Mich. 75, 91–92, 163 N.W. 109, 114 (1917).
55. *Bernard v. City of St. Louis*, 220 Mich. 159, 165, 189 N.W. 891, 893 (1922).
56. *Michigan Citizens for Water Conservation v. Nestle Waters N. Am. Inc.*, 269 Mich. App. 25, 67, 709 N.W.2d 174, 201 (2005), *aff'd in part, rev'd in part*, 479 Mich. 280, 737 N.W.2d 447 (2007).
57. *Maerz*, 323 N.W.2d 524 at 720.
58. *Michigan Citizens for Water Conservation v. Nestle Waters N. Am. Inc.*, 269 Mich. App. 25, 68, 709 N.W.2d 174, 202 (2005), *aff'd in part, rev'd in part*, 479 Mich. 280, 737 N.W.2d 447 (2007).
59. *Ibid.*
60. *Ibid.* at 202.
61. *Ibid.* at 203.
62. *Gaskin v. City of Jackson*, No. 303245, 2012 WL 2865781, at *6 (Mich. Ct. App. July 12, 2012).
63. *Kowalchuk v. City of Jackson*, No. 330463, 2017 WL 2262876, at *2 (Mich. Ct. App. May 23, 2017).
64. See, for instance, *Prather v. Eisenmann*, 200 Neb. 1, 9, 261 N.W.2d 766, 771 (1978).
65. *Olson v. City of Wahoo*, 124 Neb. 802, 248 N.W. 304, 308 (1933).
66. *Katz v. Walkinshaw*, 141 Cal. 116, 136, 74 P. 766, 772 (1903) (“Disputes between overlying landowners, concerning water for use on the land, to which they have an equal right, in cases where the supply is insufficient for all, are to be settled by giving to each a fair and just proportion.”)
67. Neb. Rev. Stat. Ann. § 46-613 (West).
68. *Spear T Ranch, Inc. v. Knaub*, 269 Neb. 177, 194, 691 N.W.2d 116, 132 (2005).
69. *Ibid.* (“For example, because the recharge of a stream that has dried up because of well pumping could take years, an injunction against pumping might only serve to deprive everyone in a water basin. Such a remedy would be unreasonable and inequitable”).
70. Kan. Stat. Ann. § 82a-702 (West).
71. *Ibid.*
72. *Arensman v. Kitch*, 160 Kan. 783, 791, 165 P.2d 441, 446 (1946).
73. *Williams v. City of Wichita*, 190 Kan. 317, 349, 374 P.2d 578, 601 (1962); per acre rate calculated using the “CPI Inflation Calculator” from the U.S. Bureau of Labor Statistics, https://www.bls.gov/data/inflation_calculator.htm (dates used: May 1953 for original purchase, November 2020 for adjustment to contemporary value).

74. U.S. Decennial Census data, <https://www.census.gov/programs-surveys/decennial-census/data.html>.

75. John C. Peck, "Legal Responses to Drought in Kansas," *University of Kansas Law Review* 62 (2014): 1141, 1148.

76. *Williams v. City of Wichita*, 190 Kan. 317, 318, 374 P.2d 578, 580 (1962).

77. *Williams v. City of Wichita, Kansas.*, 375 U.S. 7, 7, 84 S. Ct. 46, 11 L. Ed. 2d 38 (1963); *Williams v. City of Wichita, Kansas.*, 375 U.S. 936, 84 S. Ct. 328, 11 L. Ed. 2d 267 (1963).

78. *Ibid.* at 588-589.

79. *Williams v. City of Wichita*, 190 Kan. 317, 326, 374 P.2d 578, 586 (1962).

80. See Jennifer L. Harder, "Unlimited Rights in A Water-Scarce World? Quantification of Dormant Rights to Common Pool Groundwater," *Texas Technology Law Review* 48 (2016): 719, 726.

81. *Ibid.* at 594.

82. *Ibid.* at 594-595.

83. *Ibid.* at 594-595.

