TO HAVE OUR WATER AND USE IT TOO: WHY COLORADO WATER LAW NEEDS A PUBLIC INTEREST STANDARD

LARRY MYERS*

This Comment proposes constitutional and statutory amendments that would allow water courts to consider the public interest in water allocations. It offers a model public interest standard and argues that this public interest standard is an economic necessity given the shifting contributions of water-reliant industries and the nature of their water needs. Assuming the purpose of Colorado water law is to promote growth and the economic health of the state, then Colorado must adjust the guiding laws to reflect the current economic reality. Where facilitating economic growth formerly required consumptive diversions from streams to subsidize homesteads, ranches, and mines, now it often means leaving the water in streams to maximize real estate values and the conditions desirable for the recreation and service economies. This Comment argues that Colorado will allocate its limited water resources more efficiently by implementing a public interest standard that allows water courts to consider local and state economic interests.

* J.D. Candidate, 2016, University of Colorado Law School. The author would like to thank professors Mark Squillace and Lawrence MacDonnell for their efforts to keep his enthusiasm grounded in the law; Jessica Pingleton, Jennifer Knight, John Michael Guevara, and the student editors for their devotion to improving this Comment; and Hannah, for her inimitable love and support. This Comment is dedicated to the water of every natural stream within the state of Colorado.

INTRODUCTION

In the spring of 2015, California announced its first-ever mandatory water shortage restrictions for municipalities.[1] The

1. Dennis Dimick, *5 Things You Should Know About California's Water Crisis*, NAT'L GEOGRAPHIC (Apr. 6, 2015), http://news.nationalgeographic.com/2015/04/150406-california-drought-snowpack-map-water-science/ [https://perma.

call for a twenty-five percent reduction in water usage came in response to four consecutive years of below-average snowpack and increasingly arid conditions in the state.[2] California's water supply problem has many facets that exacerbate the impact of the years of low snowpack: groundwater supply reductions, growing demands, and regulatory measures enacted too late to address the worsening crisis.[3] Unfortunately, California is not alone in facing water shortages across the West: Oregon, Washington, and the Colorado River Basin states are all coping with reduced and unreliable water supplies.[4] Like California, other water-deprived western states must act to manage the effects of this water shortage and attempt to regulate water supplies in the public interest. For Colorado, addressing the effects of multi-year water shortages and long-term shifts in precipitation and population via public interest regulation will prove especially challenging.

The public interest is a difficult concept to define and an even harder standard for regulators and courts to apply. Regularly confused with the public trust—a closely related common law doctrine that protects land and resources in a state and preserves them for the citizens—the public interest is fundamentally about regulating resources for the benefit of the people.[5] Public interest standards factor into the management of a wide range of resources, from broadcasting rights in the electromagnetic spectrum to legal representation for underserved demographic groups.[6] Given water's unique

cc/6FKN-46R3].

2. *Id.*

3. *Id.*

4. *Id.* "More than 33 million people across Arizona, California, Colorado, New Mexico, Nevada, Utah, Wyoming, and Mexico depend on the Colorado River for their water supply." *The Colorado River*, ENVTL. DEF. FUND, http://www.coloradoriverbasin.org/about-the-colorado-river-basin/ [https://perma.cc/AL5V-35UU] (2015). These states comprise the Colorado River Basin.

5. On the public trust, see generally Stephen H. Leonhardt & Jessica J. Spuhler, *The Public Trust Doctrine: What It Is, Where It Came From, and Why Colorado Does Not (And Should Not) Have One*, 16 U. DENV. WATER L. REV. 47 (2012); James L. Huffman, *Speaking of Inconvenient Truths—A History of the Public Trust Doctrine*, 18 DUKE ENVTL. L. & POL'Y F. 1 (2007); Charles F. Wilkinson, *The Headwaters of the Public Trust: Some of the Traditional Doctrine*, 19 ENVTL. L. 425 (1989); Joseph L. Sax, *Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention,* 68 MICH. L. REV. 471 (1970).

6. *See generally, e.g.*, Erwin G. Krasnow & Jack N. Goodman, *The "Public Interest" Standard: The Search for the Holy Grail*, 50 FED. COMM. L.J. 605 (1998) (discussing electromagnetic spectrum regulation in the public interest); Karen O'Connor & Lee Epstein, *Rebalancing the Scales of Justice: Assessment of Public*

importance to human survival, water allocation is also subject to public interest regulation in almost every state in the arid West.[7] This Comment focuses on Colorado—the lone state in the West that does not regulate its water in the public interest.

With the exception of Colorado, all western prior appropriation states[8] have enacted statutes directing their water allocation organs[9] to consider and protect the public interest in making water right application decisions.[10] Alaska went so far as to codify eight factors for the water commissioner to consider in granting a water right.[11] Colorado not only lacks a similar public interest statute, but in 1995, the Colorado Supreme Court unequivocally held that Colorado's water courts cannot consider the public interest in deciding applications for new appropriations.[12] In *Board of County*

Interest Law, 7 HARV. J.L. & PUB. POL'Y 483 (1984) (discussing public interest law).

7. *See* ALASKA STAT. § 46.15.080(b) (2015); ARIZ. REV. STAT. § 45-155(A) (2015); CAL. WATER CODE § 1255 (2015); IDAHO CODE § 42-203A(5)(e) (2015); MONT. CODE § 85-1-101(6) (2015); N.M. STAT. § 72-5-5.1 (2015) ("public welfare"); NEV. REV. STAT. § 533.370(2) (2015); OR. REV. STAT. § 196.805 (2015); UTAH CODE § 73-3-11 (2015); WASH. REV. CODE § 90.54.020(3) (2015). *See also* TEX. WATER CODE ANN. §§ 11.121, 5.271 (2014) (creating a statutory scheme that requires promotion of public interest in most water permitting applications). These states and their respective public interest standards represent every state entirely west of the hundredth meridian except Hawaii and Colorado.

8. A prior appropriation state is a state that follows the prior appropriation model of allocating its water, as opposed to a riparian doctrine state. *See infra* Section I.A.

9. Where Colorado has water courts, other western states employ administrative agencies to control water allocations. *See, e.g.*, Wyo. Hereford Ranch v. Hammond Packing Co., 236 P. 764, 769 (Wyo. 1925) (discussing Wyoming's establishment of a permit system under the guidance of State Engineer Elwood Meade).

10. *See supra* note 7.

11. ALASKA STAT. § 46.15.080(b) (2015) ("In determining the public interest, the commissioner shall consider (1) the benefit to the applicant resulting from the proposed appropriation; (2) the effect of the economic activity resulting from the proposed appropriation; (3) the effect on fish and game resources and on public recreational opportunities; (4) the effect on public health; (5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation; (6) harm to other persons resulting from the proposed appropriation; (7) the intent and ability of the applicant to complete the appropriation; and (8) the effect upon access to navigable or public water.").

12. Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 971–73 (Colo. 1995) (noting that "a public interest theory is in conflict with the doctrine of prior appropriation because a water court cannot, in the absence of statutory authority, deny a legitimate appropriation based on public policy").

Commissioners of the County of Arapahoe v. United States,[13] the court concluded that a public interest standard was irreconcilable with the Colorado Constitution.[14]

This Comment argues that precluding a public interest consideration in water court adjudications has become a detrimental policy. It asserts that the people of Colorado often benefit more from intact riparian ecosystems than they do from overappropriated, dewatered streams and that this should inform water allocation decisions. This conclusion challenges the interpretation of beneficial use the court relied upon in the *Arapahoe* decision and the constitutional provision that undergirds it.[15]

Rather than concluding that a use is beneficial merely because it is on the established "list,"[16] a totality-of-the-circumstances inquiry should determine whether a use serves the economic and environmental interests of the region and state. This Comment proposes adopting constitutional and statutory amendments that would permit and define a public interest standard and afford water courts the discretion to undertake such an expansive analysis. These legislative and judicial remedies would bring Colorado in line with the other western states in applying a public interest standard and create the flexibility in our water allocation system necessary to address Colorado's challenges and changed reality in the twenty-first century.

Part I of this Comment outlines why Colorado currently lacks a public interest standard. It discusses the Colorado Constitution's command that applications for rights to unappropriated water must be approved, as well as the statutory and common law that built up around this command. It also briefs the *Arapahoe* decision and the court's basis for

13. *Id.*

14. *Id.*

15. *See* Section III.B.

16. *See* St. Jude's Co. v. Roaring Fork Club, L.L.C., 351 P.3d 442, 448–51 (Colo. 2015) (expressing a narrow view of beneficial use primarily predicated on textual and statutory analysis). The dissent directly challenged the majority's textual, statutory, and separation of powers arguments, cited previous opinions in which a broader pallet of beneficial uses received the court's blessing (including recreational, wildlife, and piscatorial), and asserted a less constrained view of beneficial use. *See id.* at 456–60 (Márquez, J., concurring in part and dissenting in part). Perhaps most worryingly to the dissent, the "ruling calls into question numerous existing decrees and abolishes a well-established practice of the water courts in granting applications for such rights." *Id.* at 460.

explicitly rejecting a public interest standard in water court adjudications as being unconstitutional and contrary to Colorado's water allocation scheme. Part I concludes by sketching a model public interest standard to frame the subsequent discussion. Part II introduces two fundamental principles that provide the impetus and context for this Comment's sweeping recommendations: population growth and climate change. Part III examines the consequences of rejecting the public interest standard and identifies the economic and legal problems of regulating water without a public interest standard. Part IV then outlines the legislative and judicial changes necessary to implement the model public interest standard outlined in Section I.D.

I. HIGH AND DRY: WHY COLORADO LACKS A PUBLIC INTEREST STANDARD

This Part introduces the constitutional, statutory, and common law reasons why a public interest standard has proven effectively irreconcilable with Colorado's prior appropriation system. This foundational knowledge also underlies this Comment's assertion that a public interest standard would better achieve the policy and legal standards that guide that system. Section A lays out the basics of water law in Colorado and emphasizes surface rights appropriations. Section B discusses the legal principles fundamental to the *Arapahoe* court's decision. Section C outlines the *Arapahoe* court's analysis on why water courts cannot consider the public interest in adjudicating water rights cases. Finally, Section D sketches a model public interest standard to help frame the discussions in Part III, which argues that the current regime is deficient without such a standard, and in Part IV, which suggests the means by which Colorado should create and implement its own public interest standard.

A. The Foundation: Colorado Water Rights

Colorado's water allocation system is unique in the West. The arid nature of the state and its people's early aspirations to homestead and exploit the otherwise abundant natural resources precipitated the adoption of a new water

administration regime—the prior appropriation system.[17] This common law doctrine dedicated the state's waters to the use of the people, allowing public and private entities to divert water for beneficial uses.[18] Diversion and beneficial use,[19] not land ownership on a watercourse,[20] established a property right in the appropriator,[21] and a right of way to cross others' property

17. *See* Bd. of Cty. Comm'rs of the Cty. of Park v. Park Cty. Sportsmen's Ranch, LLP, 45 P.3d 693, 706 (Colo. 2002). Prior appropriation is the label that describes a system in which the basic tenant of "first in time, first in right" governs water rights. California was the first state to approve a prior appropriation system, deciding in 1855 that the old mining camp conventions should continue to govern the new state's water allocations. Irwin v. Phillips, 5 Cal. 140, 146–47 (Cal. 1855) (identifying "the maxim of equity, *qui prior est in tempore potior est injure*"). *See generally* MARK KANAZAWA, GOLDEN RULES: THE ORIGINS OF CALIFORNIA WATER LAW IN THE GOLD RUSH chs. 6–7 (2015) (discussing the common law origin of the prior appropriation system arising out of mining camp customs); Lawrence J. MacDonnell, *Prior Appropriation: A Reassessment*, 18 U. DENV. WATER L. REV. 228, 243–55 (2015) (discussing the origins and fundamental principles of the prior appropriation system). Colorado led the Rocky Mountain states in adopting the prior appropriations model in 1882 with the Colorado Supreme Court's decision in *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882). CHARLES F. WILKINSON, CROSSING THE NEXT MERIDIAN 234 (1992).

18. *Park Cty. Sportsmen's Ranch*, 45 P.3d at 706; COLO. CONST. art. XVI, §§ 5–6. "To rise to the level of being beneficial, a use had to be consumptive, usually extractive. The list was limited to mining, agriculture, industrial, municipal, domestic, stock-raising, and hydropower. Among other things, these rules mean that in-stream uses could not qualify as appropriations." WILKINSON, *supra* note 17, at 234 (discussing the early understanding of beneficial use under the prior appropriation system).

19. COLO. CONST. art. XVI, § 6 (listing domestic purposes, agriculture, and manufacturing as beneficial uses). Beneficial use is statutorily defined as "that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made." COLO. REV. STAT. § 37-92-103(4) (2015). This definition is merely a starting point in understanding beneficial use, and "almost any use of water that requires diversion or impoundment may be considered beneficial, including irrigation, mining, manufacturing, domestic, and impoundment for recreation and fish and wildlife purposes." TROUT, RALEY, MONTAÑO, WITWER & FREEMAN, P.C., ACQUIRING, USING, AND PROTECTING WATER IN COLORADO 34 (2011) [hereinafter TROUT]. This Comment explores beneficial use further and challenges the Colorado Supreme Court's traditionally narrow understanding of what constitutes a beneficial use below. *See infra* Section III.A.

20. *Coffin*, 6 Colo. at 443, is the seminal case in which Colorado courts formally abandoned the riparian doctrine used in the eastern United States and Great Britain in favor of the prior appropriation system that guides water use in the West.

21. Appropriator refers to one who applies "a specified portion of the waters of the state to a beneficial use pursuant to the procedures prescribed by law." *See* COLO. REV. STAT. § 37-92-103(3)(a) (2015) (defining appropriation); *see also* TROUT, *supra* note 19, at 33–58, 299 (discussing acquisition of a surface right generally and defining appropriation).

for the purposes of diverting and conveying water to the communities, farms, and mines where early Coloradans used this precious resource.[22] The other western states ultimately followed Colorado in adopting the prior appropriation doctrine.[23] However, experts and politicians in the other western states rejected Colorado's water court system in favor of alternate allocation schemes.[24]

As a result, Colorado is the only western state to leave water allocation entirely in the hands of special water courts.[25] These water courts are courts of limited jurisdiction that only adjudicate "water matters" arising in their division.[26] Water matters include "only those matters which [the 1969 Water Rights Determination and Administration Act] and any other law shall specify."[27] Intrastate water disputes are adjudicated in Colorado's water courts with direct appeal by right to the Colorado Supreme Court.[28] The United States Supreme Court holds original jurisdiction over litigation concerning interstate

22. *See Park Cty. Sportsmen's Ranch*, 45 P.3d at 706 (citing Yunker v. Nichols, 1 Colo. 551, 553 (1872) (Hallet, C.J.)).

23. *See, e.g.*, Clough v. Wing, 17 P. 453, 455 (Ariz. 1888); *Coffin*, 6 Colo. at 446; Drake v. Earhart, 23 P. 541, 542 (Idaho 1890); United States v. Rio Grande Dam & Irrigation Co., 51 P. 674, 679 (N.M. Terr. 1898); Moyer v. Preston, 44 P. 845, 847 (Wyo. 1896).

24. *See, e.g.*, Wyo. Hereford Ranch v. Hammond Packing Co., 236 P. 764, 769 (Wyo. 1925) (discussing Wyoming's establishment of a permit system under the guidance of State Engineer Elwood Meade); *The Water Rights Process*, ST. WATER RES. CONTROL BD., http://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.shtml#process [https://perma.cc/EB2S-MD7W] (describing the process of acquiring a water right in California by permit application to the board); *Apply for a New Right*, ST. OF WASH. DEP'T OF ECOLOGY, http://www.ecy.wa.gov/programs/wr/rights/newrights.html [https://perma.cc/365B-279S] (directing parties to apply to the Department of Ecology for new ground or surface water rights). *See generally* WILKINSON, *supra* note 17, at 239 (discussing the history of administrative water allocation systems in the West under two main types of administrative models).

25. Melinda Kassen, *Statutory Expansion of State Agencies' Authority to Administer and Develop Water Resources in Response to Colorado's Drought*, 7 U. DENV. WATER L. REV. 47, 51 (2003). Whether Colorado ought to create an administrative system and eliminate the water courts is beyond the scope of this Comment. This Comment assumes the water courts will continue to govern water allocations.

26. *See* COLO. REV. STAT. § 37-92-203(1) (2015). There are seven water divisions in Colorado that correspond to the seven major drainage basins in the state. *Id.* § 37-92-201 (2015).

27. *Id.* § 37-92-203(1).

28. *Id.* § 37-92-203 (outlining water court jurisdiction); TROUT *supra* note 19, at 15 ("Due to the importance of water issues in Colorado, appeals of water court decisions are taken directly to the Colorado Supreme Court as a matter of right.").

water disputes.[29]

Perhaps the most fundamental water matter is the acquisition of a water right.[30] The Colorado Constitution guarantees the right to divert[31] unappropriated water[32] for application to beneficial use.[33] Although water users can independently divert and use water to establish a water right, they must adjudicate water rights in a water court to have the rights administered under the prior appropriation system.[34] Thus, diverting water, applying it to beneficial use, and adjudicating that use in a water court establishes an absolute water right that guarantees a specified volume of water in accordance with that right's priority.[35] An absolute water right is a vested usufructuary right that confers the right to *use* water,[36] but does not constitute an ownership right in the

29. *See* U.S. CONST. art. III, § 2 ("[T]he judicial Power shall extend to . . . Controversies between two or more States."); TROUT *supra* note 19, at 205–07 (outlining the interstate compact and equitable apportionment systems for interstate water allocation and the role of the Court in apportioning interstate waters or hearing litigation with regard to the interstate compacts). This Comment further examines equitable apportionment below. *See infra* Section II.B.

30. *See* COLO. REV. STAT. § 37-92-302(1)(a) (2015) (committing jurisdiction over water rights applications to the water courts).

31. Diversion is statutorily defined as "removing water from its natural course or location, or controlling water in its natural course or location, by means of a control structure, ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump, or other structure or device." COLO. REV. STAT. § 37-92-103(7) (2015).

32. Unappropriated water is water not yet applied to a beneficial use by another water user. *See* COLO. REV. STAT. § 37-92-103(3)(a) (defining appropriation). What constitutes available water (i.e., unappropriated water) was one issue before the Colorado Supreme Court in the *Arapahoe* case. *See* Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 966–71 (Colo. 1995) (holding that only historical consumptive use figures for absolute water rights may be considered as unavailable water and that the remaining water in a natural stream was unappropriated).

33. *See supra* note 19.

34. *See, e.g.*, Trail's End Ranch, L.L.C. v. Colo. Div. of Water Res., 91 P.3d 1058, 1061 (Colo. 2004) ("Absent . . . an adjudication, water rights are generally incapable of being enforced."); Empire Lodge Homeowners' Ass'n v. Moyer, 39 P.3d 1139, 1153–54, 1156 (Colo. 2001) (discussing administration of decreed rights). "A water rights adjudication is a proceeding to ascertain the respective priorities of water rights on a stream system, including tributary ground water rights." *In re* Application for Water Rights of Turkey Cañon Ranch Ltd. Liab. Co., 937 P.2d 739, 748 (Colo. 1997), *as modified on denial of reh'g* (May 19, 1997).

35. *E.g.*, City of Lafayette v. New Anderson Ditch Co., 962 P.2d 955, 960 (Colo. 1998). Water is measured by either volume (acre-feet or af; million acre-feet or maf) or flow-rate (cubic feet per second or cfs). TROUT, *supra* note 19, at 2.

36. *E.g.*, Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist., 256 P.3d 645, 661 (Colo. 2011) ("A water right is a usufructuary right, affording its holder the right to use and enjoy the property of

water itself.[37] To further encourage beneficial use of the state's limited waters, applicants may also seek conditional rights.[38] Conditional water rights are inchoate rights "designed to allow applicants to establish a current priority for a water right to be developed in the future by making a 'first step' toward appropriation of the desired water."[39] Apart from specifying the amount, place, and time of use, water rights are further distinguished by their means of use: direct flow diversion for immediate application, storage, or exchange.[40]

B. Exhausting a Stream: The Maximum Use Doctrine and Section 6

Colorado administers water rights under the prior appropriations system.[41] As the name implies, water users who appropriate water first (seniors) have priority of right against later appropriators (juniors).[42] Seniority does not, however, license a water user to monopolize the water in a stream.[43] This restriction is meant to preserve a maximum amount of

another without impairing its substance.").

