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Title

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Post-Agua Caliente

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Journal

UCLA Journal of Environmental Law and Policy, 38(2)

Author

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Publication Date

2020

DOI

10.5070/L5382050114

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When the Well Runs Dry: Groundwater Policy and Sustainability Post-*Agua Caliente*

Alec D. Tyra

ABSTRACT

In the height of a seven-year drought in California, The Agua Caliente Band of Cahuilla Indians (the Tribe) sued the Coachella Valley Water District and Desert Water Agency (Together as “Water Districts”) to secure their right to groundwater stored in the Coachella Valley Aquifer (Aquifer). The Aquifer, like most groundwater resources in California, was severely taxed during the drought. This forced California to respond by passing the Sustainable Groundwater Management Act (SGMA), the first groundwater regulation in the State’s history. SGMA requires “sustainable groundwater management” for all basins by creating Groundwater Sustainability Plans (GSPs). These plans are, in effect, stakeholder negotiations on basin management. Basin adjudications will likely occur if these negotiations break down. In *Agua Caliente Band of Cahuilla Indians v. Coachella Water District*, the Ninth Circuit became the first federal court to expand the definition of *Winters* rights to include groundwater. *Winters* rights are federally reserved rights to water to help sustain the primary purpose of a federal reservation. The expanded definition of *Winters* rights increases the bargaining power of tribes, as stakeholders, in the GSPs and any possible basin adjudication. This decision greatly impacts California and other states in the Ninth Circuit. It would also have major implications for Arizona if Arizona had not been managing groundwater in much of the state since the 1980s. Additionally, Arizona recognized a tribal right to groundwater in *Gila III* in 1999. *Agua Caliente* affects the future of water supplies by broadening the definition of federally reserved rights to include tribes’ right to groundwater. This Comment recommends that private and public stakeholders across the West follow Arizona’s lead with respect to water planning in the Ninth Circuit’s jurisdiction by using settlement agreements with tribes to secure contested supplies of groundwater.

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INTRODUCTION

In 2014, then-governor of California, Jerry Brown, declared a state of emergency.¹ California was at the height of one the worst droughts in the history of the State.² A high pressure ridge off the coast of the Pacific Ocean that alerted the jetstream and diverted rain away from California caused the drought.³ While this type of pressure system is a common cause of drought in

1. Bill Chappell, *California's Governor Declares Drought State of Emergency*, NPR (Jan. 17, 2014, 8:27 PM), <https://www.npr.org/sections/thetwo-way/2014/01/17/263529525/california-s-governor-declares-drought-state-of-emergency> [<https://perma.cc/LAT8-76BZ>].

2. *Id.*; see also Ellen Hanak et al., *California's Latest Drought*, PPIC (July 2016), <https://www.ppic.org/publication/californias-latest-drought> [<https://perma.cc/QVF8-4PPE>] (“Droughts are a recurring feature of California’s climate, and the four-year period between fall 2011 and fall 2015 was the driest since record keeping began in 1895.”).

3. Ken Than, *Rise of the ‘Ridiculously Resilient Ridge’: California Drought Patterns Becoming More Common*, STANFORD EARTH (Mar. 31, 2016), <https://pangea.stanford.edu/news/rise-ridiculously-resilient-ridge-california-drought-patterns-becoming-more-common> [<https://perma.cc/VR38-XSBK>]. (Scientists gave the moniker “Ridiculously Resilient Ridge” to the high-pressure ridge that caused the California drought beginning in 2011.).

California,⁴ the drought between 2011 and 2019⁵ was particularly severe due to the higher-than-average temperatures which more quickly depleted soil moisture and snowpack.⁶ The State Water Project (SWP) and Central Valley Project (CVP) are California's two water projects. At certain points in the drought, each project was unable to deliver water to some water contractors.⁷ California's agricultural production was upended by drought. To offset the reduction of reliable surface water deliveries, farmers turned to increased groundwater pumping.⁸ This increased groundwater pumping supplemented unavailable surface water deliveries contributed to a significant loss of groundwater from the aquifer system.⁹ These practices lowered the water table to the point that some towns' wells ran completely dry and were subsequently left without a reliable water source.¹⁰ Increased groundwater pumping also caused permanent loss to the overall storage capacity of the Central Valley aquifer system.¹¹ The loss of groundwater and aquifer storage capacity presents two problems

4. *Id.*; see also Richard Seager, *Causes of the 2011–2014 California Drought*, 28 J. OF CLIMATE 6997, 7019 (2015) (“In general, dry California winters are caused by a ridge immediately off the west coast that appears as part of a midlatitude wave train with no obvious forcing from the ocean either in the midlatitudes or the tropics.”).

5. Most literature examines the worst years of the drought within this date range. See, e.g., Jay Lund, *Lessons from California's 2012–2016 Drought*, 144 J. OF WATER RESOURCES PLAN. AND MGMT. 1, 1(2018) (defining the drought as occurring between 2012 and 2016); Seager, *supra* note 4, at 6997 (examining the drought as occurring between 2011 and 2014); Hanak, *supra* note 2 (examining the period between 2011 and 2015 with a focus on the driest years of drought between the period 2014 and 2015); see also Phil Helsel, *California Drought Officially Over After More Than Seven Years*, NBC NEWS (Mar. 14, 2019, 10:33 PM), <https://www.nbcnews.com/storyline/california-drought/california-drought-officially-over-after-more-seven-years-n983461> [<https://perma.cc/THU7-DY3F>] (official dates have drought starting late December 2011 and ending mid-March 2019). Data show the most extreme years of drought between 2014 and 2017. *Drought in California*, DROUGHT.GOV: REGIONS, <https://www.drought.gov/drought/states/california> [<https://perma.cc/M695-VP7F>].

6. Lund, *supra* note 5, at 2.

7. *Id.* (“In these years, some water contractors (particularly Friant) received zero deliveries for the first time since the project began in the 1950s.”).

8. *Id.* at 3 (“Of the approximate 30 percent drought reduction of surface water available for agriculture statewide, about two-thirds was replaced by additional groundwater pumping, adding approximately \$600 million per year in pumping costs.”).

9. See Chandrakatana Ojha et al., *Groundwater Loss and Aquifer System Compaction in San Joaquin Valley During 2012–2015 Drought*, 124 J. OF GEOPHYSICAL RES.: SOLID EARTH 3127, 3127 (“[W]e find an average groundwater loss of 6.1 ± 2.3 km³/year as a lower bound estimate for the San Joaquin Valley, amounting to a total volume of 24.2 ± 9.3 km³ lost during the period October 2011 to September 2015.”).

10. See Adam Perez, *How a Town in California Is Trying to Survive Without Water*, TIME (Sept. 1, 2015, 2:27 PM), <https://time.com/4017476/a-town-without-water> [<https://perma.cc/K5LV-653J>] (“Many homes in Tulare County, unlike other drought-afflicted areas, are not connected to a water system; they rely on private wells supplied by groundwater. And for the past 18 months, these wells have been drying up.”).

11. Ojha, *supra* note 9 (“We further determine that 0.4–3.25 percent of the aquifer system storage capacity is permanently lost during this drought period.”).

for western states like California: 1) land subsidence;¹² and 2) the potential loss of critical resources in water management.¹³ The severity of this particular drought was the impetus for major changes in water policy in California and the western United States.

I. PASSAGE OF THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The severity of the drought in California served as a catalyst in passing groundwater regulation.¹⁴ Governor Brown's emergency declaration was issued at the height of the California drought and called for mutual collaboration between stakeholders to craft comprehensive groundwater regulation.¹⁵ The resulting legislation was the Sustainable Groundwater Management Act (SGMA).¹⁶ Notably, California treats groundwater and surface water distinctly under the law.¹⁷ There are three types of water that are "in the ground": subflow of surface streams, definite underground streams that run in definite channels, and water that percolates through the soil. California classifies and regulates

12. "The growing demand for groundwater resources in California and across the globe increases at an even higher rate during periods of drought. The sustained subsidence observed in the geodetic time series suggests that unrecoverable inelastic compaction in aquitard layers likely occurred permanently lowering the storage capacity of the aquifer system." Kyle Muarry, *Short-lived Pause in Central California Subsidence After Heavy Winter Precipitation of 2017*, 4 SCI. ADVANCES, Aug. 29, 2018, at 1, 7; Blaine Friedlander, *Groundwater loss prompts more California land sinking*, CORNELL CHRONICLE (Aug. 29, 2018), <https://news.cornell.edu/stories/2018/08/groundwater-loss-prompts-more-california-land-sinking> [https://perma.cc/54T8-YPCN] ("As an engineering problem, subsidence damages infrastructure, causes roads to crack and give rise to sinkholes—expensive problems to fix.") (quoting Rowena Lohman, Cornell associate professor in earth and atmospheric sciences).

13. Friedlander, *supra* note 12 ("One of the places where it really matters in California is the aqueduct system that brings water to the region. They're engineered very carefully to have the correct slope to carry a given amount of water," she said. "Now, one of the major aqueducts in that area is bowed and can't deliver as much water. It's been a huge engineering nightmare. . . . The subsidence we see is a sign of how much the groundwater is being depleted. Eventually, the water quality and cost of extracting it could get to the point where it is effectively no longer available.") (quoting Lohman).

14. Alf W. Brandt, *California Adopts Sustainable Groundwater Management*, 26 ABA SECTION OF ENV'T, ENERGY & RES.: TRENDS (Mar. 1, 2015) https://www.americanbar.org/groups/environment_energy_resources/publications/trends/2014-2015/march-april-2015/california_adopts_sustainable_groundwater_management [https://perma.cc/E6J8-SR32] ("By 2014, California's long-standing problem with pumping too much water from the Central Valley aquifer had become acute").

15. *Id.* at 9–10.

16. *Id.* at 10; see Cal. Water Code § 113 (Deering, LEXIS through Ch. 3 of 2020 Legis. Sess.).

17. The separation of groundwater and surface water is a legal fiction that is seen by some as outdated and potentially harmful to comprehensive water management. See Ian Stevens, *California's Groundwater: A Legally Neglected Resource*, 19 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 3, 7 (2013); Eric L. Garner et al., *Institutional Reforms in California Groundwater Law*, 25 PAC. L.J. 1021, 1022–23 (1994).

the two former categories as separate from groundwater water.¹⁸ This categorization means that the only legally defined “groundwater” in California is water that percolates in an aquifer.¹⁹ Before the enactment of SGMA, groundwater was largely left out of any statewide regulatory system and was instead controlled by common law doctrines.²⁰ California was also the last state in the West to pass statewide groundwater regulation, passing it after Texas passed its own groundwater management act in 2008.²¹

II. COMMON LAW PRIOR TO SMGA

A. *Historical Changes and Reasonable Use Regime*

Historically, California followed absolute capture, a legal principle carried over from old English common law.²² Several early and influential cases in California, such as *Hanson v. McCue*,²³ recognized the English common law rule of absolute capture as the rule for groundwater.²⁴ The State of California at its inception codified the English common law, and as a result the rule of absolute capture and other water law principles like riparian rights, were all incorporated into state law.²⁵ In 1903, the California Supreme Court, during the *Katz* era, rejected absolute capture rule for a “reasonable use” regime for

18. See *Vineland Irr. Dist. v. Azusa Irr. Co.*, 58 P. 1057, 1059 (Cal. 1899) (discussing the legal difference between percolating water and surface water in defined beds and streams); see also CAL. WATER CODE § 1200 (2020) (defining water for permitting as surface water and underground water in defined beds and streams).