84. Jennifer L. Harder, "Unlimited Rights in A Water-Scarce World? Quantification of Dormant Rights to Common Pool Groundwater," 48 *Tex. Tech L. Rev.* 719, 727 (2016)

85. *Williams v. City of Wichita*, 190 Kan. 317, 326, 374 P.2d 578, 602 (1962)

86. *Ibid.* at 604.

87. *Ibid.* at 604-605.

88. *Ibid.* at 604-605.

89. *Ibid.* at 603.

90. "1877, March 3-19 Stat. 377, Act for Sale of Desert Lands," *US Government Legislation and Statutes* 18, 2016, https://digitalcommons.csumb.edu/hornbeck_usa_2_d/18.

91. *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 158, 55 S. Ct. 725, 729, 79 L. Ed. 1356 (1935).

92. *Williams v. City of Wichita*, 190 Kan. 317, 352, 374 P.2d 578, 604 (1962).

93. *Ibid.* at 604.

94. *Ibid.* at 594.

95. *F. Arthur Stone & Sons v. Gibson*, 230 Kan. 224, 238, 630 P.2d 1164, 1175 (1981). ("Application of this rule under the Act for the purported purpose of preventing waste and conserving natural resources is, of course, nothing more than a redistribution of the wealth to the favored few after the initial confiscation of the landowner's vested rights to his property.")

96. *Williams v. City of Wichita*, 190 Kan. 317, 339, 374 P.2d 578, 595 (1962).
97. *Canada v. City of Shawnee*, 1936 OK 803, 179 Okla. 53, 64 P.2d 694, 695.
98. *Ibid.* at 697.
99. *Ibid.* at 700.
100. *Oklahoma Water Res. Bd. v. Texas Cty. Irr. & Water Res. Ass'n, Inc.*, 1984 OK 96, 711 P.2d 38, 41.
101. 82 O.S.1961, § 1002; *Oklahoma Water Res. Bd. v. Texas Cty. Irr. & Water Res. Ass'n, Inc.*, 1984 OK 96, 711 P.2d 38, 41.
102. *Oklahoma Water Res. Bd. v. Texas Cty. Irr. & Water Res. Ass'n, Inc.*, 1984 OK 96, 711 P.2d 38, 41.
103. Okla. Stat. Ann. tit. 60, § 60 (West).
104. The Oklahoma Water Resources Board would determine the maximum annual yield of fresh water to be produced from each groundwater basin or subbasin based on (1) the total land area overlying the basin or subbasin, (2) the amount of water in storage in the basin or subbasin, (3) the rate of natural recharge to the basin or subbasin and total discharge from the basin or subbasin, (4) transmissibility of the basin or subbasin, and (5) the possibility of pollution of the basin or subbasin from natural sources. The maximum annual yield of each fresh groundwater basin or subbasin shall be based upon a minimum basin or subbasin life of 20 years from the effective date of this act. Citing *Oklahoma Water Res. Bd. v. Texas Cty. Irr. & Water Res. Ass'n, Inc.*, 1984 OK 96, 711 P.2d 38, 42.
105. Water Use Survey Detailed Groundwater Pumpage By County, https://www3.twdb.texas.gov/apps/reports/WU/SumFinal_CountyPumpage.
106. *Jacobs Ranch, L.L.C. v. Smith*, 2006 OK 34, ¶ 13, 148 P.3d 842, 848, as corrected (November 6, 2006).
107. *Ibid.* at 847.
108. *Ibid.* at 850.
109. *Ibid.* at 854; EPA (Environmental Protection Agency), Sole Source Aquifers Map, <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b>.
110. *Jacobs Ranch* at 856.
111. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 79, 306 S.W.2d 111, 113 (1957).
112. *Ibid.* at 112.
113. *Ibid.* at 113.
114. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 81, 306 S.W.2d 111, 115 (1957), citing *Hudson v. Dailey*, 156 Cal. 617, 625, 105 P. 748, 752 (1909).
115. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 82, 306 S.W.2d 111, 115 (1957).
116. *Ibid.* at 115.