37. *Id.* ("[O]ne does not 'own' water but owns the right to use water within the limitations of the prior appropriation doctrine.").

38. Nat. Res. Energy Co. v. Upper Gunnison River Water Conservancy Dist., 142 P.3d 1265, 1277 (Colo. 2006); *see also* COLO. REV. STAT. § 37-92-103(6) (defining a conditional water right as "a right to perfect a water right with a certain priority upon the completion with reasonable diligence of the appropriation upon which such water right is to be based").

39. City of Thornton v. Bijou Irr. Co., 926 P.2d 1, 31–32 (Colo. 1996) (citing City of Thornton v. City of Fort Collins, 830 P.2d 915, 924 (Colo.1992)).

40. TROUT, *supra* note 19, at 20. Water itself comes in two varieties, surface water and groundwater. *See* COLO. REV. STAT. § 37-92-103(13) (2015) (defining waters of the state as "all *surface* and *underground* water in or tributary to all natural streams within the state of Colorado") (emphasis added).

41. COLO. REV. STAT. § 37-92-203 (2015).

42. Kobobel v. State, Dep't of Nat. Res., 249 P.3d 1127, 1134 (Colo. 2011) (quoting Navajo Dev. Co. v. Sanderson, 655 P.2d 1374, 1377 (Colo. 1982)) ("The first person to divert unappropriated water and to apply it to a beneficial use has a water right superior to subsequent appropriators from the same water resource. Once a water right has been adjudicated . . . it is given a legally vested priority date which entitles the owner to a certain amount of water subject only to the rights of senior appropriators and the amount of water which is available for appropriation."). This fundamental rule is often paraphrased as "first in time, first in right." *E.g.*, Se. Colo. Water Conservancy Dist. v. Shelton Farms, Inc., 529 P.2d 1321, 1324 (Colo. 1974) (equating this phrase with water administration under the prior appropriation system).

43. Colo. Springs v. Bender, 366 P.2d 552, 555 (1961) (holding that water users cannot "command the whole or a substantial flow of the stream to facilitate his taking the fraction of the whole flow to which he is entitled").

unappropriated water for appropriation by the maximum number of beneficial water users.[44] Indeed, the maximum use doctrine mandates that seniors employ reasonable means of diverting water such that juniors can apply the remainder of a stream or aquifer to beneficial use.[45] The maximum use doctrine helps reconcile the tension between the water courts' obligations to protect vested senior water rights and approve rights to available water.[46]

The command to approve rights to available water arises under article XVI, section 6 of the Colorado Constitution (Section 6).[47] Section 6 commands that "[t]he right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied."[48] Taken to its logical conclusion, Section 6 appears to slate Colorado's natural streams for overappropriation and potential dewatering without affording the water courts room to exercise discretion as to whether a right ought to be granted.[49] This reading of Section 6 leaves no room for government discretion in approving water rights and thus precludes the public interest standard for which this Comment advocates.

The notion that Colorado water law permits—or even encourages—overappropriation of a stream is the crux of this Comment. Although the Colorado Supreme Court has opined that maximum use does not necessarily call for dewatered streams, this assurance of "optimum use" appears only in dicta.[50] Conversely, the court flatly rejected the

44. *See id.*; *see also* COLO. CONST. art. XVI, § 6 ("The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied.").

45. The maximum use doctrine is a common law doctrine that balances the proprietary and priority rights of senior water users with the need to maximize the availability of surface and ground water sources for appropriation and application to beneficial use. *See* Fellhauer v. People, 447 P.2d 986, 993–94 (Colo. 1968) (announcing the maximum use doctrine). The Colorado Supreme Court in *Fellhauer* ultimately reversed the lower court's injunction against the upstream groundwater user's pumping on largely unrelated grounds, but the opinion enshrined the maximum use doctrine in Colorado water law. *See id.* at 997.

46. *See Id.* at 993–94; *see also* COLO. CONST. art. XVI, § 6.

47. COLO. CONST. art. XVI, § 6.

48. *Id.*

49. See *infra* Section II.A. for a discussion of overappropriation and stream dewatering.

50. Alamosa-La Jara Water Users Prot. Ass'n v. Gould, 674 P.2d 914, 935 (Colo. 1983) ("Maximum utilization does not require a single-minded endeavor to squeeze every drop of water from the valley's aquifers."); City of Thornton v. Bijou Irr. Co., 926 P.2d 1, 86 (Colo. 1996); Pagosa Water & Sanitation Dist. v. Trout

constitutionality of a public interest standard in the *Arapahoe* decision.[51]

C. Rejecting the Public Interest: The Arapahoe *Decision*

Like many of Colorado's most hotly contested water disputes,[52] the *Arapahoe* case arose out of conflict over a proposed transbasin diversion.[53] The Natural Energy Resources Company (NECO) initially filed a conditional rights application in 1982 for 325,000 acre-feet of storage in Taylor

Unlimited, 170 P.3d 307, 314 (Colo. 2007) ("[O]ptimum use can be achieved only through proper regard for all significant factors, including environmental and economic concerns."); Simpson v. Cotton Creek Circles LLC, 181 P.3d 252, 260 (Colo. 2008). This Comment examines the relationship between beneficial use and the maximum use doctrine and the problems of overappropriation and stream dewatering below. *See infra* Section II.B.

51. Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 958, 962 (Colo. 1995).

52. *See, e.g.*, Nat. Res. Energy Co. v. Upper Gunnison River Water Conservancy Dist., 142 P.3d 1265, 1268 (Colo. 2006); *Bijou Irr. Co.*, 926 P.2d at 1 (dealing with reuse of transbasin water); City of Boulder v. Boulder & Left Hand Ditch Co., 557 P.2d 1182 (Colo. 1976) (concerning dispute between a municipality and mutual ditch companies that sought to export water out of basin).

53. *Arapahoe*, 891 P.2d at 957. Transbasin diversion is the process of taking water from one river basin (usually one on the less-populated Western Slope of Colorado) and sending it to another river basin (usually across the Continental Divide to the cities on the Front Range). *See generally* Peter D. Nichols & Douglas S. Kenney, *Watering Growth in Colorado: Swept Along by the Current or Choose a Better Line?*, 6 U. DENV. WATER L. REV. 411 (2003); Lawrence J. MacDonnell & Charles W. Howe, *Area-of-Origin Protection in Transbasin Water Diversions: An Evaluation of Alternative Approaches*, 57 U. COLO. L. REV. 527 (1986). Six counties on Colorado's Western Slope contain the headwaters of rivers that currently are or could be diverted across the Continental Divide. COLEY/FOREST, INC., NORTHWEST COLORADO COUNCIL OF GOVERNMENTS FOUNDATION, INC., WATER AND ITS RELATIONSHIP TO THE ECONOMIES OF THE HEADWATERS COUNTIES 2–3 (2011) [hereinafter HEADWATERS COUNTIES REPORT] (listing Grand, Pitkin, Summit, Eagle, Gunnison, and Routt counties as the headwaters counties). The Front Range imports approximately 500,000 acre-feet of water from these counties. *Id.* at 3. Transbasin diversions are an ongoing source of controversy in the state: at the time of writing, the Denver Water Board was in the permit approval process to significantly expand its diversions from the Fraser River and send it, via the Moffat Tunnel, to Gross Reservoir for use in the Boulder-Denver metropolitan area. U.S. ARMY CORPS OF ENGINEERS, MOFFAT COLLECTION SYSTEM PROJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT (2014), http://cdm16021.contentdm.oclc.org/cdm/ref/collection/p16021coll7/id/760 [https://perma.cc/X3DR-HU7N]; *Gross Reservoir Expansion Project*, DENV. WATER, http://www.denverwater.org/SupplyPlanning/WaterSupplyProjects/Moffat/ [https://perma.cc/PG38-PP82]; *Denver Water's Moffat Project FEIS Released—a Lose-lose Boondoggle*, TEG, http://tegcolorado.org/news.html [https://perma.cc/WP2F-YFXF].

Reservoir near the town of Gunnison, Colorado.[54] NECO filed an application four years later for additional storage rights as part of a revamped water development project plan.[55] The Union Park Project (the Project) was to hold 900,000 acre-feet of water, and in addition to its previous power-generating purpose, the Project's reservoir would send water from the Upper Gunnison River Basin through a tunnel to Antero Reservoir and then on to Arapahoe County via "a series of tunnels, pipelines, siphons, and flumes."[56] The water court denied this application as a speculative use.[57] Arapahoe County acquired NECO's adjudicated conditional right and the company's rights to develop the Project, and filed new and amended applications in an attempt to salvage the Project.[58]

After a five-year window to consider the objections of numerous water users in the basin, the water court conducted a twenty-two day trial.[59] It concluded that the best modeling

54. *Nat. Res. Energy Co.*, 142 P.3d at 1268; *Arapahoe*, 891 P.2d at 958, 962. The NECO application sought to use Taylor Reservoir as both a forebay and afterbay for its proposed hydroelectric dam—the Union Park Dam. *Nat. Res. Energy Co.*, 142 P.3d at 1268. A "forebay" is a reservoir that holds water upstream of a hydroelectric dam. *Federal Columbia River Power System Definition List*, BONNEVILLE POWER ADMIN., http://www.bpa.gov/power/pgf/fcrps_definitions.shtml [https://perma.cc/3Y6G-GFP7] (last updated Oct. 19, 2006). An "afterbay" is a reservoir downstream of a hydroelectric dam. *See Yellowtail Afterbay Dam Overview*, DEPT. OF INTERIOR, http://www.usbr.gov/projects/Facility.jsp?fac_Name=Yellowtail+Afterbay+Dam [https://perma.cc/62ME-9SUT] (last updated Apr. 2, 2013). NECO originally designed the dam on Lottis Creek, capable of impounding 600,000 acre-feet of water, to power an underground 60 MW hydroelectric pumping plant. HORST UEBLACKER, AM. ROCK MECHS. ASS'N, FEASIBILITY LEVEL GEOLOGICAL AND GEOTECHNICAL INVESTIGATION FOR UNION PARK DAM 1 (2006).

55. *Nat. Res. Energy Co.*, 142 P.3d at 1268 (application No. 86-CW-226).

56. *See Arapahoe*, 891 P.2d at 957.

57. *Id.* (rejecting the use as speculative pursuant to COLO. REV. STAT. § 37-92-103(3)(a) (2014)).

58. *See id.* Arapahoe filed application No. 88-CW-178 and amended NECO's application, No. 86-CW-226. *Id.* This expansive application sought approval for: "six points of diversion; use of federal reservoir storage facilities; assessment and redetermination of federal water rights; condemnation of existing water rights; change of use of conditional water rights from nonconsumptive to consumptive uses; plans for augmentation; the possible purchase of water rights; and the reevaluation of water rights in the Gunnison River Basin based on the actual legal use of water and present constraints under interstate compacts." *Id.* at 957–58.

59. *See id.* at 958, 963. The water court bifurcated the trial, with Phase I to determine the availability of water sufficient to meet Arapahoe County's needs and Phase II to determine the feasibility of the Project. *Id.* at 958. The twenty-two day trial was only on Phase I. *Id.* Arapahoe County and two objectors, the Crystal Creek Homeowners Association and the Colorado River Water Conservation

system for determining the amount of water available in the basin was one that assumed absolute rights holders would divert their full decreed amounts and that conditional rights would vest in their full requested amounts.[60] Based on this model, the water court found that "a maximum of 20,000 acre feet of unappropriated water [was] legally available for appropriation on an annual basis at [Arapahoe's points of diversion]."[61] Arapahoe County conceded that this amount was insufficient to support its proposed uses, and the water court dismissed the county's application.[62] Arapahoe County appealed.[63]

Out of the original parties who objected to Arapahoe County's application, Crystal Creek Homeowners Association[64] and several environmental and sporting groups[65] pursued a cross appeal, asking "whether the Colorado Constitution [would allow] the water judge to hear evidence of the impacts on the environment of the Union Park Project if the case [were] remanded."[66] They argued that "the Union Park Project would

District, created computer models to predict the available amount of water at issue in Phase I to facilitate the water court's resolution of several pretrial motions. Despite employing "widely varying approaches" to calculate the physical volume of water available at Arapahoe County's points of diversion, the three models projected this number to be between 278,000 and 295,000 acre-feet of water. Opening Brief at 6, *Arapahoe*, 891 P.2d at 952 (No. 92SA68); *Arapahoe*, 891 P.2d at 952; *see also* Answer Brief, *Arapahoe*, 891 P.2d at 952 (No. 92SA68). The real points of contention in Phase I arose in the water court's resolution of how much of this water would remain available after absolute rights and prior conditional users diverted their shares. *See Arapahoe*, 891 P.2d at 958, 968; Opening Brief at 6, *Arapahoe*, 891 P.2d at 952 (No. 92SA68).

60. *Arapahoe*, 891 P.2d at 968. To reach this conclusion, the water court construed *Southeastern Colorado Water Conservancy District v. City of Florence*, 688 P.2d 715 (Colo. 1984), to call for precisely this assumption, but the Colorado Supreme Court disagreed and distinguished *Florence* from *Arapahoe*. *Arapahoe*, 891 P.2d at 960–62.

61. *Arapahoe*, 891 P.2d at 963.

62. *Id.* at 958. This obviated the need for a trial on Phase II. *Id.*

63. *See* Opening Brief at 1, *Arapahoe*, 891 P.2d at 952 (No. 92SA68) (rephrased from the issues as briefed).

64. Responsive Brief and Opening Brief in Support of Cross-Appeal by the Crystal Creek Homeowners Association and Ernest H. Cockrell at 1, *Arapahoe*, 891 P.2d at 952 (No. 92SA68) [hereinafter Crystal Creek HOA Brief] (rephrased from the issues as briefed).

65. Opening Brief of Appellees and Cross-Appellants High Country Citizens' Alliance, Gunnison Angling Society, Western Colorado Congress, Colorado Wildlife Federation, and National Wildlife Federation at 1, *Arapahoe*, 891 P.2d at 952 (No. 92SA68) [hereinafter Environmental Groups' Brief].

66. Environmental Groups' Brief at 1, *Arapahoe*, 891 P.2d at 952 (No. 92SA68); *Arapahoe*, 891 P.2d at 971. The Environmental Groups raised a second

adversely affect fisheries and wildlife habitat, recreation, water quality, the basin's economy including the tax base, property values and land use, and the general quality of life."[67] The court noted that the Environmental Groups held these factors as being "vitally important to the public"—that is, in the public interest.[68]

The Environmental Groups' brief advanced four arguments as to why water courts should consider public interest factors in deciding conditional water rights applications.[69] First, that the Colorado Constitution contemplates and mandates that water courts consider the public interest.[70] Second, that beneficial use inherently implicates environmental impacts, particularly with water right applications as large as Arapahoe County's.[71] Third, that water courts are the best forum to address the environmental impacts of water rights applications.[72] And fourth, that maximum use and the due diligence requirement for conditional rights applicants preclude ignoring senior conditional rights in adjudicating new conditional rights applications.[73]

The *Arapahoe* court spent much of its limited discussion of the Environmental Groups' issue addressing the second argument, and it ruled against the cross appellants on the basis of its own limited powers.[74] The electorate and General Assembly's primacy in creating law and policy was of paramount importance to the court.[75] The court noted that the

issue not relevant to this Comment. *Id.*

67. *Arapahoe*, 891 P.2d at 971.

68. *Id.*

69. Environmental Groups' Brief at 5–30, *Arapahoe*, 891 P.2d at 952 (No. 92SA68). The University of Colorado Law School's former dean, David Getches, represented the cross appellants in this litigation. This Comment often proceeds against the backdrop of his advocacy in the Environmental Groups' brief and owes him a great debt for pioneering this line of scholarship.

70. *Id.* at 5–16.

71. *See id.* at 16–17.

72. *See id.* at 17–26 (advancing arguments regarding water court's jurisdiction, competence, role in developing standards, ability to prevent duplicative regulatory action, and unique ability to consider such factors and how best to effectuate maximum use before removing the water from the public domain).

73. *Id.* at 26–29 (citing COLO. REV. STAT. § 37-92-301(4)(2015)) ("It would be absurd for a water judge charged by statute with reviewing applications for conditional rights and policing their progress toward development, to treat the decrees it issues as fictional.").

74. *See Arapahoe*, 891 P.2d at 971–73.

75. *Id.*

General Assembly statutorily had not only defined beneficial use, but that it had also identified the "mechanism . . . to address protection of the environment."[76] The court declined the Environmental Groups' invitation to preempt the legislature in deciding the "degree of protection afforded the environment,"[77] concluding that if the legislature wanted to establish a constitutionally compliant public interest standard, it was free to do so.[78]

Perhaps most damningly, the court explained that "[c]onceptually, a public interest theory is in conflict with the doctrine of prior appropriation."[79] It noted first that, pursuant to Section 6, water courts cannot deny a legitimate appropriation of unappropriated water.[80] The court concluded that Section 6 therefore precluded consideration of the public interest.[81] It then noted that Arapahoe County's proposed municipal uses were legitimate beneficial uses and would constitute a legitimate appropriation.[82] The court held that denying an otherwise-acceptable water right application (like Arapaho County's) in the public interest was an unconstitutional act outside a water court's authority.[83]

76. *Id.* (citing COLO. REV. STAT. § 37-92-103(4) (1990) (identifying instream flow legislation as this mechanism); *see* COLO. REV. STAT. § 37-92-102(3) (2015) (the instream flow legislation the court identified).

77. *Arapahoe*, 891 P.2d at 972.

78. *See id.*

79. *Id.*

80. *Id.* at 972–73 (citing COLO. REV. STAT. § 37-92-305 (1990 & 1994 Supp.)). *See* COLO. CONST. art. XVI, §§ 5, 6 (decreeing that the "water of every natural stream" is "subject to appropriation" and "the right to divert . . . to beneficial uses shall never be denied").

81. *Id.*

82. *Arapahoe,* 891 P.2d at 972–73.

83. *See id.* The court affirmed the water court's dismissal of Arapahoe County's NECO application, but reversed its dismissal of Arapahoe's remaining application and remanded the case. *Id.* at 973. The decision was 4–3 over Justice Mullarkey and Justice Scott's dissents. Chief Justice Rovira joined both dissents. Justice Mullarkey's dissent disagreed with the majority's extension of *City of Florence's* availability burden and would have reversed the water court's dismissal of Arapahoe County's NECO application. *Id.* at 973–78 (Mullarkey, J., dissenting). Justice Scott largely agreed, but wrote separately to add his concern that the majority's construction of the can and will statute conflicted with the constitutional demand that legitimate appropriations never be denied. *Id.* at 978–81 (Scott, J., dissenting). The Union Park project was never built, but Front Range politicians and water developers periodically revive the possibility of pursuing the project. *Union Park Project Refuses to Die*, COLO. CENT. MAG. (June 2005), http://cozine.com/2005-june/union-park-project-refuses-to-die/ [https://perma.cc/7WJL-QXF7].

With this decision, the court confirmed Colorado's unique status as the only state in the West to not consider the public interest in adjudicating new water rights applications.[84] The *Arapahoe* decision is not the reason Colorado water courts cannot weigh the public interest—it merely construed the implicit prohibition in Section 6 against doing so. The decision is nevertheless important for its demonstration of the court's unwillingness to broadly construe its authority under Section 6.[85] It also highlights two important facts. First, Colorado currently lacks a public interest standard.[86] Second, implementing one is likely to require more than judicial fiat or even statutory intervention.

Part I has demonstrated how Section 6's command to approve all appropriations of unappropriated water currently precludes the discretion inherent in a public interest standard. Parts II and III argue that, without that discretion, Colorado is increasingly vulnerable environmentally, economically, and legally. In response, Part IV proposes that Colorado enable and implement a public interest standard to avoid these vulnerabilities. To frame these discussions, Section I.D suggests a model for how Colorado's public interest standard should function.

D. A Possible Model: Colorado's Public Interest Standard

This Section outlines the mechanics and function of a public interest standard tailored to address the fundamental

84. *See supra* note 7 (listing all other western states with public interest statutes).

