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WATER LAW REVIEW

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The *Water Law Review* welcomes the submission of articles of timely interest to the water law community. Articles should discuss topical issues in water law and related areas, such as environmental and natural resource law, land use. They should provide an original, analytical, and in-depth treatment of the issue rather than a summary of previous research efforts. Anonymous peer review of articles is available upon request. In addition to articles, the *Water Law Review* also invites submissions of shorter works, such as book reviews, commentaries, and bibliographies.

STYLE

Articles should be well organized, concisely written, and presented in an articulate and scholarly manner. Accordingly, authors should minimize their use of direct quotes.

FORMAT

Manuscripts considered for publications must be typed, double-spaced, and formatted to fit on 8½ x 11 paper. The text should be broken into appropriate headings and subheadings and should conform to the *Chicago Manual of Style* (16th ed. 2010). Citations to references and authorities should be contained in footnotes. Footnotes may also include elaboration on points raised in the text or references to research sources pertaining to points peripheral to those discussed in the text. Footnotes must conform with *The Bluebook: A Uniform System of Citation* (19th ed. 2010), published by the Harvard Law Review Association. Footnotes should be current as of the date of submission. Send hardcopy submissions to: University of Denver Water Law Review, 2255 East Evans Avenue, #447, Denver, Colorado, 80208. Email electronic submissions, as an attached file in Microsoft Word format, to wlr@law.du.edu.

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EDITOR'S NOTE

Thank you for taking the time to read this Spring 2013 Issue of the *Water Law Review*! As the academic year draws to a close, it is my pleasant duty to reflect on the successes of the *Review* over the past year. As our readers may be aware, one of the *Review's* long-range goals is to make the *Review* more than just a source of great articles; we are committed to building and supporting a community of people (not just words) in the print, digital, symposia, and policy spheres. I am pleased to report that many of our efforts in 2013 have contributed to furthering that goal.

The crown jewel of the *Water Law Review's* work this spring was our 6th Annual Spring Symposium, the success of which was attributable to the tireless work of Symposium Editor Jonathan King and the generosity of our Symposium sponsors. This year's Symposium was entitled "Addressing Supply & Demand Imbalances in the Colorado River Basin" and drew a standing-room-only crowd from the legal, policy, government, and academic communities in Colorado and beyond. Our keynote presenter, Colorado's own Anne Castle, Assistant Secretary for Water and Science at the US Department of the Interior, introduced and commented on the groundbreaking Colorado River Basin Supply and Demand Study, which was jointly funded and prepared by the US Bureau of Reclamation and seven Colorado River basin states.

The Study, which may be found at <http://www.usbr.gov/lc/region/programs/crbstudy.html>, projects startling supply and demand imbalances in the Colorado River Basin and its adjacent areas over the next fifty years, and sets forth various scenario portfolios and proposed adaptation strategies affecting all areas of the Basin. Distinguished panelists discussed the implications of the Study at the local, state, and international levels. A common theme among the presentations was the need for stakeholders to work together collaboratively and creatively to generate wiser, longer-lasting solutions to shared challenges. We here at the *Water Law Review* look forward to continuing to do our small part to provide a valuable forum for these efforts. To read more about the Study, the Symposium, and to watch videos of the Symposium sessions, please visit our website at www.duwaterlawreview.com.

In keeping with our tradition of publishing cutting-edge articles on water issues, I invite you to read the six quality pieces in this Issue. First, you will find *Beyond Quantification: Implementing and Sustaining Tribal Water Rights Settlements* by Celene Hawkins, which provides a detailed overview of important considerations and strategies for implementing Tribal water rights settlements. Next, you will find *The Shallows Where Federal Reserved Water Rights Founder: State Court Derogation of the Winters Doctrine* by Justin Huber and Sandra Zellmer, which traces the history of implied federally reserved water rights and comments on recent state court decisions that have limited the doctrine's utility. Then, there is *Prior Appropriation and Water Quality: The Water Court's Authority to Protect an Appropriator's Right to Clean Water* by Ryan Jarvis, which explores the duties and powers of Colorado's water courts to protect water quality, not just quantity and priority.

Next, you will find *Sustainable Development Along International Watercourses: Is Progress Being Made?* by Frank Lawson, which examines the successes and challenges of applying established sustainable development principles in the context of international water law. Then, there is *Planning for Drinking Water in the Great Lakes Basin After Terrorism, or: How I Stopped Worrying and Loved the Great Lakes Compact* by Caitlyn Lothian, which provides a unique look at the Great Lakes Compact and its ability to accommodate water withdrawals for short-term emergency use in the event of a terrorist attack on the nation's drinking water supply. Last, you will find *Present Perfected Rights: The Most Senior Undefined Water Rights on the Colorado River* by Jonathan Schutz, which describes present perfected rights, sets forth how courts and legislation have defined them, and discusses important and unresolved issues as to the priority of these water rights.

Another notable feature of this Issue is the large amount of high-quality student writing, which may be found in the Book Notes, Case Notes, Conference Reports, and Court Reports sections of the Issue. *Water Law Review* members Jenna Anderson, D. Austin Rueschhoff, and Adam Thiessen should be applauded for their great pieces analyzing *Gila River IX*, *Archuleta v. Gomez*, and the Colorado River Cooperative Agreement, respectively. We are also pleased to publish a guest-authored International Court Report by Will Stenzel, Esq. and Dr. Jacinta Ruru of the University of Otago Law School in New Zealand, entitled *New Zealand Maori Council v. Attorney General*. The Court Report is a must-read for anyone interested in indigenous rights to water and privatization of natural resources.

As my tenure on the *Water Law Review* comes to a close, I would be remiss to not thank the *Review's* excellent staff, Editorial Board, and professional Advisory Board for their hard work and support of all aspects of this publication and its surrounding community. If it is said that it takes a village to raise a child, I would submit that it takes an international community to publish a successful law review. We sincerely hope to have done, and to continue to do, just that.

Allison Pofit Altaras
Editor-in-Chief

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**BEYOND QUANTIFICATION:
IMPLEMENTING AND SUSTAINING TRIBAL
WATER SETTLEMENTS**

CELENE HAWKINS*

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* Associate General Counsel, Ute Mountain Ute Tribe. Special thanks to Keslie Kandt, J.D., for her assistance researching and co-authoring the article. The author would like to thank Charles Wilkinson, Distinguished Professor, Moses Lasky Professor of Law, for inspiring the author's connection between water settlement implementation work and Tribal sovereignty and self-determination. The author would also like to thank Herb Becker, J A Associates, and Bidtah Becker, Assistant Attorney General, Navajo Nation Department of Justice, for pre-publication review, and the entire Ten Tribes Partnership Legal/Technical Committee for providing insight on the implementation of Tribal water rights.

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Historically, most Tribes did not really pursue settlement of water rights for financial gain because the Indian or indigenous concept of water does not quantify water as a resource, and instead views it as the supreme element that gives life. When the governments and attorneys negotiated settlements for Tribes, they did not grasp this basic Tribal understanding of water. Tribes did not know how to express the Tribal relationship and understanding of water to the attorneys and the governmental representatives or how to ask for what the Tribes felt was real or full compensation for the loss of water. Then, once Tribes did get their water rights settlements, many found that there was no way to implement the settlements on their own, and they had to rely on agencies like the Bureau of Reclamation and the Army Corps. Many Tribes also found that they lost control over and gave up sacred sites and burial grounds developing their settlement waters. This was not so for the Ute Mountain Ute Tribe. We told them “we want to do this, and we want to build this,” and we brought our daily input into our projects with our construction company and our cultural resources team in charge of archaeological mitigation. And by having our own people in charge of our settlement projects, the Tribe took control over getting the projects done, making “wet” water a reality for our people, and helping to fulfill our own treaty rights.¹

—Terry Knight, Ute Mountain Ute Tribal Historic Preservation Officer, Tribal spiritual leader and elder, former Tribal Chairman and Council member, and Animas-La Plata Cultural Resources Contract Coordinator

1. Interview with Terry Knight, Ute Mountain Ute Tribal Historic Preservation Officer, in Towaoc, Colo. (Nov. 13, 2012) (paraphrased with permission).

In the last forty years, and particularly since Barack Obama took office in 2008, there has been an increased effort to resolve Tribal claims for federal reserved water rights in the western United States through negotiated settlement.² This settlement activity comes as planning efforts in over-appropriated western river basins highlight the need for certainty in allocating water for Tribal water rights and as the general public has a moral recognition (or at least a legal recognition) that non-Tribal water development efforts can no longer ignore Tribal water needs and uses.³

As efforts to quantify Tribal water rights through negotiated settlements and litigation continue, there is a growing area of legal scholarship on the quantification of Tribal water rights.⁴ This area of scholarship is constantly evolving as new states take on the task of quantifying Tribal rights, as new legal issues arise during the quantification process, and as the political landscape for negotiating Tribal water rights settlements changes.⁵ This area of scholarship is

2. FELIX S. COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 19.05[2], at 1246-48 (Nell Jessup Newton ed., 2012) [hereinafter COHEN'S HANDBOOK]; Judith Royster, *A Primer on Indian Water Rights: More Questions than Answers*, 30 TULSA L.J. 61, 96, 101 (1994) (noting that negotiated settlements of Tribal claims to water are becoming increasingly common); Working Group in Indian Water Settlements, *Criteria and Procedures for the Participation of the Federal Government in Negotiations for the Settlement of Indian Water Rights Claims*, Meeting Notice, 55 Fed. Reg. 9223 (Mar. 12, 1990) [hereinafter Federal Settlement Procedures].

3. See, e.g., *Oversight Hearing on Indian Water Rights: Promoting the Negotiation and Implementation of Water Settlements in Indian Country Before the Senate Comm. on Indian Affairs*, 112th Cong. 26-37 (2012) [hereinafter *Oversight Hearing 2012*] (statement of Maria O'Brien, Legal Comm. Chair, W. States Water Council); WESTERN STATES WATER COUNCIL, RESOLUTION OF THE WESTERN STATES WATER COUNCIL IN SUPPORT OF INDIAN WATER RIGHTS SETTLEMENTS, Pos. No. 336 (Oct. 7, 2011), available at <http://www.westgov.org/wswc/336%20indian%20water%20rights%20settlements%207oct2011.pdf> (*aff'g* RESOLUTION OF THE WESTERN STATES WATER COUNCIL IN SUPPORT OF INDIAN WATER RIGHTS SETTLEMENTS, Pos. No. 310 (Oct. 17, 2008), <http://www.westgov.org/wswc/08%20settlmn%20ind%20wat%20rts.pdf>); COLO. RIVER WATER USERS ASS'N, *Settlement of Indian Reserved Rights, Res. 2012-5*, in 2012 RESOLUTIONS OF THE COLORADO RIVER WATER USERS ASSOCIATION 5 (Dec. 15, 2011), available at <http://www.crwua.org/Portals/6/Documents/2011-12/2012CRWUAResolutions-Final.pdf>.

4. See generally, BONNIE G. COLBY ET AL., NEGOTIATING TRIBAL WATER RIGHTS: FULFILLING PROMISES IN THE ARID WEST 10 (2005); Robert T. Anderson, *Indian Water Rights and the Federal Trust Responsibility*, 46 NAT. RESOURCES J. 399 (2006); Royster, *supra* note 2; Jessica Bacal, *The Shadow of Lone Wolf: Native Americans Confront Risks of Quantification of Their Reserved Water Rights*, 12 U. BRIDGEPORT L. REV. 1 (1991); Martha C. Franks, *The Uses of the Practicably Irrigable Acreage Standard in the Quantification of Reserved Water Rights*, 31 NAT. RESOURCES J. 549 (1991) (providing an overview of the application of practicably irrigable acreage doctrine); Gina McGovern, *Settlement or Adjudication: Resolving Indian Reserved Rights*, 36 ARIZ. L. REV. 195 (1994) (providing background on quantification in the settlement process); Michelle Uberuaga Zanoni, *Evaluating the Consequences of Climate Change on Indian Reserved Water Rights and the PIA: The Impracticably Irrigable Acreage Standard*, 31 PUB. LAND & RESOURCES L. REV. 125 (2010) (discussing the impact of climate change on quantification).

5. For an overview on recent challenges to maintaining federal funds to negotiate and support Indian water rights settlement, see *Oversight Hearing 2012*, *supra* note 3, at 3-5 (statement of Maria O'Brien, Legal Comm. Chair, W. States Water Council); *id.* at 3-4 (statement of John Echohawk, Executive Director, Native American Rights Fund); *id.* at 5-7 (statement of David J. Hayes, Deputy Secretary, U.S. Dep't of Interior); Anderson, *supra* note 4.

highly relevant for practitioners involved in the quantification of Tribal water rights, as the allocation of water to Tribes outside the state-based appropriation framework is still hotly disputed in some western states, and as it is a constant struggle for state water administrators and state court judges to fit Tribal reserved rights into a system that typically awards rights based on control and beneficial use of water resources.⁶

However, perhaps because of the complexity of Indian water rights, the difficult and time consuming nature of the quantification processes, and the number of Tribes still holding unquantified water rights, the legal scholarship on the quantification of Tribal water rights has not expanded much in the past forty years beyond the quantification process, into the work involved with implementing Tribal water rights settlements. The intent of this article is to begin, or take a small step into, looking at the work and issues Tribes face while implementing settlement rights and evaluating how settlement implementation promotes Tribal governmental capacity, Tribal self-determination, and Tribal sovereignty.

In addressing this small area of Tribal water rights settlement implementation, it may be important to note areas this article does *not* intend to address and limitations to this analysis. First, this article is not intended to address the reasons and methods for entering into Tribal water rights settlement agreements. Instead, this article generally assumes that practitioners reviewing this article have a basic understanding of the nature of Tribal reserved water rights⁷ and the manner in which Tribes generally litigate or settle those rights in state or federal courts.⁸

Second, this article will focus on the implementation of settlement agreements based in western prior appropriation states, and in particular, on settlements of water rights within the Colorado River Basin and on more recent water settlement agreements. It is somewhat difficult at this time to discern the applicability of this analysis to water rights quantification efforts in riparian states or the ongoing water rights quantification efforts in Oklahoma.⁹ This article also specifically does not take on the task of evaluating the work required to develop and implement litigation-based Tribal water quantifications, such as the rights held by Tribes in the Lower Basin of the Colorado River decreed in *Arizona v. California*, 373 U.S. 546 (1963), although this article

6. See, e.g., COHEN'S HANDBOOK, *supra* note 2, §19.01[1], at 1204-06 (explaining and contrasting state water law systems to federal Indian reserved rights); see *id.* § 19.05[2], at 1247 (describing the disadvantages of litigation in a potentially hostile forum); see *id.* § 19.05[1], at 1245 (describing state court decisions affecting the substance of Tribal water rights).

7. See, e.g., COHEN'S HANDBOOK, *supra* note 2, § 19, at 1204-63 (providing a treatise analysis of federal Indian water rights); Royster, *supra* note 2, at 63-86.

8. See, e.g., COHEN'S HANDBOOK, *supra* note 2, § 19.05[1], at 1241-46 (explaining the enactment of the McCarran Amendment, 43 U.S.C. § 666 (2006), and the doctrine of federal abstention adopted in *Colorado River Water Conservation Dist. v. United States*, 424 U.S. 800, 817-820 (1976)); Royster, *supra* note 2, at 96-101.

9. See generally Hope Babcock, *Reserved Indian Water Rights in Riparian Jurisdictions: Water, Water Everywhere, Perhaps Some Drops for Us*, 91 CORNELL L. REV. 1203 (2006) (providing a comprehensive overview of the assertion of Indian water rights in riparian and regulated riparian states); see also Royster, *supra* note 2, at 101-03.

does touch on similarities in the implementation processes for litigation-based and settlement-based water rights.

This article proceeds in three parts. First, it briefly outlines the Tribal water settlement process and provides a broad look at common threads of Tribal water settlements. Second, it provides a broad analysis of the work Tribes take on to implement and sustain the water and other rights obtained under settlement agreements. Finally, it argues that, although settlement implementation is a daunting commitment of time and resources for Tribes, this work promotes the development and sustenance of Tribal government capacity, Tribal self-determination, and the exertion and preservation of Tribal sovereignty.

I. COMMON THREADS OF TRIBAL SETTLEMENT AGREEMENTS

A. SETTLEMENT BACKGROUND

Each Tribal water rights settlement is unique. Each Tribe has its own history of water use and land use, and each Tribe has its own story about the loss of the Tribe's ability to use water and land resources through the diminishment of reservation lands, through forcible removal from indigenous lands, and through the development of competing non-Tribal land use and commercial development.¹⁰ Each Tribe enters water litigation or water settlement negotiations with existing relationships with surrounding communities and state governments. Each Tribe enters water litigation with its own relationship to existing federal, state, and local water infrastructure projects (many of which involve non-Tribal water development that deprives Tribes of historic streamflow or federal water development that floods or impacts Tribal lands).¹¹

Each Tribe also enters into settlement negotiations with local, state, and federal representatives who have historic, fiscal, and other capacities to provide opportunities or boundaries in settlement efforts. Tribal water rights settlements are *negotiated* settlements,¹² and these settlements usually depend on: (i) consent from Tribal representatives (or the Tribal membership); (ii) consent from state governments; (iii) the ability to pass federal settlement legislation in Congress; and (iv) the ability of state, Tribal, and federal governments to appropriate funding and perform other commitments called for in the settlement agreements.

10. See Joseph R. Membrino, *Indian Reserved Water Rights, Federalism, and the Trust Responsibility*, 27 LAND & WATER LAW REV. 1, 14 (1992) (describing the background for water litigation at the Wind River Reservation in Wyoming and noting that the history is "typical of the pattern of cession and diminishment that occurred with Indian lands in the 19th century"); Interview with Terry Knight, *supra* note 1 (describing the displacement of the Ute people from mountains and abundant high-mountain water sources to the semi-arid current Ute Mountain Ute Reservation).

11. CHARLES WILKINSON, *CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST* 268-70 (1992) (describing federal policies and water projects that flooded Indian lands and failed to protect Indian water rights for use on reservations); Anderson, *supra* note 4, at 400, 430-36.

12. See, e.g., Royster, *supra* note 2, at 100; Michael C. Blumm, *Unconventional Waters: The Quiet Revolution in Federal and Tribal Minimum Streamflows*, 19 ECOLOGY L.Q. 445, 474 (1992) (both noting that settlements are negotiated settlements).

B. THE SETTLEMENT PROCESS

As indicated above, each settlement process involves unique challenges and concerns for Tribal, state, local, and federal interests. In many cases, settlements of Tribal reserved rights claims occur after claims for the rights are filed in state or federal court. The litigation often occurs in general stream adjudications initiated in state courts, although it can occur in state or federal court to address just Tribal claims.¹³

The settlement process is generally initiated by entities from the Tribe, the state, or the United States. The settlement participants and negotiation process varies according to the preferences or formal institutions in place, particularly those set in place by states and Tribes.¹⁴ Negotiations to formulate the terms of settlement agreements can take years and can span many political regimes at the state, Tribal, and federal level.¹⁵

Once the settlement agreement has been negotiated, the parties to the settlement and other settlement proponents usually face two or three more steps. First, the parties must seek formal approval from the state and Tribe, and usually from Congress.¹⁶ At the Tribal and state level, formal agreement mechanisms vary, but it is worth noting that, in some cases, the Tribal government will either choose to or be required to go through an internal Tribal process to seek full Tribal membership approval of the final terms of the settlement.¹⁷ At the federal level, explicit congressional action is usually necessary to authorize funding for federal commitments in the settlement agreement, to lift federal restrictions on the sale or marketing of water, and to provide other specific

13. COHEN'S HANDBOOK, *supra* note 2, § 19.05[1], at 1241-46 (explaining the enactment of the McCarran Amendment, 43 U.S.C. § 666, and the doctrine of federal abstention adopted in *Colo. River Water Conservation Dist. v. United States*, 424 U.S. 800, 817-820 (1976)); Royster, *supra* note 2, at 96 (explaining that the federal abstention doctrine makes state courts the forum of choice for determining Indian reserved rights to water).

14. See, e.g., Stanley Pollack, *New Mexico Water: Past, Present and Future or Guns, Lawyers, and Money*, 339 N.M. WATER RESOURCES RES. INST. 142-43 (2005), available at <http://wrrri.nmsu.edu/publish/watcon/proc50/pollack.pdf>; Blumm, *supra* note 12, at 475 (noting that the State of Montana has established a reserved rights compact commission to negotiate Indian reserved rights settlements).

15. See, e.g., Pollack, *supra* note 14, at 142-47 (noting that the Navajo Nation invited the State of New Mexico to engage in settlement discussions in 1996, that significant work on the settlement was still in front of the Navajo Nation, and that the Navajo Nation "optimistically set the year of 2026 as the year the final settlement becomes effective.").

16. See, e.g., COHEN'S HANDBOOK, *supra* note 2, § 19.05[2], at 1247-48 (noting that Congress has enacted twenty-seven settlements into law between 1978 and 2010, but that several settlements have been concluded without congressional approval); Pollack, *supra* note 14, at 144 (noting the need to seek congressional approval of funding for the Navajo Nation settlement for the San Juan River).

17. See, e.g., *Crow Tribal General Council Approves Crow-Montana Water Compact and Crow Water Rights Settlement Act*, CROWLAWS.ORG, <http://crowlaws.org/> (last visited Nov. 12, 2012) (noting the Crow Tribe held a General Council (full Tribal) vote on its water settlement agreement in 2011 between the Tribe, Montana, and the United States, after Congress approved its water settlement legislation).

congressional action necessary for implementing the settlement.¹⁸ Once proponents secure congressional approval, the parties may need to negotiate again to implement congressional overrides or congressional revisions to the settlement agreement.¹⁹ Once all necessary parties have formally approved the settlement agreement, the settlement proponents must seek court approval of the settlement agreement (if the agreement resolves claims that have been filed in court).²⁰

Because this process takes time, and because the settlement agreements often include funding components and controversial new infrastructure, the settlement process can easily be complicated by internal Tribal or external factors. For example, in the settlement of rights for the Ute Mountain Ute Tribe and Southern Ute Indian Tribe in Colorado, the significant downsizing of one of the key federal projects providing water to the Tribes led to a renegotiation of the Colorado Ute Final Indian Water Rights Settlement Agreement nearly fourteen years after the settlement agreement was initially executed.²¹ That renegotiation required new federal legislation for the project, new federal funding to support project and natural resource development funds, and amendment to the Tribal water rights settlement decrees.²²

C. TRIBAL RESERVED WATER RIGHTS SETTLEMENT AGREEMENTS

The historical, hydrological, and political forces that shape Tribal water settlements into these unique negotiated settlements do have some common threads. First, as a general rule, during the settlement negotiations, state representatives will try to protect existing non-Tribal uses of water (even if those existing uses hold junior priority dates and even if those existing uses deprive Tribes of important on-reservation water resources) and to quantify Tribal settlement rights in a way that provides certainty to other water users in the allocation and administration of water.²³ Tribes often focus on developing “wet water” through infrastructure and water delivery projects and obtaining specific

18. See, e.g., COHEN'S HANDBOOK, *supra* note 2, § 19.05[2], at 1247-48; *id.* § 19.05[2], at 1252 (noting that most settlement acts provide for Tribal water marketing in some form); Pollack, *supra* note 14, at 144.

19. See Colorado Ute Indian Water Rights Settlement Act of 1988, Pub. L. No. 100-585 § 5, 102 Stat. 2973 [hereinafter Colorado Ute 1988 Act] (providing unilateral Congressional revisions to the marketing provisions contained in the original Colorado Ute Indian Water Rights Final Settlement Agreement).

20. See, e.g., Pollack, *supra* note 14, at 144 (noting that once Congress approved the Navajo legislation, the Navajo Nation would need to seek court approval of a final settlement decree).

21. Colorado Ute Settlement Act Amendments of 2000, Pub. L. No. 106-554, 114 Stat. 2763 (2nd Sess. 2000) [hereinafter Colorado Ute 2000 Amendments].

22. See *id.* §§ 302(a)(2), 303.

23. See Royster, *supra* note 2, at 100; State of New Mexico's Revised Statement of Legal and Factual Bases for Settlement at 2-3, San Juan River General Stream Adjudication, State *ex rel.* State Eng'r v. United States, No. CV-75 -184, AB-07-1 (N.M. Dist. Ct. Sept. 7, 2012) (providing the basis for the State of New Mexico's agreement to the Navajo Nation's settlement of claims in the San Juan River, New Mexico and specifically noting that the settlement meets the State's needs by diffusing significant risk to existing state law-based water rights owners).

water resources or development funds.²⁴ The United States focuses on negotiated settlement of Tribal water rights, and often does so within a framework geared towards avoiding liability to Tribes for failing in its trust responsibility to protect and develop Tribal water rights and obtaining final resolution of Tribal claims.²⁵

These goals in settlement negotiations often have enough overlap that settlement agreements can be crafted to satisfy all of the negotiating parties. These settlements tend to have the following elements: (i) Tribes will largely retain current or existing uses on the reservation;²⁶ (ii) Tribes will accept smaller amounts of direct diversion water rights than would normally be allocated in litigation;²⁷ (iii) Tribes will agree to specific uses (or a range of specific uses) to which the Tribal water can be put;²⁸ (iv) Tribes will accept compromises like the subordination of priority dates to certain water uses to avoid disrupting existing non-Tribal uses;²⁹ (v) Tribes will receive allocations of water from federally-funded storage projects;³⁰ (vi) Tribes will receive federal, state, and/or local financial assistance for building water infrastructure to deliver “wet water” to the reservation;³¹ and (vii) Tribes will receive federal, state, and/or local

24. Royster, *supra* note 2, at 100; Interview with Terry Knight, *supra* note 1 (describing the emphasis on seeking “wet water” through settlement instead of continuing litigation for “paper water” rights).

25. Federal Settlement Procedures, *supra* note 2; *see also* Anderson, *supra* note 4, at 435-37.

26. Article III, Section C (I) of the Colorado Ute Indian Water Rights Final Settlement Agreement grandfathered in existing uses identified during a settlement quantification process. *See, e.g.*, Stipulation for a Consent Decree § 6B, No. W-1603-76G (Colo. Dist. Ct. Water Div. 7 1991). In the Navajo Nation’s settlement of its water rights to the San Juan River in New Mexico, there is currently a proposed supplemental decree with existing stock and irrigation uses in more remote tributaries to the San Juan River. *See* Settling Parties Notice of Filing Revised Proposed Supplemental Partial Final Decree, San Juan General Stream Adjudication, State *ex rel.* State Eng’r v. United States, No. CV-75-184, AB-07-1 (N.M. Dist. Ct. Sept. 7, 2012).

27. *See* Royster, *supra* note 2, at 78; COHEN’S HANDBOOK, *supra* note 2, § 19.05[2], at 1250.

28. COHEN’S HANDBOOK, *supra* note 2, § 19.05[2], at 1251.

29. COHEN’S HANDBOOK, *supra* note 2, § 19.05[2], at 1250 n. 54 (noting that, in some instances, the Colorado Ute Tribes subordinated priority dates “in order not to disrupt” the state’s prior appropriation system). *See* Pollack, *supra* note 14, at 145 (describing settlement provisions requiring the Navajo Nation to utilize water from Navajo Reservoir instead of curtailing upstream non-Indian farmers).

30. Crow Tribe-Montana Compact, MONT. CODE ANN. § 85-20-902, art. III(A)(1)(b) (2011) (allocating 300,000 acre feet per year from Bighorn Lake to the Crow Tribe); Crow Water Rights Settlement Act of 2012, H.R. 7783-33 Title IV, § 407-08 (ratifying the allocation of storage water from the Bighorn Lake); San Juan River Basin Water Rights Settlement Agreement §§ 6.1, 8 (2005) (approving allocations of water to the Navajo Nation from the Navajo-Gallup Water Supply Project and the Animas-La Plata project); Colorado Ute 1988 Act *supra* note 19, § 4 (approving allocations of water to the Tribes from the Animas-La Plata and Dolores projects); *see also* Tim Vollman, *The Endangered Species Act and Indian Water Rights*, 11 NAT. RESOURCES & ENV’T 39, 39 (1996).

31. COHEN’S HANDBOOK, *supra* note 2, § 1905[2], at 1250. *See* Royster, *supra* note 2, at 78.

funding for economic development or natural resources development as partial payment for foregoing claims for large, senior direct diversion rights.³²

Because negotiated settlements allow for more flexibility than litigation quantification processes, settlement agreements can contain provisions that address unresolved legal issues and even provisions that a court could not award Tribes when evaluating the Tribe's federal reserved water rights. For addressing unresolved legal issues, the common threads in the settlement agreements are: (i) determining Tribal rights to groundwater; (ii) determining Tribal rights to hold quantified water rights as instream flows; and (iii) allowing Tribes a limited right to market some or all of their settlement rights (which involves both a waiver of federal limitations on marketing Tribal trust resources and agreement on the nature of Tribal marketing rights).³³ The marketing settlement provisions are very common in modern settlement efforts, as the ability to market Tribal water on or off the reservation can be key for Tribal economic development efforts, for protecting the "future use" component of the quantified rights, and for utilizing Tribal water to most efficiently meet Tribal and non-Tribal water needs in the same basin or area.³⁴

Some of the most important settlement provisions that are difficult to obtain through litigation are provisions dealing with jurisdictional issues between Tribes and states, and in particular, with administration authority and dispute resolution.³⁵ For administration authority, settlement agreements can address the tension between the McCarran Amendment, 43 U.S.C. § 666 (2012), which gives state courts jurisdiction to adjudicate water rights, and the body of federal law that holds that Tribal authority to regulate Indian property rights is exclusive of the states.³⁶ Settlement agreements can address this tension by

32. COHEN'S HANDBOOK, *supra* note 2, § 19.05[2], at 1250 ("Every settlement act authorizes funds for the tribes, either specifically earmarked for water development or management projects, or more generally allocated for economic development, or both.").

33. See COHEN'S HANDBOOK, *supra* note 2, § 19.03[7][c], at 1229-30; Royster, *supra* note 2, at 82-85 (explaining the uncertainty of the legal authority for water marketing and noting that Indian water settlements contain provisions for water leasing and water marketing); Blumm, *supra* note 12, at 474-75.

34. Anderson, *supra* note 4, at 436; Royster, *supra* note 2, at 82-84; see also COHEN'S HANDBOOK, *supra* note 2, §1903[7][c], at 1228-30 (noting that most settlement act statutes authorize some form of water leasing, although they prohibit permanent alienation of Tribal rights to water).

35. Blumm, *supra* note 12, at 475. See, e.g., Pollack, *supra* note 14, at 145 (noting that the role of the State Engineer with respect to the administration of the Navajo water rights is very well-defined in the San Juan River settlement documents).

36. See COHEN'S HANDBOOK, *supra* note 2, § 19.04[2], at 1238 (noting that "Indian tribes, therefore, have full and exclusive regulatory authority over Indian reserved rights to water, including water rights of allottees and lessees," but noting that state courts retain jurisdiction to "execute, enforce, construe, and interpret" state general stream adjudication decrees); Royster, *supra* note 2, at 92 (noting that Tribes and states "often assert conflicting authority over the administration of Indian country water rights."). This tension led to protracted litigation for the Wind River Tribe in Wyoming, where the court allowed monitoring of the Tribal reserved rights, but regulation only of the state appropriators to protect and enforce the Tribe's rights. Royster, *supra* note 2, at 93 (citing *In re Big Horn River Sys. (Big Horn III)*, 835 P.2d 273, 283 (Wyo. 1992); *In re Big Horn River Sys. (Big Horn I)*, 753 P.2d 76, 115 (Wyo. 1988), *aff'd by an equally divided Court sub nom.*, 492 U.S. 406 (1989)).

setting forth clear statements on Tribal authority to administer water³⁷ and shared systems of administration between Tribes and states.³⁸

For dispute resolution, settlement agreements can address the tension between the McCarran Amendment, which provides a limited waiver of federal sovereign immunity to adjudicate water rights,³⁹ and doctrines of federal and Tribal sovereign immunity that prevent state court jurisdiction over other water rights disputes. Settlement agreements can set forth cooperative requirements between states, Tribes, and the United States, and dispute resolution provisions that reduce uncertainty about how to resolve anticipated and unanticipated issues that arise during the implementation of Tribal water rights settlements.⁴⁰

II. ONGOING TRIBAL WORK IMPLEMENTING AND SUSTAINING TRIBAL SETTLEMENT RIGHTS

Once a Tribal water settlement agreement is finalized, there remains significant ongoing Tribal work in implementing settlement tasks and protecting, regulating, developing, and sustaining Tribal water resources. This work includes the ongoing need for water resources and management staff, water quality staff, water engineers, and water attorneys. This work also includes an ongoing need to ensure that Tribal resource managers, leaders, and policy-makers have the knowledge base and experience to address issues that arise while implementing and sustaining Tribal water settlements. Although each Tribal settlement agreement contains unique terms that impact implementing and sustaining Tribal water resources, Tribes implementing settlement agreements in prior appropriation states engage in some or all of the following implementation work.

A. THE TRIBAL ROLE IN PROTECTING QUANTIFIED WATER RIGHTS

One of the primary and longest duration roles Tribes play in implementing and sustaining settlement water rights is protecting the water rights quantified and secured in the settlement. Here, the role each Tribe plays protecting

37. See, e.g., Crow Tribe-Montana Compact, MONT. CODE ANN. § 85-20-902(4) (2011) (setting forth clear statements of Tribal administration authority).

38. See *id.* (setting forth certain responsibilities to Crow Tribal and state water administrators); Colorado Ute 1988 Act, *supra* note 19, § 9 (approving Article IV of the Colorado Ute Indian Water Rights Final Settlement Agreement, which sets forth a system of cooperative and coordinated system of administering Tribal water rights). *But see* COHEN'S HANDBOOK, *supra* note 2, § 19.05[2], at 1254 (noting that relatively few of the settlement acts include provisions regarding the administration or regulation of water rights).

39. See COHEN'S HANDBOOK, *supra* note 2, § 19.04[2], at 1238.

40. See, e.g., Crow Tribe-Montana Compact, MONT. CODE ANN. § 85-20-901, art. IV(A)(2), (F); San Juan River Basin Water Rights Settlement Agreement § 9 (2005) (discussing enforcement provisions of the settlement); Northern Cheyenne-Montana Compact, MONT. CODE ANN. § 85-20-301, art. IV(A), (F) (2011); Colorado Ute 1988 Act, *supra* note 19, § 9 (approving Article IV of the Colorado Ute Indian Water Rights Final Settlement Agreement, which sets forth specific dispute resolution mechanisms between the State of Colorado, the Tribes, and the United States).

its water rights depends on the nature of the Tribe's specific settlement agreement, and in particular, whether there are Tribal decrees or permits in state-administered prior appropriation or other systems that provide protection and enforcement of the Tribe's water rights. Even after Tribes obtain quantified water rights with specific priority dates (which should allow protection from competing users), Tribes still must monitor other water uses in the basin or region that might impact their quantified water rights. Tribes must also address special problems posed by the nature of Tribal reserved rights.

1. Monitoring and Enforcement of Quantified Rights

During the quantification process, the most important discussion about monitoring and enforcement of quantified rights is often which entity—Tribal, state, or federal—will monitor and enforce the *Tribal* use of water (an in particular, which entity monitors, administers, and enforces on-reservation water use). During the implementation process, however, Tribes must also understand how to protect their quantified Tribal rights against *non-Tribal* uses and water development projects. Even though federal reserved water rights (or water rights obtained in settlement of federal reserved water rights) are not defined or maintained like state appropriative water rights, Tribal water allocations rarely enjoy enough hydrologic separation from state-based water rights to simply ignore non-Tribal impacts after quantification.⁴¹ Accordingly, Tribes may see harm to quantified settlement rights if state administrators refuse to curtail junior priority non-Tribal water users. Tribes may also see harm to settlement rights if there are changes in senior priority non-Tribal water uses, new water uses, or new water projects that change hydrologic conditions or the system of water administration without incorporating sufficient protection for the Tribal rights.

Particularly when Tribes hold decrees or permits within a state-administered system of priority, they must monitor other water uses in their regions or basins, and they must understand the impact of both changes in water use and new users and projects developed in the rivers and watersheds where the Tribal uses and rights are located. At the regional level, this usually requires constant legal review of water use changes and new developments. In Colorado, for example, this requires monthly review of water resumes filed in relevant water divisions and work to maintain Tribal knowledge and understanding of new proposed projects.⁴² In some cases, Tribes may participate in the permitting or adjudication of other water rights or use other settlement agreement dispute resolution mechanisms to ensure that sufficient constraints are placed on junior water users to protect quantified Tribal rights.

Tribes must also understand changes and developments at larger (basin) levels. Here, Tribes may simply monitor and participate in basin-wide planning efforts to ensure that such efforts do not harm quantified or unquantified

41. See Membrino, *supra* note 10, at 29-31 (explaining litigation in the Big Horn line of cases based on the Wyoming State Engineer's refusal to enforce Tribal reserved rights).

42. COLO. REV. STAT. § 37-92-302 (2012).

rights, or Tribes may seek to utilize their quantified water rights or other Tribal waters in basin-wide efforts.⁴³

2. Special Problems with the Protection of "Future Use" Component of Settlement Rights

One particularly difficult area of implementing and sustaining Tribal water settlements is the protection of the "future use" component of Tribal reserved rights quantifications. Because most quantification efforts define Tribes' past, present, and future water rights (either state-wide or by river basin), Tribal quantification allocations usually include water that is not currently used by Tribes, but which is protected for Tribes' future use.⁴⁴ Particularly in prior appropriation states (where water rights are generally granted only to those making existing beneficial uses of water and where the holders of junior water rights are permitted to use available water unless the river or stream is put on "call" to deliver water to senior users)⁴⁵, it can be difficult to explain the nature of the "future use" component of the Tribal rights, and it can be very difficult to place practical or hydrologic protections for future Tribal use of the water.

On river systems with environmental constraints (particularly constraints related to threatened or endangered aquatic species), protecting the Tribal ability to develop the "future use" components of the quantified rights can be problematic if the regulating environmental agency or authority does not consider the priority date of water development projects it authorizes under environmental management plans.⁴⁶ Historically, federal agencies that use a "baseline analysis" to assess environmental impacts have refused to incorporate Tribal reserved water rights into the baseline until the Tribe identifies actual uses or development plans for Tribal water.⁴⁷ This means that, even if Tribal water rights have a senior priority date in water administration systems, existing and future junior priority water projects may be permitted first, and future, senior priority Tribal water development projects may be curtailed because the ecosystems or endangered species habitat cannot accommodate additional development.⁴⁸ Here, Tribes may need legal staff and counsel to engage state and federal agencies to ensure that management plans (including recovery plans, species management plans, and dam operations plans) include the

43. For example, ten Tribes with water rights tributary to the Colorado River formed the Ten Tribes Partnership in 1992 for the purpose of strengthening Tribal influence over the management and utilization of Colorado River water resources. *Ten Tribes Partnership*, COLO. RIVER WATER USERS ASS'N, <http://www.crwua.org/TenTribes.aspx> (last visited Nov. 12, 2012). The Ten Tribes Partnership now has active trustees in the Colorado River Water Users Association and provides a mechanism for coordinating Tribal work on Colorado River Basin issues. *Id.*

44. See Anderson, *supra* note 4, at 420.

45. *Montana v. Wyoming*, 131 S. Ct. 1765, 1772 (2011).

46. See COHEN'S HANDBOOK, *supra* note 2, § 19.06, at 1258-59; Vollman, *supra* note 30, at 39.

47. See COHEN'S HANDBOOK, *supra* note 2, § 19.06, at 1258.

48. See COHEN'S HANDBOOK, *supra* note 2, § 19.06, at 1258, Vollman, *supra* note 30, at 41-43.

Tribal “future use” water allocations in baseline analyses.⁴⁹ Tribes may also need assistance formulating plans for compliance with environmental permitting regulations when developing Tribal water projects on waterways with endangered species or other environmental issues.

3. Special Problems with Interstate Compacts or Agreements That Restrict the Use of Tribal Water

Another challenge with implementing and sustaining Tribal waters is managing Tribal waters within states that have engaged in multi-state water resource litigation or entered into interstate compacts, treaties, or other agreements. In modern settlement efforts, some of the parameters for Tribal water use within a framework of interstate agreements may be set forth in the Tribal settlement agreement. For example, Tribes within the Colorado River Basin often face serious constraints on settlement provisions allowing out-of-state water use because of the way the Colorado River Compact and the “Law of the River” allocate water between states.⁵⁰ Note here, however, that because Tribes must generally seek quantification of water rights separately in each state in which their reservation lands are located,⁵¹ Tribes with lands located in multiple states (albeit in the same river basin) are hard pressed, even in settlement agreements, to address all interstate issues in a comprehensive manner.⁵²

When Tribes have litigation quantifications or settlement agreements that do not fully address how Tribal water works within interstate agreements, the interstate agreements can become legally or politically limiting factors on the use of Tribal water. In addition, as the interstate compacts or agreements change, and as changes occur in river basins (due to climate and other reasons), Tribes may struggle to work with their more static settlement or litigation quantifications under new interstate agreements. Finally, because Tribes have historically been left out of discussions about interstate compacts or agreements, Tribes must retain qualified water lawyers, engineers, and water management staff to ensure that Tribes understand developments in interstate

49. For example, in response to years of continued effort to include Tribal water rights in an environmental baseline on the San Juan River, the Department of Interior announced in September of 2011 that Tribal water rights would be included in an environmental baseline because the depletions are “reasonably certain to occur.” *San Juan Recovery Implementation Program Coordination Committee Meeting Summary*, U.S. FISH & WILDLIFE SERV. (Sept. 28, 2011), <http://www.fws.gov/southwest/sjrip/pdf/CC2011Sept28.pdf>.

50. See Jicarilla Apache Tribe Water Rights Settlement Act, Pub. Law. No. 102-441 §§2(5)-(6), 106 Stat. 2237 (1992); Colorado Ute 1988 Act, *supra* note 19, § 5(b)-(c) (imposing limitations on transfers of project water between the Upper and Lower Colorado River Basins and subjecting water transfers to certain interstate compacts and treaties); see also Pollack, *supra* note 14, at 143 (discussing the potential for the Navajo Nation’s water rights making the State of New Mexico unable to meet obligations under the Upper Colorado River Basin Compact).

51. See Royster, *supra* note 2, at 96 (explaining the McCarran Amendment and that “a federal abstention doctrine makes state courts the forum of choice.”).

52. For example, the Ute Mountain Ute Tribe settled water rights for lands located within Colorado, but has not yet quantified water rights for lands located in New Mexico or Utah. See Colorado Ute 1988 Act, *supra* note 19, § 5(b)-(c); State *ex rel.* State Eng’r v. United States, No. CV-75-184, AB-07-1 (N.M. Dist. Ct. Sept. 7, 2012).

water agreements, and to allow Tribes to better protect their quantified rights as interstate compacts and agreements develop in the future.

B. THE TRIBAL ROLE IN PROTECTING AND MANAGING "PROJECT" OR "STORAGE" WATER

As noted above, the current trend in the settlement of Tribal reserved rights claims in the western United States is for settlement agreements to include allocations of "project" or "storage" water for tribes, rather than providing Tribes with direct diversion rights with senior priority dates.⁵³ During the litigation or settlement process, securing allocations of storage water can operate to resolve concerns about future Tribal direct diversions harming existing, but junior in priority, non-Tribal uses.

Once a Tribe secures settlement storage rights, it is then linked, often in perpetuity, to the success of the storage projects. The level of Tribal participation in water project planning and operation varies significantly depending on the type of project, ownership of the project, the entity operating and maintaining the project, and the type and number of other project users. In most cases, implementing Tribal allocations from storage projects requires significant Tribal involvement with federal agencies like the Bureau of Reclamation, local water districts, and other water managers, state regulators, and project users.

To ensure that Tribal project allocations are not disadvantaged or minimized by project and operational decisions, Tribal leaders and staff or professional service providers must engage with project owners, managers, and users to protect Tribal allocations in the project. For projects built, owned, or managed by federal agencies like the Bureau of Reclamation, Tribes may need to monitor the federal agency's decisions regarding the project, understand those decisions, and engage in government-to-government consultation to ensure that project-wide decisions do not override the Bureau of Reclamation's trust responsibility to protect Tribal water as an Indian Trust Asset.⁵⁴

For projects with either federal or non-federal managers, Tribes must engage their staff in project issues and management decisions that affect the Tribe's water allocation or affect operations and maintenance charges to the Tribe (which can be significant, particularly if the Tribal portion of the project involves energy use or long stretches of delivery infrastructure). Here, Tribes should actively participate in project and management meetings so they understand issues impacting their project water supply, such as endangered aquatic species protection or non-consumptive and recreational water demands.⁵⁵

53. See COHEN'S HANDBOOK, *supra* note 2, § 1905[2], at 1250; Royster, *supra* note 2, at 78.

54. See COHEN'S HANDBOOK, *supra* note 2, § 19.06, at 1257 n.3 (noting that the Department of Interior and Bureau of Reclamation policies recognize a "trust responsibility" to Tribes).

55. For example, the Ute Mountain Ute Tribe participates in the Dolores River Dialogue, a stakeholder group on the lower Dolores River that addresses fishery needs, ecological constraints, and recreation and non-consumptive needs to ensure that the Tribe has active involvement in decision-making processes that may impact its settlement water allocations in the

Tribes should also understand seasonal water supplies and project management during periods of water shortage to ensure they receive their quantified portions of the project water.

In some cases, Tribes need to be prepared to take a formal role in managing water projects that supply their water allocations. In Colorado, for example, the Animas-La Plata Operations, Maintenance, and Replacement Association will operate and maintain the Animas-La Plata project after it is completed.⁵⁶ The Intergovernmental Agreement that formed this Association allocates three of the seven management board seats to the Tribal project users (the Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, and the Navajo Nation).⁵⁷ The board seats require each Tribe to dedicate a significant amount of time and expertise (including Tribal Council time, water attorney time, and water engineering and management staff time) to the management of the project, but they also ensure evaluation of and attention to Tribal interests in the project through the formal role in management.

C. THE TRIBAL ROLE IN THE DEVELOPMENT OF WATER INFRASTRUCTURE

Tribal communities and reservation lands are historically underserved or completely unserved by federal, state, and local water infrastructure projects.⁵⁸ In addition, these same federal, state, and local water infrastructure projects often harmed Tribal lands and resources, and in many cases, deprived the on-reservation water sources of water despite senior Tribal reserved rights claims.⁵⁹ As a result, many Tribal reserved rights settlements include funding and plans to support the development of water infrastructure to provide treated water pipelines for municipal and industrial uses and delivers irrigation water to Tribal farming projects.⁶⁰ For Tribal settlements that include funding and plans for infrastructure development, the first phase of settlement implementation is often developing infrastructure. This requires significant Tribal involvement in the design, permitting, funding, and construction of the infrastructure projects.

1. Infrastructure Design

For infrastructure projects designed solely for Tribal use, Tribes need staff or professional service providers to ensure the infrastructure meets the present

Dolores Project. DOLORES RIVER DIALOGUE, <http://ocs.fortlewis.edu/drd/> (last visited Nov. 12, 2012).

56. *Animas-La Plata Project Operation and Maintenance Contract Signed*, U.S. DEP'T OF THE INTERIOR, BUREAU OF RECLAMATION, <http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=31328> (last visited February 8, 2013).

57. Intergovernmental Agreement: Establishing the Animas-La Plata Operations and Maintenance Association § 2.3-2.3.1, Mar. 4, 2009, <http://www.usbr.gov/uc/progact/animas/pdfs/InterGovt-Agmt-03-09.pdf>.

58. See *supra* note 11 and accompanying text.

59. See Royster, *supra* note 2, at 100.

60. See COHEN'S HANDBOOK, *supra* note 2, § 19.03[7][c], at 1229-30; Royster, *supra* note 2, at 82-85; Blumm, *supra* note 12, at 474-75.

and future needs of the Tribe. For infrastructure projects built in partnership or coordination with local water organizations and other water users, the infrastructure design can take time and planning to ensure the project meets the needs of all entities receiving benefits from the infrastructure.

2. Infrastructure Permitting

Tribes should also anticipate undertaking significant work securing land rights or easements for new infrastructure projects. For projects with on-reservation components, there can be significant internal Tribal work to locate infrastructure routes, address concerns with competing on-reservation land uses and resource management issues, and secure approval from the Bureau of Indian Affairs for easements for pipelines and other infrastructure. For projects with off-reservation components, Tribes will still have significant work with project partners and funding entities securing proper easements for infrastructure.

3. Infrastructure Funding

Unless funding has already been appropriated or otherwise dedicated to infrastructure projects in the settlement process, Tribes should anticipate some additional work securing the settlement funding in state, federal, and Tribal appropriations processes.⁶¹ Although parties to Tribal reserved rights settlements have a shared interest in ensuring the hard work of quantifying Tribal reserved rights is not unraveled by infrastructure funding disputes, Tribes should prepare Tribal leaders, and in some cases, Tribal lobbyists, to secure the infrastructure components of their settlement agreements.

4. Infrastructure Construction

If the settlement terms or other legal mechanisms support Tribal participation in the construction of the infrastructure, Tribes may have the opportunity to perform construction work on Tribal infrastructure projects. For example, in the Colorado Ute Indian Water Rights Settlement Act of 1988, Congress specifically subjected the two federal projects providing settlement water to the Indian Self-Determination and Education Assistance Act ("Public Law 638").⁶² This allowed the two Colorado Ute Tribes (and later the Navajo Nation) to utilize the Public Law 638 contracting process to take on construction work at the Animas-La Plata project.⁶³ The Ute Mountain Ute Tribe exercised its Public Law 638 capacity for its wholly-owned Tribal construction en-

61. See Vollman, *supra* note 30, at 39 (noting the "back-of-the-bus" development of water resources on Indian reservations).

62. Colorado Ute 1988 Act, *supra* note 19, § 10(a) (citing the Indian Self-Determination and Education Assistance Act, Pub. L. No. 93-638, 88 Stat. 2203 (1975) (codified as amended at 25 U.S.C. § 450)).

63. *Id.* (subjecting two water projects to the provisions of the Indian Self-Determination and Education Assistance Act, which allowed the Tribes to utilize the Act to contract for project construction work on both the Dolores Project and the Animas-La Plata project).

terprise to build the Colorado-based components of the Animas-La Plata Project and to perform cultural resources mitigation work for the project, and the Southern Ute Indian Tribe exercised its Public Law 638 capacity for its Sky Ute Sand & Gravel enterprise to provide construction materials for the project.⁶⁴

Other Tribes have used specific congressional directives in water settlement legislation to allow Tribes to participate in the construction of water infrastructure.⁶⁵ This type of participation can provide economic development and Tribal employment opportunities during the settlement implementation process.

D. THE TRIBAL ROLE IN WATER ADMINISTRATION

As noted above, an important question in either the settlement or the litigation of Tribal reserved water rights is which governmental entity has the jurisdiction or responsibility to administer the quantified water allocations.⁶⁶ Some Tribes have settlement agreements that set forth a division of responsibilities between state and Tribal regulatory agencies.⁶⁷ Other Tribes may require additional litigation or negotiation with state and federal regulatory agencies to delineate the role of Tribal regulators over Tribal water resources.⁶⁸

In either case, once a Tribe has secured settlement of its water rights, it will usually face some work setting up Tribal systems for administering quantified water rights. Each Tribe may approach implementation differently, and each approach will vary according to the terms of settlement and other agreements setting forth the administrative responsibilities and each Tribe's existing water resources programs. In many cases, implementing Tribal administrative responsibilities requires: (i) Tribal leadership and resource managers understand the parameters of their administration responsibilities; (ii) a Tribal department or program to coordinate the administrative tasks; (iii) Tribal water management staff with capacity to map, record, and manage water uses; (iv) water engineers; and (v) water attorneys to assist in interpreting settlement and other agreements.

In most cases, Tribes retain jurisdictional authority to administer water within reservation boundaries.⁶⁹ This administration authority, along with the special nature of Tribal reserved rights, may allow Tribes to build administra-

64. Interview with Terry Knight, *supra* note 1; see also *Animas-La Plata Project Frequently Asked Questions*, U.S. DEP'T OF THE INTERIOR, BUREAU OF RECLAMATION, <http://www.usbr.gov/uc/progact/animas/faq4.html> (last visited Nov. 11, 2012).

65. See, e.g., Claims Resolution Act of 2010, Title IV, Crow Tribe Water Rights Settlement Act, H.R. 4783, 111th Cong. §§ 405(f)(1), 406(f) (2010) (providing for "Tribal Implementation Agreements" for the Crow Tribe to plan, design, and construct infrastructure).

66. See *supra* note 36 and accompanying text.

67. See Crow Tribe-Montana Compact, MONT. CODE ANN. § 85-20-902(4) (2011).

68. Pollack, *supra* note 14, at 145-46.

69. Under the law, Tribes have "full and exclusive regulatory authority over Indian reserved rights to water, including water rights of allottees and lessees." COHEN'S HANDBOOK, *supra* note 2, § 19.04[2], at 1238. Tribes with settlement agreements addressing administrative responsibilities generally reserve on-reservation administration to the Tribes or the federal government. See Crow Tribe-Montana Compact, MONT. CODE ANN. § 85-20-901(IV)(A)(2)(a) (2011).

tion systems that are aligned with Tribal culture and values for land, water, and riparian ecosystems. Working within the terms of each Tribe's water quantification and settlement agreement or other administration agreements, Tribes may consider coordinating water quantity administration, water quality regulation, and land use and natural resource considerations.⁷⁰ Although such coordinated systems of internal administration require additional Tribal staff to be familiar with the Tribal quantification and the terms of any settlement, they also allow for streamlining of the design and staffing for the water resources administration department or program.

Tribes should also be prepared to work with state water administrators to implement the dual administrative authorities. Even in cases where Tribes have clearly delineated a primary Tribal administrative role for managing water, Tribes will still need to work with the state water administration agency to prevent harm to Tribal water rights from off-reservation, non-Tribal uses.⁷¹ Tribes should anticipate formulating new procedures or working to interpret the division of administration authority as the administration systems develop, particularly if the settlement or other agreements set forth only general principles of the administration division.

E. TRIBAL ROLE IN WATER MARKETING, BANKING, AND EXCHANGES

As Tribes implement and sustain their quantified water rights, they may seek to participate in water marketing, banking, and exchange efforts.⁷² Tribal participation or leadership in water marketing, and particularly in interstate water marketing, is a controversial topic that warrants separate analysis and study. This article does not address the merits or risks of participating in Tribal water marketing or banking programs, although it emphasizes that Tribal participation in such programs must be voluntary.

This article does, however, note that, regardless of whether a particular Tribal settlement agreement allows for Tribal water marketing, Tribes must understand planning efforts for water marketing, banking, and exchange to ensure that these efforts do not rely on the "future use" component of the Tribes' water allocations without proper consent and compensation.⁷³ If Tribes are interested in using these voluntary mechanisms to market or exchange Tribal water, they should participate in formulating state or interstate programs to ensure the programs can accommodate Tribal water rights. This analysis

70. See *infra* notes 107-09.

71. See COHEN'S HANDBOOK, *supra* note 2, § 19.04[2], at 1239 (discussing the Wind River Reservation administration, stating "[t]he state engineer is not empowered to regulate reserved rights, but only to regulate state appropriators in order to protect and enforce the tribes' reserved rights.>").

72. See COHEN'S HANDBOOK, *supra* note 2, § 19.03[7][c], at 1229-30; Royster, *supra* note 2, at 82-85; Blumm, *supra* note 12, at 474-75.

73. Membrino, *supra* note 10, at 23 (noting that marketing offers a "critical opportunity and a substantial risk for Indian reserved water rights.>").

also notes that some Tribes are already promoting the efficient use of scarce water resources by participating in these types of programs.⁷⁴

III. POST-QUANTIFICATION IMPLEMENTATION WORK: SUPPORTING THE DEVELOPMENT OF TRIBAL GOVERNMENTAL CAPACITY, CREATING OPPORTUNITIES FOR PRACTICING TRIBAL SELF-DETERMINATION, AND CREATING ALLIES FOR THE MAINTENANCE AND SUPPORT FOR TRIBAL SOVEREIGNTY

The work identified in Section II of this article may be daunting for Tribal staff and leaders involved in settlement negotiations or litigation, particularly because Section II only represents common settlement implementation work, and not the actual range or depth of work that may be needed for each Tribe's particular water or settlement needs. Proper settlement implementation work requires both staff and Tribal leader time and a commitment of financial resources. It may be difficult for Tribes to allocate such time, given other pressing Tribal needs in areas such as law enforcement, education, social services to children and elders, cultural resources protection, and the maintenance of traditional and cultural practices. Moreover, post-quantification work often requires long-term commitment, both to build institutional capacity in Tribal governments and to ensure that changes in outside governmental and non-governmental organizations do not endanger Tribal water rights.

Because the settlement work described is so daunting, the last section of this article takes a step back to more broadly evaluate the impact of settlement implementation work on Tribal governments and Tribal self-determination programs. To do so, Section III discusses the post-settlement implementation work not only as the work necessary to satisfy legal commitments in court decrees and settlement documents, but also as important—and, in some cases, necessary—work to build Tribal governmental capacity, to support Tribal economic development and self-determination efforts, and to foster relationships with local, state, and federal entities that promote continued strengthening and support for Tribal sovereignty. Section III also argues that Tribal commitments to the work described in Section II will often meet both the immediate goals of settlement agreements (such as “wet water” and certainty over water resource allocations) and longer-term Tribal goals in developing effective programs, exercising greater control over natural resources and economic development efforts, and preserving and strengthening Tribal sovereignty.

74. See, e.g., *Arizona v. California*, 547 U.S. 150 (2006) (approving an interstate forbearance agreement between the Quechan Tribe and the Metropolitan Water District of Southern California); Settlement Agreement in *Arizona v. California* By and Among the Quechan Indian Tribe of the Fort Yuma Indian Reservation, the United States of America, the Metropolitan Water District of Southern California, Coachella Valley Water District, and the State of California at 1-2, *Arizona v. California*, 547 U.S. 150 (2005); see also News Release, Pub. Serv. N.M., Four Corners Water Users Negotiate Shortage-Sharing Deal for 2004 (Apr. 19, 2004), http://www.pnm.com/news/2004/0419_water.htm (describing some of the many lease agreements between the Jicarilla Apache Nation and non-Tribal entities like the City of Santa Fe and Public Service Company of New Mexico).

A. INTRODUCTION TO TRIBAL RESOURCE MANAGEMENT EFFORTS AND THE HARVARD PROJECT ON AMERICAN INDIAN ECONOMIC DEVELOPMENT

Since 1987, the Harvard Project on American Indian Economic Development (“HPAIED”) has undertaken an impressive applied research and service program to “understand and foster the conditions under which sustained, self-determined social and economic development is achieved among American Indian nations.”⁷⁵ Together with partners like the Native Nations Institute for Leadership, HPAIED publishes specific case studies and larger research to support a “nation building” approach to economic development on Indian reservations.⁷⁶ In their research and case studies on Tribal governance and Tribal economic development, HPAIED researchers have consistently shown that Tribes engaging in self-determination and self-governance efforts are able to take on government functions with high levels of professionalism and success.⁷⁷ Focused research into the success or failure of Tribal self-

75. HARVARD PROJECT ON AM. INDIAN ECON. DEV., <http://hpaied.org/about-hpaied/overview> (last visited Feb. 8, 2013).

76. See, e.g., Marren Sanders, *Ecosystem Co-Management Agreements: A Study of Nation Building or a Lesson on Erosion of Tribal Sovereignty?*, 15 BUFF. ENVTL. L. J. 97, 100-01 (2008); Ian W. Record, *We are the Stewards: Indigenous-Led Fisheries Innovation in North America*, in JOINT OCCASIONAL PAPERS ON NATIVE AFFAIRS 9 (2008), available at http://nni.arizona.edu/resources/inpp/2008_RECORD_JOPNA_we.are.stewards.pdf; Joseph P. Kalt & Joseph William Singer, *Myths and Realities of Tribal Sovereignty: The Law and Economics of Indian Self-Rule*, in JOINT OCCASIONAL PAPERS ON NATIVE AFFAIRS No. 2004-03, at 1 (2004), available at http://nni.arizona.edu/resources/inpp/2004_kalt.singer_JOPNA_myths_realities.pdf [hereinafter *Myths*]; Stephen Cornell & Joseph P. Kalt, *Sovereignty and Nation-Building: The Development Challenge in Indian Country Today*, 22 AM. INDIAN CULTURE & RES. J. 187, 187-89 (1998) [hereinafter *Sovereignty and Nation-Building*]. We note here that HPAIED publications provide case studies and research on a wide variety of self-determination and sovereignty programs, and that HPAIED development of the “nation building” approach and the publications on the links between developing Tribal capacity and asserting Tribal sovereignty involve arguments about the exercise of “de facto” sovereignty. This article utilizes HPAIED scholarship and case studies on Tribal natural resources management programs and HPAIED analysis of self-determination programs and the links between strong self-determination programs and support for Tribal sovereignty. HPAIED analysis in this article is limited, and we encourage readers of this article to utilize HPAIED publications link, <http://hpaied.org/publications-and-research/research-overview>, to gain a more comprehensive understanding of HPAIED research.

77. See, e.g., THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: MICCOSUKEE TRIBE SECTION 404 PERMITTING PROGRAM (2005), available at <http://hpaied.org/images/resources/publibrary/Miccosukee%20Tribe%20Section%20404%20Permitting%20Program.pdf> [hereinafter 404 PROGRAM REPORT]; THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: HONORING OUR ANCESTORS, CHIPPEWA FLOWAGE JOINT AGENCY MANAGEMENT PLAN (2003), available at <http://hpaied.org/images/resources/publibrary/Honoring%20our%20Ancestors%20Chippewa%20Flowage%20Joint%20Agency%20Mngt%20Plan.pdf> [hereinafter CHIPPEWA FLOWAGE REPORT]; THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: TRUST RESOURCE MANAGEMENT (2003), available at <http://hpaied.org/images/resources/publibrary/Trust%20Resource%20Management.pdf> [hereinafter CKST REPORT]; THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (2002), available at <http://hpaied.org/images/resources/publibrary/Columbia%20River%20InterTribal%20Fish%20Commission.pdf> [hereinafter CRITFC REPORT].

determination resource management programs indicates that, when Tribes make careful and strategic decisions to develop Tribal capacity and institutions, and when Tribes then utilize the capacity of their governmental institutions to make culturally appropriate decisions that balance the development and regulation of natural resources, Tribes can achieve unparalleled success in managing natural resources.⁷⁸ Finally, HPAIED research indicates that Tribes have significant capacity to exercise Tribal sovereignty through inter-Tribal and intergovernmental groups to manage difficult trans-boundary resources and environmental problems.⁷⁹

There is growing recognition that Tribes (and not outside institutions or governments) are in the best position to decide the needs of their communities and how natural resources can be used to meet those needs.⁸⁰ There is also a growing recognition of Tribal capacity to engage in sophisticated efforts to manage both on-reservation and trans-boundary resources.⁸¹ Nevertheless, such recognition is not always an easy fit with state or interstate water resources management. This article applies HPAIED analysis of Tribal governance and successful Tribal resource management programs to demonstrate that much of the settlement implementation work described in Section II provides the opportunity for Tribes to utilize nation building and self-determination efforts to embark on creative and successful programs for managing water and supporting Tribal sovereignty.

B. BUILDING TRIBAL GOVERNMENTAL CAPACITY

The focused research on successful Tribal resource management programs places a heavy emphasis on the strategic development of Tribal technical expertise and institutions to properly balance resource management decisions.⁸² The settlement implementation work described in Section II provides Tribes the opportunity to develop Tribal programs, enterprises, and institutions that give Tribes greater capacity to successfully manage their water resources. The settlement implementation work also provides impetus for de-

78. See, e.g., Sanders, *supra* note 76, at 98; Record, *supra* note 76, at 49-50 ("Practitioners and students of Indigenous fisheries management concur that Native Nations' systematic cultivation of internal technical capacity is a prerequisite for exercising substantive management authority and fostering innovation."); CKST REPORT, *supra* note 77, at 2.

79. See, e.g., *Myths*, *supra* note 76, at 10 (noting efforts to strengthen commitments to Tribal sovereignty through improving intergovernmental relations with federal, state, and local governments); see also CHIPPEWA FLOWAGE REPORT, *supra* note 77 (describing Tribal co-management work with federal and state resource management agencies); CRITFC REPORT, *supra* note 77 (describing inter-Tribal resource management work).

80. Jessica Owley, *Tribal Sovereignty over Water Quality*, 20 J. LAND USE & ENVTL. L. 61, 68-69 (2004).

81. See *supra* notes 78-79 and accompanying text.

82. Sanders, *supra* note 76, at 109; Record, *supra* note 76, at 49 ("Practitioners and students of Indigenous fisheries management concur that Native nations' systematic cultivation of internal technical capacity is a prerequisite for exercising substantive management authority and fostering innovation."); Sanders, *supra* note 76, at 109; *Sovereignty and Nation-Building*, *supra* note 76, at 200-01.

veloping technical and water resource management capacity in Tribal staff and leadership.

1. Building Capable Government Institutions

The focused studies on successful Tribal resource management self-determination programs indicate the development and maintenance of a stable and accountable resource management structure is crucial to support Tribal claims to sovereignty and self-determination.⁸³ Here, the settlement work described in Section II usually requires Tribes to create or expand existing governmental programs and departments dedicated to fulfilling Tribal responsibilities for administering, developing, allocating, and protecting Tribal water and water-related resources. While each Tribe will make specific program-development decisions to meet its particular water settlement responsibilities, governmental structure, and financial constraints, the requirement to develop settlement-based programs provides Tribes the opportunity to make strategic program development decisions that allow for the most effective and culturally appropriate management of Tribal water.

Building Tribal capacity to undertake resource management programs often requires significant cultivation of human resources to ensure that Tribal staff and service providers have the technical knowledge and skills to implement successful programs.⁸⁴ Building the institutions and programs to support the settlement work described in Section II is no exception. Tribes implementing or supplementing existing water resources administration and management programs require staff and service providers with significant expertise in areas like hydrology and state and interstate water law.⁸⁵ Tribes may also

83. Sanders, *supra* note 76, at 109 (stating “tribes must also have in place competent, capable governmental institutions, for it is one thing to claim the right of co-management; it is another thing to exercise that right effectively.”); *Sovereignty and Nation-Building*, *supra* note 76, at 201; CKST REPORT, *supra* note 77, at 2.

84. CKST REPORT, *supra* note 77, at 3 (describing the Tribe’s cultivation of human resources and provision of training to ensure staff capacity); THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: WILDLIFE FISHERIES MANAGEMENT PROGRAM 1-2 (1999), <http://hpaied.org/images/resources/publibrary/Wildlife%20and%20Fisheries%20Management%20Program.pdf> [hereinafter JAN REPORT] (noting how the Tribe built program staff and complex information systems to support “one of the largest and most respected fish and wildlife management initiatives on the continent”); *see also* S. UTE INDIAN TRIBE AIR QUALITY PROGRAM, <http://www.southernute-nsn.gov/air-quality> (last visited Feb. 4, 2013) (providing information on the significant capacity of the SUIT’s capable air quality program, which recently received state status for enforcing Title V of the Clean Air Act).

85. For example, the Navajo Nation has a separate unit within the Nation’s Department of Justice devoted to water rights work, a water rights commission, and a division within the Nation’s Department of Natural Resources devoted to protecting and managing water resources. *See* NAVAJO NATION DEPT OF JUSTICE, http://www.nndoj.org/Water_Rights_Unit.aspx (last visited Feb. 4, 2013); THE NAVAJO NATION WATER RIGHTS COMM’N, <http://nnwrc.org/> (last visited Feb. 4, 2013); THE NAVAJO NATION DIV. OF NATURAL RES. DEPT OF WATER RES. MGMT. BRANCH, http://www.frontiernet.net/~nndwr_wmb/ (last visited Feb. 4, 2013).

need to maintain GIS and other database systems to monitor and record water data.⁸⁶

Tribes that can build this type of institutional capacity to perform resource management work are better positioned to overcome bias towards Tribes as incapable of managing natural resources, and to make credible claims that they are capable of taking on greater responsibilities in resource management.⁸⁷ For some Tribes, strategically building resource management capacity can provide greater opportunities to take over federal, on-reservation resource management programs.⁸⁸ For others, demonstrating Tribal capacity can lead to real opportunities for trans-boundary and intergovernmental resource management programs.⁸⁹

2. Building Capacity in Tribal Leaders and Staff

The post-quantification work described in Section II also requires Tribes to build and maintain institutional knowledge about Tribal water rights and about the work required to support and maintain those rights. Proper development of institutional knowledge, as well as proper training of Tribal leadership and staff in developments that impact Tribal water support and maintenance, can build significant capacity to support Tribal efforts in managing Tribal water resources.

One of the most important elements of maintaining this type of institutional knowledge is ensuring that Tribal leadership and policy-makers understand water rights and the work of attorneys, staff, and professional service providers to protect and maintain those rights.⁹⁰ During settlement efforts, there are usually key Tribal leaders and policy-makers who have a long history of settlement negotiations, litigation efforts, and political efforts to secure legislation and money for settlement. Those same leaders often carry forward the knowledge of the water rights and the vision to carry out settlement implementation efforts.

For example, Manuel Heart, former Tribal Chairman and current Tribal Council Member for the Ute Mountain Ute Tribe, has served on Tribal

86. See, e.g., THE NAVAJO NATION DIV. OF NATURAL RES. DEP'T OF WATER RES. WATER MGMT. BRANCH, WATER MONITORING & INVENTORY SECTION, http://www.frontiernet.net/~nddw_r_wmb/GIS-Computer.htm (last visited Feb. 4, 2013).

87. See Sanders, *supra* note 76, at 161; Record, *supra* note 76, at 55 (noting that successful Tribal fisheries programs allow Tribes to regain rights to access and manage fisheries and fish resources); CKST REPORT, *supra* note 77, at 4.

88. See CKST REPORT, *supra* note 77, at 2.

89. Sanders, *supra* note 76, at 161; THE HARVARD PROJECT ON AM. INDIAN ECON. DEV., HONORING NATIONS REPORT: IDAHO GRAY WOLF RECOVERY 2 (1999) <http://hpaied.org/images/resources/publibrary/Idaho%20Gray%20Wolf%20Recovery.pdf> [hereinafter GRAY WOLF REPORT] (noting that investments in institutional effectiveness and technical capacity for the first wolf recovery program opened doors for additional programs with the State of Idaho and private landowners).

90. Interview with Terry Knight, *supra* note 1 (noting that water settlements and settlement implementation decisions require leaders to make difficult decisions and to resolve internal Tribal disputes to secure long-term Tribal benefits from water settlements).

Council for over fifteen years.⁹¹ As a Council Member, Heart participated in the 2000 Amendments to the Animas-La Plata Project and the Tribe's settlement of water rights within the State of Colorado, which involved approving Tribal commitments to the settlement effort and lobbying for federal approval of revised settlement legislation.⁹² Heart then sat on the board of Weeminuche Construction Authority, the Tribe's construction company that built settlement infrastructure projects during the initial implementation of the Colorado Ute Indian Water Rights Final Settlement Agreement.⁹³ Now that the Animas-La Plata project is approaching final construction, Heart's work on the Tribe's water rights has not decreased. Heart now sits as the Tribe's delegate on several local water boards, including the Animas La Plata Operations, Maintenance, and Replacement Association Board,⁹⁴ which requires a significant time commitment and detailed knowledge of local water projects, water rights, and plans for future development.⁹⁵ Heart is an important Tribal and community leader on water issues in southwest Colorado, and has enormous capacity to ensure that important regional partnerships continue to implement settlement and regional water work.

C. TRIBAL SELF-DETERMINATION

Research on successful Tribal self-determination resource management programs emphasizes the development of competent Tribal resource management bureaucracies that can provide a good balance of scientific expertise and Tribal culture and values.⁹⁶ The settlement implementation work described in Section II supports Tribal self-determination efforts in at least two ways. First, the settlement implementation work literally creates the foundation or backbone for Tribal economic development efforts that in turn provide the financial mechanisms for Tribal governments to support programs and staff. Second, the settlement implementation work often requires Tribes to develop water resource management programs. This provides the opportunity for Tribes to craft culturally appropriate and integrated resource management regimes that properly balance resource development, ecosystem health, and Tribal cultural values.

1. Creating the Backbone for Tribal Economic Development

Although the link between prosperity in the western United States and water availability is well documented, the link between Tribal economic prosperi-

91. Interview with Manuel Heart, Ute Mountain Ute Tribal Council, in Towaoc, Colo. (Nov. 8, 2012).

92. *Id.*

93. *Id.*

94. See text accompanying *supra* note 57.

95. *Id.*

96. *Sovereignty and Nation-Building*, *supra* note 76 at 200-01; Sanders, *supra* note 76, at 109 (both emphasizing the necessity of building competent, capable bureaucracies to undertake Tribal resource management).

ty and water availability is not so marked.⁹⁷ This article asserts that there are strong links between implementing settlement provisions for the delivery of “wet water,” Tribal ability to engage in economic development, and Tribal ability to properly fund Tribal programs and institutions (including Tribal water management programs).

The most obvious links between the settlement implementation work described in Section II, Tribal economic development, and the support of water management programs, are in the Tribes’ financial opportunities to perform infrastructure work and in Tribes receiving federal economic development or resource enhancement funds as part of the water rights settlements.⁹⁸ The development or enhancement of Tribal enterprises and Indian-owned businesses through participation in settlement-based infrastructure projects can be important for supporting both Tribal governmental work and programs to ensure employment opportunities for Tribal members.⁹⁹ The availability of federal funds to support resource enhancement or economic development programs can allow Tribes to fund economic development ventures and natural resource management programs that might otherwise not be available to Tribes.¹⁰⁰

A less obvious and more important link between settlement implementation work, economic development, and the ability to fund Tribal governmental programs is that the construction of settlement-based water infrastructure often provides the foundation for Tribal economic development.¹⁰¹ This is particularly true on arid reservation lands that were left out of federal infrastructure development in the twentieth century.¹⁰²

Lack of “wet water” severely constrains economic development opportunities for Tribes, and conversely, the availability of “wet water” through water infrastructure creates or supports economic development opportunities.¹⁰³ This applies to nearly all types of water and water use. Municipal water infrastructure (providing treated water) is important for maintaining healthy Tribal communities and homes, but it is also necessary to support business development on reservations.¹⁰⁴ Retail stores, travel centers/truck stops, casinos, hotels,

97. MARK T. ANDERSON & LLOYD H. WOOLSEY, JR., U.S. DEPT. OF INTERIOR & U.S. GEOLOGICAL SURVEY, *WATER AVAILABILITY IN THE WESTERN UNITED STATES—KEY SCIENTIFIC CHALLENGES* 25-27 (2005), available at <http://pubs.usgs.gov/circ/2005/circ1261/pdf/C1261.pdf> (outlining the importance of water to the development of the west); W. GOVERNORS ASS’N, *WATER NEEDS AND STRATEGIES FOR A SUSTAINABLE FUTURE* 3-6 (2006), available at <http://www.westgov.org/wga/publicat/Water06.pdf> (discussing the relationship between western water resources and growth).

98. See COHEN’S HANDBOOK, *supra* note 2, § 1905[2], at 1250; Royster, *supra* note 2, at 78.

99. See Colorado Ute 1988 Act, *supra* note 19, § 5(c).

100. See COHEN’S HANDBOOK, *supra* note 2, § 1905[2], at 1250.

101. See Gail Binkly, *Ute Water*, HEADWATERS, Summer 2012, at 25, 28.

102. *Id.*

103. *Id.* at 25.

104. *Oversight Hearing 2012*, *supra* note 3, at 9 (statement of David J. Hayes, Deputy Secretary, US Dep’t of Interior); Interview with Terry Knight, *supra* note 1 (noting that the Ute Mountain Ute Tribe’s Colorado settlement brought the first community drinking water infrastructure to the Tribal community in Towaoc).

industrial parks, and construction companies all require treated water supplies, and they often depend on the type of water delivery systems obtained in the infrastructure component of water settlement agreements. The ability to deliver industrial water is necessary for the development of manufacturing or industrial projects, and is particularly important for energy development (both fossil fuel development and renewable energy development). Water infrastructure for irrigation and livestock development supports individual and commercial Tribal agriculture and ranching opportunities.

Tribal ability to protect instream water resources can also be important for Tribal economic development opportunities. Instream flow maintenance and other water management tools to maintain riparian and ecosystem health can be important for maintaining Tribal traditions and cultures, for supporting economic development opportunities, for hunting and fishing programs, and for supporting tourism and ecotourism efforts.¹⁰⁵

The importance of water to on-reservation economic development opportunities circles back to affect Tribal capacity to undertake nation-building activities like water resource management or integrated and adaptive resource management. Water availability and the ability to deliver “wet water” is often, quite literally, the backbone of the enterprises and development opportunities that fund Tribal governmental work. As such, all parties to Tribal water settlements should understand the negotiated settlement infrastructure is often closely related to Tribes’ ability to devote adequate resources to develop capacity for settlement implementation through self-governance and more mature expressions of Tribal sovereignty.

2. Creating Successful Resource Management Programs Based on Sound Science, Tribal Traditions, and Cultural Values

The work described in Section II usually involves Tribes enhancing or creating water resource management programs. The requirement that Tribes create such systems to use their water—while imposed by settlement agreement—provides Tribes an important opportunity to formulate Tribal law and policy to balance resource development, ecosystem health, and cultural values. When Tribes take time and resources to formulate a clear vision for their resource management self-determination programs, those programs can reflect traditional beliefs or cultural values and incorporate methods to strike the proper balance between resource development and culturally appropriate regulation of resources.¹⁰⁶

105. Edmund J. Goodman, *Indian Tribal Sovereignty and Water Resources: Watersheds, Ecosystems and Tribal Co-Management*, 20 J. LAND RESOURCES & ENVTL. L. 185, 196-99 (2000) (describing reserved rights to instream flows upheld to support Tribal fisheries); Mary Ann King, *Co-Management or Contracting? Agreements Between Native American Tribes and the U.S. National Park Service Pursuant to the 1994 Tribal Self-Governance Act*, 31 HARV. ENVTL. L. REV. 475, 490 (2007) (describing the co-management of major tourist areas in national parks, such as the Oglala Sioux management of elements of the Southern Unit of Badlands National Park and the Navajo management of Canyon de Chelly).

106. See, e.g., CKST REPORT, *supra* note 77, at 3 (noting efforts to “strike a careful balance between properly utilizing resources and ensuring that abuse and waste is minimal”).

It is important to note that Tribes are not required to develop water resource management programs independently of other resource management programs. Tribal governments have inherent sovereignty to manage their resources in a manner that best reflects a long-term vision for managing resources according to Tribal culture and values.¹⁰⁷ This includes the power to create resource management programs that rely on Tribal traditions and existing Tribal institutional capacity for resource management and to structure resource management programs in ways that promote cooperation, efficiency in coordination of staff and planning resources, and appropriate decision-making and permitting processes for Tribal staff, policy-makers, and leadership.¹⁰⁸ Thus, when Tribes take on the task of creating or enhancing water resource management laws, policies, and programs, they are not constrained to creating programs that narrowly address allocating and managing certain quantities of water. Instead, Tribes may consider the long-term vision for integrated resource management planning and coordinate or co-manage water resources in programs that address other resource issues like water quality, ecosystem or native plant health, land use planning, cultural resources management, and range management. Tribes may also consider integration of traditional and religious practices and values into integrated resource management planning.¹⁰⁹

It is also important to note that, while settlement implementation work provides Tribes the opportunity to focus efforts and resources into integrated and adaptive management planning, this particular exercise of Tribal sovereignty in formulating self-determination programs may complicate settlement implementation efforts. Because most prior appropriation states have not fully integrated water resource management with land use or other resource management planning, state and federal water managers may struggle to understand and accept management systems based on factors outside those used to evaluate the right to divert water under state law.¹¹⁰ In addition, although the Bureau of Indian Affairs has clear policy supporting integrated resource man-

107. See, e.g., Royster, *supra* note 2, at 92-93 ("Tribes are sovereign governments, with authority over their people and their territories, retaining the right to 'make their own laws and be ruled by them.'"); Goodman, *supra* note 105, at 206 (noting that Tribes' ability to protect water quality and quantity is at its core the doctrine of inherent Tribal sovereignty); Blumm, *supra* note 12, at 477 (noting Tribal attempts to integrate water quality and water quantity regulation through Tribal codes).

108. For a full discussion of developing Tribal self-determination programs to balance economic development and Tribal traditions into modern regulatory programs, see generally Rebecca Tsosie, *Tribal Environmental Policy in an Era of Self-Determination: The Role of Ethics, Economics, and Traditional Ecological Knowledge*, 21 VT. L. REV. 225 (1996). For specific examples of Tribal governments integrating resource planning, see 404 PROGRAM REPORT, *supra* note 77 (noting the integration of Tribal land-use planning and Clean Water Act Section 404 Permitting).

109. See, e.g., Tsosie, *supra* note 108, at 299 (denoting the importance of considering Tribal religion in drafting Tribal water codes).

110. Royster, *supra* note 2, at 85-86 (describing the legal uncertainty of whether the *Winters* doctrine encompasses a right to water quality as well as quantity); Goodman, *supra* note 105, at 197 (noting that recognition of instream flow rights is at odds with Western water law, which has conceptual and institutional difficulties with instream use).

agement planning and the coordination of resource management efforts,¹¹¹ and although the federal government has clear policy supporting Tribal efforts to engage in self-determination efforts to manage water resources and to regulate water quality,¹¹² overall federal policy supporting this type of integrated water resource management is unclear because of the moratorium on approving water resource management codes that has been in place since 1975.¹¹³

Additionally, at least one Tribe with a litigation-based water allocation has struggled to implement innovative Tribal water law that integrates water resources management with water quality and ecosystem health.¹¹⁴ Some Tribes implementing water resource management programs may choose to adopt more traditional forms of western water law to avoid disputes with state and federal entities, to facilitate faster approval of codes, and for the ease of integrating Tribal and state water resource management. Other Tribes may choose to build and support more integrated resource management programs, knowing that the success of those programs is important to demonstrating that Tribes have increasingly great capacity for creative, innovative, and culturally appropriate resource management.