117. *Lingo v. City of Jacksonville*, 258 Ark. 63, 66, 522 S.W.2d 403, 405 (1975), citing *Jarvis v. State Land Department*, 106 Ariz. 506, 479 P.2d 169 (1970); and *Higday v. Nickolaus, Mo.App.*, 469 S.W.2d 859 (1971).

118. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 84, 306 S.W.2d 111, 116 (1957).

119. *Bristor v. Cheatham*, 75 Ariz. 227, 236, 255 P.2d 173, 178–79 (1953) (“We think the better rule is that of reasonable use as distinguished from the doctrine of correlative rights.”)

120. *Ibid.* at 180.

121. *Jarvis v. State Land Dep’t*, 106 Ariz. 506, 508, 479 P.2d 169, 171 (1970).

122. *Jarvis v. State Land Dep’t City of Tucson*, 104 Ariz. 527, 532, 456 P.2d 385, 390 (1969), modified sub nom. *Jarvis v. State Land Dep’t*, 106 Ariz. 506, 479 P.2d 169 (1970), and modified sub nom. *Jarvis v. State Land Dep’t*, 113 Ariz. 230, 550 P.2d 227 (1976).

123. *Ibid.* at 390.

124. *Jarvis v. State Land Dep’t*, 106 Ariz. 506, 510, 479 P.2d 169, 173 (1970).

125. *Ibid.* at 173.

126. *Ibid.* at 174, using A.R.S. s 45-147, which in contemporary Arizona law is Ariz. Rev. Stat. Ann. § 45-157. (“A. As between two or more pending conflicting applications for the use of water from a given water supply, when the capacity of the supply is not sufficient for all applications, preference shall be given by the director according to the relative values to the public of the proposed use; B. The relative values to the public for the purposes of this section shall be: 1. Domestic and municipal uses. Domestic uses shall include gardens not exceeding one-half acre to each family; 2. Irrigation and stock watering; 3. Power and mining uses; 4. Recreation and wildlife, including fish; 5. Nonrecoverable water storage pursuant to § 45-833.01.”)

127. See, for instance, *Davis v. Agua Sierra Res., L.L.C.*, 220 Ariz. 108, 110, 203 P.3d 506, 508 (2009). (“Under Arizona’s common law, groundwater ‘is not appropriable and may be pumped by the overlying landowner, subject to the doctrine of reasonable use.’”); also in re *Gen. Adjudication of All Rights to Use Water in Gila River Sys. & Source*, 175 Ariz. 382, 388, 857 P.2d 1236, 1242 (1993) (“In *Bristor v. Cheatham*, 75 Ariz. 227, 255 P.2d 173 (1953) (*‘Bristor II’*), the majority reaffirmed our prior holdings that percolating water is not subject to appropriation. Arizona’s courts have followed *Bristor II* to this day.”)

128. *Jarvis v. State Land Dep’t*, 113 Ariz. 230, 233, 550 P.2d 227, 230 (1976).

129. *Farmers Inv. Co. v. Bettwy*, 113 Ariz. 520, 527, 558 P.2d 14, 21 (1976).

130. *Davis v. Agua Sierra Res., L.L.C.*, 220 Ariz. 108, 114, 203 P.3d 506, 512 (2009).

131. Kirsten Engel, Esther Loiseleur, and Elise Drilhon, “Arizona’s Groundwater Management Act at Forty: Tackling Unfinished Business,” *Arizona Journal of Environmental Law and Policy* 10, no. 2 (2020): 187, 215, <https://ssrn.com/abstract=3587160>.

132. *Katz v. Walkinshaw*, 141 Cal. 116, 138, 70 P. 663, 664 (1902), rev'd, 141 Cal. 116, 74 P. 766 (1903).

133. *Katz v. Walkinshaw*, 141 Cal. 116, 120, 74 P. 766, 766 (1903).

134. *Katz v. Walkinshaw*, 141 Cal. 116, 138, 70 P. 663, 664 (1902), rev'd, 141 Cal. 116, 74 P. 766 (1903).

135. *Ibid.* at 664.

136. *Ibid.* at 665.

137. *Ibid.* at 665.

138. *Ibid.* at 668.