85. *Cf.* Lawrence Gene Sager, *Fair Measure: The Legal Status of Underenforced Constitutional Norms*, 91 HARV. L. REV. 1212 (1978) (arguing that the federal judiciary often limits the breadth of its constitutional interpretations over "institutional concerns" rather than because the Constitution mandates that narrow interpretation, and that in spite of this trend, the more expansive constitutional interpretations are nevertheless valid). Here, the Colorado Supreme Court has historically—and as this Comment argues, unnecessarily—taken a very narrow view of its gatekeeping role in granting water rights and justifies this view on separation of powers grounds. *E.g.*, *Arapahoe*, 891 P.2d at 971–73 (holding that the General Assembly is responsible for setting environmental standards and the court will not intercede in their sphere of responsibility).

86. The Colorado Water Conservation Board (CWCB) instream rights are arguably the only manifestation of the public interest in Colorado water law. *See* COLO. REV. STAT. § 37-92-103(4)(c) (2015) (allowing the CWCB to hold instream rights for "the benefit and enjoyment of present and future generations").

shortcomings in the current system Part III identifies below. Because the focus of Part IV is how to implement a public interest standard in Colorado, this Section largely ignores that dynamic. Instead, this model sketches the contours of what a public interest standard should protect and how the standard would fit within the current system.

The ideal public interest standard would afford water courts a measure of discretion in approving conditional and absolute water rights applications, change of use applications, and water right transfers. Actions that put water to beneficial use will be presumed to be in the public interest. However, the courts should conclude that an action is against the public interest if: (a) the action depletes a section of a stream to the point that the riparian ecosystem will be substantially impaired; (b) the impaired riparian ecosystem will substantially and adversely impact water-reliant economies or property values in that stretch of stream; and (c) the action does not provide value of greater benefit to the local economy, community, and state than the value of the interests it substantially and adversely harms. Courts should deny actions that are against the public interest.[87]

This public interest inquiry would function within the extant application system.[88] Determinations of the public interest would be a water matter pursuant to section 37-92-304 of the Colorado Revised Statutes and within the jurisdiction of the water courts. In addition to the established elements of a water right, the applicant would be required to make an affirmative showing that the proposed use would not substantially harm the public interest.[89] Additionally, any

87. Elwood Mead drafted Wyoming's constitution such that the water administrators were to "deny requested water permits if they were 'detrimental to the public welfare.'" WILKINSON, *supra* note 17, at 239.

88. *See generally In re* Application for Water Rights of Turkey Cañon Ranch Ltd. Liab. Co., 937 P.2d 739, 747 (Colo. 1997) ("In a water adjudication involving a proposed plan for augmentation or a change of water right, any person may object to the application itself and participate in the adjudication by holding the applicant to a standard of strict proof. However, for that objector to have standing to assert injury to his or her water right, the objector must show that he or she has a legally protected interest in a vested water right or a conditional decree."); COLO. REV. STAT. § 37-92-302(1)(b) (2015) (allowing "any person" to file a statement of opposition to an application for a new right or change of use).

89. COLO. REV. STAT. section 37-92-302(1)(a) requires an applicant to "set[] forth facts supporting the ruling sought." An applicant for a conditional right must prove that it has "taken a first step toward appropriation of a certain amount of water, that its intent to appropriate is not based upon the speculative

party could enter an objection and hold the applicant to strict proof on whether their application would harm the public interest.[90]

Establishing this public interest standard would effect a fundamental change in Colorado water law.[91] Doing so would require, at a minimum, amending the Colorado Constitution.[92] Legislative support in the form of a multifactor statutory standard would provide the courts with important guidance.[93] Neither task would be easy. However, creating this public interest standard would alleviate several serious problems Colorado currently faces.

II. A TWENTY-FIRST CENTURY STATE: POPULATION GROWTH AND CLIMATE CHANGE

Much of what shaped Colorado water law was the early desire to wrest the land from its naturally arid state, populate it,[94] and promote economic growth.[95] These fundamental

sale or transfer of the appropriative right, and that there is a substantial probability that the applicant can and will complete the appropriation with diligence." Centennial Water & Sanitation Dist. v. City & Cty. of Broomfield, 256 P.3d 677, 685 (Colo. 2011). Application of the water to beneficial use is the sole element in a claim to transform a conditional right into an absolute right. *Id.* The public interest showing would merely be one more element, like the first step of a conditional right or application to beneficial use of an absolute right, that the applicant would have to show in its application. Rather than requiring applicants demonstrate that their proposed use would advance the public interest (a high bar that might preclude acceptable, but not necessarily desirable, uses), requiring a showing that the use would not substantially harm the public interest imposes a lower threshold that would be less burdensome on development.

90. *Turkey Cañon Ranch*, 937 P.2d at 747.

91. *See generally* Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 971–73 (Colo. 1995) (declining to implement a public interest standard for this very reason).

92. *See infra* Section IV.A.

93. *See infra* Section IV.A.

94. Of course, Colorado had an established indigenous population when the first miners and homesteaders arrived. The Ute held dominion over much of the state from the mountains westward, while plains tribes like the Cheyenne, Arapahoe, and Comanche controlled the Front Range. *E.g.*, TAMMY STONE, THE PREHISTORY OF COLORADO AND ADJACENT AREAS 150–58 (1999) (discussing the tribes in control of Colorado during the period when European-Americans pushed into Colorado and mapping the state by tribe). The story of their resistance to the influx of European-Americans and consequent confinement to reservations is beyond the scope of this Comment but well worth study. *See generally* J. DONALD HUGHES, AMERICAN INDIANS IN COLORADO 51–77 (2d ed. 1987) (discussing the removal process and mapping the shifting boundaries of tribal and European-American control); SALLY CRUM, PEOPLE OF THE RED EARTH AMERICAN INDIANS

purposes drove the federal and state governments to provide subsidies of land, water, and minerals to any person brave enough to stake his fortune on the sweat of his brow.[96] Tying the creation of a property right in land or resources to the investment of labor was not a new concept[97] but a fundamental facet of Anglo-American legal theory.[98] It was thus a natural progression from this Lockean foundation to the advent of prior appropriations—a system whereby water rights arise from the diversion and application to beneficial use of that amount of water a person could use without waste.[99] And just as publication of Locke's treatises helped pave the way for a new theory of government and property in England,[100] so too did the

OF COLORADO 124 (1996) (mapping the current reservations in Colorado).

95. *See supra* Section I.B; WILKINSON, *supra* note 17, at 232–35; WALLACE STEGNER, BEYOND THE HUNDREDTH MERIDIAN 226 (Penguin Books 1992) (1909) ("Water is the true wealth in a dry land; without it, land is worthless or nearly so.").

96. *See* WILKINSON, *supra* note 17, at 18–19, 248–49; *see also, e.g.*, Hardrock Mining Law of 1872 § 22, 30 U.S.C. § 22 (2012) ("[A]ll valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, shall be *free and open to exploration and purchase*, and the lands in which they are found to occupation and purchase . . . .") (emphasis added); COLO CONST. art. XVI, § 6 (granting the right to appropriate and use, and thereby acquire a private property right in, water free of charge).

97. John Locke, the English philosopher and social contract theorist, famously led the charge in abandoning the divine right of kings theory of property rights in favor of a theory in which mixing one's labor with a common resource created a property right in that resource superior to that of all others in as great a quantity as the laborer could use without waste. JOHN LOCKE, TWO TREATISES OF GOVERNMENT 327–44 (Peter Laslett ed., Cambridge Univ. Press 1963) (1690); *see also* BARBARA ARNEIL, JOHN LOCKE AND AMERICA: THE DEFENCE OF ENGLISH COLONIALISM 136–45 (1996) (summarizing Locke's theories on property rights in common resources and the proscription of waste as a limitation on appropriation); A. JOHN SIMMONS, THE LOCKEAN THEORY OF RIGHTS 226–33 (1992) (highlighting Locke's theories with regard to the familiar "bundle" of rights that comprise a property interest).

98. *See, e.g.*, Eugene C. Hargrove, *Anglo-American Land Use Attitudes*, 2 ENVTL. ETHICS 121, 138–43 (1980); ARNEIL, *supra* note 97, at 136–45 (discussing the influence Locke's theories had on early American colonialism); THOMAS L. PANGLE, THE SPIRIT OF MODERN REPUBLICANISM 2 (1988) ("For it is in Locke's works that one finds the true integration into one edifice, and hence the full exploration of the meaning, of the three most important pillars supporting the Founders' moral vision: Nature or 'Nature's God'; property, or the 'pursuit of happiness'; and the dignity of the individual as rational human being, parent, and citizen.").

99. LOCKE, *supra* note 97, at 327–44.

100. *See* Hargrove, *supra* note 98, at 139–40; *see also* Peter Laslett, *Introduction* to JOHN LOCKE, TWO TREATISES OF GOVERNMENT, 58–79 (Peter Laslett ed., Cambridge Univ. Press 1963) (1690) (noting the commonly accepted belief that TWO TREATISES was published after the revolution but arguing that

prior appropriation system and Colorado water law help pave the way for the population and prosperity of the Centennial State.[101]

In the course of pursuing these aims, Colorado has undergone dramatic changes. Most of those changes are beyond the scope of this Comment's focus, but two bear special importance in arguing for the adoption of a public interest standard in Colorado: population growth and climate change. Section A expounds on Section 6's role in promoting the early aspirations of Coloradans and compares changes in Colorado's population from the earliest territorial data in 1870 to contemporary statistics and projections for 2050. Section B lays out climate change data as another condition that Colorado must address as it plans for the future. This Comment argues that these primary conditions on which early Colorado policy makers predicated the state's water laws do not reflect the modern reality, and thus the sweeping solutions this Comment proposes in Part III are not just worthy endeavors but pragmatic necessities.

A. From Great American Desert to Great American Dream: Population Growth from 1870 to 2050

The Spanish were the first Europeans to attempt settlement in Colorado, but their efforts largely failed.[102]

the treatises were written, at least in part, before the revolution and merely published after to help bolster the new regime).

101. *See, e.g.*, WILKINSON, *supra* note 17, at 232–35; Coffin v. Left Hand Ditch Co., 6 Colo. 443, 446 (1882) ("Houses have been built, and permanent improvements made; the soil has been cultivated, and thousands of acres have been rendered immensely valuable, with the understanding that appropriations of water would be protected. Deny the doctrine of priority or superiority of right by priority of appropriation, and a great part of the value of all this property is at once destroyed."). *Cf.* MARC REISNER, CADILLAC DESERT 43, 51 (rev. ed. 1993) (discussing the failure of riparianism and the subsequent growth of the public irrigation project under the prior appropriation system). Because Colorado became a state in 1876, a century after the birth of the nation, it bears the nickname "the Centennial State." *See* CARL UBBELHODE ET AL., A COLORADO HISTORY ch. 14 (9th ed. 2006) (discussing Colorado's entry into statehood).

102. UBBELHODE ET AL., *supra* note 101, at 17–18 ("From Coronado in 1540 to short-lived San Carlos in 1787, Spain failed to push its settlements north of Santa Fe."). Land grants in the early nineteenth century led to small settlements in southern Colorado, several of which survive today. *Id.* at 44–46. The most senior water right in Colorado belongs to the San Luis People's Ditch, an acequia in a surviving Spanish land-grant community. *San Luis People's Ditch*, SAN LUIS VALLEY HERITAGE, http://www.slvheritage.com/heritage-attractions/san-luis-

French and American fur traders also pushed into the area, but the nature of the trade[103] meant that they built little more than a few forts used as storage depots and trading hubs.[104] These failures meant that the mining industry established the first real settlements in Colorado.[105] Depending on which strike one counts, the gold rush in Colorado began in either 1858 or 1859,[106] and this first influx of fortune seekers attempting to reach the diggings on the eastern slope of the Rocky Mountains totaled approximately 50,000 people.[107] Less than half of this number remained to form the mining communities that became Golden, Denver, and Boulder.[108] Between 1858 and 1870, the population of miners and those "mining the miners"[109] grew to 39,864.[110] Then the railroad reached Denver in 1870.[111]

The arrival of the railroads was pivotal for Colorado. The Denver Pacific connected Cheyenne, Wyoming with Denver in June 1870, and the Kansas Pacific came into Denver from

peoples-ditch/index.html@show_more=1 [https://perma.cc/N4JN-ZAXP]; UBBELHODE ET AL., *supra* note 101, at 53 (noting that San Luis, founded in 1851, was the first Spanish land-grant community and the first permanent white settlement in Colorado); *see also Early Water Law*, COLO. FOUND. FOR WATER EDUC., https://www.yourwatercolorado.org/cfwe-education/water-is/climate-and-drought/2-uncategorised/586-early-water-law [https://perma.cc/C757-H34U]; UBBELHODE ET AL., *supra* note 101, at 187–88.

103. UBBELHODE ET AL., *supra* note 101, at 34 ("However the trade was conducted, it was cannibalistic in nature. The trappers were always consuming their source of supply, and they continually had to move farther into the interior.").

104. *See id*. at 35–40.

105. *Id.* at 56–88. Some military members and government surveyors abandoned their service in favor of starting small agricultural communities in river valleys that preceded the mining camps and cities, but each community ultimately failed. *Id.* at 44–45.

106. *Id*. at 56–67.

107. *Id.* at 62.

108. *Id.* at 62, 69–89.

109. This phrase poignantly refers to the service industry that grew up around the men working the claims. *Id.* at 62. Because "the mining frontier required at least five times more numerous than the number actually working the mines," and due to the exigencies of keeping the camps and miners supplied from the industrial centers and markets far to the east, conflict between the diggers and suppliers was a defining trait of the early communities. *Id.* at 69–77. The arrival of the railroad in 1870 helped ameliorate the problems. *See id.*

110. *Historical Census Population – Parameters*, COLO. DEP'T OF LOC. AFF., https://dola.colorado.gov/demog_webapps/hcpParameters.jsf [https://perma.cc/3V88-TKLM] (select "Colorado" in the counties field, leave the municipalities field blank, and select "1870" in the census year field; click "View Results" button). The period from 1858 to 1870 is the first period for which census data is available. *See id*.

111. UBBELHODE ET AL., *supra* note 101, at 77.

Kansas in August.[112] The state had six major rail lines by 1880, two of which crossed the Rocky Mountains by 1883 to reach Durango and Silverton in southwestern Colorado and Crested Butte and Leadville in west central Colorado.[113] With the railroads came the railroad land grants[114] and railroad towns.[115] This new infrastructure was a boon to the miners and early industry in Colorado.[116] In addition to being better able to move freight,[117] railroads could move masses of people far more quickly and efficiently from the eastern cities.[118] People flooded into Colorado, either to take advantage of President Lincoln's generous promise in the Homestead Act[119] or to purchase cheap land from the railroads.[120]

Politics drove the initial desire to settle Colorado in the form of competing national and territorial claims to the area.[121]

112. CARL ABBOTT, COLORADO: A HISTORY OF THE CENTENNIAL STATE 86 (1976).

113. *Id.* at 85, 90.

114. WILKINSON, *supra* note 17, at 84. "Railroads obtained 94 million acres directly and received an additional 37 million acres that had been transferred to states for the benefit of the railroads; these railroad land grants amounted to an area nearly the size of California and Washington combined." *Id.* at 18.

115. ABBOTT, *supra* note 112, at 87 ("The effects of Colorado's new railroad connections appeared spectacular to most contemporaries. New towns sprang up along the lines."); UBBELHODE ET AL., *supra* note 101, at 123–24.

116. *See* ABBOTT, *supra* note 112, at 87–90, 103–41.

117. *Id.* at 87.

118. *See id.* ("Population and mercantile business both tripled in three or four years [after the arrival of the railroads]"); UBBELHODE ET AL., *supra* note 101, at 123–32.

119. Homestead Act of 1862, 12 Stat. 392, *repealed by* Act of Oct. 1, 1976, tit. VII, § 702, 90 Stat. 2787. "Signed into law by President Abraham Lincoln on May 20, 1862, the Homestead Act encouraged Western migration by providing settlers 160 acres of public land. In exchange, homesteaders paid a small filing fee and were required to complete five years of continuous residence before receiving ownership of the land. After six months of residency, homesteaders also had the option of purchasing the land from the government for $1.25 per acre. The Homestead Act led to the distribution of 80 million acres of public land by 1900." *Primary Documents in American History: Homestead Act*, LIBR. OF CONGRESS (Mar. 19, 2015), https://www.loc.gov/rr/program/bib/ourdocs/Homestead.html [https://perma.cc/T3VK-PGVY].

120. *See* ABBOTT, *supra* note 112, at 145–51; UBBELHODE ET AL., *supra* note 101, at 123–32.

121. *See* UBBELHODE ET AL., *supra* note 101, at 45–55 (discussing the competing national claims). Pursuit of Colorado's natural resources like fur and valuable minerals drove individuals to the state, *see supra* notes 103, 106, and accompanying text, but the international wrangling for position in the New World produced the largest and most deliberate efforts to actually settle (rather than exploit and abandon) Colorado. *See* UBBELHODE ET AL., *supra* note 101, at 45–55.

Having finally resolved the international dispute in 1848[122] and the internal territorial wrangling in 1876,[123] the politics of homesteading shifted. Populating western states became a means of acquiring votes[124] and making money.[125] This linkage between political and economic power on one hand and population growth on the other meant that several of Colorado's most famous politicians' legacies are inextricably linked with water policy.[126] From the beginning, water policy in Colorado meant getting water to as many users as cheaply and efficiently as possible.[127]

122. *See* UBBELHODE ET AL., *supra* note 101, at 47 ("In February 1848, the Mexican War ended with the Treaty of Guadalupe Hidalgo. Mexico ceded to the United States the entire south-western region . . . . All of what was to become Colorado was now American territory.").

123. *See id.* at 148 (noting that the Colorado Constitutional assembly finished drafting the state constitution in March, the people of the territory overwhelmingly approved it in July, and President Grant proclaimed Colorado a state on August 1, 1876).

124. *See id.* at 148 (tying President Grant's speedy statehood proclamation to a pending election); STEGNER, *supra* note 95, at 305 (discussing Senator Bill Stewart of Nevada's interest in Powell's plan for the West) ("[T]he possibilities of settlement in the valleys, the hope of new voters and new votes and new powers, were threatened.").

125. Alongside the political wrangling, private interests and profit played a substantial role in early settlement as the boosters plied their craft in Colorado. *See* ABBOTT, *supra* note 112, at 72–93. "The number-one allies of the railroads in their efforts to bring settlers to the West were the politicians, newspaper editors, and territorial jingoists who were already there. No one excelled William Gilpin in this role. . . . While [Senator Thomas Hart] Benton sat in Missouri flogging pioneers westward, Gilpin stood in Colorado welcoming them and shrieking for more." REISNER, *supra* note 101, at 39–40.

126. Governor William Gilpin was Colorado's first governor, UBBELHODE ET AL., *supra* note 101, at 98, and the paradigmatic booster, REISNER, *supra* note 101, at 40 (recounting Gilpin's claim that "[t]he plains are not deserts . . . but the opposite, and the cardinal basis for the future empire now erecting itself upon the North American continent"). Senator Wayne Aspinall, a western slope politician and the chairman of the House Interior and Insular Affairs Committee, held up approval for the Colorado Arizona Project until Congress also approved five new reclamation projects in Colorado. *Id.* at 291–93. The Aspinall Unit consists of the Blue Mesa, Morrow Point, and Crystal Dams and, with a combined storage capacity of over 950,000 af, is the largest water right in the Gunnison basin where Arapahoe County sought to build the Union Park project. *See* DAN CRABTREE ET AL., DEP'T OF INTERIOR, RECLAMATION: MANAGING WATER IN THE WEST: ASPINALL UNIT OVERVIEW, http://org.coloradomesa.edu/~grichard/wss/USBR_Reservoirs_Drought_092412.pdf [https://perma.cc/RY82-WYNE]. Representative Edward Taylor drafted and pushed Congress to pass the Taylor Grazing Act partially in response to the detrimental effects of grazing on riparian areas and watersheds. STEGNER, *supra* note 95, at 355–56.

127. Coffin v. Left Hand Ditch Co., 6 Colo. 443, 446–47 (1882) ("The right to water in this country, by priority of appropriation thereof, we think it is, and has

Once trains made reaching Colorado relatively simple, aridity quickly became the limiting factor on settlement.[128] Luckily for the early Coloradans, a solution to the unique problems of farming and ranching in the arid West already existed. The prior appropriation system that had long governed by custom among the miners[129] became the official water allocation system in Colorado with the passage of the Colorado Constitution in 1876.[130] In adopting the prior appropriation system, early Colorado policy makers sought to stave off conflict over limited water supplies and access to the water.[131] The establishment of Colorado's unique water courts, and the adjudicative process for administering water rights in the state, soon followed.[132] Under this new system, Section 6 was the lodestar for Colorado water users and the courts that adjudicated their rights.[133]

With Section 6 and the prior appropriation system in place, agriculture and ranching[134] boomed, as did the state population.[135] The populations of Colorado as a whole, and Denver specifically, grew approximately fivefold between 1870

always been, the duty of the national and state governments to protect."). *See generally* MacDonnell, *supra* note 17.