D. EXERCISING AND BUILDING SUPPORT FOR TRIBAL SOVEREIGNTY

During the settlement or litigation process, Tribal and non-Tribal entities may struggle with Tribal sovereignty and the Tribe's inherent authority to govern Tribal lands and resources. During the settlement implementation process Tribes and non-Tribal entities may continue to struggle with jurisdictional issues including questions regarding which entity has the proper authority to regulate Tribal and non-Tribal water use and which entity has the authority to prevent non-Tribal water users from harming Tribal water rights.¹¹⁵

However, the settlement implementation work described in Section II also provides Tribes the opportunity to develop a more mature expression of Tribal sovereignty by making commitments to intergovernmental coordination

111. See Bureau of Indian Affairs, *Integrated Resource Management Planning—IRMP*, INDIAN AFFAIRS, <http://www.bia.gov/WhoWeAre/BIA/OTS/DFWFM/IRMP/index.htm> (last updated Jan. 31, 2013).

112. Goodman, *supra* note 105, at 204-06 (describing the "treatment as a state" program under the Clean Water Act that allows Tribes to implement federal water quality programs); Anderson, *supra* note 4, at 402 (citing the Indian Reorganization Act, 25 U.S.C. §§ 461-479 (2000), and the Indian Self-Determination Act, 25 U.S.C. § 450-458 (2000)).

113. Royster, *supra* note 2, at 92 (noting that the moratorium presents a serious roadblock for Tribes that require secretarial approval of their laws); COHEN'S HANDBOOK, *supra* note 2, § 19.04[4], at 1240-41 (also noting that some Tribes have sought exceptions to the moratorium or have sought settlement legislation authorizing development of codes).

114. COHEN'S HANDBOOK, *supra* note 2, § 19.03[6], at 1226 (describing limitations announced in *In re Big Horn River Sys.*, 835 P.2d 273 (Wyo. 1992), on the Wind River Tribes utilizing a tribal water code to hold a portion of the Tribes' "future use" rights as an instream flow).

115. *Id.* § 19.04[2], at 1238 (noting that "Indian tribes, therefore, have full and exclusive regulatory authority over Indian reserved rights to water, including water rights of allottees and lessees," but state courts retain jurisdiction to "execute, enforce, construe, and interpret" state general stream adjudication decrees); see also *supra* notes 37-39, 67-72, and accompanying text.

and co-management of water as a trans-boundary resource.¹¹⁶ Because water is a resource that not only crosses Tribal and state boundaries, but also crosses interstate and regional boundaries, settlement implementation work often requires Tribes to actively participate in managing water off and on their reservations. This provides many opportunities for Tribes to engage state, local, and federal governments in efforts to seek better consultation and planning or to co-manage water as a trans-boundary, inter-jurisdictional resource. Focused research on Tribal self-determination and Tribal sovereignty indicates Tribes can both reduce dependence on the federal government to manage resources and strengthen overall commitment and support for Tribal sovereignty by building institutional capacity for governance and using that capacity to properly co-manage shared resources.¹¹⁷

1. Fostering Government-to-Government Relationships with State, Federal, and Local Entities

The first way the settlement work described in Section II supports Tribal sovereignty is by allowing Tribes the opportunity to demand and participate in meaningful government-to-government consultation regarding management of water as a shared resource. This consultation may come in different forms or flavors depending on the government from which each Tribe is seeking consultation and the issues presented for consultation. For example, Tribes that seek full consultation from federal agencies on federal water project management issues may focus on the exercise of the federal agency's trust responsibilities to protect the Tribe's ability to develop unused portions of Tribal water resources.¹¹⁸ Those same Tribes may seek continued communications and consultation from state governments to ensure administration of water off and on the reservation results in water management activities that protect the priority date and deliveries of Tribal water.¹¹⁹ Tribes may also engage local water districts and water users in planning efforts to maximize water use efficiency and to protect shared watersheds.¹²⁰ In each case, as Tribes actively participate in consultation efforts, and as they demonstrate during consultation efforts that they have developed the capacity to manage Tribal water resources through self-determination efforts, Tribes will build support from local, state, and federal consultation partners for the continued exercise of Tribal sovereignty and self-determination.

116. See Sanders, *supra* note 76, at 105-06 (describing the increasing number of Tribes entering into intergovernmental agreements with federal and state environmental agencies regarding natural resources and wildlife); CHIPPEWA FLOWAGE REPORT, *supra* note 77, at 3 (describing the Tribe's commitment to intergovernmental coordination as "a mature expression of sovereignty that reflects a self-determined decision to co-manage the Flowage").

117. See Sanders, *supra* note 76, at 109-10; *Myths*, *supra* note 76, at 10; *Sovereignty and Nation-Building*, *supra* note 76, at 201.

118. See *supra* notes 45-50, 55-57, and accompanying text.

119. See *supra* notes 67-72 and accompanying text.

120. See *supra* notes 42-44 and accompanying text.

2. Active Tribal Participation in Trans-Boundary Resource Management (Co-Management)

The second way that the settlement implementation work described in Section II supports Tribal sovereignty is by providing the opportunity for Tribes to take a more active role in management or co-management of water as a trans-boundary resource. Although the contentious nature of water litigation and maintaining control of water within jurisdictional boundaries may not always allow for prosperous co-management of water resources, Tribal success in providing culturally and regionally appropriate water management is not confined to reservation boundaries.

Some Tribes, such as the three southwestern Tribes that hold management seats on the Animas-La Plata Operations, Replacement, and Maintenance Association,¹²¹ have co-management opportunities built into their settlements or into settlement implementation work through participation in management boards for federal, state, or local water projects. When Tribes take on the more active management roles in these projects, they can utilize capacity gained in developing Tribal self-determination programs and bring important local and Tribal water needs and water resource management knowledge to management committees or boards. When Tribes are actively engaged project-management decisions, they are better able to protect their resources and avoid disputes over management of their project water resources. Tribes also have the knowledge needed to streamline consultation efforts with federal agencies.

Other Tribes, such as the four Tribes that formed the Columbia River Inter-Tribal Fish Commission (CRITFC)¹²² and the Lac Court Oreilles Band of Lake Superior Chippewa Indians, (which entered a joint agency management plan with state and federal resource managers¹²³) have taken on enormous trans-boundary water or other resource management responsibilities by forming multi-entity resource co-management projects with other Tribal, state, local, and federal partners. These co-management projects usually arise out of historic disputes about management of an important Tribal resource, such as salmon runs in multi-jurisdictional ecosystems in the Pacific Northwest (CRITFC)¹²⁴ or flooded Tribal lands (Lac Court Oreilles Band).¹²⁵ These multi-

121. See Intergovernmental Agreement: Establishing the Animas-La Plata Operations and Maintenance Association § 2.3-2.3.1, Mar. 4, 2009, <http://www.usbr.gov/uc/progact/animas/pdfs/InterGovt-Agrmt-03-09.pdf>.

122. CRITFC REPORT, *supra* note 77, at 1-2.

123. See CHIPPEWA FLOWAGE REPORT, *supra* note 77, at 1.

124. The CRITFC grew out of significant non-Tribal degradation of the salmon and steelhead runs on the Columbia River and legal decisions affirming the Tribal right to regulate treaty fishing rights. Sanders, *supra* note 76 at 131-35. Trans-boundary fisheries management on the Columbia River is complicated, as salmon navigating the Columbia River traverse more than a dozen jurisdictions. Record, *supra* note 76 at 5. In 1977, the Warm Springs, Yakama, Umatilla, and Nez Perce Tribes formed CRITFC to provide fishery management coordination, technical assistance, and to organize inter-Tribal representation in regional planning, policy, and decision-making. Sanders, *supra* note 76 at 135-36. Since 1977, CRITFC has developed into an impressive, technically sophisticated institution that has met evolving difficulties in fisheries manage-

entity resource co-management projects utilize Tribal sovereignty and Tribal rights to natural resources as a basis for more flexible and adaptive co-management efforts.¹²⁶ These projects also require Tribes to utilize and enhance Tribal resource management capacity, but can allow Tribes to prioritize management goals to meet cultural and traditional needs.¹²⁷

When Tribes commit their resources, technical capacity, indigenous knowledge, and Tribal values to these multi-entity and trans-boundary resource management projects, the projects usually succeed in better resource management and in resource management that meets the needs of the entire watershed or region.¹²⁸ The projects can also strengthen government-to-government relationships between Tribal, state, and federal co-management partners, as well as continued non-Tribal support for the exercise of Tribal sovereignty to utilize demonstrated capacity co-manage on-reservation and trans-boundary resources.¹²⁹

IV. CONCLUSION

Although Tribal water settlement implementation work can be difficult, expensive, and time-consuming for Tribal and non-Tribal governments and partners, it presents an important opportunity for Tribes to build capacity to secure, protect, and afford the proper Tribal respect for and use of water guaranteed by treaties and other laws. The settlement implementation work also provides the backbone for healthy Tribal communities and economic development on reservations. Moreover, it provides an opportunity for Tribes

ment by producing a Tribal, adaptive management recovery plan for the Columbia River. *See id.* at 135-44.

125. *See* CHIPPEWA FLOWAGE REPORT, *supra* note 77, at 1 (explaining that the Chippewa Flowage Joint Agency Management Plan grew out of the creation of the Chippewa Flowage, which flooded the Lac Courte Oreilles Band of Lake Superior Chippewa Indians' traditional territory, including wild rice fields, hunting and fishing grounds, villages, and burial grounds.); *see also id.* at 2-3 (demonstrating that the Joint Agency Management Plan, which was signed by the Tribe, the Wisconsin Department of Natural Resources, and the United States Forest Service, has coordinated governmental efforts to manage and protect the Flowage "while acknowledging its legacy as the site of a profound human tragedy.").

126. *See* Record, *supra* note 76, at 13 (noting that Native Nations focus time and resources shifting fisheries management away from approaches predicated on legal/political boundaries toward those predicated on ecological ones and that Native nations deploy adaptive management regimes in Tribal fisheries management). For analysis of how Tribes are well positioned to deploy integrated or adaptive resource management regimes, *see* Goodman, *supra* note 105, at 190-92 (explaining how Tribal ability to exercise jurisdiction outside reservation boundaries provides the basis for co-management efforts to protect water as a trans-boundary resource); *Id.* at 206-11 (arguing that the unique nature of Tribal rights and Tribal sovereignty places tribes in an "administrative trans-boundary position" that provides opportunities for new approaches and institutions to take on integrated ecosystem management approaches for dealing with water as a trans-boundary resource); Interview with Terry Knight, *supra* note 1 (explaining how the Ute Mountain Ute Tribe, which was a migratory (and not agrarian) society, adapted to utilize settlement water resources and high-technology farming practices in its successful Tribal Farm & Ranch Enterprise).

127. Record, *supra* note 76, at 55.

128. *Id.*, at 10-11; CRITFC REPORT, *supra* note 77, at 2-4.

129. *See* Sanders, *supra* note 76, at 109-110, 171-75.

to work with outside governments and partners to better co-manage water as a scarce, trans-boundary resource.

Because settlement implementation work affords Tribes opportunities beyond securing the rights promised in water settlement agreements, Tribes engaged in settlement or litigation efforts should be cognizant of the additional work that exists beyond the quantification process. State, federal, and local entities should be prepared for continued work with Tribes to implement settlements and administer water together. These entities should also be prepared for the possibility that, when water resources management work is undertaken with recognition of Tribes as sovereign entities with the ability to cultivate enormous capacity to make culturally and scientifically appropriate resource management decisions, Tribes will be able to make significant contributions with sophisticated, adaptive management programs based on the historical and current Tribal land use and resource use practices. Both Tribal and non-Tribal water and resource managers should recognize the opportunity during settlement implementation to set the foundation for water co-management programs that provide more flexible and adaptive trans-boundary resource management, that allow Tribes to enhance the effectiveness of water management decisions by being included early in the planning and management processes, and that support Tribal efforts to secure support for Tribal sovereignty and Tribal self-determination in managing water resources.

THE SHALLOWS WHERE FEDERAL RESERVED WATER RIGHTS FOUNDER: STATE COURT DEROGATION OF THE *WINTERS* DOCTRINE

JUSTIN HUBER*
SANDRA ZELLMER**

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ABSTRACT

The doctrine of implied federally reserved water rights, as established over a century ago by *Winters v. United States*,¹ is critical to realizing federal land management goals. Recently, the doctrine’s ability to protect those goals, particularly with respect to federal lands set aside for non-Indian purposes, has

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1. 207 U.S. 564 (1908).

been greatly limited by several poorly reasoned and result-oriented state court decisions. The primary factors that have led to the erosion of the *Winters* doctrine's utility are: (i) the McCarran Amendment,² which allows states to force the federal government to assert its reserved water rights claims in state court general stream adjudications; (ii) state hostility to the assertion of *Winters* claims for political and economic reasons; (iii) state court expansion of the US Supreme Court's restrictive interpretation of reserved water rights in *United States v. New Mexico*,³ and (iv) state court abuse of the inconsistent and often ambiguous language included in executive and congressional public land reservations.

The arid western states are unlikely to become more amenable to the assertion of federally reserved water rights, and the US Supreme Court is almost as unlikely to issue a more enlightening exposition of the *Winters* doctrine anytime soon. It is fair to surmise that the problem can only be fully and, due to its political nature, appropriately resolved by Congress. Ideally, Congress would repeal the McCarran Amendment to undo some of the damage done and to prevent the future derogation of this important aspect of federal land management law. This, too, may be unlikely given the current political climate, which tends to prioritize states' rights over federal interests and also tends to be antagonistic to environmental concerns. An alternative congressional fix would be to amend the organic acts or the enabling statutes governing the establishment and management of federal lands. Should Congress fail to respond to the problem, federal agencies might be more proactive in litigating their reserved water rights in federal court in order to ensure the integrity of water bodies and water-dependent resources.

I. INTRODUCTION

Congress has well-established authority to reserve water necessary for federal lands pursuant to the Commerce Clause and the Property Clause.⁴ Since 1908, the US Supreme Court has held that when the federal government sets aside land from the public domain without specifically reserving the requisite water, the government has implicitly exercised its constitutional power to reserve water sufficient to accomplish the purposes of that reservation.⁵ This particular exercise of the federal government's constitutional power over water has become known as the doctrine of implied federally reserved water rights or, more commonly, the "*Winters* doctrine."⁶

Despite the Supreme Court's long-standing recognition of the *Winters* doctrine, western states, fearing the doctrine's potential effect on water rights acquired under state law, have met the federal government's exercise of its

2. 43 U.S.C. § 666(a) (2012).

3. 438 U.S. 696 (1978).

4. *Cappaert v. United States*, 426 U.S. 128, 138 (1976).

5. *Winters*, 207 U.S. at 577-78.

6. See *Arizona v. San Carlos Apache Tribe of Ariz.*, 463 U.S. 545, 573 (1983) (referring to the doctrine of federally reserved water rights as the "*Winters* doctrine").

constitutionally-granted power with vehement resistance.⁷ The states' resistance has led to several poorly reasoned, result-oriented state court decisions that have greatly reduced the doctrine's utility.⁸ This development is especially disconcerting because the *Winters* doctrine was created to ensure that the purposes of federal land withdrawals would not be defeated.⁹ For example, the early doctrine recognized water rights for an Indian reservation where the Indian tribe would have otherwise had none under state law,¹⁰ and, in another instance, the doctrine prevented the likely extinction of the desert pupfish by preserving the water levels in Devil's Hole National Monument.¹¹ In sharp contrast to those early successes, several state court holdings have since failed to acknowledge the existence of non-Indian federally reserved water rights, even in the most compelling situations.¹² These derogations of the *Winters* doctrine inhibit the federal agencies' ability to effectuate fundamental land management goals, many of which depend upon adequate quantity and flow of water.¹³

This Article strives to identify the factors that led to this problem and to explore ways it could be resolved or, at least, to discern a means of mitigating further damage to the doctrine of implied federally reserved water rights. Part II of this Article examines the US Supreme Court's creation and early extension of the *Winters* doctrine. Part III identifies factors that have adversely affected the doctrine's development and implementation, including (i) the passage of the McCarran Amendment,¹⁴ (ii) state court bias, (iii) the US Supreme Court's decision in *United States v. New Mexico*,¹⁵ and (iv) inconsistent, and often ambiguous, congressional action. Part IV then analyzes the role of these factors in several recent state adjudications of non-Indian federally reserved water rights. Ultimately, Part V concludes that Congress, as the only government branch with the ability to provide a comprehensive solution, should respond. Congress could prevent future state court mistreatment of the federal government's reserved water rights by repealing the McCarran Amendment

7. See *infra* Parts III-IV.

8. *Id.*

9. See *infra* Part II.

10. *Arizona*, 463 U.S. at 575-76.

11. *Cappaert v. United States*, 426 U.S. 128, 133-34, 147 (1976).

12. See *infra* Part IV. Federally reserved water rights claims for Indian reservations have generally received better treatment in state courts than those asserted for non-Indian purposes. See, e.g., *In re Gila River Gen. Stream Adjudication*, 35 P.3d 68, 76-77 (Ariz. 2001) (rejecting *New Mexico's* primary-secondary purpose rule on the basis that non-Indian reservations of land are significantly different than Indian reservations). This may be due, in part, to the liberal construction courts give Indian treaties. See *Potlatch v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260, 1264 (Idaho 2000) (citing *Winters* for the rule that ambiguities in treaties with Native Americans are to be interpreted in the tribes' favor and stating that where there has been no bargained-for exchange, as is the case with a treaty, "[t]he opposite inference should apply.").

13. See Michael C. Blumm, *Reversing the Winters Doctrine?: Denying Reserved Water Rights for Idaho Wilderness and Its Implications*, 73 U. COLO. L. REV. 173, 173 (2002) (stating that the *Winters* doctrine "is central to achieving federal land management goals in the arid West, because without water most federal goals cannot be achieved.").

14. 43 U.S.C. § 666(a) (2012).

15. 438 U.S. 696 (1978).

or, alternatively, it could at least mitigate further damage by amending the various organic and enabling statutes under which Congress designates federal land reservations and directs their management. Absent a congressional response, however, federal agencies likely can and should make efforts to circumvent damage to the *Winters* rights associated with federal lands by proactively asserting those rights in federal courts.

II. THE EARLY *WINTERS* DOCTRINE

A. ESTABLISHING THE DOCTRINE

In *Winters v. United States*, the US Supreme Court established the doctrine of implied federally reserved water rights.¹⁶ In that case, the Court affirmed a lower court order enjoining several Milk River appropriators, who had acquired water rights under Montana state law, from interfering with that river's flow into the Fort Belknap Indian Reservation downstream.¹⁷

In the 1888 treaty creating Fort Belknap, various Indian tribes ceded their rights to a larger portion of land in exchange for the United States' creation of a "permanent home and abiding place" for them within Montana.¹⁸ Although the treaty was silent with respect to water, the Supreme Court looked to the surrounding circumstances to discover the intent underlying the treaty.¹⁹ The Court explained that, prior to the treaty, the "Indians had command of the lands and the waters, [and] command of all their beneficial use, whether kept for hunting, 'and grazing roving herds of stock,' or turned to agriculture and the arts of civilization."²⁰ It found that the treaty lands were arid and "practically valueless" without water to irrigate them,²¹ and asked whether one could believe the tribes would have agreed to "reduce the area of their occupation and give up the waters which made it valuable or adequate?"²² It concluded that the tribes would not have assented to such a treaty, and therefore the creation of the Fort Belknap reservation had implicitly reserved sufficient water for the survival of that reservation and its people.²³ The Court emphasized that "[t]he power of the government to reserve the waters and exempt them from appropriation under the state laws is not denied, *and could not be.*"²⁴

16. 207 U.S. 564 (1908).

17. *Id.* at 565, 578.

18. *Id.* at 565-68, 576 (internal quotation marks omitted) ("It was the policy of the government, it was the desire of the Indians, to change [their nomadic] habits and to become a pastoral and civilized people.").

19. *Id.*

20. *Id.* at 576.

21. *Id.*

22. *Id.*

23. *Id.* at 576-77.

24. *Id.* at 577 (emphasis added) (citation omitted). The rectitude of such an assertion cannot be doubted. See U.S. CONST. art. VI, cl. 2 ("[The] Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme law of the Land . . .").

Consequently, despite the potential damage to the upstream appropriators' sizeable investments (and thus the potential frustration of those appropriators' expectations), the Court rejected the appropriators' argument that the Indian tribes ceded their right to use the Milk River's water.²⁵

B. EXTENDING THE DOCTRINE

Although the US Supreme Court established the doctrine of implied federally reserved water rights in *Winters*, that sparse decision left a number of questions open. Central among them was whether the *Winters* doctrine applied only to Indian reservations or extended to other federal reservations of land as well. The Court did not address this important issue until several decades later. When it finally did so, the Court's answer was rendered without equivocation.²⁶

In its 1963 decision in *Arizona v. California*, the Court considered whether the *Winters* doctrine applied to federal land withdrawn from the public domain for non-Indian purposes.²⁷ The Court found "that the principle underlying the reservation of water rights for Indian Reservations was *equally applicable* to other federal establishments"²⁸ It held the federal government had intended to reserve water from the Colorado River when it created two national wildlife refuges, a national recreation area, and the Gila National Forest.²⁹

Following *Arizona v. California*, in 1976, the Court issued its first opinion that examined non-Indian federally reserved water rights in depth.³⁰ In *Cappaert v. United States*, the Court considered whether the Presidential proclamation reserving Devil's Hole as a detached component of Death Valley National Monument also reserved sufficient water to sustain a pool situated within the Devil's Hole cavern.³¹ The Court began its analysis with what is, to date, its best explanation of the *Winters* doctrine:

This Court has long held that when the Federal Government withdraws its land from the public domain and reserves it for a federal purpose, the Government, by implication, reserves appurtenant water then unappropriated to the extent needed to accomplish the purpose of the reservation. In so doing the United States acquires a reserved right in unappropriated water which vests on the date of the reservation and is superior to the rights of future appropriators.³²

25. *Id.* at 569-70, 576-78 (state appropriators alleging that they had invested more than \$100,000 and that "[i]f they [were] deprived of waters 'their lands [would] be ruined, it [would] be necessary to abandon their homes, and they [would] be greatly and irreparably damaged[.]'").

26. *Arizona v. California*, 373 U.S. 546, 601 (1963).

27. *Id.* at 600-01.

28. *Id.* (emphasis added).

29. *Id.*

30. *Cappaert v. United States*, 426 U.S. 128, 138 (1976).

31. *Id.* at 131-38.

32. *Id.* at 138.

The Court continued with a description of the doctrine's constitutional foundation and scope:

Reservation of water rights is empowered by the Commerce Clause, Art. I, [§] 8, which permits federal regulation of navigable streams, and the Property Clause, Art. IV, [§] 3, which permits federal regulation of federal lands. The doctrine applies to Indian reservations and other federal enclaves, encompassing water rights in navigable and nonnavigable streams.³³

As it had in *Winters*, the Court in *Cappaert* again adamantly refused to complicate the doctrine of federal reserved water rights by weighing the gravity of the interests competing for the water at issue.³⁴ In *Cappaert*, because a finding of federally reserved water rights for the Monument would adversely affect a nearby commercial ranch's groundwater pumping, Nevada argued the *Winters* doctrine was an equitable one, "calling for a balancing of competing interests."³⁵ The Court roundly rejected this argument, stating that "[i]n determining whether there is a federally reserved water right implicit in a federal reservation of public land, the issue is whether the Government intended to reserve unappropriated and thus available water," and that such an "[i]ntent is inferred if the previously unappropriated waters are necessary to accomplish the purposes for which the reservation was created."³⁶

After rejecting the balancing test suggested by Nevada, the Court in *Cappaert* looked to whether an intent to reserve water could be inferred from the language of the Devil's Hole reservation and the circumstances surrounding the reservation.³⁷ In doing so, the Court observed "[t]he Proclamation discussed the pool in Devil's Hole in four of the five preambles and recited that the 'pool . . . should be given special protection.'"³⁸ This led the Court to conclude that the 1952 reservation of Devil's Hole pool constituted a reservation of then unappropriated water sufficient to preserve its scientific value, despite the impact on other water users, "[because] a pool is a body of water, [therefore,] the protection contemplated is meaningful only if the water remains."³⁹

As is evident from these cases, the doctrine of implied federal reserved water rights enjoyed a relative lack of complexity from the time the Court established it in the *Winters* case up until the Court's first full explanation of the doctrine in *Cappaert*, despite the contentious nature of water allocation in the West.⁴⁰ As a judicially-created rule of construction, the doctrine prevented federal lands withdrawn from the public domain for a specific purpose from

33. *Id.*

34. *Id.* In *Winters*, the US Supreme Court found implied federally reserved water rights despite the adverse effect those rights would have on heavily-invested state appropriators. See *supra* note 28 and accompanying text.

35. *Cappaert*, 426 U.S. at 138.

36. *Id.* at 138-39.

37. See *id.* at 139-42.

38. *Id.* at 139-40.

39. *Id.* at 140, 147.

40. Harold A. Ranquist, *The Winters Doctrine and How It Grew: Federal Reservation of Rights to the Use of Water*, 1975 BYU L. REV. 639, 674-77 (1975).

being denied the water necessary to accomplish that purpose. It did so by examining the sparse language of the reservation at issue, as well as the statutory authority for the reservation, and by giving effect to both the expressed intent and what was logically required to accomplish that intent.⁴¹ In sum, as evidenced by the Supreme Court's decision in *Cappaert*, the *Winters* doctrine served as a common-sense judicial interpretation of federal reservations and their unique circumstances. However, this would not continue.

III. FACTORS LEADING TO STATE COURT DEROGATION OF THE *WINTERS* DOCTRINE

Despite its status as a relatively straightforward and common-sense doctrine for the first sixty-eight years of its existence, the years since have not been kind to the *Winters* doctrine. Recent years have witnessed repeated efforts by state courts to side-step non-Indian federal reserved water rights.⁴² Those efforts have led to a patchwork of result-oriented state court decisions of questionable reasoning, which have impaired the ability of the *Winters* doctrine to effectuate federal land management goals.⁴³ As detailed in this section, this impairment has been caused by: (i) the McCarran Amendment, which allows states to force the United States to assert its federally reserved water rights claims in state court general stream adjudications;⁴⁴ (ii) state hostility to the assertion of *Winters* claims for political and economic reasons;⁴⁵ (iii) state court manipulation of the reasoning utilized by the US Supreme Court in its most recent substantive decision on non-Indian federal reserved water rights, *United States v. New Mexico*;⁴⁶ and (iv) state court abuse of the inconsistent and often ambiguous language included in the various congressional reservations.⁴⁷

A. THE PASSAGE OF THE MCCARRAN AMENDMENT

After *Cappaert*, a confluence of four factors significantly increased the complexity of federally reserved water rights law and facilitated the erosion of the doctrine's usefulness. The first of these factors was the expansion of state court jurisdiction with the passage of the McCarran Amendment in 1952.⁴⁸

41. See *Cappaert v. United States*, 426 U.S. 128, 147 (1976) (reasoning that the pool reserved by the proclamation at issue could only be protected if granted sufficient water to remain a pool); *Winters v. United States*, 207 U.S. 564, 576 (1908) (rejecting the argument that the Native Americans of the Fort Belknap Indian Reservation had given up water rights necessary to the viability of their Reservation by entering into a treaty with the United States).

42. See *infra* Part IV.

43. See *infra* Parts IV, VI.

44. See *infra* Part III.a

45. See discussion *infra* Part III.c.

46. See discussion *infra* Part III.b.

47. See discussion *infra* Part III.d.

48. 43 U.S.C. § 666(a) (2012).

Prior to the McCarran Amendment questions of the existence and scope of federal water rights were almost exclusively decided by federal courts.⁴⁹ Indeed, *Cappaert* arose out of litigation in federal court.⁵⁰ Before the 1950s, federal sovereign immunity prevented most federal water rights cases from being decided by state courts, despite the fact that many states had adopted judicial and administrative procedures for determining water rights within their boundaries.⁵¹ This led Nevada Senator Patrick McCarran and others to attack the application of sovereign immunity in the area of water rights.⁵² They argued that federal water rights, which could affect rights obtained under state law, should be decided in tandem with state water rights in comprehensive state court proceedings.⁵³ Despite the well-founded fears of the Departments of Justice and Interior,⁵⁴ their argument gained momentum, and the Amendment was passed as a rider to an appropriations bill for the Departments of State, Justice, and Commerce, and the Judiciary.⁵⁵

The passage of the McCarran Amendment effectively reversed the *status quo*, allowing state courts to become the primary adjudicators of federal water

49. Stephen M. Feldman, *The Supreme Court's New Sovereign Immunity Doctrine and the McCarran Amendment: Toward Ending State Adjudication of Indian Water Rights*, 18 HARV. ENVTL. L. REV. 433, 438-39 (1994).

50. *Cappaert v. United States*, 426 U.S. 128, 134-38 (1976) (noting that after the state engineer rejected the National Park Service's protest to the Cappaerts' petition for a change in their water rights during a state administrative proceeding, the United States filed an injunction against the Cappaerts under 28 U.S.C. § 1345, which gives federal district courts jurisdiction in cases where the United States is a plaintiff), *aff'g* 508 F.2d 313 (9th Cir. 1974), *aff'g* 375 F. Supp. 456 (D. Nev. 1974).

51. Feldman, *supra* note 49, at 438-39.

52. *Id.* at 439-40.

53. *Id.*

54. In opposition to the Amendment as it was first proposed in 1949, the US Department of Justice argued "that the proposal would subject the United States to 'a piecemeal adjudication of water rights, in turn resulting in a multiplicity of actions.'" John Thorson, *State Watershed Adjudications: Approaches and Alternatives*, 42 ROCKY MTN. MIN. L. INST. 22-1, 22-18 (1996) (quoting Letter from P. Ford, Ass't U.S. Attn'y Gen., to P. McCarran (Feb. 27, 1950)). The US Department of the Interior argued that the Amendment should "only extend to water rights established under state law by the United States and specifically exclude any water rights held by the United States on behalf of Indians." *Id.* at 22-18. In subsequent hearings before the Judiciary Subcommittee, the Justice Department's representative argued "the legislation would result in prolific litigation and 'the forward progress of the West, for which we are all fighting, would be impeded tremendously.'" *Id.* at 22-19 (quoting Catherine Anne Berry, *The McCarran Water Rights Amendment of 1952: Policy Development, Interpretation, and Impact on Cross-Cultural Water Conflicts* 111-12 (1993) (unpublished Ph.D. thesis, University of Colorado)); *see also infra* Part III.c.

55. Feldman, *supra* note 49, at 440 n.36; *see also* Thorson, *supra* note 54, at 22-19 ("During this period, the fate of McCarran's proposed legislation became fatefully intertwined with two major California water controversies. Neither of these controversies directly related to the purpose of McCarran's bill; but, once a slight linkage was made, McCarran received considerable support for his legislation from the large and powerful California delegation."). For a discussion of the devious character of appropriations riders, *see* Sandra Zellmer, *Sacrificing Legislative Integrity at the Altar of Appropriations Riders: A Constitutional Crisis*, 21 HARV. ENVTL. L. REV. 457 (1997).

rights.⁵⁶ The Amendment allowed States to join the United States as a party “in any suit . . . for the adjudication of rights to the use of water of a river system,” and waived the federal government’s sovereign immunity for the purpose of such adjudications.⁵⁷ Unfortunately for the continued utility of the *Winters* doctrine, in 1971, the US Supreme Court extended the Amendment’s waiver of sovereign immunity to federally reserved water rights.⁵⁸ Allowing states, which are often hostile to federal control of water resources, to force the US government to litigate its *Winters* claims before state courts would significantly contribute to the derogation of the doctrine of implied federal water rights.⁵⁹

B. UNITED STATES V. NEW MEXICO

The McCarran Amendment’s implementation led to the US Supreme Court’s decision in *United States v. New Mexico*,⁶⁰ the second factor that would eventually impair the continued utility of the *Winters* doctrine. In *New Mexico*, the Court revisited the subject of the Gila National Forest’s federally reserved water rights.⁶¹ The Court considered what, if any, water the federal government had reserved for instream flows and recreational purposes in the Rio Mimbres River when it created the Gila National Forest, an area known for its scenic vistas, recreational trails, and wildlife.⁶² Prior to the Court’s consideration of that issue, the Supreme Court of New Mexico, using McCarran Amendment-derived jurisdiction, affirmed a lower court’s decision that the United States did not reserve water for recreation, aesthetics, wildlife conservation, or cattle grazing when it set aside the Gila National Forest from other public lands.⁶³ It reached this conclusion despite the court-appointed special

56. See Blumm, *supra* note 13, at 176 (noting that the passage of the McCarran Amendment and subsequent U.S. Supreme Court decisions holding that the Amendment applied to federally reserved water rights “made state judges . . . the key decisionmakers concerning the existence and scope of federal water rights”).

57. 43 U.S.C. § 666(a) (2012).

58. See *United States v. Dist. Ct. in & for Cnty. of Eagle*, 401 U.S. 520, 524 (1971) (construing the McCarran Amendment’s consent to join the United States as a defendant in suits for adjudication of rights to use water of a river system as an all-inclusive provision for adjudication of water rights, including appropriated rights, riparian rights, and reserved rights); see also *United States v. Dist. Ct. Water Div. No. 5*, 401 U.S. 527, 529-30 (1971) (construing “general adjudication” broadly).

59. See Blumm, *supra* note 13, at 176 (observing that state judges “are subject to election and therefore quite sensitive to irrigation and other local uses threatened by federal instream water rights”).

60. *United States v. New Mexico*, 438 U.S. 696, 697-98 (1978) (arising from a state court general stream adjudication aimed at allocating water rights on the Rio Mimbres River).

61. *Id.* The Gila National Forest was one of the federal reservations at issue in *Arizona v. California*, 373 U.S. 546, 601 (1963). See *supra* Part II.c.

62. *New Mexico*, 438 U.S. at 697-98. The Gila is the sixth largest national forest in the country. US DEP’T. AGRIC., LAND AREAS OF THE NATIONAL FOREST SYSTEM 9 (2012), available at http://www.fs.fed.us/land/staff/lar/LAR2011/LAR2011_Book_A5. For details about the forest, see U.S. Forest Service, Gila National Forest, <http://www.fs.usda.gov/main/gila/about-forest> (last visited Mar. 10, 2013).

63. *Mimbres Valley Irrigation Co. v. Salopek*, 564 P.2d 615, 615, 617-18 (N.M. 1977). The original suit was filed in 1966 as a private action to enjoin diversions of the Rio Mimbres, a river that flows through the Gila National Forest. *Id.* at 615. The State of New Mexico filed a com-

master's findings of fact and conclusions of law, which supported the United States' claim to six cubic feet per second of water in the National Forest for minimum instream flows and recreational purposes.⁶⁴

In its analysis of this issue, the US Supreme Court, for the first time in a *Winters* case, distinguished between the primary and secondary purposes of federal reservations, and it held that water rights for non-Indian reservations could only be reserved by implication for the former.⁶⁵ Utilizing this novel distinction, the Court concluded that the primary purposes for which the forest had been set aside could be discerned by parsing the language of the Organic Administration Act of 1897: "to conserve water flows, and to furnish a continuous supply of timber for the people."⁶⁶ Based on that narrow reading of the reservation's purpose, the Court in *New Mexico* rejected the United States' arguments that the creation of Gila National Forest had reserved water for recreation, aesthetics, wildlife, and grazing.⁶⁷

While it is apparent that the Supreme Court sought to restrict the scope of the *Winters* doctrine in *New Mexico*,⁶⁸ the manner in which it did so was deeply flawed. The problematic reasoning in *New Mexico* would later serve as a guide to state courts seeking to side-step federally reserved water rights.⁶⁹ Three significant defects in the Supreme Court's analysis are detailed below.

1. The Assertion That Congress Has "Invariably Deferred" to State Water Law

The first, and arguably most fundamental, problem with the Supreme Court's decision in *New Mexico* was its heavy reliance on Congress's so-called deference to state water law.⁷⁰ Early in the opinion, the Court asserted that "[w]here Congress has expressly addressed the question of whether federal entities must abide by state water law, it has almost invariably deferred to the state law," and then the Court used that purported principle of federalism as the justification for its new and more restrictive approach to the *Winters* doctrine.⁷¹ For example, the Court prefaced its introduction of the primary versus secondary purpose distinction in *New Mexico* with the above quote, making clear that its belief that Congress had "invariably deferred" to state water law served as an impetus for introducing that distinction.⁷² Additionally, later in the

plaint-in-intervention seeking a general adjudication of water rights in the river and named as defendants all parties claiming any interest in and use of the Rio Mimbres. *Id.* The State's motion to intervene was granted, the suit proceeded as a general adjudication, and the United States was joined as a defendant pursuant to 43 U.S.C. § 666(a). *Id.*

64. *Id.* at 616.

65. *New Mexico*, 438 U.S. at 700-02.

66. *Id.* at 707, n.14 (quoting the language of the Act to show Congress intended the national forests to be established for only two purposes).

67. *Id.* at 705, 708-09, 711-12, 718.

68. See John D. Leshy, *Water Rights for New Federal Land Conservation Programs: A Turn-of-the-Century Evaluation*, 4 U. DENV. WATER L. REV. 271, 276 (2001).

69. See *infra* Part IV.

70. *New Mexico*, 438 U.S. at 702.

71. *Id.*

72. See *id.*; see also *infra* Part III.b.ii.

opinion, the Court used its “invariable deference” reasoning as a basis for interjecting a balancing test into non-Indian water rights application of the *Winters* doctrine despite the Court’s express rejection of such a test just two years earlier in *Cappaert*.⁷³ In doing so, the Court stated that “the reality” of the assertion of “federal reserved water rights will frequently require a gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators . . . has not escaped the attention of Congress and must be weighed in determining what, if any, water Congress reserved for use in the national forests.”⁷⁴

The Court’s characterization of Congress’ past actions in this area was an expansion on a statement it had made in another case involving federal reclamation projects.⁷⁵ In that case, the Court rejected the United States’ argument that it could impound as much unappropriated water as it deemed necessary for a federal reclamation project without complying with state law.⁷⁶ However, the statute in question—the 1902 Reclamation Act—specifically provides that the Secretary of the Interior must follow state law as to the appropriation of water and condemnation of water rights.⁷⁷ For the Court to take this statement out of context and extend it to the federal reserved water rights doctrine—a creature of federal law through and through—was inappropriate.

More generally, there has not been “invariable deference” in other water-related matters.⁷⁸ In fact, prior to the Court’s blanket assertions in *New Mexico* about congressional actions and intent with regard to water law, Congress passed the Wilderness Act in 1964 and the Wild and Scenic River Act in 1968, neither of which deferred to state water law.⁷⁹ In addition, Congress had passed the Clean Water Act of 1972, which significantly expanded federal authority over the nation’s water bodies.⁸⁰ Although the 1977 amendments to

73. *New Mexico*, 438 U.S. at 705; see *Cappaert v. United States*, 426 U.S. 128, 138-39 (1976) (rejecting the State of Nevada’s argument that the doctrine of federal reserved water rights was an equitable doctrine that called for the weighing of competing interests).

74. *New Mexico*, 438 U.S. at 705, 713-15. The Court also invoked Congress’ “invariable deference” as a justification for its conclusion regarding the limited effect of the Multiple-Use Sustained-Yield Act, 16 U.S.C. §§ 528-31 (1960), in identifying the “primary purposes” of the forest. *Id.* It characterized the *Winters* doctrine as “an exception to Congress’ explicit deference to state water law in other areas.” *Id.*

75. See Reed D. Benson, *Deflating the Deference Myth: National Interests vs. State Authority Under Federal Laws Affecting Water Use*, 2006 UTAH L. REV. 241, 243 (2006) (“In *California v. United States*, the Court declared that the history of federal-state relations over irrigation development in the West ‘is both long and involved, but through it runs the consistent thread of purposeful and continued deference to state water law by Congress.’”) (quoting *California v. United States*, 438 U.S. 645, 653 (1978)) [hereinafter Benson, *Deflating the Myth*].

76. *California v. United States*, 438 U.S. 645, 647, 672, 674-75 (1978).

77. Reclamation Act of 1902 § 8, 43 U.S.C. §§ 372, 383 (2012).

78. See Benson, *Deflating the Myth*, *supra* note 75, at 249 (calling the conventional wisdom that Congress consistently defers to state authority over water “a myth” and stating “Congress and the Supreme Court have generally refused to cede control over water to the states if there was a potential conflict with an important national interest”).

79. JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 936 (4th ed. 2006) (noting the language found in the Wilderness Act, 16 U.S.C. § 1133(d)(6), and the Wild and Scenic River Act, 16 U.S.C. § 1284(b)).

80. 33 U.S.C. §§ 1251-54 (2012).

the Clean Water Act included a provision stating that the states' authority "to allocate quantities of water . . . shall not be superseded, abrogated or otherwise impaired by this chapter," the Act's substantive provisions and broad jurisdictional scope remained intact.⁸¹ Tellingly, the Endangered Species Act, another enactment from this era, has had tremendous impacts on water management and it simply provides that "Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species."⁸²

Given this backdrop, the Court's assertion was, at best, an overgeneralization about congressional action in the water arena.⁸³ It was more likely the product of the Court's own biases and federalism assumptions than that of a reasoned analysis.⁸⁴ Subsequent objective analysis and commentary have revealed a more nuanced picture of federal deference to state water law, the truth being that Congress has sometimes deferred to state water law and sometimes has not.⁸⁵

2. Introduction of the Primary Purpose Rule

Whatever the merits (or lack of merit) of the Court's generalization about the level of congressional deference in the area of water law, it undoubtedly served as the Court's justification for limiting the application of the *Winters* doctrine to the primary purposes of a federal reservation of land.⁸⁶ This limitation, the primary purpose rule, was the second major flaw in the Court's rea-

81. *Id.* § 1251(g). Congress adopted the so-called "Wallop" amendment, named for Senator Malcolm Wallop from Wyoming, in response to a Water Resources Council policy paper that argued that reducing water diversions might be necessary to resolve persistent water quality problems. Water Resources Council Water Resource Policy Study, 42 Fed. Reg. 36,788, 36,793 (July 15, 1977). Senator Wallop convinced his colleagues that, in light of the report, it was necessary to "reassure the State[s]" that Congress did not intend for the Clean Water Act to be "used for the purpose of interfering with State water rights systems." 123 CONG. REC. S39,211 (daily ed. Dec. 15, 1977) (statement of Sen. Malcolm Wallop).

82. 16 U.S.C. § 1531(c)(2) (2012); see Reed D. Benson, *So Much Conflict, Yet So Much in Common: Considering the Similarities Between Western Water Law and the Endangered Species Act*, 44 NAT. RESOURCES J. 29, 41-42 (2004).

83. See Benson, *Deflating the Myth*, *supra* note 75, at 242-66 (questioning the conventional wisdom that the federal government had consistently deferred to state water law); George Cameron Coggins & Robert L. Glicksman, 1 PUB. NAT. RESOURCES L. § 5:36 (2d ed. 2013) ("Justice Rehnquist repeatedly emphasized the general contemporary congressional deference to state water law—at the expense of some contrary evidence in the Organic Act's legislative history.") (citing Sally K. Fairfax & A. Dan Tarlock, *No Water for the Woods: A Critical Analysis of United States v. New Mexico*, 15 IDAHO L. REV. 509, 533-36 (1979)).

84. Constitutional law scholars note the "New Federalism" became evident in a number of Supreme Court opinions during the early 1970s and appeared to be in full swing by 1978, when the *New Mexico* opinion was handed down. See, e.g., David L. Shapiro, *Mr. Justice Rehnquist: A Preliminary View*, 90 HARV. L. REV. 293, 306 (1976) (framing the Court's reasoning in a federal law that extended minimum wage and maximum hours provisions to state and local employees as an "invasion of state sovereignty"); Laurence H. Tribe, *Unraveling National League of Cities: The New Federalism and Affirmative Rights to Essential Government Services*, 90 HARV. L. REV. 1065, 1067 (1977).

85. See Benson, *Deflating the Myth*, *supra* note 75, at 243.

86. See *supra* Part III.b.i.

soning. The Court's effort to limit the doctrine of non-Indian implied federal water rights by distinguishing between the primary and secondary purposes of federal reservations lacked any basis in precedent.⁸⁷ Moreover, as the *New Mexico* opinion and subsequent state court cases show, the primary purpose distinction resists principled application and invites result-oriented and arbitrary judicial line drawing.⁸⁸

The arbitrariness of the Court's primary purpose rule is apparent throughout the *New Mexico* opinion. As stated above, in applying this rule, the Court concluded that the primary purposes of the Organic Administration Act of 1897⁸⁹ (the "Organic Act") were "to conserve water flows, and to furnish a continuous supply of timber for the people,"⁹⁰ despite the Organic Act's amenability to other, arguably more reasonable, constructions.⁹¹ In *New Mexico*, the Court reached its conclusion through a strained and puzzling parsing of the language of the Organic Act.⁹² The actual language of the Organic Act provides "[n]o national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber."⁹³ The majority read this provision as "[f]orests would be created only 'to improve and protect the forest within the boundaries,' or, in other words, 'for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber.'"⁹⁴

In so reading the language of Organic Act, the majority effectively disregarded the congressional intent to "improve and protect" any other aspect of the forest "except the usable timber and whatever other flora [that was] necessary to maintain the watershed."⁹⁵ After all, what is a "forest" or, for that matter a watershed, deprived of its constituent parts? With regard to the majority's finding that the Gila National Forest was not set aside for wildlife purposes, Justice Powell argued in dissent:

One may agree with the Court that Congress did not, by enactment of the Organic Administration Act of 1897, intend to authorize the creation of national forests simply to serve as wildlife preserves. But it does not follow from this that Congress did not consider wildlife to be part of the forest it wished

87. The distinction between the primary and secondary purposes had no basis in the seventy years of Supreme Court precedent establishing the reserved water rights doctrine. See *Cappert v. United States*, 426 U.S. 128, 138 (1976); *Arizona v. California*, 373 U.S. 546, 582, 584 (1963); *Winters v. United States*, 207 U.S. 564, 566 (1908).

88. *United States v. New Mexico*, 438 U.S. 696, 696 (1978); see *infra* Part IV.

89. Organic Administration Act, 16 U.S.C. § 473 (2012). The Court examined this because it provided the statutory authority for the reservation of Gila National Forest. See *New Mexico*, 438 U.S. at 706-07.

90. *New Mexico*, 438 U.S. at 707 (quoting 30 CONG. REC. 967 (1897) (statement of Rep. Thomas McRae)).

91. See *id.* at 720 (Powell, J., dissenting).

92. *Id.* at 706-07, 707 n.14 (majority opinion).

93. *Id.* at 706-07 (alteration in original) (quoting 16 U.S.C. § 475 (1976)).

94. *Id.* at 707 n.14 (alteration in original) (emphasis added) (quoting 16 U.S.C. § 475 (1976)).

95. *Id.* at 721 (Powell, J., dissenting).

to "improve and protect" for future generations. It is inconceivable that Congress envisioned the forests it sought to preserve as including only inanimate components such as the timber and the flora.⁹⁶

Further, Justice Powell noted that the idea that a forest included the creatures inhabiting it had been around since early English law, and explained that this broad conceptualization of a forest has remained affixed in the American mind.⁹⁷ As Justice Powell pointed out, a more natural reading of the Organic Act's language would have identified three, not the majority's two, primary purposes for the establishment of a national forest: "1) improving and protecting the forest, 2) securing favorable conditions of water flows, and 3) furnishing a continuous supply of timber."⁹⁸ The first of these—improving and protecting the forest—was utterly ignored by the majority. By engaging in such a contorted reading of the Act, the US Supreme Court seemingly ignored its own admonishment in *Cappaert*—that the authority for a reservation "must be read *in its entirety*."⁹⁹

3. Introduction of the Selective Use of Legislative History and a Balancing Test

The third and, perhaps, most confounding flaw in the reasoning of *New Mexico* was the Court's selective use of legislative history¹⁰⁰ and its weighing of state and federal interests in an effort to support its finding of no federally reserved water rights for recreational, aesthetic, wildlife, or grazing purposes.¹⁰¹ The use of those justifications had no place in the application of the *Winters* doctrine to non-Indian federally reserved water rights.

In finding that the primary purposes of Gila National Forest were limited to "securing favorable water flows" and "providing a continuous supply of timber," the majority made such extensive use of legislative history that a reader of the opinion might believe that there were no materials supporting any inference to the contrary.¹⁰² There was, however, legislative history that cut against the majority's conclusions regarding the intent behind the Organic Act.¹⁰³ As Justice Powell pointed out in his dissent, when the Organic Act was originally introduced, it stated that national forests were established "to preserve the timber and other natural resources, and such natural wonders and curiosities and game as may be therein, from injury, waste, fire, spoliation, or other de-

96. *Id.* at 723-24.

97. *Id.* at 721 (citations omitted).

98. *Id.* at 720 (quoting *Mimbres Valley Irrigation Co. v. Salopek*, 564 P.2d 615, 617 (N.M. 1977)).

99. *Cappaert v. United States*, 426 U.S. 128, 141 (1976) (emphasis added).

100. *See New Mexico*, 438 U.S. at 720-24 (Powell, J., dissenting).

101. *Id.* at 705 ("When, as in the case of the Rio Mimbres, a river is fully appropriated, federal reserved water rights will frequently require a gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators. This reality has not escaped the attention of Congress and must be weighed in determining what, if any, water Congress reserved for use in the national forests.")

102. *Id.* at 706 (majority opinion) (quoting 16 U.S.C. § 475 (1976)).

103. *Id.* at 720-24 (Powell, J., dissenting).

struction.”¹⁰⁴ Justice Powell found no convincing evidence that Congress, in rewording the Organic Act before its passage, intended to abandon this intent.¹⁰⁵ Furthermore, prior to *New Mexico*, none of the Supreme Court cases dealing with federally reserved water rights engaged in an extensive examination of legislative history when deciding whether federal water rights existed, let alone a selective examination of the sort engaged in by the Court in *New Mexico*.¹⁰⁶

Finally, as mentioned above, the Court justified its finding of limited purposes for the reservation of the Gila National Forest by weighing the state and federal interests in the water at issue.¹⁰⁷ By doing so, the US Supreme Court, in effect, overruled part of its holding in *Cappaert* without acknowledging that it was doing so.¹⁰⁸ In *Cappaert*, the Court considered and expressly rejected the argument that *Winters* required an equitable balancing of competing interests, and held that the only question relevant to ascertaining the existence of federally reserved water rights was whether “the Government intended to reserve unappropriated and thus available water.”¹⁰⁹ The approach adopted by the Court in *Cappaert*, which turned on whether water was necessary to both the expressed and the reasonably discernible purposes of a federal land reservation,¹¹⁰ is a more logical gauge of congressional intent than the approach utilized by the Court in *New Mexico*, which led it to hypothesize about Congress’ opinion on how water should be allocated between public and private users.¹¹¹ By justifying its holding in such a way, the Court needlessly complicated an inquiry that *Cappaert* had left clear and, as subsequent state court decisions show, imprudently left the door open for future abuse.¹¹²

C. STATE HOSTILITY TO THE ASSERTION OF FEDERALLY RESERVED WATER RIGHTS

Western states’ very real hostility towards the assertion of federal water rights, born of the supreme nature of federal rights and the states’ desire to

104. *Id.* at 722 (quoting 28 CONG. REC. 6410 (1896) (statement of Rep. Thomas McRae)).

105. *Id.*

106. *See generally* *Arizona v. California*, 373 U.S. 546 (1963); *Winters v. United States*, 207 U.S. 564 (1908). The reservation at issue in *Cappaert v. United States*, 426 U.S. 128 (1976), was created by executive order, so there would have been no legislative history. Notably, in modern Supreme Court jurisprudence, the use of legislative history has fallen out of favor. *See* *Wis. Pub. Intervenor v. Mortier*, 501 U.S. 597, 617 (1991) (Scalia, J., concurring) (arguing that legislative history is “unreliable . . . as a genuine indicator of congressional intent”); *id.* (observing, with regard to Committee Reports, “We use them when it is convenient, and ignore them when it is not.”).

107. *New Mexico*, 438 U.S. at 722 (Powell, J., dissenting).

108. *Cappaert*, 426 U.S. at 138-39; *see also* Barry Friedman, *The Wages of Stealth Overruling (With Particular Attention to Miranda v. Arizona)*, 99 GEO. L.J. 1 (2010) (discussing the practice of “stealth overruling” and its costs).

109. *Cappaert*, 426 U.S. at 138-39; *see* Friedman, *supra* note 108.

110. *Cappaert*, 426 U.S. at 139; *see* Friedman, *supra* note 108.

111. *New Mexico*, 438 U.S. at 722 (Powell, J., dissenting).

112. *See infra* Part IV.

protect the integrity of their own prior appropriation systems,¹¹³ was a third factor that led to the erosion of the *Winters* doctrine's utility. Most western states have adopted the doctrine of prior appropriation for allocating the water within their boundaries.¹¹⁴ Under the prior appropriation system, future water users must divert water for a "beneficial purpose" and receive some sort of permission or acknowledgement from the state before they possess a water right.¹¹⁵ Further, in times of water shortage, the doctrine of prior appropriation holds that the user who is "first in time" is "first in right."¹¹⁶

It is not difficult to see why western states, which have almost universally adopted comprehensive procedures for determining rights under their prior appropriation systems,¹¹⁷ do not like federally reserved water rights. First, under the *Winters* doctrine, neither diversion for a state-recognized "beneficial purpose," nor state approval, are prerequisites to finding a federally reserved right.¹¹⁸ A second, and related, reason for the western states' disdain for *Winters* rights is that a large number of federally reserved water rights do not divert water at all but are "instream" in nature.¹¹⁹ Instream rights—water rights that require a certain amount of water to remain in the river—are not typically recognized by pro-irrigator western states unless they are held by the states themselves.¹²⁰ The third, and most important reason for western state enmity toward *Winters* water rights, is that those rights do not vest on the day they are claimed and put to use as is the case of state prior appropriative rights; rather, they vest whenever the federal government decides to reserve land for a water-dependent purpose.¹²¹ This aspect of federally reserved water rights is particularly upsetting to western states because quite a few federal land reservations were made very early on¹²² and, as a result, any water rights attached to those reservations would have priority over many if not most water rights obtained under state law.¹²³ Finally, the fact that federally reserved water rights, unlike water rights acquired under state law, cannot be lost through nonuse has exac-

113. See Benson, *Deflating the Myth*, *supra* note 75, at 242 ("The states, particularly in the West, have jealously guarded their water allocation authority against real or imagined federal interference"); A. Dan Tarlock, *General Stream Adjudications: A Good Public Investment?*, 133 J. OF CONTEMP. WATER RES. & EDUC. 52, 57 (2006) (noting that, by the early 1960s, "state hostility to the idea of federal water rights had become ingrained in the region's political consciousness."); see *infra* Part V (state court hostility typically surfaces during general stream adjudications).

114. Blumm, *supra* note 13, at 174-75.

115. *Id.*

116. *Id.*

117. See *id.*

118. *Id.*

119. *Id.* at 175.

120. *Id.* at 174-75; see Janet Neuman, *Sometimes A Great Notion: Oregon's Instream Flow Experiments*, 36 ENVTL. L. 1125 (2006) (discussing details on the law of instream flow rights); Mary Mead Hammond, *Federal Instream Flow Reserved Rights: New Decisions with Big Impacts*, 46 ROCKY MTN. MIN. L. INST. 26 (2000).

121. Blumm, *supra* note 13, at 174-75.

122. See, e.g., *Winters*, 207 U.S. at 577 (finding that the Fort Belknap Indian Reservation had a federally reserved water right that vested on the date of that Reservation's creation in 1888).

123. Blumm, *supra* note 13, at 174-176.

erbated state animosity towards the federal government's assertion of those rights.¹²⁴

D. INCONSISTENT CONGRESSIONAL ACTION

Inconsistent and ambiguous congressional action is the final factor that has played a significant role in the erosion of the utility of the *Winters* doctrine in the context of non-Indian implied reserved federal water rights.¹²⁵ Congress has failed to express its intent clearly with respect to the reservation of water for federal purposes both in its specific land reservations¹²⁶ and in the Organic Acts that authorize their management by the various federal land management agencies.¹²⁷

Even though the US Supreme Court's decision in *New Mexico* made it clear that courts would base their decision about whether Congress intended to reserve water rights for particular parcels of land, in part, on a comparison of the language of the reservation at issue to other, similar statutory authority,¹²⁸ Congress has continued to act inconsistently when setting aside federal land.¹²⁹ It has sometimes made land reservations that are silent on federal water rights,¹³⁰ occasionally made reservations expressly claiming¹³¹ or disclaiming federal water rights,¹³² and still other times made reservations disclaiming any claim or denial of those important rights.¹³³ And Congress has acted no more

124. *Id.*

125. *See* SAX ET AL., *supra* note 79, at 938 ("Congress has not always in recent years been able to fashion agreement on specific language that addresses water (other than a disclaimer) in legislating on federal land management issues.").

126. *See id.* at 936-38 (citing examples where Congress expressly reserved water, expressly not reserved water, or has not expressly addressed water rights at all).

127. *See id.* at 932, 936 (comparing provisions addressing the reservation of water in Organic Act for the National Wildlife Refuge System, the Wilderness Act, and the Wild and Scenic Rivers Act).

128. *See New Mexico*, 438 U.S. 696, 709 (1978) (comparing the Organic Administration Act, 16 U.S.C. §§ 473 et seq., with the National Park Service Act of 1916, 16 U.S.C. § 1 (1976 ed.)).

129. Sax, *supra* note 79, at 936-39.

130. *See id.* at 936 fn. 12 (citing Las Cienegas National Conservation Area Act, 114 Stat. 2563 (2000), Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area Act, 114 Stat. 2763 (2000), Santa Rosa and San Jacinto Mountains National Monument Act, 114 Stat. 1362 (2000), and Steens Mountain Cooperative Management and Protection Act, 114 Stat. 1655 (2000), as examples of congressional silence on federally reserved water rights).

131. *See id.* at 937-38 (citing the Act establishing El Malpais National Monument, El Malpais National Conservation Area, and other reservations, 101 Stat. 1539, 1549 (1987), and the Act designating wilderness area within Olympic National Park, Mount Ranier National Park, and North Cascades National Park Service Complex, 102 Stat. 3961, 3968 (1988), as examples of Congress expressly claiming federally reserved water rights). *See also* Arizona Desert Wilderness Act of 1990, Pub. L. 101-628, 104 Stat. 4469 § 101(g) (Nov. 28, 1990) (codified at 16 U.S.C. § 460ddd note) ("Congress hereby reserves a quantity of water sufficient to fulfill the purposes of this title . . . The Secretary and all other officers of the United States shall take steps necessary to protect the rights reserved by paragraph").

132. *See* Sax, *supra* note 79, at 938 (citing Hagerman Fossil Beds National Monument, 102 Stat. 4571, 4576, § 304 (1988), as an example of Congress expressly disclaiming federally reserved water rights).

133. *See e.g.*, Sawtooth National Recreation Area Act, 16 U.S.C. § 460aa-8 (2012).

consistently when crafting the Organic Acts that grant management authority for the various types of federal land reservations.¹³⁴ As a result, courts often have little congressional guidance when determining whether reserved rights exist and, if so, how much water may be necessary for the purposes of the reservation in question.

IV. POST-UNITED STATES V. NEW MEXICO STATE COURT DEROGATIONS OF NON-INDIAN FEDERALLY RESERVED WATER RIGHTS

Following the passage of the McCarran Amendment in 1952,¹³⁵ many decisions regarding the existence and scope of reserved federal water rights have been issued by state courts vulnerable to the influence of state appropriators and other competing local interests.¹³⁶ This has impaired the utility of the *Winters* doctrine in some states and thereby inhibited the ability of government administrators to effectuate federal land management goals.¹³⁷ These state court derogations of the *Winters* doctrine have been facilitated by the US Supreme Court's poor guidance in *New Mexico* and the continuing influence of that case in state courts,¹³⁸ as well as Congress's failure to protect federally reserved water rights in a consistent and unambiguous fashion.¹³⁹ For state courts that were already biased in favor of state-sanctioned diversionary uses of water, it has proven all too easy to take *New Mexico's* cue and avoid finding federally reserved water rights.¹⁴⁰ In fact, it did not take long for state courts to heed *New Mexico's* direction; in 1982, the Colorado Supreme Court authored a decision on reserved water rights that unmistakably bore the watermarks of *New Mexico's* influence.¹⁴¹

In *United States v. City and County of Denver*, the Colorado Supreme Court contemplated whether the federal government, by withdrawing various lands in western Colorado for specific federal purposes, also reserved water

134. See *supra* note 131 and accompanying text (describing Organic Acts for the National Wildlife Refuge System, Wilderness, and Wild and Scenic Rivers).

135. 43 U.S.C. § 666(a) (2012).

136. See Blumm, *supra* note 13, at 176.

137. See Tarlock, *supra* note 113, at 53 (“[General stream] adjudications, with the help of the United States Supreme Court, have succeeded in cabin[ing], or tightly circumscrib[ing], the extent of non-Indian federal reserved rights for public lands . . .”).

138. See *SAX ET AL.*, *supra* note 79, at 925 (stating that *New Mexico* remains the leading modern federal reserved rights case).

139. See *supra* Part III(d).

140. See, e.g., *United States v. Jesse*, 744 P.2d 491 (Colo. 1987); *United States v. City & Cnty. of Denver*, 656 P.2d 1 (Colo. 1982); *United States v. State*, 23 P.3d 117 (Idaho 2001); *State v. United States (In re SRBA)*, 12 P.3d 1284 (Idaho 2000); *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260 (Idaho 2000); *United States v. City of Challis (In re SRBA)*, 988 P.2d 1199 (Idaho 1999).

141. See *generally Denver*, 656 P.2d 1 (noting that, similar to the *New Mexico* case, the Colorado Supreme Court's task was to limit and contour the exercise of the federal power over water rights in Colorado; the Court explicitly relied on *New Mexico* when discussing judicial recognition of federal reserved water rights and extent of the application of the federal reserved water rights doctrine to the national forests, parks, and monuments).

for those purposes.¹⁴² In light of the US Supreme Court's guidance in *New Mexico* and *Cappaert*, the Colorado Supreme Court correctly ruled on the basic issue, and held that the *Winters* doctrine was applicable to the federal lands at issue.¹⁴³ However, the Colorado court's restrictive interpretation of the scope and extent of the federally reserved water rights was undoubtedly tainted by *New Mexico*.¹⁴⁴ Most notably, the *Denver* court's conclusion that Congress' 1960 enactment of the Multiple-Use Sustained-Yield Act ("MUSYA")¹⁴⁵ did not reserve "additional water for the existing national forests with a 1960 priority date for recreational and wildlife conservation purposes" reflected the *New Mexico* opinion's influence.¹⁴⁶ With regard to the United States' claim that MUSYA reserved additional water for national forests for the purposes enumerated by that statute, the Colorado court came to the interesting conclusion that the US Supreme Court's opinion in *New Mexico* completely foreclosed such a claim.¹⁴⁷ The reasoning behind the Colorado court's holding on this issue is weak.¹⁴⁸ It cannot be disputed that the issue before the Colorado court, whether the enactment of MUSYA in 1960 reserved water in existing forests for additional purposes with a 1960 priority date, was not at issue before the US Supreme Court in *New Mexico*.¹⁴⁹ The *only* MUSYA-related issue decided by the Court in *New Mexico* was whether MUSYA "confirm[ed] that Congress *always* foresaw broad purposes for the national forests and authorized the Secretary of the Interior as early as 1897 to reserve water for recreational, aesthetic, and wildlife-preservation uses."¹⁵⁰ Because of the Court's express MUSYA disclaimer in *New Mexico*, the Court's discussion of that issue was dicta and not binding.¹⁵¹

142. *Id.* at 5-6 (involving the adjudication of the reservations of approximately 1,500 public waterholes, seven national forests, three national monuments, two mineral hot springs, and one national park).

143. *Id.* at 20.

144. *See, e.g., id.* at 20 (stating that Congress had generally deferred to state law); *id.* at 27; *id.* at 27 n.44 (weighing various interests when deciding whether implied reservation for recreational purposes existed at the Dinosaur National Monument); *see* SAX ET AL., *supra* note 79, at 925 ("[T]he Supreme Court's reading of the 1891 and 1897 Acts [in *New Mexico*] 'is arguably wrong because the reservation of water for instream uses is consistent with the original purpose of reservations.'" (citing Sally Fairfax & A. Dan Tarlock, *No Water for the Woods: A Critical Analysis of United States v. New Mexico*, 15 IDAHO L. REV. 509 (1979))).

145. 16 U.S.C. §§ 528-31.

146. *Denver*, 656 P.2d at 24-27.

147. *Id.* (citing *New Mexico*, 438 U.S. 696).

148. *See New Mexico*, 438 U.S. at 713-15 n. 21, 22. Interestingly, the Colorado court's later reasoning with regard to the relative priority dates of various water rights for land originally reserved as a national forest then re-reserved as a national park might provide a tenable counterargument to some its MUSYA reasoning. *See Denver*, 656 P.2d at 30-31.

149. *New Mexico*, 438 U.S. at 713 n.21 (asserting that the issue decided was not whether MUSYA "reserved additional water for use on national forests," and stating "[e]ven if the 1960 Act expanded the reserved water rights of the United States, of course, the rights would be subordinate to any appropriation of water under state law dating to before 1960").

150. *Id.* (emphasis in original).

151. *Id.* at 718 n.1 (Powell, J., dissenting.); *see also* 20 AM. JUR. 2d *Courts* § 134 ("For a case to be stare decisis on a particular point of law, that issue must have been raised in the action decided by the court, and its decision made part of the opinion of the case.").

The more pertinent aspect of the Colorado court's conclusion regarding MUSYA was how the court sought to justify it.¹⁵² After finding that the *New Mexico* decision foreclosed the reservation of any water for MUSYA purposes, the Colorado court sought to bolster its argument in two ways that reflected the US Supreme Court's reasoning.¹⁵³ First, the Colorado court relied on legislative history to support its tenuous conclusion that MUSYA was only intended for the narrow purpose of giving the Forest Service the ability "to broaden its forest management practices" beyond logging.¹⁵⁴ Second, the Colorado court engaged in an impermissible weighing of the competing state and federal interests.¹⁵⁵ The court's statements in that portion of its opinion are a particularly telling example of a state court using *New Mexico's* poor reasoning and Congress' inconsistent legislation to avoid finding federally reserved water rights.¹⁵⁶ In *Denver*, the Colorado court reasoned:

We are convinced that the "implied-reservation-of-water doctrine" must be narrowly construed. *Additional federal water rights in Colorado may reduce water available to satisfy long-held adjudicated water rights, especially in streams which have been fully appropriated.* When Congress passed MUSYA, it was aware of the reserved rights doctrine. Congress, however, chose not to reserve additional water explicitly. In the face of its silence, we must assume that Congress intended the federal government to proceed like any other appropriator and to apply for or purchase water rights when there was a need for water.¹⁵⁷

While the existence of implied federal reserved water rights is a matter of federal law, the Colorado court's decision regarding the application of the *Winters* doctrine to MUSYA is significant. It has, at a minimum, adversely affected the application of the doctrine within the jurisdiction of Colorado.¹⁵⁸ The Colorado court's subsequent decision in *United States v. Jesse* made that much clear.¹⁵⁹

In *Jesse*, the Colorado court assessed whether the reservation of San Isabel and Pike National Forests impliedly reserved instream water rights for the

152. See *Denver*, 656 P.2d at 24-27.

153. *Id.* at 25 (quoting *New Mexico*, 438 U.S. at 713-15).

154. *Id.* (citing H.R. Rep. No. 86-1551, at 3 (1960)). For details on MUSYA's history and broad congressional purposes, see George Coggins & Robert L. Glicksman, *Capsule History of Multiple Use, Sustained Yield Law*, 3 PUB. NAT. RESOURCES L. § 30:1 (2d ed.) (2013); George C. Coggins, *Some Direction for Reform of Public Natural Resources Law*, 3 J. ENVTL. L. & LITIG. 67 (1988); Marion Clawson, *The Concept of Multiple Use Forestry*, 8 ENVTL. L. 281 (1978).

155. *Denver*, 656 P.2d at 25-27; see also *id.* at 27 n. 44 (repeating this mistake in its analysis of whether the establishment of Dinosaur National Monument reserved water for recreational boating).

156. *Id.* at 25-27.

157. *Id.* at 26 (emphasis added) (internal citations omitted). The Colorado court added, "The federal government has the power to act in condemnation proceedings if it wishes to obtain water outside the state appropriation system for additional national forest purposes." *Id.*

158. See *United States v. Jesse*, 744 P.2d 491, 496, 502 (Colo. 1987) (relying on the holding in *Denver*).

159. See *id.*

purposes of “secur[ing] favorable conditions of water flows,” and “furnish[ing] a continuous supply of timber.”¹⁶⁰ In considering this issue, the court addressed an argument, advanced by various state appropriators, that the decision in *Denver* foreclosed any claim for federally reserved water rights in the national forests.¹⁶¹ In its analysis, the court pointed out that the *Denver* decision held “(1) that the United States does not have reserved instream flow rights to protect recreational, scenic, or wildlife values in the national forests, and (2) that the United States did not claim or prove that instream flow rights were necessary to achieve the national forest purposes of timber and watershed protection.”¹⁶² Because the federal government had not claimed federally reserved water rights for national forests based on the Organic Act in *Denver*, the *Jesse* court concluded that “any language suggesting that minimum instream flow rights are not to be recognized [for national forests], as a matter of law, is dictum and not binding on us in the present case.”¹⁶³ Although the Colorado court gave the appropriators’ argument relatively short shrift, it only reached this decision after citing its own MUSYA decision in *Denver* approvingly and recounting its erroneous characterization of the MUSYA holding in *New Mexico*.¹⁶⁴ It stated:

The Supreme Court [in *New Mexico*] also held that the adoption of MUSYA neither broadened the water rights impliedly reserved when the national forests were created, nor reserved additional water to achieve the supplemental purposes of preserving recreation, range and wildlife values. In [*Denver*], we applied *New Mexico* to a general adjudication of water rights . . . No appeal was taken by party from our decision in [*Denver*].¹⁶⁵

As a result, *Jesse* made it clear that Colorado state courts will not recognize implied federally reserved water rights for national forests under MUSYA.¹⁶⁶

While the Colorado court’s decision in *Denver* may have been one of the first state court opinions that utilized *New Mexico*’s ill-advised revision to the

160. *Id.* at 497 (citing *United States v. New Mexico*, 438 U.S. 696, 707-08 (1978)) (noting that these were the only two purposes identified by the US Supreme Court in *New Mexico* for the reservation of national forests).

161. *Id.* at 493, 498 (contending that “recent advances in the science of fluvial geomorphology demonstrate that minimum instream water flows are necessary to preserve efficient stream channels in the national forests and ‘to secure favorable conditions of water flows,’ one of the purposes for which the national forests were created under the Organic Act”).

162. *Id.* at 497 (citing *Denver*, 656 P.2d at 22-23).

163. *Id.* at 503; *see also supra* Part IV (ironically, the Colorado court’s argument why its decision in *Denver* did not foreclose it from considering the issue in *Jesse* shows why the former opinion’s conclusion that *New Mexico* was dispositive of the MUSYA federally reserved water right claims before it was wrong).

164. *Jesse*, 44 P.2d at 497, 502-03 (citing *New Mexico*, 438 U.S. at 707-08; *Denver*, 656 P.2d at 35).

165. *Id.* at 497 (citing *Denver*, 656 P.2d at 22-23).

166. *Id.* The federal district courts in Colorado, by contrast, have been more receptive to federal reserved water rights claims. *See infra* notes 241-45, 259 and accompanying text (citing *High Country Citizens’ Alliance v. Norton*, 448 F. Supp. 2d 1235 (D. Colo. 2006); *Sierra Club v. Block*, 622 F. Supp. 842 (D. Colo. 1985)).

Winters doctrine to avoid finding federally reserved water rights,¹⁶⁷ it was certainly not the last, nor even the most significant. In 1987, the State of Idaho began a massive general stream adjudication of the Snake River Basin.¹⁶⁸ The Snake River Basin Adjudication ("SRBA") is still ongoing as of the date of publication of this article and involves ninety percent of all the water right claims in Idaho, including some 50,000 federal claims.¹⁶⁹ The SRBA has resulted in numerous Idaho state court decisions determining the existence (or, more frequently, the nonexistence) and extent of the reserved water rights of various types of federal public lands.¹⁷⁰

In an early SRBA decision, *United States v. City of Challis*, the Idaho court addressed the exact same MUSYA question that the Colorado court had in *Denver*.¹⁷¹ The issue received no better treatment in Idaho than it had in Colorado.¹⁷² In *Challis*, the United States argued:

New Mexico's language relating to MUSYA is dictum because the Supreme Court did not have before it the question of whether MUSYA established a federal reserved water right with a priority date of 1960, but rather addressed whether MUSYA reached back before its enactment to expand the purposes of national forests as of the date of the Organic Act of 1897.¹⁷³

Although a fair reading of the *New Mexico* opinion supports the United States' argument,¹⁷⁴ the Idaho court rejected it and concluded "the Supreme Court's analysis as to whether MUSYA reserved water for its purposes and thus created a federally reserved water right applies to either priority date."¹⁷⁵ Thus, according to the Idaho court, MUSYA was not intended to re-reserve water for MUSYA's expanded list of national forest purposes, regardless of reservation or priority date.¹⁷⁶ Noticeably, the Idaho court did not cite any authority addressing why the US Supreme Court's decision on one point of law

167. *Denver*, 656 P.2d at 22-23.

168. Blumm, *supra* note 13, at 180.

169. *Id.* at 176, 180.

170. See generally *United States v. State (In re SRBA)*, 23 P.3d 117 (Idaho 2001); *State v. United States (In re SRBA)*, 12 P.3d 1284 (Idaho 2000); *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260 (Idaho 2000); *Potlatch Corp. v. United States (In re SRBA) (Potlatch I)*, No. 24546, 1999 WL 778325 (Idaho Oct. 1, 1999), *aff'd in part, rev'd in part, and vacated in part*, 12 P.3d 1260; *United States v. City of Challis (In re SRBA)*, 988 P.2d 1199 (Idaho 1999).

171. Compare *Challis*, 988 P.2d at 1201 (considering whether MUSYA reserved additional water in national forests for its purposes with a 1960 priority date), with *Denver*, 656 P.2d at 24-27 (considering whether MUSYA reserved additional water in national forests for its purposes with a 1960 priority date).

172. Compare *Challis*, 988 P.2d at 1206-07 (holding that MUSYA does not create a federal reservation of water as of the date its enactment in 1960), with *Denver*, 656 P.2d at 27 (holding that MUSYA does not reserve additional water for outdoor recreation purposes).

173. *Challis*, 988 P.2d at 1205.

174. See *supra* notes 151-56 and accompanying text.

175. *Challis*, 988 P.2d at 1205.

176. *Id.*

would be binding on another, distinct, point of law that the US Supreme Court refused to decide.¹⁷⁷

The Idaho court also misread MUSYA's statement that national forests "are established and shall be administered for outdoor recreation, range, timber, watershed and wildlife and fish purposes."¹⁷⁸ The US reasonably posited that the statute's language evidenced an intent to re-reserve national forests for additional purposes. The Idaho court disagreed and chided that the statute states not only that the national forests "are established" but, *also*, that they "shall be administered" for MUSYA purposes.¹⁷⁹ Of course, the same criticism could be leveled against the Idaho court's own parsing of the statutory language. Specifically, the court's conclusion that "the statute as a whole indicates that MUSYA was intended *only to expand the purposes for which the national forests are administered*" reads the "are established" language right out of the statute.¹⁸⁰ Finally, the court stated that, even if it believed MUSYA constituted a re-reservation of national forests for additional purposes, the statute was not intended to expressly or impliedly reserve water for those purposes.¹⁸¹ Its analysis on this point hinged almost entirely on the same legislative history that the *New Mexico* majority discussed when considering the MUSYA issue before it.¹⁸²

Despite Idaho's hostility toward the assertion of federally reserved water rights, as was apparent in *Challis* and later SRBA decisions, another early decision arising out of the adjudication of the Snake River Basin served for a short time as an example of a state court faithfully adhering to the *Winters* decision and to sound reason.¹⁸³ The primary issue in *Potlatch v. United States (Potlatch I)* was whether federal water rights were impliedly reserved upon the establishment of three wilderness areas.¹⁸⁴ In the majority opinion, the Idaho Supreme Court analyzed this question in a straightforward and common sense fashion reminiscent of the US Supreme Court's pre-*New Mexico* opinions on the *Winters* doctrine. The Idaho court stated that, because the claims in question were based on the purposes of the Wilderness Act, its "analysis must begin with an examination of the Wilderness Act, the acts establishing the Wilderness Areas, and the circumstances and history surrounding their designation, to determine whether federal reserved water rights exist . . ." ¹⁸⁵ The Idaho court took heed of the language of the Wilderness Act and noted that

177. *See id.*

178. *Id.* (citing 16 U.S.C. §§ 528-31).

179. *Id.* (citing 16 U.S.C. §§ 528-31).

180. *See id.* (emphasis added).

181. *Id.*

182. *Compare Challis*, 988 P.2d at 1206 n.4, with *New Mexico*, 438 U.S. 696, 713-15 (footnotes omitted).

183. *Potlatch I*, No. 24546, 1999 WL 778325 (Idaho Oct. 1, 1999), *aff'd in part, rev'd in part, and vacated in part*, 12 P.3d 1260.

184. *Id.* at *2.

185. *Id.* at *3 (citing 16 U.S.C. §§ 1131-1136). *Cf. Cappaert*, 426 U.S. 128, 139-42 (beginning its analysis of whether federally reserved water rights existed with an examination of the statutory authority of the reservation and relying primarily on a natural reading of that authority to reach its conclusion) (citations omitted).

the statute plainly proclaimed that wilderness areas were to be established “[i]n order to assure that an increasing population . . . does not occupy or modify all areas within the United States and its possessions, leaving no lands designated for the preservation and protection in their natural condition . . . to secure for the American people . . . the benefits of an enduring resource of wilderness.”¹⁸⁶

The court also noted the statute defined wilderness “as an area ‘retaining its primeval character and influence, without permanent improvements or human habitations, which is protected and managed so as to preserve its natural conditions.’”¹⁸⁷ Based on the Act’s clear statutory language, the Idaho Supreme Court sensibly concluded that Congress’s primary purpose in designating the three wilderness areas at issue was “wilderness preservation.”¹⁸⁸ Consequently, because the court believed that human development under Idaho’s system of prior appropriation was incompatible with wilderness preservation, the court in *Potlatch I* found the US government had reserved all of the then-unappropriated water within the wilderness areas upon the date it set them aside from the public domain.¹⁸⁹

But the soundly reasoned decision in *Potlatch I* would not stand. To the great misfortune of both the doctrine of implied federally reserved water rights in Idaho and Idahoans that enjoy their state’s wilderness, the Idaho Supreme Court’s decision in *Potlatch I* caused such a public outcry among that state’s water appropriators and “states’ righters” that the author of that decision, Justice Cathy Silak, lost her bid for reelection.¹⁹⁰ Following this, the Idaho Supreme Court decided to rehear the issues raised in *Potlatch I*.¹⁹¹ Unsurprisingly, the court reversed its Wilderness Act decision upon rehearing the case.¹⁹² The Idaho Supreme Court’s second *Potlatch* opinion (*Potlatch II*) was, from start to finish, result-oriented and constitutes an egregious example of a state court embracing *New Mexico*’s crabbed interpretation of the *Winters* doctrine.¹⁹³

In *Potlatch II*, the Idaho Supreme Court again took up the issue of whether water rights were reserved when Congress designated the Frank Church River of No Return, Gospel-Hump, and Selway-Bitterroot Wilderness Areas.¹⁹⁴ The new majority began its analysis of this issue by surveying the US Supreme Court’s *Winters* jurisprudence,¹⁹⁵ but the analysis ignored the non-Indian federally reserved water rights holding in *Arizona* and cited *New Mexico* in a way that made it look like that decision foreclosed the possibility of *any* impliedly reserved rights.¹⁹⁶ The Idaho Supreme Court’s analysis of the United

186. *Potlatch I*, 1999 WL 778325, at *4 (quoting 16 U.S.C. § 1131(a)).

187. *Id.* (quoting 16 U.S.C. § 1131(c)).

188. *Id.* at *4, *8.

189. *Id.* at *8.

190. See Blumm, *supra* note 13, at 186-88.

191. *Id.* at 188.

192. *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260 (Idaho 2000).

193. *Id.*

194. *Id.* at 1262.

195. *Id.* at 1263-64.

196. *Id.* at 1264-66.