19. Zachary A. Smith, *Rewriting California Groundwater Law: Past Attempts and Prerequisites to Reform*, 20 CAL. W. L. REV. 223, 225 (1984).

20. Stevens, *supra* note 17, at 7 (“[W]hile surface waters are subject to extensive regulation to ensure their beneficial use, to prevent waste, and to safeguard public trust values, groundwater is consumed largely at the pleasure of an overlying owner.”); Garner, *supra* note 17, at 1022 (“California groundwater law as it currently exists is perhaps best summarized as the right to pump as much water as possible until one is sued.”).

21. Brandt, *supra* note 14, at 9 (“California has joined its sister western states in implementing a statewide groundwater management system. For decades, California and Texas were the only western states without one.”).

22. *Vineland Irr. Dist.*, *supra* note 18, at 1059; see Smith, *supra* note 19, at 225. The English common law rule survives today in Texas, one of the last states to recognize the absolute right of overlying landowners to capture groundwater from the basin. Stephanie E. Hayes Lusk, *Texas Groundwater: Reconciling the Rule of Capture with Environmental and Community Demands*, 30 ST. MARY’S L.J. 305, 307–308 (1998). (“Recurring application of the rule of capture to groundwater has forced Texas courts to reconcile these property ownership principles with growing water regulations.”).

23. *Hanson v. McCue*, 42 Cal. 303, 309 (1871) (“Water filtrating or percolating in the soil belongs to the owner of the freehold—like the rocks and minerals found there. It exists there free from the usufructuary right of others, which is to be respected by the owner of an estate through which a defined stream of water is found to flow.”).

24. See Stevens, *supra* note 17, at 11.

25. See *Lux v. Haggin*, 69 Cal. 255, 384 (1886).

landowners overlying a basin.²⁶ The “reasonable use” regime in California was later codified by an initiative that amended the State Constitution.²⁷ Section 2 of Article X of the California Constitution stated in part that

The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.²⁸

B. *Appropriators and Overlying Owners: Prescriptive Rights in Groundwater*

The California Supreme Court clarified that Section 2 of Article X applied to groundwater as well as surface water²⁹ and that overlying landowners have correlative rights with each other.³⁰ Those who are not overlying the basin may pump any surplus of groundwater out of the aquifer following a prior appropriation system of rights.³¹ The appropriation framework in groundwater follows the same principles as in appropriation in surface water: senior appropriators have superior rights to that of junior rights holders.³² When a basin does not have surplus water available, any further pumping is considered adverse and may lead to the formation of a prescriptive right, or rights acquired through adverse possession.³³

In *City of Pasadena v. City of Alhambra*, the California Supreme Court recognized the theory of mutual prescription, whereby overlying landowners and appropriators gained prescriptive rights against each other.³⁴ The Court

26. *Katz v. Walkinshaw*, 74 P. 766, 773 (Cal. 1903); Smith, *supra* note 19, at 225.

27. Passed in 1976, beneficial and reasonable use is required for water resources. CAL. CONST., art. X, § 2 (“[T]he general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented.”).

28. *Id.*

29. *Peabody v. City of Vallejo*, 40 P.2d 486, 491 (Cal. 1935).

30. *Burr v. Maclay Rancho Water Co.*, 160 Cal. 268, 273 (1911); Smith, *supra* note 19, at 226.

31. *City of Los Angeles v. City of San Fernando*, 537 P.2d 1250, 1307 (Cal. 1975).

32. See Cal. Civ. Code § 1414 (2020) (“As between appropriators, the one first in time is the first in right.”); *San Bernardino v. Riverside*, 198 P. 784, 793 (Cal. 1921) (“We understand the true rule to be that when a conflict arises between two appropriators of water, and their rights are otherwise equal, the prior appropriator will prevail so far as the conflict extends.”); *City of Pasadena v. City of Alhambra*, 33 Cal. 2d 908, 947 (1949) (Carter, J., dissenting) (“[A]n appropriator of water is entitled, as against all subsequent claimants, to the exclusive use of the water to the extent of his appropriation, without diminution or material alteration in quantity or quality.”).

33. For a prescriptive right to ripen the pumping must occur in overdraft and be open, notorious, and continuous for a five-year period. Parties must be aware that the basin is in overdraft to satisfy the notice requirement. Smith, *supra* note 19, at 227.

34. See *City of Pasadena*, 33 Cal. 2d at 929.

found that adverse conditions necessary to form a Prescriptive right were created when the groundwater basin was in overdraft, as defined by groundwater extractions exceeding the basin's safe yield.³⁵ Further, the *Pasadena* Court held that the lowering of the water table was sufficient to satisfy the notice requirement for a groundwater pumper to perfect a prescriptive right.³⁶

The California Supreme Court readdressed mutual prescription in groundwater basins in the landmark case of *City of Los Angeles v. City of San Fernando*.³⁷ The *San Fernando* Court altered the rule of mutual prescription in three ways.³⁸ First, the Court found that municipalities were immune from prescription.³⁹ This puts private pumpers at a disadvantage because while a municipality may gain a prescriptive right against a private pumper, a private pumper is unable to gain a prescriptive right against a municipality.⁴⁰ Second, the *San Fernando* Court expanded the definition of overdraft to mean safe yield plus any additional surplus and, therefore, recognizing the variability of groundwater due to fluctuating rainfall.⁴¹ Lastly, the *San Fernando* Court clarified that the notice requirement for a prescriptive right was a notice-in-fact standard.⁴² A groundwater pumper seeking to perfect a prescriptive right must make all other rights holders on notice that the basin is in overdraft.⁴³

Additionally, The *San Fernando* Court criticized the theory of mutual prescription as creating a "race to the pumphouse."⁴⁴ The measure of a prescriptive right under the doctrine of mutual prescription is the highest level of pumping during any five-year period of overdraft that can be put to a beneficial use.⁴⁵ This structure incentivizes increased pumping in overdrafted basins. *San Fernando* also added an additional complexity in groundwater disputes by

35. *See id.*

36. *Id.* at 930.

37. *See Smith, supra* note 19, at 229–30.

38. *Id.* at 230.

39. *City of Los Angeles v. City of San Fernando*, 537 P.2d 1250, 1306 (Cal. 1975). (finding that section 1007 of the California Civil Code exempting those who use water for a public from prescription included municipalities).

40. *Smith, supra* note 19, at 230.

41. *See San Fernando*, 537 P.2d at 1308–09 ("Ground basin levels tended to vary in accordance with wide fluctuations in precipitation. Thus if a rising level of extractions were halted at the point of the safe yield based on the 29-year average, ensuing heightening of ground water levels during years of higher-than-average precipitation would cause waste.").

42. *See id.* at 1311.

43. *See Smith, supra* note 19, at 231 n.50 ("One commentator observed: 'It may be that, in order to establish notice after *San Fernando*, a pumper who wants to perfect his prescriptive rights will finance hydrological determinations of overdraft in a basin, and, based on that data, actually notify other basin pumpers of the basin's overdraft.'") (quoting ANNE J. SCHNEIDER, *GROUNDWATER RIGHTS IN CALIFORNIA: BACKGROUND AND ISSUES* 34 (1977)).

44. *San Fernando*, 537 P.2d at 1299.

45. *See Pasadena*, 33 Cal. 2d at 926–27; *San Fernando*, 537 P.2d at 1298–99 (discussing how the mechanical application of the prescriptive rule does not always result in equitable solutions).

recognizing the distinction between native and imported water and the right of an appropriator to use their produced water even when it has percolated into the basin.⁴⁶ The complexity of groundwater rights in California is only further muddled by the State's long history of neglecting to regulate groundwater users in the same way it has regulated surface water users.⁴⁷

This discussion of California common law as it relates to groundwater is necessary for a meaningful discussion of SGMA. SGMA seeks to achieve sustainable groundwater management by mitigating or eliminating six identified undesirable results: chronic lowering of groundwater levels,⁴⁸ significant and unreasonable reduction of groundwater storage,⁴⁹ significant and unreasonable seawater intrusion,⁵⁰ significant and unreasonable land subsidence,⁵¹ and depletions of interconnected surface water.⁵² It provides that groundwater is still subject to Section 2 of Article X of the California Constitution⁵³ and that groundwater rights may still be determined through adjudication.⁵⁴ It neither changes nor modifies existing common law.⁵⁵ However, the California Legislature passed a companion law to SGMA that slightly alters the basin adjudication process to better coordinate with groundwater regulation planning.⁵⁶ This companion law regulates groundwater at a local level by giving local agencies⁵⁷ the ability to become Groundwater Sustainability Agencies (GSAs),⁵⁸ and delegates rulemaking authority to GSAs.⁵⁹ The GSAs are required to draft Groundwater Sustainability Plans (GSP) to outline how the basin is to achieve sustainable groundwater management by a

46. See *San Fernando*, 537 P.2d at 1291–96.

47. See *Stevens*, *supra* note 17, at 4.

48. CAL. WATER CODE § 10721(x)(1) (2020).

49. CAL. WATER CODE § 10721(x)(2) (2020).

50. CAL. WATER CODE § 10721(x)(3) (2020).

51. CAL. WATER CODE § 10721(x)(5) (2020).

52. CAL. WATER CODE § 10721(x)(6) (2020).

53. CAL. WATER CODE § 10720.5(a) (2020). This section does limit the use of groundwater extractions between 2015 and the adoption of a GSP as evidence for a prescriptive claim. Despite this one limitation, groundwater is still subject to reasonable use and established common law rule.

54. CAL. WATER CODE § 10720.5(c) (2020).

55. CAL. WATER CODE § 10720.5(b) (2020).

56. The change in the adjudication is an attempt to encourage participation in the GSP negotiation before attempting litigation as a resolution to complicated groundwater basin allocations. See CAL. CIV. PROC. CODE § 835–836.5 (2020).

57. CAL. WATER CODE § 10721(n) (2020) (“Local agency” means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.).

58. See *Groundwater Sustainability Agencies*, CAL. DEP’T WATER RES., <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies> [<https://perma.cc/7XWW-CMKW>]; see also CAL. WATER CODE § 10723.6 (2020).

59. See CAL. WATER CODE § 10725.2(b) (2020).

required statutory deadline.⁶⁰ For basins in critical overdraft—designated with high or medium priority—the deadline for submitting a GSP is 2020, meaning the highest priority basins have already submitted their GSPs.⁶¹ Other, lower priority, basins have until 2022.⁶² SGMA’s longterm goal is to achieve sustainable groundwater management within a twenty-year period—2040 for high or medium priority basins and 2042 for all other basins.⁶³

GSAs can regulate groundwater in many ways, including through issuing pumping allocations,⁶⁴ restricting pumping, applying fees,⁶⁵ and undertaking other actions that would mitigate basin overdraft or replenish aquifers.⁶⁶ These limitations on pumping rights seem to change or modify the common law right of overlying landowners and appropriators, despite a provision to the contrary.⁶⁷ This seemingly contradictory nature of SGMA—saving the common law on the one hand while granting GSAs the authority to curb the use of groundwater on the other—can be explained by California’s expansive application of the

60. See *SGMA Groundwater Management*, CAL. DEP’T WATER RES., <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management> [<https://perma.cc/GT3B-2WH4>].