128. *See* ABBOTT, *supra* note 112, at 142–49; UBBELHODE ET AL., *supra* note 101, at 188–90.

129. *See supra* note 17 and accompanying text. An 1882 Colorado Supreme Court decision recognized that the prior appropriations system "ha[d] existed from the date of the earliest appropriations of water within the boundaries of the state." *Coffin*, 6 Colo. at 446.

130. UBBELHODE ET AL., *supra* note 101, at 190–91; ABBOTT, *supra* note 112, at 149–51.

131. ABBOTT, *supra* note 112, at 149.

132. UBBELHODE ET AL., *supra* note 101, at 191.

133. *See* ABBOTT, *supra* note 112, at 151 (quoting Section 6). Abbott succinctly summarizes the sweeping effect Section 6 had in shaping the fundamental principles by which water use would be governed: "The first sentence [of Section 6] contravened the basic principles of riparian rights, the second established a new basis for the diversion of water, and the third confirmed the primacy of agriculture in the vision of Colorado's future growth." *Id.*

134. For a discussion of early ranching in Colorado, *see* ABBOTT, *supra* note 112, at 151–61.

135. Where the total state population in 1870 had been under 40,000, *supra* note 110, the population at the next census in 1880 was 194,327. *Historical Census Population – Parameters*, *supra* note 110 (select "Colorado" in the counties field, leave the municipalities field blank, and select "1880" in the census year field; click "View Results" button). "Denver, which had registered the grand increase of exactly 10 people (4,749 to 4,759) between 1860 and 1870, now [in 1880] contained the amazing total of 25,000 people." UBBELHODE ET AL., *supra* note 101, at 149. *See also id.* at 193–94 (discussing the first flood of agricultural immigrants into Colorado in the 1880s).

and 1880.[136] By 1900, the state population had topped half a million.[137] The population doubled in thirty years,[138] doubled again by 1970,[139] and a third time by 2000.[140] Although these statistics reflect an exponential growth rate at the state level, not all communities prospered equally.[141] Aridity made life a marginal proposition for many ranchers and farmers, and when the droughts that periodically plague Colorado materialized, many communities suffered and wilted along with their crops.[142] In addition to natural droughts, the practice of purchasing agricultural water rights, retiring the farms, and transferring the water to thirsty cities—"buy and dry" transactions—gradually bled some farming communities of their water and then their people.[143]

Despite the boom and bust of agricultural and pastoral communities, Colorado in the twenty-first century continues to be a rapidly growing state. As of the last census in 2010, Colorado's population stood at 5,209,126.[144] In 2013, the

136. *See supra* note 135.

137. *Historical Census Population – Parameters*, *supra* note 110 (select "Colorado" in the counties field, leave the municipalities field blank, and select "1900" in the census year field; click "View Results" button) (reporting a state population of 541, 483).

138. *Id.* (same, but select "1930" in the census year field) (reporting a state population of 1,035,791).

139. *Id.* (same, but select "1970" in the census year field) (reporting a state population of 2,209,596).

140. *Id.* (same, but select "2000" in the census year field) (reporting a state population of 4,301,261).

141. *See generally* STEGNER, *supra* note 95, at 340 ("There would be fewer . . . thrifty, enterprising, and happy farmers in large parts of Kansas, Nebraska, Colorado, Oklahoma, and the Dakotas in 1940 than there were in the peak years of 1890.").

142. *See* UBBELHODE ET AL., *supra* note 101, at 194, 281 (discussing the effects on farming communities of two drought eras); ABBOTT, *supra* note 112, at 158–59 (noting that drought-stricken communities suffered substantial population losses of up to forty percent in a single decade at the turn of the nineteenth century, that a drought thirty years later "completed the virtual destruction of the Great Plains," and that another drought-driven bust plagued Colorado's farmers in the 1950s); REISNER, *supra* note 101, at 51 ("The disaster that Powell predicted—a catastrophic return to a cycle of drought—did indeed occur, not once but twice: in the late 1800s and again in the 1930s.").

143. *See generally* TROUT, *supra* note 19, at 269–70 (discussing the buy-and-dry practice as a means of satisfying growing municipal demand); Mark Squillace, *Water Transfers for a Changing Climate*, 53 NAT. RESOURCES J. 55, 61–62 (2013) (discussing the negative impact buy-and-dry practices have on agricultural communities).

144. *Historical Census Population – Parameters*, *supra* note 110 (select "Colorado" in the counties field, leave the municipalities field blank, and select

population grew by an estimated 1.59%, the fourth highest gain among states by percentage and eighth highest by numeric growth.[145] The Colorado State Demography Office projects an average annual growth rate of between 1.5% and 1.7% through 2030.[146] By 2050, demographers predict Colorado's population will reach somewhere between 8.6 and 10 million people.[147]

These statistics document Colorado's change from an empty, harsh land into one of the fastest growing states in the country. To put the numbers in perspective, Colorado's population will grow approximately as much in the next 35 years as it grew in the first 130.[148] Such growth is the realization of the aspirations that many of Colorado's early politicians had for the Centennial State. But it has not come easily or without cost, and access to water has been a limiting factor on settlement and one of the greatest points of tension as more people move into the former Great American Desert.[149] With most streams fully or over appropriated,[150] access to water will only become a more contentious issue as five million new people seek to make Colorado their home. Worse still, climate change is likely to exacerbate this dilemma.

"2010" in the census year field; click "View Results" button).

145. Aldo Svaldi, *Colorado Ranks Fourth Among States for Population Gains*, DENV. POST (Dec. 23, 2014), http://www.denverpost.com/business/ci_27195411/colorado-ranks-fourth-among-states-population-gains [https://perma.cc/7JGB-G3ET] (citing US Census Bureau statistics).

146. ST. DEMOGRAPHY OFF., COLO. DEP'T OF LOC. AFF., PRELIMINARY POPULATION FORECASTS BY COUNTY, 2000–2040 https://drive.google.com/a/colorado.edu/file/d/0B2oqdPZKJqK7TWpBSGVIVEdIaDQ/edit [https://perma.cc/ZCL2-AKET] (displaying the data in five-year increments).

147. PAUL D. FROHARDT, COLO. FOUND. FOR WATER EDUC., CITIZEN'S GUIDE TO COLORADO WATER QUALITY PROTECTION 33 (2013), http://issuu.com/cfwe/docs/cfwe_wqp_r10_press [https://perma.cc/HA2U-VFMH] (citing Colorado State Demography Office projections).

148. *Compare supra* note 135–140 and accompanying text, *with supra* note 146 and accompanying text.

149. *See supra* note 53 (discussing transbasin diversions).

150. *See infra* Section III.A.

B. Without Glaciers or April Rivers to Harvest:[151] Climate Change Projections in Colorado Through 2050

At the end of the nineteenth century, John Wesley Powell was convinced that, at best, twenty percent of the West's public land was suitable for settlement; his more realistic estimate was that a mere twelve percent could be settled.[152] These estimates, undergirded by an intimate knowledge of the arid nature of the West, drove his proposals to constrain federal land grants to lands surveyed by his United States Geological Survey and made irrigable by federal irrigation projects.[153] Powell failed to convince Congress,[154] which disposed of the federal estate with few concessions for the aridity prevalent west of the hundredth meridian.[155] Yet climate was a reality with which settlers in Colorado had to cope.[156] Section B addresses the climate reality Colorado can expect to face through 2050 and its effects on access to water.

Precipitation volume is important for obvious reasons—Colorado is already an arid state and will be significantly impacted if what little moisture it receives is further diminished. For example, if the snowpack in a given winter is only 90% of average, then the April through July runoff in the streams will be closer to 80% of average.[157] Despite their

151. An inscription on the rotunda of the Colorado statehouse in Denver bears the poem "Here is a Land Where Life is Written in Water" in which Colorado poet laureate Thomas Hornsby Ferril wrote "And men shall fashion glaciers into greenness/And harvest April rivers in the autumn." Rudi Hartman, *Water and Aquifers, in* THOMAS J. NOEL, COLORADO: A HISTORICAL ATLAS 133, 133 (2015). "Harvesting the April Rivers" is also the title Professor Wilkinson gave to his chapter discussing the rise of the prior appropriation system and the water projects the Bureau of Reclamation built to help reclaim the West. WILKINSON, *supra* note 17, at 219.

152. STEGNER, *supra* note 95, at 343.

153. *Id.* at 321–22.

154. *Id.* at 328–45 (documenting the backlash in Congress against Powell's meticulous methodology).

155. Powell proposed that rangeland estates granted out of the federal domain should be four square miles (2,560 acres) in order to give a family ranch operation a chance at succeeding. WILKINSON, *supra* note 17, at 237.

156. *Climate*, WEBSTER'S NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE UNABRIDGED (Philip Babcock Gove ed., 3d ed. 2002) [hereinafter WEBSTER'S] (defining "climate" as "the average course or condition of the weather at a particular place over a period of many years as exhibited in absolute extremes, means, and frequencies of given departures from these means, of temperature, wind velocity, precipitation, and other weather elements").

157. JEFF LUKAS ET AL., COLO. WATER CONSERVATION BD., CLIMATE CHANGE IN COLORADO: A SYNTHESIS TO SUPPORT WATER RESOURCES MANAGEMENT AND

importance to understanding climate change, projections about precipitation volume show the least consensus among climate scientists.[158] Under two models in which scientists assumed the greenhouse effect would have a moderate-low and high effect on climate,[159] Colorado can expect to face a change in statewide precipitation over the next thirty to fifty years that runs anywhere from losses around 5% to gains close to 8%.[160] The US Bureau of Reclamation and Department of Interior echoed the Colorado Water Conservation Board's (CWCB) concern about lack of consensus and made less granular forecasts, reporting that "[p]recipitation is projected to increase by 2.1% in the upper basin while declining by 1.6% in the lower basin by 2050."[161] The CWCB study observed this trend in Colorado specifically, with projections "tend[ing] to show a gradient in which the southern part of the state has drier future outcomes than the northern part of the state."[162] These precipitation volume figures alone do not portend a crisis, but they also do not tell the whole story.

Precipitation timing is almost as important to Colorado water users as is the volume received. The growing and irrigation season stretches from approximately April to November.[163] This window also correlates with the majority of water-reliant recreation use of the streams: boating is at its

ADAPTATION 26 (2d ed. Aug. 2014), http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=191995&searchid=e3c463e8-569c-4359-8ddd-ed50e755d3b7&dbid=0 [https://perma.cc/56FK-2UAE] [hereinafter CWCB CLIMATE REPORT]. The report also noted that streams with headwaters above 8,000 feet in elevation "have a snowmelt-dominated hydrology." *Id.* at 24–25.

158. *Id.* at 64.

159. *Id.* at 42.

160. *Id.* at 64 (-5% to +6% or -3% to +8% change).

161. BUREAU OF RECLAMATION, SECURE WATER ACT SECTION 9503(C) – RECLAMATION CLIMATE CHANGE AND WATER 2011: COLORADO RIVER BASIN FACT SHEET (Apr. 2011), http://www.usbr.gov/climate/SECURE/docs/coloradobasinfactsheet.pdf [https://perma.cc/B84R-WDW5] [hereinafter COLORADO BASIN FACT SHEET]. The CWCB report noted that greater consensus existed at a national level: there will be "an increase in annual precipitation for the northernmost states of the U.S., and a decrease in precipitation for the far Southwest." CWCB CLIMATE REPORT, *supra* note 157, at 64. The upper basin includes Colorado. COLO. REV. STAT. § 37-62-101 art. II(f) (2015).

162. CWCB CLIMATE REPORT, *supra* note 157, at 64.

163. *See, e.g.*, COLO. DIV. OF WATER RESOURCES, DEP'T NAT. RESOURCES, POL'Y 2010-01, REGARDING THE ANNUAL ESTABLISHMENT OF THE IRRIGATION SEASON DATES IN WATER DIVISION 3 BY THE DIVISION ENGINEER (2010), http://water.state.co.us/DWRIPub/Documents/div3Policy2010_1_IrrigationSeason.pdf [https://perma.cc/2NDE-J6MW] (setting the irrigation season from April 1 to November 1).

peak during runoff and few water recreationists of any ilk can enjoy a dewatered or frozen stream. This increased demand on the state's waters during a particular window means that precipitation must not only fall in sufficient quantity, but at the right time as well. The data suggests that historical timing trends are likely to shift, with the CWCB's Climate Report concluding that there is likely to be more mid-winter precipitation and less late-spring and summer precipitation.[164] The Bureau of Reclamation concluded that, in the Colorado River Basin, "[w]armer conditions will likely transition snowfall to rainfall, producing more December–March runoff and less April–July runoff."[165] These projections indicate that the times Coloradans need water the most will no longer be the times they get the water.

Exacerbating the precipitation changes are the projected temperature increases. There is little debate that Colorado will experience "substantial" warming by 2050.[166] The CWCB's two models project a warming range of up to 6.5 degrees by the middle of the twenty-first century.[167] The Bureau of Reclamation figures for the Upper Basin put the increase at +6 degrees or slightly higher.[168] To put this data into context, the CWCB noted that "[w]ith a 6°F warming . . . Denver's temperatures would be like Albuquerque, New Mexico, today."[169] The Bureau of Reclamation highlighted a range of issues beyond water supply concerns that increased temperatures may engender, including "stress on fisheries, shifts in species geographic ranges, increased water demands for instream ecosystems and thermoelectric power production, increased power demands for municipal uses—including cooling—and increased likelihood of invasive species infestations. Endangered species issues might be exacerbated."[170] An increase in temperature will also have two

164. CWCB CLIMATE REPORT, *supra* note 157, at 65.

165. COLORADO BASIN FACT SHEET, *supra* note 161.

166. CWCB CLIMATE REPORT, *supra* note 157, at 61 ("All of the climate models, under all RCPs, project that Colorado's climate will warm substantially by 2050.").

167. *Id.* at 61 (+2.5 to +5 and +3.5 to +6.5 degrees).

168. COLORADO BASIN FACT SHEET, *supra* note 161 (+5 to +6 degrees or higher).

169. CWCB CLIMATE REPORT, *supra* note 157, at 63.

170. COLORADO BASIN FACT SHEET, *supra* note 161. Although these risks are not directly related to human access to adequate water supplied, they are intimately related with the water-reliant recreation economy discussed below. *See*

primary effects on Colorado's water supply. First, higher temperatures will potentially increase evapotranspiration and, consequently, decrease runoff.[171] Second, warmer temperatures will shift the runoff periods in the state.[172]

The data for temperature, precipitation volume, and precipitation timing collectively indicates that Colorado's climate is changing and that this change will negatively affect runoff.[173] The Bureau of Reclamation identified two primary risks associated with decreased or shifted runoff. First, reducing runoff in spring and early summer is likely to hurt the storage functions of reservoirs downstream, including Mead and Powell.[174] Not only does the reservoir system in Colorado support a broad range and extended period of uses in-state,[175] but the interstate compact system also relies on reservoirs like Mead and Powell.[176] The second concern is that "[i]ncreased winter runoff may require infrastructure modification or flood control rule changes to preserve flood protection, which could further reduce warm season water supplies."[177] Given that the CWCB has already identified $15–19 billion in necessary municipal and industrial infrastructure investments and another $2–3 billion in environmental and recreational investments,[178] the added cost of flood control infrastructure may prove disproportionately burdensome. Like the other

infra Part III.

171. CWCB CLIMATE REPORT, *supra* note 157, at 65. "Evapotranspiration" is the "loss of water from the soil both by evaporation from the surface and by transpiration from the plants growing thereon." *Evapotranspiration*, WEBSTER'S, *supra* note 156, at 787.

172. COLORADO BASIN FACT SHEET, *supra* note 161.

173. CWCB CLIMATE REPORT, *supra* note 157, at 73 ("[I]n light of the overall body of published research on future Colorado hydrology, while there is a broad range of future outcomes for Colorado's river basins, and the clear possibility of increasing annual streamflow, overall there is a greater risk of decreasing annual streamflow.").

174. COLORADO BASIN FACT SHEET, *supra* note 161.

175. *See, e.g.*, WILKINSON, *supra* note 17, at 242–43 (explaining how dams "create water" and facilitate a far larger number of water users and establish a more reliable water source); STEGNER, *supra* note 95, at 321–22 (explaining Powell's plan for settling the West, a key element of which was federally funded reservoirs to support agriculture and cities).

176. *See, e.g.*, COLO. REV. STAT. § 37-62-101 *passim* (2015) (referring to delivery requirements at Lee's Ferry, the upstream end of Lake Powell and the dividing line between the Upper and Lower Basins under the Colorado River Compact).

177. COLORADO BASIN FACT SHEET, *supra* note 161.

178. COLO. WATER CONSERVATION BD., SECOND DRAFT OF COLORADO'S WATER PLAN 337 (2015), https://www.colorado.gov/pacific/sites/default/files/FINAL-2ndDraftClean-Appendices-2015%20Revised.pdf [https://perma.cc/6NGW-2526].

facets of climate change, the expected shifts in runoff do not appear dramatic. Slight shifts in timing and volume, however, can make a significant difference in the water to which Coloradans have access.

From an empty, contested frontier occupied by a handful of miners to one of the fastest growing states in America, Colorado has undergone a fundamental change. This change is not simply limited to the sheer number of people living here; Colorado's climate and precipitation patterns are also shifting. Seemingly small losses and shifts in when and how the state gets its precipitation will likely have a significant impact on water availability and water-dependent economies. Part III explores the unchanged importance of access to water, and how the current water allocation regime that gave Colorado its start is now impeding the same goals it was meant to serve.

III. ADRIFT IN THE NEW CENTURY: REGULATING WATER WITHOUT A PUBLIC INTEREST STANDARD

Regulating its water resources without a public interest standard poses several risks for Colorado. Section A addresses the resulting problems of overappropriation and stream dewatering. It also examines two significant consequences of stream dewatering: Subsection 1 looks at the ecological and economic impact on Colorado's riparian ecosystems, and Subsection 2 looks at how guaranteeing appropriations prevents Colorado from reacting to climate change and improving our stewardship of the state for future generations. Section B considers the legal advantages of regulating water applications with a public interest inquiry. Although it is cast in terms of the *advantages* to administering water rights differently, Section C is inherently concerned with the problems under the status quo. Subsection 1 focuses on the consequences to interstate suits, including national-level apportionment of interstate waters. Subsection 2 then examines the effect the current system has on dormant commerce clause issues. Finally, it identifies the constitutional and administrative shortcomings for the public and to individual private parties.

A. The Costs of Overappropriation and Stream Dewatering

The interplay between the maximum use doctrine and the state's beneficial use requirement for all water rights applications is the foundation on which the Environmental Groups' brief in *Arapahoe* argued for the public interest standard and on which the court predicated its disagreement with the claim.[179] The Environmental Groups' brief recast the maximum use doctrine as an "optimum use doctrine" and used the terms synonymously throughout its brief.[180] Conversely, the brief characterized Arapahoe County's position on this relationship as "a disingenuously literal, drain-every-drop interpretation."[181] At the heart of this debate is the specter of overappropriation and stream dewatering.[182]

Overappropriation of streams occurs when the state approves rights to divert more water than actually flows in the stream.[183] The rights exceeding the actual flow of a stream will rarely (if ever) yield actual water and are thus known as "paper rights."[184] The maximum use doctrine and the explicit language of Section 6 often mean that overappropriation is the inevitable fate for Colorado streams.[185] Indeed, the Gunnison watershed—from which the Union Park Project sought to appropriate over a million acre feet of water—is increasingly

179. *See* Environmental Groups' Brief at 3–5, Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952 (Colo. 1995) (No. 92SA68); *Arapahoe*, 891 P.2d at 971–73.

180. Environmental Groups' Brief at 1, *passim*, *Arapahoe*, 891 P.2d at 952 (No. 92SA68). The Colorado Supreme Court introduced the concept of an optimum use doctrine. Alamosa-La Jara Water Users Protection Ass'n v. Gould, 674 P.2d 914, 935 (Colo. 1983) (interpreting the maximum use doctrine as an optimum use doctrine).