States' Wilderness Act claims led the court to conclude that there was nothing within that Act compelling the conclusion that the Act's purposes would be defeated without water.¹⁹⁷ The court supported this holding by selectively citing some of the Wilderness Act's legislative history,¹⁹⁸ pointing to the availability of other means of protecting the wilderness areas' water,¹⁹⁹ and weighing state and federal interests.²⁰⁰

Fortunately, Justice Silak's time on the Idaho Supreme Court was not yet at an end. Silak wrote an impassioned dissent that rejected the majority opinion's contorted reasoning on many fronts.²⁰¹ Silak began by pointing out that the majority's discussion of the *Winters* doctrine precedent was "misleading."²⁰² She continued by admonishing the majority for rejecting wilderness area water rights simply because other means of protecting those rights may have been available:

I disagree with the majority opinion's theory which simply stated is: because the structure of the Wilderness Act prevents development of the land in wilderness areas and, therefore, water will be protected as a natural side-effect of the limits on land-development, the federal government does not need a federal water right. The majority uses this theory as a substitute for implying a water right in wilderness areas. Although this is an attractive theory, only the United States Supreme Court may articulate new legal theories regarding federal law.²⁰³

Silak further characterized the majority's reasoning as "so restrictive that it eliminates the 'implied' aspect of the *Winters* doctrine and leaves no room for any Act of Congress to ever imply a 'water' right."²⁰⁴ Justice Silak then repeated her holding in *Potlatch I*: based on the express statutory language, the primary purpose of Wilderness Act designations was to "set aside certain designated areas and preserve their untouched wilderness character."²⁰⁵ She concluded that the majority should have found implied federal reserved water rights for the wilderness areas because the areas' purpose would be entirely defeated without water.²⁰⁶

The Idaho Supreme Court's abuse of the *Winters* doctrine did not end with *Potlatch II*; nearly all of that court's subsequent SRBA decisions regard-

197. *Id.* at 1266-67.

198. *Id.* at 1280 (Silak, J., dissenting).

199. *Id.* at 1266-68 (majority opinion).

200. *Id.*

201. *Id.* at 1273-83 (Silak, J., dissenting).

202. *Id.* at 1273.

203. *Id.* at 1273-74.

204. *Id.* at 1276.

205. *Id.* at 1278; *Potlatch Corp. v. United States (In re SRBA) (Potlatch I)*, No. 24546, 1999 WL 778325, at *4 (Idaho Oct. 1, 1999), *aff'd in part, rev'd in part, and vacated in part*, 12 P.3d 1260.

206. *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260, 1282 (Idaho 2000).

ing federal reserved rights have been similarly flawed.²⁰⁷ In *Idaho v. United States*, another SRBA opinion handed down on the same day as *Potlatch II*, the Idaho Supreme Court considered whether Congress, when it established the Sawtooth National Recreational Area ("Sawtooth NRA"), impliedly reserved water to satisfy the purposes of that reservation.²⁰⁸ The Act establishing the Sawtooth NRA stated it was created "to assure the preservation and protection of the natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreational values associated therewith."²⁰⁹

The Idaho Supreme Court began its analysis correctly by setting forth the bedrock principle that a "[c]ourt need merely apply the statute without engaging in any statutory interpretation" if the language of the Act is "clear and unambiguous;" and by stating "[i]n this case, the primary purpose of the Act is clear from the plain language of the statute itself."²¹⁰ However, after stating this, the court chose to ignore the principle it had just recounted and eschewed any reasonable reading of the plain language of the Sawtooth NRA Act.²¹¹ Based on an extremely strained reading of the statute, the Idaho Supreme Court concluded "a review of the entire legislation reveals the primary purpose of the Act was to protect the Sawtooth NRA from the dangers of unrestricted development and mining operations."²¹² This contorted reading of the Act ultimately led the court to hold the Act did not expressly or impliedly reserve water for the purposes of the NRA.²¹³

Still serving out her remaining time on the bench, Justice Silak was, yet again, the lone dissenter. Justice Silak argued that the majority's analysis of the primary purpose of the Sawtooth NRA Act was unsupportable:

[W]ithout support in either the Act itself or in the legislative history it confuses the means for the end: the "means" of preservation is regulating subdivisions and mining. The "end" is to "assure the preservation and protection of the natural, scenic, historic, pastoral and fish and wildlife values and to provide for the enhancement of the recreational values associated therewith" This is the primary purpose of the Act and it cannot be achieved, under the *Winters* doctrine, without water.²¹⁴

In her view, the express words of the Act were sufficient to determine the primary purpose of the reservation and a more objective review of the Act's legislative history "reaffirm[ed] what Congress expressly stated in the statutory language."²¹⁵

207. See generally Blumm, *supra* note 13 (criticizing the Idaho Supreme Court's SRBA decisions pertaining to implied federally reserved water rights).

208. State v. United States (*In re* SRBA), 12 P.3d 1284, 1286 (Idaho 2000).

209. *Id.* at 1286 (citing 16 U.S.C. § 460aa(a)) (emphasis added).

210. *Id.* at 1288.

211. See *id.* at 1288-91.

212. *Id.* at 1289.

213. *Id.* at 1291.

214. *Id.* at 1291 (Silak, J., dissenting).

215. *Id.*

The Idaho Supreme Court was not yet finished. One year after *Potlatch II* and *Idaho v. United States*, it decided another SRBA case dealing with non-Indian implied federally reserved water rights.²¹⁶ In *United States v. Idaho*, the Idaho court considered whether water was set aside by a series of executive and public land orders that reserved approximately ninety-four islands and created Deer Flat Migratory Waterfowl Refuge.²¹⁷ The various orders that withdrew the refuge islands from the public domain stated “all islands . . . within the . . . limits of the following described area . . . are hereby withdrawn as a refuge and breeding ground for migratory birds and other wildlife” in order to further the purposes of the Migratory Bird Conservation Act (“MBCA”).²¹⁸ Based on this language, the United States argued that the purpose of reserving the Deer Flat islands would be frustrated without water because “[i]slands by definition must be surrounded by water, and waterfowl and many other migratory birds need riparian habitat and access to open water for feeding, breeding, resting, and protection from predators.”²¹⁹

Despite the soundness of the argument, and despite the US Supreme Court’s decision thirty-eight years earlier in *Arizona* that the United States intended to reserve water for Havasu Lake National Wildlife Refuge and Imperial National Wildlife Refuge when they were established “as . . . refuge[s] and breeding ground[s] for migratory birds,”²²⁰ the Idaho Supreme Court concluded that withdrawal of the Deer Flat islands had not impliedly reserved any water.²²¹ It conceded that the islands did indeed require water to remain islands, but refused to recognize its relevance to the question of whether the orders at issue also reserved water for the island refuge.²²² The court reasoned that “[i]t is the purpose of the reservation at issue, not the definition of the land reserved.”²²³

Even though the reservations at issue in *Arizona* were identical in every material respect, the Idaho Supreme Court distinguished the Deer Flat Migratory Refuge reservations from those in *Arizona*.²²⁴ The court made this distinction because *Arizona* was decided prior to *New Mexico’s* introduction of the primary purpose rule and because, unlike the reservations in *Arizona*, the

216. *United States v. State*, 23 P.3d 117, 120 (Idaho 2001).

217. *Id.*

218. *Id.* at 121 (citations omitted) (emphasis added).

219. Brief of Appellant United States at 26, *United States v. State (In re SRBA)*, 23 P.3d 117 (Idaho 2001) (No. 25546), 1999 WL 33913490 at *26.

220. *See Arizona v. California*, 373 U.S. 546, 601 (1963) (determining that the United States intended to reserve water for Havasu Lake National Wildlife Refuge and Imperial National Wildlife Refuge when the Refuges were established “as a refuge and breeding ground for migratory birds”); Exec. Order No. 8,647, 6 Fed. Reg. 593 (Jan. 22, 1941) (establishing Havasu Lake National Wildlife Refuge); Exec. Order No. 8,685, 6 Fed. Reg. 1016 (Feb. 14, 1941) (establishing Imperial National Wildlife Refuge).

221. *United States v. State*, 23 P.3d at 126.

222. *Id.* at 125.

223. *Id.* Here, the Idaho Supreme Court’s opinion ignored the fact that the US Supreme Court felt differently when it had previously addressed a reservation of federal land that similarly, by definition, included water in *Cappaert*. *See supra* Part IV; *see also infra* Part VI.

224. *United States v. State*, 23 P.3d at 127.

Deer Flat reservations were made under the authority of the MBCA.²²⁵ Based on its narrow reading of the MBCA's legislative history, the court reasoned that the primary purpose for the withdrawal of the Deer Flat islands was *not* to provide migratory waterfowl with a sanctuary in general.²²⁶ Rather, the Court found that the islands' reservation was intended only prevent human predation.²²⁷ As Justice Silak would have likely pointed out,²²⁸ here, the Idaho Supreme Court confused the means of the MBCA—protection from human predation—with the end (*or purpose*) of the land reservations—migratory bird conservation.²²⁹ Nevertheless, because the court's analysis determined the refuge would provide the birds with protection from hunting irrespective of the presence or absence of water and islands, the court concluded that the federal withdrawal of the refuge's islands did not reserve any water.²³⁰

As with the Colorado cases, the derogation of the *Winters* doctrine at the hands of the Idaho Supreme Court in its SRBA cases transcends these individual cases. While the decisions of the Idaho Supreme Court regarding federally reserved water rights are just that—state court decisions on federal law that are not binding on other state courts or federal courts—they are still interpretations of federal law that lower courts in Idaho are bound to follow (and that other state courts may be tempted to look to as persuasive precedent). In a span of just two years, the Idaho Supreme Court effectively destroyed the ability of the federal government to successfully assert its federally reserved water rights in Idaho state courts to meet the needs of national forests reserved for MUSYA purposes, national wilderness areas, and, possibly, any other federal land that is not withdrawn by an instrument that expressly reserves water for its purposes.²³¹

V. IMPLEMENTING JUSTICE SILAK'S PLEA AND BEYOND

Justice Silak's dissenting opinion in *Potlatch II*²³² is notable not only for its faithful adherence to the *Winters* doctrine, but also for its insight and prudence. Near the end of that opinion, she identified the problem inherent in modern state court *Winters* jurisprudence as well as a solution.²³³ There, she stated:

225. *Id.*

226. *See id.* at 123-26.

227. *Id.* at 123-24.

228. *See supra* note 214 and accompanying text.

229. *See* Migratory Bird Conservation Act, 16 U.S.C. §715c (2013); *United States v. State*, 23 P.3d at 123, 126.

230. *United States v. State*, 23 P.3d at 125-29.

231. *See id.*; *United States v. City of Challis (In re SRBA)*, 988 P.2d 1199 (Idaho 1999). In a companion case, the Idaho court recognized that the Wild and Scenic River Act, in contrast to the other statutes at issue, expressly reserved federal water rights. *See Potlatch v. U.S.*, 134 Idaho 912, 12 P.3d 1256 (2000) (citing 16 U.S.C. § 1284(b)).

232. *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260, 1273-83 (Idaho 2000) (Silak, J., dissenting).

233. *Id.* at 1282.

In sum, it is not for this Court, nor any court, to make or change the law, but to interpret the law as enacted by the legislative branch. Until Congress enacts further legislation clarifying the Wilderness Act as to federal reserved water rights, or otherwise resolves this issue, courts must apply the *Winters* doctrine to resolve these disputes. In applying the *Winters* doctrine, some states will recognize an implied federal water right via the Wilderness Act and some states will not, resulting in a patchwork of different interpretations of the same federal statute across the country.²³⁴

This statement, like so many other aspects of Silak's *Potlatch II* dissent, hits the nail squarely on the head. Because it seems unlikely that the US Supreme Court will overrule its decision in *New Mexico* anytime soon²³⁵ and it is even more unlikely that state appropriators will start looking kindly on water rights that have the potential to interfere with their own,²³⁶ Congress may be the most appropriate body to solve this problem. Repealing the McCarran Amendment or amending the organic or enabling acts under which federal land reservations are made to require future land designations to be accompanied by express claim of water rights represent viable ways for Congress to resolve the problem created by state court abuses of the *Winters* doctrine.

A. REPEALING THE MCCARRAN AMENDMENT

An outright congressional repeal of the McCarran Amendment, at least as applied to federal reserved rights, would return the adjudication of federally reserved water rights to its pre-1952 *status quo* and put federal courts back in the driver's seat.²³⁷ Repealing the Amendment would once again grant the federal government sovereign immunity in this area,²³⁸ and would prevent state courts of questionable neutrality from deciding the existence and extent of the federal government's reserved water rights.²³⁹ This reinstatement of sovereign immunity would mean that the agencies charged with managing federal lands could litigate these issues exclusively in federal court.

Although there have not been many federal court decisions on the substantive parameters of the *Winters* doctrine with respect to non-Indian reservations,²⁴⁰ those that have been issued by federal courts have been well-reasoned, by comparison to the state courts' decisions. For example, in *Sierra Club v. Block*, the Colorado federal district court considered whether federally re-

234. *Id.*

235. The holding in *United States v. New Mexico*, 438 U.S. 696 (1978), was the Supreme Court's last substantive decision on non-Indian implied federal water rights. The Court has not since granted certiorari on a substantive reserved water rights issue, despite widespread recognition that several state court decisions have horribly misapplied the *Winters* doctrine. See generally Blumm, *supra* note 13; Leshy, *supra* note 68.

236. See *supra* Part III.c.

237. See *supra* Part III.a.

238. U.S. CONST. amend. XI.

239. See *Environmental Law—State Court Adjudication of Federal Reserved Water Rights*, 13 J. URB. CONTEMP. L. 239, 240-41 (1977), available at <http://digitalcommons.law.wustl.edu/urbanlaw/vol13/iss1/14/>.

240. See *supra* Part III.a.

served water rights existed for wilderness areas in Colorado.²⁴¹ In analyzing this issue, the court in *Block* examined both the Wilderness Act itself and the Act's legislative history to determine whether Congress intended to reserve water for the federal lands withdrawn as wilderness areas.²⁴² The federal court's conclusion about the purposes of wilderness areas, drawn from its examination of those sources, could not have been more different from the Colorado court's analysis of the federal land reserves at issue in *Denver* or, even more to the point, the Idaho Supreme Court's conclusion regarding wilderness areas in *Potlatch II*.²⁴³ The court in *Block* concluded "the legislative history and the provisions of the Wilderness Act make it abundantly clear . . . [that] the primary motivation of Congress in establishing the wilderness preservation system was to 'guarantee that these lands will be kept in their original untouched natural state.'"²⁴⁴ This led the federal court to hold Congress did, indeed, intend to reserve water for wilderness areas "to the extent necessary" to accomplish this purpose:

It is beyond cavil that water is the lifeblood of the wilderness areas. Without water, the wilderness would become deserted wastelands. In other words, without access to the requisite water, the very purposes for which the Wilderness Act was established would be entirely defeated. Clearly, this result was not intended by Congress.²⁴⁵

Perhaps as important to the integrity of the *Winters* doctrine as restoring more neutral federal courts to their former preeminence in this area of federal law, a repeal of the McCarran Amendment with respect to federal reserved rights could undo most of the damage done to the *Winters* doctrine. The greatest impact of such a repeal would likely occur in states like Colorado and Idaho, whose high courts have foreclosed important issues associated with the doctrine.²⁴⁶ Following repeal, the federal government could avoid this foreclosure by, once again, refusing to have its rights in those states litigated by state courts, and by proactively championing its reserved water rights in federal courts.²⁴⁷

241. *Sierra Club v. Block*, 622 F. Supp. 842 (D. Colo. 1985).

242. *Id.* at 849-63.

243. *See* *United States v. City & Cnty. of Denver*, 656 P.2d 1 (Colo. 1982); *Potlatch Corp. v. United States (In re SRBA) (Potlatch II)*, 12 P.3d 1260, 1262 (Idaho 2000). These cases are assessed *supra* notes 142-58, 192-206, and accompanying text.

244. *Block*, 622 F. Supp. at 850.

245. *Id.* at 862. *See also* *High Country Citizens' Alliance v. Norton*, 448 F. Supp. 2d 1235 (D. Colo. 2006) (holding that the US could not abdicate its responsibility to maintain adequate streamflows by relinquishing its water rights to the state). Although federal courts have been receptive to federal implied reserved water rights for reserved or withdrawn lands (*e.g.*, national parks, wildlife refuges, and wilderness areas), they have refused to recognize such rights for non-reserved public domain lands. *Sierra Club v. Watt*, 659 F.2d 203 (D.C. Cir 1981).

246. *See supra* Part IV.

247. However, *res judicata* would preclude the establishment of federal reserved rights for areas that were previously adjudicated in state court so long as the claims involve the same issues and parties. *See* 18B CHARLES ALAN WRIGHT ET AL., *FEDERAL PRACTICE AND PROCEDURE* §§ 4468-69 (2d ed. 2012).

One might question whether a repeal of the McCarran Amendment with respect to federal reserved rights is truly necessary, given that general stream adjudications are so few and far between these days. While basin-wide adjudications are not as prevalent as they once were, those that have occurred have established a “superstructure” for water management in the basins in question, and they will likely continue to set the playing field in at least portions of the West in the foreseeable future.²⁴⁸ Furthermore, as Professor Dan Tarlock explains, “the experience to date suggests that general adjudications will function as one of several management instruments rather than the primary instrument as the western states struggle to cope with continued urbanization, the pressures to maintain and restore degraded watersheds, and global climate change.”²⁴⁹

Admittedly, repealing the McCarran Amendment would be difficult to bring about politically. Opposing forces include the state water appropriators’ influence in western states,²⁵⁰ the full-throated support for states’ rights among many congressional members, and congressional antipathy toward the environment in recent years.²⁵¹ Moreover, repealing or even amending the McCarran Amendment may not undo the harm already done to the federal lands at issue in the state cases discussed above.²⁵²

B. EXPRESS RESERVATIONS IN FEDERAL PUBLIC LANDS ORGANIC AND ENABLING ACTS

Alternatively, Congress could amend the organic acts for the various types of federal lands, or the enabling acts under which specific federal land reservations are made, to include an express claim of federally reserved water rights.²⁵³ Amending the various statutes that grant authority for federal reservations of land in such a way would prevent future federal withdrawals from being deprived of water through result-oriented judicial ingenuity by state courts.²⁵⁴ Other than a repeal of the McCarran Amendment, such an action likely represents

248. Andrea K. Gerlak & John E. Thorson, *General Stream Adjudications Today: An Introduction*, 133 UCOWRJ. CONTEMP. WATER RES. & EDUC. 2 (2006). This Article should not be construed as a call to do away with General Stream Adjudications (“GSAs”) altogether. They have fulfilled some important objectives, for example, empowering “Indian tribes to obtain congressional water rights settlements that give them much more economic and ecological benefits” than they might otherwise have achieved. Tarlock, *supra* note 113, at 53. Yet “[c]ontrary to the hopes of the proponents of general adjudications, most [GSAs] have not proceeded to the entry of a final decree in a reasonable period of time and at a reasonable cost.” *Id.* at 59.

249. Tarlock, *supra* note 113, at 59.

250. See *supra* Parts III.c., IV.

251. See Sandra Zellmer, *Treading Water While Congress Ignores the Environment*, 88 NOTRE DAME L. REV. (forthcoming 2013) (analyzing post-1990 congressional gridlock on environmental issues).

252. See *supra* note 247 (describing *res judicata* effect of judgments).

253. See Leshy, *supra* note 68, at 280 (arguing that explicit provisions on federal water rights, albeit difficult to craft, are desirable and that “[p]unting to the courts to decide the matter at some future time is playing a form of roulette with the outcome, given the historical shifts of the Supreme Court on the subject”).

254. See *supra* Part IV. For specific examples, see *supra* note 131 and accompanying text.

the next most effective way to resolve the problem that state courts have created in the federally reserved water rights doctrine.

In the foreseeable future, however, Congress may be unlikely to adopt even the most discrete reforms to federal public lands laws.²⁵⁵ Beyond the general environmental gridlock experienced in recent congressional sessions, congressional disputes over federal water rights have stalemated the passage of new laws that reserve federal lands for conservation purposes.²⁵⁶ Sidestepping the issue altogether and leaving it for the courts to sort out is sometimes the only way to move legislation forward. Moreover, amending the existing organic acts and existing and future enabling acts would only partially resolve the problem, as it is unlikely that federal reserved water rights of federal lands set aside prior to the passage of such an amendment would benefit. The *New Mexico* opinion cast serious doubt on the likelihood of success of any attempt to retroactively assert new statutory purposes for previously reserved federal lands.²⁵⁷

C. MANAGING THE *WINTERS* RIGHTS OF FEDERAL LANDS ABSENT LEGISLATIVE REFORM

Given that Congress may be disinclined to take action to strengthen federally reserved water rights, it is important for federal agencies to be aware that they are not entirely without the means of preventing the lands they manage from being disseized of *Winters* rights. A fair understanding of the nature of the problem affecting the assertion of federally reserved rights suggests a way for federal land management agencies to circumvent it—avoid litigating non-Indian *Winters* claims before state courts. Responsible federal agencies can achieve this by proactively asserting their federal reserved water rights claims in federal courts.

As discussed above, federal courts have proven themselves to be much fairer arbiters of the *Winters* doctrine than have state courts.²⁵⁸ Consequently, should Congress fail to act, federal land management agencies can best protect the lands they manage by bringing their federally reserved water rights before federal courts. Rather than feeling powerless in the face of state and/or appropriator opposition and being reticent with their reserved rights claims while state-sanctioned water appropriations threaten the lands appurtenant to those rights, agencies should be emboldened to go as far as the evidence will support

255. See generally Zellmer, *Treading Water*, *supra* note 251.

256. See Leshy, *supra* note 68, at 277-78 (noting that "Silence is a convenient way to paper over differences on a difficult or controversial aspect of the proposal under consideration," but also noting that stalemates over reserved water have been broken in some instances by negotiated provisions that either explicitly reserve water or define alternative ways to protect water resources within the federal lands).

257. See *United States v. New Mexico*, 438 U.S. 696, 713 (rejecting the argument that the passage of MUSYA, 16 U.S.C. §§ 528-31, "confirm[ed] that the Congress always foresaw broad purposes for the national forests and authorized . . . as early as 1897 [the reservation of] water for recreational, aesthetic, and wildlife-preservation uses").

258. See *supra* Part V.a. It is also worth noting that *Cappaert* originated in federal court (in contrast to *New Mexico*, which started as a state GSA). See *supra* note 50, and accompanying text.

regarding streamflows needed to fulfill reservation purposes. Indeed, at least one federal court has recognized that federal land management agencies have the *duty* to protect the federally reserved water rights of the lands they oversee.²⁵⁹ Absent the initiation of a general stream adjudication in state court—and those are few and far between these days²⁶⁰—agencies whose resources are in jeopardy should not wait until they are forced to assert their *Winters* claims before a potentially hostile state court.

VI. CONCLUSION

Recent years have witnessed a significant erosion of the *Winters* doctrine's ability to protect federal lands and help agencies managing those lands meet their management goals.²⁶¹ As the survey of cases in this Article makes clear, this erosion is due, in large part, to state court decisions that deny the existence of non-Indian implied federal reserved water rights.²⁶² In the post-McCarran Amendment world, where state courts have become the primary arbiters of federally reserved water rights, *New Mexico's* poor reasoning has allowed hostile state courts to contort the *Winters* doctrine to the utmost extremes in order to deny implied federal water rights, frustrating the very reasons the doctrine was created in the first place and creating an incongruous patchwork of decisions.²⁶³ While not all state courts have engaged in the type of result-oriented abuses evident in the SRBA cases and, to a lesser extent, *Denver*,²⁶⁴ the problem represented by such cases should not be ignored. Even though the *Winters* doctrine is federal law, the decisions in *Denver* and the SRBA cases have unquestionably impaired the federal government's ability to assert its reserved water rights and thereby protect federal land management goals within Colorado and Idaho.²⁶⁵

Despite this ongoing derogation, Congress continues to act in an inconsistent or ambiguous manner when passing laws affecting federal reservations.²⁶⁶ This serves to exacerbate the problem and allows state courts to further limit the usefulness of a doctrine originally intended to give effect to the intent of the often thinly-worded statutes, executive orders, and proclamations that set aside federal land.²⁶⁷

259. See *High Country Citizens' Alliance v. Norton*, 448 F. Supp. 2d 1235 (D. Colo. 2006) (holding that federal agencies may not relinquish Organic Act and Wilderness Act responsibilities for preserving necessary stream flows in the Black Canyon of the Gunnison by delegating those responsibilities to state agencies). This opinion is all the more notable because US District Judge Clarence Brimmer wrote it. See Ray Ring, *Tipping the Scales*, HIGH COUNTRY NEWS, Feb. 16, 2004 (noting that Brimmer "often rules against environmental concerns").

260. See *supra* notes 248-49 and accompanying text.

261. See generally Blumm, *supra* note 13.

262. See *supra* Part IV.

263. See *supra* Part IV.

264. See *supra* Part IV. For example, the Arizona Supreme Court gave relatively fair treatment to the federally reserved water rights at issue in *In re Gen. Adjudication of All Rights to Use the Gila River Sys. & Source*, 989 P.2d 739, 745-49 (Ariz. 1999).

265. See *supra* Part IV.

266. See *supra* Part III.D.

267. See *supra* Part II.

Absent new US Supreme Court guidance, only Congress has the ability to prevent the *Winters* doctrine from further state court abuses, at least at the macro level. When, as now, state courts serve as the primary adjudicators of federally reserved water rights, this problem will only continue, and possibly worsen, unless Congress takes affirmative steps to reduce the complexities that have been interjected into the *Winters* doctrine and return the doctrine to some semblance of uniformity.²⁶⁸ This Article discussed two ways Congress could accomplish this: repealing the McCarran Amendment or amending the organic and/or enabling acts under which federal land is reserved.²⁶⁹ Undoubtedly, there are other solutions in the judicial or perhaps administrative realms. Indeed, federal agencies likely can and, absent congressional resolution, should strive to circumvent potential damage to the *Winters* rights associated with federal lands by proactively asserting those rights in federal courts. That said, a problem such as this one, which is "permeated with conflicting philosophical views and economic interests,"²⁷⁰ should not be left unresolved. There can be little doubt that our nation's legislative branch should be more sensitive to this threat to the *Winters* doctrine and, more broadly, to the public's interest in maintaining the integrity of its public lands.

268. See *supra* Part III.C, Part V.

269. See *supra* Part V.

270. *Potlatch II*, 12 P.3d 1260, 1282 (Silak, J., dissenting) (quoting *Sierra Club v. Lyng*, 661 F. Supp. 1490, 1502 (D. Colo. 1987)).

PRIOR APPROPRIATION AND WATER QUALITY: THE WATER COURT'S AUTHORITY TO PROTECT AN APPROPRIATOR'S RIGHT TO CLEAN WATER

RYAN JARVIS*

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*There is no question that . . . these prior appropriators of water are entitled to have the St. Vrain creek flow unimpaired in quantity and unpolluted in any permanent or unreasonable way. The law which entitles parties to preserve the purity of the streams whose waters are theirs by . . . appropriation is so thoroughly well settled*¹

*[A] common law theory based on . . . prior appropriation . . . prohibits the discharge of contaminates into streams where doing so makes the water unsuitable for an appropriator's normal use of the water.*²

Colorado law guarantees an appropriator the right to continue to receive water of sufficient quality to allow the appropriator to make continued normal use of that water.³ This has been the law in Colorado for over a century.⁴ How-

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1. *Cushman v. Highland Ditch Co.*, 33 P. 344, 345 (Colo. App. 1893).

2. *In re Plan for Augmentation of the City and Cnty. of Denver*, 44 P.3d 1019, 1028 (Colo. 2002).

3. See, e.g., *id.*; *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 91 (Colo. 1996); *Game & Fish Comm'n v. Farmers Irrigation Co.*, 426 P.2d 562, 566 (Colo. 1967); *Slide Mines, Inc. v. Left Hand Ditch Co.*, 77 P.2d 125, 127 (Colo. 1938); *Wilmore v. Chain O'Mines, Inc.*, 44 P.2d 1024, 1027 (Colo. 1934); *Humphreys Tunnel & Mining Co. v. Frank*, 105 P. 1093, 1095 (Colo. 1909); *Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co.*, 48 P. 828, 832 (Colo. App. 1897); *Cushman*, 33 P. at 345.

ever, for some reason, much of the water law community in Colorado appears to function under the belief that water quality may not be protected by water courts, except in extremely limited circumstances explicitly provided for in the Water Right Determination and Administration Act of 1969 (the "1969 Act").⁵ For example, the 1969 Act expressly prohibits changing a water right if such change will "injuriously affect" a vested water right⁶ and requires that a substitute supply plan provide substitute water of sufficient quality to permit senior appropriators to continue their normal use of the water.⁷ This view of the 1969 Act leads many in Colorado to accept the notion that water quality is generally divorced from Colorado's prior appropriation law and that the Colorado Water Quality Control Act⁸ (the "WQCA") and various federal statutes⁹ govern water quality.¹⁰ This generally accepted notion that Colorado prior appropriation law regulates quantity but not quality is perhaps best explained by the Federal District Court of Colorado's oversimplified explanation of Colorado water law:

Colorado regulates water quality and quantity through two separate entities. Water quality is the province of the Colorado Water Quality Control Commission and the Water Quality Control Division which were created by the Water Quality Control Act Water quantity, on the other hand, is governed by the prior appropriation system regulated by the judiciary and the water court.¹¹

Despite the general acceptance of this dichotomy of Colorado water law, an analysis of case law, the 1969 Act, and the WQCA demonstrates that water courts do have the authority to protect water quality. This authority is not limited to addressing water quality in substitute supply plans or change applications. Instead, water courts are charged with adjudicating "water matters," which includes, by the courts' definition, preventing injury to senior appropriators. This authority to protect senior appropriators from injury includes the authority to protect the quality of the water senior appropriators receive, inde-

4. See, e.g., *Humphreys*, 105 P. at 1095; *Suffolk*, 48 P. at 832; *Cushman*, 33 P. at 345.

5. COLO. REV. STAT. §§ 37-92-101 to -602 (2012).

6. *Id.* § 37-92-305(3)(a).

7. *Id.* § 37-92-305(5).

8. COLO. REV. STAT. §§ 25-8-101 to -803 (2012).

9. See, e.g., Wilderness Act, 16 U.S.C. §§ 1131-1136 (1964); Clean Water Act, 33 U.S.C. §§ 1251-1274 (1972); Wild & Scenic Rivers Act, 16 U.S.C. §§ 1271-1287 (1968); Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1973).

10. See *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 91 (Colo. 1996).

11. *Colo. Wild, Inc. v. United States Forest Service*, 122 F. Supp. 2d 1190, 1192 (D. Colo. 2000) (internal citations omitted). Much scholarship to date also appears to accept this dichotomy without significant analysis. See, e.g., Gregory J. Hobbs, Jr. & Bennett W. Raley, *Water Rights Protection in Water Quality Law*, 60 U. COLO. L. REV. 841, 842 (1989); Jan G. Laitos, *Assault on the Citadel, Part I: Water Quality Laws and the Exercise of Water Rights*, 1715 COLO. LAW. 1305, 1305-06 (1988); Mark T. Pifer, *Quality Versus Quantity: The Continued Right to Appropriate—Part I*, 15 COLO. LAW. 1035 (1986); Mark T. Pifer, *Quality Versus Quantity: The Continued Right to Appropriate—Part II*, 15 COLO. LAW. 1204 (1986).

pendent of any statutory authorization allowing the water courts to consider water quality.

Water courts have the authority to protect a senior appropriator's right to clean water during an application for new water rights. This authority is not new or novel, but is merely part of the prior appropriation system that has operated in Colorado for nearly 150 years. The prior appropriation system is designed to protect the rights of senior appropriators to receive usable water before junior appropriators may receive their water. Therefore, because the prior appropriation system is generally concerned with the allocation of water between various water users, many Colorado water law practitioners' work focuses on water quantity, not water quality. However, the Colorado water law community must fully recognize that Colorado prior appropriation water law, independent of statutory schemes like the WQCA, protects water quality. Water law practitioners in Colorado should use the water court's authority to fully protect their clients' water rights.

This article first provides a brief overview of Colorado water law and the prior appropriation system to give the reader sufficient background to understand the remainder of the article. Second, the article explains the well-developed and centuries-old case law that demonstrates senior appropriators have a right to continue to receive water of sufficient quality to allow them to make continued normal use of their water. Third, the article discusses a water court's authority to address water quality and analyzes why the water courts should protect senior appropriators' rights to clean water. Finally, the article addresses why the WQCA does not divest the water courts of the authority to protect water quality.

I. BRIEF HISTORY AND OVERVIEW OF COLORADO WATER LAW

Numerous detailed writings explore the history of prior appropriation and Colorado water law.¹² While a full and robust history of prior appropriation law and Colorado water law is beyond the scope of this article, a working understanding the history of prior appropriation and Colorado water law is necessary.

Colorado water law is based on prior appropriation,¹³ a doctrine focused on property-right allocation and administration, which aims to promote optimum use of a finite resource.¹⁴ The prior appropriation system originated in California mining camps as a system for resolving disputes over mining claims.¹⁵ Because of the lack of rules regarding the ownership of mining claims on federal land, the miners adopted a doctrine of first in time-first in right.¹⁶

12. See, e.g., GEORGE VRANESH, *COLORADO WATER LAW* (1987); Michael F. Browning & Steve Bushong, *A Summary of Colorado Water Law*, 21 *COLO. LAW.* 1155 (1992); Gregory J. Hobbs, Jr., *Colorado Water Law: An Historical Overview*, 1 *U. DENV. WATER L. REV.* 1 (1997).

13. *Prior Appropriation Law*, *COLO. DIV. OF WATER RES.*, <http://water.state.co.us/surfacewater/swrights/pages/priorapprop.aspx> (last visited Feb. 9, 2013).

14. Hobbs, *supra* note 12, at 2.

15. VRANESH, *supra* note 12, at 17.

16. *Id.*

This entitled the first miner on a piece of land to claim the land while any subsequent claimant had no claim to that same land.¹⁷ The miners began to use the same theory to resolve water disputes.¹⁸ In adopting this new first in time-first in right doctrine, the miners rejected riparian law, the common law theory that governed water use and allocation in the eastern United States, which was inherited from English common law.¹⁹

Understandably, these early California miners replaced riparian law with a new first in time-first in right rule.²⁰ While riparian law may have worked in lush England and the eastern United States, where there are many rivers and abundant rainfall, it was unworkable in the western United States. The harsh geographic and climatic realities of the West, where there is relatively little rainfall and the primary source of water is runoff from mountain snowpack, which is not consistent year-round, forced these early California miners and other settlers to adapt. Courts throughout the western United States began to adopt prior appropriation as the guiding principle for their states' water law, with the first reported case being the 1855 California Supreme Court decision in *Irwin v. Phillips*.²¹

As settlers began to arrive in Colorado, they too realized that riparian law would not work in the state. In 1876, Colorado expressly adopted prior appropriation in Article XVI of its Constitution:²²

Section 5

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.

17. *Id.*

18. *Id.*

19. Generally, under riparian law, the right to use water is vested in riparian landowners, and a riparian landowner has the ability to make reasonable use of water as long as the use does not unreasonably interfere with the quality or quantity of water flowing to a downstream riparian user. *See, e.g.,* *Sratton v. Mt. Hermon Boys' School*, 103 N.E. 87, 88 (Mass. 1913) ("A proprietor may make any reasonable use of the water of the stream in connection with his riparian estate and for lawful purposes within the watershed, provided he leave the current diminished by no more than is reasonable, having regard for the like right to enjoy the common property by other riparian owners.").

20. Hobbs, *supra* note 12, at 3-4.

21. *Irwin v. Phillips*, 5 Cal. 140, 147 (1855) ("[T]he policy of the State . . . has conferred the privilege to work the mines, [and] it has equally conferred the right to divert the streams from their natural channels, and as these two rights stand upon an equal footing, when they conflict, they must be decided by the fact of priority, upon the maxim of equity, *qui prior est in tempore potior est injure*. The miner, who selects a piece of ground to work, must take it as he finds it, subject to prior rights . . .").

22. COLO. CONST. amend. XVI, §§ 5-6. Soon after adoption of the Constitution, the Colorado Supreme Court in *Coffin v. Left Hand Ditch*, 6 Colo. 443, 447 (1882) held riparian law is "inapplicable to Colorado."

Section 6

The right to divert the unappropriated water of any natural stream to beneficial use shall never be denied.²³

To administer the prior appropriation system, the General Assembly passed laws aimed at identifying existing irrigation rights through judicial proceedings and creating a system for the administration of water rights by water officials.²⁴ Colorado's prior appropriation law has continued to develop judicially and statutorily from the early days of statehood, with perhaps the most significant development being the General Assembly's passage of the Water Right Determination and Administration Act of 1969 ("1969 Act").²⁵

The 1969 Act provides the statutory framework for "implementing the constitutional right to appropriate unappropriated water of any natural stream to beneficial use."²⁶ The 1969 Act established seven special district courts, called "water courts," according to the seven major drainage basins in Colorado.²⁷ The water courts have exclusive jurisdiction over "water matters,"²⁸ and have jurisdiction to resolve some ancillary matters as well.²⁹ The 1969 Act provides that anyone seeking a water right; approval of a change of a water right; approval for an augmentation plan or exchange; a finding for reasonable diligence; or approval to use water outside the state pursuant to Section 37-81-101 of the Colorado Revised Statutes, must file an application with the water court in the district where the water right is located.³⁰ Any person may oppose any such application by filing a timely statement of opposition with the water court.³¹ Usually, after an application is filed, it is referred to a water referee who then works with the parties in interest to resolve any issues without involving the water judge.³² If for some reason the parties cannot resolve the dispute before the referee, the case is re-referred to the water court, where a full trial

23. COLO. CONST. amend. XVI, §§ 5-6.

24. See, e.g., 1879 Colo. Sess. Laws 99-100; 1881 Colo. Sess. Laws 142.

25. COLO. REV. STAT. § 37-92-101 (2012). For a detailed discussion of the 1969 Act, see Gregory J. Hobbs, Jr., *Colorado's 1969 Adjudication and Administration Act: Settling In*, 3 U. DENV. WATER. L. REV. 1 (1999).

26. *Danielson v. Vickroy*, 627 P.2d 752, 757 (Colo. 1981).

27. COLO. REV. STAT. § 37-92-201 (Greeley, Division 1 (South Platte and other northeastern plains rivers); Pueblo, Division 2 (Arkansas and other southeastern plains rivers); Alamosa, Division 3 (Rio Grande and San Luis rivers); Montrose, Division 4 (Gunnison and other central Western rivers); Glenwood Springs, Division 5 (Colorado River from source to state line); Steamboat Springs, Division 6 (Yampa, White, North Platte, and other northwestern rivers); and Durango, Division 7 (San Juan, Dolores, and other southwestern rivers)).

28. *Id.* § 37-92-203(1).

29. *Crystal Lake Water & Sewage v. Backlund*, 908 P.2d 534, 543 (Colo. 1995) ("The water court also has jurisdiction to resolve ancillary matters that would directly affect the outcome of matters over which it has exclusive jurisdiction.").

30. COLO. REV. STAT. § 37-92-302(1)(a).

31. *Id.* § 37-92-302(1)(b), (c).

32. *Id.* §§ 37-92-301(2) to -304; CO. ST. UNIF. WATER CT. R. 6.

subject to the Colorado Rules of Civil Procedure (as modified by a few special water court rules³³) is conducted.³⁴

All surface and groundwater in, or tributary to, all natural streams in Colorado are subject to appropriation.³⁵ To acquire a water right, one must physically appropriate the water.³⁶ There are two types of water rights in Colorado: absolute rights and conditional rights. Before a water court will decree an absolute right, an applicant must show that it "diverted, stored, or otherwise captured, possessed, and controlled" the water and applied that water to a beneficial use.³⁷ The 1969 Act contains a nonexclusive list of beneficial uses.³⁸ A water court can also decree a conditional right.³⁹ Unlike an absolute right, a conditional right does not require the applicant to show it has actually put the water to a beneficial use.⁴⁰ Instead, a water court will decree a conditional right if the applicant shows it formed the requisite intent to appropriate and took some physical steps toward appropriation.⁴¹ Additionally, the applicant must show

33. CO. ST. UNIF. WATER CT. R. 1.

34. COLO. REV. STAT. § 37-92-303(2). The referee must re-fer the case to the water judge at any time upon motion by the applicant or any opposer certifying that party's intent to protest an adverse ruling of the referee. *Id.*

35. COLO. CONST. art. XVI, § 6; COLO. REV. STAT. § 37-92-102(1)(a).

36. COLO. CONST. art. XIV, § 6; COLO. REV. STAT. § 37-92-305(9)(a). Because of the Colorado Constitution's strong statement that "the right to divert unappropriated waters of any natural stream to beneficial uses shall never be denied," a water user is not required to adjudicate their water right. COLO. CONST. art. XIV, § 6. *See also* Cresson Consol. Gold & Mining Co. v. Whitten, 338 P.2d 278, 283 (Colo. 1959) ("A decree in a water adjudication is only confirmatory of pre-existing rights; the decree does not create or grant any rights; it serves as evidence of rights previously acquired."). However, to incentivize adjudication, priorities in Colorado are determined based on both the appropriation date and the adjudication date. A water right decreed in a later adjudication is to be administered as junior to any water right adjudicated in an earlier adjudication. COLO. REV. STAT. §§ 37-92-306, 92-401(1)(b)(III). This is known as the "postponement doctrine." *Southern Ute Indian Tribe v. King Consolidated Ditch Co.*, 250 P.3d 1226, 1246 (Colo. 2011); *see also* *Dallas Creek Water Co. v. Huey*, 933 P.2d 27, fn. 5 (Colo. 1997).

37. COLO. REV. STAT. § 37-92-305(9)(a); *Dallas Creek Water Co.*, 933 P.2d at 34 ("An absolute decree confirms that amount of depletion from the stream that can be taken in priority as a property right.").

38. COLO. REV. STAT. § 37-92-103(4) (listing "impoundment of water for recreational purposes, including fishery or wildlife, and also includes the diversion of water by a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district for recreational in-channel diversion purposes."). Colorado courts have recognized other beneficial uses. *See, e.g.*, *Zigan Sand & Gravel, Inc. v. Cache la Poudre Water Users Ass'n*, 758 P.2d 175, 182 (Colo. 1988) (recreational use); *Colo. River Water Conservation Dist. v. Colo. Water Conservation Bd.*, 594 P.2d 570, 574 (Colo. 1979) (instream flow use); *City & Cnty. of Denver v. Sheriff*, 96 P.2d 836, 841-42 (Colo. 1939) (municipal use); *Lamborn v. Bell*, 32 P. 989, 990-91 (Colo. 1893) (mining/industrial use); *Strickler v. City of Colorado Springs*, 26 P. 313, 316 (Colo. 1891) (agricultural use).

39. COLO. REV. STAT. § 37-92-305(9)(b).

40. *Id.*

41. *See, e.g.*, *Centennial Water & Sanitation Dist. v. City & Cnty. of Broomfield*, 256 P.3d 677, 685 (Colo. 2011); *City of Aspen v. Colorado River Water Conservation Dist.*, 696 P.2d 758, 761, 764 (Colo. 1985); *Colorado River Water Conservation Dist. v. City & Cnty. of Denver*, 642 P.2d 510, 512 (Colo. 1982).

that it “can and will” divert the water and put it to a beneficial use.⁴² A conditional water right can be made absolute by demonstrating the water has been put to a beneficial use.⁴³

The water courts also adjudicate other types of applications, three of which are directly relevant to this article: change applications, plans for augmentation, and exchange applications. A water right holder may apply to change its water right with regard to things such as decreed type of use, decreed point of diversion, and decreed place of use.⁴⁴ A water court cannot grant a change application unless the change “will not injuriously affect the owner of or persons entitled to use water under a vested right or a decreed conditional water right.”⁴⁵

Like an appropriator seeking to change a water right, an appropriator applying for an augmentation plan or an exchange must also submit an application.⁴⁶ Augmentation plans and exchanges each permit an appropriator to provide substitute water to a stream, thereby allowing the appropriator to use water that another appropriator had been using or is entitled to use.⁴⁷ More specifically, an augmentation plan permits a water user to make out-of-priority depletions by replacing its depletions with substitute water for use by senior appropriators.⁴⁸ Thus, an augmentation plan operates outside of the priority system.⁴⁹

Similarly, an exchange permits an appropriator to instantaneously replace all diversions at an upstream point with a substitute supply of water at a downstream point.⁵⁰ Unlike an augmentation plan, an exchange operates within the priority system.⁵¹ A water court will not approve an augmentation plan or ex-

42. COLO. REV. STAT. § 37-92-305(9)(b); *Dallas Creek Water Co.*, 933 P.2d at 35 (“Conditional decrees encourage the pursuits of projects designed to place waters of the state to beneficial uses by reserving an antedated priority, in light of the necessity to obtain and complete financing, engineering, and the construction of works that will capture, possess, or otherwise control the water.”).

43. COLO. REV. STAT. § 37-92-305(9)(a); *Mount Emmons Mining Co. v. Town of Crested Butte*, 40 P.3d 1255, 1258 (Colo. 2002). Every six years, the holder of a conditional right must secure a finding of reasonable diligence from the Water Court. COLO. REV. STAT. § 37-92-301(4)(a). “The measure of reasonable diligence is the steady application of effort to complete the appropriation in a reasonably expedient and efficient manner under all the facts and circumstances.” *Id.* § 37-92-301(4)(b). If the applicant fails to timely file a diligence application or court does not make a finding of reasonable diligence, the conditional water right is abandoned. *Id.* § 37-92-301(4)(a)(I).

44. COLO. REV. STAT. § 37-92-302(1)(a).

45. *Id.* § 37-92-305(3)(a).

46. *Id.* § 37-92-302(1)(a).

47. *Centennial Water & Sanitation Dist. v. City & Cnty. of Broomfield*, 256 P.3d at 677, 683-85 (Colo. 2011).

48. *Id.*

49. *Id.* at 684 (citing *Empire Lodge Homeowners’ Ass’n v. Moyer*, 39 P.3d 1139, 1155 (Colo. 2001)).

50. *Id.* As an appropriative right, an exchange may be either conditional or absolute. *Id.* The point between the upstream point where water is diverted and the downstream point where substitute water is provided is called the exchange reach.

51. To the uninitiated, augmentation plans and exchanges appear to be the same and their differences can be confusing, but for the purposes of this article, the important thing to recognize is the statutory protections senior appropriators are given in regards to augmentation plans

change unless its operation will not injuriously affect vested rights⁵² and any substituted water is “of a quality and quantity [that] meet[s] the requirements for which the water of the senior appropriator has normally been used.”⁵³

II. A COLORADO WATER RIGHT AND THE RIGHT TO CLEAN WATER

A water right acquired under the Colorado prior appropriation system is a property right.⁵⁴ The Colorado Supreme Court has gone so far as to call it “among the most valuable property rights known to the law.”⁵⁵ Because the Colorado Constitution declares the water of every natural stream public property,⁵⁶ an appropriator only has the right to use the water⁵⁷ (in other words, it is a usufructuary right).⁵⁸ Generally, after use, the appropriator must return the water to the stream for future appropriation and use.⁵⁹

It is helpful to think of a water right as the proverbial bundle of sticks, with each stick representing a particular right, which, when combined, comprise a water right. Some argue priority is the most valuable stick⁶⁰ because it gives a senior appropriator the near absolute right to receive its decreed amount of water before junior appropriators may make diversions.⁶¹ There are a variety of other property rights included in the water rights “bundle,”⁶² but this article will focus on an appropriator’s right to continued receipt of water of sufficient quality to make continued normal use of that water.

and exchanges. For a detailed explanation of the difference between an augmentation plan and an exchange, see *Id.*

52. COLO. REV. STAT. § 37-92-305(3)(a).

53. *Id.* § 37-92-305(5).

54. COLO. CONST. art. XVI, § 5.

55. *White v. Farmers’ Highline Canal & Reservoir Co.*, 43 P. 1028, 1030 (Colo. 1896).

56. COLO. CONST. art. XVI, § 5.

57. COLO. REV. STAT. § 37-92-102(a)(1).

58. *Navajo Dev. Co. v. Sanderson*, 655 P.2d 1374, 1377 (Colo. 1982) (“A usufructuary right gives its holder the right to use and enjoy the property of another without impairing its substance. In other words, water may be applied beneficially by the holder of a water right without destroying the resource; the water molecules are not altered by the use of the water. Unused or waste water will be discharged back into the river system or otherwise recycled and therefore available for use by other appropriators.”).

59. *Id.*

60. Gregory J. Hobbs, Jr., *Priority: The Most Misunderstood Stick in the Bundle*, 32 ENVTL. L. 37, 43 (2002).

61. To protect this right, a senior appropriator places a “call” on the river which has the effect of curtailing the right of junior appropriators to receive their decreed water before the senior calling right receives its full entitlement. The one exception to an appropriator’s right to receive his decreed amount of water is the “futile call” doctrine, which provides that if a senior appropriator places a call on a stream, the flows being received by junior appropriators will not be curtailed if that curtailment will not result in the senior appropriator actually receiving the flows he is entitled under his priority. DAVID H. GETCHES, *WATER LAW IN A NUTSHELL* 111 (4th ed. 2009).

62. For example, a water right can include the right to divert for a particular use, the right to divert water at a particular point, the right to use the water on a particular piece of real property, the right to store water, etc. *Id.* at 168.

Colorado case law is replete with cases in which the water court protected an appropriator's right to continued receipt of water of sufficient quality to permit continued normal use of the water. Often times, the courts have been asked to intervene in situations where one appropriator is polluting a stream to such an extent that it prevents a downstream appropriator from putting her water to beneficial use. The following cases are examples of decisions in which the Colorado courts have protected the right to clean water:

- *Slide Mines, Inc. v. Left Hand Ditch, Co.*: The Colorado Supreme Court held a nuisance⁶³ existed when defendant's discharge of mine tailings into a creek prevented plaintiff farmers from using their appropriated water for irrigation and domestic use.⁶⁴
- *Humphreys Tunnel & Mining Co. v. Frank*: The Colorado Supreme Court held defendant was liable for damages when discharge of "poisonous tailings and slimes" upstream from plaintiff's point of diversion "greatly injured" plaintiff's irrigated land. The Court also permanently enjoined defendant from continuing such discharges.⁶⁵
- *Wilmore v. Chain O'Mines*: The Colorado Supreme Court held a nuisance existed when "mill tailings and slime" that defendant discharged into a stream caused significant damage to plaintiff's ditch and irrigated land.⁶⁶
- *Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co.*: The Colorado Court of Appeals found defendant liable for damages where discharge of pollutants into a stream from its stamp mill diminished the quality of the water, thereby severely damaging plaintiff's pipe that diverted water onto a Pelton wheel for production of electricity.⁶⁷
- *Game & Fish Commission v. Farmers Irrigation Company*: The Colorado Supreme Court held defendant liable for damages when discharges from defendant's fish hatchery rendered plaintiff's domestic water right unusable for domestic purposes. The Court also enjoined defendant from continuing such discharges.⁶⁸

In all of these cases, the respective court seems to apply the "thoroughly well-settled" principle in Colorado water law entitling an appropriator to have its water "unimpaired in quantity and *unpolluted* in any permanent or unrea-

63. Under Colorado law, to prove a private nuisance, "a plaintiff must establish that (1) the defendant's conduct unreasonably interfered with the use and enjoyment of the plaintiff's property, (2) the interference was so substantial that it would have been offensive or caused inconvenience or annoyance to a reasonable person in the community, and (3) the interference was either negligent or intentional." *St. John's Church in Wilderness v. Scott*, 194 P.3d 475, 479 (Colo. App. 2008).

64. *Slide Mines, Inc. v. Left Hand Ditch Co.*, 77 P.2d 125, 127 (Colo. 1938).

65. *Humphreys Tunnel & Mining Co. v. Frank*, 105 P. at 1093, 1095 (Colo. 1909).

66. *Wilmore v. Chain O'Mines*, 44 P.2d 1024, 1026-28 (Colo. 1935).

67. *Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co.*, 48 P. 828, 830-33 (Colo. App. 1897).

68. *Game & Fish Comm'n v. Farmers Irrigation Co.*, 426 P.2d 562, 562 (Colo. 1967).

sonable way."⁶⁹ In discussing this well-settled principle, the Colorado Supreme Court in *Humphreys* even held, "upon general principles of law it is so entirely clear that defendant is liable in damages for this pollution, that we do not cite authorities or deem it necessary to argue such a self-evident proposition."⁷⁰ In *City of Thornton v. Bijou Irrigation Co.*, the Court identified the corollary to this rule when it held "a water right does not include the right to discharge pollutants that detrimentally affect downstream users."⁷¹

Like the Court did in *City of Thornton*, the cases cited above recognize that water rights are not absolute: an appropriator's right to use of water is sometimes qualified with respect to the right of other appropriators to use water.⁷² The courts may limit the right to exercise a water right and the corresponding externalities imposed on downstream users ("[a]ll property rights are subject to the very equitable principle *sic utere tuo ut alienum non laedas*"⁷³).⁷⁴

While many of the cases cited above are a century or more old, the Colorado Supreme Court has not forgotten about this important principle of Colorado water law. In 2002, the Court reaffirmed the existence of a common law theory based on prior appropriation that prohibits the discharge of contaminants into streams, where doing so makes the water unsuitable for an appropriator's normal use of it.⁷⁵ Also, in 2001, while creating new common law concerning when a landowner whose land is burdened by an irrigation ditch may unilaterally alter the ditch, the Court held, *inter alia*, that unilateral alteration is only permitted if the alteration does not impair the quality of the water.⁷⁶ The Court's insertion of a water quality prong in the test for when a burdened landowner may unilaterally alter an irrigation ditch demonstrates how the right to clean water is deeply entrenched in Colorado water law.

Colorado courts have not yet specifically defined the precise quality of water an appropriator is entitled to receive. Instead, the measure of whether water is of "sufficient quality" appears to be a highly case-specific inquiry. Rather than creating a particular metric for quality, courts seem to protect the right to continued beneficial use of water. Thus, if the appropriator has historically

69. *Cushman v. Highland Ditch Co.*, 33 P. 344, 345 (Colo. App. 1893) (emphasis added). See also *Larimer Cnty. Reservoir Co. v. Luthe*, 9 P. 794, 796 (Colo. 1886) (noting that one can use a reservoir or natural depression if no injury to existing water rights occurs. "He must see to it that no legal right of prior appropriators, or of other persons, is in any way interfered with by his acts. He cannot lessen the quantity of water, *seriously impair its quality* . . .") (emphasis added)).

70. *Humphreys*, 105 P. at 1095.

71. *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 91. (Colo. 1996).

72. See, e.g., *In re Plan for Augmentation of the City and Cnty. of Denver*, 44 P.3d 1019, 1028 (Colo. 2002); *City of Thornton*, 926 P.2d at 91; *Game & Fish Comm'n*, 426 P.2d 562; *Slide Mines, Inc. v. Left Hand Ditch Co.*, 77 P.2d 125, 126-27 (Colo. 1938); *Wilmore v. Chain O'Mines*, 44 P.2d 1024, 1026-28 (Colo. 1935); *Humphreys Tunnel & Min. Co.*, 105 P. at 1095; *Suffolk Gold & Mining & Milling Co.*, 48 P. at 830-32; *Cushman*, 33 P. at 345.

73. *Sic utere tuo ut alienum non laedas* means "use your own property in such a manner as not to injure that of another." *Brendale v. Confederated Tribes and Bands of Yakima Indian Nation*, 492 U.S. 408, 434 (1989).

74. *Suffolk*, 48 P. at 832 (internal quotation marks omitted).

75. *City & Cnty. of Denver*, 44 P.3d at 1028.

76. *Roaring Fork Club, L.P. v. St. Jude's Co.*, 36 P.3d 1229, 1238 (Colo. 2001).

appropriated water for a use that requires particularly clean water (for example, domestic use), any degradation of water quality may infringe on that right. However, if the appropriator has historically appropriated water for a use that does not require particularly clean water (for example, dust suppression), even great degradation in quality may not infringe upon the appropriator's right to clean water. The importance of the *particular* injury a court is protecting against may be best illustrated by *Wilmore v. Chain O'Mines*, in which the Court defined pollution as "an impairment, with attendant injury, to the use of the water that [downstream appropriators] are entitled to make. Unless the introduction of extraneous matter so unfavorably affects such use, the condition created is short of pollution. In reality, *the thing forbidden is injury.*"⁷⁷ Stated another way, the courts protect the right to make continued beneficial use of water.

The right to continued receipt of clean water as recognized by Colorado courts is not novel or unique. In *United States v. Gila Valley Irrigation District*, the Federal District Court for the District of Arizona recognized "[t]he courts of the western states generally agree that a prior appropriator of water is entitled to protection, including injunctive relief, against material degradation of the quality of the water by junior appropriators upstream."⁷⁸ In recognizing this protection, the court entered an injunction against upstream water users whose irrigation return flows substantially increased the salt load of the Gila River, which then prevented the Apache Indian Tribe from growing salt-sensitive crops such as alfalfa.⁷⁹ In addition to the Arizona District Court, state courts in California,⁸⁰ Utah,⁸¹ and Washington⁸² have all recognized that one of the sticks in the water rights bundle is the right to clean water. Additionally, the United States Supreme Court recognized that a deterioration of quality may "constitute an invasion of the rights of the first appropriator"⁸³ and has protected water quality under nuisance principles.⁸⁴

Colorado law protects an appropriator's right to continued receipt of water of sufficient quality to allow continued normal use of the water,⁸⁵ which effectively means that a senior appropriator has a right to make continued beneficial use of her water as she has in the past.⁸⁶ This right allows a senior appro-

77. *Wilmore*, 44 P.2d at 1029 (emphasis added).

78. *United States v. Gila Valley Irrigation Dist.*, 920 F. Supp. 1444, 1448 (D. Ariz. 1996).

79. *Id.* at 1454-56.

80. *See Phoenix Water Co. v. Fletcher*, 23 Cal. 481, 487 (1863).

81. *See Salt Lake City v. Boundary Springs Water Users Ass'n*, 270 P.2d 453, 455 (Utah 1954).

82. *See Tiegs v. Watts*, 954 P.2d 877, 884 (Wash. 1998).

83. *Atchison v. Peterson*, 87 U.S. 507, 514-15 (1874).

84. *Ariz. Copper Co. v. Gillespie*, 230 U.S. 46, 56-58 (1913) (upholding a decision by the Supreme Court of the Territory of Arizona that a mining company's operations constituted a nuisance when its operations discharged tailings and other waste into tributaries of the Gila River that so polluted the river that the water diverted for irrigation by a downstream appropriator caused damage to the appropriator's crops).

85. *See, e.g., Suffolk Gold Mining & Milling Co.*, 48 P. at 830-33; *Humphreys Tunnel & Mining Co.*, 105 P. at 1093, 1095; *Wilmore*, 44 P.2d at 1026-28; *Slide Mines, Inc.*, 77 P.2d at 127; *Game & Fish Comm'n*, 426 P.2d at 562.

86. *Wilmore*, 44 P.2d at 1029.

priator to use the courts to protect the water it receives from any degradation that will prevent continued beneficial use of that water.⁸⁷ This rule, that senior appropriators have the right to continued receipt of water of sufficient quality for continued beneficial use, is merely the application of the ancient principle of *sic utere tu ut alienum non laedas*.⁸⁸ The courts are protecting a property right, the right to clean water, and there is a general consensus in many prior appropriation states that the right to clean water is a legally protected property right. The more interesting question concerning Colorado water law is exactly when a water court may protect water quality.

III. HOW THE WATER COURT MAY ADDRESS WATER QUALITY ISSUES

Below is a discussion of (i) under what circumstances the 1969 Act expressly requires water courts to protect water quality; and (ii) under what circumstances the water court has the authority to address water quality despite no explicit authority being granted to it in the 1969 Act.

A. EXPRESS STATUTORY AUTHORITY TO ADDRESS WATER QUALITY

The well-established right of an appropriator under Colorado law to make continued beneficial use of water was partially codified in the 1969 Act. The 1969 Act provides that under augmentation plans and exchanges, “[a]ny substituted water shall be of a *quality* and quantity so as *to meet the requirements for which the water of the senior appropriator has normally been used . . .*”⁸⁹ Similarly, the state engineer may not approve a substitute supply plan unless the substitute supply plan “will replace all out-of-priority depletions in time, location, and amount and will otherwise prevent injury to other water rights and decreed conditional water rights, including water *quality* and continuity *to meet the requirements of use to which the senior appropriation has normally been put . . .*”⁹⁰ These provisions expressly codify the common law principle discussed above⁹¹ (that an appropriator is entitled to make continued beneficial

87. See, e.g., *In re Plan for Augmentation of the City and Cnty. of Denver*, 44 P.3d 1019, 1028 (Colo. 2002); *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 91 (Colo. 1996); *Game & Fish Comm'n v. Farmers Irrigation Co.*, 426 P.2d 562, 565 (Colo. 1967); *Slide Mines, Inc. v. Left Hand Ditch, Co.*, 77 P.2d 125, 127 (Colo. 1938); *Wilmore v. Chain O'Mines*, 44 P.2d 1024, 1027 (Colo. 1934); *Humphreys Tunnel & Mining Co. v. Frank*, 105 P. 1093, 1095 (Colo. 1909); *Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co.*, 48 P. 828, 830-32 (Colo. App. 1897); *Cushman v. Highland Ditch Co.*, 33 P. 344, 345 (Colo. App. 1893).

88. “Use your own property in such a manner as not to injure that of another.” *Brendale v. Confederated Tribes and Bands of Yakima Indian Nation*, 492 U.S. 408, 434 (1989).

89. COLO. REV. STAT. § 37-92-305(5) (emphasis added).

90. COLO. REV. STAT. § 37-92-308(4)(a)(IV) (emphasis added); see also *id.* § 37-80-120(3) (“any substituted water shall be of a *quality* and *continuity* to meet the requirements of use to which the senior appropriator has normally been put”) (emphasis added).

91. *City & Cnty. of Denver*, 44 P.3d at 1028.

use of its water and any water quality degradation that infringes on that beneficial use is an invasion on an appropriator's water right).⁹²

The 1969 Act contains several other provisions that expressly permit the water court to address water quality in other situations. Section 37-92-305(3)(a) of the Colorado Revised Statutes provides that a change of water right, implementation of rotational crop management plans, an augmentation plan, or exchange may only be approved by the water court if it "will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right."⁹³ Similarly, Section 37-92-305(3)(b) requires water courts to impose terms and conditions "necessary to prevent injury to vested water rights or decreed conditional water rights" in certain change application concerning the lease, loan, or donation of water to the Colorado Conservation Board for instream flows.⁹⁴ Section 37-92-305(4)(a) includes a nonexclusive list of terms and conditions the water court may impose to prevent injury under Section 37-92-305(3)(a) and (b), one of which explicitly addresses water quality.⁹⁵ Additionally, the water court may impose other necessary conditions in order to protect the rights of other appropriators.⁹⁶

The above discussion reaches the rather unextraordinary conclusion that the 1969 Act expressly permits, and in some cases requires, water courts to consider water quality. This conclusion is easily reached by merely reading the statute. The more difficult question is discussed next: Can a water court address water quality when, in an application for a new junior water right (either conditional or absolute), none of these statutory provisions identified above are triggered?

B. THE WATER COURT'S AUTHORITY TO ADDRESS WATER QUALITY WHEN ADJUDICATING A NEW JUNIOR RIGHT

Before the water court decrees a right absolute, the applicant must show that it "diverted, stored, or otherwise captured, possessed, and controlled the water" and has applied that water to a beneficial use.⁹⁷ Unlike an absolute right, a conditional right does not require the applicant to show it has put the water to a beneficial use.⁹⁸ Instead, the water court will decree a conditional right if the applicant shows it formed the requisite intent to appropriate water and it took some physical step to appropriate that water.⁹⁹ Additionally, the applicant

92. Pifher, *The Continued Right to Appropriate—Part I*, *supra* note 11, at 1035.

93. COLO. REV. STAT. § 37-92-305(3)(a).

94. *Id.* § 37-92-305(3)(b).

95. *Id.* § 37-92-305(4)(a)(V) ("A term or condition that addresses decreases in water quality caused by a change in the type of use and permanent removal from irrigation of more than one thousand acre-feet of consumptive use per year that includes a change in point of diversion, if the change would cause an exceedance . . . attributable to the proposed change.")

96. *Id.* § 37-92-305(4)(a)(VI).

97. COLO. REV. STAT. § 37-92-305(9)(a) (2012).

98. *Id.* § 37-92-305(9)(b).

99. *See, e.g.*, Centennial Water & Sanitation Dist. v. City & Cnty. of Broomfield, 256 P.3d 677, 685 (Colo. 2011); City of Aspen v. Colorado River Water Conservation Dist., 696 P.2d 758, 761 (Colo. 1985); Colorado River Water Conservation Dist. v. City & Cnty. of Denver, 642 P.2d 510, 512 (Colo. 1982).

must show that it "can and will" divert the water and put it to a beneficial use.¹⁰⁰ Nothing in the 1969 Act expressly requires or permits a water court to consider whether exercise of the new junior water right will injure senior rights. However, when an applicant files an application for a new water right, water courts do not merely ask if the statutory elements are met for an appropriation, instead objectors often prompt the court to inquire whether exercising the new junior right will injure a senior right.¹⁰¹

The Colorado Supreme Court "recognize[d] that there may be situations in which any use by a junior appropriator would cause persistent injury to senior water users. In those cases, a water court must eliminate the injury by imposing conditions on the junior right."¹⁰² Additionally, in *City of Thornton*, the Court responded to the express argument that the water court does not have the authority to address injury to senior rights when adjudicating a new junior right when it held that "new conditional appropriations may be decreed subject to conditions designed to protect other appropriators against injury resulting from the appropriations."¹⁰³

In *City of Thornton*, Thornton applied for various water rights for a large water project, including various conditional rights.¹⁰⁴ The water court decreed the conditional rights but imposed a volumetric limitation on the exercise of those rights, finding such a condition necessary to prevent injury to existing water users.¹⁰⁵ On appeal, Thornton argued the water court was not authorized to apply a no-injury standard to appropriations outside of cases involving water rights changes or augmentation plans.¹⁰⁶ Despite the lack of express statutory authority to address injury during an application for a new water right, the Colorado Supreme Court held a water court may condition a new water right to protect existing water rights.¹⁰⁷ Subsequently, the Court remanded the case to the water court, ordering the water court to make factual findings on the potential injury to existing water users if the volumetric limitations were imposed to prevent such injury.¹⁰⁸ In short, the Court in *City of Thornton* expressly held that a water court may impose conditions on a new water right if it makes specific findings identifying the injury the conditions are intended to prevent.

The Court's action in *City of Thornton* is not unique. Colorado courts often impose terms and conditions on the exercise of a new water right to pre-

100. COLO. REV. STAT. § 37-92-305(9)(b).

101. See, e.g., *Fox v. Div. Eng'r for Water Div. 5*, 810 P.2d 644, 645-46 (Colo. 1991); *Se. Colorado Water Conservancy Dist. v. City of Florence*, 688 P.2d 715, 718 (Colo. 1984) (reversed on other grounds); *Lionelle v. Se. Colorado Water Conservancy Dist.*, 676 P.2d 1162, 1167-68 (Colo. 1984); *Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978).

102. *Aspen Wilderness Workshop, Inc. v. Hines Highlands Ltd. P'ship*, 929 P.2d 718, 724 (Colo. 1996). See also *Three Bells Ranch Assocs. v. Cache La Poudre Water Users Ass'n*, 758 P.2d 164, 170 (Colo. 1988) ("In situations where a junior right cannot be exercised without injury to a senior right, we have required the injury to be eliminated by imposing conditions on the exercise of the junior right.").

103. *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 48 (Colo. 1996).

104. *Id.* at 21.

105. *Id.* at 22, 47.

106. *Id.* at 48.

107. *Id.* at 48-49.

108. *Id.* at 49.

vent injury to senior appropriators.¹⁰⁹ Also, there are numerous cases in which a water court found that, although there may be unappropriated water in the stream at some times of the year, a new water right, absent an augmentation plan, will not be granted so as to prevent injury to senior appropriators.¹¹⁰

Admittedly, the author has found no case where a water court conditioned a new water right to prevent injury to an existing right based on water quality, but there is no reason the water courts cannot do so. As the discussion in Section III indicates, an appropriator has the legal right to make continued beneficial use of its water, just as it has the right to continued receipt of a certain amount of water in priority. If the water court can condition the exercise of a new water right to insure that senior appropriators continue to receive a certain *quantity* of water at a certain time, it can condition a water right to insure that a senior appropriator continues to receive a certain *quality* of water. Both the right to water in priority and the right to make continued beneficial use of water are protected property rights, and there is no good reason for the water court to provide protection to the priority right but not the quality right.

A hypothetical may help illustrate when a water court may find it appropriate to condition, or even deny, a new water right in order to protect a senior appropriator's right to clean water. Assume Natural Gas Development Company, LLC ("Company") files an application for a new conditional direct-flow right and two conditional storage rights on a small stream located high in the Rockies at 9,000 feet. The direct-flow right will be used to fill ponds A and B. Pond A is designed to hold ten acre feet and pond B will hold three acre feet. Pond A is an on-channel reservoir and pond B is off-channel and Company will construct it within fifty feet of the stream. Unlike pond A, which Company can fill once every year, Company can fill pond B only once. After the initial fill, Company will mix the water in pond B with hydraulic fracturing fluid and use the mixture for hydraulic fracturing. After use, Company will retain the injected water, fracturing fluid, and natural formation water that returns to the surface (known as "produced water") in pond B and continually reuse it. Furthermore, Company's engineering plans indicate that ponds A and B and the stream will all be connected via siphons and pipes. However, Company will build the ponds so that after the initial fill, clean water from pond A and the stream will be able to enter pond B, but the produced water from pond B will not be able to flow into pond A or the stream. Company claims that even though there are numerous water rights on the stream, there is unappropriated water available and thus does not seek approval of an augmentation plan.

Your client, John, runs a small family farm with a relatively senior water right for irrigation, stockwatering, and domestic use. John diverts his water about one-half mile downstream from Company's proposed project where it flows into a series of ditches serving his farm. Often, his livestock drink directly from the ditch. John is concerned that Company's natural gas development

109. See, e.g., *Aspen Wilderness Workshop*, 929 P.2d at 725 (recognizing a water court's imposed conditions designed to prevent out-of-priority depletions).

110. See, e.g., *Fox*, 810 P.2d at 645-46; *Se. Colorado Water Conservancy Dist.*, 688 P.2d at 718; *Lionelle*, 676 P.2d at 1167-68; *Bohn*, 575 P.2d at 403.

activities may negatively affect his farm and water rights, and he comes to you for advice.

At this point, it is necessary to have a basic understanding of hydraulic fracturing.¹¹¹ The following is a brief explanation of hydraulic fracturing:

[I]n hydraulic fracturing fluids, chemical substances other than water make up approximately 0.5 to 1 percent of the total volume; however, the very large volumes used require correspondingly large volumes of a variety of compounds. These substances range from the relatively benign to the highly toxic. Some of these are reported to the public and others are not, but the quantities and proportions used are largely considered trade secrets. In addition to these added chemicals, naturally occurring toxicants such as heavy metals, volatile organics, and radioactive compounds are mobilized during gas extraction and return to the surface with the gas/chemical mix (wastewater); of the 5.5 million gallons of water, on average, used to hydraulically fracture a shale gas well one time, less than 30 percent to more than 70 percent may remain underground. Hydraulic fracturing takes place over 2 to 5 days and may be repeated multiple times on the same well over the course of the potential 25- to 40-year lifetime of a well. Many of these chemicals are toxic and have known adverse health effects, which may be apparent only in the long term.¹¹²

Recently, scientists conducted a study aimed at reporting the health effects caused by exposure to hydraulic fracturing fluid and produced water.¹¹³ The study documents twenty-four cases of exposure of humans and/or animals to hydraulic fracturing fluid in six states—Colorado, Louisiana, New York, Ohio, Pennsylvania, and Texas.¹¹⁴ Below is a list of four of the exposure events and their results:

- Accidental release of fracturing fluids into a cow pasture adjacent to the gas well resulted in the death of seventeen cows in one hour.¹¹⁵
- Accidental release of fracturing fluid into goat pasture resulted in goats suffering reproductive problems for the following two years.¹¹⁶
- Of sixty head of cattle exposed to creek water into which someone allegedly dumped fracturing wastewater, twenty head died and sixteen failed to produce calves the following spring.¹¹⁷

111. Hydraulic fracturing is a highly contentious issue and this article does not aim to argue for or against the practice. Instead, this article aims to use hydraulic fracturing, a common practice in much of Colorado, as a vehicle to demonstrate how the right to make continued beneficial use of water may be protected.

112. Michelle Bamberger & Robert E. Oswald, *Impacts of Gas Drilling on Human and Animal Health*, 22 *NEW SOLUTIONS* 51, 52 (2012) (citations omitted); see also Ryan Coyne, *Hydraulic Fracturing and the Impacts on Water Quality: Efforts by the Department of Energy to Find Answers*, U. DENV. WATER L. REV. BLOG (Oct. 22, 2012), <http://duwaterlawreview.com/hydraulic-fracturing-and-the-impacts-on-water-quality-efforts-by-the-department-of-energy-to-find-answers/>.

113. Bamberger & Oswald, *supra* note 112, at 53.

114. *Id.* at 54-59.

115. *Id.* at 59.

116. *Id.*

117. *Id.* at 60.

- Of 140 head of cattle exposed to fracturing wastewater when an alleged slit in the liner of a wastewater impoundment caused the wastewater to drain into a pasture and pond used as stockwater for the cows, seventy head died and there was a high incident of stillborn and stunted calves among the remaining cattle.¹¹⁸

In short, science and experience show that, at the very least, hydraulic fracturing fluid is highly toxic because it can kill animals and significantly affect their reproduction. Given these facts, John should be concerned about the plan to store significant amounts of hydraulic fracturing fluid one-half mile upstream of where he diverts his water for irrigation, stockwatering, and domestic use. There are serious questions as to whether the exercise of Company's water rights, if granted, may impair John's right to continued receipt of clean water—given the harsh winters experienced at 9,000 feet, the potential for stream flooding during spring runoff, and Company's suspect claim that even though clean water can enter pond B from the stream and pond A, produced water cannot leave pond B. This may be a case where John would want to press for terms and conditions on Company's water rights to ensure protection of water quality.¹¹⁹ Alternatively, if John's counsel can prove that despite the Company's claims, produced water will enter the stream from pond B and negatively affect John's right to continued beneficial use of his water, it is possible that John could convince the water court to deny Company's water rights' application altogether.¹²⁰

The point of this hypothetical discussion is to demonstrate a situation where a water attorney should be cognizant of the water court's authority to address water quality. It may be possible for the attorney to secure terms and conditions on, or even alter the design of, the proposed project to limit the possibility that contaminated water will impair John's existing water rights. However, without fully recognizing the water court's authority regarding water quality and fully understanding a senior appropriator's right to make continued beneficial use of its water, the attorney would miss an important opportunity to fully protect a client's rights.

C. CONSTITUTIONAL ISSUES RAISED WHEN A WATER COURT DENIES OR CONDITIONS THE GRANT OF A NEW WATER RIGHT

Whenever a water court conditions or denies the grant of a new water right, one must necessarily grapple with the question of whether there is a violation of Colorado's constitutional guarantee of the right to appropriate unappropriated water. Article XVI, Section 6 of the Colorado Constitution provides "the right to divert unappropriated waters of any natural stream to beneficial uses shall never be denied." Despite what appears to be absolute language suggesting that as long as there is unappropriated water in a stream, a

118. *Id.*

119. Such terms may include requiring the company to conduct periodic water quality testing, change in design of the ponds, monitoring by an independent engineer, etc.

120. See *infra* Part III.C. for a discussion of the water court's authority to deny a water right based on water quality concerns.

water user may appropriate water from the stream, water courts appear to read the following limitation in Article XIV, Section 6: "the right to divert unappropriated waters of any natural stream to beneficial use shall never be denied" *unless such diversion will injure senior appropriators*. For the reason discussed below, this implicit no-injury limitation is the proper interpretation of the Colorado Constitution. Not only do the water courts already recognize the limitation, given the goals of the prior appropriation system and how an absolutist interpretation of Article XIV, Section 6 may conflict with other provisions of the Colorado Constitution,¹²¹ not applying the limitation may lead to takings challenges against water court decisions.¹²²

Water courts have already rejected an absolutist interpretation of Article XVI, Section 6 and instead read in a limitation that prevents appropriation if the appropriation will injure a senior appropriator.¹²³ This implicit limitation appears in cases in which a water court has refused to grant a new water right without an augmentation plan, despite the fact there is unappropriated water in the stream.¹²⁴ In those cases, the water court is preventing injury to the senior appropriators' right to receive water in priority.¹²⁵ The conditions that water courts impose on new water rights to prevent injury to senior appropriators demonstrates the implicit limitation on the right to appropriate.¹²⁶ Such conditions may infringe upon or even deny the right to divert unappropriated waters, but the courts have not taken issue with water court conditions as long as they are in place to protect senior appropriators from injury.¹²⁷

The implicit limitation read into Article XIV, Section 6 also makes sense given the purpose of the prior appropriation system. As discussed above, the framers of the Colorado Constitution and the Colorado legislature adopted

121. As discussed *infra*, a strict interpretation of Article XVI, Section 6 could lead to a conflict with Article II, Section 15. For example, if the state applies for a water right that would infringe upon the right of an appropriator to make continued normal use of their water, then a strict interpretation of Article XIV, Section 6 would permit the state's appropriation despite the negative externalities. This would lead to a conflict between Article XVI, Section 6 and Article II, Section 15.

122. As discussed *infra*, a potential takings challenge could be made under Stop the Beach Renourishment, Inc. v. Florida Dep't of Envtl. Prot., 130 S. Ct. 2592, 2602 (2010).

123. *Fox v. Div. Eng'r for Water Div. 5*, 810 P.2d 644, 645-46 (Colo. 1991); *Se. Colorado Water Conservancy Dist. v. City of Florence*, 688 P.2d 715, 718 (Colo. 1984); *Lionelle v. Se. Colo. Water Conservancy Dist.*, 676 P.2d 1162, 1167-68 (Colo. 1984); *Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978).

124. *Fox*, 810 P.2d at 645-46; *Se. Colorado Water Conservancy Dist.*, 688 P.2d at 718; *Lionelle*, 676 P.2d at 1167-68; *Bohn*, 575 P.2d at 403.

125. For example, in *Fox v. Div. Eng'r for Water Div. 5*, an applicant sought a conditional underground water right for forty-five proposed tributary wells. 810 P.2d at 655. The water court found that "unappropriated water may be in priority without the need for augmentation for some periods," but nevertheless, the court granted a motion to dismiss concluding that submission of an augmentation plan was a prerequisite to an award of conditional water rights. *Id.* The Colorado Supreme Court affirmed the decision. *Id.* at 647.

126. *See, e.g., Aspen Wilderness Workshop v. Hines Highlands Ltd. P'ship*, 929 P.2d 718, 725 (Colo. 1996) (water court imposed conditions designed to prevent out-of-priority depletions); *City of Thornton*, 926 P.2d at 22, 47 (court imposed a volumetric limitation new water right).

127. *Hines Highlands Ltd P'ship*, 929 P.2d at 725.

and developed the prior appropriation system to protect the water rights of senior appropriators.¹²⁸ Case law makes it clear that a junior appropriator can injure a senior appropriator's right to make continued beneficial use of its water in both quantity and quality.¹²⁹ Thus, insertion of the implicit limitation into Article XIV, Section 6 that, even if unappropriated water is available, a potential junior appropriator may not appropriate if such appropriation will injure a senior appropriator, is merely reading Article XIV, Section 6 in harmony with the first in time-first in right principle.

There are many situations in which a water court may conclude that exercise of a new water right may impair the senior appropriator's right to water quality. For example, adopting the facts of *United States v. Gila Valley Irrigation District*, assume a senior appropriator's intake of its direct-flow irrigation right is located downstream of the proposed return flow of a new appropriator. Further assume, that, like the upstream irrigators in *Gila Valley*, the return flow of the new appropriation will increase the salt load of the stream and prevent the senior appropriator from continuing to grow salt sensitive crops, crops which the senior appropriator has grown for decades. In this case, the water court could deny the new appropriator's application on the grounds that it would impair, if not destroy, the senior appropriator's right to continued normal use of his water.¹³⁰

The water court's denial of the water right in the above hypothetical is a fair and just result. Despite the fact that there is unappropriated water in the stream, a junior appropriator should not be permitted to destroy a senior right by polluting a stream. The prior appropriation system is a property right system that protects senior rights from infringement by junior rights.¹³¹ A new appropriator who pollutes the water and infringes upon or destroys a senior right would undermine the prior appropriation system.

Not only is such a conclusion fair and just, the Colorado Constitution requires such a conclusion. To rebut the argument that Article XVI, Section 6 contains an implicit limitation on the right to unappropriated water, some will argue that the express language Article XVI, Section 6 provides for no such limitation. If one reads Article XVI, Section 6 in isolation, it indeed appears to grant the unlimited right to divert unappropriated water. However, Colorado courts do not read each individual provision of the Colorado Constitution in a vacuum. Instead, the Colorado Supreme Court has made it clear "[t]he Constitution must be construed as a whole. Each provision should be construed if

128. VRANESH, *supra* note 12, at 17.

129. See, e.g., *In re City and Cnty. of Denver v. Bd. of Water Comm'rs*, 44 P.3d 1019, 1028 (Colo. 2002); *City of Thornton*, 926 P.2d at 91; *Game and Fish Comm'n v. Farmers Irrigation Co.*, 426 P.2d 562 (Colo. 1967); *Slide Mines, Inc. v. Left Hand Ditch Co.*, 77 P.2d 125, 127 (Colo. 1938); *Wilmore v. Chain O'Mines*, 44 P.2d 1024, 1027 (Colo. 1934); *Humphreys Tunnel & Mining Co. v. Frank*, 105 P. 1093, 1095 (Colo. 1909); *Suffolk Gold Mining & Milling Co.*, 48 P. 828, 830-32 (Colo. App. 1897); *Cushman v. Highland Ditch Co.*, 33 P. 344, 345 (Colo. App. 1893).