139. *Katz v. Walkinshaw*, 141 Cal. 116, 127, 74 P. 766, 769 (1903).

140. *Ibid.* at 768.

141. Inflation adjusted as follows: Price Multiplier = [2019 CPI of 768.3 ÷ 1903 CPI of 25]=28.45. Then, \$50,000 (1903\$) X 28.45 = \$1,422,500. (citing Federal Reserve Bank of Minneapolis, "Consumer Price Index, 1800-," <https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator/consumer-price-index-1800-> (accessed August 12, 2020). Water volume calculated as follows: 7.48 gallons/ft³ X 60 sec/min X 60 min/hr X 24 hr/day * 365 days/yr = 235.9 million gal water/yr. Dividing that by 325,851 gallons/acre-foot yields approximately 724 acre-feet.

142. For water supplied at the system access rate, meaning a price level that "recovers costs associated with the interconnected regional delivery network necessary to deliver water to meet member agencies' average annual demands. Included are the costs of conveyance and distribution facilities." "Who We Are," The Metropolitan Water District of Southern California, <http://www.mwdh2o.com/WhoWeAre/Management/Financial-Information/Pages/default.aspx#tab3>.

143. Limoneira Investor Presentation, January 2020, (Slide 22), <https://investor.limoneira.com/static-files/49ab678f-d452-4588-8ca5-54c44a6b0a5c>.

144. *Katz v. Walkinshaw*, 141 Cal. 116, 150, 70 P. 663, 668–69 (1902), rev'd, 141 Cal. 116, 74 P. 766 (1903).

145. *Ctr. for Biological Diversity v. Cty. of San Bernardino*, 247 Cal. App. 4th 326, 336, 201 Cal. Rptr. 3d 898, 906 (2016), as modified (May 18, 2016).

146. *Katz v. Walkinshaw*, 141 Cal. 116, 133, 74 P. 766, 771 (1903).

147. *Ibid.* at 771.

148. *Katz v. Walkinshaw*, 141 Cal. 116, 126, 74 P. 766, 768 (1903).

149. New York and Florida would be the third and fourth members.

150. "Los Angeles Aqueduct," History.com, updated March 7, 2019, (accessed August 14, 2020), <https://www.history.com/topics/landmarks/los-angeles-aqueduct>.

151. In a March 2020 opinion piece, former HUD Secretary Henry Cisneros describes the Texas Triangle as “composed of the Dallas-Fort Worth Metroplex at the northern tip; Houston at the southeast corner; and Austin-San Antonio at the southwest corner.” Henry Cisneros, “Cisneros: Texas Triangle is our present and future,” *San Antonio Express-News*, March 17, 2020, <https://www.expressnews.com/opinion/editorials/article/Cisneros-Texas-Triangle-is-our-present-and-future-15137942.php>.

152. *Delaware Tetra Techs., Inc. v. Cty. of San Bernardino*, 247 Cal. App. 4th 352, 358, 202 Cal. Rptr. 3d 145, 149 (2016) (“Groundwater belongs to the state, not any person or entity, but may be extracted by those with the right to do so, including those whose land overlies the groundwater source.”); *State v. Superior Court of Riverside Cty.*, 78 Cal. App. 4th 1019, 1026, 93 Cal. Rptr. 2d 276, 282 (2000) (“The Legislature’s use of the term is entirely consistent with an intent of expressing a regulatory or supervisory power rather than anything even approaching a proprietary interest or the right to exercise physical dominion.”)

153. *City of Barstow v. Mojave Water Agency*, 23 Cal. 4th 1224, 1243, 5 P.3d 853, 864 (2000) (“In the case of an overdraft, riparian and overlying use is paramount, and the rights of the appropriator must yield to the rights of the riparian or overlying owner.”), citing *Burr v. Maclay Rancho Water Co.* (1908) 154 Cal. 428, 435, 98 P. 260 and *Katz v. Walkinshaw* (1903) 141 Cal. 116, 135, 74 P. 766.

154. *Labruzzo v. Atl. Dredging & Const. Co.*, 54 So. 2d 673, 676 (Fla. 1951).