61. *Id.*

62. *See id.*

63. *Id.*

64. “To control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations.” CAL. WATER CODE § 10726.4(a)(2) (2020). See also CHRISTINA BABBITT ET AL., ENVTL. DEF. FUND, GROUNDWATER PUMPING ALLOCATIONS UNDER CALIFORNIA’S SUSTAINABLE GROUNDWATER MANAGEMENT ACT: CONSIDERATIONS FOR GROUNDWATER SUSTAINABILITY AGENCIES I, 5 (2018), https://www.edf.org/sites/default/files/documents/edf_california_sgma_allocations.pdf [<https://perma.cc/J2CL-YP4B>] (“SGMA mandates that GSAs develop GSPs that achieve groundwater sustainability within 20 years.”).

65. See CAL. WATER CODE § 10730.2(a) (2020) (“A groundwater sustainability agency that adopts a groundwater sustainability plan pursuant to this part may impose fees on the extraction of groundwater from the basin to fund costs of groundwater management.”). The California Supreme Court noted in a footnote in *City of San Buenaventura v. United Water Conservation Dist.* that the fees imposed by GSA’s are not property related charges and therefore are not subject to the proportionality principles pursuant to California’s Proposition 218. See *City of San Buenaventura v. United Water Conservation Dist.*, 406 P.3d 733, 743 n.6 (Cal. 2017).

66. A GSA is authorized to acquire property, surface water rights, groundwater rights, encourage reclaiming or desalinating contaminated water sources, and to set up surface and groundwater transfers. CAL. WATER CODE §§ 10726.2(a)–(f) (2020); see also BABBITT ET AL., *supra* note 64, at 5 (“Many are considering setting up markets that will permit landowners to market their groundwater pumping allocations. Some are also considering creating crediting programs to incentivize landowners to engage in programs that benefit the groundwater subbasin.”).

67. CAL. WATER CODE § 10720.5(b) (2020) (“Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights.”).

public trust doctrine to the State's water resources. In California, the State has an obligation to protect both traditional public trust resources like navigable waters as well as nonnavigable tributaries.⁶⁸ To meet this obligation, California retains significant control over water regulations in order to protect much, if not all, of the waters in the State and only permits the use of trust resources.⁶⁹ This means water rights are usufructuary, meaning a right of use rather than pure ownership.⁷⁰ If the opposite were true and stakeholders had a property interest, the regulation on pumping would constitute a taking under the Fifth Amendment of the United States Constitution.⁷¹

Another way of viewing the necessary curtailment of groundwater pumping is by thinking of the GSPs as a coordinated stakeholder negotiation.⁷² SGMA emphasizes the importance of stakeholder and community involvement in the formation of GSPs. By giving groundwater management responsibility to local communities within the basin, stakeholders can more effectively come together to develop sustainable management of their own basins.⁷³ However, this process is by no means easy to accomplish and does not guarantee that stakeholders will be satisfied with the result. While GSPs are analogous to a negotiation process, adjudications still exist to determine the amount and priorities of groundwater rights if those negotiations breakdown or stakeholders

68. *Nat'l Audubon Soc'y v. Superior Court*, 658 P.2d 709, 728 (1983) (holding that the public trust doctrine extended to the appropriations on a nonnavigable tributary of Mono Lake). The Public Trust Doctrine is rooted in Roman law dating back to Emperor Justinian. See JUSTINIAN, *THE INSTITUTES OF JUSTINIAN* 2.1.1 (J.B. Moyle ed. & trans., 2013) ("Thus, the following things are by natural law common to all—the air, running water, the sea, and consequently the seashore. No one therefore is forbidden access to the seashore, provided he abstains from injury to houses, monuments, and buildings generally; for these are not, like the sea itself, subject to the law of nations.")

69. See *Nat'l Audubon Soc'y*, 658 P.2d at 728. ("Once the state has approved an appropriation, the public trust imposes a duty of continuing supervision over the taking and use of the appropriated water."); see also *Env'tl. Law Found. v. St. Water Res. Control Bd.*, 237 Cal. Rptr. 3d 393, 401–02 (Ct. App. 2018) (holding that groundwater could be regulated in accordance with California's application of the Public Trust Doctrine.).

70. David B. Anderson, *Water Rights as Property in Tulare v. United States*, 38 MCGEORGE L. REV. 461, 491 (2007) (discussing the legal meaning and historical origins of usufructuary rights or the 'right of use').

71. What is the just compensation of such a valuable resource in the arid west? If water rights in California were not usufructuary then the value of the takings would be incredible. See U.S. CONST. amend. V.

72. Russell McGlothlin, *Will Your Basin Adjudicate, and if so, How Will that Relate to Basin Management Under SGMA*, BROWNSTEIN HYATT FARBER SCHRECK (Nov. 16, 2017) <http://water.bhfs.com/will-your-basin-adjudicate-and-how-will-that-relate-to-basin-management-under-sigma> [https://perma.cc/F93Y-TXG6].

73. "The groundwater sustainability agency shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin prior to and during the development and implementation of the groundwater sustainability plan." CAL. WATER CODE § 107278 (2020).

are unhappy with the result.⁷⁴ As noted previously in this comment, California modified the adjudicatory process to better align with SGMA and improve the efficiency of the court. Some groundwater basins had started an adjudication under the SGMA process even before the final GSP was submitted.⁷⁵

The discussion thus far has focused on stakeholders such as private overlying landowners, private appropriators, and public entities in the basin. However, another powerful stakeholder group that has interest in allocation of groundwater resources are Native American tribes. Federally recognized tribes are not subject to state law and therefore cannot be compelled to participate in GSP negotiations.⁷⁶ But GSAs are required to engage with the tribes in the hopes that tribes will voluntarily participate in GSPs.⁷⁷ Crucially, because the federal government waives sovereign immunity in comprehensive water rights adjudications under the McCarren Amendment,⁷⁸ tribes could be forced to become parties to the lawsuit if a groundwater basin was adjudicated.⁷⁹ Thus, it has been noted that tribes should be involved in the GSP formation process for the proper accounting of all stakeholders and the equitable distribution of water allocations.⁸⁰ As the Ninth Circuit recently provided tribes with the power to leverage against nontribal water users, it is even more critical that tribes participate in GSP negotiations.⁸¹

74. See McGlothlin, *supra* note 72 (“[A]djudications are not tools to avoid groundwater management, but are a means to ensure that basin management is undertaken in a manner consistent with water law priorities and principles.”).

75. Maven, *CA Water Law Symposium: Groundwater Adjudication under SGMA*, MAVEN’S NOTEBOOK (Mar. 27, 2019), <https://mavensnotebook.com/2019/03/27/ca-water-law-symposium-the-elephant-in-the-room-adjudication-under-sigma> [https://perma.cc/F9LL-CJBN].

76. Maven, *California Water Policy Conference: Tribal Groundwater Rights and SGMA: A New Underlying Tension?*, MAVEN’S NOTEBOOK (May 15, 2019), <https://mavensnotebook.com/2019/05/15/california-water-policy-conference-tribal-groundwater-rights-and-sigma-a-new-underlying-tension> [https://perma.cc/HY3K-JRUG].

77. See CAL. WATER CODE § 10723.4 (2020) (requiring GSAs to maintain a list of and communicate interested parties in a groundwater basin); *Guidance Document for the Sustainable Management of Groundwater: Engagement with Tribal Governments*, CAL. DEP’T WATER RESOURCES 1, 2 (Jan. 2018), https://groundwaterexchange.org/wp-content/uploads/2020/02/Guidance_Document_Tribal_Governments.pdf [https://perma.cc/679L-5G6R] (clarifying that tribes are interested parties for the purpose of CAL. WATER CODE § 10723.4).

78. See 43 U.S.C. 666(a) (2020).

79. See *id.*

80. There are several reasons for tribes to participate in a GSP:

One of them is what we might call ‘a seat at the table’. As long as the tribe is sitting there on their mountain with their arms folded, you don’t know what that GSA is going to be doing or saying, and if you want to frankly keep them honest and keep them doing things that are productive and helpful, you have to be there. And to be there, you have to have some kind of relationship.

Maven, *California Water Policy Conference*, *supra* note 76 (quoting Art Bunce, Tribal Attorney for the Barona Band of Mission Indians and Co-Special Counsel to the San Luis Rey Indian Water Authority).

81. *Id.* (“[I]n those basins that are subject to SGMA that have tribal lands, the recent

III. THE *AGUA CALIENTE* LITIGATION

“When the well’s dry, we know the worth of water.”⁸² Chief Judge Tallman used Benjamin Franklin’s famous quote to open his landmark opinion in *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water District* to underscore the importance of water in California and the West.⁸³ The California drought forced many to consider the value of water in the twenty-first century. As noted, California was beginning to consider implementing new statewide regulations on groundwater. The severity of the drought in California was also the catalyst for the Agua Caliente Band of Cahuilla Indians (the Tribe) to sue the Coachella Valley Water District (CVWD) and the Desert Water Agency (DWA) (together as “Water Districts”).⁸⁴ The Tribe claimed that the Water Districts’ actions adversely affected the quantity and quality of groundwater to which the Tribe had senior-most priority.⁸⁵ Additionally, the Tribe claimed that it had priority rights based on the aboriginal title and the date of the tribal reservation.⁸⁶ As the Court noted, the Tribe had subsisted in the Coachella Valley long before the arrival of European and American settlers.⁸⁷ The parties agreed to a trifurcated trial.⁸⁸ Part I of the trial dealt with the Tribe’s claims of ownership to groundwater under aboriginal title and the *Winters* Doctrine.⁸⁹ Part II dealt with the Tribe’s claim that they had ownership to pore space, or the space between sediment through which groundwater percolates, under the reservation.⁹⁰ Part III will deal with fact-specific inquiries into quantification of groundwater allocation and pore space.⁹¹

Aqua Caliente court decisions have put tribal interests front and center.”).

82. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist. (Agua Caliente I)*, 849 F.3d 1262, 1265 (9th Cir. 2017) (quoting Benjamin Franklin in *Poor Richard’s Almanac*).

83. *Id.*

84. *Id.* at 1267 (“Given an ever-growing concern over diminishing groundwater resources, the Agua Caliente Tribe filed this action for declaratory and injunctive relief against the water agencies in May 2013.”).

85. *Id.* (“The Tribe’s complaint requested a declaration that it has a federally reserved right and an aboriginal right to the groundwater underlying the reservation.”).

86. *Id.* at 1267, 1272.

87. *Id.* at 1265.

88. *Agua Caliente I*, 849 F.3d at 1267 (“The parties stipulated to divide the litigation into three phases.”).