130. See *supra* Part III.B for another example of when the water court may decide to condition or deny a new water right to protect a senior appropriator's right to continued receipt of water of sufficient quality to make continued beneficial use.

131. Hobbs, *supra* note 12, at 2.

possible to avoid any conflict between the different parts of the Constitution."¹³² Given that a water right is protected from takings by Article II, Section 15,¹³³ reading Article XVI, Section 6 to guarantee the right to divert water when unappropriated water remains in a stream—regardless of whether that appropriation will infringe upon or destroy senior rights on that stream—would put the two provisions in conflict with each other. This conflict may arise, for example, if the State is applying for a junior water right, the exercise of which would impair or destroy a senior right owned by a private citizen. In this situation, a reading of Article XVI, Section 6 in a vacuum leads to the conclusion that the State has an absolute right to divert water under the new water right despite impairing a property right protected by Article II, Section 15. Such a conclusion pits Article XVI, Section 6 and Article II, Section 15 against each other, a conclusion Colorado courts try to avoid.

In addition, reading Article XVI, Section 6 to confer on appropriator an absolute right to divert water so long as unappropriated water remains in the stream would lead to absurd results. Such a reading would leave the water court in the position of saying that, while it recognizes water rights are protected by Article II, Section 15, Article XVI, Section 6 prevails and requires a taking of the senior water right. Such a reading would lead to junior appropriators receiving the legal right to appropriate water despite the fact that it injures a senior right. The better interpretation is to read the implicit qualifier into Article XVI, Section 6 that the Colorado Supreme Court already recognizes “the right to divert unappropriated waters of any natural stream to beneficial use shall never be denied” *unless such diversion will injure senior appropriators*.

Not only could an absolutist interpretation of Article XVI, Section 6 lead to absurd results, it could permit the water court to work a judicial taking. In the 2010 case *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*, a plurality of the United States Supreme Court found that the judicial branch may work a taking.¹³⁴ The case demonstrates possible grounds for a takings challenge if a water court’s grant of a water right infringes upon a senior appropriator’s right to make continued beneficial use of its water.

Before discussing *Stop the Beach Renourishment*, it is necessary to have a basic understanding of federal takings law. The Fifth Amendment of the United States Constitution proves that no “private property [shall] be taken for

132. *Zaner v. City of Brighton*, 899 P.2d 263, 267 (Colo. App. 1994) (internal citations omitted).

133. *A-B Cattle Co. v. United States*, 589 P.2d 57, 62 (Colo. 1978) (Erikson, J., dissenting) (“The loss of the beneficial use of appropriated water, if the change is created by other users, constitutes a taking of property rights acquired by a prior appropriator.”); *Farmers Irrigation Co. v. Game & Fish Comm’n*, 369 P.2d 557, 559-60 (Colo. 1962) (“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.”).

134. *Stop the Beach Renourishment, Inc. v. Fla. Dep’t of Env’tl. Prot.*, 130 S. Ct. 2592, 2602 (2010).

public use, without just compensation.¹³⁵ A taking can arise in various situations, one of which is eminent domain, which entitles the government to buy a landowner's property in order to construct something for a public purpose (for example, a highway, railroad, or utility). Takings can also arise in the context of regulatory takings, which occur when a regulation has the effect of taking private property for public use.¹³⁶ In both cases, the government must pay the landowner just compensation for the property taken.¹³⁷

In *Stop the Beach Renourishment*, the United States Supreme Court decided whether a decision by the Florida Supreme Court worked an unconstitutional taking.¹³⁸ Florida common law provides that littoral owners¹³⁹ automatically take title to dry land added to their property by accretion.¹⁴⁰ Under a Florida beach restoration law,¹⁴¹ if a particular beach undergoes restoration activities, a fixed line replaces the high-water line as the boundary between privately owned littoral property and state property.¹⁴² Any land added seaward of this fixed line becomes property of the State.¹⁴³

A group of littoral landowners challenged a beach restoration permit application under Florida law that would have resulted in the addition of about seventy-five feet of dry land seaward of the mean high-water mark.¹⁴⁴ Had this land accreted, it would have been the property of the littoral owners, but because it was added artificially under beach restoration activities, it became property of the State.¹⁴⁵ Overturning the Florida appellate court, the Florida Supreme Court held there was no taking.¹⁴⁶ The littoral landowners appealed

135. See *Chicago B. & Q.R. Co. v. City of Chicago*, 166 U.S. 226, 238 (1897) (noting that the fourteenth amendment incorporates the fifth amendment takings clause).

136. The United States has developed substantial and complicated jurisprudence regarding regulatory takings. In short, there are two *per se* tests and a widely used balancing test. Any permanent physical invasion is a taking. See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 426 (1982). Also, any complete diminution in economic value of property is a taking. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019 (1992). If neither *Loretto* nor *Lucas* applies, the court will apply the test from *Penn Cent. Transp. Co. v. City of New York* under which the court balances: (i) the character of the government action; (ii) the economic impact of the regulation on the claimant; and (iii) the extent to which the regulation interfered with distinct investment-backed expectations. 438 U.S. 104, 124 (1978).

137. U.S. CONST. amend. V; COLO. CONST. art. 2, § 15.

138. *Stop the Beach Renourishment, Inc.*, 130 S. Ct. at 2600-01.

139. A littoral owner refers to an owner of land adjacent to the sea. BLACK'S LAW DICTIONARY 1018 (9th ed. 2009).

140. *Stop the Beach Renourishment, Inc.*, 130 S. Ct. at 2598 ("In order for an addition to dry land to qualify as an accretion, it must have occurred gradually and imperceptibly—that is, so slowly that one could not see the change occurring, though over time, the difference became apparent.").

141. The Beach and Shore Preservation Act, 1961 Fla. Laws ch. 61-246, as amended, Fla. Stat. §§161.011-161.45 (2007).

142. *Stop the Beach Renourishment, Inc.*, 130 S. Ct. at 2599.

143. *Id.*

144. *Id.* at 2600.

145. *Id.* at 2598-99.

146. *Id.* at 2600. The Florida Court of Appeals held that the Florida Department of Environmental Protection's approval of the beach restoration permits submitted by the City of Destin and Walton County violated the rights of two private beach owners to receive accretions to their property and right to have the contact of their property with the water remain intact. Save

to the United States Supreme Court, arguing the *Florida Supreme Court's decision* worked an unconstitutional taking.¹⁴⁷

A plurality of the United States Supreme Court, consisting of the four justices generally considered to be the most conservative (Chief Justice Roberts and Justices Scalia, Thomas, and Alito) wrote that while there was no judicial taking in this case, there is such a thing as a judicial taking.¹⁴⁸ Defining what constitutes a judicial taking, the plurality wrote that a judicial taking occurs when “a court declares that what was once an established right of private property no longer exists.”¹⁴⁹

One can easily see how such a judicial taking (assuming such a thing actually exists) may apply in the context of a senior appropriator's right to continued receipt of clean water. If a water court granted a new water right, which when exercised destroyed and/or infringed upon a senior appropriator's right to make continued beneficial use of its water, the senior appropriator could claim a judicial taking (in other words, the water court declared the established right to make continued beneficial use of water no longer exists).

Not only does *Stop the Beach Renourishment* create the potential for a judicial taking under the United States Constitution if the water court does not protect a senior appropriator's right to clean water, it raises the specter of a judicial takings challenge under the Colorado Constitution. Article II, Section 15 of the Colorado Constitution provides “[p]rivate property shall not be taken or damaged, for public or private use, without just compensation.”¹⁵⁰ Water rights are protected by Article II, Section 15.¹⁵¹ While the Colorado Supreme Court has yet to rule on whether there is such a thing as a judicial taking,¹⁵² the

Our Beaches, Inc. v. Florida Department of Environmental Protection, 27 So.3d 48, 57 (2006). The Florida Court of Appeals also certified a question to the Florida Supreme Court asking whether the Beach and Shore Preservation Act “unconstitutionally deprive[s] upland owners of littoral rights without just compensation.” *Walton City v. Stop the Beach Renourishment, Inc.*, 998 So.2d 1102, 1105 (Fla. 2008). The Florida Supreme Court answered the certified question in the negative and quashed the court of appeals' remand. *Id.* at 1121. The Court held that doctrine of avulsion permitted the State to reclaim the restored beached on behalf of the public and that there was no littoral right to contact with water independent of the littoral right of access, which the Act does not infringe. *Id.* at 1112, 1116-1120.

147. *Stop the Beach Renourishment, Inc.*, 130 S. Ct. at 2600-01.

148. *Id.* at 2601-02.

149. *Id.*

150. COLO. CONST. art. 2, § 15.

151. *A-B Cattle Co. v. United States*, 589 P.2d 57, 62 (Colo. 1978) (Erickson, J., dissenting) (stating a change in beneficial use created by users other than the appropriator is a taking); *Farmers Irrigation Co. v. Game & Fish Comm'n*, 369 P.2d 557, 559-60 (Colo. 1962) (holding constitutional guaranties fully protect the priority to put water to beneficial use as a property right).

152. In *La Plata River & Cherry Creek Ditch Co. v. Hinderlider*, the Colorado Supreme Court does use the word “judicial takings” but it is not used in the context of whether a court decision has worked a taking. Instead, the decision addresses whether the La Plata River Compact, which rotated water from the La Plata River among water users in both Colorado and New Mexico, affected a taking of the appellant's Colorado water right. While the court did use the word “judicial taking,” the case only addresses whether the La Plata River Compact has worked a taking. 25 P.2d 187, 188 (Colo. 1933).

Court could, if properly confronted with the issue, conclude that such a species of takings exists.

Despite the apparent clear dictate of Article XVI, Section 6 of the Colorado Constitution that the right to appropriate water will never be denied, Colorado courts have been willing to deny new water rights when exercise of the water right will cause injury to senior appropriators.¹⁵³ This is based on the common-sense limitation that must be read into Article XVI, Section 6 to fully protect senior appropriators and avoid the absurd result of interpreting two constitutional provisions to directly conflict with each other.¹⁵⁴ Although the Colorado courts have yet to address a situation in which an application for a new water right was denied solely because it would impair the water quality right of a senior appropriator, the water courts do have such authority. Finally, the water courts should be cognizant that if they stray from enforcing the implicit limitation that it has read into Article XVI, Section 6, senior water right holders may raise the novel issue of judicial takings under the United States Constitution and/or the Colorado Constitution.

IV. THE WQCA AND ITS EFFECT ON THE WATER COURT'S AUTHORITY TO ADDRESS WATER QUALITY ISSUES

The final issue that must be addressed is whether the WQCA limits in any way the water court's authority to protect water quality. This discussion first requires an exploration of the WQCA and its interaction with the 1969 Act.

Under the 1969 Act, a water court has exclusive jurisdiction over "water matters" and "[w]ater matters shall include only those matters which [the 1969 Act] and any other law shall specify to be heard by the water judge of the district courts."¹⁵⁵ A water court also has ancillary jurisdiction to resolve matters that would directly affect the outcome of matters over which it has exclusive jurisdiction,¹⁵⁶ which includes matters implied by the Colorado Constitution and statutes.¹⁵⁷ "Water matters" involve determinations regarding the right to use water¹⁵⁸ and limitations on the use of a decreed water right.¹⁵⁹ As demonstrated by numerous cases in which the water courts have conditioned and/or

153. See, e.g., *Fox v. Div. Eng'r for Water Div. 5*, 810 P.2d 644, 645-46 (Colo. 1991); *Se. Colo. Water Conservancy Dist. v. City of Florence*, 688 P.2d 715, 718 (Colo. 1984); *Lionelle v. Se. Colo. Water Conservancy Dist.*, 676 P.2d 1162, 1167-68 (Colo. 1984); *Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978).

154. See discussion *supra* note 122.

155. COLO. REV. STAT. § 37-92-203(1). The water court also has ancillary jurisdiction to resolve matters that would directly affect the outcome of matters over which it has exclusive jurisdiction. *Crystal Lakes Water & Sewer Ass'n v. Backlund*, 908 P.2d 534, 543 (Colo. 1996).

156. *Crystal Lakes Water and Sewer*, 908 P.2d at 543.

157. *Oliver v. Dist. Ct. of Boulder Cnty.*, 549 P.2d 770, 771 (Colo. 1976) (holding a water court had authority to hear suit for injunction predicated on the theory of nuisance and breach of covenant). For example, in *Perdue v. Fort Lyon Canal Co.*, the Colorado Supreme Court held that the 1969 Act and the Colorado Constitution provided a water judge the jurisdiction to determine the effect of a prior contract upon the priorities awarded. 519 P.2d 954 (Colo. 1974).

158. *Tonko v. Mallow*, 154 P.3d 397, 404 (Colo. 2007) (citing *Crystal Lake Water & Sewerage*, 908 P.2d at 540).

159. *Kobobel v. State*, 215 P.3d 1218, 1220 (Colo. App. 2009).

denied applications for new water rights in order to protect senior appropriators, the water courts have interpreted "water matters" to include the protection of the rights of senior appropriators from the exercise of new junior rights.¹⁶⁰ The question, then, is: Does the WQCA somehow deny the water court the authority to address externalities caused by the exercise of junior rights that affect water quality rights of senior appropriators?

The General Assembly passed the WQCA in 1989 in response to the federal Clean Water Act,¹⁶¹ and it has the following purpose:

[T]o prevent injury to beneficial uses made of state waters, to maximize beneficial uses of water, and to develop waters to which Colorado and its citizen are entitled and, within this context, to achieve the maximum practical degree of water quality in the waters of the state consistent with the welfare of the state.¹⁶²

[T]o conserve state waters and to protect, maintain, and improve, where necessary and reasonable, the quality thereof for public water supplies, for protection and propagation of wildlife and aquatic life, for domestic, agricultural, industrial, and recreational uses, and for other beneficial uses, taking into consideration the requirements of such uses; to provide that no pollutant be released into any state waters without first receiving the treatment or other corrective action necessary to reasonably protect the legitimate and beneficial uses of such waters; to provide for the prevention, abatement, and control of new or existing water pollution.¹⁶³

An in depth discussion of the WQCA is beyond the scope of this article; however, a working understanding is necessary. Under the WQCA, the Water Quality Control Commission has various duties, including developing and maintaining "a comprehensive and effective program for prevention, control, and abatement of water pollution" and for protecting water quality throughout the state.¹⁶⁴ This includes the duty to promulgate water quality standards,¹⁶⁵ control regulations,¹⁶⁶ and permit regulations.¹⁶⁷ In addition, the WQCA prohibits "discharge"¹⁶⁸ of any "pollutant"¹⁶⁹ into any state water from a "point source"¹⁷⁰

160. *Aspen Wilderness Workshop, Inc. v. Hines Highlands Ltd. P'ship*, 929 P.2d 718, 725 (Colo. 1996); *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 97 (Colo. 1996); *Fox v. Div. Eng'r for Water Div.*, 810 P.2d 644, 645-46 (Colo. 1991); *Se. Colo. Water Conservancy Dist. v. City of Florence*, 688 P.2d 715, 718 (Colo. 1984); *Lionelle v. Se. Colo. Water Conservancy Dist.*, 676 P.2d 1162, 1167 (Colo. 1984); *Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978).

161. 33 U.S.C. § 1251, *et seq.*

162. COLO. REV. STAT. § 25-8-102(1) (2012).

163. *Id.* § 25-8-102(1)-(2).

164. *Id.* § 25-8-202(1).

165. *Id.* § 25-8-204(2)(a)-(j).

166. *Id.* § 25-8-205(1).

167. *Id.* §§ 25-8-501 to -504.

168. *Id.* § 25-8-103(3) ("Discharge of pollutants" is defined as "the introduction or addition of a pollutant into state waters").

“without first having obtained a permit from the [Department of Public Health] for such discharge.”¹⁷¹ Permits generally allow the holder to discharge a certain amount of “pollution” into state waters. Violations of the WQCA may subject violators to both civil¹⁷² and criminal penalties.¹⁷³

Notably, the WQCA does not prevent the water courts from addressing water quality. In *City & County of Denver*, the Colorado Supreme Court, interpreting the WQCA, held “the WQCA explicitly preserves a water court’s authority over the question of injury to senior appropriators and the appropriate remedies for such injuries.”¹⁷⁴ To reach this conclusion, the Court relied in part on the following provision in the WQCA:

No provision of this articles shall be interpreted so as to supercede, abrogate, or impair rights to divert water and apply water to beneficial uses in accordance with Section 5 and Section 6 of article XVI of the constitution of the State of Colorado . . . or the Colorado court determinations with respect to the determination and administration of water rights.¹⁷⁵

While the facts of *City & County of Denver* dealt specifically with augmentation plans and whether substitute water was of sufficient quality for the use by another appropriator under Section 37-92-305(5) of the Colorado Revised Statutes, the Court did not limit its holding to the context of augmentation plans and the 1969 Act. Instead, the Court cited the “common law theory based on the prior appropriation doctrine that prohibits the discharge of contaminants into streams where doing so makes the water unsuitable for an appropriator’s normal use of the water” and came to the broad conclusion that the water court may address water quality when necessary to protect other appropriators.¹⁷⁶

While one may interpret *City & County of Denver* narrowly as only allowing the water courts to address water quality when expressly granted such authority under the 1969 Act, such a conclusion is inconsistent with the broad language of the statute and the role of the water courts. The opinion contains very broad language that seems to permit a water court to address water quality even when the 1969 Act does not expressly permit or require it to do so.¹⁷⁷ Additionally, as discussed above, water courts often inquire as to whether a

169. *Id.* § 25-8-103(15) (defining “pollutant” as “dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste”).

170. *Id.* at (14) (defining “point source” as “any discernible, confined, and discrete conveyance . . . ‘Point source’ does not include irrigation return flow”) (emphasis added).

171. *Id.* § 25-8-501(1).

172. *Id.* § 25-8-608(1).

173. *Id.* § 25-8-609(1)(a).

174. Plan for Augmentation of the City & Cnty. of Denver *ex rel*/ Bd. of Water Comm’rs, 44 P.3d 1019, 1029 (Colo. 2002).

175. COLO. REV. STAT. § 25-8-104(1).

176. *City & Cnty. of Denver*, 44 P.3d at 1028.

177. *Id.* at 1018-29.

new appropriation will harm senior appropriators.¹⁷⁸ Such harm is usually considered in the context of water quantity, not quality, however, if the exercise of a new water right impairs the right of a senior appropriator to a certain quality of water, this is harm a water court may and should address. Recognizing that the water courts have the authority to prevent harm to senior appropriators, it makes little sense to read *City & County of Denver* narrowly to say that water courts may address water quality injuries to senior appropriators only when expressly permitted by the 1969 Act. This would be inconsistent with how the water courts have routinely protected senior water rights from injury without express statutory authority to do so.¹⁷⁹

Such a narrow interpretation of *City & County of Denver* would also be contrary to a century of case law that protects a senior appropriator's right to make continued beneficial use of its water, as discussed above. Similarly, such an interpretation would leave the water quality rights of senior appropriators unprotected in some situations. The WQCA only requires a discharge permit for "point sources," which is defined in the WQCA to explicitly exclude "agricultural return flows."¹⁸⁰ Thus, the situation that occurred in *Gila Valley* (that agricultural return flows destroyed a downstream senior appropriator's right to make continued beneficial use of its water) would not be remedied by the WQCA. Therefore, concluding the WQCA does not permit the water courts to protect such rights of downstream senior appropriators produces an absurd result in which a junior appropriator's operation of its water right is allowed to infringe upon and/or destroy a senior appropriator's right to make continued beneficial use of its water.

Additionally, even if operation of a junior water right does result in the discharge of pollutants into a stream via a point source, which necessitates the procurement of a discharge permit, compliance with a discharge permit does not necessarily fully protect downstream water user. For example, consider a hypothetical based on the facts in *Game and Fish Commission v. Farmers Irrigation Company*, in which the Court held defendant liable for damages caused by discharges from fish hatchery that rendered plaintiff's domestic water right unusable for domestic purposes, and enjoined the defendant from continuing such discharges.¹⁸¹

Assume that the case arose today rather than in 1967 and that the discharges were made pursuant to a WQCA discharge permit. Concluding a water court cannot fully protect the downstream appropriator's right to make continued domestic use of its water, merely because the fish hatchery has a discharge permit, would leave the downstream appropriator's rights unprotected—despite the fact that Colorado prior appropriation law would have protect-

178. *Aspen Wilderness Workshop, Inc. v. Hines Highlands Ltd. P'ship*, 929 P.2d 718, 725 (Colo. 1996); *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 19 (Colo. 1996); *Fox v. Div. Eng'r for Water Div.*, 810 P.2d 644, 645-46 (Colo. 1991); *Se. Colo. Water Conservancy Dist. v. City of Florence*, 688 P.2d 715, 718 (Colo. 1984); *Lionelle v. Se. Colo. Water Conservancy Dist.*, 676 P.2d 1162, 1167-68 (Colo. 1984); *Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978).

179. See discussion *supra* Part III.B.

180. COLO. REV. STAT. § 25-8-103(14).

181. *Game & Fish Comm'n v. Farmers Irrigation Co.*, 426 P.2d 562, 566 (Colo. 1967).

ed the appropriator's right to make continued domestic use of its water. Such a conclusion is not only unfair because it permits a junior appropriator to destroy the rights of a senior appropriator, the WQCA expressly provides that it shall not be interpreted to "supercede, abrogate, or impair the rights to divert water and to apply water to beneficial uses."¹⁸² This language indicates the Colorado General Assembly did not intend the terms of a discharge permit to overturn a century of well-established Colorado prior appropriation law and allow a discharge permit to be used as a shield against the water court's authority.

The WQCA does not prevent water courts from protecting the right of senior appropriators to make continued beneficial use of their water. This conclusion results from the plain language of the statute and the conclusions of the Colorado Supreme Court in *City & County of Denver*. This conclusion is also the only way to achieve full protection of the right of senior appropriators to make continued beneficial use of their water.

V. CONCLUSION

Colorado prior appropriation law protects a senior appropriator's right to clean water. The level of clean water is determined by the appropriator's historic beneficial use. To fully protect their clients' water rights, Colorado water law practitioners must understand that the water courts have the authority to protect a senior appropriator's right to make continued beneficial use of its water, both in quality and quantity. Regulation of water quality is not solely within the authority of the Water Quality Control Commission. Instead, the water court has the authority to protect water quality whenever the exercise of a water right may infringe on an appropriator's right to make continued beneficial use of its water. Such authority is not limited by the terms of the 1969 Act or the Colorado Constitution. If the water court fails to protect the right to make continued beneficial use of water, it is not only failing to fully protect all aspects of a water right under Colorado law, it is potentially exposing itself to takings claims. It is time for the Colorado water law community to advance beyond the oversimplified and inaccurate view that prior appropriation law protects water quantity while WQCA protects water quality. The water law community must fully recognize the scope of a water right under Colorado water law and strategies available to protect it.

182. COLO. REV. STAT. § 25-8-104(1).

SUSTAINABLE DEVELOPMENT ALONG INTERNATIONAL WATERCOURSES: IS PROGRESS BEING MADE?

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INTRODUCTION

Sustainable development (“SD”) is needed to protect life’s most essential natural resource—freshwater—from excessive human exploitation. SD, howev-

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er, is an ambiguous concept and a singular, consistent definition is elusive.¹ It is unclear how SD's three pillars—social equity, environmental integrity, and economic viability—should mesh or how their interaction should be perceived.² (See the Appendix to this article for different perceptions of the pillars of SD). In addition, it is unclear whether customary international law fully embraces SD as a norm applicable to watercourse development. The lack of identification, coordination of pillars, and legal authority proves to be a significant obstacle for SD to overcome.

This article is divided into five parts and examines SD's impact on the development of international water law, as well as its subsequent application to particular watercourse projects. Part I introduces the underlying problem: progress in economic development impacting environmental stability along international watercourses. Part II discusses SD as a proposed "solution" to this problem and analyzes whether this "solution" is incorporated within guiding principles of international water law. Part III examines the legal framework of two case studies to illustrate SD's role—or lack thereof—in the current development of two different international watercourses. Part IV offers a possible conclusion regarding SD's successes and failures when applied to international watercourses. Last, Part V offers an outlook for SD's future, touching on the emergence of a "cultural pillar," and the movement toward "deep ecology."

I. THE PROBLEM: PROGRESS IN ECONOMIC DEVELOPMENT IMPACTING ENVIRONMENTAL STABILITY ALONG INTERNATIONAL WATERCOURSES

People have a need and a right to develop.³ Development paves the way for health and sanitation, education, security, sovereign independence, and more. However, regardless of good intentions, unrestrained development is devastating the environment.⁴ The conflict between using natural resources for economic growth and preserving natural resources for environmental stability,

1. Robert W. Kates et al., *What is Sustainable Development? Goals, Indicators, Values, and Practice*, ENV'T: SCIENCE & POLICY FOR SUSTAINABLE DEV., Apr. 2005, at 8, 9-10, available at http://www.hks.harvard.edu/sustsci/ists/docs/whatisSD_env_kates_0504.pdf.

2. *Id.* at 12; see also Samuel Mann, *Visualising Sustainability*, COMPUTING FOR SUSTAINABILITY (Mar. 15, 2009), <http://computingforsustainability.wordpress.com/2009/03/15/visualising-sustainability/> (providing a variety of SD models from across the globe).

3. Declaration on the Right to Development, G.A. Res. 41/128, art. 1, U.N. Doc. A/RES/41/128 (Dec. 4, 1986); see also United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Rio Declaration on Environment and Development*, princ. 3, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Aug. 12, 1992) [hereinafter *Rio Declaration*].

4. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Report of the United Nations Conference on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. IV), Annex II (Sept. 28, 1992) (statement by Maurice F. Strong, Secretary-General of the United Nations Conference on Environment and Development).

both of which are elements of a healthy society⁵, is especially evident in the following two case-studies: (i) hydropower development along the Mekong River; and (ii) India's National River Linking Project.

A. MEKONG RIVER BASIN

The Mekong is the longest river in Southeast Asia, the seventh longest in Asia, and the twelfth longest in the world.⁶ It originates in China's Qinghai Province and crosses or forms the border of six Asian countries before finally reaching the South China Sea.⁷ Within those countries are sixty million people whose livelihoods and food security are closely linked to the Mekong and its tributaries.⁸ The river's natural floods enrich soil for agriculture, which is the Lower Mekong Basin's single most important activity.⁹ Its fish constitute eighty percent of local protein consumption and are an important source of income, as the Mekong is the largest inland fishery in the world and the river's body is an important avenue for trade and tourism.¹⁰

The Mekong Basin is also "one of the richest areas of biodiversity in the world."¹¹ It is home to 20,000 plant species, 430 mammal species, 1,200 bird species, 800 reptile and amphibian species, and 850 fish species.¹² They all depend upon the Mekong River and the ecosystem it feeds.¹³

Recently, conflict between use of the Mekong River and its preservation has come to the political forefront due to a push for hydropower development on the river.¹⁴ Hydropower could generate a new source of revenue and energy security for the region.¹⁵ There are currently eleven dams planned along the mainstream of the Mekong, and more proposed along its tributaries.¹⁶ Proponents of these projects note that, in addition to generating renewable energy,

5. See *Rio Declaration*, *supra* note 3, at princ. 1 ("Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.").

6. *Mekong River*, BRITANNICA ONLINE, <http://www.britannica.com/EBchecked/topic/373560/Mekong-River> (last updated June 23, 2009).

7. *Id.*

8. MEKONG RIVER COMM'N, STATE OF THE BASIN REPORT 2010 SUMMARY 4 (2010), available at <http://www.mrcmekong.org/assets/Publications/basin-reports/MRC-SOB-Summary-reportEnglish.pdf>; *Mekong River Basin*, WWF GLOBAL, http://wwf.panda.org/what_we_do/footprint/water/dams_initiative/examples/mekong/ (last visited Feb. 19, 2013).

9. MEKONG RIVER COMM'N, *supra* note 8, at 5.

10. *Id.* at 5, 12; WWF GLOBAL, *supra* note 8 (noting that the Mekong's fisheries have a commercial value estimated at \$2 billion per year in US dollars); Paul Wyrwoll, *The Xayaburi Dam: Challenges of Transboundary Water Governance on the Mekong River*, GLOBAL WATER FORUM (Dec. 13, 2011), <http://www.globalwaterforum.org/2011/12/13/the-xayaburi-dam-challenges-of-regional-water-governance-on-the-mekong/>.

11. MEKONG RIVER COMM'N, *supra* note 8, at 17.

12. *Id.*

13. *Id.*

14. See Wyrwoll, *supra* note 10, at 1.

15. See *id.* at 1-2.

16. Jane Qiu, *A Damming Assessment of Mekong Development*, NATURE (Mar. 5, 2012), <http://www.nature.com/news/a-damming-assessment-of-mekong-development-1.10166>.

hydropower dams mitigate seasonal flooding and droughts by providing a measure of control over the river's flow.¹⁷ The dams also store water in the rainy season, and then release it during the dry season to alleviate water shortages.¹⁸

However, research has found significant negative consequences from the installation of hydropower dams.¹⁹ In the case of the Mekong, dams could prevent the migration of a large variety of the river's fish species, resulting in a substantial loss of fish production.²⁰ In addition to obvious intrinsic harm to the fish themselves, this could have "devastating consequences for food security in the region, particularly for subsistence communities."²¹ Moreover, dams limit nutrient-rich sediment flow.²² This reduces agricultural productivity for downstream communities, potentially denying the income and food derived from a successful harvest.²³

Nonetheless, hydropower installation appears to be moving forward. China already has two dams in operation on the Upper Mekong, with three more under construction and three more planned.²⁴ Laos has completed a 210-megawatt dam along a Lower Mekong tributary and has another 60-megawatt dam under construction.²⁵ The other Mekong states, Cambodia and Vietnam, are also considering or implementing hydropower development both along the river's mainstream and tributaries.²⁶ While these projects have great potential for economic development and improved social equity among the nation states of Southeast Asia, there also exists great potential for environmental degradation and dire consequences for subsistence communities.²⁷

B. INDIA AND THE NATIONAL RIVER LINKING PROJECT

The Ganges-Brahmaputra Basin—formed by two major international rivers—is the most heavily populated river basin in the world.²⁸ It supports a hu-

17. X.X. Lu & R. Y. Siew, *Water Discharge and Sediment Flux Changes in the Lower Mekong River*, HYDROLOGY & EARTH SYSTEM SCIENCES DISCUSSIONS 2287, 2290 (Nov. 9, 2005), available at <http://www.hydrol-earth-syst-sci-discuss.net/2/2287/2005/hessd-2-2287-2005-print.pdf>.

18. *Id.*

19. *Id.* at 2289 (providing a list of impacts arising from the installation of hydropower dams, including "modification of flow regimes both upstream and downstream, the trapping of sediment in reservoirs and disruption of sediment transport downstream, the reduction of biodiversity due to the flooding of habitat, isolation of animal populations and blocking of migration routes, and in estuarial areas, changes in downstream riparian vegetation and salt wedge dynamics.")

20. See Wyrwoll, *supra* note 10; Qiu, *supra* note 16; Jonathan Manthorpe, *Reassessment Call Doesn't Halt Mekong Dam Project*, VANCOUVER SUN, Mar. 5, 2012, at D3.

21. Wyrwoll, *supra* note 10.

22. Lu, *supra* note 17, at 2289.

23. Wyrwoll, *supra* note 10.

24. STEPHEN C. McCAFFREY, *THE LAW OF INTERNATIONAL WATERCOURSES* 286 (2d ed. 2007).

25. *Id.* at 287.

26. See Qiu, *supra* note 16.

27. See Manthorpe, *supra* note 20.

28. GUY ARNOLD, *WORLD STRATEGIC HIGHWAYS 227* (2000).

man population of 400 million, which results in a density of 1,000 people per square mile.²⁹ The Ganges River originates in the southern Himalayan Mountains and travels 2,510 km (1,560 miles) through four countries before emptying into the Bay of Bengal.³⁰ The Brahmaputra River covers a total of 2,900 km (1,800 miles).³¹ It originates in the Tibetan Highlands, first flowing east through China and then turning southwest through India and Bangladesh.

Conflicts over the harnessing of delta waters are prevalent in the Ganges-Brahmaputra basin, particularly between India and Bangladesh.³² These disputes are largely attributable to India's increasing demand for food for its growing population, which is estimated to reach 1.5 billion by 2050.³³ Meeting this demand would require enhanced irrigation of India's arid states.³⁴ Mathematically speaking, sufficient water may exist.³⁵ However, India would need to make a large inter-basin water transfer in order to use all 1,869 billion cubic meters of water that are available from the Brahmaputra River.³⁶

In 1982, India commissioned the development of an ambitious plan—the National River Linking Project—to reduce persistent water shortages in parts of India.³⁷ The plan calls for diverting “[fourteen] Himalayan tributaries of the Ganges and Brahmaputra rivers in northern India and Nepal” southward through a series of canals and pumping stations.³⁸ On February 27, 2012, India's Supreme Court ordered the implementation of this project “in a time-bound manner.”³⁹

However, according to environmentalists of Bangladesh, the project would cause “an ecological disaster.”⁴⁰ Bangladesh, India's downstream neighbor, would be particularly vulnerable to a reduction in flow and a subsequent in-

29. *Id.*

30. Paula Abrams, *River Ganges*, THE WATER PAGE, <http://www.africanwater.org/ganges.htm> (last visited Feb. 21, 2013).

31. ARNOLD, *supra* note 28, at 225.

32. *See id.*, at 226; *India's Supreme Court Orders River Links Project to Proceed*, BBC NEWS (Feb. 27, 2012, 07:38 ET), <http://www.bbc.co.uk/news/world-asia-india-17175827> [hereinafter *Supreme Court Orders*].

33. *Supreme Court Orders*, *supra* note 32.

34. Jyotsna Singh, *India's River Plans Spark Furore*, BBC NEWS (Aug. 19, 2003, 15:43 GMT, 16:43 UK), http://news.bbc.co.uk/2/hi/south_asia/3151809.stm.

35. *See* Pinaki Roy, *Issue Bilateral, Action Unilateral*, THE DAILY STAR (Mar. 1, 2012), <http://www.thedailystar.net/newDesign/news-details.php?nid=224514> (noting that with India's current water policy strategy, the country can only use 1,123 billion cubic meters of water out of 1,869 billion cubic meters available).

36. *Id.*

37. Denver Journal of Int'l Law and Policy Staff, *News Post: India's National River Linking Project*, THE VIEW FROM ABOVE (March 20, 2012), <http://djlplp.org/1860/news-post-indias-national-river-linking-project/>; *Supreme Court Orders*, *supra* note 32.

38. Fred Pearce, *Conflict Looms Over India's Colossal River Plan*, NEWS SCIENTIST (Feb. 27, 2003, 17:27), <http://www.newscientist.com/article/dn3435-conflict-looms-over-indias-colossal-river-plan.html>.

39. *Supreme Court Orders*, *supra* note 32.

40. *Id.*; *see also* *Environmentalists' Outcry About Indian River Linking Project*, THE DAILY STAR (Mar. 3, 2012), http://www.thedailystar.net/newDesign/latest_news.php?nid=36197 [hereinafter *Environmentalists' Outcry*] (discussing potential impact of the National River Linking Project on Bangladesh).

crease in water salinity.⁴¹ Bangladesh's agricultural and environmental interests largely depend on the Ganges and the Brahmaputra.⁴² Substantial alterations of these watercourses could, therefore, have devastating impacts on Bangladesh's environment, economy, and, consequently, its citizens.⁴³

Nonetheless, India appears shovel-ready to "redraw [its] hydrological map," and that of Bangladesh.⁴⁴ Despite assuring Bangladesh—once in 2005, again in 2006, and most recently in 2010—that it will make no unilateral decision on the project's implementation, India is already engaged in the process of building dams that would facilitate the River Linking Project.⁴⁵ Moreover, many of these dams already affect river flow into Bangladesh.⁴⁶

In conclusion, states within the Mekong and Ganges-Brahmaputra basins possess a need for development; one state to achieve financial and energy independence and the other to support a rapidly growing population. However, this need is counterbalanced by a potential for environmental and social disaster. The resulting question is whether it is possible to use natural resources for economic growth while preserving those resources for current and future generations.

II. THE PROPOSED SOLUTION: SUSTAINABLE DEVELOPMENT

The circumstances described in Part I are similarly taking place in two different parts of the world. The problem, however, is the same: conflict between a state's right to use natural resources for the betterment of its people, and the preservation of those resources for environmental and cultural interests. SD has taken center stage as a solution to this problem.⁴⁷ This section describes the roots of this concept, its ongoing maturation, and its place within the leading principles of international water law.

A. GENESIS OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT: A COMPROMISE ARISING FROM CONFLICT

SD was born from a conflict between developed states promoting environmental protection and developing states demanding opportunity for economic growth.⁴⁸ This conflict took center stage at the 1972 United Nations Conference on the Human Environment in Stockholm, Sweden ("Stockholm

41. *Environmentalists' Outcry*, *supra* note 40 (noting that Bangladesh gets two-thirds of its dry-season water from the Brahmaputra); Roy, *supra* note 35.

42. Roy, *supra* note 35.

43. *Id.* (noting that the dams and barrages have caused agricultural and environmental problems in Bangladesh and that continuing diversion would be disastrous for Bangladesh); see also Pearce, *supra* note 38 (stating that Bangladesh blames the barrage for dried-up fields, disease, and the salt poisoning in the Ganges delta).

44. Pearce, *supra* note 38.

45. *Environmentalists' Outcry*, *supra* note 40.

46. *Id.*

47. VED. P. NANDA & GEORGE (ROCK) PRING, *INTERNATIONAL LAW AND POLICY FOR THE 21ST CENTURY* 25 (2nd ed. 2013).

48. *Id.* at 26.

Conference").⁴⁹ Two chief concerns arose: (i) strict environmental regulation would deny developing southern nations their right to economic betterment; and (ii) unrestrained development would lead to environmental devastation and impinge upon others' rights to a healthy environment.⁵⁰ Through the Stockholm Declaration, particularly Principle 21,⁵¹ delegates at the convention moved toward compromise, thereby validating both environment and development simultaneously.⁵² The idea was, and continues to be, that there must be a balance between environmental considerations and development;⁵³ one should not exist at the exclusion of the other. A compromise between interests is required. SD was born as the conceptual embodiment of this compromise.⁵⁴

To visualize this compromise, imagine SD as a balance with environmental interests on one side, and development interests on the other. Strictly harmonizing environment and development remains an ethical dilemma.⁵⁵ Thus, we must imagine this balance containing a fulcrum representing the purveying public opinion.

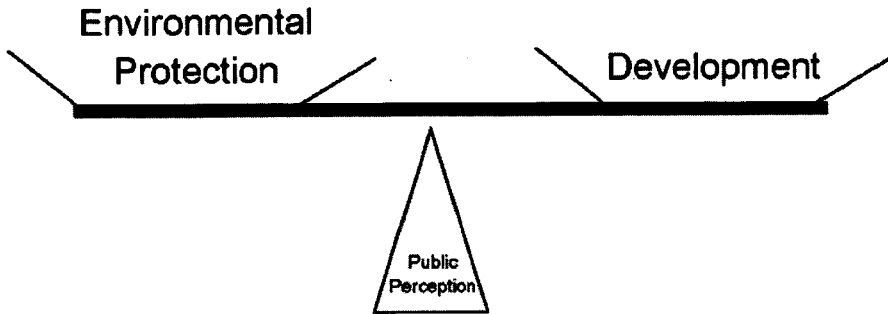


Figure 1: Neutral Fulcrum

Changes in public opinion can and do shift the fulcrum between interests, thereby shifting the weight of each interest's influence over government ac-

49. *Id.*; Shawkat Alam, *An Examination of the International Environmental Law Governing the Proposed Indian River-Linking Project and an Appraisal of Its Ecological and Socio-Economic Implications for Lower Riparian Countries*, 19 *GEO. INT'L ENVTL. L. REV.* 209, 218 (2007) (describing the Stockholm Conference as the birthplace of SD).

50. NANDA, *supra* note 47, at 26, 32; Alam, *supra* note 49, at 218.

51. Principle 21 of the Stockholm Declaration provides:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

United Nations Conference on the Human Environment, Stockholm, Swed., June 5-16, 1972, *Report of the United Nations Conference on the Human Environment*, U.N. Doc. A/CONF. 48/14/Rev. 1.

52. NANDA, *supra* note 47, at 26; *see also* Gabcikovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 7, 92 (separate opinion of Judge Weeramantry).

53. Gabcikovo-Nagymaros Project, 1997 I.C.J. at 92.

54. *Id.* at 88 (recognizing SD as the principle enabling the I.C.J. to balance between environmental and development considerations).

55. *See, e.g.*, Pearce, *supra* note 38.

tions.⁵⁶ For example, if public opinion favored economic betterment of impoverished countries, a compromise may involve less strict environmental regulation. Alternatively, if public opinion favored environmental protection, stricter regulations may be demanded to ensure a development project either minimally impacts local ecosystems or does not proceed. At the conclusion of the Stockholm Conference, the balance was weighted towards environmental protection.⁵⁷

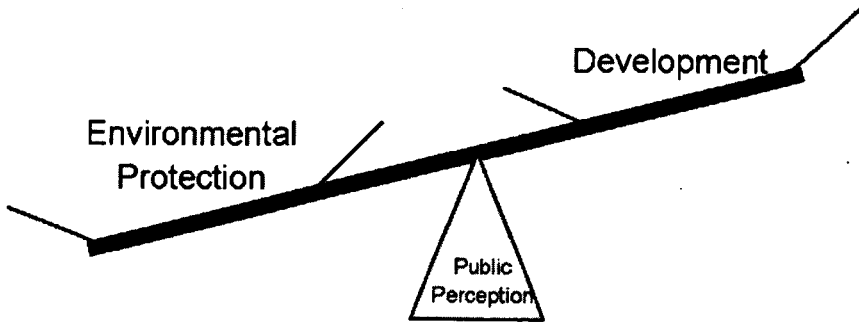


Figure 2: Balance Following the 1972 Stockholm Conference

B. DEFINING A SINGLE TERM TO REPRESENT COMPETING INTERESTS

The term “sustainable development,” representing the need for compromise between environment and development, was first applied in 1980 by the International Union for the Conservation of Nature and Natural Resources.⁵⁸ It has since been incorporated in multilateral treaties, international declarations, foundation and planning documents of international and regional organizations, and other sources.⁵⁹

As a consequence of this term’s recognition, “development,” as the phrase’s noun, often became the focus of discussion, while environmental and social concerns were relegated to the word “sustainable,” a descriptive adjective that merely modifies the main subject of “development.” This linguistically shifted the balance of interests toward development, and away from the stance taken at the Stockholm Conference.

56. *Id.*

57. NANDA, *supra* note 47, at 26.

58. *Id.* at 27 (noting that the term first appeared in the IUCN’s 1980 report).

59. Gabcikovo-Nagymaros Project, 1997 I.C.J. at 92.

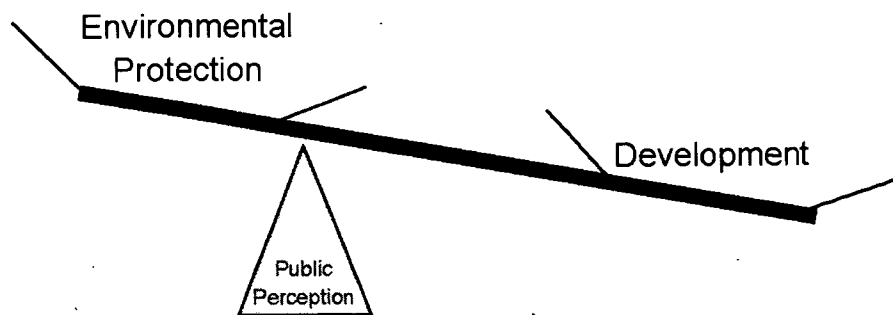


Figure 3: Balance Shift Resulting from Adopting “Sustainable Development” as the Representative Term

While the term has become representative of the concept, a singular and consistent definition for SD does not exist.⁶⁰ The most widely recognized and oft-quoted definition comes from the 1987 Brundlandt Report⁶¹: “[D]evelopment that meets the needs of the present without compromising the ability of future generations to meet their own needs.”⁶² This definition created a consistently applied intergenerational requirement: both present and future harm may restrict development.⁶³ However, commentators have argued the definition “seems excessively development-focused, without explicit concern for protecting environmental systems.”⁶⁴

Perhaps in response to this limited perspective, subsequent efforts at defining SD have attempted to incorporate development and environment concerns *equally*, while also incorporating social concerns.⁶⁵ For instance, the International Law Association (“ILA”) has expressed SD’s objective as:

[A] comprehensive and integrated approach to economic, social and political processes, which aims at the sustainable use of natural resources of the Earth and the protection of the environment on which nature and human life as well as social and economic development depend . . . with due regard to the needs and interests of future generations.⁶⁶

Alternatively, the Australian government modified the term to “*ecologically* sustainable development,” and defined it as “development that improves the

60. Kates et al., *supra* note 1, at 10-11.

61. *Id.*; see also ANTIONETTE HILDERING, INTERNATIONAL LAW, SUSTAINABLE DEVELOPMENT, AND WATER MANAGEMENT 9 (2004).

62. World Comm’n on Env’t & Dev., *Our Common Future*, ch. 2, pt. IV, ¶ 1, U.N. Doc. A/42/427 (Annex) (1987).

63. John C. Dernbach, *Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking*, 10 IND. J. GLOBAL LEGAL STUD. 247, 272-73 (2003); see also HILDERING, *supra* note 61, at 91-92.

64. NANDA, *supra* note 47, at 27-28; see also HILDERING, *supra* note 61, at 9.

65. See HILDERING, *supra* note 61, at 9-10.

66. Int’l Law Ass’n, 70th Conference of the International Law Association, Apr. 2-6, 2002, *New Delhi Declaration of Principles of International Law Relating to Sustainable Development*, p. 212, U.N. Doc. A/CONF.199/8 (Aug. 9, 2002).

total quality of life both now and in the future, in a way that maintains the ecological processes on which life depends.⁶⁷ Such definitions would move our balance's fulcrum to a more neutral position. It is, however, uncertain whether this or other definitions will obtain universal application. Rather, a singular, consistent definition remains elusive.⁶⁸

C. RECOGNIZING SUSTAINABLE DEVELOPMENT'S PILLARS

For freshwater development to meet present needs without compromising those of future generations, developers must analyze social, economic, and environmental considerations.⁶⁹ These considerations are widely recognized as the pillars of sustainable development.⁷⁰ Recognition of these pillars has provided structure to an amorphous concept, while also formally broadening the concept to include social concerns.⁷¹ There remain, however, drastically different perceptions on how these pillars interrelate.⁷² Moreover, there is no universal agreement as to the details characterizing each pillar.⁷³

Nonetheless, key concepts pertaining to international watercourses can be associated with each of the pillars.⁷⁴ For instance, ensuring current and future *access to water* is essential to social equity.⁷⁵ Conceding societal *control over water* as an *economic resource* is important to economic vitality.⁷⁶ Lastly, providing for sustained *protection* of a watercourse is essential to maintain environmental integrity.⁷⁷

SD's pillars, however, are ultimately interdependent and self-reinforcing.⁷⁸ Thus, the challenge for SD's successful application is not limited to addressing each pillar individually, but includes balancing the pillars simultaneously. Just as certain concepts illustrate individual pillars, scholar Antionette Hildering suggests overarching mindsets may facilitate their integration.⁷⁹ For instance, the integration of the economic and social pillars may be more easily achieved

67. Ben Boer, *Institutionalising Ecologically Sustainable Development: The Roles of National, State, and Local Governments in Translating Grand Strategy into Action*, 31 WILLAMETTE L. REV. 307, 318 (1995) (emphasis added); see also NANDA, *supra* note 47, at 28.

68. Kates et al., *supra* note 1, at 10-13, 16-17.

69. HILDERING, *supra* note 61, at 143 ("[W]here trade-offs present a bias toward either social, economic, or ecological interest, they may obstruct the achievement of sustainable development and in the long-term cannot lead to intra- or intergenerational equity."); see also, NANDA, *supra* note 47, at 301-02.

70. Kates et al., *supra* note 1, at 12.

71. *Id.* at 11-12.

72. See Mann, *supra* note 2 (displaying various ways in which SD's pillars are interrelated).

73. Kates et al., *supra* note 1, at 12.

74. HILDERING, *supra* note 61, at 171.

75. *Id.* at 172; see also Sharon Beder, *Costing the Earth: Equity, Sustainable Development and Environmental Economics*, 4 N. Z. J. ENVTL. L., 227, 228-29 (2000), available at <http://www.uow.edu.au/~sharonb/esd/equity.html>.

76. HILDERING, *supra* note 61, at 172-73.

77. *Id.* at 173.

78. WORLD HEALTH ORG., JOHANNESBURG DECLARATION ON HEALTH AND SUSTAINABLE DEVELOPMENT 3 (2002), available at http://www.who.int/mediacentre/events/HSD_Plaq_02.8_def1.pdf.

79. See HILDERING, *supra* note 61, at 169-88.

by conceptualizing watercourse development as a mechanism for social and economic stability, whose pursuit may improve equity among states.⁸⁰ The social and environmental pillars may be better integrated by viewing water as the foundation for social and individual life, worthy of vigilant protection.⁸¹ The environmental and economic pillars may be better integrated by embracing water's intrinsic and economic value, the preservation of which requires a holistic approach.⁸² Lastly, and most significantly, the integration of all three principles requires compromise: accepting limitations in human rights, qualifications to state sovereignty, and restrictions inherent in equitable and reasonable use.⁸³

D. MERGING THE CONCEPT WITH INTERNATIONAL WATER LAW

With the proper framework described above, SD may yet provide a viable compromise between a watercourse's development potential and its environmental stability. However, realization of a successful compromise requires enforcement, and enforcement requires legal authority. Thus, an initial assessment of SD's role in international watercourse development faces the question of whether SD has been incorporated within guiding principles of international water law.⁸⁴

1. Equitable and Reasonable Use

The principle of equitable and reasonable use ("ERU") is "the basic rule of international law for the transboundary use and development of waters."⁸⁵ The principle entitles each basin state "to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin."⁸⁶ However,

80. *See id.* at 173-74.

81. *See id.* at 174.

82. *See id.* at 174-75.

83. *See id.* at 175.

84. As of March 2012, it appears safe to assume SD itself is not yet customary international law. In the 1997 International Court of Justice Gabcikovo-Nagymaros case, Vice-President Weeramantry provided a separate opinion asserting his belief that SD had, in fact, become customary international law. Gabcikovo-Nagymaros Project (Hung./Slov.) 1997 I.C.J. 7, 88-119 (Sept. 25) (separate opinion of Vice-President Weeramantry). However, the majority limited its endorsement to recognizing SD as a principle with emerging significance. *See id.* ¶ 140. Moreover, the majority's holding disregarded SD's intergenerational requirement by requiring an imminent threat to the environment before the halting of a development contract could be justified. *Id.* ¶ 52.

85. Berlin Conference on Water Resources Law, Berlin, Ger., *Preface to The Berlin Rules on Water Resources*, 71 Int'l L. Ass'n Rep. Conf. 334 (Annex IV) (2004), available at http://www.unece.org/fileadmin/DAM/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_IV_Berlin_Rules_on_Water_Resources_ILA.pdf [hereinafter *Berlin Rules*]; see also MCCAFFREY, *supra* note 24, at 404.

86. Int'l Law Ass'n, Fifty-Second Conference, Helsinki, Fin., August 1966, *The Helsinki Rules on the Uses of the Waters of International Rivers*, art. 4 (1967), available at http://www.mpil.de/shared/data/pdf/pdf/8helsinki_rules_on_the_waters_of_international_rivers_ila.pdf [hereinafter *Helsinki Rules*].

such use is subject to the interests of other watercourse states, "consistent with adequate protection of the watercourse."⁸⁷

Determination of equitable and reasonable shares between states requires consideration of all relevant factors, *taken as a whole*.⁸⁸ The 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses ("1997 United Nations Convention") identifies these factors as:

- (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
- (b) The social and economic needs of the watercourse States concerned;
- (c) The population dependent on the watercourse in each watercourse State;
- (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;
- (e) Existing and potential uses of the watercourse;
- (f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect; and
- (g) The availability of alternatives, of comparable value, to a particular planned or existing use.⁸⁹

The pillars of SD are upheld by the principle of ERU in several ways. First, equitable *access to resources* is a key component of SD's social pillar.⁹⁰ ERU, as prescribed in the 1997 United Nations Convention, supports such equity by promoting needs-based access and allocation to water for individuals and states alike.⁹¹ This is accomplished in two ways: (i) by giving "special regard" to "vital human needs" whenever a conflict arises regarding equitable and reasonable use of a watercourse;⁹² and (ii) by factoring in "social and economic needs" of the riparian states when determining trans-boundary allocations.⁹³

87. U.N. Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 5, 36 I.L.M. 700 (1997), *available at* http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf [hereinafter 1997 UN Convention]; *see also* Pulp Mills on the River Uruguay (Arg. v. Uru.), 2010 I.C.J. 135, ¶ 177 (Apr. 20).

88. 1997 UN Convention, *supra* note 87, at art. 6; *see also* Berlin Rules, *supra* note 85, at art. 13; Helsinki Rules, *supra* note 86, at art. 4; Gabčíkovo-Nagymaros Project (Hung./Slovk.), 1997 I.C.J. 7, 142-52 (Sept. 25) (separate opinion of Judge Koroma).

89. 1997 UN Convention, *supra* note 87, at art. 6. The factors identified in the Helsinki Rules and Berlin Rules are substantially similar. *See* Berlin Rules, *supra* note 85, at art. 21; Helsinki Rules, *supra* note 86, at art. V.

90. HILDERING, *supra* note 61, at 172.

91. 1997 UN Convention, *supra* note 87, at art. 10.

92. *Id.*

93. *Id.* at art. 6.

Further, the right to use water as an *economic resource* is an essential theme to SD's economic pillar.⁹⁴ ERU embraces this right by including water's economic potential—both as an entity and as a source for other profit-generating activities—as a factor in apportionment between states.⁹⁵ For example, in *Gabcikovo-Nagymaros*, the International Court of Justice (“ICJ”) noted a state's right to an equitable and reasonable share of a watercourse “included not only the water itself, but also such benefits as electric power . . . fisheries, and recreation.”⁹⁶

Lastly, environmental *protection* is necessary to the stability of SD's environmental pillar.⁹⁷ ERU, as interpreted by the ICJ, promotes environmental *protection*⁹⁸ by obligating its consideration when assessing whether a use is equitable and reasonable.⁹⁹ For instance, in *Pulp Mills on the River Uruguay*, the ICJ held that “utilization could not be considered to be equitable and reasonable if . . . the environmental protection of the [other riparian State was] not taken into account.”¹⁰⁰

2. No Significant Harm

A state has the right to exploit natural resources within its territorial boundaries “pursuant to [its] own environmental and developmental policies.”¹⁰¹ However, this right is qualified by an obligation to cause *no significant harm* to neighboring states.¹⁰² For application to international watercourses, the 1997 United Nations Convention provides:

1. Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States.
2. Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.¹⁰³

Thus, a state is under the obligation to take *all appropriate measures* to prevent *significant harm* to a neighboring state's *equitable and reasonable use* of a shared watercourse.¹⁰⁴ This principle, referred to as the “no-harm” or “no

94. HILDERING, *supra* note 61, at 172-73.

95. MCCAFFREY, *supra* note 24, at 216.

96. *Id.*

97. HILDERING, *supra* note 61, at 173.

98. *Pulp Mills on the River Uruguay* (Arg. v. Uru.), 2010 I.C.J. 135, ¶ 177 (Apr. 20).

99. *Id.*

100. *Id.*

101. *Rio Declaration*, *supra* note 3, at princ. 2.

102. *Id.*; 1997 UN Convention, *supra* note 87, at art. 7.

103. 1997 UN Convention, *supra* note 87, at art 7.

104. *Id.*; MCCAFFREY, *supra* note 24, at 216.

significant harm” principle (“NSH”),¹⁰⁵ also successfully integrates the pillars of sustainable development in several ways.

First, NSH fosters amicable relationships between states sharing a common watercourse by proscribing irresponsible use. Exploitation resulting in *significant* harm to a neighbor’s equitable and reasonable use would be irresponsible; it leads to hostility between neighbors and degradation of the common resource.¹⁰⁶ Thus, a state may harness the economic potential of a watercourse within its boundaries, but it must not ignore the interests of its neighbors. This represents the integration of SD’s economic and social pillars.¹⁰⁷

Further, by requiring the taking of *all appropriate measures* when a threat of significant harm arises, NSH acknowledges a neighbor’s right to a healthy environment while providing an avenue for eco-justice. It does this by requiring completion of an environmental impact assessment, a requirement now cited as customary international law by the ICJ.¹⁰⁸ While the standards of such assessments are currently flexible,¹⁰⁹ the exercise opens the door to precaution whenever development presents potential for significant harm to the environment. NSH thereby integrates SD’s social and environmental pillars by providing an avenue for protection of an ecosystem’s anthropocentric and intrinsic value.¹¹⁰

Lastly, by subjecting one state’s watercourse development to another state’s *equitable and reasonable use*, the NSH principle promotes a “common heritage” approach to watercourse development.¹¹¹ Under a common heritage regime, all states that cooperatively manage a common resource share in the rewards of its exploitation.¹¹² That is, if all watercourse states share in managing freshwater basins, greater benefits are realized from collective watercourse maintenance and sustainable exploitation. This allows for the integration of SD’s environmental and economic pillars.¹¹³

3. Obligation to Cooperate

Where a shared, limited resource exists, conflicts often arise in which individual parties feel a need to optimize their use of that resource and act on their own independent and rational self-interest.¹¹⁴ This unrestrained use is ultimately at the expense of the other parties and the resource itself.¹¹⁵ However, mitigating such a “tragedy of the commons” through open communication,

105. See 1997 UN Convention, *supra* note 87, at art. 7; HILDERING, *supra* note 61, at 161.

106. See *supra* sections I(A), (B).

107. HILDERING, *supra* note 61, at 173-74.

108. Pulp Mills on the River Uruguay (Arg. v. Uru.), 2010 I.C.J. 135, ¶ 204 (Apr. 20).

109. See *id.* at ¶ 205.

110. See HILDERING, *supra* note 61, at 173-74.

111. See John E. Noyes, *The Common Heritage of Mankind: Past, Present, and Future*, 40 DENV. J. INT’L L. & POL’Y 447, 447-60 (2012).

112. *Id.* at 447.

113. See HILDERING, *supra* note 61, at 174-75.

114. See Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243, 1244-45 (1968).

115. See *id.*

and most importantly *cooperation*, is possible.¹¹⁶ Through the cooperative management and development of the resource (taking into consideration the principles of ERU and NSH as described above), interested parties may maximize their mutual benefits from the resource and avoid destruction of the resource for future generations.¹¹⁷

With respect to international watercourses, states are now embracing cooperation as an obligation.¹¹⁸ The 1997 United Nations Convention states: “[w]atercourse States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection of an international watercourse.”¹¹⁹ Riparian states sharing a common watercourse may proactively facilitate this requirement by creating joint commissions or mechanisms.¹²⁰ These commissions, generally created by treaty,¹²¹ provide guidance as to watercourse development and coordinate interests of the participating watercourse states.¹²² The commission may consist entirely of representatives from participating states, or may include representatives from non-participating states or institutions.¹²³ A commission’s goal is to coordinate the *equitable and reasonable use* of the participating riparian states.¹²⁴ Ingrained within this purpose is the requirement of compromise.

Alternatively, the obligation to cooperate, taken in conjunction with the obligation to notify, may be triggered by the risk of significant environmental harm accompanying development.¹²⁵ In such cases, a state is required to notify neighbors facing potential adverse harm and consult with them in good faith.¹²⁶ The goal is for states to cooperate at “an early stage” before one state’s actions cause *significant harm* to another.¹²⁷ This also requires compromise on the part of all interested parties; a state may not blindly and irresponsibly use a shared resource without first being cognizant and responsive to the other riparian states’ interests.

Compromise is therefore ingrained within the concept of cooperation, whether facilitated preemptively through establishment of a watercourse com-

116. See *id.* at 1245-48.

117. See MCCAFFREY, *supra* note 24, at 465-66.

118. See *id.* at 471.

119. 1997 UN Convention, *supra* note 87, at art. 8, para. 1.

120. *Id.* at art. 8, para. 2.

121. See, e.g., Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, art. 11, Apr. 5, 1995, 2069 U.N.T.S. 3 [hereinafter Mekong Agreement], available at <http://www.mrcmekong.org/assets/Publications/agreements/agreement-Apr95.pdf>.

122. 1997 UN Convention, *supra* note 87, at art. 8.

123. See, e.g., MCCAFFREY, *supra* note 24, at 287 (discussing that while the Mekong River Commission is composed of participating states, China and Myanmar—non-participants—have been invited to participate in the commission as observers).

124. *Id.* at 465-66.

125. See *Rio Declaration*, *supra* note 3, at princ. 19 (“States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect.”); 1997 UN Convention, *supra* note 87, at art. 12.

126. 1997 UN Convention, *supra* note 87, at art. 12.

127. *Rio Declaration*, *supra* note 3, at princ. 19.

mission, or in response to the risk of an impending threat arising from development. For this reason, cooperation provides for the integration of all three pillars of sustainable development: economic, environmental, and social. As such, cooperation is essential to maximizing a watercourse's economic and social potential while protecting its environmental integrity for future use and appreciation.

In summary, SD has been successfully incorporated within the guiding principles of international water law. SD pillars, upheld by ERU and integrated under NSH, ultimately coalesce through cooperation. With the legal framework arguably in place, it is now possible to assess SD's integration within watercourse treaties and subsequent application to watercourse development.

III. CASE STUDIES

Whether SD can halt human degradation of watercourses, while simultaneously allowing opportunity for economic development, may largely depend on its incorporation into watercourse treaties. The goal is to move from guiding principles to legal duties, ultimately progressing toward binding obligations for balancing economic viability, social equity, and environmental integrity. Such treaties must also be followed by enforcement. This section turns to two case studies to explore whether parties incorporate SD within water treaties, and whether the parties then enforce the resulting obligations.

A. MEKONG RIVER BASIN

As described earlier, many basin states along the Mekong River are currently exploring proposals for the expansion of hydropower.¹²⁸ The potential for energy independence and a new source of revenue provide the impetus for these proposals.¹²⁹ However, concern over threats to ecosystem stability and potential harm to subsistence communities, both in terms of lost income from agriculture and aquaculture, as well as food security, has generated protests against further development.¹³⁰ The debate centers on two issues: (i) whether the basin has an adequate legal framework to ensure the sustainable development of the Mekong rather than its unrestrained exploitation; and (ii) whether such a framework is enforced.¹³¹

1. Legal Infrastructure: The Mekong Agreement

Countries along the Mekong River Basin have put together a modern watercourse treaty that applies to all proposed uses of the "waters of the Mekong River system."¹³² This document, referred to as the Agreement on the Cooper-

128. See, e.g., Qiu, *supra* note 16.

129. See *id.*

130. See, e.g., Jane Qiu, *Conservationists Protest Mekong Dam*, NATURE NEWS (Apr. 8, 2011), <http://www.nature.com/news/2011/110408/full/news.2011.220.html>.

131. 'MEKONG LEGAL ADVOCACY INST., MEKONG RIVER DAMS 2 (2009), available at http://www.earthrights.org/sites/default/files/publications/Mekong-River-Dams-MLAI_0.pdf.

132. See, e.g., Mekong Agreement, *supra* note 120, at art. 2.

ation for the Sustainable Development of the Mekong River Basin (“Mekong Agreement”),¹³³ is the basin’s primary international treaty,¹³⁴ and has been ratified by all Mekong Basin states, with the notable exceptions of China and Myanmar.¹³⁵

The Mekong Agreement incorporates many of the guiding principles adopted by the 1997 United Nations Convention, including ERU, NSH, and cooperation.¹³⁶ With respect to ERU, Article V of the Mekong Agreement requires all watercourse states to use the river system in a reasonable and equitable manner in their respective territories.¹³⁷ The “Joint Committee,” a branch of the Mekong River Commission (“MRC”),¹³⁸ determines what constitutes an equitable and reasonable use “pursuant to all relevant factors and circumstances.”¹³⁹ With respect to NSH, Article VII of the Mekong Agreement obligates participating states to “make *every effort* to avoid, minimize and mitigate *harmful effects* that might occur to the environment.”¹⁴⁰ This incorporates even broader environmental protection than that afforded under the 1997 United Nations Convention.

First, the Mekong Agreement calls for “every effort,” while the 1997 United Nations Convention demands only “appropriate measures.”¹⁴¹ Second, the Mekong Agreement applies to all “harmful effects,” while the Convention’s requirements apply only to “significant harm.”¹⁴² As such, the standard of care applicable to the Mekong River under the Mekong Agreement is stricter than under the 1997 United Nations Convention. Lastly, with respect to cooperation, Article I of the Mekong Agreement obligates states to “cooperate in all fields of sustainable development, utilization, management and conservation” so as to “optimize multiple-use and mutual benefits” while minimizing harmful effects to the Mekong River Basin.¹⁴³ The treaty established the MRC to facilitate this cooperation, and thereby implement the treaty principles governing the use and development of the river.¹⁴⁴

133. *Id.*

134. *The Water Page*, WATER POLICY INT’L, http://www.africanwater.org/mekong_river.htm (last visited Feb. 26, 2013).

135. MCCAFFREY, *supra* note 24, at 286 (the agreement was ratified by Cambodia, Laos, Thailand, and Vietnam).

136. *Id.* at 376-77

137. Mekong Agreement, *supra* note 120, at art. 5.

138. *See id.*; 1997 UN Convention, *supra* note 87, at art. 8.

139. Mekong Agreement, *supra* note 120, at art. 5.

140. *Id.* at art. 7.

141. Mekong Agreement, *supra* note 120, at art. 7; 1997 UN Convention, *supra* note 87, at art. 7.

142. Mekong Agreement, *supra* note 120, at art. 7; 1997 UN Convention, *supra* note 87, at art. 7.

143. Mekong Agreement, *supra* note 120, at art. 1.

144. MCCAFFREY, *supra* note 24, at 285.

2. Enforcement: Application of Sustainable Development to the Mekong River Basin

The Mekong Agreement thus sets in place all of the emerging guidelines for international water law: ERU, NSH, and cooperation, in particular.¹⁴⁵ However, SD's goal of balancing economic development, social equity, and environmental integrity does not appear to be working. While development is on the rise, environmental protection appears to be failing.¹⁴⁶ Moreover, hydropower development may increase rather than alleviate social inequality, both within and among basin states.¹⁴⁷

The most likely roadblock to a sustainable resolution to the tension between development on the one hand, and environmental integrity and social inequality on the other, is inadequate cooperation. The first issue is that the Mekong Agreement does not currently bind all of the watercourse's states.¹⁴⁸ China, for instance, is a state along the Mekong, but it is not a party to the Mekong Agreement.¹⁴⁹ The country has been invited to participate in the Mekong River Commission ("MRC") as an "observer," and does "provide hydrological data and information to the four Lower Basin countries."¹⁵⁰ However, China has already developed two functioning dams on the Upper Mekong, with three more in construction and three more in planning—in so doing, China did not have to formally cooperate as prescribed under the Mekong Agreement.¹⁵¹ China's unrestricted development of hydropower, therefore, implies unequal access to the watercourse's benefits, which causes SD's social pillar to collapse. An adequate compromise between development and environmental protection cannot be realized without social equity.

The second issue is confusion over whether the Mekong Agreement pertains to development along the Mekong River's tributaries. Some claim that while the MRC regulates dams in the mainstream, individual states regulate

145. Mekong Agreement, *supra* note 120, at arts. 1, 5, 7.

146. INT'L CENTRE FOR ENVTL. MGMT., STRATEGIC ENVIRONMENTAL ASSESSMENT OF HYDROPOWER ON THE MEKONG MAINSTREAM: SUMMARY OF THE FINAL REPORT 12-14 (2010), available at <http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-FR-summary-13oct.pdf> (noting that mainstream hydropower generation projects "would have a negative impact on ecosystems of international importance . . . and [on] a number of globally endangered species likely leading to their extinction").

147. See *id.* at 10-11 ("[M]ainstream hydropower generation projects would contribute to a growing inequality in the LMB countries.").

148. See GOOD PRACTICES & PORTFOLIO LEARNING IN GEF TRANSBOUNDARY FRESHWATER & MARINE LEGAL & INSTL. FRAMEWORKS PROJECT, IN-DEPTH CASE STUDY FOR THE MEKONG RIVER BASIN: THE 1995 AGREEMENT ON THE COOPERATION FOR SUSTAINABLE DEVELOPMENT OF THE MEKONG RIVER BASIN SYSTEM 1 (2012), available at <http://governance-ivlearn.org/wp-content/uploads/2012/06/Mekong.pdf>.

149. *Id.* at 1-2.

150. MCCAFFREY, *supra* note 24, at 287.

151. X. X. Lu & R. Y. Siew, *Water Discharge and Sediment Flux Changes Over the Past Decades in the Lower Mekong River: Possible Impacts of the Chinese Dams*, 10 HYDROLOGY & EARTH SYS. SCIS. 181, 183 (2006), available at <http://www.hydrol-earth-syst-sci.net/10/181/2006/hess-10-181-2006.pdf>.

dam development along the tributaries.¹⁵² As such, states only need to notify the commission, rather than seek its approval when developing along a tributary.¹⁵³ States are thereby provided an opportunity to disregard the obligation to cooperate with their riparian neighbors.¹⁵⁴ The result is that “[r]iparian countries are developing different parts of the river basin independently,” which allows for the mismanagement of the overall watercourse that will result in “severe transboundary environmental problems, which could disrupt or result in the loss of livelihoods of people living in the Mekong.”¹⁵⁵

The Mekong Agreement is impressive in its incorporation of the guiding principles of international water law. However, the implementation of those guidelines—and thereby the integration of SD’s pillars—will only be possible through improved cooperation. This may require the inclusion of China as a party bound to the overall agreement, and explicit inclusion of tributaries to allow for management of the watercourse as a whole.

B. INDIA’S NATIONAL RIVER LINKING PROJECT

As described earlier, India is planning a massive diversion project whereby water from tributaries to the Ganges and Brahmaputra would be pumped to its arid south.¹⁵⁶ The hope is that this diversion, known as the National River Linking Project,¹⁵⁷ would provide the water needed to improve agriculture and thereby alleviate food shortages for its growing population.¹⁵⁸ The problem, as with any diversion, is the project poses consequences for Bangladesh and its downstream environment.¹⁵⁹ The issues are similar to those faced in the Mekong case study: (i) whether there exists any legal framework protecting the sustainable development of the Ganges-Brahmaputra Basin; and (ii) whether this framework—like that for the Mekong—is being enforced.

1. Legal Infrastructure: The Farakka Agreement¹⁶⁰

Conflict over the Ganges River between India and Bangladesh dates back to India’s decision to construct the Farakka barrage in 1951.¹⁶¹ The barrage,

152. Stephen Tung, *Stanford Computer Models Show that Small Dams on Mekong River Tributaries Could Have Catastrophic Impact on Fish and People*, STANFORD REPORT (Mar. 28, 2012), <http://news.stanford.edu/news/2012/march/mekong-river-dams-032812.html>.

153. *Id.*

154. *See id.*

155. Lu, *supra* note 17, at 2288.

156. Pearce, *supra* note 38.

157. Upali Amarasinghe, *The National River Linking Project of India: Some Contentious Issues*, INT’L WATER MGMT. INST., at 2 (2012), http://www.iwmi.cgiar.org/iwmidata/pdfs/2012_Highlight-16.pdf

158. *See id.*

159. Jyotsna Singh, *India’s River Plans Spark Furore*, BBC NEWS (Aug. 19, 2003), http://news.bbc.co.uk/2/hi/south_asia/3151809.stm.

160. A legal infrastructure supporting the sustainable development of the Ganges-Brahmaputra Basin will most likely stem from agreements between India and Bangladesh over flow from the Ganges River. This section therefore focuses on agreements pertaining to the Ganges.

constructed where the Ganges meets the Hooghly River, was constructed to maintain the Hooghly's navigability, and to ensure saline-free water for Kolkata City.¹⁶² Opponents of its construction were concerned over implications to Bangladesh resulting from a reduction in dry season flow.¹⁶³ The subsequent debate over sharing the Ganges water resulted in the formation of the Indo-Bangladesh Joint River Commission (1972);¹⁶⁴ the signing of the first Ganges Water Agreement (1977);¹⁶⁵ two Memorandums of Understanding establishing temporary Ganges sharing agreements (1983 and 1985);¹⁶⁶ and ultimately, the 1996 Agreement on the Sharing of the Ganges Waters At Farakka ("Farakka Agreement").¹⁶⁷ The Farakka Agreement is still in effect.¹⁶⁸

The Farakka Agreement—which expressly "take[s] only limited account" of emerging principles of international water law—focuses on Ganges water allocation between India and Bangladesh at the Farakka Barrage.¹⁶⁹ With respect to ERU, Article Two of the Farakka Agreement establishes a system of apportionment dependent upon the Ganges flow during the dry season.¹⁷⁰ When the flow exceeds 50,000 cubic feet per second ("cusecs"), the allotments are roughly equal.¹⁷¹ If the Ganges flow drops below 50,000 cusecs for a period of ten days, the countries are directed to consult regarding emergency adjustments based upon "the principles of equity, fair play and no harm to either party."¹⁷² However, it is not clear whether "equity, fair play and no harm" encompass economic, social, and environmental interests when determining apportionment.¹⁷³ Because apportionment does not expressly provide for a balancing of interests, it seems a stretch to equate this with the principle of equitable and reasonable use.

With respect to NSH, the Farakka Agreement requires emergency allotments, adjustments in the apportionment formula, and that future sharing agreements pertaining to other rivers include avoiding "harm to either party" as a factor for consideration.¹⁷⁴ Thus, future decisions as to the volume of water apportioned to each state should not cause "harm" to either party. However, it

161. Muhammad Mizanur Rahaman, *The Ganges Water Conflict: A Comparative Analysis of 1977 Agreement and 1996 Treaty*, INT'L WATER LAW PROJECT, at 196 (2006), <http://www.internationalwaterlaw.org/bibliography/articles/general/Rahaman-Ganges-Asteriskos.pdf>.

162. *Id.* at 197.

163. *Id.*

164. Statute of the Indo-Bangladesh Joint Rivers Commission, India-Bangl., art. 1, Nov. 24, 1972, available at <http://www.internationalwaterlaw.org/documents/regionaldocs/indo-bangladesh.html>.

165. Rahaman, *supra* note 160.

166. *Id.*

167. *Id.* at 200.

168. *Id.*

169. Treaty on Sharing of the Ganges Waters at Farakka, India-Bangl., Dec 12, 1996, 36 I.L.M. 519.

170. *Id.* at art. 2 (overall it appears the allotments are roughly equal).

171. *See id.* at annex. I.

172. *Id.* at art. 2, para. 3.

173. *See id.*

174. *Id.* at arts. 2, 9, 10.

is not clear what constitutes "harm." The only clarification is provided in the preamble, which requires the parties seek "optimum utili[z]ation . . . in the fields of flood management, irrigation, river basin development and generation of hydro-power for the mutual benefit of the peoples of the two countries."¹⁷⁵ It does not address harm stemming from water "use" resulting in environmental damage (for example, pollution).¹⁷⁶ Because the Farakka Agreement fails to integrate environmental stability with either economic or social interests, it fails to incorporate the principle of NSH.

The Farakka Agreement seemingly provides for cooperation by establishing a Joint Committee "consisting of representatives nominated by the two Governments in equal numbers."¹⁷⁷ However, the primary function of this committee is limited to the recording and reporting of flows.¹⁷⁸ While the formation of a commission to manage Ganges flow is a symbolic step in the right direction, it is toothless without authority to enforce a compromise of interests, including environmental interests, between the riparian states.¹⁷⁹ As such, the Farakka Agreement also fails to incorporate cooperation as envisioned under customary international law.¹⁸⁰

While the Farakka Agreement seemingly provides the best opportunity to ensure the sustainable development of the Ganges-Brahmaputra Basin, it is not in itself adequate. The Farakka Agreement fails to provide for ERU, NSH, or cooperation. While India may be obligated to conform to these principles as customary international law,¹⁸¹ future generations will best benefit by the preservation of the watercourse by expressly incorporating the principles into a new treaty.

2. Enforcement: Sustainable Development and India's National River Linking Project

India's obligation to conform to ERU, NSH, and cooperation as principles of customary international law suggests hope for the Ganges-Brahmaputra Basin's sustainable development.¹⁸² However, India appears to be avoiding these obligations and justifying its commencement of the National River Linking Project by embracing a stance of absolute territorial sovereignty, acting "unilaterally without any consultation with its upstream Nepal and downstream

175. *Id.* at pmb.

176. *See id.*

177. *Id.* at art. 4.

178. *See id.* at art 6, 7.

179. *See* MCCAFFREY, *supra* note 24, at 465-71.

180. *See id.*

181. *Gabcikovo-Nagymaros Project (Hung./Slov.)*, 1997 I.C.J. ¶ 85 (Sept. 25) (recognizing that the right to an equitable and reasonable share of an international waterway is a basic right); *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 I.C.J. 226, 241-42 (Jul. 8) (embracing NSH as a customary international law); *Lake Lanoux Arbitration (Fr. v. Spain)*, 12 R.I.A.A. 281, 24-25 (Nov. 16, 1957) (identifying cooperation as a customary international law).

182. *See* MCCAFFREY, *supra* note 24, at 465-71.

Bangladesh.¹⁸³ Under the doctrine of absolute territorial sovereignty, a riparian state claims “full and exclusive jurisdiction over the management, control and utilization of natural waters available [within its territory].”¹⁸⁴ It provides no consideration for the equitable and reasonable use of a watercourse by other states. Fortunately for SD, this doctrine lacks legal foundation: it is “at best an anachronism that has no place in today’s interdependent, water-scarce world.”¹⁸⁵

Without absolute territorial sovereignty as a viable justification, the National River Linking Project likely violates international water law norms, and consequently the pillars of SD. Thus, its completion could have devastating consequences to the future preservation of the basin and all people depending upon it. First, by diverting a significant amount of flow, Bangladesh’s access to its equitable and reasonable use of the river will be denied. To be successful, SD requires enforcement of each watercourse state’s ERU.¹⁸⁶ Here, the lack of enforcement may handicap Bangladesh’s development interests for both social and economic purposes. Second, implementation of the project will likely cause significant harm to Bangladesh’s environment.¹⁸⁷ Significant environmental harm violates the principle of NSH. Without enforcement of NSH, the *sustainable use* of water with due regard to the needs and interests of future generations may be impossible.¹⁸⁸ Third, India’s false assurance that it will make no unilateral decision on the project’s implementation violates the principle of cooperation—cooperation requires direct and honest communication.¹⁸⁹ Without international cooperation, states will ignore the principles of NSH and ERU.¹⁹⁰ Absent the limitations inherent in NSH and ERU, a compromise between development and environmental protection is nearly impossible.¹⁹¹

IV. CONCLUSION: ONE STEP FORWARD OR ONE STEP BACK—SUSTAINABLE DEVELOPMENT’S SUCCESSES AND FAILURES WHEN APPLIED TO INTERNATIONAL WATERCOURSES

The table for SD’s legal success has been set; the guiding principles of international water law are strongly interconnected with SD.¹⁹² Every time a modern water treaty incorporates the principles of ERU, NSH, and cooperation, it

183. M. Rafiqul Islam & Shawkat Alam, *Interlinking Rivers in India: International and Regional Legal Aspects*, in INTERLINKING OF RIVERS IN INDIA: ISSUES AND CONCERNS 219 (M. Monirul Qader Mirza et al. eds., 2008), available at <http://metro-natshar-31-71.brain.net.pk/articles/041540469X.pdf>.

184. STOCKHOLM INT’L WATER INST., TRANSBOUNDARY WATER MANAGEMENT 61 (Anton Earle et al. eds., 2010).

185. *Id.* at 62 (quoting MCCAFFREY, *supra* note 24, at 114).

186. See HILDERING, *supra* note 61, at 173-74.

187. Roy, *supra* note 35.

188. See HILDERING, *supra* note 61, at 174-75.

189. Roy, *supra* note 35.

190. See HILDERING, *supra* note 61, at 44-45.

191. See *id.* at 169, 175.

192. *Id.* at 35, 69.

embraces sustainable development.¹⁹³ Moreover, the fact that many of these principles are accepted as customary international law is a strong endorsement of SD as a necessary consideration preceding the use of water resources.¹⁹⁴

However, development can result in ecological devastation.¹⁹⁵ The balance between environmental protection and development is ineffective, because existing watercourse agreements and customary international water law lack enforcement mechanisms.¹⁹⁶ At the most basic level, enforcement of treaties and norms along international watercourses requires cooperation.¹⁹⁷ Without adequate cooperation, expanded installation and use of hydropower has dire consequences to the Mekong's environment and cultures relying upon it.¹⁹⁸ Without adequate cooperation, Bangladesh lacks access to an equitable and reasonable apportionment of the Ganges.¹⁹⁹

Improved cooperation, and thus enforcement, will require a holistic approach to the watercourse, and a sustained commitment from *all* affected states.²⁰⁰ Thus, sustainable development of the Mekong River Basin will require, at a minimum: (i) perceiving the mainstream and tributaries as a cohesive system; (ii) gaining the signatures of China and Myanmar as part of the agreement; and (iii) giving the MRC teeth to ensure development conforms with the language of the treaty. In addition, the integration of SD in India's National River Linking Project will require, at a minimum: (i) incorporation of the principles of ERU, NSH, and cooperation within a bilateral agreement between India and Bangladesh to ensure the pillars of SD are balanced; (ii) adaptation of the project to ensure compliance with those principles; and (iii) inclusion of Bangladesh and other interested parties in the development phase of the project to ensure adequate cooperation.