155. Inglis Dam & Island Recreation Area, Florida State Parks, <https://www.floridastateparks.org/parks-and-trails/inglis-dam-island-recreation-area>.

156. *Cason v. Fla. Power Co.*, 74 Fla. 1, 4, 76 So. 535, 535 (1917).

157. Dollar amount calculated as follows: 1917 Dollars X (January 2020 CPI/January 1917 CPI) = \$15,000 X (257.9/11.7) = \$330,641. Data obtained from CPI Inflation Calculator, <https://cpiinflationcalculator.com/1917-cpi-inflation-united-states/> and <https://cpiinflationcalculator.com/2020-cpi-and-inflation-rate-for-the-united-states/>.

158. *Cason v. Fla. Power Co.*, 74 Fla. 1, 9, 76 So. 535, 537 (1917).

159. *Cason v. Fla. Power Co.*, 74 Fla. 1, 7, 76 So. 535, 536 (1917).

160. *Cason v. Fla. Power Co.*, 74 Fla. 1, 10, 76 So. 535, 537 (1917).

161. *Labruzzo v. Atl. Dredging & Const. Co.*, 54 So. 2d 673, 674 (Fla. 1951).

162. *Ibid.*

163. *Ibid.* at 673, 677.

164. *Ibid.* at 673, 678.

165. *Ibid.* at 673, 678 (“Restatement of Torts, Vol. IV, page 241: ‘The unreasonableness of intentional invasions is a problem of relative values to be determined by the trier of fact in each case in the light of all the circumstances of that case.’”)

166. *Koch v. Wick*, 87 So. 2d 47, 47 (Fla. 1956).

167. *Ibid.*

168. Ibid.

169. Ibid. at 47.

170. Orange tree numbers estimated based on James Ferguson, "Your Florida Dooryard Citrus Guide — Young Tree Care," University of Florida Extension, HS 887, March 2016, <http://briteleaf.com/wp-content/uploads/2016/03/HS-887-Young-Tree-Care.pdf> ("In commercial groves, mature trees can use from 10 to 90 gallons of water per day, depending on environmental conditions.")

171. Clearwater population data obtained from *United States Summary: 2000, Population and Housing Unit Counts*, issued April 2004 by U.S. Census Bureau, <https://www.census.gov/prod/cen2000/phc3-us-pt1.pdf>.

172. Koch v. Wick, 87 So. 2d 47, 48 (Fla. 1956).

173. Ibid. at 48.

174. Ibid. at 49.

175. Vill. of Tequesta v. Jupiter Inlet Corp., 371 So. 2d 663, 665 (Fla. 1979).

176. Ibid. at 665.

177. Ibid. at 665.

178. Ibid. at 665.

179. Valls v. Arnold Indus., Inc., 328 So. 2d 471, 473 (Fla. Dist. Ct. App. 1976), overruled by Vill. of Tequesta v. Jupiter Inlet Corp., 371 So. 2d 663 (Fla. 1979) ("Water, oil, minerals and other substances of value which lie beneath the surface are valuable property rights which cannot be divested without due process of law and the payment of just compensation.")

180. Vill. of Tequesta v. Jupiter Inlet Corp., 371 So. 2d 663, 667–68 (Fla. 1979) ("We overrule the dicta in Valls, supra, that water beneath the surface is a private property right which cannot be divested under any circumstances without due process of law and the payment of just compensation. The right to use water does not carry with it ownership of the water lying under the land.")

181. Ibid. at 663, 670.

182. Ibid. at 663, 670.

183. Ibid. at 663, 670.

184. Ibid. at 663, 672.

185. McNamara v. Rittman, 2005-Ohio-6433, ¶ 13, 107 Ohio St. 3d 243, 245, 838 N.E.2d 640, 643.

186. McNamara v. Rittman, 2005-Ohio-6433, ¶ 14, 107 Ohio St. 3d 243, 245, 838 N.E.2d 640, 643.

187. McNamara v. Rittman, 2005-Ohio-6433, ¶ 20, 107 Ohio St. 3d 243, 246, 838 N.E.2d 640, 644.



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