89. *Id.* (“Phase I, at issue here, seeks to address whether the Tribe has a reserved right and an aboriginal right to groundwater.”).

90. *Id.* (“Phase II will address whether the Tribe beneficially owns the ‘pore space’ of the groundwater basin underlying the Agua Caliente Reservation and whether a tribal right to groundwater includes the right to receive water of a certain quality.”).

91. *Id.* (“Phase III will attempt to quantify any identified groundwater rights.”).

A. *Agua Caliente I*

1. Aboriginal Title

Aboriginal Title, sometimes referred to as Indian Title, is the common law doctrine that preserves an Indian tribe's right of occupancy to their ancestral land.⁹² The doctrine of Aboriginal Title in the United States stems from Chief Justice Marshall's opinion in *Johnson v. M'Intosh*.⁹³ In this decision, the Marshall Court recognized that tribes retained a right to occupancy of their land against all but the Sovereign, in this case the United States federal government.⁹⁴ While the tribes retained a right of occupancy to their ancestral land, the fee simple in the land was transferred to the first arriving nation through the doctrine of discovery.⁹⁵ In case of the Tribe, the first arriving European settlers to what is now Southern California were the Spanish. The Spanish title passed to Mexico after it won its independence.⁹⁶ The title then passed to the United States after its victory in the Mexican American war.⁹⁷

Since the *Johnson v. M'Intosh* decision, the Supreme Court has continued to recognize property rights arising out of Aboriginal Title.⁹⁸ Proving the existence of aboriginal rights turns on whether a tribe existed and used the land as its home prior to the arrival of European or American settlers.⁹⁹ A tribe need

92. See Michael C. Blumm, *Why Aboriginal Title is a Fee Simple Absolute*, 15 LEWIS & CLARK L. REV. 975, 976–77 (2012).

93. *Johnson v. M'Intosh*, 21 U.S. (8 Wheat.) 543 (1823).

94. *Id.* at 587–588.

95. See *id.* at 570 (“The right derived from discovery and conquest, can rest on no other basis; and all existing titles depend on the fundamental title of the crown by discovery.”); see also Eric Kades, *History and Interpretation of the Great Case of Johnson v. M'Intosh*, 19 L. & HIST. REV. 67, 70 (2001) (“It is important to note that, strictly speaking, this *discovery rule* applied only among European nations (‘regulated as between themselves’). Some commentators have used the term ‘discovery rule’ to describe the rules that the various European sovereigns established for defining Indian land rights. . . .”).

96. See *United States v. San Pedro & Canon Del Agua Co.*, 17 P. 337, 404 (N.M. 1888) (discussing how titles held by the Spanish Monarchy to certain land holdings, such as mines, were transferred to the Mexican government upon Mexico's separation from Spain).

97. “In this case, the Tribe alleges they have occupied the Coachella valley since time immemorial . . . [T]hat means they held an aboriginal right of occupancy under Mexican law, and then a right of occupancy under United States law following the Treaty of Guadalupe Hidalgo.” *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist. (Agua Caliente I District Court Opinion)*, No. EDCV 13-883-JGB, 2015 U.S. Dist. LEXIS 49998, at *32 (C.D. Cal. Mar. 20, 2015).

98. See Bruce S. Flushman & Joe Barbieri, *Aboriginal Title: The Special Case of California*, 17 PAC. L.J. 391, 393 (1986) (quoting *Tee-Hit-Ton Indians v. United States*, 348 U.S. 272, 279 (1955)) (“As later described by the Court, Indian title means ‘mere possession not specifically recognized as ownership by Congress . . . This is not a property right but amounts to a right of occupancy which the sovereign grants and protects against intrusion by third parties but which right of occupancy may be terminated and such lands fully disposed of by the sovereign itself without any legally enforceable obligation to compensate the Indians.’”).

99. “In order for an Indian claimant to prove aboriginal title, ‘(t)here must be a showing of actual, exclusive and continuous use and occupancy “for a long time” prior to the loss

not show that it had exclusive control of the land, only that the land was shared amicably between other tribes in the territory.¹⁰⁰ As stated before, the right of occupancy and therefore aboriginal rights to the land are superior to all but the Sovereign, here the United States Government.¹⁰¹ This means the United States Government has the power and right to extinguish the aboriginal rights of tribes. This extinguishment is typically effectuated by an Act of Congress removing the land from the public domain.¹⁰²

Aboriginal Title was extended to include a right to a certain amount of water in the Ninth Circuit case of *Adair v. United States*.¹⁰³ In this case, the Ninth Circuit interpreted Aboriginal Title broadly to mean that the Klamath Tribes retained a usufructuary right to water.¹⁰⁴ Water rights derived from Aboriginal Title are allocated according to the amount necessary to support the traditional uses of the land like hunting and fishing and have a priority date, meaning senior rights are superior to junior rights, of “time in memoriam.”¹⁰⁵ Thus, these allocations are superior to all other allocations including Pueblo rights,¹⁰⁶ riparian rights, and other prior apportionments. In other terms, Aboriginal Title as it relates to water rights are the most senior because they recognize a tribe’s use of resources before any European or American settlor contact. While the right is constrained to original use,¹⁰⁷ such a senior water right is a valuable resource, especially in the arid Western United States.

While the United States District Court for the Eastern District of California in *Agua Caliente* extensively discussed the Tribe’s existence in the Coachella long before the arrival of European and American settlers, it did

of the land.” *United States v. Pueblo of San Ildefonso*, 513 F.2d 1383, 1394 (Ct. Cl. 1975) (quoting *Confederated Tribes of Warm Springs Reservation of Or. v. United States*, 177 Ct. Cl. 184, 194 (1966)). There is no definition as to how long “a long time” must be for a tribe to acquire rights under aboriginal title. *See Warm Springs*, 177 Ct. Cl. at 194 (“The time requirement, as a general rule, cannot be fixed at a specific number of years.”).

100. Tribes may jointly and amicably share the land and still acquire rights under the doctrine of aboriginal title. *See Warm Springs*, 177 Ct. Cl. at 194 n.6.

101. *See supra* notes 92–94 and accompanying text.

102. *See Robinson v. Jewell*, 790 F.3d 910, 916 (9th Cir. 2015) (“Absent such recognition by Congress, aboriginal right of occupancy can be terminated by the sovereign at any time ‘without any legally enforceable obligation to compensate the Indians.’”) (quoting *Tee-Hit-Ton Indians v. United States*, 348 U.S. 272, 279 (1955)).

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

104. *Id.* at 1414 (9th Cir. 1983) (“[W]here, as here, a tribe shows its aboriginal use of water to support a hunting and fishing lifestyle, and then enters into a treaty with the United States that reserves this aboriginal water use, the water right thereby established retains a priority date of first or immemorial use.”).

105. *Id.*

106. Pueblo rights derive from the original towns created by Spanish settlers in the West. *See Nance F. Becker, Overdraft and Pueblo Rights: How the Water-Rich Get Richer*, 3 STAN. ENVTL. L. ANN. 3, 4–5 (1980–1981).

107. *See, e.g., Adair*, 723 F.2d at 1414 (“[W]ithin the 1864 Treaty is a recognition of the Tribe’s aboriginal water rights and a confirmation to the Tribe of a continued water right to support its hunting and fishing lifestyle. . . .”).

not agree with the Tribe's argument that it had aboriginal title to groundwater.¹⁰⁸ The Court stated that the United States acquired the territory through the Treaty of Guadalupe Hidalgo at the conclusion of the Mexican-American War.¹⁰⁹ Congress then passed a statute in 1851 requiring all land claims be verified before a commission within two years of the passage of the act.¹¹⁰ The Tribe did not present a claim within the statutory period. Thus, by Congressional act the aboriginal title was extinguished.¹¹¹ The land reverted to the public domain within control of the United States government.¹¹²

The Tribe argued that its claims were derived from Mexican Law recognizing its rights, and therefore, maintained aboriginal title once the territory was ceded to the United States.¹¹³ However, Congress passed the Act of March 3, 1851 which established that all land claims under previous Mexican or Spanish law must be presented to the commission within two years or the claims would be extinguished.¹¹⁴ Because the Tribe did not make a claim within that period, it had lost its claim of aboriginal title.¹¹⁵ Alternatively, the Tribe argued that its claims were not derived from Mexican law because it had reestablished occupancy after the Act's two year period expired.¹¹⁶ The Tribe found support for this argument in the Supreme Court Case *Cramer v. United States*. In *Cramer*, the Court found that "[t]he [1851] act plainly has no application" because the tribe's claims did not derive from Spanish or Mexican law.¹¹⁷ The Tribe argued that even if the 1851 act extinguished Aboriginal Title in the first instance, the continued use and occupancy of the land reestablished it. However, the District Court found that the creation of the reservation extinguished any reestablishment of Aboriginal Title despite *Adair* stating otherwise.¹¹⁸ *Adair* established that Aboriginal Title and right of occupancy survives even after the establishment of a reservation.¹¹⁹ This seeming contradiction within

108. *Agua Caliente I District Court Opinion*, 2015 U.S. Dist. LEXIS 49998, at *24.

109. *See id.* at *27.

110. *Id.* at *29 ("Shortly after California's admission, in order to 'protect property rights of former Mexican citizens in the newly-acquired territory and to settle land claims, Congress passed the Act of March 3, 1851.") (quoting *United States ex rel. Chunie v. Ringrose*, 788 F.2d 638, 641 (9th Cir. 1986)).

111. The Court cited to several cases interpreting the original Act of 1851. *Id.* at *31 ("[T]he Act of 1851 was interpreted as containing machinery for extinguishment of claims, including those based on Indian right of occupancy.") (quoting *United States v. Santa Fe P. R. Co.*, 314 U.S. 339, 351 (1941)).

112. *Id.* at *32 ("[T]he Agua Caliente's aboriginal claim was effectively extinguished after the two-year claims window closed, and its territory subsumed within the public domain.")

113. *Id.* at *32.

114. *Id.* at *29–30, *30 n.11.

115. *Id.* at *32.

116. *Id.* at *32–33.

117. *Cramer v. United States*, 261 U.S. 219, 231 (1923).

118. *Agua Caliente I District Court Opinion*, 2015 U.S. Dist. LEXIS 49998 at * 33.

119. *See United States v. Adair*, 723 F.2d 1394, 1414 (9th Cir. 1983) ("[W]e find no language in the treaty to indicate that the United States intended or understood the agreement

precedent has led some to criticize the District Court's ruling.¹²⁰ But the Tribe decided not to appeal its claim of Aboriginal Title to the Ninth Circuit and instead focused on its claim to water under the *Winters* Doctrine.