V. OUTLOOK FOR THE FUTURE

SD began as, and remains, a compromise between development and environmental protection.²⁰¹ The balance of interests will naturally adjust to the

193. See *id.* at 33.

194. See 1997 UN Convention, *supra* note 87, art. 5-8; Gabcikovo-Nagymaros Project (Hung./Slov.) 1997 I.C.J. ¶ 85 (Sept. 25) (recognizing that the right to an equitable and reasonable share of an international waterway is a basic right); *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 I.C.J. 226, 241-42 (Jul. 8) (embracing NSH as a customary international law); *Lake Lanoux Arbitration* (Fr. v. Spain), 12 R.I.A.A. 281, 24-25 (Nov. 16, 1957) (identifying cooperation as a customary international law); HILDERING, *supra* note 61, at 35, 69.

195. See U.N. Env't Programme, *Global Environment Outlook 4: Environment for Development*, at 6, 10, 12 (2010), available at http://www.unep.org/geo/GEO4/report/GEO-4_Report_Full_en.pdf.

196. MEKONG RIVER COMM'N, *supra* note 8, at 19; see also *Transboundary Waters*, U.N. DEP'T OF ECON. & SOCIAL AFFAIRS, http://www.un.org/waterforlifedecade/transboundary_waters.shtml (last visited Feb. 28, 2013).

197. MCCAFFREY, *supra* note 24, at 467.

198. MEKONG RIVER COMM'N, *supra* note 8, at 12, 16.

199. See MCCAFFREY, *supra* note 24, at 292-93, 296.

200. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Agenda 21*, ¶¶ 18.4, 18.35, A/CONF.151/26 (Vol. II) (1992).

201. See *Rio Declaration*, *supra* note 3, at pmbl., princs. 3-4.

prevailing view of nature and society's needs, and the circumstances of each project. Consequently, the fact that SD's definition remains amorphous is to be expected.²⁰² Moreover, it is perfectly acceptable for the interaction of SD's pillars to be perceived in a variety of manners. This is an indication of the need for SD to be flexible, not of its failure as a concept.

Emerging ideas and value structures may test SD's flexibility. For instance, there is a movement to incorporate culture as a fourth pillar,²⁰³ because successful sustainable development must also include the preservation of human cultures by maintaining their diversity.²⁰⁴ It is not clear whether such an approach would shift the theoretical fulcrum closer to environmental protection (to protect subsistence cultures) or development (to allow developing countries independence from control by industrialized nations). However, one obvious effect would be to further cement SD within a human-centered ethic.²⁰⁵

Alternatively, movement toward "deep ecology" may demand SD to accommodate a less human-centered ethic.²⁰⁶ Deep ecology acknowledges an intrinsic worth in all natural species separate from their value to humans.²⁰⁷ Once again, it is unclear whether such an approach would shift the theoretical fulcrum closer to environmental protection (to protect nature's intrinsic value) or to development (to mitigate harm caused by negligent development). However, it seems likely that SD's pillars and their integration could bend and flex accordingly.

202. Keith Nurse, *Culture as the Fourth Pillar of Sustainable Development*, FOOD & AGR. ORG. OF THE U.N., at 33, 37, 40 (2006), <http://www.fao.org/sard/common/ecg/2785/en/Cultureas4thPillarSD.pdf>

203. Keith Nurse, *Culture as the Fourth Pillar of Sustainable Development*, FOOD & AGR. ORG. OF THE U.N., at 33, 37, 40 (2006), <http://www.fao.org/sard/common/ecg/2785/en/Cultureas4thPillarSD.pdf>.

204. United Cities & Local Gov'ts, *Culture: Fourth Pillar of Sustainable Development*, at ¶¶ 2, 4-5 (2010), http://www.uclg.org/sites/default/files/9890675406_%28EN%29_culture_fourth_pillar_sustainable_development_eng_0.pdf.

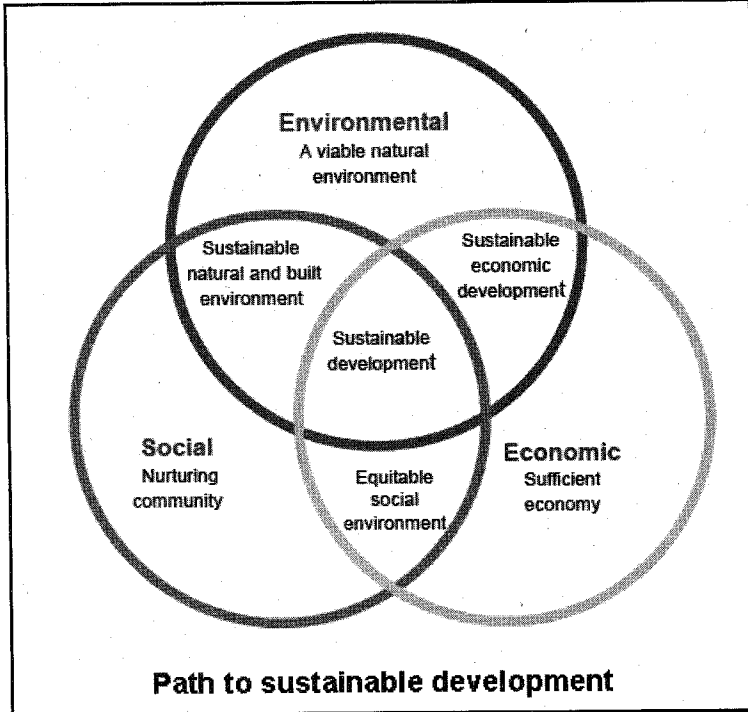
205. See *id.*, at ¶ 2; Nurse, *supra* note 202, at 33, 37, 40; see also *Rio Declaration*, *supra* note 3, at princ. 1 ("Human beings are at the centre of concerns for sustainable development.")

206. See Stephan Harding, *What is Deep Ecology?*, SCHUMACHER COLLEGE, <http://www.schumachercollege.org.uk/learning-resources/what-is-deep-ecology> (last visited Feb. 28, 2013).

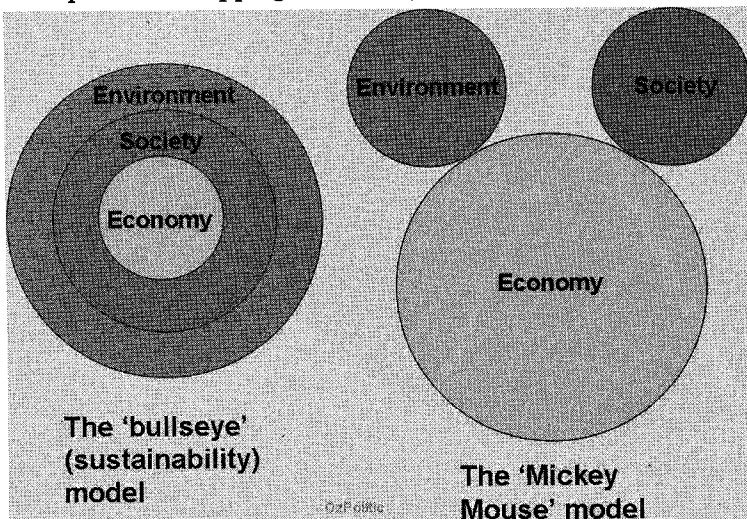
207. *Id.*

APPENDIX

Examples—Conceptualizing the Pillars of Sustainable Development



Example 1: Overlapping Venn Diagram²⁰⁸



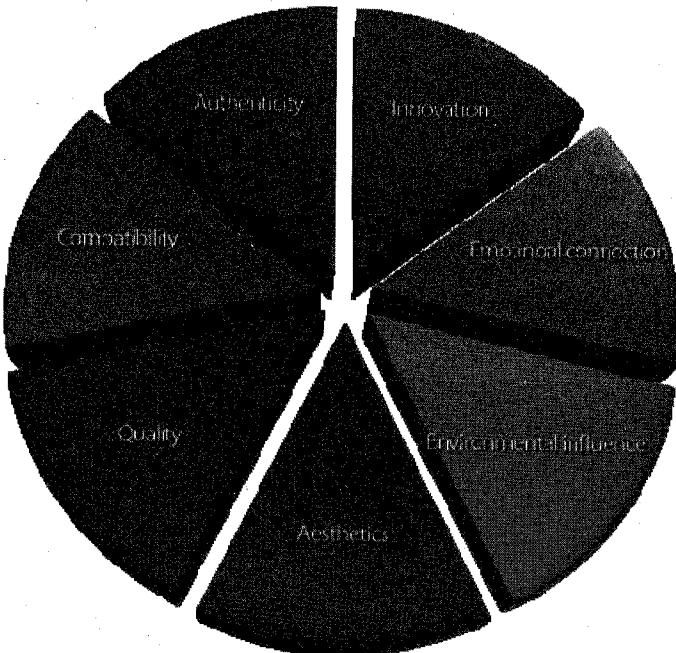
Example 2: The Bulls-eye and Mickey Mouse Models²⁰⁹

208. *Visualising Sustainability*, COMPUTING FOR SUSTAINABILITY (Mar. 15, 2009), <http://computingforsustainability.wordpress.com/2009/03/15/visualising-sustainability/>.

209. *Id.*



Example 3: Three-Legged Stool²¹⁰



Example 4: Seven Spoke Wheel²¹¹

210. *Id.*

211. *Id.*

PLANNING FOR DRINKING WATER IN THE GREAT LAKES BASIN AFTER TERRORISM, OR: HOW I STOPPED WORRYING AND LOVED THE GREAT LAKES COMPACT

CAITLYN LOTHIAN*

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“Water is the only scarce resource for which there is no substitute, over which there is poorly developed international law, and the need for which is overwhelming, constant, and immediate.”

Articulating the importance of water is not difficult: “Water is a necessity for domestic life and hygiene, an agricultural element, an economic tool and even a spiritual symbol.”³ Despite its importance, most people lack secure, clean, and sufficient water for drinking. And while its significance remains tantamount, its future is uncertain. Academics, commentators, politicians, scientists, human rights activists, and medical and public health practitioners bemoan the scarcity of clean and safe water and warn that water will become even scarcer.³

Water scarcity is not a problem specific to developing nations. Nations that historically experienced an abundance of suitable drinking water now find their water sources are drier and less accessible. In the United States, citizens often take the availability of water for personal consumption for granted. In 2000, water users in the US collectively withdrew 408 billion gallons of water per day.⁴ Although overall US water usage has remained constant since 1985, when thermoelectric power and irrigation uses of water stabilized,⁵ even such stable water usage has depleted once abundant sources of water in the US.⁶

In a post-9/11 world, in which the potential for terrorism looms every day, water presents a target for potential terrorists.⁷ The possibility of a terrorist attack on a water source or distribution system requires local and state gov-

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1. Aaron T. Wolf, *Criteria for Equitable Allocations: The Heart of International Water Conflict*, 23 NAT. RES. F. 1, 3 (1999).

2. George S. McGraw, *Defining and Defending the Right to Water and Its Minimum Core: Legal Construction and the Role of National Jurisprudence*, 8 LOY. U. CHI. INT’L L. REV. 127, 127 (2011).

3. Richard A. Hughes, *Pro-Justice Ethics, Water Scarcity, Human Rights*, 25 J.L. & RELIGION 521, 521 (2009); McGraw, *supra* note 2, at 132.

4. *Water Use in the United States*, NAT’L ATLAS (Jan. 14, 2013), http://nationalatlas.gov/articles/water/a_wateruse.html.

5. *Id.*

6. MINN. DEP’T OF NATURAL RES., WATER AVAILABILITY ASSESSMENT REPORT 13 (2010) (noting that in Minnesota, between 1999 and 2008, water usage increased by 77.6 billion gallons per year, excluding use for energy creation; residential use accounted for six percent of the increase); Montgomery F. Simus & James G. Workman, *The Water Ethic: The Inexorable Birth of a Certain Alienable Right*, 23 TUL. ENVTL. L. J. 439, 452 (2010).

7. Varu Chilakamari, *A New Instrument in National Security: The Legislative Attempt to Combat Terrorism Via the Safe Drinking Water Act*, 91 GEO. L.J. 927, 927 (2003); Jonathan R. Eaton, *The Sieve of Groundwater Pollution Protection: A Public Health Law Analysis*, 6 J. HEALTH & BIOMEDICAL L. 109, 129 (2010); Deborah P. Furth, *What’s in the Water? Climate Change, Waterborne Pathogens, and the Safety of the Rural Alaskan Water Supply*, 16 HASTINGS W.-NWJ. ENVTL. L. & POL’Y 251, 260-61 (2010).

ernments to develop plans for a terrorist-induced water shortage. While it is essential that officials develop plans to protect the water sources and distribution systems themselves, public health authorities should also develop plans to mitigate social disruption in the event an emergency threatens the distribution of water. Prevention measures require one hundred percent success; prevention of terrorist attacks requires absolute perfection continuously, and general human experience illustrates that humans are imperfect. A terrorist event need only be successful once, and preparation measures are thereafter irrelevant. Therefore, the legal assessment advanced in this Article focuses on emergency preparedness planning and addresses the tools to be used in planning for the consequences of an attack, such as a lack of drinking water.

Current emergency plans do not adequately identify alternative sources of safe drinking water in the event of an attack on a current source or distribution system, and local and state governments must develop such plans. Current public health emergency preparedness proposals assume that safe drinking water will be available.⁸ Such an assumption is woefully optimistic. Local and state government officials must develop emergency preparedness plans and measures that evaluate alternative sources of water and develop plans for its emergency use and distribution. For example, a large freshwater lake, such as Lake Superior, provides a potential emergency water source for Minnesota, which can lawfully access the Great Lakes water for drinking water purposes in an emergency.⁹

Part I of this article addresses the importance of water and concerns about the safety and scarcity of water in the United States. It includes a discussion of why water is a unique resource, the seriousness of its scarcity, and its vulnerability to terrorist attacks, as well as an overview of public health emergency preparedness plans and checklists. Part II addresses the potential consequences of disruption in the drinking water supply, focusing specifically on socially disruptive behaviors as an anticipated outcome. Part III focuses on the law of water and provides a brief overview of applicable federal regulations. Part IV provides a legal assessment relevant to Great Lakes States, with a brief introduction to the Great Lake system and the Great Lakes Compact and its history. Part IV focuses on the Great Lakes Compact provision allowing for withdrawals for short-term emergency uses and its application to the Great Lakes States and other states. Part IV concludes with a legal assessment of the tools available for the Great Lake states.

I. WATER: THE SCIENCE, THE NEED, AND THE VULNERABILITY

"More precious than oil or gold, water is the magical medium in which life first evolved, and without which life cannot survive."¹⁰

8. See *infra* Part I.C.

9. Great Lakes-St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat. 3739, 3757 (2008) [*hereinafter* Great Lakes Compact 2005].

10. League of Women Voters of Minnesota, *Facts and Issues Minnesota's Liquid Asset: Water Use and Policy Options*, 8 HAMLINE J. PUB. L. & POL'Y 447, 447 (1987).

No person can live without water; after three days without water, a person will die.¹¹ While the earth contains about 1.4 billion cubic kilometers of water, distributed in glaciers, wetlands, lakes, and rivers, approximately ninety-seven percent of the 1.4 billion cubic kilometers is salt water in oceans.¹² Although fresh water is still a relatively abundant resource, water suitable for drinking is far less common; drinking water should be free from chemical, physical, biological, or bacterial contaminants that would make people sick.¹³ There are about thirty-five million cubic kilometers of fresh water on Earth (or water drinkable without desalination) locked in glaciers, permanent snow cover, or unreachable underground aquifers.¹⁴ In the US, drinking water for personal consumption typically comes from public or private water delivery systems.¹⁵

Access to suitable drinking water is all about location. For example, the Asian continent contains sixty percent of the world's population, but only thirty-six percent of the world's renewable freshwater sources.¹⁶ Water use around the world is also disproportionate among populations. In the US, the average person's water footprint is 2,480 cubic meters per person per year,¹⁷ while the global average is 1,240 cubic meters per person per year.¹⁸ The multiple uses of water in the US include drinking, cooking, cleaning, industrial applications, transportation, agricultural, and energy uses that require large amounts of water.¹⁹

A. INCREASING SCARCITY OF WATER: AN UNPRECEDENTED CRISIS

The rapidly shrinking supply of freshwater in places that have historically experienced abundance is cause for concern. This increasing scarcity has led some commentators to suggest that water will become the new oil—the commodity that determines the wealth of nations.²⁰ The United Nations projects that one third of the world's population, about 1.8 billion people, will experi-

11. Simus & Workman, *supra* note 6, at 445.

12. Hughes, *supra* note 3, at 523.

13. *Water Quality*, U.S. GEOLOGICAL SURV. (Mar. 9, 2012), <http://ga.water.usgs.gov/edu/waterquality.html>.

14. Hughes, *supra* note 3, at 523.

15. *Drinking Water*, U.S. CENTER FOR DISEASE CONTROL & PREVENTION (January 4, 2013), <http://www.cdc.gov/healthywater/drinking/index.html>.

16. Hughes, *supra* note 3, at 522.

17. A.K. CHAPAGAIN & A.Y. HOEKSTRA, *WATER FOOTPRINTS OF NATIONS: VOLUME 1: MAIN REPORT 10* (2004).

18. Hughes, *supra* note 3, at 524. Global consumption of water is outpacing human population growth by doubling every twenty years. See Melissa Kwaterski Scanlan, *Protecting the Public Trust and Human Rights in the Great Lakes*, 2006 MICH. ST. L. REV. 1333, 1334 (2006) (quoting MAUDE BARLOW & TONY CLARKE, *BLUE GOLD: THE FIGHT TO STOP THE CORPORATE THEFT OF THE WORLD'S WATER* 9 (2002)).

19. See NAT'L ATLAS, *supra* note 4. See also Brad Sylvester, *Water Usage Facts and Figures*, YAHOO! NEWS (Aug. 9, 2011), <http://news.yahoo.com/water-usage-facts-figures-190500539.html> (stating "Each human being needs 2-4 liters of clean drinking water each day . . . One-third of all freshwater used in the United States is used to irrigate agricultural fields . . . Globally 70 percent of water is used for irrigation, 22 percent for industry and just 8 percent for domestic household use.").

20. Shawn Tully, *Water, Water Everywhere*, FORTUNE, May 15, 2002, at 344.

ence absolute water scarcity, and two-thirds will live under extreme water stress, by 2025.²¹ Water usage is predicted to increase by forty percent in the next two decades,²² in part due to the need to produce food for growing populations in developing countries.²³ This increasing demand for water creates an unprecedented problem because the earth's water supply is finite and renewable only by rain and snowmelt. Compounding this problem is climate change, which has reduced the renewability of water in some areas of the world.²⁴

The Great Lakes contain twenty percent of the global supply of surface freshwater,²⁵ eighty-four percent of North America's supply of surface freshwater,²⁶ and ninety-five percent of the United States' supply of surface freshwater.²⁷ The Great Lakes sustain the lives of over forty million people²⁸ through myriad industries such as shipping,²⁹ manufacturing, tourism, and agriculture.³⁰ These industries contribute over \$483 billion annually to the US economy.³¹ The Great Lakes are subject to the laws of eight states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin), two Canadian provinces (Ontario and Québec), the federal governments of the US and Canada, as well as treaty and aboriginal rights of many federally recognized tribes

21. Hughes, *supra* note 3, at 521.

22. McGraw, *supra* note 2, at 132.

23. Hughes, *supra* note 3, at 522. Water usage will increase seventeen percent just for food production. *Id.* See also, e.g., CHAPAGAIN & HOEKSTRA, *supra* note 17, at 10 ("For example, the global average virtual water content of maize, wheat and rice (husked) is 900, 1300 and 3000 m³/ton respectively, whereas the virtual water content of chicken meat, pork and beef is 3900, 4900 and 15500 m³/ton respectively.").

24. Hughes, *supra* note 3, at 523. Additionally, water is difficult to create artificially. While water is composed of two parts hydrogen and one part oxygen, a sudden burst of energy is needed to join the electrons of the separate atoms. The problem becomes that hydrogen is flammable and oxygen supports combustion. Creating a large amount of water would also create an incredible explosion. Ask the Van, *Q & A: Hydrogen + Oxygen = Water?*, DEP'T OF PHYSICS, UNIV. OF ILL. AT URBANA-CHAMPAIGN (Sept. 4, 2007), <http://van.physics.illinois.edu/qa/listing.php?id=460>.

25. The "Great Lakes" refer to the Great Lakes water system connecting the Atlantic Ocean through the Saint Lawrence Seaway into the Great Lakes Waterway, which includes Lakes Superior, Michigan, Huron, Erie, and Ontario. Mark Sobocienski, *Protecting the Great Lakes in the Face of a Water Crisis: The Need for Immediate Ratification of the Great Lakes - St. Lawrence River Basin Water Resources Compact, and for an Amendment to the Boundary Waters Treaty of 1909*, 21 ST. THOMAS L. REV. 478, 485 (2009). When used in this article, the "Great Lakes" refers to these waterways.

26. EPA, *Great Lakes Fact Sheet*, GREAT LAKES (Feb. 14, 2011), <http://www.epa.gov/greatlakes/factsheet.html> [hereinafter EPA, *Great Lakes Fact Sheet*].

27. Sobocienski, *supra* note 25, at 485.

28. NOAA, *About our Great Lakes: Great Lakes Basin Facts*, GREAT LAKES ENVTL. RESEARCH LAB. (Apr. 21, 2012), <http://www.glerl.noaa.gov/pr/ourlakes/facts.html> [hereinafter NOAA, *About our Great Lakes*] (stating the population in the area is thirty-five million people, but forty million people rely on the Great Lakes for drinking water). See also Kwaterski Scanlan, *supra* note 18, at 1335 (stating the population of the region is over forty million).

29. Noah Hall, Murray Clamen, Captain Lorne Thomas & David Naftzger, *Great Lakes Emerging Legal Issues Regarding the International Boundary Waters Treaty and the Great Lakes Water Quality Agreement*, 34 CAN.-U.S. L.J. 193, 212 (2010).

30. NOAA, *About Our Great Lakes*, *supra* note 28.

31. See Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 415 (2006).

and First Nations.³² In the US alone, ten federal agencies administering over 140 programs regulate usage of the Great Lakes' water supply.³³

Increasing water usage and climate change, however, threaten the vitality of this unique water system.³⁴ In 2000, water levels of the Great Lakes hit record lows³⁵ and still remain below normal.³⁶ During the same time period, water scarcity in the US worsened.³⁷ According to the Intergovernmental Panel on Climate Change, global climate change arrived in America by 2007, bringing less rain and more evaporation to the American West.³⁸ The Great Lakes re-

32. *Id.*; Gabe Johnson-Karp, *That the Waters Shall Be Forever Free: Navigating Wisconsin's Obligations Under the Public Trust Doctrine and the Great Lakes Compact*, 94 MARQ. L. REV. 415, 427 (2010).

33. EPA, *Interested Parties*, GREAT LAKES (last updated June 25, 2012), www.epa.gov/greatlakes/parties/index.html.

34. See generally Intergovernmental Panel on Climate Change Plenary XXVII, Valencia, Spain, Nov. 12-17, *Climate Change 2007: Synthesis Report, An Assessment of the Intergovernmental Panel on Climate Change*, 49 (2007) available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf [hereinafter IPCC, *Climate Change 2007 Report*] ("Climate change is expected to exacerbate current stresses on water resources from population growth and economic and land-use change, including urbanisation . . . Widespread mass losses from glaciers and reductions in snow cover over recent decades are projected to accelerate throughout the 21st century, reducing water availability, hydropower potential, and changing seasonality of flows in regions supplied by meltwater from major mountain ranges (e.g. Hindu-Kush, Himalaya, Andes), where more than one-sixth of the world population currently lives."). See also LEE BOTTS AND BRUCE KRUSHELNICKI, EPA, *THE GREAT LAKES: AN ENVIRONMENTAL ATLAS AND RESOURCE BOOK*, ch. 2, *Natural Process in the Great Lakes*, (3 ed. rev. June 25, 2012), available at <http://www.epa.gov/greatlakes/atlas/glat-ch2.html> ("Warmer climates mean increased evaporation from the lake surfaces and evapotranspiration from the land surface of the basin. This in turn will augment the percentage of precipitation that is returned to the atmosphere. Studies have shown that the resulting net basin supply, the amount of water contributed by each lake basin to the overall hydrologic system, will be decreased by 23 to 50 percent.").

35. Kwaterski Scanlan, *supra* note 18, at 1333-34.

36. NOAA, Great Lakes Envtl. Research Lab., *Water Levels of the Great Lakes*, INFORMATION SHEETS, (March 2013) available at <http://www.glerl.noaa.gov/pubs/brochures/lakelevels/lakelevels.pdf> ("The research-oriented outlook generated by NOAA-GLERL's AHPS on February 14, 2013 indicates that Lake Superior will likely remain below its long-term mean, and Lake Michigan and Huron may continue to set new record low levels. Lake Erie is a half-meter below its level of a year ago but is expected to reach long-term mean levels by summer.").

37. Simus & Workman, *supra* note 6, at 452. Additionally,

Colorado River dams sat half empty, Idaho's over-tapped aquifers spurred conflicts, Texas' Rio Grande could not reach the sea, and California's wildland firefighters ran dangerously short of water. Even Seattle will have to make do with twenty-four million gallons per day less . . . Nationwide, many rivers desiccated to record lows . . . Southeast drought cut Tennessee Valley Authority hydropower in half, exposed Lake Okechobee's bare bottom, dried \$787 million of Georgia's crops, and left Atlanta, America's fastest-growing city, with sixty days of water.

Id.

38. IPCC, *Climate Change 2007 Report*, *supra* note 35.

There is also high confidence that many semi-arid areas (e.g. the Mediterranean Basin, western United States, southern Africa and north-eastern Brazil) will suffer a decrease in water resources due to climate change. Drought-affected areas are projected to increase in extent, with the potential for adverse impacts on multiple sectors, e.g. agriculture, water supply, energy production and health.

Id.

new less than one percent of their water annually, contributing to and exacerbating the record low levels.³⁹ Although a seemingly jarring statistic, one percent of the water in the Great Lakes is nearly sixty trillion gallons of water.⁴⁰ Therefore, even if we only used one percent of the water in the Great Lakes, the supply would sustain the world's population for 8,557 days (or over twenty-three years).⁴¹

Nonetheless, the shrinking availability of water, and the increasing demand for it, creates an environment ripe for a US water war. Drier portions of the US perceive the Great Lakes States as having a disproportionate amount of water, as compared to population.⁴² There is some truth to this; population growth in the drier southern and western portions of the US is outpacing the wetter Great Lakes region. Between 2000 and 2010, the South grew by 14.3 percent and the West by 13.8 percent, while the Midwest grew by 3.9 percent, and the Northeast by 3.2 percent.⁴³ The total population figures for the regions may also illustrate this tension: the South in 2010 had over 114 million people, the West nearly seventy-two million, the Midwest almost sixty-seven million, and the Northeast fifty-five million people.⁴⁴

As population increases, water usage and needs generally increase as well.⁴⁵ Corporations, cities, and politicians have suggested using the water from the

39. See Int'l Joint Comm'n, *Protection of the Waters of the Great Lakes: Final Report to the Governments of Canada and the United States*, §2 at 6 (Feb. 22, 2000), available at <http://www.cglg.org/projects/water/docs/IJC2000Report.pdf>; Nat'l Wildlife Fed'n, *Great Lakes Water Resource Compact*, WHAT WE DO (last visited March 6, 2013), <http://www.nwf.org/Wildlife/Policy/Great-Lakes-Restoration/Great-Lakes-Compact.aspx>.

40. EPA estimates that the Great Lakes contain about 5,500 cubic miles of water. EPA, *Where Would We Be Without the Great Lakes?*, GREAT LAKES, MONITORING PROGRAM, GREAT MINDS, GREAT LAKES (last updated June 26, 2012), http://www.epa.gov/glnpo/monitoring/great_minds_great_lakes/social_studies/without.html. One cubic mile equals about 1,101,117,147,428.57 gallons. *How Many Gallons in a Cubic Mile?*, ANSWERS, http://wiki.answers.com/Q/How_many_gallons_in_cubic_mile (last visited March 5, 2013). Therefore, there are about six quadrillion gallons of water in the Great Lakes. One percent of six quadrillion is sixty trillion.

41. Most checklists suggest planning for one gallon of drinking water per person per day. See e.g., CDC, *Gather Emergency Supplies*, EMERGENCY PREPAREDNESS AND RESPONSE, <http://www.bt.cdc.gov/preparedness/kit/disasters/> (last updated May 18, 2011). There are 7,068,754,300 people on earth. US Census Bureau, *U.S. & World Population Clocks*, CENSUS.GOV (last visited Feb. 26, 2013 at 15:27 UTC), <http://www.census.gov/main/www/popclock.html>. Therefore, if there were a total need per day of 7,068,754,300 gallons per person per day, the sixty trillion gallons of water renewed every year would sustain everyone on the planet for over twenty-three years.

42. Simus & Workman, *supra* note 6, at 452 (citing recent water scarcity in Colorado, Idaho, Texas, California, Washington, Tennessee, Florida, and Georgia, and a reduction of the Great Lakes water level by seven inches). See also Sobocienski, *supra* note 25 at 495.

43. PAUL MACKUN & STEVEN WILSON, 2010 CENSUS BRIEFS: POPULATION DISTRIBUTION AND CHANGE: 2000 TO 2010 1 (2011), available at <http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf>.

44. *Id.* at 2, Table 1.

45. See NAT'L ATLAS, *supra* note 4, in which the table entitled "Trends in total water withdrawals by water-use category, 1950-2000" separates the uses of water. The table indicates that as the population in the United States has increased, so has use of water for public supply. See also SUSAN S. HUTSON ET AL., U.S. GEOLOGICAL SURV., ESTIMATED USE OF WATER IN THE UNITED STATES IN 2000, (Dec. 19, 2005), available at <http://pubs.usgs.gov/circ/2004/circ1268/>

Great Lakes to supply the thirsty regions of the South and West.⁴⁶ Although a sharing of the water from the Great Lakes might seem like the equitable and utilitarian solution to a water crisis, there would be dire consequences to such proposed diversions of water. Diverting large amounts of water for purposes other than immediate human consumption could result in an environmental, economic, and public health disaster for the Great Lakes region akin to that experienced by the Aral Sea region.⁴⁷ To prevent over-consumption, either locally or by selling the water to other regions,⁴⁸ but provide for Great Lakes-region citizens in the time of a public health emergency, the Great Lakes region must become more aggressive in protecting its water⁴⁹ and plan for public health emergencies that could affect the drinking water supply.

B. TERRORISM AND THE VULNERABILITY OF SOURCES IN THE UNITED STATES: A PUBLIC HEALTH DISASTER WAITING TO HAPPEN

Terrorism is one of many ways to disrupt the drinking water supply. There is no globally recognized definition of terrorism;⁵⁰ however, the Federal Bureau of Investigations (FBI) defines terrorism as “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.”⁵¹ Bruce Hoffman, a well-regarded scholar of terrorism, describes the characteristics of terrorism this way: a terrorist attack is undeniably political in its aims and motives; violent or threatens violence that with far-reaching psychological repercussions extending beyond the immediate victim(s) or target(s); and organizations not affiliated with the government chain of command or conspiratorial cell structure conduct the violence.⁵² Terrorism

“Fresh ground-water withdrawals (83.3 Bgal/d) during 2000 were 14 percent more than during 1985.”).

46. See *The Great Lakes Today: Concerns*, EPA (June 25, 2012), <http://www.epa.gov/greatlakes/atlas/glat-ch4.html> (“Some consideration has been given to the sale of water as a commodity to fast-growing water-poor areas such as the American Midwest and Southwest. These range from proposals for minor diversions out of the basin to mega-projects that would see large-scale alterations to the natural flows from as far away as James Bay, through the Great Lakes basin to the American sunbelt states.”).

47. See generally Philip Micklin, *The Aral Sea Disaster*, 35 ANN. R. EARTH PLANET SCI. 47, 54-57 (2007).

48. The Great Lakes Compact defines consumptive use as “that portion of the [w]ater [w]ithdrawn or withheld from the [b]asin that is lost or otherwise not returned to the [b]asin due to evaporation, incorporation into [p]roducts, or other processes.” Great Lakes Compact 2005, *supra* note 9, at 3740.

49. Morgan B. Bianco, *The Battle Against Bottled Water: How the Michigan Supreme Court Failed to Protect the Great Lakes and Impaired the Effectiveness of the Great Lakes Compact in Michigan Citizens for Water Conservation v. Nestle Waters North America, Inc.*, 31 HAMLINE L. REV. 833, 870 (2008).

50. BRUCE HOFFMAN, *INSIDE TERRORISM* 33 (rev. & expanded ed. 2006) (“It is not only individual agencies within the same governmental apparatus that cannot agree on a single definition of terrorism. Experts and other long-established scholars in the field are equally incapable of reaching a consensus.”).

51. 28 C.F.R. § 0.85(l) (1969).

52. HOFFMAN, *supra* note 50, at 40-41.

undeniably includes an element of intent, specifically the intent to cause psychological harm. The most often-desired psychological harms are fear or intimidation, which the population manifests as socially disruptive behaviors.⁵³ If one of the goals of terrorism is to instill a sense of fear in the population, causing a community to fear its own drinking water would be powerful. Water is one of the basic services that people assume will remain sacrosanct, and the disruption of that assumption would have devastating social implications.⁵⁴

The water system in the US is susceptible to terrorist attacks⁵⁵ and assuming freshwater supplies in the US will remain safe from attack would be a disastrous mistake.⁵⁶ Indeed, leaders have acknowledged the vulnerability of the drinking water system to terrorism. In 1998, a Presidential Decision Directive listed the water supply as one of the twelve areas as both critical to the functioning of the US and vulnerable to non-traditional attacks.⁵⁷ In January 2002, the FBI cautioned water officials that al Qaeda considered attacking water distribution systems in the US.⁵⁸

Drinking water sources, such as reservoirs, are the most apparent potential targets of terrorism, as they are the most visible and the public can usually access them from various points.⁵⁹ Water treatment and distribution systems may also be targets.⁶⁰ Water's unique role in human health, the environment,

53. See *infra* Part II.

54. See *infra* Part II.

55. CLAUDIA COPELAND, CONG. RESEARCH SERV., RL32189, TERRORISM AND SECURITY ISSUES FACING THE WATER INFRASTRUCTURE SECTOR I (2010) <http://www.fas.org/sgp/crs/terror/RL32189.pdf> (explaining that the water system includes "surface and ground water sources of untreated water for municipal, industrial, agricultural, and consumer needs; dams, reservoirs, aqueducts, and pipes that contain and transport raw water; treatment facilities that remove raw water contaminants; finished water reservoirs; systems that distribute water to users; and wastewater collection and treatment facilities.").

56. See Peter H. Gleick, *Water and Terrorism*, 8 WATER POL'Y 481, 497-500 (2006) [hereinafter Gleick, *Water & Terrorism*] (explaining prevention tactics for water borne terrorists attacks that this article will not address; the author assumes a worst-case scenario: the terrorist attack cannot be prevented or mitigated).

57. White House Office of Comm'n, Nat'l Sec. Council Presidential Decision Directive 63, Critical Infrastructure Protection (1998) <http://fas.org/irp/offdocs/pdd/pdd-63.htm>; see also Chilakamarri, *supra* note 7, at 927.

58. Chilakamarri, *supra* note 7, at 927.

59. Gleick, *Water & Terrorism*, *supra* note 56, at 491.

60. Craig W. Hedberg, Jeffrey B. Bender & Donald Vesley, *Protecting Food, Water, and Ambient Air, in* TERRORISM AND PUBLIC HEALTH: A BALANCED APPROACH TO STRENGTHENING SYSTEMS AND PROTECTING PEOPLE 305, 311 (Barry S. Levy & Victor W. Sidel eds., 2003); see also Chilakamarri, *supra* note 7, at 927 ("A strike on a chlorine disinfectant tank alone, for example, could result in the release of an airborne chlorine cloud which, depending on exposure levels, could prove fatal for a widespread population"); Steven D. Shermer, *The Drinking Water Security and Safety Amendments of 2002: Is America's Drinking Water Infrastructure Safer Four Years Later?*, 24 UCLA J. ENVTL. L. & POL'Y 355, 366-67 (2006) ("Beyond the sheer numbers, 'the realities of the existing infrastructure include unprotected reservoirs, systems with inadequate or no treatment capabilities, minimal real-time quality and pressure monitoring, open distribution systems, aging infrastructure, limited resources . . . and significant growth in demand") (quoting Tim De Young & Adam Gravely, *Coordinating Efforts to Secure American Public Water Supplies*, 16-WTR NAT. RESOURCES & ENV'T 146, 148 (2002)).

commerce, and industry makes it a prime target for terrorist attacks.⁶¹ Throughout history and across cultures, terrorists and militaries have considered drinking water a prime target.⁶²

Numerous biological, chemical, and fungal agents are transmissible through water⁶³ and a terrorist could introduce large quantities of such an agent into the water system and cause widespread illness in a population.⁶⁴ Because there are many public water systems in the US, securing drinking water systems and preventing such an attack is a challenge.⁶⁵ It is worth noting, however, the volume of water flowing through the public drinking water systems could dilute any potential biological, chemical, or fungal attack,⁶⁶ and existing water treatments are effective against most agents.⁶⁷ A terrorist could also physically attack a plant, dam, or water distribution pipelines, but diligent security efforts can effectively prevent this situation.⁶⁸ To thwart a terrorist attack, both heightened security and vigilance are necessary.⁶⁹ In either situation, but especially if a physical attack disrupts the distribution channels, alternative sources of drinking water must be identified and announced in advance.⁷⁰

61. Gleick, *Water & Terrorism*, *supra* note 56, at 481.

62. See generally NAN D. HUNTER, *THE LAW OF EMERGENCIES* 147 tbl. 7.2 (Butterworth-Heinemann ed. 2009) (explaining that in the fifth century, the Assyrians poisoned enemy wells with the fungus rye ergot (*Claviceps purpurea*); the Athenians also poisoned enemy water supplies during the Siege of Kriss in 590 B.C.E, but used hellebore; literature from Persia, Greece and Rome in the third century B.C.E. describes the use the contamination of enemy water supplies with dead animals; and in 1155, Holy Roman Emperor Barbarossa used decomposing human bodies to poison wells); see also Gleick, *Water & Terrorism*, *supra* note 56, at 485 (explaining that novels such as *Cat's Cradle* and *The Monkey Wrench Gang* as well as films *Malru's Own Double Entry*, *The Tuxedo*, *Batman Begins*, *Waterborne*, and *V for Vendetta* depict terrorist or governmental attacks on drinking water supplies); KURT VONNEGUT, *CAT'S CRADLE* (Bantam Doubleday Dell ed., 1963); EDWARD ABBEY, *THE MONKEY WRENCH GANG* (Harper Collins ed., 1975); CHRISTIE MALRY'S OWN DOUBLE ENTRY (Image Entertainment 2000); *THE TUXEDO* (Dreamworks 2002); *BATMAN BEGINS* (Warner Bros. Pictures 2005); *WATERBORNE* (Ben Rekhi 2005); *V FOR VENDETTA* (Warner Bros. Pictures 2006).

63. Hedberg et al., *supra* note 60, at 311- 312 (stating "agents that cause anthrax, botulism, Q fever, tularemia, brucellosis, melioidosis, and glanders, and ricin, fungal toxins, abrin, aflatoxins, *lostridium perfringens*, epsilon toxin, conotoxin, diacetoxyscirpenol, saxitoxin, shigatoxin, and tetrodotoxin"); see also Gleick, *Water & Terrorism*, *supra* note 56, at 493-94. Fortunately, many of these contaminants break down in sunlight, so the water source may not be affected permanently. *Id.* at 483.

64. Hedberg et al., *supra* note 60, at 312. Successfully introducing enough of an agent into a drinking water system could affect many people if the protective measures purifying drinking water fail. *Id.*

65. *Id.* at 311. See also COPELAND, *supra* note 55, at 1 (asserting there are "approximately 77,000 dams and reservoirs; thousands of miles of pipes, aqueducts, water distribution, and sewer lines; 168,000 public drinking water facilities (many serving as few as twenty-five customers); and about 16,000 publicly owned wastewater treatment facilities. All of these systems and facilities must be operable 24 hours a day, seven days a week."); Shiermer, *supra* note 60, at 366.

66. Hedberg et al., *supra* note 60, at 317.

67. *Id.*

68. *Id.* See also Gleick, *Water & Terrorism*, *supra* note 56, at 482.

69. Hedberg et al., *supra* note 60, at 318.

70. U.S. ENVTL. PROT. AGENCY, AGRICULTURE, Water Protection Task Force, <http://www.epa.gov/agriculture/tdri.html> (last updated June 27, 2012). For a recent example of the importance of developing alternative sources of water after a burst water main in Alabama,

C. DRINKING WATER AND PUBLIC HEALTH PREPAREDNESS: DANGEROUS ASSUMPTIONS

Although terrorism can disrupt water sources and distribution systems, water disruption can also arise from other emergencies. In either situation, officials can use public health emergency preparedness⁷¹ procedures to establish and announce plans to address the disruption. Public health emergency preparedness has received increased attention in recent years⁷² and is developed to address different kinds of public health events, including pandemics, natural disasters, and terrorist attacks.

The reliance on emergency preparedness checklists is one common characteristic across health departments, hospitals, pharmacies, and other organizations participating in the delivery of public health services.⁷³ These checklists allow officials to establish policies and procedures in the event of a public health emergency, but they are one of the public health tools that have not been tested repeatedly.⁷⁴ A brief, cursory review of some institutional checklists shows that many of these checklists assume safe drinking water will be accessible in a time of crisis.⁷⁵ This is a dangerous assumption, and public health au-

see CTRS. FOR DISEASE CONTROL & PREVENTION, *Community Health Impact of Extended Loss of Water Service-Alabama, January 2010*, MORBIDITY & MORTALITY WEEKLY REPORT, Feb. 18, 2011, available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6006a1.htm?s_cid=mm6006a1_w.

71. Emergency preparedness is the measure public health authorities develop and implement during a public health emergency to protect the population. See Christopher Nelson, Nicole Lurie, Jeffrey Wasserman & Sarah Zakowski, *Conceptualizing and Defining Public Health Emergency Preparedness*, 97 AM. J. PUB. HEALTH 9 (Supp. 2007) (proposing this definition of public health emergency preparedness: "the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities. Preparedness involves a coordinated and continuous process of planning and implementation that relies on measuring performance and taking corrective action.").

72. See Stewart Simonson, *Reflections on Preparedness: Pandemic Planning in the Bush Administration*, 4 ST. LOUIS U. J. HEALTH L. & POL'Y 5, 7, 12, 29 (2010) (describing a general history of the rise of emergency preparedness from the United States' first Assistance Secretary for Emergency Public Health Preparedness).

73. See, e.g., AM. HEALTH LAWYERS ASS'N, EMERGENCY PREPAREDNESS, RESPONSE & RECOVERY CHECKLIST: BEYOND THE EMERGENCY MANAGEMENT PLAN (2004), available at <http://www.healthlawyers.org/hlresources/PI/InfoSeries/Pages/EmergencyPreparednessResponseRecoveryChecklist.aspx>; Public Health Emergency Legal Preparedness Items and Links, US CTR. FOR DISEASE CONTROL & PREVENTION, PUBLIC HEALTH LAW PROGRAM, <http://www.cdc.gov/php/publications/topic/emergency.html> (last updated Sept. 19, 2012) [hereinafter CDC, *Public Health Emergency Legal Preparedness*]; ALLEGANY CNTY. GOV'T, EMERGENCY PLANNING CHECKLIST, available at http://www.alleganyco.com/btn_ph_ep/templates/Emergency%20planning%20checklist.pdf (last visited March 24, 2013).

74. As the H1N1 pandemic of 2009 was the first real test of the post-2001 public health infrastructure, emergency preparedness policies and procedures are the subject of intense study and debate.

75. See, e.g., AM. HEALTH LAWYERS ASS'N, *supra* note 73; CDC, *Public Health Emergency Legal Preparedness*, *supra* note 73; ALLEGANY CNTY. GOV'T, *supra* note 73; Elisabeth Belmont et al., *Emergency Preparedness, Response & Recovery Checklist: Beyond the Emergency Management Plan*, 37 J. HEALTH L. 503, 513 (2004); THE CTR. FOR LAW & PUB.'S HEALTH AT

thorities must augment their public health emergency preparedness plans to consider how to provide safe drinking water if the normal water delivery method fails. Failing to plan adequately for drinking water in any public health crisis can create a secondary public health crisis that destabilizes recovery efforts.

Examining specific checklists for larger organizations, like hospitals or county governments, illustrates the problem. For example, a checklist template for hospitals only cursorily infers the need to provide drinking water when it provides: the liaison officer for incident command is to identify external agencies to interact with in the event of an emergency;⁷⁶ the safety and security officer in incident command is encouraged to determine what kind of supplies or equipment are necessary to maintain order;⁷⁷ and the logistics chief should arrange the needed support for operations, including the delivery of food and other supplies.⁷⁸ Another checklist prompts local officials to consider their legal powers in times of an emergency, such as whether it has authority to ration medical supplies.⁷⁹ These checklists fail to alert officials that water may or may not be readily available, and to develop collaborative arrangements and relationships with other sectors in advance of an emergency for supplying drinking water.

Public health authorities have also developed checklists for individuals. Recent terrorist events and natural disasters have increased the emphasis on these individual preparedness measures.⁸⁰ Most of these individual checklist recommendations mention water: "Individuals, families, and businesses have been advised to be prepared for emergencies by creating disaster supply kits that include appropriate amounts of safe drinking water."⁸¹ Typically, these checklists recommend including one gallon of drinking water per day per person.⁸²

Emergency preparedness checklists are helpful to public health officials and individuals in mitigating some of the basic needs that emerge after an emergency. It is clear emergency preparedness checklists must announce

GEORGETOWN & JOHNS HOPKINS UNIV., PUBLIC HEALTH EMERGENCY LEGAL PREPAREDNESS CHECKLIST: LOCAL GOVERNMENT PUBLIC HEALTH EMERGENCY LEGAL PREPAREDNESS AND RESPONSE (2004), available at <http://www.publichealthlaw.net/Resources/ResourcesPDFs/Checklist%202.pdf>.

76. Elisabeth Belmont et al., *supra* note 75, at 513.

77. *Id.* at 516.

78. *Id.* at 541.

79. THE CTR. FOR LAW & PUB.'S HEALTH AT GEORGETOWN & JOHNS HOPKINS UNIV., *supra* note 75, at 9.

80. See, e.g., US Ctr. for Disease Control & Prevention, *Preparedness 101: Zombie Apocalypse*, PUBLIC HEALTH MATTERS BLOG (May 16, 2011, 11:48 AM), <http://blogs.cdc.gov/publichealthmatters/2011/05/preparedness-101-zombie-apocalypse/> (advising individuals about personal emergency preparedness measures through the pop-culture obsession with zombies).

81. *Water-Related Emergencies & Outbreaks*, US CTR. FOR DISEASE CONTROL & PREVENTION (June 24, 2011), <http://www.cdc.gov/healthywater/emergency/>.

82. US Ctr. for Disease Control & Prevention, EMERGENCY PREPAREDNESS & RESPONSE, <http://www.bt.cdc.gov/preparedness/kit/disasters/> (last updated May 18, 2011); BRUCE W. CLEMENTS, *DISASTERS AND PUBLIC HEALTH: PLANNING AND RESPONSE* 19 (2009).

plans for alternative sources of safe drinking water, especially those checklists cities and local water sources and distribution systems develop.⁸³ Failing to prepare for drinking water through institutional and governmental checklists can create a secondary crisis following an emergency. Even if water is not actually the target of a terrorist attack or the source of the public health emergency, resulting water insecurity and scarcity may generate fear—which generates further social disruption.

II. SOCIAL DISRUPTION AND WATER SCARCITY: MAGNIFYING A DISASTER

Terrorist attacks on drinking water sources or delivery systems would trigger social disruption with nearly unimaginable consequences. Social disruption is a “period of generalized crisis and loss of traditional values and attitudes.”⁸⁴ Such behavior may emerge after major emergencies or disasters. If a terrorist attack is successful against a water source, mass casualties may not result, but social disruption and disarray almost certainly will occur.⁸⁵ Even if a terrorist attack is not successful, the threat of such an attack or contamination may be enough to induce socially disruptive behaviors in the immediate population.⁸⁶ Aside from the immediate need for safe drinking water, other industries, such as power, food production, and manufacturing rely on constant access to clean water, thereby creating a devastating economic impact on other interdependent infrastructure.⁸⁷ Public reaction to man-made disasters, like terrorism, is often less favorable than natural disasters, and results in a reduced respect for and trust in institutions and their leaders.⁸⁸ Terrorism destroys the public’s sense of safety and self (for example, by inducing stress),⁸⁹ and creates other unimaginable vulnerabilities⁹⁰ and behavior changes. While some people respond to the stress and irregularity of a disaster with altruism, others view it as an exploitative opportunity and exhibit socially disruptive behaviors.⁹¹

83. *Community Health Impact of Extended Loss of Water Service-Alabama, January 2010*, *supra* note 70, at Box (making recommendations for agency preparedness for water emergencies, including identification of alternative sources of potable drinking water).

84. Lynn J. England & Stan L. Albrecht, *Boomtowns & Social Disruption*, 49 *RURAL SOC.* 230, 231 (1984).

85. Gleick, *Water & Terrorism*, *supra* note 56, at 482.

86. Shermer, *supra* note 60, at 368; *see also* US ENVTL. PROT. AGENCY, RESPONSE PROTOCOL TOOLBOX: PLANNING FOR AND RESPONDING TO DRINKING WATER CONTAMINATION THREATS AND INCIDENTS, INTERIM-FINAL, MODULE 2: CONTAMINATION THREAT MGMT GUIDE 10 (2003); *but see* Lisa Grow Sun, *Disaster Mythology & the Law*, 96 *CORNELL L. REV.* 1131, 1134 (2011).

87. Shermer, *supra* note 60, at 364-65.

88. Gleick, *Water & Terrorism*, *supra* note 56, at 483.

89. *Id.*

90. Kelly Frailing & Dee Wood Harper, *Crime and Disaster in Historical Perspective*, in *CRIME AND CRIMINAL JUSTICE IN DISASTER* 7, 8 (Dee Wood Harper & Kelly Frailing, eds., 2010) [hereinafter Frailing & Wood Harper, *Crime and Disaster*].

91. *Id.* at 7. There are, of course, grey areas. Some people engage in socially disruptive behaviors because of the significant impacts on individual mental and behavioral health. *See* James G. Hodge, Jr. et al., *A Hidden Epidemic: Assessing the Legal Environment Underlying Mental and Behavior Health Conditions in Emergencies*, 4 *ST. LOUIS UJ. HEALTH L. & POL’Y*

A. EXAMPLES OF SOCIAL DISRUPTION AFFECTING WATER IN THE UNITED STATES

Historical examples of social disruption after disasters in the United States illustrate the potential reach and impact of social disruption. When Hurricane Katrina hit the city of New Orleans, Louisiana on August 29, 2005,⁹² it killed an estimated 1,300 people, displaced 700,000, and forced 273,000 people into shelters.⁹³ The people who stayed “took what they needed, such as food, water, medicine and items for infants, from stores, some of which left their doors unlocked.”⁹⁴ The Wilkes-Barre Flood in June of 1972 also resulted in patterns of social disruption. Between June 14 and 23, 1972, Hurricane Agnes made landfall in New York and stalled over Pennsylvania.⁹⁵ The ground became saturated, and the creeks and rivers flooded.⁹⁶ When dikes broke, the floodwaters ravaged the town of Wilkes-Barre. In the aftermath, “both interviews with flood victims and news reports revealed price gouging, especially at the grocery stores.”⁹⁷

In a sense, the socially disruptive behaviors like looting of stores, price gouging of water, and even waters riots, are a form of re-victimization.⁹⁸ The denial of basic security caused by the disaster fuels the drive to hoard supplies, which in turn fuels price gouging at the stores and looting by customers to obtain what it is that they desperately need. What is typically considered anti-social behavior becomes the norm, and certain segments of the population may be left without recourse. If governments prepare emergency plans that provide for an alternative method of distributing safe drinking water, they might avoid social disruption.

B. PREDICTED BEHAVIORS DURING WATER SCARCITY: LOOTING, HOARDING, PRICE GOUGING, AND RIOTS

Approximately 265 million Americans rely on public water systems to provide safe drinking water every day.⁹⁹ If a terrorist attack on a water source

33, 34 (2010) (arguing the emergency preparedness plans must consider the mental health impacts of natural disasters, pandemics and other catastrophic emergencies).

92. Kelly Frailing & Dee Wood Harper, *Fear, Prosocial Behavior and Looting: The Katrina Experience*, in CRIME AND CRIMINAL JUSTICE IN DISASTER 89, 97 (Dee Wood Harper & Kelly Frailing, eds., 2010) [hereinafter Frailing & Wood Harper, *Fear*].

93. Binu Jacob et al., *Disaster Mythology and Fact: Hurricane Katrina and Social Attachment*, 123 PUB. HEALTH REPORT 555, 556 (2008), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2496928/?tool=pubmed>.

94. Frailing & Wood Harper, *Fear*, *supra* note 92, at 97; but see Jacob et al., *supra* note 93, at 558 (arguing that looting and rioting were isolated incidents and that altruism and social support were more common among people affected by Hurricane Katrina).

95. PAUL W. WARNAGIRIS & JOHN J. RYGIEL, THE GREAT FLOOD OF 1972 1 (1973), available at <http://books.google.com/books?id=7aDiqJDhpMEC&printsec=frontcover#v=onepage&q&f=false>.

96. *Id.*

97. Frailing & Wood Harper, *Crime and Disaster*, *supra* note 90, at 14-15.

98. *Id.* (quoting B.A. Siman, *Crime During Disaster*, University of Pennsylvania PhD diss., Ann Arbor, MI: University Microfilms International, 1977).

99. Shermer, *supra* note 60, at 364.

occurred, a large number of people could be exposed to the immediate dangers, such as flooding, the creation of poisonous gases, or rendering the water undrinkable.¹⁰⁰ Public health officials and leaders would also have to deal with unpleasant after-effects, such as looting, price gouging, hoarding, and water riots unless, they develop plans now to provide for safe drinking water in the event of an attack.

1. Looting

One of the first socially disruptive behaviors to emerge after an attack or major disaster on a water source or system is looting.¹⁰¹ While many may think of looting as simple theft, looting is not indicative of a poorly socialized individual; rather, it is the “response to an emergent social norm which follows the disorganization of the community caused by a disaster.”¹⁰² After Hurricane Sandy made landfall in October 2012, two men were arrested for stealing thirty-five cases of water from a Staten Island church collecting supplies for recovery efforts.¹⁰³ Other recovery stations in the region reported similar thefts, and the local police suspected the thefts related to gang activity, in which the thieves would take non-perishable items and then re-sell them.¹⁰⁴ In the case of a terrorist attack cutting off normal water supply, people may respond by converging on local stores and taking whatever bottled water is available. This looting would be a direct reflection of the need to survive,¹⁰⁵ and without emergency plans in place to provide water, looting of bottled water could become commonplace if drinking water sources are not repaired or decontaminated quickly.

2. Hoarding

Another reaction common in times of impending or recent disaster is hoarding. This behavior involves people rushing to stores to purchase goods and obsessively “stock-up,” and it is likely that people would rush to the store

100. *Id.*; see also generally *Drinking Water Needs and Infrastructure: Hearing Before the Subcomm. on Env't and Hazardous Materials of the House Comm. on Energy and Commerce*, 107th Cong. 14-15 (2002) (statement by Benjamin H. Grumbles, Deputy Assistant Administrator of Water, US Env't. Prot. Agency) (arguing that water systems serving more than 50,000 people account for 44% of the national need).

101. See Frailing & Wood Harper, *Crime and Disaster*, *supra* note 90, at 7 (predicting looting as one of the first socially disruptive behaviors). Looting, according to Stuart Green, has three characteristics: unauthorized entry, the taking or damaging of property, and the absence of normal security. Frailing & Wood Harper, *Fear*, *supra* note 92, at 95.

102. Frailing & Wood Harper, *Fear*, *supra* note 92, at 96 (summarizing E.L. Quarantelli & R. Dynes, *Property Norms in Looting: Their Pattern in Community Crises*, 31 *PHYLON: THE ATLANTA UNIV. R. OF RACE & CULTURE* 168-182 (1970)). The definitions of public and private property break down during a civil disturbance; therefore looting becomes the normative behavior. *Id.*

103. Christopher Robbins, *Looters In Staten Island Stealing Supplies Meant For Sandy Recovery*, *GOTHAMIST*, Jan. 30, 2013, http://gothamist.com/2013/01/30/looters_in_staten_island_stealing_s.php.

104. *Id.*

105. Frailing & Wood Harper, *Fear*, *supra* note 92, at 95.

to purchase bottled water. Floods threatened Bangkok in October 2011, and residents later recounted stories of rushing to local stores and markets to buy provisions, only to find the shelves empty.¹⁰⁶ Once the cycle of hoarding starts, it is difficult to stop. When asked about the empty shelves in Bangkok during the threatened flood, the president of the Wholesale and Retail Association responded, "when consumers see empty shelves, that intensifies worries and spurs hoarding."¹⁰⁷ Hoarding raises issues of class warfare, as often the only people able to "stock up" are those with the money to afford such provisions and the space to store them.¹⁰⁸ Again, hoarding practices may be triggered when a well-articulated alternative plan for drinking water in the event of an attack has not been established.

3. Price Gouging

Looting and hoarding are examples of individual consumer behavior in the aftermath of a disaster. Socially disruptive behavior may occur in all actors in society, including local shopkeepers and large corporations. These groups are more likely to engage in price gouging, which is the intentional increase in prices of a product or good,¹⁰⁹ in the aftermath of an attack that threatens the drinking water supply. For example, in the Kibera neighborhood of Nairobi, Kenya, price gouging occurs daily, but is worse in times of water shortage.¹¹⁰ There is already not enough water to go around,¹¹¹ and in the event of a terrorist attack on a water supply, local communities may face the threat of price gouging. When water is scarce, prices increase. Robert Neuwirth describes the situation:

During a routine shortage, the price of water can triple: to 10 shillings per jerry can. And in a severe shortage, the kiosk owner will often ask for 20 shillings per can . . . At 3 shillings per jerry can, Kibera residents pay 10 times more for water than the average person in a wealthy neighborhood with municipally supplied, metered water service . . . When there's a shortage, metered rates do not go up, but the prices in Kibera do. So at those times people in Kibera pay 30 or 40 times the official price of water.¹¹²

106. Lee Craker, *Bangkok Residents Begin Hoarding Food, Water*, LEE CRAKER (Oct. 12, 2011), <http://www.leecraker.com/wp/bangkok-residents-begin-hoarding-food-water>.

107. Sutinee Yuvejwattana & Supunnabul Suwannakij, *Bangkok Residents Begin Hoarding Food, Water on Flood Threat*, BLOOMBERG (Oct. 12, 2011, 2:28 AM MT), <http://www.bloomberg.com/news/2011-10-12/bangkok-residents-hoard-noodles-rice-as-flooding-threatens-thai-capital.html>.

108. See Note, *A Look Inward: Blurring the Moral Line Between the Wealthy Professional and the Typical Criminal*, 119 HARV. L. REV. 2165, 2170-74, 2179-80 n.85 (2006).

109. See Gary E. Lehman, *Price Gouging: Application of Florida's Deceptive and Unfair Trade Practices Act in the Aftermath of Hurricane Andrew*, 17 NOVA L. REV. 1029, 1030 (1993).

110. See ROBERT NEUWIRTH, *SHADOW CITIES: A BILLION SQUATTERS, A NEW URBAN WORLD* 81 (2006).

111. Shermer, *supra* note 60, at 366.

112. NEUWIRTH, *supra* note 110, at 81.

After a terrorist attack on a water source or distribution system, consumers could begin to feel economic stress when they purchase bottled water¹¹³, in that price gouging of bottled water in the local stores will probably increase. This is the only water market available to many people and the price increases could in turn cause looting.

4. Water Riots: International Examples

Finally, the most threatening and disruptive behavior that could occur after a terrorist attack on a water source or distribution system is a riot. Many of the internationally documented water riots¹¹⁴ relate to development efforts—that is, a water system is proposed and then that system or project does not deliver, or does not deliver to certain segments of the population equally. In 2002, violent water riots erupted in the Algerian town of El Arrouch, and were attributed to chronic drinking water shortages and inefficient supply systems.¹¹⁵ Small riots have also broken out among farmers in China, Ethiopia, Egypt, and Central America, and showed characteristics similar to those experienced in the worldwide food riots of 2008.¹¹⁶ Then, in 2009, water riots broke out in Madhya Pradesh, India.¹¹⁷ Climate change and decreased levels of precipitation caused the water shortage, but the consequences were startling. There were over fifty violent encounters reported in the capitol city in one month, and over a period of four months, twelve people were killed and many others injured fighting over a bucket of water.¹¹⁸

Environmental stress has encouraged water riots as well, such as in 2001 Pakistan, in which a long-term drought led to riots, four bombs, one death, twelve injuries, and thirty arrests.¹¹⁹ Ethnic conflict resulted as some groups accused the government of favoring the cultural majority in water distribution.¹²⁰

When the water situation is dire and there is not enough water available, people resort to desperate measures, including violence. To prevent water

113. States may be able to curtail this behavior under the Commerce Clause. *See Exxon Corp. v. Governor of Md.*, 437 U.S. 117 (1978) (holding that the state law from prohibiting oil companies from operating gas stations did not violate the Commerce Clause of the US Constitution; the law was passed to correct the inequalities in prices).

114. *See Water Conflict Chronology List*, PACIFIC INSTITUTE, <http://www.worldwater.org/conflict/list/> (sort "Conflict Type" by "development dispute") (last visited Mar. 28, 2013).

115. HÅKAN TROPP & ANDERS JÄGERSKOG, STOCKHOLM INT'L WATER INST., WATER SCARCITY CHALLENGES IN THE MIDDLE EAST AND NORTH AFRICA (MENA) 12-13 (2006), available at <http://hdr.undp.org/en/reports/global/hdr2006/papers/siwi2.pdf>.

116. INT'L INST. STRATEGIC STUDIES, CONFLICT AND COMPETITION OVER CHANGING WATER RESOURCES: HOW STATES REACT TO WATER STRESS: RECOMMENDATIONS FOR LONG-TERM STRATEGIC PLANNING IN A WARMING CLIMATE 4 (2009), available at <http://pubpages.unh.edu/~jlu36/IISSReport-July232009.pdf>.

117. Govind Singh, *Water Wars Strike Ahead of Predictions*, ECO LOCALIZER (May 16, 2009), <http://ecolocalizer.com/2009/05/16/water-wars-strike-ahead-of-predictions/>.

118. *Id.*

119. Gleick, *Water & Terrorism supra* note 56, at 489 tbl.1.

120. *Id.*

riots from occurring in the US after a terrorist attack against a water source or distribution center, leaders must understand the legal tools for public health emergency preparedness and the framework for water source regulation.

III. THE LAW OF THE DRINKING WATER AS IT RELATES TO PUBLIC HEALTH EMERGENCIES

Water is a unique subject of the law in that it is characterized as a natural resource, public property, commodity, need, and right in legal and academic discussions.¹²¹ An understanding of the various characterizations of water is necessary to understand how best to regulate and distribute drinking water during a public health emergency.

A. THE NATURE OF WATER: RESOURCE, PUBLIC PROPERTY, COMMODITY, NEED, AND RIGHT

Exploring the characterization of water is important because it explains why creating one standard to protect all of the various interests in water is so difficult to articulate. For some, water is a means of business, for others, it is the lifeblood for production, and for others still, it is a vacation destination. Nevertheless, for everyone, it is necessary for health and life.

First, water is a natural resource.¹²² Canada and the US protect the Great Lakes as a resource for the benefit of humankind.¹²³ Second, water is public property, or part of the commons. Historically, water belonged to the public, and individuals could not fully own it ("water is a commons because it is the ecological basis of all life and because its sustainability and equitable allocation depend on cooperation among community members").¹²⁴ In general, such a characterization means that water can only be used, never owned.¹²⁵ Third, water is a commodity: it can be purchased and sold on a market.¹²⁶ Although Canada and the US characterize the Great Lakes as a natural resource, they

121. See generally, A. Dan Tarlock, *Five Views of the Great Lakes and Why They Might Matter*, 15 MINN.J. INTL. L. 21, 32-33 (2006).

122. World Trade Report 2010: Trade in Natural Resources, WORLD TRADE ORG., 46 (2010), http://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report10_e.pdf (natural resources are "stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing").

123. Tarlock, *supra* note 121, at 32-33.

124. VANDANA SHIVA, *WATER WARS: PRIVATIZATION, POLLUTION AND PROFIT* 24 (2002).

125. Kwaterski Scanlan, *supra* note 18, at 1336.

126. Some corporations, especially those with bottled water products, conceptualize water in this way. See, e.g., *id.* at 1341 ("All of us in the Coca-Cola family wake up each morning knowing that every single one of the world's 5.6 billion people will get thirsty that day and that we are the ones with the best opportunity to refresh them . . . [I]f we make it impossible for these 5.6 billion people to escape Coca-Cola then we assure our future success for many years to come. Doing anything else is not an option.") (quoting COCA-COLA BOTTLING CO. CONSOL., 1993 ANNUAL REPORT 10 9 (1994)).

also encourage some commoditization of the Great Lakes.¹²⁷ The market has a powerful role and embodies powerful interests; multinational corporations that provide water services are engaged in an over one trillion dollar per year industry.¹²⁸

When water as a commodity is viewed in light of humanity's unique dependence on it, water is really a human need, which is a difficult standard to articulate.¹²⁹ It may seem like semantics, but a human need can be met and satisfied as a commodity, in that individuals can purchase commodities to satisfy their needs, whereas a human right has a legal connotation that requires respect, protection, and fulfillment by a government. For example, the Fifth World Water Forum on March 22, 2009 announced, "We recognize that access to safe drinking water and sanitation is a basic human need."¹³⁰ Last, water is both a need and a right, and many academics and advocates argue that water must be characterized as a right in order to secure its availability for all.¹³¹

While the mere articulation of water as a right might seem sufficient to guarantee everyone minimum access to water, such a "right" cannot be enforced in the US. In general, most human rights proclamations concerning water lack express support from the US "because this government has argued that supporting these proclamations would infringe United States sovereignty."¹³² No other nation has fought as aggressively to remove language in international conventions referring to a water right in order to protect its sovereignty.¹³³ If water is characterized as a human right, then important questions related to the use of the Great Lakes arise, such as whether citizens in the southwestern US have a human right to access the water of the Great Lakes for agricultural purposes. Although the US has declined to enact national legislation mirroring international documents recognizing a human right to water, the Great Lakes Compact characterizes the water in the Great Lakes as a natural resource,¹³⁴

127. Tarlock, *supra* note 121, at 33. *See also* Sporhase v. Nebraska *ex rel.* Douglas, 458 U.S. 941 (1982) (holding water is an article of commerce and exportation bans implemented by states are unconstitutional unless the state has a strong conservation rationale supporting the ban).

128. Kwaterski Scanlan, *supra* note 18, at 1340.

129. Hughes, *supra* note 3, at 525.

130. *Id.* (quoting INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, VOL. 82, NO. 22, WORLD WATER FORUM BULLETIN 3, (2009), available at <http://www.iisd.ca/ymb/water/worldwater5/html/ymbvol82num22e.html>).

131. *See, e.g., Special Rapporteur on the human right to safe drinking water and sanitation*, UNITED NATIONS HUMAN RIGHTS, OFFICE OF HIGH COMMISSIONER FOR HUMAN RIGHTS, <http://www.ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/SRWaterIndex.aspx> (last visited Mar. 28, 2013). The United Nations declared water as a right in 2010. *Frequently asked questions on the rights to water and sanitation*, UNITED NATIONS HUMAN RIGHTS, OFFICE OF HIGH COMMISSIONER FOR HUMAN RIGHTS, http://www.ohchr.org/Documents/Issues/Water/FAQWater_en.pdf (last visited Mar. 28, 2013); *see also* Peter Gleick, *The Human Right to Water*, 1(5) WATER POLICY 487, 487-88 (1999); Dena Marshall & Janet Neuman, *Seeking a Shared Understanding of the Human Right to Water: Collaborative Use Agreements in the Umatilla and Walla Walla Basins of the Pacific Northwest*, 47 WILLAMETTE L. REV. 361, 364-65 (2011); McGraw, *supra* note 2, at 138.

132. Marshall & Neuman, *supra* note 131, at 364.

133. Simus & Workman, *supra* note 6, at 442.

134. Great Lakes Compact 2005, *supra* note 9, at art. 1 §1.3(a) ("The Waters of the Basin are precious public natural resources shared and held in trust by the States[.]").

which creates opportunities for regulation and emergency planning at the federal and state levels.

B. FEDERAL REGULATIONS

Federal statutes relating to drinking water safety primarily focus on pollution and contamination, with little guidance on providing and distributing drinking water during a public health emergency.¹³⁵ As with many issues in public health law, regulation is left to the states,¹³⁶ and the Great Lakes Compact is adaptable to provide an alternative source of drinking water if terrorists attack a water distribution system or source.

1. The Federal Safe Drinking Water Act Clean Water Act

Congress passed the Safe Drinking Water Act ("SDWA")¹³⁷ in 1974 and amended it in 1996 to "ensure that the public water supply systems meet national standards to protect public health,"¹³⁸ and to certify that drinking water does not threaten the public's health.¹³⁹ Specifically, the SDWA grants the Environmental Protection Agency ("EPA") Administrator power to "set, monitor and disseminate national drinking water standards."¹⁴⁰ EPA sets standards to control the maximum contaminant levels allowed in drinking water,¹⁴¹ and promulgates the National Primary Drinking Water Regulations.¹⁴² The SDWA also grants the EPA Administrator power "to issue emergency orders to protect the public health in the event that a contaminant threatens a source of drinking water."¹⁴³

In 1972, Congress amended the Federal Water Pollution Control Act,¹⁴⁴ which had the goal of eliminating or reducing the pollution of interstate waters as well as improving the sanitation of underground water,¹⁴⁵ along with the Clean Water Act¹⁴⁶ to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."¹⁴⁷ Again, EPA is tasked with creating

135. See Federal Safe Drinking Water Act, 42 U.S.C. §§ 300(f) to (j)-26 (2008).

136. THE CTRS. FOR LAW & THE PUB.'S HEALTH, TUBERCULOSIS CONTROL LAWS AND POLICIES: A HANDBOOK FOR PUB. HEALTH AND LEGAL PRACTITIONERS 12 (2009) ("[S]tates have a predominant role in providing population-based health services . . . In accordance with their police powers, state governments can regulate and restrict public and private activities in the interest of public health, subject only to constitutional limits . . . Police powers . . . include all laws and regulations directly or indirectly intended to improve health and decrease morbidity and mortality in the population.") (on file with author).

137. 42 U.S.C. §§ 300(f) to (j)-26 (2008).

138. Eaton, *supra* note 7, at 128, 262.

139. *Id.* at 128.

140. *Id.* at 262.

141. 42 U.S.C. § 300f (2006).

142. *Id.* at § 300g-1 (2000); see 40 C.F.R. pt. 141 (2002).

143. Eaton, *supra* note 7, at 129 (summarizing 42 U.S.C. § 300i(a) (2006)).

144. *Id.* at 118.

145. 33 U.S.C. §§ 1251-1376 (2006).

146. 33 U.S.C. §§ 1251-1387 (2006).

147. 33 U.S.C. § 1251(a) (2006).

national standards for water quality,¹⁴⁸ but states may promulgate their own standards so long as those standards do not conflict with the Clean Water Act.¹⁴⁹

Neither of these federal statutes addresses the concerns raised in this Article, which is not whether the water in the Great Lakes will be suitable for drinking,¹⁵⁰ but whether the Great Lakes States have authority to withdraw water from the Great Lakes in the event of a terrorist attack on a water source. The purpose of these withdrawals would be to prevent social disruption resulting from such an attack, and to maintain the public health of the affected state(s). The most pertinent federal legislation, although not the only solution for the Great Lakes States, is Title IV of the Public Health Security and Bioterrorism Preparedness Response Act of 2002.¹⁵¹

2. The Public Health Security and Bioterrorism Preparedness Response Act of 2002

The closest federal regulation to emergency planning for drinking water comes from the Public Health Security and Bioterrorism Preparedness Response Act of 2002 ("Act"), in the Drinking Water Security and Safety Amendments ("Amendments").¹⁵² The Amendments protect the public water supply from intentional harmful acts, like terrorist attacks, and provide funding for its statutory requirements.¹⁵³ Congress granted EPA the authority to develop and enforce national security policies regarding public water systems.¹⁵⁴ The pertinent provision of the Act is the requirement that most community water systems participate in vulnerability assessments¹⁵⁵ and emergency response

148. Eaton, *supra* note 7, at 118. EPA is required to "prepare or develop comprehensive programs for preventing, reducing, or eliminating the pollution of the navigable waters and ground waters and improving the sanitary condition of surface and underground waters." 33 U.S.C. § 1252(a) (2006).

149. 33 U.S.C. § 1313(a) (2006).

150. In fact, the water in the Great Lakes is considered suitable drinking water, even if it must be treated. MICHAEL KEATING, OUR GREAT LAKES: WHAT IS HAPPENING TO THEM, WHAT IT MEANS, AND WHAT YOU CAN DO TO HELP KEEP THEM GREAT 5 (Sarah Weber ed., 2004), available at <http://binational.net/ourgreatlakes/ourgreatlakes.pdf> ("Treated drinking water from the lakes and the surrounding watershed is safe."). In Michigan, Minnesota, Wisconsin, and Ontario the communities that draw their water from Lake Superior are: Ashland, Baraga, Beaver Bay, Cloquet (as a backup supply), Duluth, Grand Portage, Grand Marais, L'Anse, Marquette, Rosspoint, Silver Bay, Sault Ste. Marie, Superior, Terrace Bay, Thunder Bay, and Two Harbors. Great Lakes Comm'n, *Lake by lake: Superior*, HUMAN HEALTH AND THE GREAT LAKES, <http://www.great-lakes.net/humanhealth/lake/superior.html> (last modified Apr. 29, 2003).

151. Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188, 116 Stat. 594 (2002).

152. Chilakamari, *supra* note 7, at 927.

153. *Id.* at 930. See Public Health Security and Bioterrorism Preparedness and Response Act, §§ 401-403, 116 Stat. at 682-87 (codified as amended in scattered sections of 42 U.S.C.). See also Shermer, *supra* note 60, at 360.

154. Chilakamari, *supra* note 7, at 927-28 (arguing that Congress granted such limited authority to EPA that EPA cannot take a proactive position against future attacks).

155. Shermer, *supra* note 60, at 391 ("A vulnerability assessment is a 'systematic analysis' of a drinking water facility's components that evaluates their susceptibility to potential threats."). See

plans ("ERPs").¹⁵⁶ An ERP must include "plans, procedures, and identification of equipment that can be implemented or utilized in the event of a terrorist or other intentional attack on the public water system."¹⁵⁷ Such plans should identify responsibilities of teams and employees, give details of notification procedures, as well as provide alternative courses of action.¹⁵⁸ Thus, public water systems must have an emergency plan detailing response tactics in the event of an emergency, including a terrorist attack.¹⁵⁹ The Amendments also include preventative measures and require that regulated water systems research the methods and means of potential disruptions, as well as ways to detect and respond to threats.¹⁶⁰ One shortfall of the Amendments, however, is the lack of a submission requirement; although qualified water systems must draft these plans, they do not have to submit the plans to EPA.¹⁶¹

For example, in Minnesota, the Minnesota Department of Natural Resources Division of Water and the Metropolitan Council have implemented the Amendments' requirements. In its template for water systems, Minnesota's ERP section includes a process for the augmentation of the water supply:

List all available sources of water that can be used to augment or replace existing sources in an emergency . . . Copies of cooperative agreements should be maintained with your copy of the plan . . . Be sure to include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MN Department of Health are required for interconnections and reuse of water.¹⁶²

This indicates that Minnesota recognizes, where federal law and general public health emergency preparedness checklists do not, that planning for alternative water sources is critical to preventing socially disruptive behaviors in the aftermath of a terrorist attack on a water source or supply system. The Great Lakes Compact of 2005 provides a legal mechanism by which the Great Lakes

EPA, VULNERABILITY ASSESSMENT FACTSHEET 1 (2002), available at http://www.epa.gov/watersecurity/pubs/va_fact_sheet_12-19.pdf.

156. Gleick, *Water & Terrorism*, *supra* note 56, at 500 ("According to the EPA in February 2006, all large- and medium-size systems had completed their assessments; 97% of small systems had completed assessments. No separate information is available on the adequacy or comprehensiveness of the assessments, or whether actual response plans have been put in place.") (citation omitted). See 42 U.S.C. § 300i-2(b) (2006); see also COPELAND, *supra* note 55, at 3-4.

157. 42 U.S.C. § 300i-2(b) (2006).

158. Shermer, *supra* note 60, at 393 (stating ERP plans should include public health authorities and other partners).

159. *Id.* at 359-60.

160. *Id.*; see also 42 U.S.C. §§ 300i-3 to i-4 (2006).

161. Shermer, *supra* note 60 at 391, 394.

162. DEP'T OF NATURAL RES., DIV. OF WATER & METRO. COUNCIL, WATER SUPPLY PLANS 9 (2010); see also WASH. STATE DEP'T OF HEALTH, ENVTL. HEALTH PROGRAMS, DIV. OF DRINKING WATER, EMERGENCY RESPONSE PLANNING GUIDE FOR PUBLIC DRINKING WATER SYSTEMS 29 (2003) ("All public water systems should plan ahead to provide alternate safe water during an emergency, if feasible. It is important to evaluate potential alternative water supplies ahead of time to ensure the water is safe and the supply is available.").

States, such as Minnesota, may develop specific plans for alternative sources of drinking water in the event of an emergency that disrupts water distribution.

IV. EMERGENCY USE OF A GREAT LAKE'S WATER: A LEGAL ASSESSMENT

It would seem that the obvious solution to a potential attack on a drinking water source would be simply to withdraw the water from one of the Great Lakes. An interstate and international legal regime, however, strictly regulates the Great Lakes, requiring legal analysis before emergency plans can include water from the Great Lakes.¹⁶³

A. THE LAW OF THE GREAT LAKES: A COMPLEX REGULATORY SCHEME

The water in the Great Lakes holds a unique legal position in American law because the Lakes border eight states and two Canadian provinces, each of which have some jurisdiction and control over the water in the system.¹⁶⁴ Interstate and international coordination is critical to successful regulation of the Great Lakes' vast resources.¹⁶⁵ For over one hundred years, the Great Lakes have been the subject of successive treaties.¹⁶⁶ Early treaties regulating the Great Lakes failed to address the legality of government-authorized withdrawals of water in emergencies.

1. 100 Years of Great Lakes Treaties

In 1909, Great Britain (representing Canada)¹⁶⁷ and the US entered into the 1909 Boundary Waters Treaty ("Boundary Waters Treaty").¹⁶⁸ The Boundary Waters Treaty established the International Joint Commission ("IJC"), an advisory body composed of three members from each nation and "intended to provide review of matters relating to the use of the boundary waters specifically pertaining to shipping and trade."¹⁶⁹ The IJC reviewed actions that would affect boundary water levels,¹⁷⁰ construction projects and diversions,¹⁷¹ and additional uses and obstructions.¹⁷² Though it was supplemented by

163. See e.g., Johnson-Karp, *supra* note 32, at 427-35.

164. See Hall, *supra* note 31, at 405-07.

165. See *id.*

166. See Johnson-Karp, *supra* note 32, at 427-28.

167. Sobocienski, *supra* note 25, at 486.

168. Johnson-Karp, *supra* note 32, at 428.

169. 1909 Boundary Waters Treaty, U.S.-Great Britain, art. VII, Jan. 11, 1909 (treaty between the United States and Great Britain Relating to Boundary Waters, and Questions Arising between the United States and Canada) available at <http://www.ijc.org/rel/agree/water.html#text> [hereinafter 1909 Boundary Waters Treaty]. See Johnson-Karp, *supra* note 32, at 428.

170. 1909 Boundary Waters Treaty, *supra* note 169, at art. VIII. Interestingly, Lake Michigan was excluded from these protections, because it was not a boundary waters lake. Sobocienski, *supra* note 25, at 487; see also Mark Squillace, *Rethinking the Great Lakes Compact*, 2006 MICH. ST. L. REV. 1347, 1351 (2006).

171. 1909 Boundary Waters Treaty, *supra* note 169, at art. VIII; see also Johnson-Karp, *supra* note 32, at 428.

the Water Quality Agreement of 1972, the Boundary Waters Treaty remains in force today.¹⁷³

The US Congress provided additional protection for the Great Lakes by ratifying the Great Lakes Basin Compact¹⁷⁴ ("Original Compact") in 1968.¹⁷⁵ The negotiations for the Original Compact began in 1940.¹⁷⁶ The Original Compact created the Great Lakes Commission,¹⁷⁷ which has authority to gather data, conduct research, and make non-binding recommendations regarding policy surrounding the Great Lakes.¹⁷⁸

In 1985, the eight Great Lakes States and two Canadian provinces¹⁷⁹ revisited their agreements for the purpose of restricting Great Lakes Basin diversions,¹⁸⁰ with the assumption that "[t]he water resources of the Great Lakes Basin are precious public natural resources, shared and held in trust by the Great Lakes States and Provinces."¹⁸¹ The Great Lakes Charter was signed on February 11, 1985.¹⁸² Critics pointed out that the Great Lakes Charter lacked

172. 1909 Boundary Waters Treaty, *supra* note 169, at art. VIII; *see also* Sobocienski, *supra* note 25, at 487.