181. Environmental Groups' Brief at 3, *Arapahoe*, 891 P.2d at 952 (No. 92SA68).

182. *See id*. at 1.

183. *See, e.g.*, C. Carter Ruml, *The Coase Theorem and Western U.S. Appropriative Water Rights*, 45 NAT. RESOURCES J. 169 (2005) (discussing paper rights in a Coaseian analysis of the prior appropriation system); WILKINSON, *supra* note 17, at 21 ("Under the pure prior appropriation doctrine, western water users can, with impunity, . . . literally dry up streams, as has happened with some regularity.").

184. Ruml, *supra* note 183, at 175, 181 (setting forth what a paper rights holder is).

185. *See* COLO. CONST. art. XVI, § 6 (declaring the right to appropriate unappropriated water "shall never be denied"); *see generally* Ruml, *supra* note 183, at 175 (reaching this conclusion with regard to "Western rivers").

characterized as fully or over appropriated.[186]

Taken to its extreme, full or overappropriation results in dewatering entire stretches of streams.[187] In Colorado alone, "[t]he Fraser River got down to 4 cfs in 2002[,] . . . [t]he Crystal River got down to 1 cfs in 2012[,] . . . [t]he Roaring Fork River got down to 5 cfs in 2012[,] . . . [and] [t]he Dolores River regularly dries up."[188] Outside the state, drought years result in stream dewatering across the West.[189] Perhaps most infamously, the Colorado River had not regularly reached its delta in the Gulf of California for over fifty years due to overappropriation and dewatering until the United States and Mexico agreed in 2014 to release 105,000 acre feet of water in a pulse flow.[190]

Such stream dewatering in turn has a variety of detrimental effects on the riparian ecosystems. Phreatophytes[191] and other water-loving vegetation dies.[192] Fish and aquatic insects do not survive dewatering.[193] Unfortunately, the effects do not stop with the organisms immediately dependent on flowing water to survive, and the

186. *E.g.* BRUCE DRIVER & BART MILLER, WESTERN RESOURCE ADVOCATES, GUNNISON BASIN WATER: NO PANACEA FOR THE FRONT RANGE, at iv (2003).

187. Terry Anderson & Donald Leal, *A Private Fix for Leaky Trout Streams*, 20 FLY FISHERMAN MAG. 29 (1988), http://www.perc.org/ articles/private-fix-leaky-trout-streams [https://perma.cc/N9TK-RLMZ].

188. Brent Gardner-Smith, *Colorado's Instream Flow Program Is Lauded, Challenged*, ASPEN JOURNALISM (Jan. 21, 2014), http://aspenjournalism.org/2014/01/21/state-of-colorados-instream-flow-program-is-lauded-challenged/ [https://perma.cc/S68E-CG2G] (quoting attorney Ken Ransfod, a member of the Colorado River Basin Roundtable) ("These are some of our biggest rivers in the state and they all but dry up.").

189. *E.g.*, WILKINSON, *supra* note 17, at 264 (discussing the drought in 1988 that dewatered several blue-ribbon trout streams resulting in fish kill levels so bad that it would take an estimated eight years of normal precipitation levels to rehabilitate the stream).

190. Sarah Zielinski, *The Colorado River Delta Turned Green After a Historic Water Pulse*, SMITHSONIAN INSTITUTION (Dec. 18, 2014), http://www.smithsonianmag.com/science-nature/colorado-river-delta-turned-green-after-historic-water-pulse-180953670/?no-ist [https://perma.cc/NT5S-8LJZ].

191. Phreatophytes are water-loving plants that grow alongside ditches or natural waterbodies in arid or semi-arid regions. T.W. ROBINSON, DEP'T OF INTERIOR, PHREATOPHYTES GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1423 (1958); *see also* Se. Colo. Water Conservancy Dist. v. Shelton Farms, 529 P.2d 1321 (Colo. 1974) (declining to award a water right for the water newly-available in the stream from the destruction of phreatophytes along the Arkansas River).

192. *See* Anderson & Leal, *supra* note 187; B.D. Richter et al., *A Presumptive Standard for Environmental Flow Protection*, 28 RIVER RES. & APPLICATIONS 1312, *passim* (2012).

193. *See* Anderson & Leal, *supra* note 187; Richter et al., *supra* note 192.

death of a riparian ecosystem can affect a variety of plants and animals.[194] These effects are not even restricted to that geographic region—migratory birds are especially reliant on healthy and widespread riparian zones along their migratory paths.[195] The cumulative ecological losses from stream dewatering can be staggering. But environmental costs are not the only consequences—the human economy suffers as well.

1. Mining Territory No More: Colorado's Recreation Economy

The economic success of the arid West has always been integrally linked with its rivers.[196] In their report on the economic importance of the Colorado River, Protect the Flows[197] noted that "[i]f the Colorado River were a company, it would rank #155 in the 2011 Fortune 500 ahead of companies like General Mills, USAirways, and Progressive Insurance, and be the 19th largest employer on the Fortune 500."[198] The report found that the 5.36 million adults who recreate on the Colorado River annually support 234,000 jobs and generate $26 billion in economic output, including $3.2 billion in state and federal

194. *See generally* Jonathan G. Hieneman, *The Shrinking Reach of the Commerce Power: Is Wetland Jurisdiction in Danger?*, 10 J. NAT. RESOURCES & ENVTL. L. 341 (1995) (discussing Clean Water Act jurisdiction and the effects of a restrictive Clean Water Act on riparian wildlife and migratory waterfowl); J. Boone Kauffman et al., *An Ecological Perspective of Riparian and Stream Restoration in the Western United States*, 22 FISHERIES: SPECIAL ISSUE ON WATERSHED RESTORATION 12 (1997), http://www.pebblescience.org/pdfs/EcologicalRestoration.pdf [https://perma.cc/8KV6-VUBP].

195. *See* Solid Waste Agency of N. Cook Cty. v. U.S. Army Corps of Eng'rs, 531 U.S. 159 (2001) (denying the Corps of Engineers jurisdiction under the Clean Water Act coextensive with that under the Migratory Bird Rule over all wetlands treaty species use); Hieneman, *supra* note 194.

196. *See generally* REISNER, *supra* note 101, *passim*; WILKINSON, *supra* note 17, at 219–92.

197. Protect the Flows is a coalition of over 1,000 businesses in seven states that are economically dependent on the Colorado River. PROTECT THE FLOWS, www.protectflows.com [https://perma.cc/5NBT-3GKZ]. To conduct the study, Protect the Flows partnered with Southwick Associates, a company that specializes in the economics of outdoor recreation. *About*, SOUTHWICK ASSOCIATES, http://www.southwickassociates.com/about/ [https://perma.cc/BN6W-GKLL].

198. PROTECT THE FLOWS, COLORADO RIVER, INC.: THE $26 BILLION RECREATION RESOURCE EMPLOYING A QUARTER MILLION AMERICANS, http://protectflows.com/wp-content/uploads/2013/09/PTF-Fact-Sheet-Colorado.pdf [https://perma.cc/CM37-RJJ9] [hereinafter COLORADO RIVER FACT SHEET].

taxes.[199] On average, the recreation economy outperformed the state's agricultural economy by 14.6%.[200]

Colorado's economy is especially reliant on its scenic wild places, of which its lakes and rivers are often the crown jewels.[201] Colorado accounts for almost 80,000 of the 234,000 jobs reliant on the Colorado River.[202] The state's share of the Colorado River economic output is even more disproportionate at over $9.5 billion dollars—more than a third of the total value.[203] The report estimated that if people stopped recreating on the Colorado River, the state's unemployment rate would climb by about 3.5%.[204] This job loss rate was 14% worse than the average for other states in the study.[205] These figures are substantial by themselves, but the study's focus was just on the Colorado River and its tributaries.[206] This means the $9.5 billion and 3.5% of the Colorado workforce only reflect a portion of the impact lakes and rivers have on Colorado's economy.[207] Indeed, the Colorado River system accounts for only half of the water that leaves the state.[208] Extrapolating from this data suggests that roughly 7% of Colorado's workforce and $19

199. *Id.*

200. *Id.*

201. *See, e.g.*, *Hanging Lake, National Natural Landmark*, SUMMIT POST (Feb. 2, 2015), http://www.summitpost.org/hanging-lake-national-natural-landmark/687868 [https://perma.cc/5PV8-W7TU] ("Hanging Lake is the Gem of Glenwood Canyon"); *Black Canyon of the Gunnison National Park*, GUNNISON COUNTY CHAMBER OF COMM., http://gunnisonchamber.com/index.php?pid =blackcanyon [https://perma.cc/AAV2-UQ8B].

202. COLORADO RIVER FACT SHEET, *supra* note 198.

203. *Id.* The study went beyond the obvious categories of hunting, fishing, and water sports to include activities like camping, hiking, and wildlife viewing in its calculation of Colorado River-dependent jobs in Colorado.

204. *Id.*

205. *Id.* (providing that Colorado would lose 3.5% while the other states would lose on average 3% of their work force).

206. *Id.*

207. *See id.*

208. *Water in Colorado–A Brief History*, THE WATER INFO. PROJECT, http://www.waterinfo.org/indian.html [https://perma.cc/TDJ9-N56U] (explaining that of the approximately 10 million acre feet (maf) of water to leave Colorado, 5 maf leaves via the mainstem of the Colorado at the state line); Denise Rue-Pastin, *Water Lines: A Brief History of Colorado Water*, FREE PRESS (May 23, 2014), http://www.gjfreepress.com/news/grandjunction/11483847-113/colorado-river-basin-state [https://perma.cc/5VMM-XGQZ] ("Water leaving Colorado on an annual basis exceeds 10 million acre feet. The Colorado River west of Grand Junction provides nearly 5 million acre feet of that amount for downstream users.").

billion of its economy are water reliant.[209]

A similar Colorado State University-led study added to this picture by investigating economic output in relation to water management practices.[210] The Colorado State University study focused on the economic output of the lower Fryingpan River and Ruedi Reservoir.[211] It distinguished between the effects of local visitors and non-local visitors on the economy, tying economic output figures to non-local visitors alone.[212] Among other questions, surveys asked respondents how changes to water management practices would affect the number of days they fished the river.[213] Increasing winter flows to improve the quality of summer fishing resulted in 46% of non-locals estimating they would fish an additional 3.1 times per year for an average of approximately 13 additional days on the river.[214] Keeping summer flows at or below 250 cfs for an

209. *See* COLORADO RIVER FACT SHEET, *supra* note 198. The 7% and $19 billion figures merely double the reported numbers for the Colorado River based on the amount of water leaving the state and represent assumed values. The assumption ignores the contributions of intrastate waters to Colorado's economy and the possibility that the Colorado River system is especially productive.

210. Colorado State University and the Roaring Fork Conservancy partnered to conduct this study on the Lower Fryingpan River and Ruedi Reservoir. MARTIN SHIELDS ET AL., COLO. STATE UNIV. & ROARING FORK CONSERVANCY, LOWER FRYINGPAN RIVER AND RUEDI RESERVOIR ECONOMIC IMPACT STUDY 14–15 (2015), https://drive.google.com/a/colorado.edu/file/d/0B5ptWIV9ilwSempke Wt1bFc0Skk/view [https://perma.cc/8J4P-G5U6].

211. *Id.* at 3–4. The authors separated the river data from that of the reservoir throughout the report. *Id. passim*. This Comment relies only on the river data. The study collected online survey data, conducted visitor counts, and correlated United States Geological Survey streamflow data to estimate the economic impact of recreational fishing. *Id.* at 5–11. The researchers concluded that the lower Fryingpan River—a tributary of the Roaring Fork River, itself a tributary to the Colorado River—generates approximately $3.8 million in annual economic output from recreational fishing alone. *Id.* at 2.

212. *Id.* at 8 ("Because local economic development depends on bringing outside money into the economy—and preventing local money from leaking out—we distinguished between spending by local visitors and visitors from outside our defined region. We then used the information on non-local visitor spending in a model to generate annual estimates of employment, labor income, value added and output supported by recreational fishing."). The survey respondents were 20% local, 62% non-local instate, and 18% non-local out-of-state. *Id.* at 12.

213. *Id.* at 14–15. The questions asked (1) whether increasing winter flows to improve the quality of summer fishing would affect the number of visits to the river; and (2) whether keeping summer flows at or below 250 cfs to improve wading would affect their number of visits to the river. *Id.*

214. *See id.* at 12, 14. For all respondents, the average trip length to the river was approximately 4.3 days and the average number of trips was almost 10.7 per year. *Id.* at 12. This Comment calculated the additional number of days on the river by multiplying the average non-local's projected increase in trips to the river

additional 48 days per year to improve anglers' ability to wade resulted in 37% of non-locals estimating they would fish an additional 2.9 times per year for an average of approximately 12 additional days on the river.[215] The CSU study estimated that making these water management changes would have a combined economic impact of $2.6 million, or 68% of the current economic impact of recreational fishing.[216]

These studies demonstrate the centrality of water-reliant spending and employment to Colorado's economy. More to the point, they demonstrate the economic importance of having water in the state's lakes and rivers. This fact has engendered compromise decisions[217] and legislation[218] that attempts to address the need for instream flows without directly addressing the fundamental problem. Adopting and implementing a public interest standard would provide more expansive protections for water-reliant economies without creating a system of private instream rights.

2. Million-Dollar Views Make the Home: Property Value

Surface water in a natural and scenic state is undeniably a significant contributor to Colorado's economy, but discussing job creation and economic output does not convey the full economic importance of intact streams. Rivers are also a significant driver of property value in the state.[219] A study on

by the average length in days of a trip to the river.

215. *See id*. at 12, 14–15 (employing the same calculus discussed *supra* note 214).

216. *See id*. at 20–21. This figure assumes that the added days of fishing attributed to each management practice change would not overlap.

217. *E.g.*, City of Thornton By & Through Utils. Bd. v. City of Fort Collins, 830 P.2d 915, 930–31 (Colo. 1992) ("[W]e hold that water may be appropriated by a structure or device which either removes water away from its natural course or location and towards another course or location or which controls water within its natural watercourse, assuming such action puts the water to beneficial use."); State Eng'r v. City of Golden, 69 P.3d 1027, 1028 (Colo. 2003) (Kourlis, J., dissenting) (affirming by operation of law a water court decision awarding the City of Golden one of the first recreational in-channel diversion—RICD—water rights in Colorado).

218. COLO. REV. STAT. §§ 37-92-305(13)(a), -102(6), -103(4)(b) (2015) (RICD statutes); COLO. REV. STAT. § 37-92-102(3)–(4) (2015) (Colorado Water Conservation Board's instream flow authority).

219. SOUTHWICK ASSOCS., POTENTIAL IMPACTS TO PROPERTY VALUES FROM LONG-TERM CHANGES IN WATER LEVELS ON THE COLORADO RIVER AND ITS TRIBUTARIES: A DELPHI APPROACH (2013), http://protectflows.com/wp-

the Colorado River's effect on property values polled a panel of sales agents, appraisers, and property tax assessors in four index communities along the river regarding the relationship between surface flows and property value.[220] Although river frontage or views significantly added to property values in all four index communities, the price premium was greatest in Colorado.[221] In Aspen, property value increased by 25% and 52% for river view and frontage, respectively, while in Grand County, property value increased 24% and 134%.[222] Averaging the values for the four index communities yields an 18% price premium on properties with a view and a 61% premium for properties with river frontage.[223] Averaging only the Colorado index communities yields higher average premiums of 24.5% and 93%, respectively.[224]

Although the study only considered Colorado River communities, and the data may not perfectly represent state average figures,[225] it nevertheless demonstrates that riparian ecosystems contribute significantly to Colorado's real estate market value and, in turn, the state's GDP. Indeed, data for Colorado shows that real estate is a significant contributor to the state's $264 billion GDP at approximately 12%, second only to government sector contributions (at just over 12%).[226] This contribution is roughly equivalent to the contributions of agriculture (1%), mining (2%), utilities (2%), construction (4%),

content/uploads/2013/09/CO-River-Property-Values-Report-07-09-13.pdf [https://perma.cc/XAS5-ZNB5] [hereinafter CLIMATE CHANGE AND REAL ESTATE REPORT]. The study used Aspen, Colorado, Grand County, Colorado, Sedona, Arizona, and Farmington, New Mexico. This order in which these communities appear also corresponds to the hypothetical home values, with Aspen being highest and Farmington lowest.

220. *Id.*

221. *Id.*

222. *Id.*

223. *See id.* at 8.

224. *Id.*

225. *Id.* at 6.

226. *See* J.P. MORGAN CHASE & CO., REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK 2–3 (June 3, 2014), https://www.chase.com/content/dam/chasecom/en/commercial-bank/documents/colorado-economy.pdf [https://perma.cc/3XHJ-HR9C] [hereinafter REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK] (citing US Deptartment of Commerce data updated through 2011 to project these values). Another report placed Colorado's real GDP at $279.65 billion based on Bureau of Economic Analysis figures. *Real Gross Domestic Product (GDP) of the Federal State of Colorado from 1997 to 2014 (in Billion U.S. Dollars)*, STATISTA (2015), http://www.statista.com/statistics/187838/gdp-of-the-us-federal-state-of-colorado-since-1997/ [https://perma.cc/8ZKA-TYKP].

and education services (1%) combined.[227] Water directly drives the value of a property with water rights, river frontage, or views,[228] and indirectly drives the value of homes and commercial real estate that lack these amenities but nevertheless rely on stable water supplies for domestic or industrial needs.[229] Thus the 12% real estate value figure is directly or indirectly attributable to healthy streams.

With billions of dollars at stake in the health of its riparian ecosystems, Colorado has a vested economic interest in effective regulation.[230] The *Arapahoe* decision belies the circumscribed role that the Colorado judiciary claims in regulating riparian ecosystems.[231] As discussed below, the legislature has acted with similar restraint in declining to create a private right to instream flows.[232] Given the increased pressure from a growing population and a changing environment, this policy stance is no longer the best means to promote a strong economic output or high property values.

3. Protection for Some: The Gap in Rights

Given the economic importance of healthy riparian ecosystems to Colorado's economy, the concept of privately held

227. *See* REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK, *supra* note 226, at 3 (approximately 1%, 2%, 2%, 4%, and 1%, respectively).

228. *See* CLIMATE CHANGE AND REAL ESTATE REPORT, *supra* note 219.

229. *See supra* Section II.A (discussing access to water as the primary limiting factor on growth in Colorado).

230. *See e.g.*, COLORADO RIVER FACT SHEET, *supra* note 198 (discussing Colorado's $9.5 billion share of the Colorado River's economic output); REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK, *supra* note 226, at 2–3 (breaking down the economic input of various industries to Colorado's $270 billion GDP, including water-reliant sectors like real estate at 12%, recreation at 2%, hotels at 4%, and retail at 6%).

231. *See* Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 971–73 (Colo. 1995). The courts' primary role in such matters lies in hearing cases under the Colorado Water Quality Control Act and instream flow legislation. *See id.* at 971–72. These statutes are codified at COLO. REV. STAT. § 25-8-102(1) (2015) (Colorado Water Quality Control Act) and COLO. REV. STAT. § 37-92-103(4) (2015) (instream flow legislation). Colorado also assumed partial control of NPDES permitting under the Clean Water Act, 33 U.S.C. §§ 1251–1388 (2012). *See* U.S. Envtl. Protection Agency, *NPDES General Permit Inventory*, NAT'L POLLUTANT DISCHARGE ELIMINATION SYS. (NPDES), http://cfpub.epa.gov/npdes/permitissuance/genpermits.cfm [https://perma.cc/FVS5-MY56] (noting that the EPA still administers NPDES permitting for federal projects only).

232. *See* COLO. REV. STAT. § 37-92-103(4) (establishing the CWCB and defining its function as the *only* state instream rights holder).

instream rights seems like an obvious necessity. But that is not the model Colorado has chosen; private entities may not own an instream right.[233] Rather, the CWCB has the sole authority to acquire and hold such rights for conservation purposes,[234] and municipalities have the sole right to obtain them for recreation purposes via recreational in-channel diversion (RICD) applications.[235]

The important gap this statutory scheme leaves open is the right of private parties to acquire instream rights to protect or enhance a business or property value. In light of Colorado's unique reliance on healthy riparian ecosystems to support a substantial portion of its economy,[236] it is counterintuitive that such a gap exists at all. The *Arapahoe* court's emphasis on denying a public interest standard to maximize the state's water for beneficial (i.e., economic) use renders this shortfall especially poignant.[237] Water-reliant businesses in communities that cannot or will not acquire RICD rights have no private alternative.[238] Their fate—and the value of their economic contributions to the state and local economies—is entirely subject to changing environmental conditions and traditional appropriations.[239] Without the right to acquire

233. *See id.* (establishing the CWCB and defining its function as the only state instream rights holder); COLO. REV. STAT. §§ 37-92-305(13)(a), -102(6), -103(4)(b) (2015) (establishing RICD program for municipalities and semi-governmental bodies).