2. Winters Rights

While the District Court did not extend aboriginal title doctrines to include groundwater, it did interpret the *Winters* Doctrine to include a right to groundwater.¹²¹ Under the *Winters* Doctrine, when the federal government reserves a portion of land it impliedly reserves an amount of water to serve that reservation.¹²² The reservation can be a national park, forest, or military installation, but most prominently for groundwater rights, an Indian Reservation.¹²³ *Winters* involved the Fort Belknap Indian Tribe in Montana and its right to water from the Milk River.¹²⁴ The federal government created the Fort Belknap Reservation in 1888, one year before Montana entered the Union as a State.¹²⁵ Settlers began buying land upstream of the Reservation and starting diversions that interfered with the tribe's access to water.¹²⁶ In the case, the United States intervened on behalf of the Fort Belknap Tribe. The settlers appropriating water argued that they had a right to use the Milk River under Montana State Law and that Montana entering the Union terminated the tribe's reservation under the equal footing doctrine.¹²⁷ However, the Supreme Court found that the Fort Belknap Indian Tribe and the federal government had intended to reserve some water for the tribe's benefit.¹²⁸ Relying on the precedent created by *United States v. Rio Grande Dam & Irrigation Co.* that asserted that the federal government's Commerce Clause power gave it jurisdiction over navigable water even against state action, the Court found for the Tribe.¹²⁹ The Court also cited

to diminish the Tribe's rights in that part of its aboriginal holding reserved for its permanent occupancy and use.”).

120. See, e.g., Richard Griffin & Claudia Antonacci, *Agua Caliente and the Argument for Aboriginal Rights to Groundwater*, 19 U. DENV. WATER L. REV. 316, 320 (2016) (The District Court's reasoning “of unclear origin or legal underpinning, contradicts *Adair*, which recognized a continued aboriginal right of occupancy on a federal reservation.”).

121. *Agua Caliente I District Court Opinion*, 2015 U.S. Dist. LEXIS 49998, at *19–21.

122. E. Brendan Shane, *Water Rights and Gila River III: The Winters Doctrine Goes Underground*, 4 U. DENV. WATER L. REV. 397, 401 (2001).

123. See CYNTHIA BROUGHNER, CONG. RESEARCH SERV., RL32198, INDIAN RESERVED WATER RIGHTS UNDER THE WINTERS DOCTRINE: AN OVERVIEW, 2 (2011).

124. *Winters v. United States*, 207 U.S. 564, 575–77 (1908).

125. *Id.* at 577.

126. *Id.* at 567–68.

127. *Id.* at 577. Under the equal footing doctrine, states enter on the same footing as the aboriginal states in the Union, in this case, with respect to ownership of natural resources like water. See generally U.S. CONST. art. IV, § 3, cl. 1; *Pollard v. Hagan*, 44 U.S. (3 How.) 212, 228–29 (1845) (New states entering the Union did so on “equal footing” with the original thirteen states, possessing the same ownership and sovereignty over land.).

128. *Winters*, 207 U.S. at 577.

129. *Id.* (citing *United States v. Rio Grande Ditch & Irrigation Co.*, 174 U.S. 690, 702 (1899)) (“The power of the government to reserve the waters and exempt them from

to *Winans v. United States*, which recognized that the agreements between tribes and the United States preserved those tribal rights that were not expressly relinquished.¹³⁰ Thus, the *Winters* Court reasoned that the federal government and Tribe had impliedly reserved the right to use water absent express agreement to the contrary, and that state law could not supersede that action.¹³¹

Supreme Court precedent has further defined the scope of *Winters* rights. In *Arizona v. California*, the Court dealt with the issue of quantifying these rights.¹³² The State of Arizona argued that *Winters* rights could not be quantified, again asserting that the equal footing doctrine limited the application of the tribe's water rights. But the Court, as it did in *Winters*, rejected Arizona's argument, recognizing that the federal government has broad power under the Commerce Clause to regulate navigable waters and federal lands.¹³³ The Supreme Court adopted the special master's recommendation that tribal waters rights should be quantified according to "practicable irrigable acreage."¹³⁴ *Arizona v. California* also made clear that *Winters* rights vest at the date of the reservation and should provide enough water to fulfill present and future needs of the reservation.¹³⁵ This decision gives many tribes powerful senior rights in arid Western States.

The Water Districts in *Agua Caliente* relied primarily on *Cappaert v. United States* as limiting *Winters* rights to surface water and not groundwater.¹³⁶ In *Cappaert*, farmers were pumping groundwater, an action which adversely affected the water levels in Devil's Hole National Monument, a limestone cavern.¹³⁷ The Supreme Court reaffirmed the *Winters* doctrine but did so by further finding that the farmers were taking surface water instead of groundwater.¹³⁸ The Court did not entirely prohibit pumping, but limited it to preserve water

appropriation under the state laws is not denied, and could not be.").

130. *Winters*, 207 U.S. at 577; see *United States v. Winans*, 198 U.S. 371, 384 (1905) ("What rights the Indians had were not determined or limited.").

131. See *Winters*, 207 U.S. at 576–77; see also Zeslie Zablan, *Tribal Rights to Groundwater: The Case of Agua Caliente*, 48 ENVTL. L. 617, 622 (2018).

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

133. *Id.* at 597–98.

134. The Supreme Court adopted the special Master recommendation, wholly, that this should be the quantification standard. *Id.* at 600.

135. *Id.* ("[T]he United States did reserve the water rights for the Indians effective as of the time the Indian Reservations were created.").

136. The court noted that *Cappaert* was in contrast to other persuasive authority suggesting there should not be a distinction between groundwater and surface water. *Agua Caliente I District Court Opinion*, 2015 U.S. Dist. LEXIS 49998, at *19–21 (citing *Cappaert v. United States*, 426 U.S. 128, 142 (1976)).

137. See *Cappaert*, 426 U.S. at 131, 136.

138. *Id.* at 142–43 ("No cases of this Court have applied the [*Winters*] doctrine of implied reservation of water rights to groundwater. . . . Here, however, the water in the pool is surface water.").

levels necessary to achieve the purpose of the national monument.¹³⁹ In doing so, the Court explicitly avoided applying *Winters* to groundwater.¹⁴⁰

The Water Districts also relied on *United States v. New Mexico* to limit the scope of the Tribe's *Winters* rights to groundwater. The Supreme Court noted the history of Congress' expressed intent in state and federal allocation of water. Traditionally, the federal government deferred to state law.¹⁴¹ Given that history, the Supreme Court in *New Mexico* limited the *Winters* rights to only to the primary purpose of the reservation. The Court created a distinction between primary and secondary purposes with only the implied reserved doctrine of *Winters* applying to the primary purpose.¹⁴² Secondary purposes are subject to the normal methods of state law as is any other appropriator.¹⁴³ The Water Districts relied on a narrow reading of *New Mexico* to argue that *Winters* only applied when it was necessary, and the purpose of the reservation would be otherwise defeated. Since the Agua Caliente Tribe had access to surface water resources, as well as groundwater resources under state law, and had never tried to pump groundwater, an implied right to groundwater was unnecessary to achieve the purpose of its reservation.¹⁴⁴

The District Court did not accept the Water Districts' argument that *Winters* was limited to surface water by *New Mexico*.¹⁴⁵ The District Court did not find that *New Mexico* was so narrow and that the purpose of an Indian Reservation was to provide a homeland for the tribe.¹⁴⁶ To fulfill this purpose the federal government did reserve at least some water for the Tribe. The District Court also found that Supreme Court precedent did not distinguish between groundwater and surface water.¹⁴⁷ In reading the precedent, the District Court found that *Winters* was limited by what was necessary to fulfill the purpose of the reservation and that the source of water be appurtenant to the reservation

139. *Id.* at 141–42.

140. *See id.* at 142–43.

141. *United States v. New Mexico*, 438 U.S. 696, 698 (1978) (explaining that the court “had [prior] occasion to discuss the respective authority of Federal and State Governments over waters in the Western States” (citing *California v. United States*, 438 U.S. 645, 653–663 (1978))).

142. *Id.* at 702 (“Where water is necessary to fulfill the very purposes for which a federal reservation was created, it is reasonable to conclude, even in the face of Congress’ express deference to state water law in other areas, that the United States intended to reserve the necessary water.”).

143. *Id.* (“Where water is only valuable for a secondary use of the reservation, however, there arises the contrary inference that Congress intended, consistent with its other views, that the United States would acquire water in the same manner as any other public or private appropriator.”).

144. The District court found the Water District’s reading of *New Mexico* as too restrictive. *Agua Caliente District Court Opinion*, 2015 U.S. Dist. LEXIS 49998, at *23.

145. *Id.* at *23–25.

146. *Id.* at *25.

147. *See id.* at *21.

land.¹⁴⁸ The Ninth Circuit affirmed on appeal.¹⁴⁹ The Ninth Circuit reasoned that *Winters* was defined by the purpose of the reservation and *New Mexico* only answered the question of how much water and for what purpose. It did not limit *Winters* by necessity as the Water Districts argued.¹⁵⁰ The Ninth Circuit recognized that it was the first federal court to extend *Winters* to groundwater but was rooted in decades of precedent.¹⁵¹

B. *Agua Caliente II*

After its consequential decision on *Winters* rights and groundwater, the Ninth Circuit left the issues of water quantification, water quality standards, and ownership of the pore space for the next phases of litigation. The District Court issued its opinion in April 2019 regarding this second phase of litigation. Returning to the District Court, the Tribe argued that the continued pumping and overdraft in the basin harmed its water rights by reducing the quantity and quality of available water supplies.¹⁵² The Water Districts argued that the Tribe's claims were not justiciable. Ultimately, the District Court agreed with the Water Districts' arguments and dismissed the Tribe's claims to quantification and quality as not justiciable. The District Court did not address ownership of the pore space, leaving it for the third phase of litigation.¹⁵³

1. Quantification

In addressing the Tribe's quantification claim, the District Court found that the Tribe lacked standing to bring a claim that its water rights were injured.¹⁵⁴ The District Court reasoned that the Tribe lacked evidence of injury-in-fact to its water rights and therefore could not address the quantity of its *Winters* rights. First, the District Court addressed whether the Tribe could lose its water rights based on nonuse, and concluded that it could not. In addressing the fact that the Tribe could not lose its water rights based on nonuse, the District Court cited Ninth Circuit precedent in *Colville Confederated Tribes v. Walton*¹⁵⁵ and the Ninth Circuit reaffirmation in *Agua Caliente I* that *Winters* rights are not lost due

148. *Id.* at *20–21 (“Rights to the groundwater underlying the reservation are appurtenant to the reservation itself.”).

149. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist.*, 849 F.3d 1262 (9th Cir. 2017).

150. *Id.* at 1271–72.

151. *See id.* at 1265, 1270 (stating that precedent requires the general purpose of an Indian reservation should be liberally construed and without groundwater the purpose of the Tribe's reservation would be defeated).

152. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist. (Agua Caliente II District Court Opinion)*, No. EDCV 13-00883 JGB (SPx), 2019 U.S. Dist. LEXIS 115346 at *6 (C.D. Cal. Apr. 19, 2019).

153. *Id.* at *47.

154. *Id.* at *35–38.

155. *See Colville Confederated Tribes v. Walton*, 647 F.2d 42, 51 (9th Cir. 1981) (“[T]he Indian allottee does not lose by non-use the right to a share of reserved water.”).

to nonuse.¹⁵⁶ Furthermore, the District Court noted that the inquiry for *Winters* rights also included examining both the present and future needs of the Tribe.¹⁵⁷ The Tribe would have standing if the Water Districts had injured or imminently threatened the current supply of water to the Tribe.