173. Jessica A. Bielecki, *Managing Resources With Interstate Compacts: A Perspective from the Great Lakes*, 14 BUFF. ENVTL. L.J. 173, 177 (2007); *see also* The Great Lakes Water Quality Agreement, International Joint Commission U.S.—Can., Nov. 22, 1978, *available at* <http://www.ijc.org/en/activities/consultations/glwqa/agreement.php>; Johnson-Karp, *supra* note 32, at 428.

174. "An interstate compact is a formal, legally binding agreement between two or more states regarding an inter-state issue." Bielecki, *supra* note 173, at 187. An interstate compact is the highest level of interstate cooperation in which a state can enter. Tarlock, *supra* note 121, at 38. Article I, Section 10, Clause 3 of the Constitution of the United States provides "[n]o state shall, without the Consent of Congress . . . enter into any Agreement or compact without another state, or with a foreign Power . . ." This has been interpreted to allow states to enter into binding agreements that define or share their quasi-sovereign powers. Tarlock, *supra* note 121, at 38. While this seems counterintuitive that a state could enter into an agreement with a foreign nation, the United States Supreme Court has settled this issue: "The [Supreme] Court [of the United States] established that an interstate agreement will be upheld where the subject matter of the agreement does not impinge on the supremacy of the federal government or where Congress has knowledge of such agreements and has acquiesced to their existence. However, where Congress has affirmed the states' compact through federal legislation, federal law will provide the controlling rule of decision." Johnson-Karp, *supra* note 32, at 430.

175. Sobocienski, *supra* note 25, at 489-90.

176. *Id.* at 489. *See* Squillace, *supra* note 170, at 1351-52 ("In 1955, the five states of Illinois, Indiana, Michigan, Minnesota, and Wisconsin ratified the Compact. Pennsylvania joined the following year, New York signed on in 1960, and Ohio ratified the Compact in 1963.").

177. Great Lakes Basin Compact, art. IV (A), July 24, 1968, Pub. L. 90-419, *available at* <http://www.glc.org/about/glbc.html> [hereinafter 1968 Great Lakes Compact]; *see* Squillace, *supra* note 170, at 1351.

178. 1968 Great Lakes Compact, *supra* note 177, at art. VI; *see* Sobocienski, *supra* note 25, at 490.

179. Illinois, Indiana, Michigan, Minnesota, New York, Pennsylvania, Wisconsin, and Ohio, and Ontario and Québec. THE COUNCIL OF GREAT LAKES GOVERNORS, THE GREAT LAKES CHARTER: PRINCIPLES FOR THE MANAGEMENT OF GREAT LAKES WATER RESOURCES 7 (1985) [hereinafter GREAT LAKES CHARTER], *available at* <http://www.cglg.org/projects/water/docs/GreatLakesCharter.pdf>.

180. Johnson-Karp, *supra* note 32, at 428.

181. GREAT LAKES CHARTER, *supra* note 179, at 1.

182. *Id.* at 7.

standards and therefore enforcement was nearly impossible.¹⁸³ It was then amended in 2001 to “provide a legally binding agreement as a means of implementing the previously enacted Water Resources Development Act of 1986.”¹⁸⁴ Much like the Original Compact, the Charter suffered from a similar enforcement flaw; there were no clear standards for governors to enforce, only a *per se* ban on diversions without unanimous consent from the governors.¹⁸⁵

2. The Great Lakes Compact of 2005: A New Era of Enforceable Obligations

The previous agreements did not address diverting water from the Great Lakes in an emergency for drinking water purposes, but this problem was rectified in 2005 with the passage of the Great Lakes Compact.¹⁸⁶ A Compact governing the Great Lakes provides for public health emergencies with a standard that is easy to enforce but still provides drinking water in appropriate situations. Through the inclusion of the emergency use provision, today the Great Lakes are better regulated for public health purposes than at any point in history.

In 2005, after five years of negotiation,¹⁸⁷ the Great Lakes States and Canadian provinces drafted a legally enforceable contract entitled the “Great Lakes-St. Lawrence River Basin Water Resources Compact” (“Great Lakes Compact”).¹⁸⁸ Each state’s legislature was required to approve the Great Lakes Compact¹⁸⁹ and Minnesota was the first state to ratify.¹⁹⁰ US Congress subsequently approved the Great Lakes Compact and President George W. Bush signed it into law in 2008.¹⁹¹

The primary purpose of the Great Lakes Compact is similar to that articulated in the previous agreements, but its standards and enforcement mechanisms are stronger. The parties acknowledge that they “have a shared duty to protect, conserve . . . and manage the renewable but finite Waters of the Basin for the use, benefit and enjoyment of all their citizens, including generations yet to come.”¹⁹² The major purpose of the Great Lakes Compact is to prevent

183. Johnson-Karp, *supra* note 32, at 428.

184. *Id.* at 428-29. This is a United States federal law passed for taking “immediate action to protect Basin resources by requiring the unanimous consent of Great Lakes governors for diversions of water out of the Basin.” *Id.* at 429; accord THE COUNCIL OF GREAT LAKES GOVERNORS, THE GREAT LAKES CHARTER ANNEX 2 (2001), available at <http://www.cglg.org/projects/water/docs/GreatLakesCharterAnnex.pdf>. Under the law, the governor of any Great Lakes State can veto a transbasin diversion. Tarlock, *supra* note 121, at 23. There are still concerns about raids against the lakes, as well as the cumulative effect of multiple small diversions. *Id.* at 24-25.

185. Johnson-Karp, *supra* note 32, at 429.

186. Great Lakes Compact 2005, *supra* note 9 at 3740.

187. Sobocienski, *supra* note 25, at 482.

188. Hall et al., *supra* note 29, at 216.

189. Johnson-Karp, *supra* note 32, at 431.

190. Bielecki, *supra* note 173, at 189. Minnesota codified the Great Lakes Compact in 2007 as MINN. STAT. § 103G.801 (2011). Minn. Dep’t of Natural Res., *Great Lakes Compact*, http://www.dnr.state.mn.us/waters/watermgmt_section/great_lakes_compact/index.html (last visited Apr. 7, 2012).

191. Johnson-Karp, *supra* note 32, at 431. See also Hall et al., *supra* note 29, at 217.

192. Great Lakes Compact 2005, *supra* note 9, at § 1.3(1)(f).

diversions from the Great Lakes Basin¹⁹³ to other areas of the country and world.¹⁹⁴ The Great Lakes Compact prohibits all new or increased diversions, except as provided in the agreement.¹⁹⁵ A diversion is

[A] transfer of Water from the Basin into another watershed, or from the watershed of one of the Great Lakes into that of another by any means of transfer . . . but does not apply to Water that is used in the Basin or a Great Lake watershed to manufacture or produce a Product that is then transferred out of the Basin or watershed.¹⁹⁶

The Great Lakes Compact provides several exceptions for transfers of water to which the prohibition on diversions does not apply.¹⁹⁷ Section 4.9 lists the specific exceptions as (i) transfers to straddling communities for public water supply purposes;¹⁹⁸ (ii) intra-basin transfers of certain amounts;¹⁹⁹ and (iii) transfers to straddling counties that would be considered diversions.²⁰⁰ The individual elements outlined in the specific exceptions must be met.²⁰¹ Each state manages and regulates new or increased diversions,²⁰² and determines whether the application is consistent with the Compact or the Standards of Review.²⁰³ The Re-

193. The Basin or the Great Lakes-St. Lawrence River Basin, is defined in the Great Lakes Compact as "the watershed of the Great Lakes and the St. Lawrence River upstream from Trois-Rivières, Québec within the jurisdiction of the Parties." *Id.* §1.2.

194. *See id.* § 1.3(2)(f).

195. *Id.* § 4.8.

196. *Id.* § 1.2.

197. Great Lakes Compact 2005, *supra* note 9, at § 4.8.

198. *Id.* § 4.9(1).

199. *Id.* § 4.9(2).

200. *Id.* § 4.9(3).

201. *Id.* § 4.9(4).

(a) The need for all or part of the proposed Exception cannot be reasonably avoided through the efficient use and conservation of existing water supplies; (b) The Exception will be limited to quantities that are considered reasonable for the purposes for which it is proposed; (c) All Water Withdrawn shall be returned, either naturally or after use, to the Source Watershed less an allowance for Consumptive Use. No surface water or groundwater from the outside the Basin [sic] may be used to satisfy any portion of this criterion except if it: (i) Is part of a water supply or wastewater treatment system that combines water from inside and outside of the Basin; (ii) Is treated to meet applicable water quality discharge standards and to prevent the introduction of invasive species into the Basin; (d) The Exception will be implemented so as to ensure that it will result in no significant individual or cumulative adverse impacts to the quantity or quality of the Waters and Water Dependent Natural Resources of the Basin with consideration given to the potential Cumulative Impacts of any precedent-setting consequences associated with the Proposal; (e) The Exception will be implemented so as to incorporate Environmentally Sound and Economically Feasible Water Conservation Measures to minimize Water Withdrawals or Consumptive Use; (f) The Exception will be implemented so as to ensure that it is in compliance with all applicable municipal, State and federal laws as well as regional interstate and international agreements, including the Boundary Waters Treaty of 1909.).

202. *Id.* § 4.3(1).

203. Great Lakes Compact 2005, *supra* note 9, at § 4.3(3).

gional Body (the members of the Regional Council²⁰⁴ and the Premiers of Ontario and Québec²⁰⁵) review applications for all diversions that result in a consumptive use of five million gallons per day,²⁰⁶ intra-basin diversions exceeding five million gallons per day,²⁰⁷ and diversions for straddling communities regardless of the size of the diversion.²⁰⁸

Significantly, the Great Lakes Compact distinguishes between the ways in which water is taken from the Great Lakes.²⁰⁹ A withdrawal is “the taking of water from surface water or groundwater.”²¹⁰ Thus, a “diversion” is the taking of water from the Great Lakes and placing it into another watershed, whereas a “withdrawal” refers only to the extraction of water from the Great Lakes. Withdrawals are also subject to the water management and regulations provisions of Article 4.²¹¹ While there are “exceptions” for diversions under the Great Lakes Compact, there are “exemptions” for withdrawals under the Great Lakes Compact. There is one exemption of import for public health officials and those tasked with finding alternative sources for drinking water in emergencies, and that is the exemption for “humanitarian or emergency response purposes.”²¹²

B. WITHDRAWALS OF WATER FROM THE GREAT LAKES FOR SHORT-TERM EMERGENCY USE

For purposes of this Article, the most important provision in the Great Lakes Compact is an exemption to withdrawals. “Withdrawals from the Basin for the following purposes are exempt from the requirements of Article 4 . . . To use in a non-commercial project on a short-term basis for firefighting, *humanitarian, or emergency response purposes.*”²¹³ Any party seeking a withdrawal of water who qualifies for an exemption does not have to complete the application and review procedures described in Article 4. This would be critically important during a public health emergency, because the review process can take up to ninety days.²¹⁴ There are three important elements to this exemption: non-commercial use, short-term use, and the purpose of the withdrawal—namely a humanitarian or emergency response purpose.

204. The parties agreed to the creation of a Regional Council, which has broad powers to research, collect data, conduct investigations and state court actions. *Id.* § 3.2. Parties are also required to submit water management and conservation reports to the Regional Council. *Id.* § 3.4. See Johnson-Karp, *supra* note 32, at 431-32.

205. Great Lakes Compact 2005, *supra* note 9, at § 4.9.

206. *Id.* § 4.9(1)(c), (2)(c).

207. *Id.* § 4.9(2)(c).

208. *Id.* § 4.9(3)(c).

209. *Id.* § 1.2 (Water can be diverted by “pipeline, canal, tunnel, aqueduct, channel, modification of the direction of a water course, tanker truck or rail tanker”).

210. *Id.*

211. Great Lakes Compact 2005, *supra* note 9, at § 1.2.

212. *Id.* § 4.13(2).

213. Great Lakes Compact 2005, *supra* note 9, at § 4.13(2) (emphasis added).

214. *Id.* § 4.5(1)(b).

First, a withdrawal must be non-commercial in nature.²¹⁵ Unfortunately, the Great Lakes Compact does not define this term. The Regional Body issued a Resolution in 2009²¹⁶ that provides some guidance:

Commercial uses include Water used by motels, hotels, restaurants, office buildings and institutions, both civilian and military, which would not otherwise be considered Public Water Supplies. This category also includes Water for mobile homes, hospitals, schools, air conditioning and other similar uses not covered under a public supply. In addition, this category includes amusement and recreational Water uses such as snowmaking and Water slides.²¹⁷

Under this definition, water is used for commercial purposes when not used as part of the public water supply. Therefore, the definition of public water supply becomes critical to understanding the emergency use exemption. The Great Lakes Compact defined a public water supply as:

Water distributed to the public through a physically connected system of treatment, storage and distribution facilities serving a group of largely residential customers that may also serve industrial, commercial, and other institutional operators. Water Withdrawn directly from the Basin and not through such a system shall not be considered to be used for Public Water Supply Purposes.²¹⁸

As the previous excerpt demonstrates, how water is withdrawn from a Great Lake during a public health emergency will determine whether the use is non-commercial. If water is withdrawn through drums or tankards, rather than through the pipelines or systems that make up a public water supply system, the withdrawal may be considered a commercial use. Therefore, any government unit or water distribution system planning for an alternative source of drinking water will also want to establish connections and partnerships with public water distribution systems near the Great Lakes to ensure the withdrawal requirements are satisfied.

Second, a withdrawal must be for a short-term use,²¹⁹ which, unfortunately, is also undefined. Thus, withdrawals for the following purposes are not exempted: irrigation, manufacturing, or food production—even if the withdrawals were from a public water supply. Additionally, withdrawing water for transfer to an area outside of the Great Lakes region where water is systematically scarce would not fit the exemption, because a systematic scarcity of water is not

215. *Id.* § 4.13(2).

216. This Resolution was announced in compliance with the principles of the Great Lakes Compact and the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement. Great Lakes—St. Lawrence River Water Resource Regional Body, Modification of Water Use Reporting Protocols, Res. 19, Dec. 8, 2009, available at http://www.glsrregionalbody.org/Docs/Resolutions/GLSLRWRRB_Resolution_19--Modified_Water_Use_Reporting_Protocols.pdf.

217. *Id.* at Attachment A, at 2. This definition has been used in other Resolutions.

218. Great Lakes Compact 2005, *supra* note 9, at § 1.2.

219. *Id.* §4.13(2).

a short-term problem.²²⁰ Finally, when read in conjunction with the Emergency Response Plans required for water facilities (per the Drinking Water Safety and Security Amendments),²²¹ if the purpose of a withdrawal was decontaminating a water source or repairing a damaged water facility, once the water source or distribution system was secured, then the withdrawal from the Great Lakes would cease. Although it is difficult to quantify the time required because it depends on the nature of the disruption, it is unlikely that an undefined “short term” standard would exclude the time necessary to bring a water distribution system or source back to standard operation.

Third, the withdrawal must be for humanitarian or emergency response purposes.²²² The Great Lakes Compact does not define either of these phrases. The generally accepted definition of an emergency is “an unforeseen combination of circumstances or the resulting state that calls for immediate action.”²²³ There are immediacy and unpredictability elements to this definition that excludes many non-essential water uses. Withdrawing drinking water to meet public needs in the immediate aftermath of a terrorist attack on a water supply or other disaster that affects access to water qualifies as a withdrawal for emergency response purposes. This is because withdrawal is a reaction to an unforeseen circumstance calling for immediate action. Moreover, in the right circumstances, water is a critical life-sustaining resource, and personal drinking water use has priority over other non-life-sustaining uses:

In determining which uses are considered more important over others, a hierarchy of uses should be set out as follows: preservation of ecosystem function, provision of potable water, provision of water for irrigation, recreational, industrial and commercial uses on a proportional basis, and lastly, waste disposal. Activities on the lower end of the hierarchy would only be allowed if it were demonstrated that the higher priorities would not be jeopardized by that use. Decision making over activities should also incorporate the precautionary principle, that, where an activity or substance poses a threat of harm to the environment, we should err on the side of caution; precautionary measures should be taken even in the face of scientific uncertainty.²²⁴

Denying withdrawals from a Great Lake after a drinking water-related public health emergency would cause many people to suffer worse than they would already be suffering. It is nearly impossible to argue that a withdrawal to provide safe drinking water to those persons affected by a terrorist attack on a

220. As much as the author would like to provide a solution to this dire problem, it is beyond the scope of this Article, and one for smarter people to tackle.

221. See *supra* Part III.B.2.

222. Great Lakes Compact 2005, *supra* note 9, at art. 1 § 1.2

223. MERRIAM-WEBSTER, *Emergency*, M-W.COM, <http://www.merriam-webster.com/dictionary/emergency> (last visited March 4, 2013).

224. PAUL McCULLOCH & PAUL MULDOON, FOR THE ENVIRONMENTAL AGENDA FOR ONTARIO PROJECT, A SUSTAINABLE WATER STRATEGY FOR ONTARIO 3 (1999), available at <http://s.cela.ca/files/uploads/367water.pdf>. See also Hughes, *supra* note 3, at 534 (“The right to water cannot mean an unrestricted amount of water, due to ecological and resource limits; but it should entail a sufficient quantity and quality of water to satisfy vital human needs.”).

water source or distribution system in a Great Lakes State would not qualify for a humanitarian or emergency response purpose.

Thus, the Great Lakes States can rely upon § 4.13(2) of the Great Lakes Compact to provide drinking water for their citizens in the event of a terrorist attack on a water source or distribution system. The Great Lakes States can and should rely on the emergency exemption in the Great Lakes Compact when developing emergency preparedness plans.²²⁵ Under the Drinking Water Safety and Security Amendments, water systems must develop Emergency Response Plans. Many states, like Minnesota, have expanded their ERPs to include identifying an alternative source of drinking water. As long as the water is diverted through a public water supply system, these states can rely on the short-term emergency exception in the Great Lakes Compact to identify the nearest Great Lake as an alternative source of water.²²⁶ While some critics may argue this will harm the environment of the Great Lakes, the scale of withdrawal necessary to do permanent harm the Great Lakes environment is unlikely to occur.

However, states outside of the Great Lakes region are unable to rely on the Great Lakes Compact and its emergency provisions at all, as they have no legal right to the water. Some critics suggest the Great Lakes Compact should allow diversions and withdrawals of water for non-commercial, humanitarian purposes.²²⁷ It runs contrary to the language of § 4.13(2) to apply the Great Lakes Compact to a water shortage where the water would be used for a commercial purpose, over a long period, and not for humanitarian or emergency response purposes. Therefore, many of the uses for which the southern and western states need water—namely agricultural uses—would not fall under the diversion exemption, even for a party to the Great Lakes Compact.

Technically, as State parties (the signatories of the Great Lakes Compact) are the first to determine whether an application for a withdrawal can proceed, a state may choose to withdraw water from a Great Lake through its own public water supply system and divert this water to another region of the US. If there is a humanitarian or emergency response need for drinking water in the southern or western regions of the US (such as one that would occur after a terrorist attack on a water source or distribution system), and the water would be used only for drinking water purposes for the public on a short-term basis, the water from the Great Lakes may then be withdrawn by a Great Lakes State. This may have ecological or Compact-imposed consequences, but it is unclear how the Regional Council or other Great Lakes States would respond to this tactic, because there are no clear sanctions defined in the Great Lakes Compact.

225. See *supra* Part IV.B.

226. Kwaterski Scanlan, *supra* note 18, at 1345 (quoting Great Lakes Compact 2005, *supra* note 9, § 1.3(1)(f) (“The Great Lakes Compact allows withdrawals from the Great Lakes Basin ‘to use in a non-commercial project on a short-term basis for firefighting, humanitarian, or emergency response purposes.’”).

227. Kwaterski Scanlan, *supra* note 18, at 1334.

V. CONCLUSION

This article has illustrated that while current regulations on water sources and distribution systems protect the quality of water, public health authorities should require water distributors to develop plans that articulate alternative sources of water to rely on in the case of a water-focused terrorist attack, or any other emergency. Even natural disasters may have primary or secondary effects on a water source or distribution system, so it would be prudent for public health planners to consider the provision of suitable drinking water for those scenarios as well.

This article's legal assessment of the options available to states within the Great Lakes Basin has focused on the Great Lakes Compact, and specifically on § 4.13(2). It ultimately concluded the provision is both broad enough and narrow enough to limit the use of water from the Great Lakes to a short-term use, non-commercial in purpose, for humanitarian or emergency response needs for drinking water. This analysis applies with equal force to other emergencies that impact water security and the availability of drinking water.

The legal assessment presented in this article chiefly applies to states within the Great Lakes Basin, but other areas of the United States should follow in developing their own plans for alternative sources of drinking water in the event of a terrorist attack. Many, if not most, states contain some surface water source that can be treated to be drinkable, but all states should develop similar emergency preparedness plans that address the alternative sources of drinking water.²²⁸ Part of this process may require collaborative agreements across departments, agencies, and jurisdictions, and although the process may be arduous at times, the consequences of failing to plan—such as socially disruptive behaviors or deaths in a community—are much more severe. Water is life's greatest necessity and it is imperative for public health officials to consider how it will be provided for in an emergency.

228. See *supra* note 80, in which the CDC urges communities to develop plans for alternative sources of drinking water.

PRESENT PERFECTED RIGHTS: THE MOST SENIOR UNDEFINED WATER RIGHTS ON THE COLORADO RIVER

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I. INTRODUCTION

Present perfected rights (“PPRs”) are water rights on the Colorado River that predate the compacts, making them the most senior water rights on the river. While on the surface PPRs are well-defined, high-priority water rights on the Colorado River, they quickly become less certain in the details. This article describes PPRs, sets forth how courts and legislation have defined PPRs, and then raises issues that are still unresolved.

II. HISTORY OF PRESENT PERFECTED RIGHTS

Water rights of the Colorado River are governed by the “Law of the River”—a system made up of interstate compacts, federal law, and several United States Supreme Court cases.³ One component of the Law of the River is PPRs.⁴

As a general matter, PPRs are the most senior rights on the Colorado River and are the last rights subject to curtailment in times of shortage.⁴ PPRs are

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1. *Colorado River Storage Project, The Law of the River and Related Legislation*, US Dep’t of Interior Bureau of Reclamation, Upper Colorado Region (last visited Mar. 2, 2013) <http://www.usbr.gov/uc/rm/crsp/lor.html>.

2. Many of these documents can be found on the US Department of Interior Bureau of Reclamation’s website for the Upper Colorado Region. *See id.*

3. *See, e.g.*, Colorado River Compact of 1922 art. VIII (establishing that “[p]resent perfected rights to the beneficial use of waters of the Colorado River System are unimpaired by this compact.”), available at <http://www.usbr.gov/lc/region/pao/pdfiles/crcompct.pdf>.

4. *Rethinking the Future of the Colorado River, Draft Interim Report of the Colorado River Governance Initiative*, 46 UNIV. OF COLO. W. WATER POLICY PROGRAM (2013) <http://www.waterpolicy.info/archives/docs/CRGI-Interim-Report.pdf> [hereinafter CRGI DRAFT INTERIM REPORT]; *see also* ERIC KUHN, THE COLORADO RIVER: THE STORY OF A QUEST FOR CERTAINTY ON A DIMINISHING RIVER 4, 22-23 (roundtable ed. 2007), available at http://www.crwcd.org/media/uploads/How_Much_Water_05-15-07.pdf.

water rights that originate under state law, and state law must be consulted in determining the exact nature of the particular PPR(s).⁵ However, even though the source of PPRs is state law, "the question of whether rights provided by state law amount to present perfected rights . . . is obviously one of federal law."⁶

The term "present perfected rights" first appeared in the Law of the River in Article VIII of the Colorado River Compact, executed on November 24, 1922. Article VIII states:

Present perfected rights to the beneficial use of water of the Colorado River system are unimpaired by this compact. Whenever storage capacity of 5,000,000 acre-feet shall have been provided on the main Colorado River within or for the benefit of the Lower Basin, then claims of such rights, if any, by appropriators or users of water in the Lower Basin against appropriators or users of water in the Upper Basin shall attach to and be satisfied from water that may be stored not in conflict with Article III.

PPRs were also addressed in section VI of the Boulder Canyon Project Act of December 21, 1928, 43 U.S.C. § 617e:

The dam and reservoir provided for by [Section 1] of this title shall be used: First, for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses and satisfaction of present perfected rights in pursuance of Article VIII of said Colorado River Compact; and third, for power

Later, the Report of the Special Master in *Arizona v. California* (1960), stated that neither the Compact nor the Boulder Canyon Project Act defined PPRs, but that "it seems clear, however, that the term was not used in either of these enactments to refer to notices of appropriation which had not yet become the foundation of a going economy—mere paper filings on the River."⁷ Finally, the Supreme Court in *Arizona v. California* (1964) defined PPRs in Article I(G)-(H) of its decree:

(G) 'Perfected right' means a water right acquired in accordance with State law, which right has been exercised by the actual diversion of a specific quantity of water that has been applied to a defined area of land or to definite municipal or industrial works, and in addition shall include water rights created by reservation of mainstream water for the use of [F]ederal establishments under [F]ederal law whether or not the water has been applied to beneficial use;

5. *Bryant v. Yellen*, 447 U.S. 352, 370-71 (1980).

6. *Id.* at 371 n.22.

7. SIMON H. RIFKIND, SPECIAL MASTER REPORT 307 (Dec. 5, 1960) (received by the Court in *Arizona v. California*, 364 U.S. 940 (1961)). The Court's opinion is at 373 U.S. 546, and the Court's decree is at 376 U.S. 340.

(H) 'Present perfected rights' means perfected rights as here defined, existing as of June 25, 1929, the effective date of the Boulder Canyon Project Act.⁸

The Upper Colorado River Basin Compact states that, to avoid being considered in curtailment calculations under the compact, rights in the Upper Basin must have been perfected prior to November 24, 1922, when the Colorado River Compact was signed.⁹ This creates some ambiguity over whether November 24, 1922 or June 25, 1929 is the priority date for PPRs and whether the 1929 date established by *Arizona v. California* (1964) applies to states that were not involved in the litigation.¹⁰

PPRs can also refer to land that the federal government withdraws from the public domain for a certain federal purpose because the land is deemed to contain a reservation of unappropriated appurtenant water necessary to accomplish the purpose of the reservation.¹¹ This federal reserved right "is a 'present perfected right' and is entitled to priority."¹² Under this reasoning, Tribal reserved water rights for reservations created before 1929 qualify as PPRs.¹³

III. SIGNIFICANCE OF PRESENT PERFECTED RIGHTS

PPRs are significant because they are the most senior rights on the Colorado River and are not subject to curtailment in the case of compact shortages.¹⁴ Article II(B)(3) of the 1964 Supreme Court Decree states that, in any year

8. *Arizona v. California*, 376 U.S. 340, 341 (1964); see also *Arizona v. California*, 547 U.S. 150, 154 (2006); *Mohave Valley Irr. & Drainage Dist. v. Norton*, 244 F.3d 1164, 1165 (9th Cir. 2001).

9. Upper Colorado River Basin Compact art. IV(c), 1948. The Upper Colorado River Basin Compact was signed on October 11, 1948, ratified by all five states, and then ratified by Congress on April 6, 1949.

10. CRGI DRAFT INTERIM REPORT, *supra* note 4, at 46-47. It is uncertain when the Compact became effective. Some argue November 24, 1922, when it was signed; others argue June 25, 1929 when the BCPA became effective by declaration of President Hoover. ERIC KUHN, RISK MANAGEMENT STRATEGIES FOR THE UPPER COLORADO RIVER BASIN 9-10 (Jan. 2 2012), available at http://www.crwcd.org/media/uploads/Kuhn_on_Risk_Mgt_Strategies_of_the_UCRB.pdf; see also *Arizona v. California*, 373 U.S. 546, 557, 561-62 (1963).

11. *High Country Citizens' Alliance v. Norton*, 448 F. Supp. 2d 1235, 1239 (D. Colo. 2006) (citing *Cappaert v. United States*, 426 U.S. 128, 138 (1976)).

12. *Id.* (citing *Arizona v. California*, 460 U.S. 605, 610 (1983)).

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

14. COLO. RIVER GOVERNANCE INITIATIVE, *Does the Upper Basin Have a Delivery Obligation or an Obligation Not to Deplete the Flow of the Colorado River at Lee Ferry* 14 (Apr. 2012) (quoting former Colorado Governor Edwin Johnson as stating in 1955:

My belief is, and I get that belief from reading the compact very carefully, that the first priority is the existing water rights at the time when the compact was signed. That is the first priority. The second priority in the 10-year cycle is that the lower states are entitled to have delivered at Lee Ferry 75 million acre-feet of water. The third priority is that the upper states then get 75 million acre-feet of water. I should have been talking about years because I am running into difficulty now. Then the fourth priority is the million acre-feet of water that has been given to the lower states per annum.

Id.; see also CRGI DRAFT INTERIM REPORT, *supra* note 4, at 46; KUHN, *supra* note 4, at 4, 23.

where there is fewer than 7.5 million acre-feet available for use in California, Nevada, and Arizona, the Secretary of the Interior must first supply water to PPRs in order of priority, regardless of state lines.¹⁵ Later, section 301(b) of the Colorado River Basin Project Act modified Article II(B)(3), stating Article II(B)(3) must be administered to give PPRs, users with existing contracts, and federal reservations priority before the Central Arizona Project.¹⁶ In short, PPRs have a high priority and are the last rights subject to curtailment.

PPRs in the Lower Basin are important because the United States Supreme Court has quantified and prioritized PPRs in the Lower Basin states. In Article VI of its 1964 Decree in *Arizona v. California*, the Supreme Court set forth the manner in which the Lower Basin PPRs would be determined, stating that within two years Arizona, Nevada, and California and the federal government should each present to the Court a list of the PPRs in their state.¹⁷ Each state and water user was required to prove that they possessed PPRs.¹⁸ Many of the parties asserting PPRs did not have proof of the extent of their diversions prior to 1929.¹⁹ Furthermore, there were many unresolved issues regarding how PPRs were calculated, such as whether the PPRs should be asserted as a single diversion amount in acre-feet or in terms of irrigable acreage, and whether districts, such as Imperial Irrigation District, had to prove use for individual parcels or the amount used district-wide.²⁰

Eventually, the parties each filed their lists of PPRs with the Supreme Court and motioned to the Supreme Court for a determination of the PPRs within the parties' respective states.²¹ On January 9, 1979, the Supreme Court granted the States' motion for a supplemental decree on the PPR issues left

15. *Arizona v. California*, 376 U.S. 340, 342-43 (1964); see also *Mohave Valley Irr. & Drainage Dist. v. Norton*, 244 F.3d 1164, 1166. Article II(B)(4) of the 1964 Supreme Court Decree states that any mainstream water consumptively used in a state, presumably including PPRs, is charged against that state's apportionment. *Arizona v. California*, 376 U.S. 340, 343 (1964).

16. Colorado River Basin Project Act, Pub. L. No. 90-357, 82 Stat. 885 (Sept. 30, 1968) (codified at 43 U.S.C. § 1521(b)). Specifically, Section 301(b) states:

Article II(B)(3) . . . shall be so administered that in any year in which, as determined by the Secretary, there is insufficient main stream Colorado River water available for release to satisfy annual consumptive use of seven million five hundred thousand acre-feet in Arizona, California, and Nevada, diversions from the main stream for the Central Arizona Project shall be so limited as to assure the availability of water in quantities sufficient to provide for the aggregate annual consumptive use by holders of present perfected rights, by other users in the State of California served under existing contracts with the United States by diversion works heretofore constructed, and by other existing Federal reservations in that State, of four million four hundred thousand acre-feet of mainstream water, and by users of the same character in Arizona and Nevada.

43 U.S.C. § 1521(b).

17. *Arizona v. California*, 376 U.S. 340, 351-52 (1964). This time period was later extended to three years by stipulation of the parties. See *Arizona v. California*, 383 U.S. 268, 268 (1966); *The Supreme Court Decree in Arizona v. California*, WYOMING STATE WATER PLAN (last visited Mar. 7, 2013) <http://waterplan.state.wy.us/BAG/green/briefbook/lor/lor-11.html>.

18. *Arizona v. California*, 376 U.S. 340, 351-52 (1964).

19. See *id.* at 341.

20. *Arizona v. California*, 439 U.S. 419, 420-22 (1979).

21. *Id.* at 419-20.

open by Article VI of the Court's 1964 Decree.²² In its 1979 decision, the Court determined the PPRs in California (3,019,573 acre-feet), Nevada (13,034 acre-feet), and Arizona (1,077,971 acre-feet).²³ The Court also determined the parties in each state entitled to PPRs and the priority dates of each party's PPRs.²⁴

Beyond *Arizona v. California*, there is very little case law addressing PPRs. One case that elaborates on PPRs in the Imperial Irrigation District is *Yellen v. Hickel*.²⁵ In *Yellen*, the plaintiffs filed suit to enforce section 5 of the Reclamation Act of 1902.²⁶ Section 5 bars the Bureau of Reclamation from selling water for use on land that exceeds 160 acres owned by one party, and if the land is fewer than 160 acres, Section 5 requires that the owner of the land reside on the property.²⁷ The defendants argued that the Boulder Canyon Project Act governed Colorado River water use and that it recognized and gave priority to PPRs.²⁸ Because the defendants possessed PPRs, they argued they could not be denied Colorado River water as a result of the acreage and residency requirements of the Reclamation Act.²⁹

In the end, the Court held that it did not have jurisdiction to determine whether the plaintiffs possessed PPRs, but if it did have jurisdiction, it would have determined the defendants did not possess PPRs.³⁰ The Court stated the defendants did not present evidence of PPRs as of 1929.³¹ The defendants had filed water rights claims to divert water from the Colorado River in 1900, but by 1903, their intakes were clogged with silt, and they ceased their diversions.³² Therefore, defendants could not establish PPRs as of 1929. Based on *Yellen*, any individual asserting a PPR should be prepared to demonstrate the use and establishment of their PPR prior to 1929.

PPRs are very important in the Upper Basin because they impact curtailment between the Upper Basin states under the Upper Basin Compact, and they affect how the Upper Basin meets its seventy-five maf over ten years non-

22. *Id.* at 420; see also *Arizona v. California*, 547 U.S. 150, 151-52 (2006).

23. *Arizona v. California*, 439 U.S. 419, 423-36 (1979); *Arizona v. California*, 547 U.S. 150, 169-182 (2006); CRGI DRAFT INTERIM REPORT, *supra* note 4, at 47.

24. *Arizona v. California*, 439 U.S. 419, 423-36 (1979).

25. *Yellen v. Hickel*, 352 F. Supp. 1300 (S.D. Cal. 1972).

26. *Id.* at 1303.

27. 43 U.S.C. § 431 (1902).

28. *Yellen v. Hickel*, 352 F. Supp. at 1307.

29. *Id.* at 1308-09.

30. *Id.* at 1319.

31. *Id.* at 1308.

32. *Id.* at 1308-09. The Court does state that if the landowners:

[H]ave perfected United States water rights, they are free to make use of *those* water rights, *i.e.* they are free to make use of their original diversions in lieu of using B.C.P.A. [Boulder Canyon Project Act] water. However, if the landowners opt to use B.C.P.A. water, they must satisfy the conditions of delivery. The B.C.P.A. recognition given to 'present perfected rights' is a limited recognition.

Id. at 1309. However, the Court quickly states that the United States possesses a superior navigation easement that "precludes private ownership of the water or its flow in a navigable stream." *Id.* at 1309-10. The Court also points out that the landowners were required, pursuant to *Arizona v. California*, 376 U.S. 340 (1964), to submit their claims of PPRs to the Secretary of the Interior before they could be acknowledged, which the defendants had not done. *Id.* at 1310.

depletion requirement.³³ Under the Upper Basin Compact, curtailment occurs based on the previous year's use.³⁴ Article IV of the Upper Basin Compact states that curtailment will occur at the same ratio as each state's consumption ratio of the year, before "overdraft" from the previous years is accounted for, and "provided that in determining such relation the uses of water under rights perfected prior to November 24, 1922, shall be excluded."³⁵ Because PPRs are protected from curtailment in the Upper Basin (at least the initial rounds of curtailment) the extent of PPRs within each state is important. The more of a state's uses qualify as PPRs, the less its uses will be curtailed as against other Upper Basin states.

PPRs could also affect the Upper Basin states' non-depletion requirement to the Lower Basin states if PPRs are not counted against the Upper Basin's seventy-five maf over ten years non-depletion requirement under Article III(d) of the 1922 Compact.³⁶ The Upper Basin's PPRs are not subject to a Lower Basin compact call.³⁷ Therefore, the more Upper Basin uses that are considered PPRs, the more water the Upper Basin states can use that is not subject to curtailment under a Lower Basin call to enforce the seventy-five maf over ten years non-depletion requirement.³⁸

33. CRGI DRAFT INTERIM REPORT, *supra* note 4, at 32.

34. Upper Colorado River Basin Compact art. IV(c), 1948.

35. *Id.* at art. IV. The full text of Art. IV, section (b) and (c) is:

(b) If any State or States of the Upper Division, in the ten years immediately preceding the water year in which curtailment is necessary, shall have consumptively used more water than it was or they were, as the case may be, entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division;

(c) Except as provided in subparagraph (b) of this Article, the extent of curtailment by each State of the Upper Division of the consumptive use of water apportioned to it by Article III of this Compact shall be such as to result in the delivery at Lee Ferry of a quantity of water which bears the same relation to the total required curtailment of use by the States of the Upper Division as the consumptive use of Upper Colorado River System water which was made by each such State during the water year immediately preceding the year in which the curtailment becomes necessary bears to the total consumptive use of such water in the States of the Upper Division during the same water year; provided, that in determining such relation the uses of water under rights perfected prior to November 24, 1922, shall be excluded.

36. KUHN, *supra* note 10, at 13.

37. See Upper Colorado River Basin Compact art. IV(c), 1948; KUHN, *supra* note 4, at 4, 23.

38. KUHN, *supra* note 4, at 80 (noting "[a]s a practical matter, the priorities for the available water in the Upper Basin are as follows: 1. Water rights perfected by use prior to November 24, 1922 [or Jun 25, 1929 depending on how this issue is resolved]. 2. Upper Basin's Mexican Treaty Obligation under Article III(c). 3. Upper Basin 75 maf every ten years obligation under Article III(d). 4. Upper Basin's post-1922 Compact depletions.").

IV. UNRESOLVED ISSUES

It is unclear whether *Arizona v. California* is binding on New Mexico and Utah, or on any of the Upper Basin states. Colorado and Wyoming were not parties to the case.³⁹ Utah and New Mexico were only joined because of their Lower Basin tributaries.⁴⁰ Furthermore, *Arizona v. California* only addressed the Boulder Canyon Project Act, not the Upper Colorado River Basin Compact.⁴¹ It is unclear whether the date for perfection of PPRs is, as stated in the Upper Colorado River Basin Compact, prior to the Colorado River Compact (November 24, 1922) or those perfected before the Boulder Canyon Project Act (June 25, 1929).

The greatest uncertainty related to PPRs is whether the date for perfection of PPRs in the Upper Basin is 1922 or 1929 and, regardless of which date is used, what constitutes “perfection.” The difference in wet water for a state’s PPRs between 1922 and 1929 may not be significant. But, even if the date of perfection had been agreed upon, it would not resolve the issue of what constitutes perfection of a water right. The Supreme Court has not defined the PPRs in the Upper Basin. Though these states are in the process of determining their PPRs internally, the Upper Basin states have not reached consensus on what constitutes a PPR.⁴² Must a user file for a water right and put it to beneficial use by that date; must the state water rights agency only approve it; or must the agency also certify it by that date? If the water right at issue was part of a state adjudication, must the owner start the adjudication or complete it by the specified date? This issue becomes harder to resolve with time as historic use becomes harder to prove. The Upper Basin states should begin addressing what constitutes a PPR and then quantify the PPRs in each of their states.

A starting point for determining Upper Basin PPRs is the calculations prepared during the Colorado River Compact negotiations around 1920. These calculations provide the best estimate for determining PPRs in the Upper Basin. The Bureau of Reclamation and the Committee on Water Requirements, a subcommittee of the Colorado River Negotiations, each calculated a separate estimate of PPRs⁴³:

| State | Water Consumption (acre-feet) (for irrigation), circa 1920 | |
|-------------------|--|--|
| | Table A, Bureau of Reclamation | Table C, Committee on Water Requirements |
| Colorado | 1,100,000 | 1,105,000 |
| New Mexico | 68,000 | 99,750 |
| Utah | 538,500 | 376,000 |
| Wyoming | 550,500 | 600,000 |
| Upper Basin Total | 2,267,000 | 2,180,750 |

39. See CRGI DRAFT INTERIM REPORT, *supra* note 4, at 46.

40. *Id.* at 47.

41. *Arizona v. California*, 547 U.S. 150, 154 (2006).

42. CRGI DRAFT INTERIM REPORT, *supra* note 4, at 47.

43. *Id.* at 48.

Each calculation is an estimate of irrigation uses and does not include domestic or industrial uses.⁴⁴ How tribal reserved water rights are treated under the Upper Basin Compact in times of curtailment is uncertain.⁴⁵ There is also debate regarding whether a party possessing a PPR may divert water without a contract with the US Bureau of Reclamation.⁴⁶

V. CONCLUSION

PPRs are defined under the Law of the River and are high-priority water rights to Colorado River water. In times of curtailment, PPRs could play a very important role in allocating resources within the Upper Basin and between the Upper Basin and Lower Basin. There are many unresolved issues with PPRs that would be better resolved outside of a curtailment scenario. Additional agreements within each basin and between the basins may be necessary to resolve the current uncertainties. The Upper Basin states should begin addressing what constitutes a PPR and then quantify the PPRs in each of their states. The sooner these issues are resolved, the better.

44. See KUHN, *supra* note 10, at 10 n.21.

45. *Id.* at 10.

46. See Robert Glennon & Michael J. Pearce, *Transferring Mainstem Colorado River Water Rights: The Arizona Experience*, 49 ARIZ. L. REV. 235, 247 (2007); see also Boulder Canyon Project Act § 5, 43 U.S.C. § 617d.

POETRY

JUSTICE GREGORY J. HOBBS, JR.

In Volume 3 / Issue 2, Volume 5 / Issue 2, Volume 7 / Issue 2, Volume 9 / Issue 2, Volume 11 / Issue 2, Volume 13 / Issue 1, Volume 14 / Issue 2, and Volume 15 / Issue 2, of the *Water Law Review*, we published selections of poems by Justice Hobbs. In the tradition of updates to previous publications, we hope you enjoy this additional selection.

SWIFTS

Our lives are inconsequential
Little black swifts with backpacks
From Colorado caves and waterfalls
Flying to Brazilian rain forests
Recording how they fly 4000 miles
And back on their own
Alongside so many others
Who in their own lifetimes
Glory in incomparable opportunity
To sport and dart.

PRECIOUS GIFT

*The shortest distance between two points
is not a straight line. Every step we take
is on an arc of great curvature.*

*Frank Waters (Masked Gods, Navaho
and Pueblo Ceremonialism 434)*

This guardian rain god with forking
snake encircling the entire body
of his belly-to-knee leather kilt wrapping
is looking at me with protruding eyes
rimmed with white bands
extending well beyond his forehead.

His left foot advances beyond
and in front of the right.
He is dancing!

Deer hide strands hanging from his belt,
this dancing god has fur strapped
about his shoulders—
it must have been a cold winter
up on the San Francisco Peaks

And the chill of this spring
will soon break into summer heat
as corn stalks rise to their task
of bearing sustenance
to the people.

His moccasins are scuffed
from many years of dancing in the plazas
of the pueblos of the three mesas.

His beard falls full and amply
across and down the full expanse
of his chest, like so many strands of
the black life-sustaining rain given
by the storm people.

Four Eagle feathers sprouting
out of the top of his head
reach skyward.

SEWING KIT CHOCK FULL OF A FEW SILLY RULES!

Pack good!
Play fair!
Listen up!
Have fun!

Hang on tight when the Captain says so!

Stay hydrated!
Look out for each other!
Respect the critters!
Love the River!

Don't lose your sewing kit!

COFFEE! COFFEE! COFFEE!

Day begins on the river with birdsong,
 resurgent willows, cliffs and shadows,
 surging sun poking through a notch
 in a butte face, Coffee! Coffee! Coffee!
 french toast and bacon.

Down come the overnight habitats,
 ingeniously rigged and shaped to embrace
 the sleepers dotted about this beach
 washed a grain at a time from the West Elks,
 Eagle Nest-Gore, the Never Summers
 and countless unnamed washes and arroyos
 contributing redrock sediment of ocean eons.

We are off and away, a striped cucumber-
 looking bug alights on my left arm, climbing
 towards my elbow feeling his way through
 the filament forest of my limb, I flick him
 in the direction of the tamarisk grove
 he and his fellow beetles are defoliating
 in favor of the resurgent willow sharp tooth
 beavers cut their lodges out of, see
 their dragging chutes plowing down
 the sandy banks.

A Cooper's Hawk on river right watches
 us navigate the shallows. Noon's a hike
 to granaries of the gone Ancient Ones
 who've left hands imprinted on a cliff
 face wall, a boy and his mother or
 father and daughter waving welcome

Feathery hands bridging a thousand
 years of river flow (thundering at times)
 that languidly turns another today as
 in the river we drift this hot afternoon
 tucked in life preservers bobbing past
 a row of shoreline judges rating our
 water ballet!

No plug ins,
 just the current of the Colorado
 bearing us on.

LIKE THE GRANDE

May you like the Grande
embrace our hopes and livelihoods,
may you follow up wherever
she may lead

May you stand in her shallows,
flip the tippet of your most recent hatch,
reel in the nascent morning
every twilight's evening

May her subjects and her tributaries,
sand hill dune and crane,
barley, willow, chico, potato
bless and keep you firm and well

May your work complement hers
in every bend of every day and may
your thirst for the good of others
fill your drink joyously!

TRAVOIS

We are standing on sacred ground
along a stream in the Black Hills,
Strider the Magnificent looks on expectantly,
You hold a picnic clean-up garbage bag,
I loosely hold his unhooked leash.

Yellow blossoms on long green stems
bloom all about you. My right arm embraces
the ache you feel in your right shoulder
every time you try to hook up some kind
of backwards.

In the music of this stream we can hear
our people talking to us. Every place we
go pours out of the medicine wheel's
artesian source the tracks of many
a travois passing through.

BOAT HOUSES

A torrent of words pours the floor,
seasoned curing casts its sturdiness.

From there the author builds with I-beam
experience, supplied from scattered stockpiles.

Roof beams are riveted to planks others
have used in various crafts.

Wallboard, trim, and cabinets, hundreds
of other refinements worked, reworked, finished.

The ark of an A-Frame forms a watershed
you can harvest good drinking water from.

THE DELTA

Sailing to Liberty Island we board a USGS vessel,
zip up our luminescent safety vests,
and head upstream.

The native salmon and delta smelt attempt—
confused—to do the same.

A system of levees, sloughs and sunken peat
islands, ship channels, by-pass flood channels,
irrigation and drainage pumps, control gates and
aqueducts displace their native estuary.

What is the legal Delta and what is not?

How do we prepare ourselves for a food fight
and flood flight in the midst of climate change?

Can a series of set-back levees help?

In this we attempt to un-confuse envisioning
the tides of our intersecting futures to
follow the fish to Liberty Island.

CLIFFORD STONE

River cobble in hand, I drew and flung
 upon the waters an object no smoother,
 nor firmer than the current delivers, eroded
 from a crag. My aim was true, only because
 I reached no further than what I could feel
 and touch after all the grinding and pummeling.
 An ellipse appeared and proved a constant
 proposition: that we can be less than one
 in unanimity, from my fixed point to
 your fixed line, and yet achieve proximity
 in durability and purpose. What it means to
 govern is to unite upon an increment,
 no more perfect than each of us might see
 possibilities are numbered in the generations.

(In celebration of the 75h Anniversary
 of the Colorado Water Conservation Board)

BROOKS A FIRST LAUGH BLESSING

With this laugh you belong to your
 family's stories, songs and prayers

You flow out of the Aegean Sea,
 the Klamath and the Little Colorado

Nourishing tributaries, salmon-seeking streams,
 Born for Water, Salt Woman, Odysseus, Yurok

The sacred mountains of your homeland are
 many, in loss and love journey well, be blessed!

Each morning the sun rises because the earth
 carries each of us around, every day we pass light

Into dark, without being able to see the other side
 you carry your own child's first laugh, now and forever.

(For Brooks, Daniel Cordalis, Amy Bowers and Family
 on the Celebration of his First Laugh Going Forth)

WHAT I LEARN FROM MY MOTHER

I'm 68 today. She's 94.
She's bent and sore, eager and reverent,

I'm ever more thankful for the way
she prays, conversationally,

"Take care of Greg, help him be
a man, help him help others."

That said, she takes to the phone,
"Give your sister, your brothers, a call."

The only way to answer her prayer
is to get to it right away,

Seeing what there is to see, wherever
you might be, along the Panama Canal,

At Bethany Beach, the Yellowstone,
Chugach Mountain tow rope in hand

Dragging you to the peak trying to
keep your feet together as you head up,

Always holding out her father's image
to you and talking up the Holy Mother

As she prays her very next help you
strength with her latest, "You can do it!".

RALPH CARR PROMISED REMEMBERED

Welcome to Colorado! Bring all of Colorado in!

We share a common heritage forged from all too many
common experiences. Despised, dismembered, exiled,

Enslaved, seeking refuge in a homeland of promises
remembered: Before the law, each and all, created equal

Entitled to celebrate the many bonds of our ancestries
as for a more perfect Union continuously we strive

Liberty and Justice for All, in the image of Amache
and the columbine

Mountain, canyon, mesa, plain, mother, father, daughter,
son, chartered by and through the Great Divide.

ACCEPTING HELP

So many January mornings
of Colorado slanted lines

of Saturday sunshine
have sliced my writing desk

I despair of capturing a sliver
of any bit of any one of them.

I find shifting my position helps.

WETLANDS

Sometimes it seems the maximum daily load
of our worries,

bills arguing for resolution, bell-weather
changes to the climate,

the din of others diverging from our own too-
closely held perceptions,

clogs our filtration systems.

Perhaps the art of cleansing particles interfering
with our digestive systems

requires nothing more than a good appetite
for sharing a repast together,

the past is always changing that's why
we gather now to share

one another's virtuositities.

BEND IN THE CROOK OF YOUR ARM

I'm the ripple on the sand
the leading edge of the snow line.

Desert tortoise water pocket,
Tide pool sea anemone,
Fishing heron dressed in blue,
Pussy willow swelling full.

I'm the stellar of the jay,
The ring around the moon,
The bullfrog's croak,

The cricket's fiddle.

I'm the ripple on the sand
the leading edge of the snow line.

I'm the baby crawling backwards,
Fliers and their flying goggles,
I'm the push cart's forward rim,
I'm the dancer's swirling hem.

I'm the mountain man
A long line of mountain men,
I'm the homesteading woman
A long line of homesteading women.

I'm the bend in the crook of your arm
Bend in the crook of your arm.

LADY JUSTICE

Welcomes you.
On her shoulders
she balances you.

Palms upright,
She walks with you.
All that grows

Walks with you.

ARIZONA RAIN AND SNOW!

Roof top harvest
aquifer

Cactus Wren arroyo,

Rain and snow you
sweet and lean

Desert river Arizona
you once knew.

Desert river Arizona,

Roof top harvest
aquifer

Recharge you
sweet and lean

Cactus Wren arroyo
Arizona, Rain and Snow!

OH MARCH SATURDAY!

Your light's a perfect appetite for bulb
and spike and sprout. Unfold you now!
Just beneath the surface of the grounds
we might retreat to—withering drought,
embittering cold, paralyzing doubt—
you cannot hold yourself back!

You part the cracks of our certitudes.
In the shine of your spade you warm
and collapse our respiratory illnesses.
Oh March Saturday! Help us not malingering.
Crowd out the noxious crabby spaces
lurking in the shadows of our absences.

Help us be healing rainmaker containers
you harvest from the shanty tin of our no-not
cannot will-nots. Insist upon us the water
droplet plowshares of a barrel cactus
and the company of the wild yellow rose
loving every bit of barren ground.

You cannot hold yourself back!
Your light's a perfect appetite for bulb.
In the shine of your spade you warm
crowd out the noxious crabby spaces
loving every bit of barren ground
and spike and sprout. Unfold you now!

HEY ARIZONA, GOOD MORNING!

Heading for Spring
We're imploring the snowpack
The rivulets the rivers

Rise, swell up, come together,
Release your sweet music!
Salsa our discombobulations

Rattle our fixtures
Unhook our discomfitures
Scramble our attitudes

We're coming at you Arizona!
Paddle, life vest, every kind of craft
We're howling your way, Arizona!

Get ready your fiddles
Your flagrant vitalities
Your powerful abilities

Light the signal beacons
Sing your day and night chants
Let all your voices loose

In praise of water holes
and every sprig and spring
we're launching your way, Arizona!

BRING OUR YOUNG PEOPLE IN!

We're on the verge of Spring,
Bring our young people in!

Throw open the schoolhouse doors,
Let the Four Corners shine on them!

Light of Hogan doors opening East,
Light of the Pine and Mancos Utes

Light of the San Luis People's Ditch
About to gurgle a Sangre de Cristo.

Hang out the welcome sign of a good snowfall,
Adorn the frame of each of their dwellings

Mind and heart, meek and wild,
grand and challenging.

Front to back ranges, spine of the Continent
North to south ranges, pack them well,

Pack them on our backs if we must!
And when their limbs are strong enough

Will them on their way, there's nothing
We can do that isn't given us to do

To help them along, that isn't given us
To do, to help them along.

HERE YOU CROW MOTHER, HERE!

Gather you snow clouds, gather!
Baldy to Rayado, loose your precious treasure!
Agua Fria to South Ponil, up the Cimarron
quiet turn and good turn depend on you.
In every part of this great country, young
men and women are hitching up.

Lay you down on Black and Bear, on
Clear Creek's mantle, the sweep of your
sweet sustenance, raiment to the forest,
murmur to the side pools. Feed the voices
of fellowship! Rain upon this ground
your dearest opportunity!

MANY CROSSINGS

Not one is lost
though many find
a different way,

Correct the manifest!
Before we go, we follow on
imaginary lines

Others drew and others
crossed, but temporarily.
Nothing's numbered

But doesn't relate to
another, and nothing's
written but isn't once

And future increment.
All in all's unique and
perfectly complete

In pieces capable
of being rearranged,
but temporarily.

Not one is lost
though many find
a different way.

**I HOLD FOR GLORY
GLORY BE**

The tulip spear
The crocus spike
The Iris blade

Arm with these!

I hold for glory
Glory be

The pumpkin patch
The triton conch
The Marianas Trench

Consult with these!

I hold for glory
Glory be

The pinyon tree
The honey hive
The Northern Flicker

Traverse with these!

I hold for glory
Glory be

The crescent moon
The ram's curled horn
The Southern Cross

Mark these boundaries!

I hold for glory
Glory be

The highland fling
The nickel whistle
The sandal walk

Govern with these!

I hold for glory
Glory be.

BOOK NOTES

Patricia Nelson Limerick with James L. Hanson, *A Ditch In Time: The City, the West, and Water*, Fulcrum Publishing, Golden, CO (2012); 327 pp; \$19.95; ISBN 978-1-55591-366-3; paperback.

Patricia Limerick is Professor of History and Environmental Studies at the University of Colorado; Faculty Director and Board Chair at the Center of the American West, Vice-President for the Teaching Division of the American Historical Association, and a MacArthur Fellowship recipient. Her previous work includes *The Legacy of Conquest*. With James L. Hanson, research faculty member at the Center of the American West, she is the author of *A Ditch in Time: The City, The Water, and the West*, which documents the history of water resource development in Denver. Utilizing maps and historical photos, *A Ditch in Time* traces the history and complex development of Denver's water system and how it transformed Colorado's Front Range. It tells the story of the Denver Board of Water Commissioners (Denver Water) and its proactive efforts to acquire water for the residents of Denver, as well as its ability to adapt over time and to engage in cooperation with other water providers in the region.

A Ditch in Time began as an agreement between Denver Water and the Center for the American West, with the Center maintaining full intellectual independence throughout the research and writing of the book. In her Introduction, Limerick notes that she is not an apologist for Denver Water, but her work on the book engendered an unexpected appreciation for the work of City leaders who tenaciously sought out and brought water to Denver for the good of the community. Limerick examines the development of her main character, the Denver Water, in the "Era of Improbable Comfort Made Possible by a Taken-For-Granted but Truly Astonishing Infrastructure," as a challenge to the complacent disconnect between consumers and the provider of this essential resource. She notes that consumers demand a ready supply of water and other natural resources, but they typically ignore the means of production and delivery or condemn those means for their effects on the natural environment.

Recognizing topics such as infrastructure, bureaucracy, and legal technicalities may not entice the general reader, Limerick writes the book in an engaging manner by combining detailed scholarship with wry humor. She opens each chapter with a limerick designed to set the tone for the topic contained within. For example, Limerick begins Chapter One: Engineered Eden, with the following limerick:

The Tangled Ties of Growth and Water
The West left settlers aghast;
It was dry; it was rugged; it was vast,
They thought water was the trigger

For making towns bigger,
An idea whose time is now past.

Limerick reports that early explorers Zebulon Pike and Stephen Long described the Front Range of Colorado as the great American desert and believed that the dearth of trees and flowing water made the area unsuitable for settlement. This, they thought, provided a necessary check on westward expansion. Noting the Front Range is now home to over one million people, Limerick describes the explorers as “failed prophets.” Specifically, she argues they failed to foresee the ingenuity and determination of Denver’s early visionaries who turned the arid landscape into a remarkable town of flowers, gardens, and lawns by the 1890s. Denver’s water system began with the Platte Company’s Big Ditch and side street canal diversions from the South Platte River. Within a century, it grew into Denver Water’s complex, four thousand square-mile system of dams, tunnels, and diversions that draw water to Front Range treatment plants from points west across the Continental Divide.

In Chapter One: *Engineered Eden*, Limerick traces Denver’s early development and describes city leaders’ efforts to provide water to its growing population. In the city’s early days, private water companies engaged in fierce competition to supply water to citizens who wished to replicate the landscaping of East Coast cities on the arid Front Range. The Platte Company developed the city’s first big water project, the Big Ditch, by digging canals that diverted water from the South Platte River to Denver neighborhoods. The Big Ditch enabled Denver residents to beautify the city with lawns, gardens, and parks, but the untreated water also brought bacteria, typhoid, and other diseases. These public health issues, as well as the increasing demand for water, prompted the private companies to search for a new supply of abundant, uncontaminated water. That search led west into the foothills and mountains, and eventually to the Denver Union Water Company’s construction of the Cheesman Dam in the Platte Canyon.

In addition to describing Cheesman Dam’s construction in Chapter Two: *Go Take It From the Mountain*, Limerick presents the Dam’s history in the larger context of water development in the West. For example, she challenges the perceived California centrality of western water development with her discussion of the Cheesman Dam, which she describes as a more illustrative model of private accomplishment and innovative design. Faced with far less public opposition and, therefore, less publicity than the Owens Valley aqueduct to Los Angeles and the Hetch Hetchy Valley Dam near San Francisco, the Cheesman Dam went from initial construction to partial destruction, redesign, final construction, and fully functioning operation within six years.

From 1905 to 1912, Cheesman was the highest dam in the country, and it earned a National Historic Civil Engineering Landmark designation for its unique curved design. Limerick writes that the dam’s curved wall and seemingly organic growth from the canyon walls make it not only functional, but an invaluable piece of American land art. In addition, Limerick reveals the speed and determination with which Denver’s water developers approached Cheesman Dam and other like projects, which inspired the book’s title as a play on the aphorism “a stitch in time saves nine.” The aphorism aptly describes Den-

ver Water's approach to water planning throughout its history. The various private water companies in the area took forty years to become the municipal entity known today as Denver Water, but the department's approach to water acquisition never mimicked the drawn out process of municipalization. Instead, Denver Water proactively and aggressively acquired water for the city by acquiring rights from across the Continental Divide.

In Chapter Three: Water Development: "The Plot Thickens," Limerick tells the story of Glenn Saunders, a Denver Water lawyer who singularly embodied this unbridled approach to water acquisition. Building upon her introduction of Saunders, in Chapter Four: Dealing in Diversions, Limerick describes how Saunders and Denver Water did not react to shortages in the system, but rather prevented them in the first place, by expanding the department's reach westward—developing the four thousand square-miles of diversions, dams, tunnels, and treatment plants now in place. The chapter chronicles the first major diversion from the Western Slope, the Moffat Tunnel, which draws from the Fraser River, and the first major storage of Western Slope water in the Gross Reservoir.

In Chapter Five: A Horrifying Jigsaw Puzzle, Limerick traces the complex and controversial negotiations that led to the Blue River Decrees, the Dillon Reservoir, and the Roberts Tunnel, a twenty-three mile long engineering marvel. Limerick places these projects in the context of post-World War II growth and expansion with Denver Water at the height of its power. Suburban expansion soon challenged that power, however, as local governments denied Denver Water's proposals to annex suburbs and bring them into its service area.

The nascent environmental movement of the 1960s and 1970s led to more intense power struggles. In Chapter Six: No Country for Old Habits, Limerick describes Denver Water's battle to construct the Strontia Springs Dam and Foothills Water Treatment Plant. Denver Water faced opposition from environmental activists and, to its chagrin, other governmental agencies. Denver Water brought suit in federal court against the Bureau of Land Management and its restrictive permitting conditions, and faced litigation from other environmental organizations, alleging Denver Water's violation of the newly passed National Environmental Policy and Federal Land Policy and Management Acts.

The stakes were high. Environmental groups feared a loss in court would threaten the new environmental legislation's effectiveness, as well as their own participation in federal agency decision-making. In addition, Denver Water threatened federal agency authority by upping the ante and declaring emergency water restrictions should those agencies block its dam construction. This move resulted in immense public pressure to resolve the issue quickly and outside of the ponderous federal court process. Denver Water's confrontational tactics worked, in part by taking the issue out of federal court and into mediation, but the department soon learned the new environmental legislation and governmental agency requirements, as well as the burgeoning environmental organizations, were here to stay. The US Environmental Protection Agency and the Army Corps of Engineers ultimately granted Denver Water the necessary permits to build the Strontia Springs Dam and Foothills Water Treatment Plant, but demanded environmental concessions in return. Denver

Water agreed to implement a new water conservation program, to mitigate the environmental impacts of the project, and to perform a system-wide environmental impact statement upon initiation of any major future project.

In 1990, Denver Water and a coalition of suburban water agencies faced further conflict and eventual defeat when EPA denied approval of its proposed Two Forks Dam. This defeat presaged a new era for Denver Water; the old approach of aggressive water acquisition at any cost gave way to a new approach of collaborative and conservation-based management. In Chapter Seven: Chipping Away at Tradition, Limerick examines how Chips Barry, Denver Water's manager from 1991 to 2010, oversaw this remarkable institutional change. Limerick notes Denver Water's new management policies belied the old entrenched notion of intractable bureaucracies. Instead, Denver Water faced environmental realities such as climate change and drought by expeditiously instituting water conservation campaigns and techniques to manage demand.

Expanding upon Denver Water's ability to adapt despite low public expectations, Limerick concludes the book by highlighting additional mistaken assumptions and comparing them with proposed better assumptions. Through changes in leadership, environmental conditions, public controversy, and economic challenges, Denver Water has held true to its mission to provide an adequate supply of water to the people of Denver. Limerick tells Denver Water's story from its inception to its current incarnation in a detailed and highly engaging manner. *A Ditch in Time* provides an in-depth and accessible history of Denver Water and its key role in Western water development and the transformation of Colorado's Front Range.

Sarah J. McGrath

Peter McBride & Jonathan Waterman, *The Colorado River: Flowing Through Conflict*, Westcliffe Publishers, Colorado (2012); 160 pp; \$27.95; ISBN 978-1-56579-646-1; soft cover.

A photographer and author teamed up to capture their geographical, environmental, and historical journey along the Colorado River in the photo-essay book, *The Colorado River: Flowing Through Conflict*. Peter McBride, a photographer from Colorado, visually documented his aerial expedition along 1,450 miles of the Colorado River, from its headwaters all the way to its delta. Jonathan Waterman's accompanying text, informed by his experiences as a wilderness guide, recounts his personal travels paddling the Colorado River and also details the River's history. The authors' intention was to capture the environmental issues facing the River in a photographic record, showing both the beautiful and sometimes-erie nature of the Colorado River Basin. The aerial perspective, McBride explained, "shows where we as humans have been, how we connect to the earth, and how nature relates to itself."

McBride begins by recounting his childhood memories growing up on a Snowmass, Colorado farm near the headwaters of the Colorado River. The introduction to the book, aptly entitled "The River," provides a statistical overview of Colorado River, highlighting the more than one hundred dams ob-

structing the River's natural flow. The Colorado River Basin drains 243,000 square miles of land, spanning seven states and two countries. The River supports thirty species of native fish as well as fourteen coal and natural gas-fired power plants, which demonstrates the range of reliance on the continuous flow of water.

The authors organized the book into three parts, corresponding to various sections of the River as it travels from the Rocky Mountains toward the Sea of Cortez.

In Part I: *The Mountains*, the authors describe the beginning of their journey near the Continental Divide in the Rocky Mountains of Colorado. This section geographically documents the River through the Upper Basin. The Colorado River first flows south through Rocky Mountain National Park, then west into Utah, where it winds its way through Cataract Canyon and Canyonlands National Park, eventually spilling into Lake Powell. Part I highlights threats to the Upper Basin ecosystem, including impacts of the invasive species tamarisk and pine beetle on native habitats. Another potential environmental threat is the large number of uranium claims located along the Colorado River. Part I also depicts the River's many benefits to humans. Recreation activities in particular sustain the region's tourism-based economy, including rafting, floating, fishing, and wildlife watching.

Part II: *Big Reservoirs* Grand Canyon depicts the Colorado as it flows southwest from Lake Powell toward Lees Ferry. The Colorado River Compact made Lees Ferry, a historic river crossing in northern Arizona, the arbitrary divide between the Upper and Lower Colorado River Basins. From Lake Powell, the Colorado River winds its way through the Grand Canyon to Lake Mead—the vast reservoir supported by the Hoover Dam, which stores water for downstream consumers in Arizona, Nevada, California, and Mexico. The authors mention that, while the creation of Grand Canyon National Park in 1919 resulted in formal protection of the landscape, wildlife species native to the Colorado River continue to face threats to their survival. For example, the deep water held behind the dams of the Lower Basin is colder and clearer, which nonnative fish species, such as trout, prefer; whereas the humpback chub, a native fish species, is adapted to the shallow, muddy, and warm waters typical of the pre-dammed Colorado River.

Part III: *To the Delta* documents the final leg of the authors' journey on the Colorado River toward the sea. This part maps the River's flow below the Hoover Dam, through the Black Canyon in California, south to Baja California, Mexico. Myriad water diversions, however, have caused the Colorado River to run dry in the Sonoran Desert approximately fifty miles north of the Sea of Cortez. The River Delta itself is ninety-five percent diminished. Agricultural irrigators in the region have diverted much of the river into canals, such as Coachella and All-American. Much of the irrigation runoff in southern California flows into the Salton Sea, which is an important oasis in the desert, visited by over four hundred bird species. The Salton Sea's water level, however, is decreasing six inches each year as more of the Colorado River's water flows to major cities, resulting in increased salinity levels that threaten the resident fish and the birds that prey upon the fish. Part III summarizes these and the other

downriver ecological impacts of damming and diverting the River for human uses in southern California and northern Mexico.

McBride and Waterman depict their personal expedition along most of the Colorado River through colorful photographs and detailed maps that invoke in the reader both feelings of appreciation and concern for the Colorado River. Waterman's text skillfully integrates summaries of the natural history and geography of the Colorado River Basin with meaningful quotes. His passages describe anthropogenic impacts to the surrounding ecosystems throughout modern history. McBride captures the River from both the ground and aerial perspectives, providing the reader with beautiful natural images rarely seen. The use of historical photos for comparison with current conditions visually demonstrates the environmental impacts of damming the River on the local landscape. This photo-essay book is much more than a collection of pictures and would complement any collection for a water enthusiast or one who simply enjoys the natural beauty of the Colorado River.

Ashley Jackson

David Schorr, *The Colorado Doctrine: Water Rights, Corporations, and Distributive Justice on the American Frontier*, Yale University Press, New Haven & London (2012); 235 pp; \$65.00; ISBN 978-0-300-13447-6; hardcover.

"The country was without law, but each individual brought with him the principles of equity and justice, which were a part of his education."—*Armstrong v. Larimer County Ditch Co.*, 27 P.235, 237 (Colo. App. 1891) (discussing the adoption of the rule of prior appropriation and distributive justice in the arid West).

In *The Colorado Doctrine*, author David Schorr details the historical development of Western water law, and its development in Colorado in particular. Schorr, a senior lecturer and Chair of the Law and Environment Program at Tel Aviv University, centers his discussion on the historical progress of the prior appropriation doctrine. The prior appropriation doctrine is a system of private property rights in water that differs from the traditional riparian doctrine of the Eastern US, which affords water rights only to landowners appurtenant to water sources. Schorr characterizes the development of the appropriation doctrine as part of a radical attack on corporate power and monopoly in the arid West. Schorr explains Colorado's early miners, irrigators, lawmakers, and judges forged a water-rights-as-property system based on a desire to spread property and its benefits as widely as possible among independent citizens, in place of more speculative water rights based on land ownership.

In Chapter One, Schorr introduces the seminal 1882 Colorado Supreme Court decision, *Coffin v. Left Hand Ditch Co.* In *Coffin*, the Court firmly rejected the common law riparian doctrine as applied to Western water rights and deemed riparian doctrine inapplicable to Colorado. *Coffin* rejected a water rights system tied to land ownership and instead laid out a system of "pure appropriation," under which a user may obtain a water right by diverting water

from a stream and putting such water to beneficial use. Schorr explains the Western doctrine of prior appropriation advanced distributive justice at the expense of the property-based riparian right.

In Chapter Two, *The Colorado Doctrine* explores four historical sources that document the development of Colorado water law: (i) unofficial codes of Colorado's mining districts in the late 1850s and early 1960s; (ii) sections of the 1876 State Constitution and water law statutes enacted by Colorado's legislature; (iii) Colorado Supreme Court decisions in the first decades of Colorado's statehood; and (iv) ideological assumptions behind the law, as illustrated by contemporary sources. Schorr supplements his discussion of the development of Western water law by commenting on and sometimes questioning certain fundamental assumptions about the appropriation doctrine. Yet, despite his profound departure from the established understanding of Colorado water law, Schorr effectively argues historical sources of water law collectively advanced the ideals of distributive justice as part of the broader nineteenth-century agrarian reform movement in American law.

Schorr argues the traditional prior appropriation concept, *qui prior est tempore potior est jure* ("he who is first in time is first in right"), is not simply a reflection of the frontier ethics of individualism, initiative, and efficiency, but also reflects the overarching principle of broad distribution of water rights. Both academic and legal institutions recognize early Colorado water law as a model for the prior appropriation doctrine as it developed throughout the West. Adoption of prior appropriation eliminated the right of landowners with property adjacent to a stream to exclusive water use, thereby allowing a greater number of people to benefit from access to water. The original legal application of prior appropriation required actual beneficial use of water: no user could claim more water than it needed and, therefore, no one user could profit from speculation in a resource belonging to all.

In *The Colorado Doctrine*, Schorr closely examines the reasons for this rejection of riparianism and the values embodied in the prior appropriation doctrine. According to Schorr, Colorado's adoption of prior appropriation derived from two principles: (i) the limitation of appropriation to each individual the amount he could actually use; and (ii) the maximization of the number of owners able to stake a claim to water. In the arid West, limiting rights to riparian owners would deny the vast majority of citizens' access and rights to an essential resource. Schorr argues the second principle of priority strikes a balance between equality and sufficiency via the concept of distributive justice. This is because, Schorr argues, priority administration prevents unreasonable or excessive appropriations that would leave another user unjustly without a share of a shared resource. Conflict resolution between such users depends on temporal priority, where senior users can demand a junior rights holder cease his diversion if it will not leave sufficient water for senior rights.

Priority rules developed from the Lockean and Jeffersonian view of acquisition requiring actual use as an element of ownership, stressing the ideal of equality and limiting acquisition to an amount a person could directly use. Further, Schorr argues the appropriation doctrine prevents speculation or monopoly control of water supplies in allowing "actual settlers" to trespass on

riparian lands and divest land owners of common law water rights those landowners had not applied to beneficial use.

Next, in Chapter Three, Schorr analyzes the genesis of the appropriation doctrine itself in light of how territorial statutes, the Colorado State Constitution, and early judicial decisions laid the foundation of the doctrine, culminating with *Coffin v. Left Hand Ditch Co.* First, Schorr explains water rights law in the Colorado territory followed similar principles to those governing early Colorado mining laws. Next, the Colorado Constitution of 1876 gave inalienable legal recognition to such principles; namely public ownership of the state's surface waters, the beneficial use requirement, and the complete abolition of riparian privileges.

Later, in its 1882 *Coffin* decision, the Court rejected the riparian rule and explained the nature of the riparian rule prevents useful and profitable cultivation of fertile soil by sanctioning waste on sterile lands adjacent to streams. The case emphasized the clarity of the Colorado Rule: riparian lands have no water right incidental to them and all landowners acquire rights only by use, regardless of the location of their land. Importantly, Schorr encourages the reader to acknowledge the potential consequence of a failure to recognize prior appropriation's protection of a legal right in future flows—a disastrous race among irrigators attempting to capture flows further and further upstream. Ultimately such a race would lead upstream users to monopolize the West's few watercourses.

In Chapters Four and Five, Schorr describes how, in the decades following *Coffin*, the appropriation doctrine curbed the power of corporations and speculators by reserving private rights in the state's water to bona fide users. *The Colorado Doctrine* focuses on Colorado's strict regulation of water corporations, discussing the historical difference between private property and corporate property.

Schorr then discusses the beneficial use rule and the difficulties inherent in allocating water. For a time, the threat of corporate monopoly of water hung over the agricultural industry, but legislative action and court decisions ended this danger. Court decisions favoring consumer interests over those of "monopolistic" canal companies rested on the doctrinal basis of public ownership of all surface water and beneficial use as an element of water rights. And individual water user could satisfy these requirements, but a canal company could not. Colorado law came down in favor of local settlers over absentee capitalists, and built a system of water distribution on the basis of consumers as true proprietors, where the distributor or canal company serves as a user's agent to care for the works and bring the water to the consumer's land.

Finally, Chapter Six highlights several theoretical issues a historical study of the Colorado Doctrine raises. First, Schorr points out that economic efficiency was not the primary goal of prior appropriation. Rather, the goal was to limit the size of appropriations to maximize the number of appropriators. Schorr examines several economic principles to support his claim that distributional ideology played the dominant role in shaping Colorado water law in the nineteenth century. *The Colorado Doctrine* demonstrates ownership of water rights in Colorado relied not on concerns for economic efficiency, but also on social justice. Schorr maintains these principles express the values of

the West at the time, reflecting the utilitarian ideal of “the greatest good for the greatest number.”

Schorr concludes by asserting the need for a paradigm shift whereby property regimes more fully consider distributive justice. *The Colorado Doctrine* advances a cogent argument based on interesting historical details of Western water law. Schorr does an excellent job of introducing the reader to his novel perspective on the legal theories surrounding Colorado water law. Schorr also develops a comprehensive theory on how the prior appropriation doctrine deliberately created an “anti-commons” assumption for the purposes of distributive justice. His perspective is highly important, not only to understand Colorado water law, but also as insight into critical implications for future policymaking. *The Colorado Doctrine* is an excellent contribution to both legal and economic history.

Heidi Ruckriegle

George Sibley, *Water Wranglers: The 75-Year History of the Colorado River District: A Story About the Embattled Colorado River and the Growth of the West*, Colorado River District (2012); 466 pp; ISBN 978-0520254770; paperback.

George Sibley is a freelance writer and former educator who has written several histories of Colorado’s Western Slope. *Water Wranglers* depicts a history of the Colorado River Water Conservation District (“CRWCD”). The book explores the CRWCD’s work protecting the Colorado River on behalf of West Slope interests, as well as helping ensure Colorado’s compliance with the Colorado River Compact. In providing the story of the CRWCD, Sibley explores much of the progression of Colorado’s water history and its related laws. The book’s several sections each discuss roughly a decade of the CRWCD’s existence.

PART I: THE AMERICAN PREHISTORY OF THE RIVER DISTRICT

In the first section of the book, Sibley explores conditions leading to the formation of the CRWCD. Arid conditions occurring in Colorado and other Western States in the early 1930s caused Western farmers to develop a strong desire to store and conserve water for future use. This movement, in part, helped spur creation of the Colorado River Compact. Soon thereafter, Colorado’s East Slope made its first attempts to divert water from the Colorado River Basin across the Continental Divide. Officials justified the diversions with the rationale that most of the state’s population lived on the East Slope and under Colorado water law there is no legal prohibition against transmountain diversions. In response to the transmountain efforts, the Western Colorado Protective Association (“WCPA”) formed and, partially due to its actions, these first attempts at transmountain diversions failed.

This section also introduces the formidable West Slope Congressman Edward Taylor. A powerful member of the House Appropriations Committee, Taylor ensured that any transmountain water project requesting federal support also provide compensatory storage for West Slope interests—one acre-

foot of storage for every one acre-foot diverted. The Congressman also strategically changed the name of the "Grand River" (the upper fork of the Colorado River until it meets with the Green River in Utah) to the "Colorado" as a way of dispelling notions that most of the lower river's water originated elsewhere.

Interests from both Colorado's East Slope Range and West Slope supported a Bureau of Reclamation study of future water needs. In these years, the WCPA found itself trying to work a middle ground between East Slope ambitions and an increasingly intransigent Congressman Taylor. To reach compromise, these parties agreed that if the East Slope were in a rush, the West Slope would insist on acre-foot for acre-foot compensation; however, if the East Slope conducted the process in a reasonable and studied manner, all sides could work together.

The federal government completed the Boulder (Hoover) Dam in 1935. However, President Roosevelt indicated that the Public Works Administration would not provide free money for reclamation projects—rather, individual states had to work through the Bureau, meaning Colorado would have to repay the federal government. Sibley concludes this section of the book with Congress passing the Grand Lake Project (now called the Colorado-Big Thompson Project). Colorado also passed several bills, including one creating the Colorado Water Conservation Board ("CWCB"). The CRWCD formed June 7, 1937, as a parent organization to valley-specific authorities. Additionally, voters elected Judge Clifford Stone to the Colorado General Assembly, who would later play an important role in the CRWCD's history.

PART II: A FAST BUT UNEVEN START ON MANY FRONTS (LATE 1930S- EARLY 1950S)

Sibley next charted the CRWCD's earliest years. Originally representing seven West Slope counties, the CRWCD aimed to use as much of the Colorado River's waters as possible within the state, preferably for mining and agriculture on the West Slope. Judge Stone, though not on the board, was a *de facto* member of the CRWCD staff. At this time, the WCPA turned over its work to the CRWCD and dissolved.

During these years, the CRWCD and Stone attempted to demonstrate to the West Slope that, although they could not be legally halted, compensatory storage for transmountain diversions could still benefit West Slope interests. Work began on the Colorado-Big Thompson Project and, when finished in 1957, the Project diverted on average 232,000 acre-feet annually to the East Slope. Following its completion, stakeholders in the Gunnison Valley and Congressman Taylor opposed a request to study a potential Gunnison-Arkansas transmountain project. Taylor's death in 1941, however, enabled federal funding for the study to come through. Completed in 1948, the study charted a project that exceeded the Colorado-Big Thompson in size and complexity, allowing for 655,000 acre-feet to cross the mountains each year. The CRWCD supported the Gunnison-Arkansas diversion, much to the displeasure of the Gunnison Valley stakeholders. In this dispute, the Gunnison Valley users portrayed the CRWCD in an almost traitorous light. However, in mid-

1949, the CWCB approved a smaller diversion plan called the Fryingpan-Arkansas Project.

In the 1928 Boulder Canyon Act, Congress allocated the Lower Basin States' respective water usages under the Colorado River Compact. To determine Mexico's share, the seven Colorado Basin states formed a "Committee of Fourteen" with Stone as its chair. In 1944, the Bureau published its long-awaited study of the entire Colorado Basin, along with a plan to develop the River "to the very last drop." In 1946, Stone then represented the State of Colorado at the Upper Basin States' Compact Commission. The resulting Upper Colorado River Compact allotted Colorado 51.75 percent of the Upper Basin's share of the River's waters, though the state produced seventy-three percent of its total flow.

This section also provides a brief history of the Denver Board of Water Commissioners ("DWB"). Always highly autonomous from the rest of the City's municipal government, the DWB saw itself as providing for the future of a large metropolis with a "thousand-year" water supply system. Represented by attorney Glenn Saunders, the DWB pursued an aggressive policy of acquisition of West Slope water rights. Following the Colorado Supreme Court's holding that municipal plans for future growth are not considered improperly speculative, the DWB began planning for the large Blue River Project. This led to years of litigation between the DWB and the CRWCD. During this time, Denver grew a great deal, and the DWB saw its water supply was running short. It confined its water service to within a certain defined area in 1950, forcing some suburbs to develop their own water systems. Judge Stone died in 1952, and with him, so too ended the CRWCD's formative era.