234. COLO. REV. STAT. § 37-92-103(4)(c) (allowing the CWCB to hold instream rights for "the benefit and enjoyment of present and future generations").

235. COLO. REV. STAT. §§ 37-92-305(13)(a), -102(6), -103(4)(b) (recreational in channel diversions, or RICD statutes). Governmental and semi-governmental bodies may also hold instream flow rights for recreation purposes. COLO. REV. STAT. § 37-92-103(7) (permitting "a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district may file an application to control water in its natural course or location by means of a control structure for *recreational* in-channel diversions") (emphasis added).

236. See *supra* Sections II.A.1, II.A.2.

237. Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 971–73 (Colo. 1995).

238. *See* COLO. REV. STAT. §§ 37-92-103(4)(b) (permitting only governmental and semi-governmental bodies to acquire RICD rights). Any municipality can, theoretically, apply for and receive a RICD right. *See id.* But because not all municipalities rely on streams with sufficient water to support a new RICD right, some communities could not obtain a RICD right no matter its economic importance. Alternately, local dynamics might be such that obtaining a RICD right would be politically unpopular, meaning the municipality would choose not to seek a RICD right despite its viability as an option.

239. *See id.*

private RICD rights, these businesses must operate with the stream conditions that remain after all users divert whatever water was available in the system.[240] If the river on which the business relies is dewatered enough to kill the fish it pursues, empty the runs it floats, or drive away the tourists that purchase its goods and services, that business has no remedy at law and will contribute nothing to the local and state economy.[241]

The real property economy similarly suffers from a lack of private instream rights. Real estate contributes just under 12% of Colorado's GDP,[242] while agriculture contributes approximately 1% of Colorado's GDP[243] but consumes approximately 91% of the state's water.[244] Given the relative contributions of real estate and agriculture to Colorado's economy, it follows that maximizing the value of limited water supplies will sometimes require shifting water allocations from agricultural uses to establish and protect high property

240. *See id.*

241. *Cf. In re* Application for Water Rights of Turkey Cañon Ranch Ltd. Liab. Co., 937 P.2d 739, 747 (Colo. 1997) ("In a water adjudication involving a proposed plan for augmentation or a change of water right, any person may object to the application itself and participate in the adjudication by holding the applicant to a standard of strict proof. However, for that objector to have standing to assert injury to his or her water right, the objector must show that he or she has a legally protected interest in a vested water right or a conditional decree."). *But see* COLO. REV. STAT. § 37-92-302(1)(b) (2015) (allowing "any person" to file a statement of opposition to an application for a new right or change of use); Wadsworth v. Kuiper, 562 P.2d 1114, 1119 (Colo. 1977) (construing section 37-92-304(2) to mean that "persons, including the State of Colorado, might file protests to the ruling of the referee even though they had not filed a statement of opposition to the application"). As the above quote from the *Turkey Cañon Ranch* case suggests, any party can object to an application (either through a statement of opposition or a protest), but only parties with vested water rights have standing to seek remedy for or avoid injury to their rights. *See Turkey Cañon Ranch*, 937 P.2d at 747. Because private recreation enterprises cannot obtain a private instream right, either through the RICD or instream flow programs, they lack the vested rights that would entitle them to remedy at law. *See id.*

242. REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK, *supra* note 226, at 3 (citing US Deptartment of Commerce data updated through 2011).

243. *Id.*

244. U.S. DEP'T OF THE INTERIOR, U.S. GEOLOGICAL SURV., ESTIMATED WITHDRAWALS AND USE OF WATER IN COLORADO, 2005, at 15 (2010), http://pubs.usgs.gov/sir/2010/5002/pdf/SIR10-5002.pdf [https://perma.cc/AJV4-ERYW]. Of the water used for irrigation, 81% came from surface-water sources. *Id.* Not all—or even a majority—of the 12% figure for real estate's contribution to Colorado's economy is directly tied to instream flows, but as this Comment argued above, water availability and intact riparian ecosystems also indirectly underpin the real estate market. *See supra* note 226–29 and accompanying text.

values.[245]

In many locations, the diminishing returns on value in instream flows will eventually shift the calculus in favor of diversions like those that support Colorado's historic agriculture sector.[246] But up to that point, maximum use and beneficial use would seem to support the right of private parties to acquire instream rights to bolster property values or for other economic purposes.[247] This example highlights the significant and costly gap in current water law, which does not permit a private right to hold instream flows. It also emphasizes the importance of allowing water courts to compare the relative economic values of the uses on a stream when these water courts make allocations for beneficial use. Until private parties can acquire instream rights for beneficial uses, the state must safeguard property values and local economies.[248] Such inquiries are at the heart of a public interest standard.[249]

The wisdom of establishing private instream rights is beyond the scope of this Comment. Despite the fact that water-reliant businesses and the real estate industry might benefit enormously from such rights,[250] the traditional concerns about speculation still cut against this course of action.[251] A public

245. *See supra* Section II.A.2.

246. *See* CLIMATE CHANGE AND REAL ESTATE REPORT, *supra* note 219, at 9, (demonstrating that decrease in flows has debatable and minimal impact on property value, given at least an 80% instream baseflow). This suggests that while there is a point of diminishing returns past which instream flows will not be the best use, that point is far from a dewatered trickle. Calculating the loss in property value for a dewatered stream should theoretically mimic the price premiums reflected in the study for properties on with river front or views. *See id.* at 7–8.

247. *See id*. at 9; *see also infra* notes 312–314 and accompanying text (demonstrating how this calculus would work on the Arkansas River, a river important to the recreation and agricultural economies alike).

248. *See* COLO. REV. STAT. § 37-92-103(4), (7) (2015) (limiting instream rights to governmental or semi-governmental bodies).

249. *E.g.*, ALASKA STAT. § 46.15.080(b)(1)–(2), (5)–(6) (2015) ("In determining the public interest, the commissioner shall consider (1) the benefit to the applicant resulting from the proposed appropriation; (2) the effect of the economic activity resulting from the proposed appropriation; (5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation; (6) harm to other persons resulting from the proposed appropriation.").

250. *See generally* Sections II.A.1–2.

251. *See generally* Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co., 594 P.2d 566, 568 (Colo. 1979) ("Our constitution guarantees a right to appropriate, not a right to speculate. The right to appropriate is for Use, not

interest standard that leaves control of the water in the hands of the people,[252] but also facilitates water-reliant economies and the real estate market, is an ideal compromise. For the same reasons, this Comment does not advocate eliminating the clause in Section 6 requiring courts to grant rights to unappropriated water. Merely amending Section 6 to afford water courts a measure of discretion in applying the command offers a middle ground.[253] The water courts would have the option to deny an appropriation that is not in the public interest, but their decision would be subject to review.[254] Adopting a statutory definition or factors to consider under the public interest standard would afford the courts additional guidance and provide the legislature an additional measure of control.[255]

Inherent in this analysis is an increased level of flexibility for water courts in adjudicating water rights applications. Because there is an inevitable point of diminishing returns to

merely for profit.").

252. "The water of every natural stream, not heretofore appropriated, within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided." COLO. CONST. art. XVI, § 5.

253. See *infra* Section III.A.

254. The Colorado Supreme Court reviews water issues that present mixed questions of law and fact de novo. Application for Water Rights, 307 P.3d 1056, 1064 (Colo. 2013). Assuming Colorado follows the recommendation in Section IV.A, *infra*, to adopt a multi-factor public interest standard, a water court's determination of whether an appropriation or change of use is in the public interest would constitute a mixed question of law and fact. *Cf.* M.C. v. Adoption Choices of Colo., Inc., No. 13CA2280, 2014 WL 6485660, at *5 (Colo. App. Nov. 20, 2014), *cert. granted in part sub nom.* In Interest of Baby A, No. 14SC1045, 2015 WL 1743170 (Colo. Apr. 13, 2015), *rev'd sub nom.* In Interest of Baby A, No. 14SC1045, 2015 WL 9275755 (Colo. Dec. 21, 2015) ("When the issue before an appellate court is a mixed question of law and fact, such as may arise when the issue is whether statutory requirements were met . . . ."). This would give a state-level body (the Colorado Supreme Court) an opportunity to rehear the case and overrule instances of parochial local bias to approve water allocations that are truly in the public interest. Alternately, the legislature could prescribe that, like abandonment, determinations of whether a right is in the public interest is a question of fact that the Colorado Supreme Court would only disturb if "the evidence is wholly insufficient to support the decision." People ex rel. Danielson v. City of Thornton, 775 P.2d 11, 19 (Colo. 1989). Implementing this highly deferential standard of review would shift the balance of power—and the focal point of the public interest—from the state to the local level.

255. *Cf.* Universal Camera Corp. v. N.L.R.B., 340 U.S. 474, 489 (1951) ("But a standard leaving an unavoidable margin for individual judgment does not leave the judicial judgment at large even though the phrasing of the standard does not wholly fence it in."). *See infra* Section III.A for the proposed statutory guidance.

assigning instream flows to bolster property values or to support a recreation economy, and because such inquiries will be even more fact heavy and circumstance dependent than current water case adjudications, it would be impossible to draft a workable bright-line rule. A rule that forbade appropriations on a stream in the public interest would be just as restrictive and detrimental as the status quo bright-line rule that prohibits courts from weighing the public interest. Thus, any solution must afford water courts increased discretion and flexibility in making their decisions.

B. Legal Disadvantages of Administering Water Rights Without a Public Interest Standard

Beyond these more tangible problems, the lack of a public interest standard also creates several legal barriers Colorado must overcome. Subsection 1 argues that the current system is suboptimal should Colorado find itself party to an equitable apportionment or dormant commerce clause litigation. Subsection 2 contends that the current system lacks the necessary flexibility to preserve intact riparian ecosystems and the private homes and businesses that rely on them.

1. Interstate Issues: Equitable Apportionment and the Dormant Commerce Clause

The first issue concerns interstate water disputes. Colorado is party to ten interstate water compacts—the agreements between states that govern the allocation and use of water in streams that cross state lines.[256] In addition, smaller streams not subject to compact agreements may nevertheless be a source of conflict and litigation between states.[257] Interstate water conflict is an increasingly important

256. *See* Colo. Dept. of Nat. Res., *Interstate Compacts*, COLO. WATER CONSERVATION BOARD, http://cwcb.state.co.us/legal/Pages/ Interstate Compacts.aspx [https://perma.cc/U9A8-BPR9]. The compacts are the: Arkansas River Compact of 1948, Colorado River Compact, Upper Colorado River Compact, La Plata River Compact, Animas-La Plata Compact, North Platte River Decree, Laramie River Decree, Republican River Compact, Rio Grande Compact, Costilla Creek Compact, and South Platte River Compact. *Id.* (grouping the compacts by basin and providing links to details on each).

257. For example, the Vermejo River, which originates in southern Colorado before flowing into New Mexico and joining the Canadian River, was the source of two United States Supreme Court cases. Colorado v. New Mexico, 459 U.S. 176

field of law as interstate streams become fully or overappropriated[258] even as projected stream flows decrease or shift from their traditional seasonal norms.[259] Two scenarios in particular should give Colorado good cause to regulate in the public interest: equitable apportionments and challenges under the dormant commerce clause.

When the United States Supreme Court allocates the waters of an interstate stream, the decision is known as an equitable apportionment.[260] *Colorado v. New Mexico I* and its predecessors place the initial burden in equitable apportionment proceedings on an objecting state to show that a

(1982) (*Colorado v. New Mexico I*); Colorado v. New Mexico, 467 U.S. 310 (1984) (*Colorado v. New Mexico II*) (dismissing Colorado's application for rights on the upper Vermejo and holding that interstate applicants bear the burden of showing (a) specific conservation steps the objector/senior user can take to make water available, and (b) specific evidence of intent to put the water to beneficial use). The United States Supreme Court has original jurisdiction over water disputes between states. *See* U.S. CONST. art. III, § 2, cl. 2; Connecticut v. Massachusetts, 282 U.S. 660 (1931).

258. *See, e.g.*, DRIVER & MILLER, *supra* note 186, at iv (characterizing the Gunnison River—a significant tributary of the interstate Colorado River—as overappropriated); COLO. WATER CONSERVATION BD., STATEWIDE WATER SUPPLY INITIATIVE–2010, at 6-9 (2010), http://cwcb.state.co.us/water-management/water-supply-planning/Documents/SWSI2010/SWSI2010Section6.pdf [https://perma.cc/V9FM-MJTA] ("Based on the analyses conducted by the South Platte Basin Roundtable, it was concluded that beyond the implementation of the basin's identified projects and processes, there is little to no unappropriated water remaining in the Metro and South Platte Basins . . . .").

259. *See, e.g.*, BUREAU OF RECLAMATION, SECURE WATER ACT SECTION 9503(C) – RECLAMATION CLIMATE CHANGE AND WATER 2011 (Apr. 2011), http://www.usbr.gov/climate/SECURE/docs/SECUREWaterReport.pdf [https://perma.cc/MJ5U-NKHM] (reporting the Bureau of Reclamation's research and conclusions with regard to the projected sufficiency of water supplies in the western United States through 2050); COLORADO BASIN FACT SHEET, *supra* note 161 (outlining the Bureau of Reclamation's climate change data from the SECURE Act report with regard to the Colorado River and predicting problems with hydropower generation, water storage infrastructure, and agriculture); W.P. MILLER ET AL., HYDROLOGY & EARTH SYS. SCIS., DEVELOPMENT OF STREAMFLOW PROJECTIONS UNDER CHANGING CLIMATE CONDITIONS OVER COLORADO RIVER BASIN HEADWATERS (July 13, 2011), http://www.usbr.gov/lc/region/programs/climateresearch/Miller_CRHeadwaters_2011.pdf [https://perma.cc/2QK3-6XUV] (adapting a National Weather Service modeling system to project streamflow for three of the Colorado River's headwaters and predicting a 10–15% decrease in annual runoff for the Gunnison and San Juan Rivers through 2099); CWCB CLIMATE REPORT, *supra* note 157 (synthesizing and summarizing literature and research on the effects of climate change on water resource management in Colorado).

260. *See, e.g.*, Colorado v. Kansas, 320 U.S. 383 (1943) (denying apportionment of the Arkansas River); New Jersey v. New York, 283 U.S. 336 (1931) (apportioning the Delaware River).

new appropriation "will cause it real or substantial injury or damage."[261] The decision also notes that equitable apportionment is "a flexible doctrine which calls for the exercise of an informed judgment on a consideration of many factors."[262]

Taken together, these statements suggest the importance of public interest regulation to equitable apportionment litigants. If a litigant state wants to ensure that the US Supreme Court specifically examines local public interest in its determinations, then that state is best served by explicitly considering the same in its own adjudications in order to satisfy the "substantial injury or damage" requirement.[263] It also follows that in determining whether the objecting state met its initial burden of showing substantial harm, the US Supreme Court is more likely to consider substantial harms to the local public interest if the objecting state does the same.[264] Given the potentially large impact of equitable apportionment decisions on the litigants, it behooves Colorado to protect its interests at the state and local level by regulating in the public interest internally.

The dormant commerce clause test set out in *Sporhase v. Nebraska* is a related facet of interstate litigation in which state-level regulatory practice may implicate federal law.[265] In *Sporhase*, the US Supreme Court held that water is an article of commerce and that a Nebraska law was unconstitutional under the Commerce Clause for preventing water exports to a state that did not similarly allow for water import into Nebraska.[266] The decision extended the reach of the dormant commerce clause analysis to govern how states regulate

261. *See Colorado v. New Mexico I*, 459 U.S. at 187 n.13 (quoting Connecticut v. Massachusetts, 282 U.S. 660, 672 (1931)) (internal quotation marks omitted). *See supra* note 257 for background on this case.

262. *Colorado v. New Mexico I*, 459 U.S. at 183 (quoting Nebraska v. Wyoming, 325 U.S. 589, 618 (1945)) (internal quotation marks omitted) (listing the substantial harm factor and several others in a non-exhaustive list).

263. *See id.* at 183–84 (holding that "the laws of the contending states concerning intrastate water disputes are an important consideration governing equitable apportionment.").

264. *See id.*

265. 458 U.S. 941 (1982). *See generally* Richard S. Harnsberger, *Interstate Transfers of Water: State Options After* Sporhase, 70 NEB. L. REV. 754 (1991); Peter J. Longo, *The Constitutionalism and Water Policy of* Sporhase *Revisited: A West German Alternative*, 20 ENVTL. L. 917 (1990).

266. *See Sporhase*, 458 U.S. at 954, 960.

interstate waters within their borders.[267] The resulting *Sporhase* test asks whether the state regulates its interstate waters evenhandedly, and if not, whether there is a "close fit" between the water-related law's discriminatory nature and the asserted local purpose.[268] Although the *Sporhase* court conceded that "a demonstrably arid State conceivably might be able to marshal evidence to establish a close means-end relationship between even a total ban on the exportation of water and a purpose to conserve and preserve water," the simplest way to avoid invalidation of state water conservation laws is to regulate evenhandedly.[269]

So long as it avoids imposing a discrimination-driven "impermissible burden" on interstate commerce, Colorado could presumably regulate the use and transport of its water for conservation and environmental purposes as tightly as it sees fit.[270] If Colorado elected to regulate an intrastate water user or use under a public interest standard, the *Sporhase* test would probably protect Colorado for similarly regulating an out-of-state water user or use. In spite of the *Sporhase* Court's apparent invitation to western states to rely on their increasing aridity to save any protectionist laws, the vital importance of water to Colorado militates for a more conservative approach.[271] Not only would Colorado derive greater protection and certainty in the event of dormant commerce clause litigation over its water policies, but it would also derive the considerable internal benefits of public interest regulation.

2. Intrastate Issues: Inflexibility in the Face of Change

Introducing judicial discretion into water court adjudications via a public interest standard would address an increasingly fatal flaw of the prior appropriation system: inflexibility.[272] Water rights in Colorado may be usufructuary in nature, but they are "not a mere revocable privilege."[273]

267. *Id. See generally* Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970) (setting out the general dormant commerce clause test in a non-water context).

268. *Sporhase*, 458 U.S. at 957 (applying the *Pike* test in a water context).

269. *See id.* at 957–58.

270. *See id.*

271. *See id.*

272. *See supra* Section II.A; *supra* note 259.

273. Public Serv. Co. of Colo. v. Meadow Island Ditch Co. No. 2, 132 P.3d 333,

Diverting water is not absolutely guaranteed—an appropriator cannot divert water that is not in the stream. But if a user is in priority and there is water in a stream, that user may divert her full decreed amount for beneficial use regardless of any externalities such a diversion generates and subject to no limitation beyond availability and priority.[274] This scheme and its consequences are the foundation of a prior appropriation system, but they do not leave much room for changing conditions.

The Environmental Groups' brief raised this concern and noted that conditional rights adjudications present the last chance for the state to weigh any factors against granting the application before approving the right.[275] Extending that analysis, all water court adjudications represent a valuable opportunity for the state to consider the public interest. It is likely that Colorado will eventually need to reacquire private water rights to support growing populations, satisfy interstate delivery obligations, or meet environmental standards. Because water rights are vested property rights, any regulatory takings in the public interest would require compensation.[276] Paying compensation to later retake a right gratuitously acquired in the first place makes little economic sense.[277] Unfortunately, it seems to be an inevitable result in prior appropriations states.[278] Perhaps the most egregious example of this

340 (Colo. 2006); *see also* Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist., 256 P.3d 645, 661 (Colo. 2011) ("[a] water right is a usufructuary right"); Kobobel v. State, Dept. of Nat. Res., 215 P.3d 1218, 1220 (Colo. App. 2009) (quoting Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 53 (Colo. 1999)) (holding that Colorado recognizes water rights "in priority under a decree, to the exclusion of all others not then in priority under a decreed right").

274. *See, e.g.*, Archuleta v. Gomez, 200 P.3d 333, 342 (Colo. 2009) (quoting High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist., 120 P.3d 710, 717 (Colo. 2005)); *Santa Fe Trail Ranches*, 990 P.2d at 53 (holding that Colorado recognizes water rights "in priority under a decree, to the exclusion of all others not then in priority under a decreed right").