While the Tribe could not lose their right based on nonuse, the District Court found that nonuse is relevant to whether the Tribe's *Winters* right had been harmed.¹⁵⁸ As noted before the Tribe offered evidence of the continued groundwater pumping in the basin and continued lowering of the aquifer level. It argued this was sufficient to prove its *Winters* rights were harmed and that its property interests were invaded.¹⁵⁹ However, the court did not find this argument persuasive. The District Court reasoned that *Winters* did not guarantee the Tribe a right to certain "molecules of water."¹⁶⁰ Rather, the Tribe's right was usufructuary. The Court also noted that in *Arizona v. California*, the Supreme Court declined to quantify some *Winters* rights for certain tribes because it was unnecessary given the lack of imminent threat to their rights.¹⁶¹ Thus, even with the basin in overdraft and the continued pumping of groundwater, the court found that the Tribe had not shown that the Water Districts prevented it from obtaining water.¹⁶²

The District Court analogized the case before them to a recent Federal Circuit case, *Crow Creek Sioux Tribe v. United States*.¹⁶³ In *Crow Creek*, the Crow Creek Tribe argued that any action affecting a water source was enough to injure its *Winters* rights.¹⁶⁴ The Federal Circuit disagreed, finding that *Winters* guaranteed the Crow Creek only the amount of water necessary to fulfill the purpose of the reservation.¹⁶⁵ Because the Crow Creek Tribe was not prevented from

156. See *Agua Caliente I*, 849 F.3d at 1272.

157. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346, at *27–28 (“[T]he reserved right extends to the Tribe’s future needs.”) (citing to United States v. Ahtanum Irrigation Dist., 236 F.2d 321, 326 (9th Cir. 1956)).

158. See *id.* at *27–32.

159. *Id.* at *35 (“[T]he Tribe focuses on the existence of overdraft, both currently and cumulatively, as sufficient injury for standing purposes.”).

160. *Id.* at *29.

161. The special master recommended that certain tribes’ rights did not need to be quantified and the Court adopted his recommendation. See *Arizona v. California*, 373 U.S. 546, 595 (1963).

162. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346 at *38 (“[T]he Tribe does not present evidence it is currently unable to use sufficient water to fulfill the purposes of the reservation.”).

163. *Crow Creek Sioux Tribe v. United States*, 900 F.3d 1350 (Fed. Cir. 2018).

164. *Id.* at 1357 (“The Tribe argues that, because its *Winters* rights vested at the founding of the Reservation, any subsequent action affecting the waters of the Missouri River constitutes an injury of those rights, even if the action does not affect the Tribe’s ability to draw sufficient water to fulfill the purposes of the Reservation.”).

165. *Id.* (“[B]ecause water rights are usufructuary in nature—meaning that the property right ‘consists not so much of the fluid itself as the advantage of its use’—the Tribe has no right to any particular molecules of water, either on the Reservation or up- or downstream, that may have been used or diverted by the government.”) (quoting *Casitas Mun. Water Dist. v. United States*, 708 F.3d 1340, 1353 (Fed. Cir. 2013)).

obtaining priority water rights for the reservation, it was not injured for constitutional standing purposes.¹⁶⁶ Similarly, the Agua Caliente Tribe did not provide evidence that the Water Districts prevented it from pumping groundwater or getting water from other sources to fulfill the purpose of their reservation. Lastly, the District Court did not find persuasive the Tribe's argument analogizing a *Winters* rights adjudication to a quiet title action.¹⁶⁷ The Court did not agree with the Tribe's argument because the Tribe again failed to provide evidence that the uncertainty in the water right, like the quiet title action, satisfied the constitutional standing injury in fact requirement.¹⁶⁸ Thus, the Tribe did not have standing to bring a claim alleging that its water rights had been injured.

2. Quality

The District Court also dismissed the Tribe's claim that its *Winters* rights included a right to a certain quality of water for similar reasons.¹⁶⁹ The Tribe pointed to the fact that the Water District reduced the quality of the water table by using Colorado River water to recharge the aquifer.¹⁷⁰ The Colorado River's salinity levels are increasingly a problem, but this is beyond the scope of the this Comment. However, the District Court declined to address whether the raised salinity levels in groundwater that resulted from mixing with Colorado River water were appropriate.¹⁷¹ It instead focused on the fact that the Tribe did not provide evidence that the change in the total dissolved solid levels caused an injury-in-fact to satisfy the constitutional standing requirement.¹⁷²

The Tribe also argued that the increased salinity levels in the groundwater were injurious to the environment and the Tribe's aesthetic enjoyment thereof.¹⁷³ It based its claims on a series of cases, starting with the Supreme Court case *Friends of the Earth, Inc. v. Laidlaw Environmental Services*, which provides

166. *See id.* *See generally*, *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 560 (1992) (explaining that injury must be 'actual and imminent', and 'concrete and particularized').

167. The District Court did not necessarily disagree with the Tribes claim that the water adjudication is equivalent to a quiet title action citing to Supreme Court precedent. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346, at *31–32; *see also* *Nevada v. United States*, 463 U.S. 110, 143–44 (1983) ("Thus, even though quiet title actions are *in personam* actions, water adjudications are more in the nature of *in rem* proceedings.").

168. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346, at *32.

169. *See id.* at *41–43.

170. *Id.* at *20. ("DWA and CVWD have spread imported Colorado River water to recharge the aquifer. Water imported by DWA is mixed with native groundwater. This dilutes concentrations of total dissolved solids (TDS) in the imported water."). This means the native groundwater reduces the overall salt concentrations of the highly saline river water. *Id.* at *41.

171. *Id.* at *41–42.

172. *Id.* ("Like with its quantification claim, the Tribe focuses on changes to the water but does not provide evidence that these changes preclude the Tribe, either currently or imminently, from being able to use its reserved water for any purpose.").

173. *See id.* at *42–43.

standing where there is a connection to environmental harm.¹⁷⁴ But ultimately, the court found that the Tribe failed to provide evidence that it was harmed by the increase in total dissolved solid levels in the groundwater.¹⁷⁵ “[T]he Tribe’s evidence may reflect injury to the water table, but it does not reflect injury to the Tribe’s [*Winters*] right.”¹⁷⁶ The relevant showing for constitutional standing is still an injury in fact, not an environmental harm.¹⁷⁷ As the Tribe only showed “injury to the water,” and not to themselves, it lacked standing.¹⁷⁸

3. Other Proceedings and *Agua Caliente III*

The United States Government, on behalf of the Tribe, began by filing a motion for the District Court to reconsider the standing issues.¹⁷⁹ The District Court, however, rejected the Government’s motion calling it a “thinly veiled attempt to relitigating the [issues].”¹⁸⁰ Given the Government’s dissatisfaction with the result of the case, an appeal to the Ninth Circuit is likely.

The District Court did not address the issues of pore space and ownership of the pore space, in the second phase of the *Agua Caliente* litigation.¹⁸¹ Because of its decisions on the first two issues presented by the parties, the Court left the factual inquiry of ownership of the pore space for the third phase of litigation.

Despite the District Court limiting its landmark decision in *Agua Caliente I* based on standing, it remains that tribes in California and all states in the Ninth Circuit now have a federally reserved right to groundwater. Given the importance and scarcity of groundwater as a resource in the arid Western United States, this decision will have a consequential effect on water policy. That is especially true in California, as nontribal stakeholders and GSAs will try and incorporate tribes in GSPs in the state’s new era of groundwater management governed by the SGMA. California should look to its neighbor Arizona as a model. Arizona has managed groundwater since 1980 and has

174. *Friends of the Earth, Inc. v. Laidlaw Env'tl. Servs. (TOC), Inc.*, 528 U.S. 167, 169 (2000) (Holding that parties had standing to bring suit for “reasonable concerns about the effects of those discharges, directly affected those affiants’ recreational, aesthetic, and economic interests.”).

175. *Agua Caliente II District Court Opinion*, LEXIS U.S. Dist. LEXIS 115346, at *42.

176. *Id.* at *36.

177. *See Id.*

178. *Id.* at *36, 43.

179. Risa Johnson, *Judge Won't Reconsider Ruling in Agua Caliente Tribe's Water Case*, PALM SPRINGS DESERT SUN (Aug. 19, 2019) <https://www.desertsun.com/story/news/2019/08/19/u-s-district-court-judge-denies-motion-agua-caliente-coachella-valley-water-agencies/2020470001> [<https://perma.cc/4F2M-JVWX>] (In his ruling, U.S. District Judge Jesus Bernal called the motion to reconsider a “thinly veiled attempt to relitigate the summary judgement motions.”).

180. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist.*, No. EDCV 13-883 JGB (SPx), 2019 U.S. Dist. LEXIS 165755, at *8 (C.D. Cal. Aug. 14, 2019).

181. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346, at *43–44, 47 (“Phase III will not determine whether to enjoin Defendants’ from infringing on this right—if it exists—because the Tribe did not provide evidence that it faced any actual or imminent injury to its alleged ownership of sufficient storage space.”).

recognized tribal rights to groundwater since 1999. Arizona's experience is invaluable to other states that are currently facing these issues.

IV. ARIZONA AS A MODEL

A. *Groundwater Management*

California and Arizona treat groundwater similarly. One similarity is that both states treat the right to use groundwater as usufructuary.¹⁸² This means that users only have a right to use water; not the right to own certain “molecules” of water.¹⁸³ Further, both states have a bifurcated water rights regime, meaning that surface water and groundwater are distinct resources. This Comment has already highlighted this distinction as not only a legal fiction, but a detriment to effective water management.¹⁸⁴ While a discussion of more effective water management systems is beyond the scope of the Comment, it is important to highlight that California and Arizona share a similar legal regime and therefore similar issues related to sustainable water management.

As discussed above, California was one of the last western states to pass comprehensive groundwater management legislation. More than thirty years before California passed SGMA, Arizona passed the Arizona Groundwater Management Act (AGMA).¹⁸⁵ AGMA is much like California's SGMA in that it seeks to reach a sustainable and safe yield from critically overdrafted and important groundwater resources.¹⁸⁶ California, and the GSAs created under SGMA, could benefit from looking at Arizona and the AGMA. AGMA created four active management areas that align with the most critically overdrafted aquifers in the state.¹⁸⁷ Each active management area has its own manage-

182. CAL. WATER CODE § 102 (2020) (“All water within the State is the property of the people of the State, but the right to the use of water may be acquired . . . in the manner provided by law.”); *Town of Chino Valley v. City of Prescott*, 638 P.2d 1324, 1328 (Ariz. 1981) (“We therefore hold that there is no right of ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and that the right of the owner of the overlying land is simply to the usufruct of the water.”).

183. *Agua Caliente II District Court Opinion*, 2019 LEXIS U.S. Dist. LEXIS 115346, at *29 (quoting *Crow Creek Sioux Tribe v. United States*, 900 F.3d 1350, 1357 (Fed. Cir. 2018)).