PART III: CULMINATION OF THE RECLAMATION ERA I (THE 1950S)

West Slope Congressman Wayne Aspinall had a significant impact on the CRWCD's next decades. After running for Congress in 1948 as a "second Edward Taylor," Aspinall became Chair of the House Committee on Interior and Insular Affairs, which allowed him to exert substantial influence over federal reclamation projects. Aspinall exemplified the thinking of historical Western water management, aiming to harness and reserve as much water as possible for reclamation and mining development. However, the period also saw a burgeoning environmental movement, which believed conservation should keep the West in as natural a state as possible.

The 1950s and 1960s proved to be the era of the big, multi-purpose dams in the United States. The Bureau composed a list of its most promising storage projects and dubbed it the Colorado River Storage Project ("CRSP"). The Bureau envisioned transforming the Upper Basin into a new industrial and irrigation center for the US. The CRSP planned storage of forty-eight million acre-feet—three times the Colorado River's annual flow.

The environmental movement defeated the planned Echo Park Dam (located where the Yampa River meets the Green River) despite support from Aspinall and the CRWCD. As a compromise, Aspinall offered an amended CRSP bill that did away with Echo Park but included the Navajo (New Mexico), Glen Canyon (Utah), Flaming Gorge (Utah), and Curecanti (Colorado)

Dams. Construction of Glen Canyon Dam began in 1957, eventually allowing storage of twenty-seven million acre-feet (twice the annual flow of the River, and three-quarters of the total storage for the CRSP). Construction on Flaming Gorge and Navajo Dams then began in 1958. With much of the CRSP under construction, the CRWCD ended the decade on a high note.

PART IV: THE CULMINATION OF THE RECLAMATION ERA II (THE 1960S)

By the early 1960s, CRWCD grew to encompass the entire West Slope, with the exception of the San Juan Counties, which formed their own Southwestern District. The CRWCD engaged in further litigation with DWB, with the Colorado Supreme Court often ruling in favor of DWB. Though the parties occasionally reached settlement, an underlying distrust between the parties remained. Following completion of the three dams of the Curecanti Project, construction on the biggest units of the CRSP was complete.

During this period, the new conservation movement, supported by Congressman John Saylor of Pennsylvania, Aspinall's environment-friendly counterpart, slowed construction on several new dams. Environmentalists began to perceive Aspinall as a reactionary and a foe to the movement, though Sibley argues Aspinall merely supported an evolutionary approach to public land law. Aspinall won a major legislative victory in 1962 when Congress passed the Wilderness Bill and the Fryingpan-Arkansas Project. However, this would mark the apex of his career. Sibley notes that Aspinall and the CRWCD failed to realize that recreational interests were increasingly replacing the prior primary uses of water: developing agriculture and mining interests.

The 1960s also saw further developments in the Lower Basin States. In 1961, Mexico complained that its allocation of Colorado River water was too saline, due to runoff from a California canal. In response, the Western Governors' Association reconvened the Committee of Fourteen from the 1940s to coordinate the Basin States' interests in the salinity question. Additionally, Arizona Senator Carl Hayden dreamed of a vast Central Arizona project supported by Colorado River water. Despite opposition by environmentalists and Aspinall, Congress eventually approved the Central Valley Project.

PART V: THE ECOLOGICAL ERA BEGINS

The Colorado General Assembly passed the 1969 Colorado Water Rights Determination and Administration Act, which reorganized much of the state's water law procedures and marked the beginning of the ecological era. Shortly thereafter, on January 1, 1970, President Nixon signed the National Environmental Protection Act, creating the EPA. Finally, in 1972, Congress passed the Clean Water Act. At the same time, Aspinall's critics accused him of becoming too supportive of mining interests, particularly uranium mining. In 1970, for the first time, he faced a primary election challenge. Though Aspinall won that election, the 1970 census redistricting cut his West Slope district in two. Facing another primary challenge in 1972, he lost by sixteen hundred votes.

The 1970s saw further developments in the Colorado River salinity issue. Although studies found that the salinity in Mexico was largely natural, the new-

ly formed EPA involved itself by supporting a regulatory solution. President Nixon guaranteed low salinity to Mexico, which provided the EPA with an opportunity to intervene. This demonstrated that Aspinall's world of *quid pro quo* solutions was no more, replaced by a highly centralized enforcement scheme.

Congress passed the Endangered Species Act in 1973 and the Colorado General Assembly passed an instream flow law in 1973, despite CRWCD's opposition to the law. In February 1977, President Carter issued his "hit list" of nineteen water projects, asking Congress to cut funding for these projects. Carter's hit list gave certainty to suspicions that the era of big federal reclamation projects was coming to a close.

Lastly, the 1970s saw the arrival of the West Slope's long-awaited oil shale boom. Following the 1970s oil crisis, President Nixon gave several large companies leases on the West Slope for development. However, oil development was in direct opposition to the environmental movement gaining strength in the region. In any case, "Black Sunday" in 1982 effectively ended the boom before it ever began. Work on the Windy Gap Reservoir, the most recent transmountain diversion project, completed in June 1985. Congressman Aspinall died in October 1983, and his death marked the end of era in which he played a key role in water policy in the state.

PART VI: LIFE AFTER OIL SHALE—A DECADE OF TURBULENCE

The 1980s and 1990s saw another period of change for the CRWCD. The DWB sought to build the Two Forks Reservoir at the confluence of the North and South Forks of the South Platte River, despite strong opposition from environmentalists. Governor Lamm convened a roundtable for the Denver metro area but also included representatives from both the East and West Slopes. Lamm also included forward-thinking policy makers, and not just old-fashioned "water buffaloes" (referring to those who bellow, splash around, and muddy the waters). Though the roundtable limited discussion to water supply in the Denver Metro Area, the CRWCD thought it would be easier to deal with the DWB than with many individual suburbs.

By this point, new players and strategies were beginning to change water policy in Colorado. A demonstration of this shift occurred when aggressive DWB counsel Glenn Saunders left the organization. DWB and the CRWCD then began attempts at cooperation rather than resolution via litigation. Further, the DWB regarded Two Forks as a way of building unity within the Denver Metro Region. Denver Metro communities signed a Memorandum of Agreement, with the idea of cooperating and preventing courtroom battles. The DWB, now headed by Hamlet "Chips" Barry, announced a new conciliatory direction and the organization changed its name to Denver Water.

At the same time, the CRWCD tried to take stock of changing situations on the West Slope. The CRWCD wanted to work on better terms with the environmentalist-friendly headwater communities. Differences proved to be mainly cultural: urban expatriates seeking a more rural lifestyle, but not reflecting the region's traditional culture, began replacing the remnant population from the mining era, which the CRWCD had originally served. Environmen-

talists then formed a separate organization, the Northwest Colorado Council of Governments ("NWCCOG").

The headwater communities, led by NWCCOG General Counsel Barbara Green (the state's first major female water figure), succeeded in using their land-use powers to delay diversions across the Divide for a large Colorado Springs and Aurora project. The CRWCD, however, did not take part in that litigation but did later join the NWCCOG in blocking another large planned diversion at Union Park.

The environmental movement took another step forward when the US Fish and Wildlife Service listed four fish in the Colorado Basin as endangered by 1991. The Upper Colorado River Basin Coordinating Committee conditioned further diversions and management on the fish populations. But the most significant evidence of the burgeoning environmental movement came when EPA vetoed Denver Water's Two Forks Project in November 1990. After an eight-year planning process and many millions spent, the federal government shut down the project solely because of the EPA director's judgment that it was incompatible with Section 404 of the Clean Water Act.

PART VII: THE RIVER DISTRICT HITS ITS STRIDE

In the final section of the book, Sibley describes the CRWCD's history up to the present day. Actions brought by environmentalists on the West Slope continued, particularly to protect endangered fish. Parties adopted a Programmatic Biological Opinion in 1999, which recommended administering all of the Upper Colorado River Basin as an integrated system to aid fish populations. It is unclear today if the numbers of the four listed fish are rebounding, but conservation efforts seem to open the door for future construction projects without further endangering the fish.

This section also describes how the National Park Service finally quantified its reserved water right for Black Canyon National Park. In 2001, the Park Service filed for a flow that mimics the canyon's natural flow to the greatest extent possible, with a 1933 priority date. There was much opposition, and Department of Interior director Gayle Norton reduced the application to a later and effectively meaningless priority date. A federal court, however, rejected this alteration as an abuse of discretion. The water court issued its final decree in 2007.

In this section, Sibley also provides a description of the severe drought that struck the state in the early 2000s. The Colorado General Assembly passed the Colorado Water for the Twenty-First Century Act in 2005, which called for Basin Roundtables in each of the state's eight water basins, plus another for the Denver metro area. The future is uncertain as to whether cooperation will continue and whether the Colorado River will contain enough water for all interests in the future.

Water Wranglers draws to a close by providing estimates for available unused water remaining in the Colorado River, running anywhere from zero to nine-hundred-thousand acre-feet per year. Faced with these possible shortfalls, communities on both sides of the Divide are exploring several proposals for planning for the future. The book concludes with this quote from Justice

Gregory J. Hobbs, Jr. of the Colorado Supreme Court: "We are no longer developing the water resource; we are learning to share a developed resource."

CONCLUSION

Water Wranglers, despite its length and in-depth discussion of a complicated historical subject, is an easy and enjoyable read for anyone interested in the history of water development in the Colorado River Basin and the state of Colorado. Well-researched and containing useful maps and photographs, *Water Wranglers* provides valuable, objective information for individuals—neophytes or experts—who are interested in Colorado's transmountain diversions. As seen through the lens of the CRWCD, the book describes a complex history a way that illustrates how a region's goals and priorities shift over time.

Anthony Perko

CASE NOTES

GILA RIVER IX AND STATE TRUST LANDS: SETTING BOUNDARIES FOR THE FEDERAL RESERVED WATER RIGHTS DOCTRINE

JENNA ANDERSON*

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I. INTRODUCTION

The Arizona Supreme Court (“Court”) recently rejected the State of Arizona’s appeal to recognize implied federal reserved water rights for Arizona’s State Trust Lands.¹ The Court’s decision is the latest in a series of cases the Court heard in the Gila River System Adjudication and the Little Colorado River Adjudication (collectively, “Adjudications”).² The Arizona Legislature

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1. *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River IX*), 289 P.3d 936, 938 (Ariz. 2012).

2. *See id.*; *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River VIII*), 224 P.3d 178, 182 (Ariz. 2010); *In re* General Adjudication of All Rights to Use Water in Gila River System (*Gila River VII*), 173 P.3d 440, 441 (Ariz. 2007); *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River VI*), 127 P.3d 882, 884 (Ariz. 2006); *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River V*), 35 P.3d 68, 70 (Ariz. 2001); *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River IV*), 9 P.3d 1069, 1072 (Ariz. 2000); *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River III*), 989 P.2d 739, 741 (Ariz. 1999); *In re* General Adjudication of All

tasked the state courts with administering the Adjudications, which are comprehensive Arizona water cases intended to identify and quantify every individual water right within a river system.³

In *In re General Adjudication of All Rights to Use Water in Gila River System and Source* ("*Gila River IX*"), the Court held Congress did not withhold or reserve State Trust Lands for a federal purpose when it granted such lands to Arizona to raise revenue for schools, nor did Congress intend to reserve water rights along with the land grant.⁴ Thus, the state's water right claim failed to pass the threshold requirements for a federal reserved water right.⁵

The federal reserved water rights doctrine is a powerful concept that, when invoked, steps outside the traditional notions of state-based water rights systems. Arizona water law uses the prior appropriation doctrine to administer surface water rights.⁶ Prior appropriation developed from the needs of gold miners and farmers, and it encourages the efficient development and use of water in the arid West.⁷ Relying on a "first in time-first in right" seniority system, those with the earliest appropriation date (the date the appropriator diverted the water and put it to use) have rights senior to those who appropriated at a later time.⁸ Thus, a senior appropriator may divert the full amount of its water right before a junior appropriator may draw from the stream.⁹ Additionally, an appropriator must put a water right to a beneficial use and continue to use the full extent of its water right in order to keep the right.¹⁰ Judicial interpretation of "beneficial use" has changed over time. While beneficial use originally constituted agricultural, industrial, and municipal uses, most state courts have since recognized uses like recreation and environmental protection.¹¹

In 1908, the US Supreme Court first recognized the implied federal reserved water right doctrine when it provided an Indian reservation with the water necessary to survive in the arid West.¹² In contrast to Arizona's prior appropriation system, the federal reserved water rights doctrine sets the priority date for most reservations at the time of the federal land reservation, but requires no actual use of the water to vest the water right; the right exists in

Rights to Use Water in Gila River System & Source (*Gila River II*), 857 P.2d 1236, 1238 (Ariz. 1993); *In re Rights to Use of Gila River* (*Gila River II*), 830 P.2d 442, 444 (Ariz. 1992).

3. ARIZ. REV. STAT. ANN. § 45-252(a) (2013); E. Brendan Shane, *Water Rights and Gila River III: The Winters Doctrine Goes Underground*, 4 U. DENV. WATER L. REV. 397, 404 (2001).

4. *Gila River IX*, 289 P.3d at 945.

5. *Id.*

6. ARIZ. CONST. art. XVII, § 2.

7. Sharon Medgal, Joanna Nadeau & Tiffany Tom, *The Forgotten Sector: Arizona Water Law and the Environment*, 1 ARIZ. J. ENVTL. L. & POL'Y 243, 265 (2011).

8. John E. Thorson et al., *Dividing Western Waters: A Century of Adjudicating Rivers and Streams*, 8 U. DENV. WATER L. REV. 355, 379, 389 (2005).

9. *Huning v. Porter*, 54 P. 584, 586 (Ariz. 1898).

10. *Phelps Dodge Corp. v. Ariz. Dep't of Water Res.*, 118 P.3d 1110, 1115 (Ariz. Ct. App. 2005).

11. Medgal, *supra* note 7, at 267.

12. *Winters v. United States*, 207 U.S. 564, 576 (1908); see *United States v. New Mexico*, 438 U.S. 696, 699 (1978).

perpetuity.¹³ Thus, the doctrine provides a valuable tool for meeting the water needs of federally withdrawn land; needs the federal government cannot always anticipate at the time it makes the reservation.¹⁴ However, the recognition of implied water rights, after an unaware junior water user has appropriated water, can also prove disruptive and costly to those junior water users.¹⁵

This Note discusses the context in which the Court decided *Gila River IX* and suggests the underlying policies of the federal reserved rights doctrine supports and illuminates the Court's decision in that case.

II. ARIZONA STATE TRUST LANDS

By 1910, Congress had granted the State of Arizona nearly eleven million acres of State Trust Lands to raise revenue for state schools.¹⁶ The Arizona Land Department ("Land Department") administers these State Trust Lands on behalf of the state.¹⁷ The Organic Act of 1850 established the Territory of Arizona and granted sections six and thirty-six of each township to the Territory to fund public schools.¹⁸ On June 20, 1910, Arizona achieved statehood through the State Enabling Act.¹⁹ The Act affirmed the earlier-granted sections and further assigned sections two and thirty-two of each township to Arizona's State Trust Lands.²⁰ The State Enabling Act requires the State to hold the lands in trust for public schools and that "lease and sale requirements . . . may be enforced by the federal government, the state, or any Arizona citizen."²¹ Furthermore, Congress intended State Trust Lands to generate revenue for public schools through the sale, lease, and use of the granted land.²² Currently, the Land Department administers 5.1 million acres in the Gila River Basin and 1.4 million acres in the Little Colorado River Basin.²³

13. See *In re General Adjudication of All Rights to Use Water in Gila River System & Source (Gila River V)*, 35 P.3d 68, 73-74 (Ariz. 2001); *Cappaert v. United States*, 426 U.S. 128, 138 (1976).

14. See *Arizona v. San Carlos Apache Tribe of Arizona*, 463 U.S. 545, 573-74 (1983); *United States v. New Mexico*, 438 U.S. at 718; *Cappaert*, 426 U.S. at 138; *Arizona v. California*, 373 U.S. 546, 601 (1963).

15. Richard B. Collins, *The Future Course of the Winter's Doctrine*, 56 U. COLO. L. REV. 481, 481-82 (1985).

16. ARIZ. STATE LAND DEP'T, ANNUAL REPORT 2010-2011 3 (2011), available at <http://www.azland.gov/report.htm>.

17. *Id.*

18. *Id.*

19. *Id.*

20. *Id.*

21. *In re General Adjudication of All Rights to Use Water in Gila River System & Source (Gila River IX)*, 289 P.3d 936, 939 (Ariz. 2012) (citing Enabling Act of June 20, 1910, ch. 310, §§ 28, 36, 36 Stat. 557, 574 (1908)).

22. *Lassen v. Arizona ex rel. Ariz. Highway Dep't*, 385 U.S. 458, 460 (1967).

23. *Gila River IX*, 389 P.3d at 939.

III. THE GILA RIVER SYSTEM AND THE LITTLE COLORADO RIVER SYSTEM GENERAL STREAM ADJUDICATIONS

Nearly forty years ago, between 1974 and 1980, the Phelps Dodge Corporation and the Salt River Valley Water Users' Association filed petitions with the Arizona State Land Department ("ASLD") requesting a determination of water rights on the Gila River and the Little Colorado River.²⁴ In 1979, the Arizona Legislature transferred the petitions to Maricopa County Superior Court ("Superior Court"), and in 1981, the Arizona Supreme Court consolidated the petitions into multiple river-specific adjudications.²⁵ Since then, the Court assigned a single water judge to preside over the Adjudications and a special master to conduct initial hearings and file reports with the Superior Court for all subsequent petitions on both river systems.²⁶ As of September 2012, more than 82,000 claims have been filed in the Gila River Adjudication and 14,000 claims filed in the Little Colorado Adjudication.²⁷

Arizona law requires general adjudications to identify the "extent and relative priority of the water rights of all persons in the river system and source."²⁸ Many Western States have initiated ambitious general stream adjudications over the past century, with the hope of providing a single forum to resolve water rights conflicts and increase certainty and manage the pressures of increasing populations.²⁹ Indeed, as early as 1910, the *Kent Decree* settled water rights in Arizona's Salt and Verde River systems and the *Globe Equity Decree of 1935* quantified rights on the Gila River.³⁰

The Adjudications (Gila River and Little Colorado River systems) have not yet reached the point of identifying the extent of individual water rights.³¹ Instead, the Adjudications have thus far focused on the numerous preliminary matters arising among the competing interests.³² These matters include decisions on the constitutionality of Arizona statutes governing general stream adjudications and jurisdictional questions.³³ While the Arizona Legislature intended the Adjudications to provide more consistency and enforcement of water rights, in reality, a multiple decade-long adjudication process has put many water rights holders in a state of limbo.³⁴ Until the Adjudications are settled, there is no administrative process to enforce water rights against another

24. Joseph M. Feller, *The Adjudication that Ate Arizona Water Law*, 49 ARIZ. L. REV. 405, 417 (2007).

25. ARIZ. REV. STAT. ANN. § 45-252 (1979); *General Stream Adjudication: Overview of General Stream Adjudication*, MARICOPA CNTY. SUPERIOR COURT, <http://www.superiorcourt.maricopa.gov/SuperiorCourt/GeneralStreamAdjudication/faq.asp#2> (last visited Apr. 12, 2013).

26. *Id.*

27. *Gila River IX*, 289 P.3d at 939.

28. ARIZ. REV. STAT. ANN. § 45-252(a) (2013).

29. Thorson, *supra* note 8, at 389.

30. Feller, *supra* note 24, at 414.

31. MARICOPA CNTY. SUPERIOR COURT, *supra* note 25.

32. Feller, *supra* note 24, at 426.

33. MARICOPA CNTY. SUPERIOR COURT, *supra* note 25.

34. Feller, *supra* note 24, at 426-27.

user, because the Superior Court has not yet identified the extent of individual water rights.³⁵

IV. THE *WINTERS* DOCTRINE: FEDERAL RESERVED WATER RIGHTS

Implied federal reserved water rights are an exception to the general rule that state law governs water rights in the West.³⁶ In *Winters v. United States*, the US Supreme Court recognized, for the first time, the doctrine of reserved water rights by holding that water rights were essential for the survival of the Fort Belknap Indian Reservation.³⁷ In addition to implied federal reserved water rights for Native American reservations, the United States Supreme Court has recognized reserved water rights for other types of federal reservations.³⁸ These include reserved water rights for national forests,³⁹ national monuments,⁴⁰ wildlife refuges, and other types of federal reservations.⁴¹

Federal reserved water rights are an especially powerful right because water rights reserved by the federal government have a priority date relating to when the federal government made the reservation.⁴² Indeed, in contrast to state law under the prior appropriation doctrine, federal reserved water rights do not require the water be put to beneficial use, and thus the right cannot be abandoned due to nonuse.⁴³ Furthermore, the quantity of water reserved by such a reservation is not exclusively measured by historical consumptive use, but by the amount of water necessary to fulfill the reservation's primary purpose.⁴⁴ As the US Supreme Court stated in *United States v. New Mexico*, "without the water the purpose of the reservation would be entirely defeated."⁴⁵ In addition, Congress must reserve land in a manner that "implies Congress' intention to reserve water sufficient to accomplish congressional purposes."⁴⁶ Thus, the reservation at issue must have both a federal purpose requiring water and Congressional intent that the reservation use water to achieve its purpose.

35. *Id.* at 427.

36. *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River IX*), 289 P.3d 936, 941 (Ariz. 2012).

37. *Id.* (citing *Winters v. United States*, 207 U.S. 564, 576-77 (1908)).

38. See *infra* notes 39-41 and accompanying text.

39. *United States v. New Mexico*, 438 U.S. 696, 718 (1978).

40. *Cappaert v. United States*, 426 U.S. 128, 138 (1976).

41. *Arizona v. California*, 373 U.S. 546, 601 (1963).

42. See *id.*; *United States v. Adair*, 723 F.2d 1394, 1415 (9th Cir. 1983).

43. *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River V*), 35 P.3d 68, 72 (Ariz. 2001) (however a court will typically quantify historical use of water at the time of a reservation as a *strong* indicator of what quantity should be).

44. *United States v. Jesse*, 744 P.2d 491, 493-94 (Colo. 1987). Unlike non-Indian reservations, reserved water rights for Indian reservations also include consideration of "future needs and changes" when determining the quantity of water reserved. *Gila River V*, 35 P.3d at 73-74 (but the reservation must still prove its anticipated future needs).

45. *United States v. New Mexico*, 438 U.S. at 700.

46. Thorson, *supra* note 8, at 460.

V. PROCEDURAL BACKGROUND

The State of Arizona initiated the proceedings leading to the *Gila River IX* decision by filing a motion for partial summary judgment to recognize federal reserved water rights for State Trust Lands ("Motion").⁴⁷ The State filed the Motion in the Little Colorado River System Adjudication in 1992, and, under direction from the Superior Court, also filed the same Motion in the Gila River System Adjudication in 2004.⁴⁸ With both Adjudications now considering the issue of State Trust Lands, numerous water rights users in the region opposed the Motion.⁴⁹ In 2005, the Superior Court directed the Special Master to hold a hearing on the Motion and submit findings of fact, conclusions of law, and recommendations.⁵⁰

The Special Master submitted his report to the Superior Court in 2007 and rejected the contention that State Trust Lands have accompanying federal reserved water rights.⁵¹ The Special Master determined that no withdrawal took place and that State Trust Lands do not administer a federal purpose.⁵² In 2010, the Superior Court adopted the Special Master's report and denied the Motion.⁵³ The State of Arizona filed an interlocutory appeal from the Superior Court's order and the Arizona Supreme Court granted review based on the issue's "statewide importance."⁵⁴

VI. ARIZONA SUPREME COURT DECISION

The Arizona Supreme Court ultimately affirmed the Superior Court's order, holding that federal reserved water rights are inapplicable for State Trust Land.⁵⁵ After analyzing the applicable rule of construction at issue, the Court reached its decision by considering: (i) the nature of the land withdrawal from the public domain; (ii) any reservation for a federal purpose; and (iii) congressional intent to reserve water.

A. APPLICABLE RULE OF CONSTRUCTION

As an initial matter, the Court considered how it must construe the federal legislation granting Trust Lands to Arizona.⁵⁶ The Court rejected the State's

47. Report of the Special Master at 4, *Gila River IX*, 289 P.3d 936 (Ariz. 2012) (No. WC-11-0001-IR).

48. *Id.* at 4-5.

49. *Id.* at 4. Those opposed included Abitibi Consolidated Sales Corporation, Arizona Public Service, Phelps Dodge Corporation, Aztec Land and Cattle Company, Hopi Tribe, Navajo Nation, and the United States. *Id.*

50. *Id.* at 5.

51. *Id.* at 76.

52. *Id.* at 65-75.

53. Apache County Superior Court Order at 1-2, *Gila River IX*, 289 P.3d 936 (Ariz. 2012) (CV 6417-100).

54. *In re* General Adjudication of All Rights to Use Water in Gila River System & Source (*Gila River IX*), 289 P.3d 936, 940 (Ariz. 2012).

55. *Id.* at 938.

56. *Id.* at 940.

argument that the Superior Court construed the federal legislation at issue too narrowly.⁵⁷ The general rule requires a court to construe a federal land grant narrowly, because “nothing passes by mere implication.”⁵⁸ There is a limited exception providing courts may liberally construe federal legislation “designed to aid the common schools of the state.”⁵⁹ However, this exception only applies if a narrow interpretation of the federal grant would defeat the grant’s purpose.⁶⁰ As Arizona’s State Trust Lands have been generating revenue for state schools (its primary purpose) for more than one hundred years without implied water rights, the Court determined that the common schools exception did not apply.⁶¹ Thus, the Court applied the traditional, narrow construction to its examination of the federal land grant to Arizona.⁶² The Court noted courts should be careful when applying implied federal rights because of “the doctrine’s disruptive effect in prior appropriation jurisdictions.”⁶³

B. NO WITHDRAWAL OR RESERVATION FOR A FEDERAL PURPOSE

The Court concluded the Organic and Enabling Acts granting State Trusts Lands to Arizona did not adequately withdraw or reserve lands.⁶⁴ Specifically, in *Gila River IX*, the Court employed its four-part test to analyze the Superior Court’s decision.⁶⁵ First, do the reserving documents and underlying legislation indicate a withdrawal from the public domain?⁶⁶ Second, does the withdrawal serve a precise federal purpose?⁶⁷ If both threshold questions are satisfied, then, third, a court must analyze “whether water is essential for the primary purpose of the reservation.”⁶⁸ If water is necessary to carry out the federal purpose, then, fourth, the court determines the quantity of water reserved by analyzing the minimal amount of water required to satisfy that purpose.⁶⁹

1. No Withdrawal from the Public Domain

The Court turned to the documents granting Arizona State Trust Lands from the federal government to examine whether Arizona’s State Trust Lands were withdrawn from the public domain. A federal withdrawal is the “removal or segregation of the lands from the operation of the general land laws as the

57. *Id.*

58. *Id.* (quoting *Knoxville Water Co. v. Knoxville*, 200 U.S. 22, 33-34 (1906)).

59. *Id.* (quoting *Wyoming v. United States*, 255 U.S. 489, 508 (1921)).

60. *Id.* (citing *Lyon v. Gila River Indian Cmty.*, 626 F.3d 1059, 1072-73 (9th Cir. 2010); *Utah v. Andrus*, 486 F. Supp. 995, 1002 (D. Utah 1979)).

61. *Id.* at 940-41.

62. *Id.* at 941.

63. *Id.* (citing *United States v. City & Cnty. of Denver*, 656 P.2d. 1, 26 (Colo. 1982); *State ex rel. State Eng’r v. Comm’r of Pub. Lands (N.M. Comm’r)*, 200 P.3d 86, 95 (N.M. Ct. App. 2008)).

64. *Id.* at 942.

65. *Id.* at 941-42.

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

initial step in the dedication of the lands to the predetermined purpose.”⁷⁰ Furthermore, a withdrawal is intended to “retain the land and preclude disposal.”⁷¹ The Enabling Act provides that “in addition to sections sixteen and thirty-six, heretofore *reserved* for the Territory of Arizona [by the Organic Act], sections two and thirty-two in every township . . . are hereby *granted* to the State for the support of common schools.”⁷² However, a statute using the term “reserve” or “withdraw” does not necessarily mean Congress intended to withdraw the land from the public domain.⁷³

When the State Trust Lands passed to the State of Arizona, the federal government did not retain ownership of the land.⁷⁴ The Enabling Act provides lease and sale requirements that the federal government may choose to enforce.⁷⁵ However, beneficiary schools always remain under the exclusive control of the state.⁷⁶ The Court held this limited federal power to oversight is insignificant compared to the state’s “great discretion concerning the disposition of trust lands.”⁷⁷ In addition, both the US Supreme Court and the Ninth Circuit have held administrators may not sell withdrawn land out of federal custody.⁷⁸ The Enabling Act allows the state to sell its State Trust Land to the highest bidder at public auction.⁷⁹ Thus, Congress did not withdraw Arizona’s State Trust Lands from the public domain because the federal government did not own the land and expected the state to sell the land to generate revenue.⁸⁰

2. No Reservation for a Federal Purpose

A federal reservation “dedicates land to a specific public use,” and that use must be federal in nature to invoke the federal reserved water rights doctrine.⁸¹ The Court rejected the State’s argument that, because Congress identified funding public schools as the grant’s purpose, Congress reserved the State Trust Lands for a federal purpose.⁸² Although it recognized the important public interest of supporting public schools, the Court noted that states have al-

70. *Id.* at 942-43.

71. *Id.* at 943.

72. *Id.* at 942.

73. *Id.* (citing *S. Utah Wilderness Alliance v. Bureau of Land Mgmt.*, 425 F.3d 735, 784 (10th Cir. 2005)).

74. *Id.*

75. *Id.* at 939.

76. *Id.* at 945.

77. *Id.* at 944.

78. *Id.* at 943; *see also* *Arizona v. California*, 373 U.S. 546, 598 (1963) (“[w]e have no doubt about the power of the United States under [the Constitution] to reserve water rights for its reservations and its property”); *Winters v. United States*, 143 F. 740, 748 (9th Cir. 1906) (“when the lands of the government have been legally appropriated or reserved for any purpose, they become severed from the public lands, and . . . no subsequent law or sale should be construed to embrace or operate upon them.”).

79. *Gila River IX*, 289 P.3d at 943.

80. *Id.*

81. *Id.* (citing *S. Utah Wilderness Alliance v. Bureau of Land Mgmt.*, 425 F.3d 735, 785 (10th Cir. 2005); *Cappaert v. United States*, 426 U.S. 128, 138 (1976)).

82. *Id.*

ways maintained the power to regulate education.⁸³ Thus, the Court concluded that supporting public schools is not a legitimate federal purpose.⁸⁴ Furthermore, the Court relied heavily on a New Mexico Court of Appeals case, *New Mexico ex rel. State Engineer v. Commissioner of Public Lands* (“*New Mexico Commissioner*”), which also considered whether New Mexico’s State Trust Lands had implied federal water rights.⁸⁵ In *New Mexico Commissioner*, the Court of Appeals held the federal reserved water rights doctrine does not apply to State Trust Land, as the government did not withdraw the land from the public domain for a federal purpose.⁸⁶ In its opinion, the court in *New Mexico Commissioner* reasoned that although “the support of common schools is a matter of national interest, [it] cannot conclude that it is also a federal purpose . . . [as] continuing federal ownership of the reserved lands appears to be a prerequisite.”⁸⁷

Finally, the Court in *Gila River IX* noted Congress clearly reserved other land through the Enabling Act for a federal purpose.⁸⁸ The Enabling Act states land capable of developing water power is “reserved to the United States” and “no lands so reserved and excepted shall be subject to any disposition whatsoever.”⁸⁹ Unlike education, development of interstate water power falls under federal jurisdiction under the Commerce Clause.⁹⁰ Furthermore, consistent with the prohibition on selling withheld land, the Enabling Act actively encourages the sale of Trust Lands, while prohibiting the sale of water power lands.⁹¹ The Court used this section of the Enabling Act to determine Congress had the expertise to make a clear reservation for a federal purpose, and intentionally chose not to similarly reserve Trust Lands.⁹²

C. CONGRESSIONAL INTENT TO RESERVE WATER RIGHTS

Likewise, the Court held Congress did not intend to reserve water rights for Arizona State Trust Lands.⁹³ The Court rejected the State’s argument that the relationship between the federal government and states is similar to the relationship between the federal government and Indian tribes.⁹⁴ The Court observed that the federal-state relationship is different because land grants to states are not negotiated agreements or treaties that Indian tribes rely upon.⁹⁵ Therefore, the Court concluded lands granted to states by the federal govern-

83. *Id.* (citing *United States v. Lopez*, 514 U.S. 549, 564 (1995); *Cooper v. Roberts*, 59 U.S. 173, 181-82 (1855)).

84. *Id.*

85. *Gila River IX*, 289 P.3d at 942 (citing and discussing *State ex rel. State Eng’r v. Comm’r of Pub. Lands (N.M. Comm’r)*, 200 P.3d 86, 97-98 (N.M. Ct. App. 2008)).

86. *N.M. Comm’r*, 200 P.3d at 97-98.

87. *Id.* at 97.

88. *Gila River IX*, 289 P.3d at 944.

89. *Id.*

90. *See Federal Power Comm’n v. Union Elec. Co.*, 381 U.S. 90, 94-95 (1965).

91. *Gila River IX*, 289 P.3d at 944.

92. *Id.* at 945.

93. *Id.*

94. *Id.*

95. *Id.*

ment are not entitled to the same rights as Indian reservations, for which courts routinely find implied federal reserved water rights under the *Winters* Doctrine.⁹⁶ Furthermore, the Court also rejected the State's argument that Congress knew of the region's aridity and so intended to provide water to enhance land's productivity, and thus its value.⁹⁷ The Court found compelling the fact the Enabling Act increased the grant of land in each township from two to four sections for Arizona.⁹⁸ Legislative history indicates Congress viewed increasing the land grant as a means to compensate Arizona for the lower value of the land.⁹⁹ Thus, the Court held Congress reacted to the lower quality of the school Trust Lands by doubling the amount of land granted, rather than granting water rights with the land.¹⁰⁰

VII. POLICY IMPLICATIONS

The Court recognized necessary limitations of the federal reserved water right doctrine in *Gila River IX*. The doctrine is powerful and potentially disruptive to state appropriative water rights. Thus, courts must tread carefully when asked to extend the scope of the federal reserved water right doctrine.

While the State admirably sought to gain additional revenue for its public schools in *Gila River IX*, the cost to Arizona citizens was simply too high. If the Court had allowed the State to claim reserved water rights for State Trust Lands, these claims could dramatically undercut existing rights in Arizona's prior appropriation system. The Court declined to extend the scope of the doctrine, correctly finding the State Trust Lands did not meet the basic threshold requirements of the federal reserved water rights doctrine. *Gila River IX*, together with *New Mexico Commissioner*, rejects the use of federal reserved rights doctrine on State Trust Lands.¹⁰¹ Both Arizona and New Mexico now have a bright-line rule regarding State Trust Lands that other states are likely to accept.

Yet, the Court in *Gila River IX* did not need to discuss the policy and logistical implications underpinning its decision, because the State's arguments failed to meet the basic reservation threshold requirements. The federal reserved water rights doctrine is constantly evolving and its boundaries are not entirely clear to many observers.¹⁰² The State's argument in *Gila River IX* was a significant stretch under the doctrine's existing case law, but demonstrates how the elements of federal reserved water rights doctrine operate to preclude such claims.

96. *Id.*

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.* at 938; State *ex rel.* State Eng'r v. Comm'r of Pub. Lands (*N.M. Comm't*), 200 P.3d 86, 95 (N.M. Ct. App. 2008).

102. Debbie Leonard, *Doctrinal Uncertainty in the Law of Federal Reserved Water Rights: The Potential Impact on Renewable Energy Development*, 50 NAT. RESOURCES J. 611, 612 (2010).

The Court followed a four-part test to determine whether Congress impliedly reserved water rights.¹⁰³ The last two parts of the test question whether water is necessary for the primary purpose of the reservation and how much water is necessary for that purpose.¹⁰⁴ These steps promote important policies. They reflect a judicial intent to protect other water rights holders from over-appropriation by federal water rights.¹⁰⁵ However, the Court did not apply these steps after finding Congress did not withdraw or reserve the land for a federal purpose and Congress did not intend to create a federal reservation.

When inquiring after the third element, whether water is essential for the purpose of the reservation, the answer is likely a resounding no. Water is not inherently necessary to raise revenue for public schools by selling or using the State Trust Land. The Land Department has raised revenue with this land for the past one hundred years without federal water rights.¹⁰⁶ Thus, as a public policy matter, courts should not recognize senior water rights to a property that has proven its utility can survive without such rights. Such an action would be contrary to the policy set forth in *United States v. New Mexico*: the reserved rights doctrine will not claim water rights unless absolutely necessary because it upsets other appropriator's rights in the same stream.¹⁰⁷

An even more drastic problem arises when examining how much water should be set aside for State Trust Lands. If the Court had indeed found implied federal water rights for State Trust Lands, the "minimal need" of water is potentially unquantifiable in this case. If the purpose of the State Trust Land is to raise revenue, the greater the reserved water right, the greater the revenue. Surely the State did not intend to appropriate all the water in the Gila River and the Little Colorado River, but this highlights the slippery-slope problems inherent in the existence of the federal reserved water right doctrine.¹⁰⁸ The doctrine requires a quantified amount to avoid this issue of a theoretically unlimited water right, which could be catastrophic to other appropriators.

It is through analyzing these two final factors that the State's claims truly become unreasonable and dangerous to otherwise established property rights in Arizona. *Winters* set forth the federal reserved water rights doctrine in order to protect and nurture reservations that would otherwise fail their intended purposes.¹⁰⁹ Arizona's State Trust Lands continue serving their purpose today, and continue to raise revenue for public schools. The State attempted to maneuver around policies that support the implied reserved water rights doctrine by asking for federal water rights to serve the now state-owned Trust Land. *Gila River IX* recognizes an important boundary on the federal reserved water

103. *Gila River IX*, 289 P.3d at 941-42.

104. *Id.*

105. *See In re General Adjudication of All Rights to Use Water in Gila River System & Source (Gila River V)*, 35 P.3d 68, 70 (Ariz. 2001).

106. ANNUAL REPORT 2010-2011, *supra* note 16, at 4, 7.

107. *United States v. New Mexico*, 438 U.S. 696, 701 (1978).

108. Walter Rusinek, *A Preview of Coming Attractions? Wyoming v. United States and the Reserved Rights Doctrine*, 17 *ECOLOGY L.Q.* 355, 360 (1990).

109. *Winters v. United States*, 207 U.S. 564, 576 (1908); *see United States v. New Mexico*, 438 U.S. at 699.

right doctrine; a decision that is further supported by the doctrine's full analysis and its policy implications.

VIII. CONCLUSION

The Court in *Gila River IX* clearly rejects the application of the federal reserved water rights doctrine to State Trust Lands. The Court based its decision on its findings that Arizona's State Trust Lands were not withdrawn from the federal domain or reserved for a federal purpose, nor did Congress intend to provide water rights for those lands. However, the Court's decision also aligns with the protective policy implications underpinning the federal reserved water rights doctrine.

ARCHULETA V. GOMEZ: REINFORCING THE REQUIREMENT OF BENEFICIAL USE OF WATER IN COLORADO ADVERSE POSSESSION LAW

D. AUSTIN RUESCHHOFF

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I. INTRODUCTION

In the arid West, where water is scarce and senior water rights are valuable, obtaining a water right by adverse possession is understandably difficult. In December 2012, the Colorado Supreme Court decided *Archuleta v. Gomez* (*Archuleta II*), which clarified its 2009 decision (*Archuleta I*) by adding a new requirement a claimant must prove in order to succeed in a water rights adverse possession case.¹ Adding to the common law elements for real property adverse possession, the Court required proof of “the amount of water expressed in acre feet . . . that the adverse claimant has placed to beneficial consumptive use.”² The Court’s decision adjusted adverse possession jurisprudence to better mirror the beneficial use requirements of Colorado’s prior appropriation water law.

Prior to *Archuleta I*, the elements for adverse possession of a water right were the same as other real property rights: actual, adverse, hostile, and under a claim of right, as well as open, notorious, exclusive, and continuous for the eighteen-year statutory period.³ Through its decision in *Archuleta I*, the Colorado Supreme Court demonstrated the inherent difficulty trying to establish an adverse possession of water rights claim under the same elements as adverse possession of land.⁴ Traditionally, a claimant proved the element of actual use

1. *Archuleta v. Gomez* (*Archuleta II*), 290 P.3d 482, 482 (Colo. 2012).

2. *Archuleta v. Gomez* (*Archuleta I*), 200 P.3d 333, 346 (Colo. 2009) (emphasis added).

3. *Id.* at 344 (citing *Farmer v. Farmer*, 720 P.2d 174, 176 (Colo. App. 1986)).

4. *Id.* at 344-45.

by evidence of water diversion expressed in cubic feet per second ("cfs").⁵ As the Court pointed out in *Archuleta II*, however, a user's decreed right to divert a specified amount of water is insufficient to prove actual use of a mature water right.⁶ Rather, parties must quantify their historical consumptive use to determine beneficial use of water for a certain acreage of land, as required in prior appropriation water law.⁷ *Archuleta II* made this distinction for the first time in Colorado adverse possession in the context of water law, and will ensure future cases apply the fundamental tenets of the prior appropriation doctrine to adverse possession of water cases.

II. BACKGROUND

Ralph Archuleta and Theodore Gomez were adjacent landowners with water rights in three ditches that divert from the Huerfano River in Huerfano County near Redwing, Colorado.⁸ Both parties received title to their land and water rights from a common predecessor-in-interest, Sabino Archuleta, Ralph Archuleta's grandfather.⁹ Gomez received his "upper parcel" from Sabino in 1962, with water rights in the Archuleta Ditch, and his "lower parcel" in 1968 with water rights in all three ditches.¹⁰ Ralph Archuleta received his parcel, along with water rights in all three ditches, in 1991 through the estate of his father, Lupe Archuleta.¹¹ See Figure 1.0 for a detailed map of the parcels and ditches.

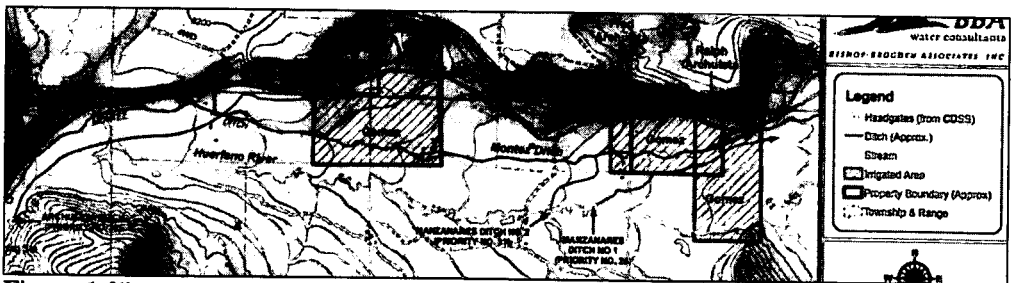


Figure 1.0¹²

The three ditches in controversy were the Archuleta Ditch, the Manzanares Ditch No. 1, and the Manzanares Ditch No. 2.¹³ The Archuleta Ditch

5. See *Matter of Water Rights of V-Heart Ranch, Inc.*, 690 P.2d 1271 (Colo. 1984) (allowing an adverse possession claim based on evidence of diversion expressed in cubic feet per second).

6. *Archuleta II*, 290 P.3d at 485.

7. *Id.*

8. *Archuleta I*, 200 P.3d at 337.

9. *Id.*

10. *Id.*

11. *Id.*

12. Plaintiff's Remand Exhibit 3, *Archuleta v. Gomez*, Case No. 06CW92 at *1 (Water Div. 2 2011) (The author notes the locations of the Montez Ditch and Archuleta Ditch are incorrect as represented on the western portion of the map. However, the portions relevant to the litigation are an accurate depiction of the ditches as they cross the affected properties.).

13. *Archuleta I*, 200 P.3d at 337.

ran through Gomez's upper parcel and stopped before reaching his lower parcel.¹⁴ The evidence showed the Archuleta Ditch did not run onto Gomez's lower parcel or to the Archuleta parcel since at least 1968, which is when Gomez acquired the lower parcel.¹⁵ The Manzanares Ditch No. 1 ran across the western portion of Gomez's lower parcel, across the Archuleta parcel, and onto the eastern portion of Gomez's lower parcel, which surrounds and encloses the Archuleta parcel.¹⁶ The Manzanares Ditch No. 2 ran across the western portion of Gomez's lower parcel and ended before reaching Archuleta's parcel.¹⁷ The parties agreed Gomez plowed under the Manzanares Ditch No. 2 on his lower parcel so that it no longer ran onto the Archuleta parcel.¹⁸

The controversy over ownership of the ditches began in the late 1990s, when Gomez found Archuleta using the Manzanares Ditch No. 1, and told Archuleta he did not own any rights to the ditch and instructed him to cease using it.¹⁹ In response, Archuleta brought an action against Gomez in the District Court of Huerfano County ("district court"), seeking damages and an injunction to restore the ditches and allow water to pass through to his parcel.²⁰ The district court dismissed the complaint and ruled Gomez adversely possessed the water rights in all three ditches.²¹ Archuleta appealed to the Colorado Court of Appeals, which affirmed the district court in part and vacated its decision in part, and remanded the case to the District Court, Water Division No. 2 ("water court").²² The water court affirmed Gomez's adverse possession and determined Archuleta's claim was frivolous and awarded attorney's fees to Gomez.²³ Archuleta appealed to the Colorado Supreme Court, contending Gomez failed to satisfy his burden of demonstrating a specific, required element of adverse possession: the actual beneficial use of Archuleta's water right.²⁴

III. ARCHULETA I, THE 2009 COLORADO SUPREME COURT DECISION

On appeal, Archuleta argued the water court erred because Gomez did not satisfy his burden of proof concerning the beneficial use element of adverse possession.²⁵ Archuleta further argued that, even if Gomez proved Archuleta abandoned his water right, it did not follow that Gomez automatically

14. *Id.* at 338.

15. *Id.* at 338-39.

16. *Id.* at 338.

17. *Id.*

18. *Id.*

19. *Archuleta II*, 290 P.3d at 488.

20. *See Archuleta v. Gomez*, Case No. 2003 CV 2 (Dist. Ct. Huerfano County, Colo. Sept. 15, 2004).

21. *Id.*

22. *Archuleta v. Gomez*, 140 P.3d 281 (Colo. App. 2006).

23. *Archuleta I*, 200 P.3d at 336.

24. *Id.* at 337.

25. *Id.* at 336-37.

acquired the right.²⁶ The Court held it was unable to rule on the adverse possession claim without a quantification of the parties' historic consumptive use of the water, expressed in acre-feet, and remanded the case to the water court to allow the parties to proffer such evidence.²⁷

A. ARGUMENTS BEFORE THE COLORADO SUPREME COURT

Archuleta first argued Gomez should restore Archuleta's right-of-way because Gomez did not satisfy the beneficial use element of adverse possession.²⁸ Archuleta contended Gomez must prove he beneficially used the amount of water transferred to Archuleta under his deeds during the rotation cycle.²⁹ A rotation cycle is an agreement made between parties who own water rights in a ditch to determine when each party is permitted to divert water from the ditch.³⁰ Although rotation cycles do not necessarily reflect the precise water right to which each party is entitled,³¹ the number of days attributed to each party in the cycle is generally proportionate to their deeded water rights. Archuleta's argument (to which the Court agreed) was that, in order for Gomez to prove he beneficially used Archuleta's water, Gomez would need to quantify the amount of Archuleta's water he diverted and used, in addition to Gomez's own appropriated water.³² Archuleta's opening brief relied on *Anderson v. Cold Spring Tungsten, Inc.*, a case in which an adverse possession claim failed because the claimant did not quantify the amount of real property he actually occupied.³³ Archuleta argued, for Gomez to prove the amount of water he appropriated, he needed to demonstrate that his time spent in the rotation schedule was proportionate to the amount of water deeded to Archuleta and Gomez in their combined legal interest.³⁴

Archuleta's second argument responded to Gomez's contention that Archuleta abandoned his water right.³⁵ Even if he had abandoned his right, Archuleta argued, it would not follow that the right would automatically transfer to Gomez.³⁶ Archuleta noted the bulk of evidence Gomez offered attempted to show Archuleta and his predecessors did not use their water rights, but Gomez failed to produce evidence establishing that he, himself, actually used the water.³⁷ Archuleta argued his own failure to use the water would result in abandonment of the water right and a return of the water to the public, not an automatic transfer to Gomez.³⁸

26. *Id.*

27. *Id.* at 347.

28. *Id.*

29. Opening Brief of Appellant at 11, *Archuleta I*, 200 P.3d 333 (2009) (No. 08SA109), 2008 WL 4203502.

30. *Archuleta I*, 200 P.3d at 345.

31. *See id.*

32. Opening Brief of Appellant, *supra* note 29, at 12.

33. *Id.* at 11 (citing *Anderson v. Cold Spring Tungsten, Inc.*, 485 P.2d 756 (Colo. 1969)).

34. *Id.* at 12.

35. *Id.* at 17.

36. *Matter of Water Rights of V-Heart Ranch, Inc.*, 690 P.2d at 1274.

37. Opening Brief of Appellant, *supra* note 29, at 13.

38. *Id.* at 14.

Gomez, for his part, argued his use in the rotation agreements was roughly proportionate to his and Archuleta's combined deeded interest.³⁹ To illustrate this, Gomez offered evidence showing his four days out of a twenty-day rotation on the Manzanares Ditch No. 1 was equivalent to a twenty percent share—more than enough to satisfy the combined record ownership of 16.7 percent Gomez and Archuleta shared.⁴⁰ Gomez relied on *Matter of Water Rights of V-Heart Ranch, Inc.*, in which the Court noted that a rotation agreement among owners of water rights does not necessarily prove the rights of each owner.⁴¹ Gomez explained these agreements are often made out of convenience so “no one had to get up during the middle of the night to start their turns in the rotation.”⁴² Admitting a rotation agreement does not equate to ownership of water rights; Gomez used the evidence to establish he actually used the water and his use was roughly proportionate to the combined Archuleta and Gomez interests.⁴³

In his Reply, Archuleta argued a rotational share roughly proportionate to the amount of water used is not a sufficient quantification of water.⁴⁴ Archuleta claimed Gomez's calculation did not take into account the shares other parties had in relation to their deeded interests—a key fact in determining whether the rotation times Gomez received correlated with all the interests of the shareholders.⁴⁵ Archuleta surmised many factors could be involved in another agreement with shareholders giving Gomez increased time in the rotation.⁴⁶ For instance, Gomez may have used someone else's water, or someone other than Gomez may have used Archuleta's water.⁴⁷

Finally, Archuleta also argued in his Reply that, even if Gomez showed he diverted Archuleta's share, Gomez failed to put the water to beneficial use.⁴⁸ Archuleta pointed out that, although Gomez offered evidence demonstrating the rotational days that other owners agreed upon, there was no showing that Gomez actually *used* the water during his days.⁴⁹

B. THE COLORADO SUPREME COURT'S OPINION IN *ARCHULETA I*

In response to the numerous arguments put forth by Archuleta and Gomez, Justice Gregory J. Hobbs, Jr., writing for the majority, stated the Court simply did not have enough information to determine whether the water right was adversely possessed without a quantification of the parties' consumptive

39. Answer Brief of Theodore Gomez, Defendant-Appellee at 13, *Archuleta I*, 200 P.3d 333 (2009) (No. 08SA109), 2008 WL 4991985.

40. *Id.* at 18.

41. *Id.* at 18-19 (citing *Matter of Water Rights of V-Heart Ranch, Inc.*, 690 P.2d 1271 (Colo. 1984)).

42. *Id.* at 19.

43. *Id.* at 19-20.

44. Reply Brief of Appellant at 5, *Archuleta I*, 200 P.3d 333 (2009) (No. 08SA109), 2008 WL 4641881.

45. *Id.* at 6.

46. *Id.* at 8.

47. *Id.* at 7.

48. *Id.* at 5.

49. *Id.*

use, expressed in acre-feet.⁵⁰ The Court held, aside from the standard requirements for adverse possession of real property, adverse possession of a water right requires the claimant show the quantified beneficial use of the adversely possessed water.⁵¹

The Court pointed out that although it was clear Gomez diverted and used some share of Archuleta's water right openly, exclusively, and with hostility for the eighteen-year statutory period, the facts in the record did not establish whether Gomez possessed all of Archuleta's water right.⁵² The Court stated "A portion of Archuleta's adjudicated water rights may have been abandoned to the stream, a portion may have been adversely possessed by Gomez, and a portion may still belong to Archuleta."⁵³ The Court determined both parties deserved the opportunity to present quantitative evidence of the amount of water used, rather than simply diverted, in order to establish the rights Archuleta maintained and the rights Gomez acquired.⁵⁴

The second issue the Court addressed was whether the record established whether Gomez made beneficial use of Archuleta's water in addition to his own water rights.⁵⁵ Testimony in the record showed Archuleta may have beneficially used the water even without the use of irrigation ditches by sub-irrigation from Gomez's tail water.⁵⁶ The Court held, without quantification of actual beneficial use of the water by either party, it could not sustain an adverse possession claim.⁵⁷ In order to quantify the amount of water each party put to beneficial use, the Court reversed the water court's judgment and remanded the case to the water court to allow the parties to present the newly required evidence.⁵⁸

Justice Alex J. Martinez filed a dissenting opinion to protest the requirement that a claimant must show it beneficially used a specific amount of water expressed in acre-feet to succeed on an adverse possession claim.⁵⁹ Justice Martinez relied on both the statutory requirements for adverse possession and previous Court decisions to assert this was the first time the Court made quantification in acre-feet a requirement of adverse possession of a water right.⁶⁰ Further, Justice Martinez claimed the majority's opinion created a new re-

50. *Archuleta I*, 200 P.3d at 347.

51. *Id.*

52. *Id.* at 337.

53. *Archuleta I*, 200 P.3d at 337.

54. *Id.*

55. *Id.* at 339.

56. *Id.*

57. *Id.* at 340.

58. *Id.* at 349.

59. *Id.*

60. *Id.* Justice Martinez turned to COLO. REV. STAT. § 38-41-101 (2012), which requires adverse possession claimants to "satisfy all of the elements of a claim for adverse possession required under common law in Colorado," and to *Matter of Water Rights of V-Heart Ranch, Inc.*, 690 P.2d at 1273, which stated "[a] party seeking to establish ownership of a water right by adverse possession has the burden of establishing that such a possession is actual, adverse, hostile, and under a claim of right, as well as open, notorious, exclusive, and continuous for the prescribed statutory period."

quirement that the claimant mathematically quantify the amount of water beneficially used in consultation with experts.⁶¹

IV. REMAND TO THE WATER COURT IN *ARCHULETA I*

The water court heard the case on remand in February, April, and May of 2011.⁶² Both parties presented expert testimony to establish their consumptive beneficial use of the contested water, expressed in acre-feet. The water court described the case as a “classic example of each side presenting the necessary facts to support his legal position.”⁶³ Therefore, the water court was tasked with determining which side’s evidence was more credible.⁶⁴ At the conclusion of the testimony, the water court found Gomez had adversely possessed Archuleta’s interest in the Archuleta Ditch and Manzanares Ditch No. 1, but Archuleta maintained his interest in the Manzanares Ditch No. 2.⁶⁵ The water court also enjoined Gomez from interfering with Archuleta’s rights to that ditch.⁶⁶

A. ARCHULETA DITCH

The undisputed facts concerning the Archuleta Ditch showed Gomez had four days in the twelve-day ditch rotation to use in irrigating his upper parcel.⁶⁷ The ditch had not extended to the lower parcel of the Archuleta property since at least 1968, and Archuleta did not use the water on his property during the eighteen-year statutory period for adverse possession.⁶⁸ Therefore, the central question was whether or not Archuleta received any tail water from Gomez’s use of the Archuleta Ditch.⁶⁹

Archuleta argued Gomez ran his portion of the Archuleta Ditch water through the Manzanares Ditch No. 2 to irrigate the lower parcels abutting Archuleta’s property, and Archuleta used tail water from irrigation on Gomez’s lower parcel to irrigate his upper pasture.⁷⁰ Jeffrey Clark, Archuleta’s expert, presented evidence to bolster Archuleta’s claim.⁷¹ Gomez, and the District 79 Water Commissioner Ray Garcia, testified Gomez did not divert Archuleta Ditch water through the Manzanares Ditch No. 2.⁷² The water court did not find credible Archuleta’s testimony concerning the diversion of the Archuleta Ditch through the Manzanares Ditch No. 2, and declared it would be impossible for Archuleta to receive tail water from the Archuleta Ditch because the

61. *Id.* at 350.

62. Archuleta v. Gomez, Case No. 06CW92 at *1 (Water Div. 2 2011).

63. *Id.* at *5.

64. *Id.*

65. *Id.* at *16.

66. *Id.*

67. *Id.* at *5.

68. *Id.*

69. *Id.*

70. *Id.* at *6.

71. *Id.*

72. *Id.*

ditch did not reach Gomez's lower parcel.⁷³ Therefore, the water court found Gomez's use of the Archuleta Ditch met the requirements for adverse possession.⁷⁴

To show Gomez's beneficial use of Archuleta's water right from the Archuleta Ditch, Gomez's expert, Gary Thompson, testified that between 1968 and 1986, Gomez's average annual consumptive use was 91.2 acre-feet.⁷⁵ Thompson analyzed the conditions prior to 1968, concluding Gomez's consumptive use averaged 82.3 acre-feet annually and Archuleta's deeded amount averaged 13.7 acre-feet annually, totaling consumption of 96 acre-feet.⁷⁶ Therefore, during the requisite eighteen-year period, Gomez beneficially and consumptively used 8.9 acre-feet of Archuleta's water right. The water court found, during that eighteen years, Gomez's use was actual, adverse, hostile, notorious, exclusive and continuous, thus giving Gomez absolute ownership of Archuleta's interest in the ditch.⁷⁷

B. MANZANARES DITCH NO. 1

To determine the parties' use of Manzanares Ditch No. 1, the water court considered a rotation agreement based on historic use and the testimony of additional parties either living in or frequently visiting the area.⁷⁸ All of the parties with an interest in the ditch in 1984 signed and recorded the rotation agreement.⁷⁹ The agreement stated the parties allocated Gomez four days in a twenty-day rotation, and a twenty percent ownership of the ditch.⁸⁰ The agreement did not include Archuleta, though the water court determined there was no evidence indicating he was deliberately excluded.⁸¹

Additionally, many witnesses testified on behalf of both parties as to the use of the ditch.⁸² The water court found "extreme differences" between Archuleta's witnesses' testimony, and Gomez's witnesses' testimony.⁸³ One fact, however, both parties agreed on was that, in the late 1990s, Gomez found Archuleta using the ditch and told Archuleta he did not own any rights to the ditch and needed to cease using it (which ultimately lead to the initial court action).⁸⁴ The water court noted if Archuleta used the ditch over the decades previous to the confrontation, the confrontation would have happened much earlier.⁸⁵

73. *Id.* at *7.

74. *Id.*

75. *Id.* at *14.

76. *Id.*

77. *Id.* at *7.

78. *Id.* at *7-11.

79. *Id.* at *7.

80. *Id.*

81. *Id.* at *11.

82. *Id.* at *8-11.

83. *Id.* at *9.

84. *Id.* at *10.

85. *Id.*

Because of the substantial conflict between the two parties' respective testimony, the water court relied on the 1984 rotation agreement to reach its decision.⁸⁶ The water court concluded that, because the agreement was based on historic use, the agreement would have included Archuleta even if he only occasionally used the ditch.⁸⁷ Also, the agreement called for the sharing of expenses, and it was undisputed that Archuleta never contributed labor or money to maintain the ditch.⁸⁸ The water court ultimately concluded Archuleta's version of the facts was not credible, and Gomez had satisfied the requirements for adverse possession.⁸⁹

To determine beneficial use of the ditch, the water court again relied on the analysis of Gomez's expert, Gary Thompson.⁹⁰ Thompson testified that, prior to 1968, Gomez's average annual consumptive use was 53.7 acre-feet and Archuleta's was 8.4 acre-feet, totaling 62.1 acre-feet.⁹¹ The water court found from 1968 to 1986, Gomez's consumptive use was 59.2 acre-feet, which indicated Gomez was using 5.5 acre-feet of Archuleta's right.⁹² The water court again found Gomez's use was actual, hostile, notorious, exclusive, and continuous for the eighteen-year period, thus giving Gomez absolute ownership of Archuleta's interest in Manzanares Ditch No. 1.⁹³

C. MANZANARES DITCH NO. 2

The parties agreed Manzanares Ditch No. 2 had not reached Archuleta's property since 1968 and Gomez plowed up the ditch so it no longer reached Archuleta's property.⁹⁴ Archuleta argued, however, that tail water from the ditch sporadically ran onto his property during the adverse possession period.⁹⁵ The water court found the tail water was sufficient in quantity to support the growth of pasture grass on Archuleta's property.⁹⁶ The water court also found Archuleta consumptively used all or a portion of his irrigation water with tail water rather than ditches.⁹⁷ The water court found Gomez did not adversely possess Archuleta's water right for Manzanares Ditch No. 2 because Archuleta continued to irrigate his land with tail water.⁹⁸ The water court concluded the key question was how Archuleta would transport water from the ditch to his property after Gomez plowed up the ditch because it was uncertain whether anything more than tail water would reach Archuleta's property.⁹⁹ The water court enjoined Gomez from interfering with Archuleta's rights to water from

86. *Id.* at *11.

87. *Id.*

88. *Id.* at *11.

89. *Id.*

90. *Id.* at *16.

91. *Id.*

92. *Id.*

93. *Id.* at *11.

94. *Id.* at *12.

95. *Id.* at *12-13.

96. *Id.* at *12.

97. *Id.*

98. *Id.*

99. *Id.* at *13.

the ditch, but left Archuleta without a remedy for Gomez's destruction of the ditch.¹⁰⁰

V. *ARCHULETA II*, THE 2012 COLORADO SUPREME COURT DECISION

In 2012, both parties again appealed the water court's decision to the Colorado Supreme Court.¹⁰¹ Archuleta claimed the water court erred in deciding Gomez adversely possessed the Archuleta Ditch and Manzanares Ditch No. 1, and also erred in not granting mandatory injunctive relief requiring Gomez to restore the Manzanares Ditch No. 2 to Archuleta's property.¹⁰² Gomez did not challenge the water court's ruling on Manzanares Ditch No. 2, and only appealed on the issue of attorney's fees.¹⁰³

Archuleta first argued Gomez did not prove adverse possession of the two ditches because Gomez did not show he consumptively used all of Archuleta's water.¹⁰⁴ Archuleta based this argument on Gomez's testimony establishing his irrigation efficiency at only fifty percent.¹⁰⁵ The Court quickly dismissed this argument, saying Archuleta misconstrued its holding in *Archuleta I* and, therefore, Archuleta's argument was based on his erroneous belief that his legal interests include the right to return flows.¹⁰⁶ The Court emphasized the expert testimony that had stated fifty-percent efficiency is typical for crop water consumption in the area.¹⁰⁷ Further, the Court noted return flows are not part of the water right's legal interest, but rather they belong to the public—a longstanding tenet of prior appropriation water law.¹⁰⁸

Starting with the Archuleta Ditch, the Court upheld the water court's determination that Gomez had adversely possessed Archuleta's water right.¹⁰⁹ The Court relied on the water court's findings that, since 1968, the ditch did not extend to Archuleta's property and therefore it would be impossible for the property to receive tail water from the Archuleta Ditch.¹¹⁰ The Court also upheld the water court's finding that Gomez adversely possessed the Manzanares Ditch No. 1 because Lupe Archuleta never used the ditch after 1968 and Ralph Archuleta began using the ditch only in the mid-to-late 1990s, which was insufficient to interrupt the eighteen-year statutory period of use by Gomez.¹¹¹ The Court also relied on the 1984 rotational agreement among the parties with a legal interest in the Manzanares Ditch No. 1.¹¹² The Court held Ar-

100. *Id.*

101. *Archuleta II*, 290 P.3d at 482.

102. *Id.* at 492 n.1.

103. *Id.*

104. *Id.* at 486.

105. *Id.*

106. *Id.* at 487.

107. *Id.*

108. *Id.* at 487.

109. *Id.* at 488.

110. *Id.* at 488-89.

111. *Id.* at 488.

112. *Id.*

chuleta's non-participation in the agreement showed he did not even sporadically use the ditch prior to the agreement.¹¹³

Following the precedent it created in *Archuleta I*, the Court next examined whether Gomez made actual beneficial use of the water rights in the Archuleta Ditch and Manzanares Ditch No. 1.¹¹⁴ The Court examined evidence showing Gomez increased his consumptive use above the amount available under his right, to the exclusion of Archuleta in both ditches, but did not enlarge the historical beneficial use associated with Archuleta's legal interest.¹¹⁵ The expert evidence at the water court level indicated Gomez's land was "water short" at times and he was therefore able to beneficially use Archuleta's water for crop production.¹¹⁶

Gomez did not appeal the water court's finding that he had not adversely possessed Archuleta's interest in Manzanares Ditch No. 2 and that he wrongly severed the ditch so that it did not extend to Archuleta's property.¹¹⁷ The Court held Gomez's increased use of water from the ditch was an illegal enlargement of the ditch because Archuleta never abandoned his water right in Manzanares No. 2.¹¹⁸ The Court further explained that all Gomez did by severing the ditch before it reached Archuleta's land was possess water that would have returned to the Huerfano River, and therefore the water belonged to the public.¹¹⁹

The Court also held Gomez illegally destroyed the Manzanares Ditch No. 2.¹²⁰ To rectify this abuse of Archuleta's water right, the Court directed the water court to enter an injunction ordering Gomez to reconstruct the ditch and provide an easement across the northern part of his lower parcel to Archuleta's adjoining parcel.¹²¹ The Court further directed the water court to use any appropriate terms to protect Archuleta's legal interest in Manzanares Ditch No. 2.

Accordingly, the Court affirmed the judgment of the water court regarding Gomez's adverse possession of the Archuleta Ditch and Manzanares Ditch No. 1, and remanded the case for an injunction consistent with the Court's opinion as to Manzanares Ditch No. 2.¹²²

VI. LOOKING FORWARD

Archuleta I established a new blueprint for evaluating claims of adverse possession of water rights, aligned the jurisprudence more closely with traditional tenets of Colorado prior appropriation water law, and increased the burden on claimants attempting to prove adverse possession. For the first time, the Colorado Supreme Court clarified the requirement that, to succeed

113. *Id.*

114. *Id.*

115. *Id.*

116. *Id.* at 488.

117. *Id.* at 489.

118. *Id.* at 490.

119. *Id.*

120. *Id.*

121. *Id.* at 491.

122. *Id.* at 484.

in an adverse possession claim, the claimant must “prove by a preponderance of the evidence that, behind the headgate, he—hostile to the owner and under claim of right—notoriously, adversely, exclusively, and continuously made *actual beneficial consumptive use* of all or a portion of [defendant’s] deeded water interests . . . for the eighteen-year adverse possession period, not just that he intercepted water.”¹²³ Prior to this decision, adverse possession cases considered a mere diversion of water sufficient to adversely possess another party’s water.¹²⁴ In *Archuleta II*, however, the Court relied upon the well-established principle that a “diversion flow rate specified in a decree is neither the measure of a matured water right nor conclusive evidence of the appropriator’s need for which the appropriation was originally made” and that proof of historic consumptive use is the true standard.¹²⁵

In future cases, proving beneficial consumptive use of the water claimed to be adversely possessed now requires the claimant to show a quantification of its consumptive use, which is designed to ensure compliance with the “duty of water.” In Colorado, the duty of water requires that “any given acreage of cropland needs and is limited to a *productive amount of water*.”¹²⁶ This rule keeps a claimant from adversely possessing an amount of water that exceeds his needs, even if all elements of adverse possession are met, because “no more water can be diverted than can be used beneficially.”¹²⁷ The Court stressed that adverse possession in the context of water law does not promote wasteful use or illegal enlargement of a water right, and the water court must look at all circumstances surrounding the claimant’s use of contested water rights.¹²⁸

The Court further explained that in an irrigation rights adverse possession case, “‘exclusive’ and ‘continuous’ proof requirements necessitate both (i) intercepting water within the ditch that belongs to another person’s right, *at times and in amounts the adverse possessor’s crop production required* and (ii) placing the intercepted water right to an actual beneficial *use that results in water consumption for crop production*.”¹²⁹ Therefore, quantification of historical beneficial use is necessary both to ensure that the owner’s legal interest has been lost and the claimant has not illegally enlarged that legal interest.¹³⁰

The Court’s decision in *Archuleta II* ensures water courts consider a foundational element of Colorado water law, beneficial use, when evaluating adverse possession claims. But how will it affect claimants in the future? Claimants now have the additional burden of showing both a diversion of a water right owned by another, and application of that water to their acreage in an amount not exceeding the requirements for crop production (or whatever the beneficial use may be). As *Archuleta I and II* demonstrate, securing ex-

123. *Id.* at 485 (emphasis added).

124. *Id.*

125. *Id.*

126. *Id.* (emphasis added).

127. *Id.* at 486.

128. *Id.*

129. *Id.* at 486 (emphasis added).

130. *Id.*

pensive expert evidence and testimony is likely necessary to prove the newly clarified requirement for a successful adverse possession claim. As water rights continue to increase in value in the arid and populated West, at what point does the cost and time of litigation become more expensive than the cost of a successful claim? After *Archuleta II*, settlements may become more attractive to opposing parties faced with difficult, costly litigation that brings with it an uncertain outcome.

BLOOD, SWEAT, AND YEARS: THE COLORADO RIVER COOPERATIVE AGREEMENT ALLOCATES LIMITED WATER SUPPLIES

ADAM THIESSEN* **

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** For a thorough history of Denver Water, the Colorado River District, and the history of East Slope-West Slope conflicts in Colorado, see PATRICIA NELSON LIMERICK, *A DITCH IN TIME: THE CITY, THE WEST, AND WATER* (Fulcrum Publishing 2012) and GEORGE SIBLEY, *WATER WRANGLERS: THE 75-YEAR HISTORY OF THE COLORADO RIVER DISTRICT: A STORY ABOUT THE EMBATTLED COLORADO RIVER AND THE GROWTH OF THE WEST* (Colo. River Dist. 2012), which are reviewed in detail by Sarah J. McGrath and Anthony Perko, respectively, in the Book Notes Section of this Volume 16, Issue 2 of the UNIVERSITY OF DENVER WATER LAW REVIEW.

I. INTRODUCTION: CONFLICTING USE REQUIREMENTS IN COLORADO

The Colorado River supplies water to Colorado and countless other communities throughout Wyoming, Utah, Arizona, Nevada, and California, eventually reaching the Pacific Ocean by way of the Gulf of California.¹ Population centers depending on and competing for use of water in this great River inevitably encounter conflicts.² This Note will explore conflicting water uses in Colorado and a newly adopted agreement addressing these major issues: the Colorado River Cooperative Agreement (“Agreement”).

Thirty-five West Slope entities and Denver Water have invested blood, sweat, and years into the ultimate realization of the Agreement.³ The fifty-one page agreement distills years of collaboration and compromise into three major propositions: “(1) Resolution of historic conflicts and a holistic approach to resolving Colorado water disputes, (2) Cooperative, long-term efforts to improve the health of the Colorado River mainstem and its tributaries, [and] (3) Additional water supply for those who live, work and play on the West Slope and for customers of Denver Water.”⁴ The goal of the Agreement is not only to create a “secure and sustainable water future,” but also to ensure survival of the state’s water future.⁵

A. A HISTORICAL PERSPECTIVE ON WATER USE CONFLICTS

Spanish and Mexican explorers were among the first to inhabit Colorado.⁶ By 1861, settlers had formed the territory of Colorado and its prior appropriation system for water rights.⁷ The federal government enacted the Homestead Act in 1862, promoting settlement in the region.⁸ Miners and Mormons joined in settling the expansive West, and Benjamin Eaton was one of the first to begin constructing diversion structures to transport water to dry parcels of land

1. Susan J. Buck, Gregory W. Gleason, & Mitchel S. Jofuku, “*The Institutional Imperative: Resolving Transboundary Water Conflict in Arid Agricultural Regions of the United States and The Commonwealth of Independent States*,” 33 NAT. RESOURCES J. 595, 610 (1993).

2. E.g. Arizona Power Auth., 28 F.P.C. 769, 782 (Ariz. Power Auth. 1962) (order granting limited intervention out of time).

3. Bruce Finley, *Historic water pact counts on cooperation, conservation and reuse*, DENVER POST, Apr. 28, 2011.

4. COLORADO RIVER COOPERATIVE AGREEMENT: PATH TO A SECURE WATER FUTURE (May 15, 2012), http://www.crwcd.org/media/uploads/CRCA_Press_kit_Two_Pager_5-12_.pdf.

5. The Agreement contains fifty-one pages but incorporates hundreds of additional pages of attachments including maps, diagrams, specifications, and terms and conditions. *Id.*

6. Norman K. Johnson & Charles T. DuMars, *A Survey of the Evolution of Western Water Law in Response to Changing Economic and Public Interest Demands*, 29 NAT. RESOURCES J. 347, 349 (1989).

7. Justice Gregory J. Hobbs, Jr., *Colorado Water Law: An Historic Overview*, 1 U. DENV. WATER L. REV. 1, 5, 17 (1997).

8. *Id.* at 5.

around the early city of Greeley, Colorado.⁹ Increasing population and more complex water development projects rendered existing water administration systems inadequate.¹⁰ As water demands increased, communities, agriculture, and industry began disputing which water uses should be favored and therefore entitled to superior rights.¹¹ Later interstate compacts, equitable apportionment decrees, and congressional apportionment responded by divvying up limited supplies of water between the Western States.¹² Through the long and rich history of Colorado water law, entrepreneurs like Benjamin Eaton helped to shape today's system of water laws, the modern doctrine of prior appropriation.¹³

Colorado's water development history also includes a number of notable landmarks, which helped shape the issues that face water managers today. In 1859, Auraria and Cherry Creek Water Company incorporated in order to bring water to Cherry Creek towns through a ditch system.¹⁴ One year later, construction began on the City Ditch to bring water from the South Platte River into Denver.¹⁵ As more diversion structures were built along the Front Range from 1870 through the mid-1890s, Denver City Water Company took control of the water supply in the Denver area and began developing artesian wells as another important water supply.¹⁶ The discovery of pressure losses, however, in the mid-1890's initiated a long investigation of and push towards extensive statewide groundwater regulation.¹⁷

But these first few drops of rain warned of a downpour, and clouds quickly rolled in. Colorado's population of approximately 500,000 in 1900 quickly

9. *Id.*; Johnson & DuMars, *supra* note 6, at 349.

10. See Johnson & DuMars, *supra* note 6, at 351.

11. Carolyn F. Burr, Rebecca W. Watson, & Chelsea Huffman, *Water: The Fuel for Colorado Energy*, 15 U. DENV. WATER L. REV. 275, 326 (2012); see generally, *City of Thornton v. Bijou Irr. Co.*, 926 P.2d 1 (Colo. 1996) (dispute over importation of transmountain water and requisite intent to reuse the water at time of original appropriation); *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Gross*, 993 P.2d 1177 (Colo. 2000) (whether ground water management district had jurisdiction to enforce well priority); *Chatfield East Well Co., Ltd. v. Chatfield East Prop. Owners Ass'n*, 956 P.2d 1260 (Colo. 1998) (developer did not have ownership interest in water beneath subdivision, or inchoate statutory right to extract and use aquifer water).

12. Johnson & DuMars, *supra* note 6, at 352.

13. *Id.* at 351. "Under the prior appropriation doctrine . . . water rights are acquired by diverting water and applying it for a beneficial purpose. A distinctive feature of the prior appropriation doctrine is the *rule of priority*, under which the relative rights of water users are ranked in the order of their seniority." *Colorado v. New Mexico*, 459 U.S. 176, 196 n.4 (1982) (citing *R. Clark, Waters and Water Rights* (1967)).

14. CLYDE LYNDON KING, *THE HISTORY OF THE GOVERNMENT OF DENVER: WITH SPECIAL REFERENCE TO ITS RELATIONS WITH PUBLIC SERVICE CORPORATIONS* 64-65 (Fisher Book Co. 1911).

15. DENVER BD. OF WATER COMM'RS, *WATER FOR TOMORROW: THE HISTORY, RESULTS, PROJECTIONS AND UPDATE OF THE INTEGRATED RESOURCE PLAN 3* (2002), available at <http://www.cakex.org/sites/default/files/documents/Denver%20Water.pdf>.

16. Ralf Topper & Bob Reynolds, COLORADO FOUND. FOR WATER EDUC., *THE CITIZEN'S GUIDE TO DENVER BASIN GROUNDWATER* 13 (2007).

17. *-Id.*

jumped to nearly 800,000 a decade later.¹⁸ The steep increase in population required water planners to store and treat large amounts of water in the newly completed Platte Canyon and Cheesman Reservoirs.¹⁹ Finally, in 1918, the voters of Denver adopted a new Charter allowing the mayor to appoint the City's first Board of Water Commissioners.²⁰ The Denver Board of Water Commissioners purchased a privately owned water monopoly, Union Water Company, for the purpose of converting it into a public utility service for the city.²¹

As early as 1921, Denver Water, through George Bull and a group of engineers, began developing the concept of a major transmountain diversion of water from the Fraser and Williams Fork Rivers for use on the Front Range.²² Denver Water continued to pursue other large diversion projects to satisfy its growing demand for water. Eventually, negotiation between seven Western States led to the signing of the Colorado River Compact in 1922, which divided the Colorado River into Upper and Lower basins at Lees Ferry, Arizona.²³ The rapid pace of development and population expansion along the Front Range prompted Denver Water to complete construction of transbasin diversions through the Moffat Water Tunnel in 1936 and the Montezuma Tunnel in 1962.²⁴ During the sustained drought conditions of the 1950's, Denver Water's completion of the Dillon Reservoir in 1963 again doubled its storage capacity.²⁵

Technological advancements and the proliferation of federal environmental regulation throughout the 1970's and 1980's had a dramatic influence on water supply and development in Colorado. Techniques such as low-water use landscaping and water-efficient irrigation helped to improve water efficiency and lower demand across the Front Range, while the enactment of the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act (and a number of other federal environmental statutes) curbed the ability of entities like Denver Water to fund new large scale water supply projects.²⁶

18. U.S. CENSUS BUREAU, POPULATION OF COUNTIES BY DICENNIAL CENSUS: 1900 TO 1990 (Mar. 27, 1995), <http://www.census.gov/population/cencounts/co190090.txt> (compiled and edited by Richard L. Forstall).

19. WATER FOR TOMORROW, *supra* note 15, at 3.

20. Hobbs, *supra* note 7, at 15.

21. WATER FOR TOMORROW, *supra* note 15, at 3 (private operation of water systems in Denver from 1868 to 1918 was "characterized by in-fighting, price gouging and unsavory competitive practices").

22. CHARLES C. FISK, THE METRO DENVER WATER STORY: A MEMOIR 89 (on file with Colorado State University Morgan Library) available at http://digitool.library.colostate.edu/R/?func=dbin-jump-full&object_id=5649&local_base=GEN01.

23. Hobbs *supra* note 7, at 17.

24. First delivery of water through the Moffat Water Tunnel (also known as the Fraser System) took place in 1936, only one year after construction began. Construction for the Montezuma Tunnel took place from 1946-1962 and Denver Water later changed its name to the Harold D. Roberts Tunnel. WATER FOR TOMORROW, *supra* note 15, at 3, 40.

25. JOHN HENZ ET AL., HDR INC., HISTORICAL PERSPECTIVES ON COLORADO DROUGHT 2 (2003), <http://www.hdrweather.com/publications/journals/Coloradodroughtpaper2003.pdf>; WATER FOR TOMORROW, *supra* note 15, at 3.

26. WATER FOR TOMORROW, *supra* note 15, at 6.

In more recent history, 2002 brought one of the worst droughts in Colorado history, forcing mandatory water restrictions in many communities throughout the state and seeing reservoirs drop to perilously low levels.²⁷ In 2007, during John Hickenlooper's terms as Mayor of Denver, disputes between the West Slope and Denver Water came to a head; both ultimately decided to begin mediation in an attempt to resolve the longstanding disputes.²⁸ Despite the long history of bitter conflict between the two entities, in April 2011, parties from across the state announced a new cooperative approach to managing the limited supply of Colorado River water within the state.²⁹

B. WHY COLORADO NEEDED THE COOPERATIVE AGREEMENT

The Continental Divide runs north-to-south in Colorado, separating it into two distinct regions, with each having fundamentally different economies and different water demands.³⁰ West of the divide, mountainous terrain receives a majority of Colorado's precipitation and holds the headwaters of the Colorado River.³¹ On the West Slope, recreation and agriculture are the primary demands on water use, implicating activities such as fishing, rafting, sailing, skiing, growing crops, and caring for livestock.³² The arid Front Range, on the other hand, is home to the majority of Colorado's population.³³ While agriculture is the primary consumptive use of water on the Front Range as well, increasing urban populations in the region have demanded new water projects and transfers of water from agricultural to municipal use.³⁴ In much of Colorado, on both sides of the Divide, there is ultimately more demand than supply of the limited resource.³⁵ The relative market value of different water uses will often drive selection of which beneficial uses of water finally win out.³⁶ However,

27. Fisk, *supra* note 22, at 456-60.

28. THE COLORADO RIVER COOPERATIVE AGREEMENT SUMMARY (May 15, 2012), <http://www.denverwater.org/docs/assets/9CAF994F-FF57-8A3B-21FD604379E74EE1/ColoradoRiverCooperativeAgreementSummary.pdf> [hereinafter CRCA 6-PAGE SUMMARY].