275. *See* Environmental Groups' Brief at 25–26, Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952 (Colo. 1995) (No. 92SA68).

276. *See, e.g.*, Farmers Irrigation Co. v. Game & Fish Comm'n, 369 P.2d 557, 559–60 (Colo. 1962) (concluding that "[a] priority to the use of water for irrigation or domestic purposes is a property right and as such is fully protected by the constitutional guaranties relating to property in general."); Penn. Cent. Transp. Co. v. City of New York, 438 U.S. 104 (1978) (establishing the *Penn Central* investment-backed expectations regulatory takings test).

277. *See* COLO. CONST. art. XVI, §§ 5, 6.

278. In Colorado, for example, the state's instream flow program requires the

phenomenon occurred when New Mexico taxpayers spent between $120 and $130 million to buy back and retire water rights on the Pecos River following unfavorable interstate compact litigation and several years of drought.[279] New Mexico's Rio Grande River is in peril of following suit, with the buyback cost estimates reaching as high as $1 billion.[280] Implementing a public interest inquiry could help avoid such politically unpopular and costly takings proceedings or buybacks by reviewing the wisdom of a particular use at the allocation phase.[281]

Projected population growth in conjunction with changes in precipitation and stream flow due to climate change will

CWCB to purchase senior water rights to ensure a stretch of stream has a minimum flow. *See* COLO. REV. STAT. § 37-92-103(3)–(4) (2015). Merely acquiring new, very junior rights is far less likely to result in "wet" water. *Cf.* Ruml, *supra* note 183 (explaining the concept of paper rights); Brent Gardner-Smith, *Colorado's Instream Flow Program Is Lauded, Challenged*, ASPEN JOURNALISM (Jan. 21, 2014), http://aspenjournalism.org/2014/01/21/state-of-colorados-instream-flow-program-is-lauded-challenged/ [https://perma.cc/S6LQ-HNSA] (discussing the reality of junior CWCB rights on the Roaring Fork and Crystal Rivers).

279. DARCY S. BUSHNELL, UTTON TRANSBOUNDARY RES. CTR., TEXAS V. NEW MEXICO AND COLORADO 17 (2013), http://uttoncenter.unm.edu/pdfs/2013-05-16_BushnellTx-NM-Final.pdf [https://perma.cc/H29M-4T4F].

280. Diana Alba Soular, *Supreme Court Lawsuit Ignites Roundhouse Debate over Doña Ana County Water Woes*, LAS CRUCES SUN-NEWS (Mar. 2, 2013), http://www.lexisnexis.com/hottopics/lnacademic/?shr=t&csi=280046&sr=HLEAD(%22Supreme%20Court%20lawsuit%20ignites%20Roundhouse%20debate%20over%20Dona%20Ana%20County%20water%20woes%22)%20and%20date%20is%202013 [https://perma.cc/BFC8-PE39].

281. The United States has effectively taken this step with its oil and gas resources. The federal estate was formerly "free and open to occupation, exploration, and purchase by citizens of the United States" in pursuit of petroleum. United States v. Midwest Oil Co., 236 U.S. 459, 466 (1915) (quoting the federal statute that permitted royalty- and permit-free exploitation of federal petroleum reserves). The resulting glut of private claims precipitated a Department of the Interior report that concluded "it would 'be impossible for the people of the United States to continue ownership of oil lands for more than a few months. After that the government will be obliged to repurchase the very oil that it has practically given away.'" *Id.* at 466–67 (quoting the report). As a result, President Taft withdrew three million acres of public lands in California and Wyoming in 1909 to preserve a source of free federal oil. *Id.* at 467. Eleven years later, Congress passed the Mineral Leasing Act, which subjected oil and gas leases to royalty payments, lease purchasing in a bidding system, fixed terms on leases, and federal discretion over which lands—if any—would be leased. *See* WILKINSON, *supra* note 17, at 53–54 (highlighting the Act's main features). The Bureau of Land Management makes the annotated text of the amended Mineral Leasing Act available at http://www.blm.gov/style/medialib/blm/wo/Communications_Directorate/legislation.Par.23212.File.dat/mla_1920_amendments1.pdf [https://perma.cc/3JB9-CM5B].

inevitably lead to municipal- and state-level condemnation proceedings.[282] By affording courts the discretion to weigh the public interest—including environmental concerns—Colorado can not only avoid costly takings compensation, but also the environmental costs of doomed ventures.[283] This saves the state's taxpayers from wasted takings compensations and the aspiring diverters from ill-fated, unreliable projects. It also avoids unnecessarily disturbing fragile riparian ecosystems to build points of diversion in pursuit of paper rights. Admittedly, existing rights that are not the subject of litigation in the water courts are untouchable except through condemnation proceedings or voluntary buybacks.[284] But by creating a public interest standard that applies to all water court adjudications, the state gets multiple opportunities to ensure that water is truly available for private appropriation.[285]

The problems Part III identified were not likely matters of concern—or even problems—when Colorado adopted the prior appropriation system in the nineteenth century. Fewer people and a different industry mix meant that while consumptive appropriations were the primary means of using water to economic gain, the state's water supply could support the divert-to-profit economies. As Colorado's population grew and non-consumptive uses became increasingly important to the economic mix, tensions over limited water supplies highlighted the flaws in the prior appropriation system. The same tensions and stressors persist today and, as Parts II and III argued, have probably reached a point of incompatibility under the current water allocation system. Adopting a public interest standard would preserve Colorado's unique system largely intact while still addressing the fundamental problems this

282. *See supra* note 259 (collecting sources on climate change and its effects on precipitation, stream flow, and water management practices).

283. The Environmental Groups' Brief raised this externality savings analysis as well. *See* Environmental Groups' Brief at 16–25, Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952 (Colo. 1995) (No. 92SA68).

284. *See generally* U.S. CONST. amends. V, XIV (forbidding the taking of private property without just compensation); COLO. CONST. art. II, § 15 (same).

285. For example, if a water user applies for a water right, seeks to change the use, and then attempts to sell or transfer the right, the state would get three opportunities to invoke the public interest to deny or condition approval on a portion of that right remaining in the stream. *See generally* Koontz v. St. Johns River Water Mgmt. Dist., 133 S. Ct. 2586 (2013) (discussing the constitutional contours of exactions).

Comment identified. Part IV explores how Colorado might pursue that solution.

IV. CHANGING COURSE: ESTABLISHING A PUBLIC INTEREST STANDARD

As the language at the close of the *Arapahoe* decision indicates, the Colorado Supreme Court takes a constrained view of its leeway to consider environmental and public interest concerns in its adjudications.[286] It takes this position in deference to the Colorado Constitution and the legislature's efforts to shape the state's water law.[287] Given the court's position on its authority and the meaning of Section 6, the best means of incorporating a public interest inquiry into water rights adjudications is for the people or the legislature to instruct courts to do so. Section A explores the political means of adopting a public interest standard, first through amending the Colorado Constitution and second through a statutory mandate. Section B then builds upon the discussion throughout this Comment on what the public interest standard should look like to examine how the judiciary would implement the standard under the proposed constitutional and statutory scheme.

A. Enabling the Model: Constitutional and Statutory Amendments

The first step in establishing a public interest standard capable of reconciling Colorado's prior appropriation system with the demands of the twenty-first century is to amend the Colorado Constitution. Amending the Colorado Constitution requires a simple majority (fifty percent plus one vote) of voters to approve either a ballot initiative (a measure placed directly on the ballot by signed petition of a percentage of the electorate) or a referendum (a measure placed on the ballot after approval by two-thirds of both houses of the Colorado legislature).[288] Gathering support for either a ballot initiative

286. *See Arapahoe*, 891 P.2d at 971–73.

287. *Id.*

288. *See* COLO. CONST. art. V, § 1(4) (announcing ballot initiative authority without a supermajority requirement); COLO. CONST. art. XIX, § 2, cl. 1 (establishing the two-thirds legislative approval requirement). Since Colorado

or a referendum to amend the Colorado Constitution would not be a simple task.[289] Moreover, the single-issue requirement would likely prove especially burdensome in adopting a public interest standard.[290] But just as it would be an uphill battle to adopt an amendment requiring courts to consider the public interest, so too would later opponents require broad support to remove the amendment.[291] Amending the Colorado Constitution would not be simple, but it is necessary to create a

adopted the ballot initiative process in 1912, "voters have approved 112 amendments to the state constitution—70 amendments (63 percent) were referred to voters by the General Assembly and only 42 measures (37 percent) were placed on the ballot by citizens through the initiative." CITIZENS IN CHARGE FOUND., FIVE FACTS ABOUT AMENDING COLORADO'S CONSTITUTION, http://www.citizensinchargefoundation.org/files/Five%20Facts%20Full_0.pdf [https://perma.cc/Z3T4-US9J]. Citizens in Charge Foundation is a national organization dedicated to democratic government that focuses its research and advocacy efforts on protecting the initiative and referendum process in all fifty states. *About Citizens in Charge Foundation*, CITIZENS IN CHARGE FOUND., http://www.citizensinchargefoundation.org/about-us/cicf [https://perma.cc/E5RE-HMBD]. The Citizens in Charge Foundation partners with Citizens in Charge, a 501(c)(4) social welfare nonprofit, to pursue its advocacy aims. *About Citizens in Charge, a 501(c)(4)*, CITIZENS IN CHARGE, http://www.citizensincharge.org/about-us/cic [https://perma.cc/A58F-6L5Z].

289. *See generally, e.g.*, COLO. DEP'T OF STATE, INITIATIVE PROCEDURES & GUIDELINES: A CITIZEN'S GUIDE TO PLACING AN INITIATIVE ON THE BALLOT (2015), http://www.sos.state.co.us/pubs/elections/Initiatives/files/ PetitionManual.pdf [https://perma.cc/WF2F-2Z8W] (providing instructions on how to pursue a ballot initiative in Colorado). Obtaining the necessary signatures to get the marijuana legalization amendment on the ballot cost the 2012 Amendment 64 campaign $211,369.21 and required the support of professional signature-gathering firms and individual petitioners. *2012 Ballot Measure Petition Signature Costs: Colorado*, BALLOTPEDIA (July 11, 2013), https://ballotpedia.org/2012_ballot_measure_petition_signature_costs#Colorado [https://perma.cc/3HR6-DJSZ]. The 2008 Amendment 50 campaign (which sought to allow casino communities to extend casino operating hours, and retain and spend a greater amount of gambling tax revenue) spent much of the $7 million in donations it received on advertising. *Colorado Amendment 50*, WIKIPEDIA (Jan. 5, 2013), https://en.wikipedia.org/wiki/Colorado_Amendment_50 [https://perma.cc/ L5J6-4NU9].

290. In addition to the simple difficulty of securing the support of 50.1% of the population, and, if the amendment attempt originates in the state legislature, two-thirds of both houses of the legislature, there is also the single-issue requirement in article XIX, section 2(3) of the Colorado Constitution. This provision renders void any proposed amendment that "contain[s] more than one subject." COLO. CONST. art. XIX, § 2(3) (requirement for ballot initiatives); COLO. CONST. art. V, § 21 (establishing the same requirement for amendments proposed in the General Assembly). Given the inherently multi-faceted complexity of a public interest standard, any amendment to incorporate the standard will be vulnerable to single-issue challenges.

291. *See supra* note 289 (outlining the requirements to amend the Colorado Constitution).

secure public interest standard.

The ideal place to insert a public interest standard is in Section 6.[292] The first sentence declares that "[t]he right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied."[293] The *Arapahoe* court concluded that this command was "[c]onceptually . . . in conflict" with a public interest standard.[294] Section 6's command is likely the greatest legal barrier to incorporating a public interest standard; it is also the ideal provision to amend in effectuating that aim. This Comment suggests amending Section 6 to read:

> The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied EXCEPT WHEN DENIAL IS APPROPRIATE IN THE PUBLIC INTEREST. Priority of appropriation shall give the better right . . . .

This amendment would directly address the *Arapahoe* court's conceptual concern with incorporating a public interest standard.[295] Inserting the words "public interest" into this section of the constitution also signals to the water courts that a public interest inquiry is an integral part of water rights adjudications. The proposed amendment also has the benefit of not adding new sections or an excessive amount of language to an already long constitution.[296]

To bolster the constitutional amendment and provide the courts direction in construing it, the legislature should consider two amendments to the 1969 Water Right Determination and Administration Act.[297] The Act defines beneficial use as "the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without

292. COLO. CONST. art. XVI, § 6.

293. *Id.*

294. Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 972 (Colo. 1995).

295. *Id.*

296. *United States and Colorado Constitutions*, COLO. SECRETARY OF ST., https://www.sos.state.co.us/pubs/elections/LawsRules/files/Colorado_US_Constitutions.pdf [https://perma.cc/FZ8R-NVW9] (providing a single PDF document with both constitutions, of which the first 30 pages are the United States Constitution and the remaining 1,192 pages are the Colorado Constitution).

297. The Act's definitions are codified at COLO. REV. STAT. § 37-92-103 (2015).

waste the purpose for which the appropriation is lawfully made."[298] Three non-limiting sub-clauses follow this definition, two of which establish instream rights for recreation and conservation.[299] This Comment proposes to amend that language to read:

> the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste OR SUBSTANTIALLY HARMING THE PUBLIC INTEREST the purpose for which the appropriation is lawfully made.[300]

This change in language simply inserts the public interest standard into the beneficial use inquiry alongside Colorado's traditional prohibition on waste.[301]

This proposed statutory amendment would implement the amendment to Section 6 of the Colorado Constitution by establishing the public interest standard as a water matter and, therefore, an inquiry over which the water courts have jurisdiction.[302] Like amending the constitution, a statutory solution has the benefit of being more difficult to remove than overturning cases in the courts. In fact, statutes occupy a middle ground between case law and constitutional amendments—the legislature can pass or remove a statute with a simple majority vote.[303] While this would likely make passing a public interest standard statute simpler than the necessary process of amending the Colorado Constitution (because it does not require popular approval), it would still require lobbying, fundraising, and campaigning.[304]

298. *Id.* § 37-92-103(4).

299. *Id.* § 37-92-103(4)(a)–(c).

300. Although this has the effect of amending the extant language, accomplishing this merely calls for the passage of a new bill. *See* COLO. CONST. art. V, § 22.

301. *See, e.g.*, Pagosa Area Water & Sanitation Dist. v. Trout Unlimited, 170 P.3d 307, 314 (Colo. 2007) (citing Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co., 594 P.2d 566, 568–69 (1979)) ("For an applicant to satisfy the first step [of obtaining a conditional decree], he or she must meet the burden of demonstrating intent to appropriate the water for beneficial use.").

302. See *supra* notes 26–27 and accompanying text (discussing water matters and the water courts' jurisdictional reach).

303. *See* COLO. CONST. art. V, § 22.

304. *See supra*, notes 289–290 (discussing the logistics of passing a ballot initiative in Colorado).

Having enabled consideration of the public interest in an amended Section 6 and situated it within the jurisdiction of the water courts with the amendment to the 1969 Water Right Determination and Administration Act, the legislature should also adopt an independent, multifactor public interest standard similar to Alaska's.[305] Alaska's public interest statute reads:

> In determining the public interest, the commissioner shall consider (1) the benefit to the applicant resulting from the proposed appropriation; (2) the effect of the economic activity resulting from the proposed appropriation; (3) the effect on fish and game resources and on public recreational opportunities; (4) the effect on public health; (5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation; (6) harm to other persons resulting from the proposed appropriation; (7) the intent and ability of the applicant to complete the appropriation; and (8) the effect upon access to navigable or public water.[306]

It is the only public interest statute of its kind in the West; the others are primarily simple policy declarations.[307] Alaska courts have yet to deny a water rights application for violating the public interest statute, and there is criticism that even this robust statute is toothless.[308] However, a multifactor statutory

305. *See* WILKINSON, *supra* note 17, at 240 (criticizing states with public interest standards for failing to "even bother to define the public interest" and generally not enforcing the public interest standards).

306. ALASKA STAT. § 46.15.080(b) (2015).

307. *Compare* ALASKA STAT. § 46.15.080(b), *with, e.g.*, WASH. REV. CODE § 90.54.020(3) (2015), *and* MONT. CODE § 85-1-101(6) (2015), *and* ARIZ. REV. STAT. § 45-155(A) (2015).

308. *See, e.g.*, State Dept. of Nat. Res. v. Greenpeace, Inc., 96 P.3d 1056 (Alaska 2004) (avoiding the public interest inquiry because the application in dispute was filed prior to the public interest statute's passage); *see also* Geoffrey Y. Parker et al., *Pebble Mine: Fish, Minerals, and Testing the Limits of Alaska's "Large Mine Permitting Process*,*"* 25 ALASKA L. REV. 1, 26 (2008) (concluding that "[t]he requirement that DNR 'consider' these eight factors is far short of a substantive standard requiring DNR to protect fish and game, and avoid, minimize, or mitigate harms and risks to fish, wildlife, and public uses of them. Also, 'considering' the effects on fish is far short of a statutory standard that articulates a standard for deciding whether a certain level of harm to fish is acceptable."). Other similar decisions have received far rougher treatment. When the Idaho Supreme Court determined that a Wilderness Area delegation required reserved water rights on all of the available water, the public outcry and backlash were so great that the Chief Justice who authored the opinion lost her next

standard is not something state courts can ignore or avoid for long, and Alaska will likely develop a body of precedent construing the statute and incorporating the public interest into the corpus of its water law.[309]

A similar multifactor statute would provide focus to courts in implementing the public interest standard. Unlike the more restricted statute amending section 37-92-103(4)'s definition of beneficial use, codifying a multifactor public interest standard leaves little room for courts to perfunctorily incorporate the standard into their decisions or misconstrue the standard entirely.[310] A multifactor standard would also explicitly allow water courts to consider the totality of the circumstances. Whatever public interest standard Colorado adopts should leave ample room for such calculations.

The public interest calculus should include the shift in correlative value between protecting the riparian ecosystem and affording water users a chance to divert from a stream for other beneficial uses. It is an entrenched fiction in Colorado water law that all stretches of all streams are equal such that a beneficial use on one will be a beneficial use on all.[311] However, leaving water in a natural stream will sometimes—but not always—be the most beneficial use of that water.[312] Keeping water in the Brown's Canyon stretch of the Arkansas River—a gold medal fishery and whitewater recreation destination that generated approximately $55 million in tourism and recreation revenue in 2013—is likely a better use of the river's water than maximizing diversions for mining, agriculture, or stock watering in the same stretch.[313] Conversely, maintaining high

reelection in a landslide. Gregory J. Hobbs, *State Water Politics Versus an Independent Judiciary: The Colorado and Idaho Experiences*, 20 QUINNIPIAC L. REV. 669 (2001) (discussing this story and an analogous incident involving the fallout from a transbasin diversion decision in Colorado).

309. *Contra* Parker et al., *supra* note 308, at 26 (arguing that even a multifactor test is subject to cursory treatment in courts).

310. *Contra id*.

311. *See* COLO. REV. STAT. § 37-92-103(4) (2015) (defining beneficial use without reference to a stretch-by-stretch determination but as a general rule).

312. *But see* Lisa Greenberg, *Trusting the Public: Reshaping Colorado Water Law in the Face of Changing Public Values*, 40 B.C. ENVTL. AFF. L. REV. 259, 292 (2013) (criticizing the economic-centered analysis inherent in a public interest inquiry). *See also supra* notes 246–247 and accompanying text (contrasting the value of consumptive diversions with the value of instream uses).

313. Judith Kohler, *Sportsmen, Wildlife Advocates Back Brown's Canyon Bill*, NAT'L WILDLIFE FED'N (July 23, 2014), http://www.nwf.org/News-and-Magazines/Media-Center/News-by-Topic/Wildlife/2014/07-23-14-Sportsmen-

instream flows in the lower stretches where agriculture is more productive (and far more prevalent than recreation tourism) is not likely to be the best use of water on that stretch of the Arkansas River.[314]

Another consideration that should factor into the public interest calculus is Colorado's unique role as a headwater state.[315] The obvious effect of leaving water instream in the public interest is that the water is not used and consumed.[316] This Comment argues that in the upper stretches of Colorado's rivers, leaving water in the stream is likely to constitute a beneficial use, but that assessment does not contemplate that water left instream in the mountains should then be left to flow out of Colorado. Rather, the cities, farms, and ranches in the lowlands should receive the benefit of this additional water. By leaving more water instream in the highlands, there will be more available downstream for beneficial use in the high-

wildlife-advocates-back-Browns-Canyon-bill.aspx [https://perma.cc/8J3X-6AY7]. *See generally* Jason Blevins, *Colorado Tourism Numbers Set Record in 2014*, DENV. POST (June 23, 2015), http://www.denverpost.com/business/ci_28368011/2014-record-colorado-tourism [https://perma.cc/8ZUL-BXUM] ("A record 71.3 million visitors spent $18.6 billion in Colorado in 2014 . . . .").