184. See *supra* note 17 and accompanying text.

185. Sharon B. Megdal, *Arizona Groundwater Management*, 104 THE WATER REPORT 9, 9 (Oct. 15, 2012) (“As Arizona's population and economy grew after World War II and pumping technology improved, groundwater levels in many parts of Arizona declined. Concerns about: the extent of groundwater ‘mining’ (overdraft in excess of maintaining aquifer levels); legal decisions related to the transport and use of groundwater away from the overlying land; and the need to show the federal government that Colorado River water delivered through the Central Arizona Project (CAP) would at least in part substitute for groundwater use, led to the 1980 adoption during a special session of the Arizona Legislature of the Groundwater Management Act (GMA).”).

186. See Desmond D. Connall, Jr., *A History of the Arizona Groundwater Management Act*, 1982 ARIZ. ST. L.J. 313, 323–25 (1982); *supra* text accompanying notes 48–63.

187. The initial act only called for four active management areas: Phoenix, Tucson,

ment plan to effectively create sustainable groundwater management and water security. For instance, the Phoenix, Tucson, and Prescott¹⁸⁸ active management areas have a primary goal of achieving safe yield.¹⁸⁹ This requires the active management areas to implement management plans that are updated on a regular basis throughout various stages of implementation.¹⁹⁰ These plans are enforceable on groundwater pumpers and users within the management area.¹⁹¹ The plans also allow active management areas to enforce a water duty on users and invest in natural and artificial groundwater recharge methods.¹⁹² As an example, the Tucson Active Management Area Water Authority has the right to construct and operate water augmentation projects.¹⁹³

California's SMGA mirrors AGMA in a few critical ways. Both laws structure groundwater management through localized districts; AGMA through active management areas, and SGMA through GSAs. Both the active management areas and the GSAs are responsible for long term management plans to achieve the longterm groundwater sustainability. Most importantly, both laws hope to achieve safe yield in critically overdrafted basins to protect valuable groundwater resources. Given the similarities between aspects of SGMA and AGMA, it is logical that California could learn from Arizona's experience in order to better implement effective groundwater management and lasting resource sustainability. Arizona, and in particular the Phoenix, Tucson, and Prescott active management areas, will provide GSAs with an example of how to form GSPs as well as effective ways of reducing groundwater pumping, increasing recharge, and implementing other methods of securing water resources, such as water augmentation.¹⁹⁴ While the similarities between the California's and Arizona's groundwater regulations would alone provide GSAs a valuable

Pinal, and Prescott. A fifth active management area has since been added and there are three separate INA's with their own unique role in groundwater management. *See id.* at 9–10 (“The Santa Cruz AMA was separated from the Tucson AMA in 1994 in order to better acknowledge and address the different groundwater conditions in the two regions.”).

188. The Pinal Active Management Area does not have a goal safe yield while the Santa Cruz Active Management Area has a goal of maintaining safe yield. *See id.* at 10.

189. *Id.* (“Since 1980, the focus of the safe-yield AMAs has been achieving/maintaining safe-yield by the statutory deadline of 2025.”).

190. *See* ARIZ. REV. STAT. § 45-563 (LexisNexis 2020); *See* Megdal, *supra* note 185, at 9 (“The statutorily mandated AMA Management Plans would establish conservation regulations, which would be periodically updated, for the municipal, industrial, and agricultural sectors.”).

191. ARIZ. REV. STAT. § 45-491 (LexisNexis 2020).

192. The AGMA's first implementation guideline set a water duty or the quantity of water reasonably required to irrigate the crops historically grown in a farm unit and assumes conservation methods are being used. Ariz. Rev. Stat. § 45-564(a)(1) (LexisNexis 2020).

193. Kevin L. Patrick & Kelly E. Archer, *A Comparison of State Groundwater Laws*, 30 TULSA L.J. 123, 133 (1994).

194. BABBITT ET AL., *supra* note 64, at 5 (“GSAs in groundwater subbasins are confronted with the need to consider demand management of groundwater as well as supply augmentation.”).

model in developing GSPs, Arizona's experience with recognizing a tribal right to groundwater will be especially valuable post *Agua Caliente*.

There are several key differences between the SMGA and AGMA that could prove useful as examples in helping California reach sustainable groundwater management. First, Arizona's assured water supply requirements¹⁹⁵ are far more restrictive than California's and more accurately link urban growth and water availability.¹⁹⁶ If California is to truly reach sustainable groundwater management, it must require state leaders and urban developers to recognize that unsustainable growth without giving consideration water availability will increase dependence on groundwater, especially as surface water becomes even more over-allocated.

Secondly, AGMA's goal of sustainable groundwater management is supported by a large statewide groundwater recharge system, the Central Arizona Groundwater Replenishment District.¹⁹⁷ While SGMA also encourages groundwater replenishment, California should adopt a groundwater replenishment strategy and recharge management similar to how Arizona has relied on Central Arizona Groundwater Replenishment District (CAGR) AGRD recharges aquifers in the AMAs where pumping has occurred. By joining CAGR water users and property developers can pump water while meeting the goals of the AMA and meet the requirements for assured water supply.¹⁹⁸ However, most of the water that CAGR uses to recharge aquifers is from otherwise unused portions of Arizona's allocation of Colorado River water.¹⁹⁹ Curtailments on

195. Assured Water Supply is the requirement that subdivisions have at least one hundred years of water "continuously available to satisfy the water needs of the proposed use." See ARIZ. REV. STAT. § 45-576(I) (LexisNexis 2020).

196. See Janny Choy, *7 Lessons in Groundwater Management from the Grand Canyon State*, STANFORD: WATER IN THE WEST (June 1, 2015), <https://waterinthewest.stanford.edu/news-events/news-press-releases/7-lessons-groundwater-management-grand-canyon-state> [<https://perma.cc/X7FR-N8Q2>] ("California has roughly parallel laws linking development to water supply availability in Senate Bills 610 and 221, but the threshold for the size of covered subdivisions is much higher (500 housing units instead of 6).").

197. See *id.* (discussing how new developments replace groundwater extractions with replenishments from CAP water allocations in CAGR) and, therefore, comply with goals of safe yield and other requirements in AGMA); KATHLEEN FERRIS & SARAH PORTER, MORRISON INST. FOR PUB. POL'Y, THE ELUSIVE CONCEPT OF ASSURED WATER SUPPLY: THE ROLE OF CAGR AND REPLENISHMENT 1, 7-9 (Fall 2019), <https://morrisoninstitute.asu.edu/content/elusive-concept-assured-water-supply> [<https://perma.cc/P2B9-YV2T>] (discussing CAGR and how groundwater dependent areas can comply with Assured Water Supply rule that "use of groundwater must be consistent with the management goal of the AMA" which is generally meeting safe yield). CAP water was always thought to be vital to the growth of Central Arizona but a large portion of its allocations now fuel growth through groundwater replenishment. See generally Connall, *supra* note 186, at 330 (discussing the importance of CAP water for the growth of Central Arizona).

198. Choy, *supra* note 196. ("[T]he Arizona legislature created the Central Arizona Groundwater Replenishment District (CAGR) to facilitate growth while meeting the [Assured Water Supply] rules.")

199. *Id.* ("This has mostly been local surface water or Colorado River water from the

the Colorado River will almost assuredly cut into CAGR D's effectiveness as a program and may jeopardize future development in Arizona. California must learn from both the successes of CAGR D in attempting to meet safe yield and groundwater recharge while also learning from CAGR D's limitations. CAGR D faces a risk of cutbacks given its reliance on Colorado River water for replenishment.²⁰⁰ The Colorado River Basin faces mandatory cutbacks and the CAP and CAGR D will be the first to bear the costs of those cutbacks.²⁰¹ A significant weakness in CAGR D is the overreliance on what is now an overallocated and potentially unreliable source of surface water to meet the needs of the aquifer replenishment program. California can achieve a similar, but more reliable program by giving the right to pump groundwater in exchange for extensive investment in diverse water augmentation and recovery programs.²⁰²

Lastly, Arizona has more stringent requirements on groundwater monitoring. AGMA requires wells that pump thirty-five gallons or more a minute to have a measuring device.²⁰³ This requirement allows the state to gather important data on the conditions of the aquifer, and ensures that users are not mining groundwater. While SGMA authorizes a host of management tools, GSAs have discretion over whether to implement them or not. This discretion will result in different basins having different levels of monitoring, and will make it more difficult to assess the overall conditions of California's aquifer systems.²⁰⁴

California can and should learn from Arizona's successes and shortcomings in groundwater management. While wholesale change at the state level is unlikely, GSAs should individually examine what Arizona and AMAs have done to better develop and implement GSPs.

B. *Gila III and the Arizona Water Settlement Act*

While the Ninth Circuit recognized that its decision was the first by a federal court to expand *Winters* rights to incorporate groundwater, the Arizona Supreme Court reached the same conclusion two decades prior in *Gila III*.²⁰⁵ *Gila III* is one of the Arizona Supreme Court's opinions rendered from an interlocutory appeal in one of the State's general stream adjudication, *In re the General Adjudication of Rights to Use Water in the Gila River System and Source*.²⁰⁶ The Arizona Supreme Court recognized that when the

Central Arizona Project (CAP).").

200. FERRIS & PORTER, *supra* note 197, at 4.

201. *Id.*

202. These programs could include desalinization, forest management to recover riparian water sources, and cloud seeding.

203. Water measuring devices are required for nonexempt wells pumping more than the de minimus exception. See Ariz. Rev. Stat. § 45-604(a) (LexisNexis 2020).

204. Choy, *supra* note 196.

205. *In re General Adjudication of All Rights to Use Water in the Gila River System and Source (Gila III)*, 989 P.2d 739, 748 (Ariz. 1999) (holding that "the federal reserved water rights doctrine applies not only to surface water but to groundwater").

206. *Id.* The general stream adjudication is an ongoing dispute in the Gila River system

federal government reserves land, like in the case of an Indian reservation, it also impliedly reserves water to fulfill the purpose of the reservation.²⁰⁷ The Arizona Supreme Court held that when other water resources are unable to the needs of the reservation, the tribe's water right would be fulfilled through groundwater resources.²⁰⁸ This holding is not exactly the same as the Ninth Circuit's decision in *Agua Caliente*. The Ninth Circuit held that the *Winters* doctrine did not distinguish between groundwater and surface water.²⁰⁹ Therefore, the *Agua Caliente* decision could alter *Gila III* to some degree. But in practice, both the Ninth Circuit and Arizona Supreme Court decisions recognize that the *Winters* doctrine extends to groundwater. This extension is recognized by leaders in the Arizona community who comment on how little effect *Agua Caliente* will have in the state considering *Gila III*.²¹⁰

Gila III's impact on groundwater also influenced the Arizona State Legislature's decision in crafting the Arizona Water Settle Act (AWSA) in 2004, only five years after the decision was handed down by the Arizona Supreme Court.²¹¹ There are at least twenty-one federally recognized American Indian Tribes in Arizona, with reservations encompassing more than a quarter of the state's land area.²¹² Thus, the power of tribes and the extent of their water rights

which includes the Salt River Valley and the ever growing greater Phoenix Metro area. It is one of two general stream adjudications in the State and is arguably one of the most complex pieces of litigation in the entire legal history of the United States. Joseph M. Feller, *The Adjudication That Ate Arizona Water Law*, 49 *Ariz. L. Rev.* 405, 406 (2007); see also Michael J. Brophy, *The Gila Adjudication from the Perspective of Irrigation Districts*, in *ARIZONA SECTION, AMERICAN WATER RESOURCES ASSOCIATION, PROCEEDINGS OF THE SYMPOSIUM ON ADJUDICATION OF WATER RIGHTS: GILA RIVER WATERSHED, ARIZONA* 139, 144 (1988) (“[O]ne does not ‘get out’ of the Gila adjudication. It is a sort of judicial black hole into which light, sound, lawyers, water . . . indeed, whole forests of paper, will disappear. The only way out is out the other end.”).