314. *See generally Water Facts − Arkansas Regional Watershed*, COLO. WATERSHED ASSEMBLY, http://www.coloradowater.org/Colorado%20Water%20Facts/#AK [https://perma.cc/Y6YX-5HJP] (reporting that approximately 55% of the Arkansas River Basin's water is used for agriculture and irrigates approximately 400,000 acres in the basin); TIMOTHY K. GATES ET AL., DEP'T OF CIVIL & ENVT'L ENG'G, COLO. STATE UNIV., TOWARD OPTIMAL WATER MANAGEMENT IN COLORADO'S LOWER ARKANSAS RIVER VALLEY: MONITORING AND MODELING TO ENHANCE AGRICULTURE AND ENVIRONMENT (2006) (examining flow and water quality conditions on the Arkansas River and discussing methods of resolving side effects of intensive agriculture). President Obama recently protected the Browns Canyon stretch of the Arkansas River and 21,586 acres of surrounding lands as Browns Canyon National Monument. Presidential Proclamation on Establishment of the Browns Canyon National Monument (Feb. 19, 2015), https://www.whitehouse.gov/the-press-office/2015/02/19/presidential-proclamation-browns-canyon-national-monument [https://perma.cc/3B5J-QDHH].

315. Colorado is a headwater state because of the number of rivers and the volume of water that originates in the Colorado mountains and flows out of the state. *See Water in Colorado−A Brief History*, THE WATER INFO. PROJECT, http://www.waterinfo.org/colorado-water/water-in-colorado-a-brief-history [https://perma.cc/QT7X-N8E5] (explaining that of the approximately 10 million acre feet (maf) of water to leave Colorado, 5 maf leaves via the mainstem of the Colorado River at the state line). The majority of that water flows out of the state in rivers controlled by ten interstate compacts. *See supra* note 256 and accompanying text.

316. Consumption was a traditional measure of beneficial use. *See* WILKINSON, *supra* note 17, at 234 ("To rise to the level of being beneficial, a use had to be consumptive, usually extractive.").

consumptive-use and high-demand areas of the lowlands.[317]

The legislature's list of public interest factors should codify this statewide balancing. The factors in the Alaska model, and the shifting correlative values discussed above, generally militate for allowing diversion and use for domestic use, agriculture, or ranching in the lowlands.[318] Another means of preventing excessive state-line deliveries would be to add a factor to the multifactor list that declares any appropriation or use that has the effect of sending more water across state lines than is required by compact or equitable apportionment to be against the public interest. This factor would encourage water users close to the state lines to appropriate any additional flows and preclude most public interest denials.[319]

The legislative solutions carry many benefits, including stability, weight, and priority in the judicial system, and the ability for the people of the state and their representatives to engage in a meaningful discussion on how to thrive in the new reality of the twenty-first century. However, these same strengths are also the greatest challenges to adopting a statutory or ballot initiative solution. It is far from simple to pass a statute.[320] Relatedly, meaningful policy discussions in

317. *See supra* notes 312–14 and accompanying text (comparing the best uses of water on the upper Arkansas River to the best uses of water on the lower stretch of the Arkansas River).

318. Factors 1, 2, 4, and 5 in the Alaska model would cut strongly in favor of a city's attempt to divert the extra water because municipal uses inherently afford great benefit—the ability to live in the city—to mass numbers of people. The analysis is only slightly less favorable for a farm or ranch downstream of the foothill cities: agriculture and ranching provide substantial benefits to the Colorado economy, *see* REGIONAL PERSPECTIVES COLORADO ECONOMIC OUTLOOK, *supra* note 226, at 3 (noting that agriculture alone contributes an approximate $2.6 billion to Colorado's economy), and hold an historic identity value that Coloradans should not forget, *see* STATE OF COLORADO, COLORADO'S WATER PLAN: EXECUTIVE SUMMARY 13 (2015), http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=197252&searchid=c5f5ae8e-4527-444e-9fb6-1509ec68090d&dbid=0 [https://perma.cc/7APS-K639] (discussing Colorado's commitment to preserving and advancing agriculture). *See generally supra* Section II.A (discussing Colorado's history).

319. Conversely, any CWCB or RICD instream flow rights would likely survive a totality of the circumstances review because of their putative benefit to a local economy or to "present and future generations." *See* COLO. REV. STAT. §§ 37-92-103(4)(b)–(c) (2015) (permitting governmental and semi-governmental bodies to acquire RICD rights and the CWCB to acquire instream flow rights).

320. *See supra* note 289 (discussing requirements to amend the Colorado Constitution); COLO. CONST. art. V, § 22 (requiring a simple majority to pass a statute); *see also* COLO. CONST. art. V, §§ 19–21 (adding other requirements, including presentation to a committee and a single-subject requirement).

today's hyperpartisan political environment seem few and far between.[321] The fact that opposition to a public interest standard in Colorado is likely to come from wealthy or entrenched political interests decreases the likelihood of reaching a legislative solution.[322]

Without first amending Section 6, it is likely that the courts would hold these statutes unconstitutional under Section 6. The *Arapahoe* court concluded that a judicially created public interest standard improperly burdened the acquisition of rights to available water,[323] and a legislatively imposed public interest standard would be susceptible to similar treatment. The legislature can no more pass unconstitutional laws than a court can render unconstitutional rulings.[324] However, a multifactor statutory public interest standard could define the contours of a constitutionally-permitted interest. This concern highlights the importance of a dual legislative approach: amend Section 6 to create the public

321. Even highly successful programs can fall prey to partisan politics, as the fate of the Colorado Family Planning Initiative demonstrates. *See* Scott Horsley, *Colorado's Long-Lasting Birth Control Program for Teens May Not Last Long*, NPR (Sept. 16, 2015), http://www.npr.org/sections/itsallpolitics/2015/09/03/437268213/colorados-long-lasting-birth-control-program-for-teens-may-not-last-long [https://perma.cc/UQ4Z-AG7Z]. The Initiative operated for its first five years on a private donation from the Susan Thompson Buffett Foundation, but when the initial grant ran out—and despite its unmitigated success—Republican lawmakers blocked efforts to provide funding to keep the program operating. *Id.* The most vocal opponents expressed concerns that providing birth control sent teens the wrong message and that long-acting birth control (IUDs) are too expensive. *Id.* The five-year program cost $23 million to operate. *Id.* Conversely, the Colorado Department of Public Health & Environment reported that the initiative reduced rates of teen births and teen abortions by 48% and averted $79 million in Medicaid costs. Mark Salley, *Organizations Pledge $2 million in Funding to Successful Family Planning Initiative*, COLO. DEP'T OF PUB. HEALTH & ENV'T (Aug. 25, 2015), https://www.colorado.gov/pacific/cdphe/news/LARC-funding [https://perma.cc/B9R5-QLEK].

322. Steven J. Shupe, *Colorado's Instream Flow Program Protecting Free-Flowing Streams in a Water Consumptive State*, COLO. L. SCHOLARLY COMMONS 1–2 (Mar. 31, 1988) ("Establishing legal protection for free-flowing waters is a difficult task in a state were consumptive water users, their lawyers, and representatives traditionally control the course of state water law."); *see also* WILKINSON, *supra* note 17, at 17 (attributing the prevailing control of nineteenth-century natural resource schemes in part to "inertia, powerful lobbying forces, and lack of public awareness").

323. *See supra* Section II.C.

324. *See* Bd. of Cty. Comm'rs of the Cty. of Arapahoe v. United States, 891 P.2d 952, 971–73 (Colo. 1995). The court's focus on the legislative branch's primacy in establishing environmental policy suggests that an avoidance decision is at least possible, if not likely, with regard to a statutory public interest standard. *See id.*

interest exception and then legislate to guide the courts.

Amending the Colorado Constitution and passing a statutory public interest standard will not be easy. But these are necessary steps in affording the courts the discretion to wisely allocate the state's waters. With these political requirements in place, the judiciary will have the authority to implement a public interest standard. Doing so will mean changing the traditional understanding of beneficial use.

B. Judicial Implementation: Changing the Way Courts Construe Beneficial Use

The judiciary's role in this plan would be to implement the public interest standard proposed in Section I.D under the authority of the amendment to Section 6 and pursuant to the statutory guidelines recommended in Section IV.A. In order to effectuate the shifting calculus that undergirded the discussion in Part III, the courts would have to change the contemporary understanding of beneficial use.

The Colorado Constitution lists three types of beneficial use in Section 6: domestic, agriculture, and manufacturing.[325] The Colorado Supreme Court narrowly construes beneficial use.[326] The *Arapahoe* decision and a line of predecessors demonstrate the court's hesitancy to expand the list of beneficial uses[327] or change long-standing water policy, and favor instead a conservative approach to water law.[328] This

325. *See* COLO. CONST. art. XVI, § 6 (assigning priority of preference to these uses in descending order).

326. *See, e.g.*, Empire Water & Power Co. v. Cascade Town Co., 205 F. 123, 129 (8th Cir. 1913) (commenting that the Colorado legislature's concept of beneficial use centered on utility, not beauty, and that courts are bound to follow that understanding); *Arapahoe*, 891 P.2d at 971–73 (adopting a narrow definition of beneficial use in line with the intent of the General Assembly); St. Jude's Co. v. Roaring Fork Club, L.L.C., 351 P.3d 442, 448–51 (Colo. 2015) (expressing a narrow view of beneficial use).

327. *See St. Jude's*, 351 P.3d at 456–60 (Márquez, J., concurring in part and dissenting in part) (dissenting from the majority's narrow construction of beneficial use on a variety of grounds, including an extant, more expansive common law understanding of beneficial use and the express language in section 37-92-103(4) stating that the legislature's list of beneficial uses is not exclusive, thus leaving open the possibility of a more inclusive common law list). *See generally* Sager, *supra* note 85 (discussing situations in which courts take a narrow view of an otherwise more capacious constitutional right).

328. *Arapahoe*, 891 P.2d at 971–73 (citing Se. Colo. Water Conservancy District v. Shelton Farms, Inc., 529 P.2d 1321 (Colo. 1974); R.J.A., Inc. v. Water Users Ass'n, 690 P.2d 823 (Colo. 1984)). Similarly, the *St. Jude's* decision marks a

Comment suggests capitalizing on that conservative bent and recommends further limiting the nature of beneficial use. Section 6 of the Colorado Constitution assigns priority between domestic, agricultural, and manufacturing uses and creates the proverbial "list" of beneficial uses, but it does not mandate that water courts approve all applications for these uses irrespective of other limitations.[329] Nor does the statutory definition of beneficial uses guarantee applications aside from those for firefighting or legal storage and instream rights for recreation and conservation.[330]

These are the only uses Colorado's Constitution and statutes explicitly label as beneficial. They are also the only absolute constraints on the courts' construction of the same—any other parameter or definition of beneficial use is common law and subject to the court's removal or change. The *Arapahoe* court expressly declared its unwillingness to construe beneficial use more broadly on the grounds that changing long-standing precedent is a task for the legislature, not the courts.[331] However, courts are the arbiters of the common law and can reverse their own precedent.[332] Given the economic and environmental impacts at stake in effectively managing Colorado's riparian ecosystems, such a drastic change is more than appropriate—it is necessary.[333] This Comment urges the

contemporary nadir in the court's jurisprudence on the scope of beneficial use. *See St. Jude's*, 351 P.3d at 448–51.

329. COLO. CONST. art. XVI, § 6. This section precludes denying applications for beneficial uses and lays out the comparative priority. *Id.*

330. *See* COLO. REV. STAT. § 37-92-103(4)(a)–(c) (2015) (providing a non-exhaustive list of beneficial uses).

331. *Arapahoe*, 891 P.2d at 971–73 ("If a change in long established judicial precedent is desirable, it is a legislative and not a judicial function to make any needed change.") (quoting People v. Emmert, 597 P.2d 1025, 1027 (Colo. 1979)).

332. *See, e.g.*, Burnet v. Coronado Oil & Gas Co., 285 U.S. 393, 406 (1932), *overruled on unrelated grounds by* Helvering v. Mountain Producers Corp., 303 U.S. 376 (1938) (overruling the court's own precedent); People v. Novotny, 320 P.3d 1194, 1202–05 (Colo. 2014) (Hood, J., concurring in part and dissenting in part) (overruling decades-old precedent); Creacy v. Indus. Comm'n, 366 P.2d 384, 386 (Colo. 1961) (overruling precedent). United States Supreme Court Justice Harlan Stone wrote of the common law that "its strength is derived from the manner in which it has been forged from actual experience by the hammer and anvil of litigation, and that the source of its weakness lies in the fact that law guided by precedent which has grown out of one type of experience can only slowly and with difficulty be adapted to new types which the changing scene may bring." Harlan F. Stone, *The Common Law in the United States*, 50 HARV. L. REV. 4, 7 (1936).

333. *Cf.* WILKINSON, *supra* note 17, at 25 ("The law of the American West has become a classic case of what can happen when the normally salutary tendency of

court to reconsider its historic treatment of certain uses as per se beneficial[334] and instead weigh the *actual* benefits of any prospective use. With the constitutional and statutory amendments this Comment recommends in Section III.A in place, the judiciary would be required to fulfill its "province and duty" to reinterpret beneficial use in this fashion.[335] The judicial reinterpretation of beneficial use should replace the former list of per se beneficial uses with a calculus that determines whether a use is beneficial for the applicant, local community, and state.

Using a public interest standard in water rights adjudications is the best mechanism to conduct this calculus. Water courts, as the fact finders in water rights adjudications, are in the best position to make the case-specific inquiries necessary to ascertain whether a proposed use is actually beneficial. Case-by-case determinations—informed by present testimony, modern science, and made against the backdrop of the contemporary political, economic, and environmental reality—are far more likely to grant water rights for uses that are actually beneficial than are statutory lists more than a century old.[336] Moreover, fact finders conducting a public interest inquiry can best weigh the value shifts and competing equities necessary to tailor beneficial use to a given stretch of stream.[337] With the constitutional blessing to deny applications that are not in the public interest under an amended Section 6, the courts would no longer be bound by the old lists.

Affording water courts the discretion to make such determinations and adjudicate in the public interest would truly allow this state to maximize the beneficial use of its precious water resources.

---

the law toward stability becomes subverted, when societal change far outstrips entrenched legal rules: when that happens, . . . law can become 'in very truth a government of the living by the dead.'"). *See generally supra* Part II for the costs of not having a public interest standard.

334. *See* St. Jude's Co. v. Roaring Fork Club, L.L.C., 351 P.3d 442, 448–51 (Colo. 2015) (expressing a narrow view of "beneficial use" seemingly limited to the three uses spelled out in Art. XVI, sec. 6 of the Colorado Constitution and the three uses specifically authorized in C.R.S. § 37-92-103(4)(a)–(c)).

335. *See generally* Marbury v. Madison, 5 U.S. 137, 177 (1803).

336. *See generally* analysis *supra* Section II.A (analyzing the value of uses on a given stretch of stream in the modern world).

337. *See generally* analysis *supra* Section I.D (discussing this calculus).

CONCLUSION

This Comment ultimately raises the issue of whether the current system of water allocation truly maximizes the use of Colorado's waters. The *Arapahoe* court's interpretation of Section 6 was probably correct, both as a reading of Section 6 and the underlying policy of advancing the settling and development of the state. This Comment does not question the historical wisdom of creating a prior appropriation system tempered by use priorities and implemented under the guiding principle of maximum use. There can be little doubt that Colorado has taken great care from the very beginning to afford all comers a portion of the state's limited water resources. But as Professor Charles Wilkinson observed, "[t]he fact that the nineteenth-century program may have been right for its own time does not, however, settle the question of whether it is right for these times."[338]

Colorado is no longer the empty territory waiting for settlement that initially inspired the constitutional and common law water allocation system. Nor is the state beholden to a mining- and agriculture-dominated economy that demands primary access to vital water resources. Instead, and perhaps in spite of the preceding mindsets that guided policy in this state, Colorado is still a wild place. Visitors and citizens alike value the forests, mountains, and rivers with which Colorado is inordinately blessed.

As a measure of changing times and mindsets, the value people attach to maintaining these resources in a natural state is increasingly monetary as well as aspirational or aesthetic. The environmental movement may have lost some of the far-sighted idealism of the 1970s, but it increasingly finds allies in business-minded voters and policy makers.[339] With thousands of Coloradans financially dependent on the state's water

338. WILKINSON, *supra* note 17, at 19.

339. *Cf. id.* at 17 (concluding that a consensus exists among "most people concerned with the American West" that resource exploitation and development generally "ought to be balanced and prudent, with precautions taken to ensure sustainability, to protect health, to recognize environmental values, to fulfill community values, and to provide a fair return to the public"). The more than a thousand businesses that comprise Protect the Flows are a perfect example of how modern commercial enterprise is increasingly dependent on conservation. *See generally* PROTECT THE FLOWS, www.protectflows.com [https://perma.cc/L4A8-JRPB].

resources, water conservation is a vital policy point.[340] As national and state populations trend upward and already limited water resources grow ever scarcer and more unpredictable due to climate change, Colorado must adopt an allocation system that fosters a strong economy and truly maximizes the beneficial use of water in a stream on a stretch-by-stretch basis.

Meeting the challenges of the twenty-first century will require new ways of negotiating scarcity and demand.[341] The most effective means of meeting this challenge is to reform our resource allocation schemes. The days of indiscriminately giving away one of Colorado's most precious resources are long past. Overappropriated and dewatered streams almost irrevocably tied up in marginal uses are the legacy of a century and a half of the current regime. Now more than ever, proposed water uses must receive careful scrutiny.

It is often said of Colorado water law that beneficial use is the basis, measure, and limit of a right.[342] Yet without a public interest inquiry, beneficial use has grown into a myopic standard that ignores important local and statewide factors. In only looking at the value to the individual appropriator and not also to the community and state, "beneficial use" has gradually cleaved from a more commonsense definition of "beneficial."[343]

340. STATE OF COLORADO, COLORADO'S WATER PLAN: INTRODUCTION 1-6 (2015), http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=197264&searchid=d37a7960-b4ef-4ce5-9279-a1916ddc8f60&&dbid=0 [https://perma.cc/EFF2-PTAU] (listing Colorado's "water values," which aspire to pursue "[a] productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation, and tourism industry" and "[a] strong environment that includes healthy watersheds, rivers and streams, and wildlife").

341. *See, e.g.*, Alejandro E. Camacho & Robert L. Glicksman, *Legal Adaptive Capacity: How Program Goals and Processes Shape Federal Land Adaptation to Climate Change*, 87 U. COLO. L. REV. 711, 738 & n.134 (2016) (discussing how climate change has engendered a need in the twenty-first century for improved adaptive capacity in natural resource management).

342. *E.g.*, High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist., 120 P.3d 710, 719 (Colo. 2005); Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 53 (Colo. 1999) (citing Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447 (Colo. 1882)); COLO. REV. STAT. § 37-62-101, art. III(b)(2) (2015) (codifying the Upper Colorado River Compact, an interstate compact allocating the Upper Basin's portion of the Colorado River between the Upper Basin states of Arizona, Colorado, New Mexico, and Wyoming).

343. *See, e.g.*, *Beneficial*, WEBSTER'S, *supra* note 156, at 203 (defining "beneficial" as "contributing to a good end" and noting in its list of synonyms terms that "beneficial" is "the most general" and that it "may describe *anything* conducive . . . to social welfare") (emphasis added). *Cf.* St. Jude's Co. v. Roaring

A public interest standard would afford water courts with the discretion necessary to negotiate the line between water allocation to individual users and maximizing the value of that water at the state and local levels. This balance would give the fullest effect to the Colorado Constitution's command that water be applied to beneficial use and ensure that never denying water right applications is a promise this state can afford to keep.

Fork Club, L.L.C., 351 P.3d 442, 456–60 (Colo. 2015) (Márquez, J., concurring in part and dissenting in part) (undertaking a robust analysis of beneficial use).