207. *Gila III*, 989 P.2d at 747 (citing *Winters v. United States*, 207 U.S. 564, 569, (1908)).

208. *Id.* at 746 (“The reservations considered . . . depended for their water on perennial streams. But some reservations lack perennial streams and depend for present or future survival substantially or entirely upon pumping of underground water. We find it no more thinkable in the latter circumstance than in the former that the United States reserved land for habitation without reserving the water necessary to sustain life.”).

209. *Agua Caliente I*, 849 F.3d 1262, 1271 (9th Cir. 2017) (“[T]he *Winters* doctrine encompasses both surface water and groundwater appurtenant to reserved land.”).

210. Steve Dubb, *Agua Caliente Indians Victory Could Alter Water Practices in the Western United States*, NONPROFIT QUARTERLY (Dec. 6, 2017), <https://nonprofitquarterly.org/agua-caliente-indians-victory-alter-water-practices-western-states> [https://perma.cc/6KEZ-B6RT] (“Arizona . . . however, will feel less impact ‘as the Arizona Supreme Court has already determined that [an American Indian nation] may have a federal reserved right to groundwater if surface waters are inadequate to accomplish the reservation’s purposes.’”) (quoting Judith Dworkin).

211. See Rosalind H. Bark, *The Arizona Water Settlement Act and Urban Water Supplies*, 23 *IRRIGATION & DRAINAGE SYS.* 79, 79 (2009) (“The 2004 Arizona Water Settlements Act (AWSA 2004) when implemented will allocate to two Native American tribes, the Gila River Indian Community (GRIC) and the Tohono O’odham Nation (TON) almost ten percent of Arizona’s total developed water supply, which is 7.04 million acre-feet a year.”).

212. Rosalind H. Bark & Katharine L. Jacobs, *Indian Water Rights Settlements and*

is strong. AWSA provides innovative methods of addressing tribal water rights and claims.²¹³ In exchange for settling their claims, large tribes like the Gila River Indian Community, agreed to accept alternative water supplies, mostly form the Central Arizona Project.²¹⁴ The Central Arizona Project (CAP) supplies the populated areas of the state with Colorado River water deliveries. AWSA also provides for other alternatives for water deliveries.²¹⁵

One such alternative is placing more restrictions on groundwater pumping on nontribal users on lands next to reservations. These regulations create a “buffer zone” to protect reservation groundwater sources.²¹⁶ To achieve these buffer zones, groundwater rights can be transferred or retired, or development rights can be purchased.²¹⁷ While AGMA did not include buffer zones, a similar concept existed in preventing well head overlap. In exchange for buffer zones around their reservations, tribes agreed to develop sustainable groundwater management regulations and limit the overall amount of pumping on reservation lands. Other innovations include developing other water sources to meet deliveries to the tribes. The biggest of these innovations is the increased use of recovered water, achieved by increasing efficiency and recycling effluent.

Not all aspects of AWSA can be successfully implemented in California. California lacks an equivalent to both the CAP and unallocated Colorado River water necessary to meeting the needs of tribes that agree to settle their *Winters* rights claims.²¹⁸ However, what California should learn from AWSA is the creative solutions used in agreements with tribes.²¹⁹ Creating a buffer zone to help protect tribal access to groundwater in exchange to a limit on reservation pumping is the primary solution available to California. The GSPs could account for the buffer zone idea by restricting users near reservations. The buffer zone would achieve two objectives: protection of tribal groundwater sources and reduction of the overall groundwater use within the basin. Recycled effluent,²²⁰ and increased recovered water uses from improved and more efficient existing

Water Management Innovations: The role of the Arizona Water Settlements Act, 45 WATER RES. RESEARCH, May 1, 2009, at 1.

213. *See id.* at 10 (“The settlement effectively converts a large block of CAP NIA water into CAP Indian agriculture (IA) water. This water was available because CAP NIA subcontractors willingly relinquished their contracts to this water during the AWSA negotiations in return for debt relief and continued access to less costly CAP excess priority water.”).

214. *See id.* at 3.

215. *See id.* at 5.

216. *Id.* at 3.

217. *Id.* (“The partnership has encouraged the transfer, retirement, or purchase of development rights in order to establish a buffer zone near the San Pedro River and thereby to limit the impact of groundwater pumping on surface water flows.”).

218. *Id.* at 4 (“Though there were no ‘buffer zones’ in the AMA regulations prior to AWSA, there are some related concepts. For example, within AMAs well spacing rules are designed to protect the rights of individual well owners.”).

219. *See id.* at 8–10.

220. Bark & Jacobs, *supra* note 212, at 7 (“[T]he Indian firming program permits a broader range of water sources, specifically treated effluent . . .”).

surface water infrastructure²²¹ would provide the necessary water to make up for the difference in restricting groundwater pumping within the basin.

While it is easy to write that settlements are the solution to addressing Indian tribes becoming a powerful stakeholder in GSP negotiation, the cultural barriers between tribes and the government make it distinctly difficult to achieve real results through settlements.²²² Arizona has had success reaching settlements in past due in part to the availability of unallocated CAP water. CAP water was an integral to most settlements in Arizona to persuade tribes to forgo their *Winters* rights claims.²²³ The availability of CAP water is now in question and future tribal settlements in Arizona will have to rely on a different mechanism in negotiations.²²⁴ California, as noted above, does not have an equivalent system. However, California is already showing signs that some tribes are willing to participate in GSP negotiations.²²⁵ California can and should develop other methods of securing water sources and should invest in available technologies. New sources of recovered and augmented water, such as desalinization, could serve as a bargaining tool in tribal settlements in a similar way CAP was once a tool for Arizona.

CONCLUSION

The Sustainable Groundwater Management Act and the decisions in *Agua Caliente* are a product of one the worst droughts in California's history. The effects of the drought broke a decades long gridlock in passing comprehensive groundwater regulation in the largest state in the United States while also extending a powerful right to Indian Tribes in many of the arid states in the Ninth Circuit. While the impact of this drought cannot be overstated, the effects of climate change will make these types of dry cycles more prevalent and more intense. The climatic pressures from climate change augment issues with an increasing population that taxes critical water resources in the Western United States. It is imperative that California use Arizona as model example for future groundwater management plans and interactions with tribes. California should pass legislation that mirrors the Arizona Water Settlement Act. It would not be

221. *Id.* at 8 (“In the AWSA a block of conserved water will be generated through the rehabilitation of irrigation district infrastructure.”).

222. Maven, *California Water Policy Conference, supra* note 76 (“[Anceita Agustinez] acknowledged that some tribes have decided to stay on the outside, which is not surprising, given the tribal history in the United States and the taking of land, the mistreatment, and their removal from ancestral lands.”).

223. John B. Weldon Jr. & Lisa M. McKnight, *Future Indian Water Settlements in Arizona: The Race to the Bottom of the Waterhole*, 49 *Ariz. L. Rev.* 441, 442 (2007) (“Indeed, the crowning achievement of the CAP may have been its pivotal role in the settlement of tribal water rights claims based on the federal reserved rights doctrine.”).

224. *Id.* at 467 (“Now that these supplies too have been exhausted, tribes and local water users must grapple with hard issues and few alternatives.”).

225. Maven, *California Water Policy Conference, supra* note 76 (discussing tribal involvement in the San Luis Rey Basin).

the first time the California State Legislature passed a companion bill to SGMA. California prospectively passed legislation to streamline and better integrate general groundwater basin adjudications with SMGA.²²⁶ In response to *Agua Caliente*, the California State Legislature should pass a water settlement act for GSAs to better respond to new Tribal claims both in and out of forming GSPs.

While certain issues remain unsettled in the *Agua Caliente* litigation, including tribe's quantification of their rights and whether that includes quality standards, GSAs need to operate with an understanding that tribes within their basin have a right with senior priority. The California Legislature anticipated the importance of tribal engagement in the forming GSPs. That is why GSAs had to try and bring Tribes to the bargaining table as another stakeholder within the basin. Tribes, as a stakeholder, are now empowered by *Agua Caliente* and working with tribes to foster agreements will be critical to California's effort in sustainable groundwater management.

Beyond California, *Agua Caliente* will impact at least one other state in the Ninth Circuit. Nevada, like its neighbors California and Arizona, relies extensively on groundwater resources.²²⁷ Nevada's groundwater resources are already fully allocated, and, in some cases, over allocated.²²⁸ With the introduction of unaccounted federally reserved rights, a once-settled appropriation regime could be upended. Other States in the Ninth Circuit will also feel the effects of *Agua Caliente*, which is why the Idaho State Attorney General signed an amicus brief in support of the Water Districts.²²⁹ The amicus brief was also signed by states outside the Ninth Circuit, including Texas, Wyoming, and Wisconsin.²³⁰ While *Agua Caliente* is a victory for the Tribe and all Indian Reservations in the Ninth Circuit, the decision will hurt nontribal groundwater users. That is why states, such as California, must respond to *Agua Caliente* with appropriate measures to protect the interests of nontribal groundwater users.

226. See 2015 Cal. Legis. Serv. Ch. 672 (A.B. 1390) (West) (amending the code of civil procedure); 2015 Cal. Legis. Serv. Ch. 676 (S.B. 226) (West) (amending SGMA to prioritize and accelerate high priority basin adjudications).

227. Daniel Rothberg, *How a California Groundwater Case Could Affect Nevada and the West*, NEV. INDEP. (Aug. 21, 2017), <https://thenevadaindependent.com/article/how-a-california-groundwater-case-could-affect-nevada-and-the-west> [<https://perma.cc/92P8-UL9J>].

228. *Id.* ("Groundwater is a vital part of the West's water supply, but many basins throughout the region are pumped at unsustainable rates. More water is taken out than can be replenished. This is true in Nevada, where in some instances, total rights to water on paper exceed the annual supply.").

229. *Id.* ("Where do the states' water laws fit into the Ninth Circuit's decision? That is the central question in the amicus brief from [Nevada Attorney General Adam] Laxalt on behalf of attorneys general in Arizona, Arkansas, Idaho, Nebraska, North Dakota, South Dakota, Texas, Wisconsin and Wyoming.").

230. See Brief of the States of Nevada, Arizona, Arkansas, Idaho, Nebraska, North Dakota, South Dakota, Texas, Wisconsin, and Wyoming as Amicus Curiae in Support of Petitioners, Coachella Valley Water Dist. v. Agua Caliente Band of Cahuilla Indians, 2017 U.S. S. Ct. Briefs LEXIS 2782.