29. Finley, *supra* note 3.

30. City and Cnty. of Denver v. Northern Colo. Water Conservancy Dist., 276 P.2d 992, 995 (Colo. 1954).

31. Brief for Complainant at 60, Colorado v. Kansas, 320 U.S. 383 (1943).

32. Carstens v. Lamm, 543 F. Supp. 68, 97 (D. Colo. 1982).

33. *In re* Colorado Gen. Assembly, 828 P.2d 185, 202 (Colo. 1992); see also Brief for the United States in Response to the Exceptions of Kansas and Colorado at 8, Kansas v. Colorado, 514 U.S. 673 (1995).

34. Municipal and residential uses of water include everything from brushing teeth and watering lawns, to replenishing the human body, fighting fires, and even brewing beer. Carstens, 543 F. Supp. at 84.

35. Burr et al., *supra* note 11, at 280. For a more complete discussion of the economic analysis of water markets, see Charles W. Howe & Christopher Goemans, *Water Transfers and Their Impacts: Lessons from Three Colorado Water Markets*, 39 J. OF THE AM. WATER RES. ASS'N 1055 (2003).

36. Howe & Goemans, *supra* note 35, at 1055. For example, an angler may be able to afford leaving his or her tap running at home while brushing his or her teeth; however, he or she may take to conserving water after realizing that running the water at home is drying up his or her favorite fishing stream.

water markets in the state do not always accurately reflect all water users' preferences for which water uses are developed.³⁷

The Colorado River Compact and various other water sharing agreements make allocating enough water for the many beneficial uses within the state a difficult task. Any decision to transfer water out of its basin of origin has immediate impacts on all downstream users in the same water basin. Western communities cannot always survive on the natural blessings of the land; there are too many people and not nearly enough water to satisfy all demands.³⁸ With thousands of livelihoods depending so heavily on this resource, there have been constant battles.³⁹ Thankfully, adverse interests have come together in an attempt to "govern future water project construction and management of Colorado River Basin water and [establish] a new process for dealing with long-standing disputes between east and west slope interests."⁴⁰

Along the Front Range, stresses of population expansion and climate change have required municipalities like Denver Water to rethink their water supply planning strategies. Climate change is occurring, the earth is warming, and the increased temperatures will directly affect Colorado's water supply.⁴¹ Warmer temperatures increase evaporation rates and make less water available for human use, while causing seasonal shifts in precipitation that have large impacts on agricultural uses.⁴² Climate change will continue to alter the water cycle in Colorado well into the future, which necessitates bringing parties from throughout the state together more frequently to evaluate the ongoing management of the Colorado River.

Although the Colorado River originates in Colorado, it ends in Mexico.⁴³ There is stiff competition for the right to use Colorado River water all along its descent into the Gulf of California.⁴⁴ Numerous towns, districts, ski areas, and a variety of other West Slope interests have made use of the water and are reluctant to relinquish their historical or future uses.⁴⁵ Communities throughout Colorado must continue to invest in more reliable sources of water, better conservation methods, and improved water quality technologies. Realizing the

37. *Id.* at 1056. Inefficiencies in water markets include: imperfect information, unequal bargaining power, etc.

38. Burr et al., *supra* note 11, at 280.

39. *See supra* text accompanying note 11.

40. *Historic water pact signed between Colorado's East, West Slope interests*, DENVER BUS. J. (May 15, 2012), <http://www.bizjournals.com/denver/news/2012/05/15/historic-water-pact-signed-between.html>.

41. *See generally* Robin Kundis Craig, "Stationary Is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 HARV. ENVTL. L. REV. 9 (2010).

42. Climate change is causing seasonal shifts in precipitation, which is anticipated to shift runoff replenishing reservoirs and streams to the early spring, reducing amount of water available in the summer months. *Id.* at 9 n.38 (citing P.C.D. Milley et al., *Stationary Is Dead: Whither Water Management?*, 319 SCIENCE 573, 573 (2008)).

43. Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1, 1 (1966).

44. *Id.* The Colorado River Compact, signed in 1922, governs allocation of Colorado River water and, therefore, parties in Colorado must take into account waters allocated to downstream states in their own allocation agreements for water within the state. *Bd. of Cnty. Comm'rs of Cnty. of Arapahoe v. Crystal Creek Homeowners Assoc.*, 14 P.3d 325, 333 (Colo. 2000).

45. Meyers, *supra* note 43, at 2-4.

value of this resource and the need for more statewide cooperation in its administration, Denver Water and a number of West Slope entities negotiated a groundbreaking agreement to govern the future use of Colorado River water.

II. SUMMARY OF THE COLORADO RIVER COOPERATIVE AGREEMENT

The Colorado River Cooperative Agreement has the participation of Denver Water and forty-two West Slope entities, either as signatories to, or recipients of, benefits from the Agreement.⁴⁶ Denver Water is the primary party providing funding and infrastructure support for improvement of water storage, quality, and conservation projects on the West Slope.⁴⁷ In return for Denver Water's contributions, the Agreement creates consensus among the parties that the proposed enlargement of the Gross Reservoir should move forward, which will provide additional storage capacity for Denver Water.⁴⁸ The Agreement ensures water supply and quality, continued environmental benefits, and protection of recreational uses for many West Slope entities while simultaneously "begin[ning] a long-term partnership between Denver Water and the West Slope."⁴⁹

The rights and obligations set forth in the Agreement become effective "the first business day at least seven days after the last Signatory has signed [the] Agreement."⁵⁰ When fully implemented, the Agreement will provide a number of benefits to parties across Colorado. It safeguards against future disputes over water projects by obligating all signatories to negotiate and cooperate rather than resort to litigation.⁵¹ The majority of the Agreement relates to specific regional water projects and service areas. The following sections discuss several notable provisions of the Agreement.

A. DENVER WATER'S OBLIGATIONS AND LIMITATIONS

The first section of the Agreement prevents Denver Water from expanding its existing service area and limits the provision of water outside of that service area.⁵² One major exception to this limitation is the WISE Partnership Agreement.⁵³ Under the Agreement, recipients of WISE project water are

46. CRCA 6-PAGE SUMMARY, *supra* note 28, at 1-2.

47. *Id.* at 3.

48. *Id.*

49. *Id.* at 2.

50. COLORADO RIVER COOPERATIVE AGREEMENT Cover Page, 1 (May 15, 2012), <http://www.denverwater.org/docs/assets/31BFA3E6-BC18-15E1-C74D1F13ACA992B5/ColoradoRiverCooperativeAgreement.pdf> [hereinafter CRCA].

As of the date of publication, most of the major signatories had signed the Agreement, although the reader is encouraged to discern the status of the Agreements' signatories at the time of reading.

51. *Id.* at 46.

52. *Id.* at 1.

53. *Id.* at 5-6. WISE, the Water, Infrastructure and Supply Efficiency Agreement is a collaboration between seventeen entities to utilize unused capacity in Aurora Water's Prairie Waters Project, along with seasonal unused water supplies in Denver and Aurora. Tracy Kosloff, *A WISE Project for the Denver Metro Area*, AWRA COLORADO (Mar. 30, 2010),

required to pay to the West Slope a 12.5% charge on all water provided by Denver Water, and implement a reuse or successive use and conservation plan in order to minimize the demand for water outside of Denver Water service area.⁵⁴ The Agreement, however, does allow Denver Water to lease water outside its service area as a temporary "spot sale," provided the water is available on an intermittent basis and the delivery does not exceed fourteen consecutive days.⁵⁵ Longer temporary leases, for periods of up to five-years, are also available to Denver Water under the Agreement, subject to certain limitations.⁵⁶ In both circumstances, recipients of the water must pay a 15% surcharge to the West Slope. Overall, Article I of the Agreement limits Denver Water's delivery of water outside its service area to roughly 72,000 acre-feet, with several enumerated exceptions.⁵⁷

Next, Denver Water agreed to bolster its conservation and reuse of water in Article II of the Agreement.⁵⁸ The Agreement confirms Denver Water's commitment to reuse Blue River water, complete construction of a 17,500 acre-foot per year recycled-water treatment facility, and complete its plan for a 30,000 acre-foot gravel pit storage project.⁵⁹ These projects, along with Denver Water's commitment to implement the 2006 Denver Water Board-mandated accelerated conservation program, ensure that Denver Water is committed to responsible use of its imported water.⁶⁰

Denver Water also agreed to a number of other commitments, which Article III of the Agreement separates into geographic regions.⁶¹ Denver Water agreed to make a good faith effort to identify and abandon unnecessary conditional water rights on the West Slope.⁶² Denver Water is also obligated to provide "replacement water to other senior downstream water rights as necessary to ensure that West Slope recipients of the water provided by Denver Water . . . may use the water."⁶³ The Agreement also specifies that Denver Water's \$25 million monetary commitment to West Slope supply and water quality projects is subject to escalation four years after the effective date of the Agree-

<http://awracolorado.havoclite.com/newsletter/water-infrastructure-and-supply-efficiency-wise-project-mar-30-2010/>.

54. CRCA, *supra* note 50, at 5-6.

55. *Id.* at 3. Spot sales of water are also restricted during certain specified holidays, under specific reservoir levels, during listed Dillon Reservoir outflow conditions, and during certain Shoshone call events. *Id.* at 3-5.

56. *Id.* at 5.

57. *Id.* at 1-7.

58. *Id.* at 8-9.

59. *Id.* at 8.

60. The Agreement mandates that Denver Water provide an annual progress report to West Slope Signatories if it decides to substitute any changed conservations measures. *Id.* at 8-9.

61. Denver Water's other commitments include those in the following sections: (A) General; (B) Summit County-Blue River; (C) Clinton Reservoir Agreements; (D) Eagle County; (E) Grand County and Fraser, Williams Fork and Upper Colorado River Basins; (F) Grand Valley; and (G) Middle Colorado River. *Id.* at 10-27.

62. *Id.* at 10.

63. *Id.*

ment.⁶⁴ The following sections discuss some of the additional details of Denver Water's obligations and other Agreement provisions.

B. SUMMIT COUNTY

In Summit County, Colorado, the Agreement requires Denver Water to contribute \$11 million for various purposes.⁶⁵ Denver Water will deposit \$1 million of the total amount to a wastewater treatment plant fund administered by Summit County to offset the impacts of lower or reduced outflows from Dillon Reservoir.⁶⁶ Denver Water will deposit another \$1 million, to be used as 50% matching funds for environmental enhancement projects in Summit County; in addition, Summit County and the towns of Dillon, Silverthorne, Frisco, and Breckenridge will receive the remaining \$9 million in equal shares.⁶⁷ Beyond monetary considerations, the Agreement requires Denver Water to provide an additional 1,743 acre-feet of water per year from Dillon Reservoir storage for use by various Summit County entities.⁶⁸ In addition, Denver water must use its best efforts to maintain water levels in Dillon Reservoir at or above 9,012 feet in elevation during the summer months, to meet Summit County's recreational and aesthetic needs.⁶⁹ The Agreement also provides that Denver Water will waive its right to reduce bypass flows at Dillon Reservoir unless it has banned residential lawn watering within its service area.⁷⁰

C. EAGLE COUNTY

In Eagle County, Denver Water must receive prior approval of the Eagle County Commissioners, the River District, Eagle Park Reservoir Co., Eagle River Water & Sanitation Dist., and the Upper Eagle Regional Water Authority before pursuing any new acquisitions of water in the Eagle River Basin.⁷¹ In addition, the Agreement ultimately prohibits Denver Water from opposing any future interconnection between Clinton Reservoir and Eagle Park Reservoir as long as water booked over to Denver in Clinton Reservoir under the 1992 Clinton Agreement remains in that reservoir.⁷²

64. West Slope entities will use the monetary contributions to fund water-related projects such as environmental enhancements, improved wastewater treatment facilities, improved pumping, retention ponds, nutrient loading, and improving aquatic habitat. *Id.* at 11-27.

65. *Id.* at 11.

66. *Id.*

67. *Id.*

68. *Id.* at 12, 14.

69. *Id.* at 13. Successful operation of the Frisco Marina requires a water elevation of 9,012 feet; Summit County and Denver Water can agree to lower this elevation requirement as a result of physical changes to the Marina or the Reservoir. *Id.* at 4.

70. *Id.* at 15-16.

71. *Id.* at 18.

72. *Id.* at 19.

D. GRAND COUNTY AND THE FRASER, WILLIAMS FORK, AND UPPER COLORADO RIVER BASINS

Under several other Agreement provisions, Denver Water will distribute another \$11 million to Grand County water projects in the following manner: (i) \$2 million for measures improving water quality, including increasing wastewater treatment plant capacity; (ii) \$2 million for improving aquatic habitat in rivers; (iii) \$50,000 for construction of a sediment catch-basin above Denver Water's diversion structures on the Fraser River; (iv) \$2 million for future environmental enhancements in the area; (v) \$1 million for the Windy Gap Pumping Fund; and (vi) the remaining \$3.95 million to offset costs of Grand County supply projects.⁷³ Denver Water will also provide 1,000 acre-feet of water annually from the Fraser River Collection System ("Fraser System") and up to 1,000 acre-feet each year in Williams Fork Reservoir to Grand County for environmental purposes and any incidental recreational benefit.⁷⁴ Similar to the provisions governing Dillon Reservoir in Summit County, Denver Water also waives its right to reduce bypass flows from the Fraser System unless it has banned residential lawn watering.⁷⁵ Finally, after Denver Water receives all necessary permits for its Gross Reservoir enlargement, it will provide an additional 375 acre-feet of water to Grand County water users for municipal and ski area use.⁷⁶

In addition to the financial and water contributions to Grand County entities, the Agreement also includes several other obligations for Denver Water. Most important is the agreement between Denver Water, Grand County, Middle Park Water Conservancy District, and the Colorado River Water Conservation District to implement the Learning by Doing Cooperative Effort, which is intended to protect and restore the aquatic environment in Grand County.⁷⁷ The Agreement allows the Grand County Mutual Ditch & Reservoir Co. to move water acquired through its purchase of Vail Ditch shares through Denver Water's Fraser System.⁷⁸ The Agreement also prohibits Denver Water from opposing a proposed recreational in-channel diversion on the Colorado River below Gore Canyon.⁷⁹

E. GREEN MOUNTAIN RESERVOIR ADMINISTRATION

Article V of the Agreement appropriately considers administration of the Bureau of Reclamation's Green Mountain Reservoir, which has created con-

73. *Id.* at 20-24.

74. Denver Water must provide the 1,000 acre-feet of water available for environmental purposes at times and locations requested by Grand County. *Id.* at 22.

75. *Id.* at 23-24.

76. The Agreement allocates 100 acre-feet to Winter Park Recreational Association and divides the remaining 275 acre-feet in equal shares of 68.75 acre-feet among Fraser, Granby, Grand County Water & Sanitation District No.1, and Winter Park Water & Sanitation District. *Id.* at 25.

77. *Id.* at 21.

78. *Id.* at 26.

79. *Id.*

flict among West Slope and Front Range entities since 1954.⁸⁰ The Agreement seeks to resolve Green Mountain Reservoir disputes because it “will provide significant benefits for water users on both the east and west slopes of Colorado, including maximizing beneficial use of the waters of the state, reducing litigation costs, and providing clarity as to water rights administration.”⁸¹ The Agreement specifically recognized the Green Mountain Reservoir Administrative Protocol which clarifies: (i) the fill schedule for Green Mountain Reservoir; (ii) definition and administration of the fill season; (iii) administration of water rights during the fill season; and (iv) operation of the Green Mountain Reservoir in response to downstream calls.⁸² Additionally, the Agreement makes as much water as possible available for upstream use by defining replacement obligations and “addressing the relative priority of the Green Mountain Water Rights, the Cities’ [Denver and Colorado Springs] water rights, and the Climax’s C.A. 1710 rights.”⁸³

F. THE SHOSHONE CALL

The Public Service Company of Colorado owns and operates the Shoshone Power Plant on the mainstem of the Colorado River in Glenwood Canyon.⁸⁴ When the Plant is operating, it can command the entire flow of the river by exercising senior rights against upstream junior users.⁸⁵ The Shoshone Call is the amount of water called upon by the Plant to produce hydroelectric energy and effectively determines the flow of the Colorado River during much of the year.⁸⁶ In order to mitigate any potential adverse impacts of an outage at the Shoshone Plant, the Agreement provides that “Signatories agree to implement the operational procedures described in . . . the ‘Shoshone Outage Protocol.’”⁸⁷ Ultimately, the goal is “to achieve permanent management of the flow of the Colorado River so that the flow mimics the Shoshone Call Flows.”⁸⁸

Please note this is not a complete discussion of all Agreement provisions, but rather a discussion of the most financially and politically significant provisions. There are many other detailed provisions relating to water rights pending statewide, permit decisions, and other matters. The reader is strongly encouraged to read the full text of the Agreement for a complete and detailed perspective of all rights and responsibilities involved.⁸⁹

80. Justice Gregory J. Hobbs, Jr., *State Water Politics Versus An Independent Judiciary: The Colorado and Idaho Experiences*, 5 U. DENV. WATER L. REV. 122, 133 (2001).

81. CRCA, *supra* note 50, at 33.

82. *Id.* at 33-34.

83. *Id.* at 34.

84. *Id.* at 35.

85. The Shoshone senior water right produces hydroelectric power under two water rights: the 1902 Shoshone senior right of 1250 cfs, and the 1929 Shoshone junior rights of 158 cfs. *Id.*

86. *Id.*

87. *Id.*

88. *Id.* at 38.

89. For the full text of the Colorado River Cooperative Agreement, see CRCA, *supra* note 50.

III. THE FUTURE APPROPRIATION OF COLORADO'S WATER

What does the Agreement mean for the future of Colorado water administration? Most importantly, the Agreement ensures cooperative development and protection of water as a severely limited natural resource in Colorado.⁹⁰ Developers and planners, unfortunately, cannot create more water. They can, however, develop techniques to preserve the supply and ensure the most is made of each precious drop of the lifeblood. As Governor John Hickenlooper said best, "the collaborative spirit is alive and well in Colorado."⁹¹

As the largest single municipal water provider in the state, Denver Water is also forming mutually beneficial relationships with other water entities in the state. The monetary contributions by Denver Water will assist West Slope communities in offsetting the costs of a number of large, costly water projects and transbasin diversions. Denver Water had and continues to have the incentive to improve statewide water supplies not only for itself in the future, but also for the survival of neighboring communities, fellow Coloradans, and cherished ecosystems.

IV. CONCLUSION

The Colorado River Cooperative Agreement is a fantastic example of feuding factions joining forces in efforts to protect their water supply and ensure the survival of diverse livelihoods within the state. The phrase "violence begets violence"⁹²—utilized by such visionaries as Dr. Martin Luther King, Jr.⁹³—still rings true. Fighting over water rights will only ensure that aggrieved parties will continue to fight. When interested parties come together to work toward a common goal, the combined efforts will ultimately lead to the best possible resolutions for today's water planning issues.

90. See DENVER BUS.J., *supra* note 40.

91. *Id.*

92. *Matthew* 26:52.

93. Martin Luther King, Jr., *The Current Crisis in Race Relations*, NEW SOUTH, March 1, 1958, at 3; see also Martin Luther King, Jr., A TESTAMENT OF HOPE 87 (James M. Washington, 1st ed. 1991).

CONFERENCE REPORTS

COLORADO LAW INSTITUTE CLE INTERNATIONAL 11TH ANNUAL CONFERENCE: COLORADO WATER LAW, WATER ADMINISTRATION IN THE 21ST CENTURY

Denver, Colorado February 1, 2013

This conference, hosted at the Four Seasons Hotel, was co-chaired by Brian M. Nazarenus of Ryley, Carlock & Applewhite and John J. Cyran of the Colorado Attorney General's Office, Water Resources Unit. The morning and early afternoon sessions of the conference focused on Colorado State Engineer's administrative policies, guidelines, and rules. The later afternoon session then focused on the issues surrounding these policies, guidelines, and rules. These discussions required the expertise of several water engineers, particularly for the morning session. The afternoon session included several practitioners, including assistant state attorneys general, a federal natural resource attorney, and a small number of private attorneys.

The morning session of the conference closed with a presentation by Dick Wolfe, the Colorado State Engineer and Director of the Colorado Division of Water Resources (the "Division"), who gave an in-depth discussion of the Division's general principles and guidelines regarding the administration of reservoirs, commonly referred to as the Division's Reservoir Administration Guidelines ("Guidelines"). Mr. Wolfe began by discussing the Division's rationale for implementing the Guidelines. The Division created the Guidelines to provide a framework to (i) manage the operations of the more than 3,000 reservoirs in Colorado; and (ii) decrease the complexities associated with managing such a large number of reservoirs. The Guidelines act as a practical guide for Division staff and are not intended to serve as legal authority, even though courts have occasionally cited to them.

Mr. Wolfe acknowledged the Guidelines themselves are largely definitions, but are nonetheless important for water attorneys to know and recognize. For instance, the one-fill rule, which states that a reservoir owner may only fill once per year, and the definition of "fill year," the time a reservoir owner may fill, are two crucial details of which water right holders should be aware, or risk losing a portion of their water right.

An important detail concerning the one-fill rule is that a reservoir owner may be able to receive a refill right from the Division, allowing for an additional fill. However, a refill right is only meant to replace water lost through evaporation and seepage. Additionally, the Division requires on-channel out-of-priority reservoir owners to maintain natural flow through the reservoir by releasing extra water for downstream in-priority reservoirs. This accounts for evaporation loss from the larger surface area of the on-channel reservoir. Without this method, downstream in-priority reservoirs would lose water through evaporation from the out-of-priority reservoir.

Attorneys should also be familiar with the fact that the Guidelines consider water lost to seepage from any reservoir, either into the ground or a stream, to be state water and a loss to the water right owner. Some reservoir owners may try to reduce seepage by lining their reservoirs, but they must be careful to not keep more water than their decreed right allows.

Mr. Wolfe also discussed how unused water could count against a water right owner. Carryover water is the unused water from one fill year that carries over to the next fill year. For example, if a reservoir has fifty acre-feet of water remaining at the end of the fill year, the reservoir owner will begin the next fill year with fifty acre-feet. This unused water counts against what a reservoir owner may store during the next year, though it does not decrease an owner's actual water decree.

Turning next to decreed capacity and physical capacity, Mr. Wolfe emphasized the two methods may conflict at times, so attorneys should take care when applying for water rights. Both methods begin the same way: a conditional water right establishing a certain decreed acre-foot-amount of water. Once the reservoir is filled, if the physical capacity is less than what was decreed in the conditional water right, the physical capacity becomes the established water right. Additionally, if the decreed capacity is less than the physical size of the reservoir, then the decreed capacity becomes the established water right. In essence, whichever capacity is smaller, whether it was decreed or is the physical size of the reservoir, will become the established water right.

Then, Mr. Wolfe explained another area of potential confusion: determining measurement by either volumetric decree or gage height decree. A volumetric decree is, as one might imagine, a measurement of the actual volume of the reservoir, whereas a gauge height decree is a measurement of the water level in the reservoir. Depending on how a reservoir is built, an owner may find it more beneficial to measure the decreed amount via one of these methods and not the other. The owner's attorney should be aware of these differences.

In his concluding remarks, Mr. Wolfe explained that storable inflow, paper fill, out-of-priority storage, temporary detention, and surcharge all pertain to the physical holding of water in a reservoir. Storable inflow is the amount of water that is both physically and legally available for storage under a reservoir owner's existing water right. Water that bypasses through a reservoir counts against the storage water right.

To calculate how much bypass counts against a water right, the Division uses an accounting mechanism called paper fill. This method charges the bypassed water against the actual storage water right, thereby decreasing the remaining water right. The Division does this to ensure senior water rights downstream, as well as other downstream resources, are protected by preventing upstream junior water rights to store water late in the season causing a shortage for the downstream senior water rights.

Out-of-priority storage permits the storage of water by an upstream, out-of-priority reservoir, as long as the water can be made readily available to downstream senior storage rights when needed. Additionally, the upstream, out-of-priority reservoir may have to release more water than needed by the downstream senior right to account for transit loss.

Temporary detention allows for an on-channel water right to detain a surcharge, or the amount of water that may be impounded, for up to seventy-two hours in order to achieve more efficient or effective beneficial use. After seventy-two hours, the water right owner must cease detention and allow the water to flow freely once again.

The attorneys who attended the conference expressed concerns mainly related to paper fill. Specifically, the attorneys were concerned that water not stored by reservoir owners still counts against the storable water right. Mr. Wolfe explained that this ensures that in times of a drought or an otherwise low-water season, upstream junior rights do not take advantage of the downstream senior rights. Additionally, Mr. Wolfe shared that the Division wants to maintain the natural flow of water throughout the entire season.

Koley Borchard

COLORADO WATER CONGRESS 2013 ANNUAL CONVENTION

Denver, Colorado February 1, 2013

REAL WEATHER

Nolan Doesken, a Colorado State University climatologist, first provided a look back at the weather patterns of 2012. Doesken's presentation walked the audience through the weather patterns of each month of 2012 and explored the details of Colorado's current drought. Temperature averages in 2012 were well above the long-term average in Colorado. Warm temperatures, coupled with less than average precipitation, highlighted the importance of spring precipitation to maintain snowpack levels.

In Colorado, the highest snowpack accumulation typically occurs in April. Doesken, however, shared a picture depicting the top of Copper Mountain in late March 2012, showing much of the peak barren and with only man-made and groomed snow visible. In response to the diminished snowpack, flows of the Colorado and Yampa Rivers dropped dramatically between 2011 and 2012. Colorado reservoirs similarly dropped to below average levels, despite attaining above-average levels in 2011. While Doeskin observed higher precipitation in early 2013, at the time of the conference, snowpack levels remained well below average. Thus, Doeskin ended his presentation by noting that a healthy spring precipitation in 2013 is essential for ending the current drought in Colorado.

WHAT'S UP WITH THE WEATHER?

Brian Bledsoe, Chief Meteorologist at KKTU, presented his long-term weather projections for Colorado. Bledsoe specifically forecasted that Colorado can expect further drought based on: (i) El Nino and La Nina cycles; (ii) Madden Julian Oscillation ("MJO"); and (iii) temperature oscillations in the Atlantic and Pacific Oceans.

The El Nino and La Nina cycles create opposing weather patterns in Colorado. El Nino brings in the Pacific jetstream, which rolls across the southern states, bringing wet and cool weather. La Nina, on the other hand, develops a ridge of high pressure, pushing storms north of Colorado, leaving the eastern part of the state windy and dry. Bledsoe explained that, while Colorado is technically in between these two cycles, current projections suggest that weather will remain in a La Nina cycle.

The MJO tracks storm activity originating over the Indian Ocean. Currently, the MJO is not particularly active, which concerns Bledsoe because an inactive MJO typically results in fewer storms in Colorado.

Bledsoe also discussed the multi-decadal temperature cycles of the Pacific and Atlantic Oceans. The Pacific Ocean shifted to a cold phase in 2005, which typically results in more frequent La Nina cycles. Currently, the Atlantic Ocean remains in a warm phase, leading to more frequent storms (particularly hurricanes). According to Bledsoe, the current cold Pacific Ocean and warm Atlantic Ocean configuration is similar to ocean temperatures in the 1950s. Incidentally, one of the largest droughts in recent Western history occurred during the 1950s. Bledsoe further argued that the Atlantic Ocean is likely to shift to a cold phase in the next three to eight years. He suggested that this temperature shift means a generally wetter United States, except for the High Plains Region. Therefore, Bledsoe advised that Colorado, and particularly its eastern plains, is entering a long-term drought phase for which the state must plan accordingly.

DUST IN WESTERN SNOW COVER: WHAT'S IN IT AND WHERE DID IT COME FROM?

Rich Reynolds, from the United States Geological Survey ("USGS"), next discussed the increasing problem of dust in Western snowpack. Dust particles absorb solar radiation, which warms and melts the snowpack. The decreased albedo (reflectivity) of snowpack can trigger earlier and faster snow melt, resulting in more limited late-season water supplies.

USGS analyzes the mineral content of dust on the snowpack, and has more recently focused its research on the Wasatch Range in Utah. Milford Flats, south of the Wasatch Range, experienced a large wildfire in 2007 and is now one of the best-documented dust sources in North America. After the fire, Utah land managers began rehabilitating the land to prevent erosion and improve forage for cattle grazing by seeding and applying herbicide. He also noted that dust from Milford Flats settling in the Wasatch Range actually comes from the treated part of the soil, not the remaining burned areas.

USGS's study of the mineral composition of the dust on the Wasatch Range revealed that particles contained both iron oxide minerals and carbonaceous material. The study found high levels of iron oxide in the Milford Flats area, and USGS believes that the carbonaceous material comes from industrial and transportation sources in the heavily populated area near the Wasatch Range. Reynolds explained the presence of both materials led to lower reflectance of solar energy by the snowpack. Hence, the dust is absorbing heat from

solar radiation and promoting snowmelt. As a result, USGS is currently working with the Bureau of Land Management to create dust risk maps.

Reynolds then discussed dust issues in Colorado, where large dust events have occurred more frequently over the past decade. In Colorado, dust moves from southern plateaus, northeast into the mountains. Reynolds identified numerous sources from which this dust may be coming. For instance, regional groundwater withdrawal, overgrazing, and increasing regional aridity may all contribute to the increased dust levels. Reynolds also pointed to Tolani Lake, a dried-up lake in Arizona, as a large contributor of dust. USGS is testing sediment from Colorado snowpack in an attempt to trace the largest contributors of dust in the state.

Reynolds ended his presentation by providing possible solutions to the increasing accumulation of dust on snowpack, such as stabilizing soil and sand dunes with perennial vegetation and maintaining high groundwater levels. Reynolds made clear that any solution is going to take a lot of “will power, knowledge, resources, and collaboration.”

Jenna Anderson

RIO GRANDE!

Steve Vandiver of the Rio Grande Water Conservation District moderated the Sixth General Session of the 2013 Colorado Water Congress Annual Convention, titled “Rio Grande!” The four panelists were Bill Paddock of Carlson, Hammond & Paddock, L.L.C.; Craig Cotton, Colorado Division Engineer from the Rio Grande Division; David Robbins of Hill & Robbins, P.C.; and a special appearance by the Rio Grande Reservoir Chief Engineer from the early 1900s, J.C. Ulrich (performed with a mustache and turn-of-the-century attire by Colorado Supreme Court Justice Gregory J. Hobbs, Jr.).

“Ulrich” took to the stage first, despite exceeding one hundred years of age many years ago, and recited a letter he wrote on October 27, 1905 to the Farmers Union Irrigation Company, which enlisted Ulrich to construct the Rio Grande Reservoir Dam. In the letter, Ulrich dismissed his prior reservations over dam construction and laid out his proposal for a composite structure comprised of dry rubble, clay, and earth. His subsequent letters illuminated his strict attention to detail over every activity related to the dam’s construction. These letters dictated the proper number of tents required for labor crews, the number of axes and axe handles, and the appropriate dimensions and wood type for an engineer’s drafting table. No detail was too minor to garner his attention. Ulrich concluded by expressing his concern over the lackluster quality of the contract laborers in a 1910 letter, but he eventually turned the troublesome contractors into a productive crew, as shown by the successful completion of the Rio Grande Reservoir.

Bill Paddock spoke next, and thoroughly discussed the history of the development of the Rio Grande Reservoir. Starting in the 1880s and 90s, and due to an international conflict between the US and Mexico over use of the Rio Grande, the US placed embargos on reservoir development on federal lands. In 1906, Mexico and the US signed a treaty that resolved many of the issues and lifted the embargos. Subsequent water use conflicts between Colo-

rado, New Mexico, and Texas eventually emerged. The federal government revived the earlier embargos, pressuring the three states to enter into agreement to ensure adequate water allocation along the Rio Grande. Paddock noted that the consequences of these past embargos still affect the region today, as evidenced by the current limited storage capacity along the Rio Grande.

By 1939, Congress approved the Rio Grande Compact, which created a water credit and debt system for the three states, effectively placing a cap on their respective water use. Nevertheless, throughout the 1950s and 60s Colorado failed to meet its statutory obligations by running up a large debt under Compact provisions. In 1966, Texas and New Mexico sued Colorado to enforce the Compact. Under pressure to comply, Colorado began severely curtailing surface water rights in 1968, and with the 1985 spilling of Elephant Butte Reservoir, Colorado eventually absolved its water debt.

Craig Cotton spoke next and explained various parts of the administration of the Compact. The Compact requires delivery of water from two streams in Colorado: the Rio Grande itself, and the Conejos River, which is the Rio Grande's main tributary. Generally, Colorado must deliver twenty-seven to twenty-eight percent of the Rio Grande's 650,000 acre-foot average flow and thirty-eight percent of Conejos's 300,000 acre-foot average flow.

One important and challenging Compact condition requires projecting Colorado water needs each year before those needs actually arise. During periods of low flow, the Compact prioritizes Colorado's projections and reduces Colorado's delivery obligations. During periods of high flow, the Compact caps Colorado's water use near the projected use, and the state's delivery obligation increases. Cotton stated that, at periods of extremely high flow, the Compact requires Colorado to send one hundred percent of the excess water down to New Mexico and Texas. This often aggravates Colorado farmers because the State prohibits them from diverting substantial flows that pass right by their lands. Cotton mentioned that another challenge to Compact administration includes meeting endangered species guidelines. Congress designated certain stretches of the Rio Grande as "critical habitats," which presents the challenging task of retaining specific flows in difficult-to-reach regions.

David Robbins was the last panelist to speak and discussed two current legal issues surrounding groundwater. First, Robbins detailed the new governmental subdistricts of the Rio Grande Water Conservation District. The subdistricts are statutorily created entities tasked with analyzing and replacing flows to regions of low flow along the Rio Grande due to groundwater pumping.

Second, Robbins discussed Texas's pending lawsuit, for which it is seeking a petition for certiorari by the US Supreme Court. Although the legal issue in that case directly involves Texas and New Mexico's well pumping adjacent to the Rio Grande, the lawsuit indirectly implicates Colorado because of its participation in the Rio Grande Compact. Robbins explained that the fundamental conflict arises from differing legal characterizations of groundwater use. Although Colorado law administers surface water and tributary groundwater as part of the same hydrological and legal regime, the Compact and other states treat these two water sources as separate. Texas, in particular, allows for unfettered groundwater pumping, and Robbins suggested that such unrestricted

water use is what instigated the present litigation. Robbins concluded by stressing that, if the Court grants certiorari, Colorado will be ready to defend its water interests.

Andy McFadden

WHAT'S ON OUR PLATE FOR 2013?

Moderator Chris Treese of the Colorado River Water Conservation District introduced this session by describing the importance of planning for the future and considering changes happening throughout Colorado over the next year. This session included discussion of four separate topics: (i) the Colorado River Basin Water Supply and Demand Study; (ii) drought; (iii) Good Samaritan legislation; and (iv) the CWC's Public Trust Special Project.

Colorado River Basin Study

Erin Wilson of the Wilson Water Group first discussed the key findings of the Colorado River Basin Water Supply and Demand Study ("Study"). The Study employed several different demand scenarios to obtain the best possible projection of future water use within the Colorado River Basin. The Study based its various demand scenarios on models such as Paleo-direct natural flow (tree-ring information) and projected climate models accounting for climate change.

Wilson further explained the Study does not institute any decisions itself, but provides the foundation for future decision-making on water infrastructure and supply projects. Wilson described the key indicators for identifying changes in Colorado's water supply in the Colorado River as flows at Lees Ferry and other critical locations, as well as demand signposts. Based on the results and data of the Study, Wilson recommended a number of steps for Colorado to take.

First, Colorado should adopt a signpost approach outside of the modeling industry to respond to indicators in weather and streamflow conditions. For example, water planners can respond to certain set streamflow conditions with carefully planned drought response measures. Next, Colorado must develop methods to accurately represent supply and demand models. Wilson explained the Surface Water Supply Index ("SWSI") is a good model for basin-wide analysis; however, additional models should include cross-basin impacts. Finally, Wilson advocated for Colorado to support continued efforts to conduct water bank programs and desalination projects in the lower Colorado River Basin.

Wilson's discussion set forth the fundamental concepts contained in the Study and presented several key ideas for water managers to consider as steps to address the projected issues facing the future of water supply and demand in Colorado.

Drought

The next panel on drought featured Stacey Chesney of Denver Water, Diane Johnson of the Eagle River Water and Sanitation District ("ERWSD"),

and Russ Sands of the City of Boulder. Each panelist discussed the impacts of drought on their respective municipal water providers, specifically focusing on the drought's impact on public relations and rate setting for water in 2013.

Chesney discussed three main takeaways from the drought of 2012. First, Chesney explained drought is a result of many different factors, and water planners should not become too focused on reservoir levels. In order to fully prepare for drought conditions, municipalities must always be on guard for signals of impending drought. Second, Chesney suggested that good customer relationships are key to responding to drought in a timely and meaningful way. Third, Chesney noted the most effective way to involve the public in combating drought is to offer tangible actions with achievable goals.

Next, Johnson spoke about her reactions to a very dry 2012 in the Vail Valley. Johnson explained that, because Vail Mountain is celebrating its fiftieth anniversary this year, it is a relatively young community with little experience with severe drought conditions. This inexperience presents difficulties for community members who are more likely to have reactionary behavior to drought conditions. However, Johnson and the ERWSD learned valuable lessons from the 2002 and 2012 droughts that will impact its planning for the future.

Finally, Russ Sands stated 2012 was the City of Boulder's first actual run-through of its new drought plan. After implementing the plan for the first time, the main question for those in his office was how to work successfully with customers.

The panel then responded to a number of questions. First, do voluntary restrictions work? Chesney responded that Denver Water's aggressive conservation plan after 2002 made it more reluctant to impose mandatory restrictions because of the success of the voluntary plan. She explained that, because so many customers were complying with voluntary restrictions, Denver Water did not want to impose additional mandatory restrictions. Sands disagreed, arguing voluntary restrictions do not work, especially when there is no robust notification and public knowledge plan in place. Johnson agreed with Sands, explaining that in the Vail Valley, ERWSD implemented mandatory restrictions, but also offered explanations to its customers as to why the restrictions were necessary. Johnson also shared that ERWSD labeled the mandatory restrictions "regulations" and reached out to the tourism industry to highlight that the regulations would not impact tourism in the Vail Valley.

Next, the panel responded to the question "what is in store for 2013?" Sands said indoor use continues to decline in Boulder and the City plans to continue and expand its partnership with the Center for Resource Conservation ("CRC"). The CRC provides indoor and outdoor water audits for Boulder residents and businesses. Boulder plans to empower the CRC to implement actual improvements and repairs in people's homes rather than simply providing recommendations. Chesney explained that Denver Water plans to continue using "normal" or "annual" summer water use regulations for its customers. Finally, Johnson stated that ERWSD will (i) continue to focus on outdoor and irrigation water uses; (ii) utilize a five-tiered rate system; and (iii) identify "excessive water users" within the district as targeted for water conservation measures.

The panel concluded with the following question: "how do you keep peoples' attention if drought is the new normal?" Chesney assured the crowd that if water use affects people directly in their daily lives, they will pay attention. The key is for water managers to effectively communicate to the public the behavior changes needed to face a drought. Sands ended the discussion with the idea that drought mitigation is a long-term prospect: changing peoples' perception of normal water use and then internalizing the changes takes time.

Good Samaritan Legislation

Jimmy Hague, Legislative Assistant to Senator Mark Udall, next presented a legislative update from Washington, D.C. on recent administrative rule-makings that will impact Colorado in 2013. Senator Udall recently announced the US Environmental Protection Agency's ("EPA") "Good Samaritan" policy for cleanup of abandoned mine sites. Hague explained there is a great mining history in Colorado, and thus cleanup of abandoned sites is very important to the state. In the past, liability issues surrounding the cleanup of these sites were a problem for parties involved with the sites due to the liability schemes of the Clean Water Act ("CWA") and Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"). Hague explained that in 2007, the EPA put out a set of administrative "tools" for addressing liability for no-fault parties wishing to reclaim abandoned mine sites. However, parties still had lingering fears of unlimited liability under CERCLA and the CWA when they wished to reclaim contaminated sites. For example, many questioned whether building and leaving behind a water treatment facility would subject the party to long-term liability for the site.

Because of opposition in Congress, Senator Udall began seeking administrative solutions to these fears. Eventually, in December of 2012, the EPA and Senator Udall unveiled new regulations that amplify existing tools. The EPA's memo requires the "Good Samaritan" to enter into an agreement with the EPA to clean up the contaminated site. Unlike the previous tools, the EPA memo allows these agreements to exist for an unlimited duration. Additionally, if the Good Samaritan meets a five-part test, the EPA will exempt it from obtaining a CWA permit for any changes to water quality. Without legislation from Congress, Hague noted, the EPA memo can only ease, but not erase, the potential for civil liability. Hague urged the Convention attendees to investigate the Good Samaritan rules in more detail and hoped the regulations would make a difference for water quality in Colorado.

Public Trust Special Project

In the final panel of the session, "What's On Our Plate for 2013," Doug Kemper of the Colorado Water Congress and Steve Leonhardt of Burns, Figa & Will, P.C. discussed the CWC's new Public Trust Special Project ("Special Project"). Kemper set the tone by explaining that drought and water demand issues are very important to the water industry, but not as serious a threat as the Public Trust Doctrine. The CWC has worked for nearly two decades opposing ballot proposals that would impose the Public Trust Doctrine on Colo-

rado water rights and riparian landowners. Kemper noted that non-profit environmental organizations are not leading the Public Trust Doctrine movement in Colorado, as they have in other states. Instead, Kemper identified Richard Hamilton and Phil Doe as the two individuals who have been the proponents and sponsors of the ballot initiatives throughout the last two decades. Kemper highlighted Doe's statement that "we will stay with this until we win."

In 2012, Hamilton and Doe submitted another Public Trust Doctrine ballot initiative that eventually fell short of the minimum signature requirement. Although every attempt by these individuals has failed to get an initiative on the ballot, Kemper stressed that there needs to be a more sustained opposition to these initiatives. Hamilton and Doe's determination and persistence suggest there will be future initiative submissions. Therefore, the CWC Board created the Special Project to provide permanent opposition to the initiatives. The Special Project strives to create more public outreach and to provide information about the potential negative effects of these initiatives on water rights holders within the state. The Special Project also serves as a forum for parties across the state to discuss important water issues.

Steve Leonhardt spoke next, explaining in further detail the potential effect of the Public Trust Doctrine ballot initiatives. The Public Trust Doctrine essentially imposes a duty on the state to administer water rights without encroaching on the public's right to water. The extent of this public right varies based on each state's interpretation of the Doctrine. California's Public Trust Doctrine (currently the most expansive state doctrine) includes fishing, navigation, and even environmental needs as public uses of water. Leonhardt explained the proposed initiative from 2012 would be stronger than the California version, because it would apply to all waters in Colorado, not just "navigable" waters. The Special Project is still in its early stages, but more information is available at the newly revamped CWC webpage: www.cowatercongress.org.

Joseph Norris

**22ND ANNUAL ROCKY MOUNTAIN LAND USE INSTITUTE
CONFERENCE: LAND USE FOR A LIFETIME, CHANGING
DEMOGRAPHICS AND SHIFTING PRIORITIES**

Denver, Colorado March 8, 2013

ENERGY PRODUCTION & WATER USE: PREPARING FOR A DRIER FUTURE

Alice Madden of the University of Colorado, Denver moderated a discussion on water consumption planning in a drought environment at the Annual Rocky Mountain Land Use Institute Conference. She described an increase in populations across the West and charged the panelists with explaining how states could engage in water resource planning.

John Stulp, Director of the Interbasin Compact Committee and Colorado Special Policy Advisor to the Governor for Water, opened the discussion by describing water availability in Colorado and the state's planning process. Stulp explained Colorado is experiencing a significant drought, with the state in an arid D4 drought condition, which is the most severe level of drought as identi-

fied by the US Department of Agriculture and their partners, who produce the Drought Monitor.

He further explained, because approximately eighty percent of Colorado's population lives on the eastern side of the state, and twenty percent of the population lives on the western side, the state diverts water from the west to the east. Further, Colorado must allow a specified amount of water to reach downstream states to comply with interstate water agreements. Stulp noted two out of every three gallons of water in Colorado go to out-of-state users. Yet these out-of-state users have never forced Colorado to curtail water rights in the ninety years since the enacting the interstate agreements. However, with climate change and extreme drought negatively affecting its water supplies, Colorado may have to curtail water rights. Stulp explained agriculture uses eighty-six percent of water in Colorado, municipalities and industry use twelve percent, and self-supplied industrial users consume only two percent. Stulp further noted that between fourteen thousand and fifteen thousand acre-feet of water go toward hydraulic fracturing processes in Colorado.

Stulp went on to give overview of the Interbasin Compact Committee Reports, which were based on the 2010 Statewide Water Supply Initiative. Even with proposed projects that may make additional water available to users, Stulp explained Colorado will nonetheless experience an annual 390,000 acre-foot shortfall. Stulp noted the Colorado Water Conservation Board ("CWCB") considered several water availability scenarios in preparing the reports. The CWCB's main recommendation was to minimize the effects of "buy and dry," where (generally municipal) water purchasers obtain water supplies from agricultural users and "dry out" that land. CWCB also recommended increased conservation efforts, while maintaining non-consumptive water allocations for tourism and recreation.

Kristen Averyt, Associate Director for Science at the Cooperative Institute for Research in Environmental Sciences ("CIRES"), spoke next. Her presentation concerned the energy-water nexus and specifically focused on electricity generation and water use. Averyt noted, in the United States, generating electricity accounts for forty one percent of all water withdrawals. Industry withdraws the water primarily to run and cool power plants. Averyt explained the electricity sector is the only energy sector where water needs are actually growing nationally and internationally.

Notably, thirteen percent of energy produced in the US is used to clean, convey, and pump water. In California, water-related energy uses consume about twenty percent of the electricity supply. These water-related uses consume much of the energy by moving, conveying, and storing water. Averyt then explained power plants are the primary contributor to thermal pollution in the country. Additionally, in some areas, electricity withdrawals account for more than ninety percent of all water withdrawals in the municipality. In the Lower Colorado and Rio Grande regions, power plants primarily use groundwater and recycled water, due to the scarcity of surface water.

Averyt further noted water availability from the Colorado River is expected to decline by ten to fifteen percent over the next forty years. Averyt projected a twenty to thirty percent increase in water stress, based on current power plant demand for water, and electricity generation is vulnerable to water

shortage. Last, Averyt presented research on how low-carbon energy production impacts water use. She explained that producing energy under a carbon budget might mean a 1.5-2 million acre-foot increase in the monthly average volume of water available for storage in Lakes Mead and Powell. At the current coal-to-natural-gas-production ratios, Averyt projected a net decline of two million acre-feet in water available for storage in both Lakes over the next forty years. Averyt further noted low-carbon energy productions means states would preserve more water in groundwater aquifers.

Amelia Nuding, Water and Energy Analyst at Western Resource Advocates, next discussed managing energy and water during drought in the West. Specifically, she presented research on how power plants use energy during a drought. Nuding noted several of the challenges facing electricity generators include insufficient water resources, degraded water quality, and high water temperatures not suitable for power plant processes.

Nuding further highlighted case studies demonstrating how several states have reacted to drought. In one case study, Texas risked losing roughly 3,000 megawatts of electricity due to lack of water. Texas responded by bringing power plants back online to supplement the existing energy supply. Texas also had to curtail 1,200 water rights to manage the problem (primarily senior agricultural rights).

Nuding then presented additional research focusing on the impact of drought in the West on power generation mixes. The study postulated that, due to the drought, coal production will decrease; natural gas production will increase; hydroelectric production will decrease; renewable energy production will stay the same; electricity prices will increase; and carbon dioxide emissions will increase, primarily due to the drop in hydroelectric power.

Nuding also outlined a three-fold approach to dealing with a drought environment: (i) utilities need to share more information on water use and water intensity with their respective states; (ii) communities need to realize the value of water and the opportunity costs of using water; and (iii) society must recognize the risk of drought and the impact drought has on energy production. Nuding concluded by noting most energy companies and water commissions run their water conservation programs independently. She argued, because there may be opportunities for synergies in combining water conservation efforts, utilities and water commissions should integrate their conservation programs.

The panelists concluded by acknowledging that, as population increases, the need for energy increases. Therefore, communities need to find more efficient ways to use water in the production of energy.

Alex Bayee Besong

PLANNING FOR EXTREME DROUGHT: HOW COMMUNITIES ARE THINKING ABOUT AND PLANNING FOR EXTREME DROUGHT

The recent drought conditions throughout much of the West have forced some local and state officials toward the cutting edge of planning and adapting to extreme drought. Water resource management in extreme drought has significant implications to municipal, industrial, and agricultural water and land

uses. Many Colorado municipalities are proactively developing water resource management programs, like the Water Infrastructure and Supply Efficiency project ("WISE"), to ensure their constituents will have the water they need. Alex Davis, Principal of GBSM, a Denver-based consulting and public affairs firm, and Eric Hecox, Executive Director of South Metro Water Authority, which is based in Greenwood Village, Colorado, jointly focused their presentation on how communities think about and plan for extreme drought.

Alex Davis first presented a brief background on Western water law before talking specifically about the prior appropriation doctrine. Davis argued that, while the doctrine of prior appropriation has worked well in the West for the first century of its existence, it is now a problem. Specifically, Davis contended that the prior appropriation system is the single most overarching problem in the West inhibiting efficient planning for the next century, and meaningful solutions to our generation's complex water problems. Today, Davis argued, planning is ad hoc and splintered, thereby driving the decision-making processes down to the smallest entity. Then, each entity is pitted against every other water user in the basin or state. In other words, prior appropriation sets municipalities against municipalities; energy users against farmers; and other water users against one another.

Davis then noted the West is full of competing uses for a severely limited water supply. Currently, water supplies do not meet water demands in Colorado. The Western Slope provides eighty percent of the state's water, but only twenty percent of the population resides there; conversely, the Front Range has twenty percent of the water, but eighty percent of the population. On rivers like the South Platte, the general calling date is between 1865 and 1869. Therefore, Davis contended, the South Platte River has been over-allocated for more than one hundred years. Many other basins are also already over-allocated, so she posed the question of how we are supposed to plan for population increases in the future.

Davis explained that Planners project Colorado's population will double by 2050, increasing to five million people or more. Further, eighty percent of this population will live on the Front Range, resulting in increased demands on agriculture, energy, food, and the environment. When individuals on average use one hundred gallons of water per day to supply basic needs, five hundred gallons of water per day in food, and five hundred gallons per day in energy, communities and water planners must think holistically when it comes to conservation.

Davis said one major challenge for Planners is climate change, because scientists do not yet know how it will impact water availability. Likely climate change impacts include the potential for temperatures rising 2.5 to four degrees; a five to twenty percent reduction in water availability; and Colorado could see reduced snowpack, but also more intense rainstorms and earlier spring runoff. In short, water supply planning will become more complex.

Davis concluded by suggesting the best solutions are local in nature. There is no way the federal government can determine the best solution for the St. Vrain River, for example, as the nuances of the local governments, communities, and attitudes differ greatly on the local level. In other words, Davis contended the phrase "think globally and act locally" applies to water planning.

Davis stated that while she did not have all of the answers to the problems, communities must think about how planners create the structures to promote regional collaboration, thinking, and solutions.

Eric Hecox spoke next, describing specific local decisions that attempted to drought-proof Colorado municipalities along the Front Range. Hecox first described the South Metro Water Supply Authority ("SMWSA"), a membership organization of fifteen water providers in the South Metro area of Denver. These entities are normally pitted against each other, but are bound together by one need—all of these entities rely on the groundwater supply in a declining aquifer. That reality forced them to come together to develop alternatives, as they need the economies of scale to make water projects financially viable. SMWSA developed regional renewable water projects to use the Denver Basin Aquifer. While using the aquifer as a base supply remains a liability, it gives the region a competitive advantage against the state.

Hecox explained that, in 2002, water planning changed for many communities in Colorado. The 2002 drought year was the single worst drought on record in the state until last year (2012). The 2002 drought was a wake-up call for many state water providers. The City of Aurora was one of the hardest hit cities because it has a junior water right. Aurora implemented extreme drought restrictions, and was within months of running out of water before a late spring blizzard occurred. The drought scared Aurora into developing the Prairie Waters Project downstream of the Denver Metro Wastewater Plant. Essentially, the Prairie Waters Project became a very large reuse project with a capacity of 10,000 acre-feet per year, expandable to 50,000 acre-feet with additional infrastructure. The project includes a thirty-four mile pipeline with three pump stations, and a multi-barrier state-of-the-art treatment process. In total, the Prairie Waters Project's infrastructure cost eight hundred million dollars. Despite the cost, Aurora conceived, planned, and built the Prairie Waters Project in less than ten years.

Hecox then explained the Prairie Waters Project created a WISE Partnership between the cities of Denver, Aurora, and the SMWSA. WISE creates a secondary water supply system to mitigate droughts for the Front Range. Aurora also incorporated a cost-sharing mechanism into the expensive project. SMWSA also benefits from a renewable water supply. This WISE Partnership impacts over two million people.

In addition to the local partnership benefits, Hecox believes the WISE Partnership also has regional benefits. Denver, Aurora, and SMWSA are in a partnership. This project builds regional cooperation and recognizes the complex relationships that exist within the Region. Further, this opens the door to regional cooperation and provides a sustainable supply to SMWSA without compromising Aurora or Denver's water supplies. Through this project, several of the largest cities in Colorado hope to better cope with future drought.

In sum, as continued drought and lack of water plagues agriculture, municipalities, and the energy industry, local water entities are becoming increasingly aware of their need to plan for the future. By following the example of the WISE Partnership, perhaps other communities can also work together to overcome the biggest challenge—facilitating cooperation among many disparate

water users to solve the complex problems of water resource management.

Amy Wegner Kho

THE COLORADO RIVER: INTERGOVERNMENTAL AGREEMENTS

As part of its three-day annual conference, the Rocky Mountain Land Use Institute hosted a discussion on recent developments in Colorado River use. The discussion focused on the unique and sometimes competing land use interests in Colorado that can pit interests on one side of the Continental Divide against interests on the other side.

“The Colorado River: Intergovernmental Agreements” specifically focused on the 2011 Colorado River Cooperative Agreement (“CRCA”), which brought together Western Slope and Front Range parties in an effort to settle ongoing conflicts and also consider cooperative conservation efforts. Eric Kuhn, General Manager of the Colorado River Water Conservation District (“CRWCD”), outlined the general Western Slope view. Covering fifteen counties, CRWCD is one of Colorado’s four major conservation districts (their respective boundaries defined by a specific water basin). According to Kuhn, as the conservation district of the Colorado River Basin, CRWCD strives to conserve water in the basin, protect statewide interests, and promote responsible development on both sides of the Divide. Tom Gougeon, a member of Denver Water’s five-person Board of Water Commissioners, joined Kuhn and represented the Front Range (and more specifically Denver) view.

Mr. Kuhn began by describing how land use policy inextricably links to water use and conservation. For the Western Slope, encouraging settlement and agricultural development requires extensive irrigation and access improvements. From at least the 1930s, the Bureau of Reclamation has played a vital role in creating more arable land and encouraging agriculture on the Western Slope.

But as Western Slope irrigation projects took shape and grew under the auspices of the Bureau of Reclamation, Denver continued to grow and strain its own water supply from the South Platte system. Denver and the Front Range had similar goals in agriculture and irrigation as the Western Slope, but Denver’s large population growth forced the city to look beyond the South Platte to supply its residents. As a solution, Denver turned to the Colorado River Basin and constructed transbasin water infrastructure to supply the burgeoning Denver population.

The decision to turn to the Colorado River was predictable: 80% of the state’s population lives along the Front Range, but about 80% of the state’s water flows west and away from Denver by the Colorado River and its tributaries. As Kuhn noted, major projects bringing Western Slope water to the Front Range, including the Moffatt System on the Fraser River and Dillon Reservoir on the Blue River, pull water from headwater streams. Kuhn also explained that projects on the Fraser River and the Blue River are just “one pass” from the Front Range (Berthoud and Loveland Passes, respectively) making them Denver’s most accessible options.

As these projects came on line, Kuhn explained, disputes arose between the two interests, and they pumped untold amounts of money into litigation. For example, determining the priorities of the Colorado-Big Thompson Project, which supplies the Front Range, and Green Mountain Reservoir, which supplies Western Slope communities, proved arduous and expensive. The Blue River Decree attempted to resolve these and other conflicts, but has itself become the subject of litigation and dispute since its inception in 1955.

After the drought years of 2002-2003, Denver sought to improve the Moffatt System and increase the capacity of Gross Reservoir, and applied for permits to do so. In response, CRWCD and other Western Slope entities wanted to create an agreement to facilitate the resolution of disputes and set out a more cooperative relationship over Colorado River use. The CRCA negotiations were completed in 2011. CRWCD, Denver Water, and many Western Slope constituencies have signed the agreement.

As Kuhn explained, the most important goals for CRWCD and the other Western Slope signatories were to protect streamflows, secure water for consumptive use in the Western Slope's agricultural and recreational economies, encourage smarter growth and irrigation practices, and implement better Front Range conservation and reuse. To CRWCD, the CRCA works to achieve each of those goals by, for example, defining the specific service area of Denver Water, supplying more water for more diverse uses in Summit and Grand Counties, implementing Denver's "WISE" reuse project (discussed below), and allowing new Denver Water development only with the consent of impacted Western Slope signatories. Each of these provisions contributes to water conservation and a more cooperative environment, allowing the two sides to work together to tackle future challenges. As Kuhn stated, the CRCA recognizes Denver and the Western Slope have interconnected economies and with that both sides need to recognize the same connection in water policies.

After Kuhn's outline of the CRCA and its effect on Western Slope signatories, Denver Water's Tom Gougeon spoke about the agreement's impact on Denver and the Front Range. Summarizing the century-long development Denver Water's system and its utilization of the South Platte, Blue, and Fraser Rivers, Gougeon asserted Denver Water's system remains reliable and robust, providing high-quality water to over 1.3 million people in Denver and surrounding areas.

Gougeon noted Denver Water has diligently pursued conservation efforts by metering use and instilling a culture of conservation in its customers. In fact, Gougeon offered, despite significant population growth, Denver Water has reduced demand by 20-25% since 2005. But as Gougeon explained, these improvements to the system and to conservation efforts have not tempered the need to ensure reliable supply in an increasingly unpredictable hydrological climate. The old view that rivers provide a "firm yield" year-to-year no longer accurately describes the situation confronting water providers. Future supply is not as easily calculable as once believed, which means conservation and reuse are more important than ever to prepare for dry years. New challenges like increased fire danger, terrorism, and possible Colorado River Compact calls do not simplify the picture either.

To Denver Water, entering into the CRCA was a way to tackle numerous goals at once and replace historical conflict with cooperation. Above all, the CRCA helped to create more certainty in supply and in the ability to cooperate with the Western Slope on new projects and conservation. As Gougeon observed, fighting over the interpretation of the Blue River Decree did not help either party. By settling points of contention, both sides can instead focus on more pressing issues of conservation and vulnerability of supply.

Denver Water, for example, abandoned long-held conditional water rights in Eagle County because it was unlikely to ever make those rights absolute. In truth, continued retention of those priorities only aggravated relations with Western Slope communities. CRWCD likewise abandoned similar rights that it perfected in the 1950s and 1960s but never put to development or use. This new cooperative mindset, Gougeon believes, created a "holistic approach" that is better suited than litigation for actually resolving sticking points between the Western Slope and Front Range to the benefit of all Colorado River users.

Two specific accomplishments of the CRCA serve Denver's interests. First, Gougeon said, making progress on the Gross Reservoir expansion was essential to Denver Water to strengthen the relatively weak northern end of its system. Second, WISE would also serve to conserve more water and relieve some of the stress upon Denver's system in the present and future. As Gougeon explained, WISE came out of a realization that, eventually, many residents in Douglas County and other areas southeast of Denver will face supply problems and will turn to Denver Water for relief. Because many residents of Douglas County rely upon a decentralized system of groundwater wells, any depletion in supply cannot easily be resolved without outside help. Instead of taking on those customers directly, Denver Water preferred to re-use some of its reusable effluent through the WISE project to supply those areas.

Kuhn and Gougeon agreed the CRCA embodies a "new way of doing business." The CRCA will help to secure reliable water supply for all Coloradans along the Front Range and throughout the Colorado River Basin. It will also work to ensure more environmentally sound water systems and more productive political relationships across the Continental Divide.

Overall, the discussion was effective in helping to describe the competing interests in Colorado for access to Colorado River water. Kuhn and Gougeon's comprehensive account of the various challenges each faces in their respective roles, and in implementing the CRCA, left out no detail. The discussion further provided a good look into the future of cooperation between their respective organizations.

William Davis Wert

UNIVERSITY OF DENVER WATER LAW REVIEW SIXTH ANNUAL
SYMPOSIUM 2013: ADDRESSING SUPPLY & DEMAND
IMBALANCES IN THE COLORADO RIVER BASIN

Denver, Colorado April 12, 2013

CHALLENGES OF THE FUTURE IN THE COLORADO RIVER BASIN

Anne Castle, Assistant Secretary for Water and Science at the US Department of the Interior, opened the WATER LAW REVIEW'S Annual Spring Symposium with a keynote address. Castle's comments focused on future challenges in the severely endangered Colorado River Basin ("Basin") and the importance of operational flexibility in managing the Basin. She emphasized that strategic collaboration between governments, people, and nations can achieve the flexibility required to ensure the future viability of the Basin. In her keynote address, Castle discussed four projects involving the management and conservation of the Basin: (i) the Colorado River Supply and Demand Study ("Study"); (ii) Minute 319 interpreting the 1944 US-Mexico Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande ("Water Treaty"); (iii) Navajo Generating Station; and (iv) Glen Canyon Dam.

The Study evaluated existing infrastructure and supply and demand imbalances in the Basin as part of a broader Basin-wide study program. Additionally, the Study attempted to develop strategies for projecting future imbalances. The cooperation and partnership of the federal government, seven Basin States, ten Basin Native American tribes, and multiple governmental and non-governmental organizations was essential for the completion of this three-year-long comprehensive Study (completed in January 2013). The Study confirmed that, with rapidly increasing water demands, environmental needs, and continuous droughts, the Basin's water supply remains at least static, and is possibly declining.

Having established a common technical foundation model, the Study offered an opportunity for thoughtful discussion through an open comment process, resulting in approximately 150 suggestions from the general public on ways to address the supply and demand imbalance in the Basin. Wrapping up her discussion of the Study, Castle suggested that, although the Study still needs to refine some areas and reduce uncertainties, the Study is "smart," very detailed, should serve as a model for the future, and should serve as a tool for educating the public about the Basin. She added that only broad support and collaborative efforts support concrete methods advancing the common goal: providing a healthy river to future generations.

The second Basin management development Castle discussed was Minute 319, which interprets the Water Treaty. The Water Treaty regulates the US and Mexico's utilization of waters of the Colorado River across international boundaries. Pursuant to Minute 319, Mexico and the US must share water shortages as well as water surpluses. Prior to Minute 319, the two countries

shared water shortages only. Sharing surpluses allows for more reliability and predictability of the Colorado River's water supply in both the US and Mexico.

Minute 319 also extended Minute 318 by allowing Mexico to defer its water rights and store its Colorado River allotment in Lake Mead without losing its rights to the allotment. Such deferred delivery benefits both countries. On the one hand, it enhances Mexico's water security and storage capacity. On the other hand, it increases the water levels of Lake Mead, ensuring predictable water storage levels for Lower Basin States. Another important provision of Minute 319 authorized establishment of an Intentionally Created Mexican Allocation, which enabled Mexico to adjust its water delivery schedule to allow for later use.

Minute 319 further created a pilot program to provide water for planned environmental flows and a one-time high-volume pulse flow for the Colorado River Delta. The goal of this pilot program is to create new wetland habitat in the Delta and establish a foundation for future restoration projects. Castle emphasized that such productive collaboration between Mexico and the US is especially remarkable in light of the fact that US states often fail to cooperate with each other, not to mention another country, when it comes to water allocation. Castle called Minute 319 a "breakthrough" and a historical example of cooperation between the governments of the US and Mexico, seven US states, the International Boundary and Water Commission, and many non-governmental organizations.

Moving on to her third topic, Castle discussed the Navajo Generating Station ("NGS"). The need for additional energy generation in the Southwest became apparent in the 1960s. However, the initial suggestion to build two hydroelectric dams did not survive vigorous opposition from the National Park Service and environmental groups. Taking the dams' place is NGS, a 2250-megawatt coal-fired power plant on land on the Navajo Indian Reservation in Arizona. NGS has become an important energy, income, and employment source for the region and the Navajo Tribe.

NGS-generated energy serves many purposes, including pumping Colorado River water for Arizona, Nevada, and California. Revenues from selling energy surplus and mining coal on Reservation lands belong to the member Native American Tribes with NGS also serving as a significant source of employment. However, the power plant also contributes to the notorious haze in the area. NO_x emissions have become increasingly concerning in light of NGS's proximity to three wilderness parks, a national park, and several Native American Tribes. There is concern that high levels of NO_x emissions will negatively affect the tourism industry, which has historically generated substantial revenue for the area as well.

Castle discussed the Glen Canyon Dam ("Dam") as her final keynote address topic. The Dam is a physical dividing point between Upper and Lower Basin water supplies on the Colorado River. Basin restoration efforts involving the Dam include releasing water from the Dam and stimulating historically natural seasonal floods. In the past, for each such release, the Bureau of Reclamation was required to complete an individual environmental impact statement ("EIS"). The process often resulted in irreversible delays, where water releases would not occur during optimal natural conditions. Recently, the Bu-

reau of Reclamation received approval of a programmatic EIS, which lists conditions when water releases are permissible. This change allows for flexibility and an ability to operate the Basin restoration program seamlessly.

Following the programmatic EIS, the Department of the Interior initiated the first high-volume release in November 2012, with more similar releases on the way. The goal of these releases is to study whether repeated high-volume water releases can stimulate natural conditions, retain sediment, and stop extensive erosion in the Basin. In addition, the Department of the Interior and approximately twenty cooperating agencies are currently working on the Long-Term Experimental and Management Plan for operation of the Dam. Castle noted that she expects the release of the initial draft in early 2014.

In closing, Castle reiterated the scale of the problems the Basin is facing as a result of climate change, population growth, unquantified water rights for Native American Reservations, interests of competing industries, and environmental dilemmas. She praised the recognition that submitting Basin problems to the judiciary alone does not help to solve these problems—only mutual efforts and cooperation can lead the way to water sustainability and preserve the Basin for generations to come.

Natasha Schissler

BASIN STUDY OVERVIEW WITH REACTION PANEL AND Q&A

The 2013 University of Denver Water Law Review Annual Symposium welcomed a panel that provided an overview of the comprehensive new Colorado River Basin Supply and Demand Study (“Study”). The Study, which was jointly funded by the US Bureau of Reclamation and seven Colorado River Basin states, projected supply and demand imbalances throughout the Upper and Lower Colorado River Basins over the next fifty years. The discussion panel was comprised of several of the water law and policy experts who helped prepare the Study and gave a broad spectrum of perspectives on the Study’s findings and implications.

Carly Jerla of the US Bureau of Reclamation, representing the Federal perspective, began by giving a general synopsis of the Study and assessed changes in water supply and demand within the basin over the next fifty-years. The Study’s authors compiled these projections to see how the entire Colorado River Basin is likely to perform under a wide range of projected future conditions, with scenarios ranging from the current *status quo* to one based on a worst-case projection of the effects of climate change. The final phase of the Study identified several portfolios of strategies for dealing with projected supply and demand imbalances. While many of the potential solutions are likely to be partially effective, Jerla stressed that no one single option will completely eliminate the risks associated with increased demand and dwindling supply in the Basin.

The next speaker, Kay Brothers of the Southern Nevada Water Authority, gave a Lower Basin perspective on the Study. From Brothers’ perspective, the Study highlighted the fact that Lower Basin municipalities will be unable to cope with projected supply and demand imbalances by relying solely on strategies designed to reduce demand. Brothers instead stressed the need to devel-

op new sources of supply in the Lower Basin as soon as possible, including developing new desalination capabilities and supplies of imported water.

The third speaker, Ted Kowalski of the Colorado Water Conservation Board, represented the State of Colorado's perspective. According to Kowalski, because most of the big trans-mountain diversions to the Front Range are post-Colorado River Compact water rights, the Front Range must begin looking for ways to avoid curtailment of these rights in the case of a Lee Ferry Deficit. From this perspective, water banking in the Upper Basin is vital to avoiding or surviving a Compact curtailment. Dave Kanzer, providing a Western Slope perspective of the Colorado River Water Conservation District, likewise emphasized water banking as a key tool for avoiding a deficit at Lee's Ferry in the next fifty years.

Marc Waage from Denver Water then presented Denver Water's perspective. Placing heavy emphasis on the uncertainty of the science behind the Basin Study, Waage pointed to Lower Basin shortage problems as the most pressing problem facing the Colorado Basin as a whole, as well as the need for all of the Basin stakeholders to work together to solve common problems. Waage made it clear, however, that Lower Basin shortages should not keep the Upper Basin from developing its own allocation of Colorado River water.

The final speaker on the panel, Taylor Hawes of the Nature Conservancy, provided an environmental perspective on the Study. Though she generally had praise for the Study, Hawes criticized it for not considering the current health of the river ecosystem and its associated species. This failure, she contended, will inevitably lead to further degradation and, importantly, further endangered species listings within the Basin. This will in turn generate greater conflict among Colorado Basin stakeholders while decreasing flexibility to cope with future imbalances. These criticisms aside, Hawes echoed the general sentiment among the panelists that the Study represents an important first step in confronting the challenges facing the Colorado River Basin over the next fifty years.

Nathaniel Brown

INTERNATIONAL WATER LAW: THE UNITED STATES AND MEXICO

The Symposium's second panel discussion focused on the international legal regime governing the allocation of Colorado River water between the United States and Mexico. Specifically, the panelists focused on the 1944 Mexican-American Treaty ("1944 Treaty") and the recent amendment to the 1944 Treaty, Minute 319.

The first panelist was Edward Drusina, the US Commissioner of the International Boundary and Water Commission (IBWC). The IBWC is the intergovernmental agency charged with implementing all the boundary and water treaties between the United States and Mexico. The IBWC also settles differences in the application of those treaties. Most importantly, the 1944 Treaty charged the IBWC with administering the rights and obligations of the United States and Mexico regarding the waters of the Colorado River and the Rio Grande River.

The Commissioner began by giving a brief overview of the 1944 Treaty, the IBWC, its mission, and its history. He then gave a narrative overview of the joint cooperative process that culminated in the historic Minute 319, beginning with the 2007 joint statement by the US Secretary of the Interior and the Mexican Ambassador. This joint statement required the IBWC to begin working toward solutions to the growing tensions between Mexico and the United States regarding the boundary waters of the Colorado River Basin.

Minute 317 to the 1944 Treaty, signed in 2010, was the first major cooperative agreement following the 2007 joint statement. Minute 317 set the framework for the subsequent bilateral talks on the Colorado River Basin by formalizing international workgroups and noting topics for further study. Unfortunately, the 2010 earthquake in the Mexicali Valley in Mexico destroyed large sections of the water diversion infrastructure in the Valley and the surrounding area. Without emergency action on both sides, large amounts of Mexico's Colorado River allotment would have been lost. The parties reached an innovative and unprecedented solution allowing Mexico to store almost 230,000 acre-feet of its total 1.5 million acre-foot annual allotment in the United States' reservoir system. This allowed Mexico to postpone its Colorado River water deliveries until the completion of repairs to its delivery system was completed.

In order to give Mexico sufficient time to complete repairs, the United States and Mexico entered two years of negotiations to solidify the arrangement set out in Minute 318 and to begin dealing with other general issues facing the Colorado River Basin. Because of the nature of the water storage arrangement, however, Commissioner Drusina and his Mexican counterpart opted for only a five-year extension to Minute 318 as a way to ensure the arrangement would work in the parties' best interests.

Minute 319, signed in 2012, codified this extension to the Minute 318 storage arrangement and included several other provisions dealing with shortage sharing, surplus sharing, salinity concerns, water allocations for environmental programs, and a call for a \$21 million investment in Mexico over the five-year cycle of Minute 319.

Following Commissioner Drusina was Karen Kwon, an Assistant Attorney General for the State of Colorado. Kwon gave an overview of the states' roles in the international management of the Colorado River Basin and ways individual states have an impact on the diplomatic process. Most importantly, the Colorado River Basin States ("Basin States") have responsibilities under the 1944 Treaty to help keep the United States in compliance with its obligations to Mexico. The Basin States have also played a major role in furthering coordinated management of the Basin. For example, during the negotiations over Minute 319, the Basin State representatives made sure that the Lower Basin States did not benefit at the expense of the Upper Basin States, and vice versa.

The final panelist, Peter Culp of international firm Squire Sanders, first gave a brief description of how holders of Mexican water rights utilize Colorado River water. The vast majority of Mexico's allotment of Colorado River water goes to agricultural uses, with the rest diverted mainly for use by municipalities. According to Culp, nearly three million people rely on this water supply. Because the Mexicali region lies downstream from every American farm

and municipality in the Basin, salinity and other chemical imbalances are a major problem for water users in northern Mexico. Minute 319 begins to address this problem.

Culp then laid out the environmental implications of Minute 319 for the Colorado River Delta ecosystem. Since the turn of the last century, the Delta shrank dramatically to the point where the Delta ecosystem had been declared effectively dead by the 1970s. A large flood in the early 1980s actually reversed some of the degradation, which in turn spurred efforts to restore the Delta. Culp, however, was quick to point out that the proponents of these efforts are not attempting to restore the Delta to its historic maximum. Instead, these efforts, which Minute 319 funds in part, will restore only a relatively small, perennial riparian ecosystem within the limits of the historic Delta. In addition to funding restoration efforts, Minute 319 storage arrangements between the United States and Mexico will allow Mexico to store and release water in a manner that will best facilitate restoration of the Delta.

Nathanial Brown

CLIMATE CHANGE'S EFFECT ON SUPPLY AND DEMAND IN THE UPPER BASIN

The afternoon keynote speaker, Brad Udall, Director of the newly named Getches-Wilkinson Center for Natural Resources, Energy, and the Environment at the University of Colorado, spoke on the role of climate change in water policy and its effects on supply and demand in the Colorado River Basin. Udall was also the lead author of the Water Sector chapter on Global Climate Change Impacts in the United States Report and the Western Water Assessment of Climate Change in the Colorado Report.

Udall began his keynote address by outlining the basics of the water cycle and the role climate change plays in the water cycle. Udall explained the water cycle is the mechanism the earth uses to move heat from hot areas to cooler areas. A warmer climate leads to more water vapor in the atmosphere and therefore a warmer climate generally translates to more evaporation and precipitation on a global basis (but he also noted regional imbalances will also occur). Udall explained that, as the climate warms, wet places will become wetter, and dry places will become drier.

Next, Udall spoke on the impact of Hadley cells. Hadley cells develop when evaporation at the equator rises into the atmosphere and moves toward the poles. In the subtropics, evaporated water cools and sinks, creating a return flow back towards the equator. Hadley cells fuel the growth of the world's major deserts around the subtropical latitudes at thirty degrees north and south of the equator. Udall believes Hadley cells will proliferate because of climate change, and, as a result, the world's major deserts will continue to grow in size.

Udall then explored climate change's impact on the water supply of the Colorado River. Udall focused on the recently completed Colorado River Basin Supply and Demand Study, which projected various potential scenarios for future flows at Lee's Ferry. The models in the Basin Study took several aspects of climate change into consideration. In seventy-five percent of the

various fifty-year models in the Basin Study, the projected flows at Lee's Ferry declined. The median result of the models projected Lee's Ferry flows would drop nine percent by 2060, with climate change as one of the contributing factors.

Udall then addressed allocation, overuse, and reservoir problems. According to the models he presented, on average, by 2060, there would be a four percent annual increase in demand on reservoirs in the Colorado River Basin due to climate change. Notably, these models did not include the increase in energy demand resulting from population growth in the Basin. Lake Mead, which stores water to be provided to the Lower Basin, currently has a net deficit of 1.4 million acre-feet per year. Currently, the Lower Basin covers this deficit with unused Upper Basin flows. The Lower Basin will be forced to address this deficit as water demands in the Upper Basin increase and those unused flows are used. Udall noted as demand in the Upper Basin increases, there will likely be Compact calls and additional shortages.

Finally, Udall addressed the level of uncertainty involved in science and climate change policy. Udall contended a lack of certainty does not provide grounds for taking no action. Scientists can only calibrate global climate models somewhat imprecisely because the time horizon on these models is usually one hundred years into the future. Udall emphasized, possible futures exist outside the models and there is no rational way to rank the myriad of models in use. Udall, however, still argued for taking action to combat climate change. He also stressed the high level of uncertainty involved when scientists reduce a global climate model to a specific region. Ultimately, Udall stated he hopes to better integrate the efforts of the scientists producing the models with the decision-makers using them, because the models, though imprecise, provide a good starting point for discourse in the climate change forum.

Gerard Deffenbaugh

AGE OF LIMITS IN COLORADO, AND HOW DO WE RECOGNIZE THEM IN DEVELOPING A STATE WATER PLAN?

John Stulp, Special Policy Advisor to the Governor on Water and Chairman of Colorado's Inter-basin Compact Committee, moderated a panel on the limits of Colorado's water supply and how future water supply projects and legislation may manage those limits. Panelists shared Western Slope and Front Range perspectives on Colorado's water supplies and the need to balance the development of new supply projects with flows for environmental and recreational purposes. The panel also examined the viability of agricultural water transfers to meet growing municipal water demands. The panel consisted of Eric Kuhn of the Colorado River Water Conservation District; Marc Waage of Denver Water; David Taussig of White & Jankowski, LLP; and Peter Nichols of Berg, Hill, Greenleaf, & Ruscitti, LLP.

Eric Kuhn was the first to deliver his presentation on "Augmenting Supply in Colorado: How Much Water Is Left to Develop in Colorado?" Mr. Kuhn discussed the uncertainty in new water projects regarding the future supply and demand of water in the Colorado River Basin. Kuhn identified three primary sources of uncertainty: (i) future hydrology; (ii) future demands; and (iii) exist-

ing compacts, such as the Colorado River Compact of 1922 and Upper Colorado River Basin Compact of 1948, which impose uncertain legal constraints. Mr. Kuhn also identified three strategies to reduce risks and uncertainties for future water projects, which he recognized are both politically and practically difficult to implement: (i) limit new consumptive use to times when the system storage is full; (ii) use water banks; and (iii) implement improvements to current and future storage.

Next, Marc Waage responded to Kuhn's presentation. Waage started with the principle that there is no unused water in the state that the people of Colorado can use without consequences. Mr. Waage then outlined the conservation measures Denver Water currently employs to make the most of its water resources. Waage noted Denver is reaching the limits of what behavior-oriented conservation mechanisms can achieve in terms of producing additional water supply for the Front Range. Waage completed his presentation with the argument that small projects are very important for the future viability of the state's water delivery systems. He then listed four key things that will promote the effectiveness of these small projects: (i) giving water utilities support for conservation measures; (ii) flexibility in water laws to allow for increased sharing of water resources; (iii) streamlining water project approvals; and (iv) enabling future development of Colorado water.

David Taussig then presented on "Challenges and Opportunities in Protecting Non-Consumptive Uses in an Ecologically Limited River System Like the Colorado River and its Tributaries in Grand County." Mr. Taussig listed numerous challenges to protecting the water resource of Grand County. Specifically, he mentioned the need to improve the water clarity of Grand Lake; reduce sedimentation in Grand Lake and the Colorado River; and ensure water flows are adequate to keep water temperatures at or below standard levels. Mr. Taussig also identified the following opportunities to protect the water resources of Grand County: (i) increase limits on future diversions from the Colorado and Fraser Rivers; (ii) require Grand County's and the Colorado River District's approval for all future projects; (iii) adhere to the 2008 Colorado Water Quality Control Commission's narrative standard on water quality; and (iv) require flushing flows of up to 1,200 cfs below Windy Gap. Mr. Taussig was confident that implementing the initiatives he listed would help alleviate current challenges and protect the Colorado River and its tributaries in Grand County.

Last, Peter Nichols presented "The Future of Transfer From Agricultural to Municipal Use: Changing Colorado Legislation to Allow for More Flexible Water Leases." Mr. Nichols outlined six pieces of existing and future Colorado legislation allowing for temporary transfers of water rights from agricultural uses to municipal uses. The various pieces of legislation Mr. Nichols discussed would limit the majority of transfers to periods of three to ten years, contingent on the requirement that no injury would result to existing water rights holders, and also subject to the State Engineer's approval. Mr. Nichols completed his presentation by asserting water leases are an essential element of state water policy, and we need to devote more attention to whether they will be effective tools for alleviating future water shortages.

Mr. Kuhn, Mr. Waage, Mr. Taussig, and Mr. Nichols therefore presented on a variety of issues, challenges, and opportunities to be drawn from the inherent limits on Colorado's water supply, and which should be addressed in the development of a state water plan. All panelists were optimistic that a well-conceived state water plan could ensure a water supply for Colorado's future generations.

Christopher H. Butler

SECURING THE MOFFAT SUPPLY SYSTEM: WEIGHING THE COSTS AND
BENEFITS OF THE GROSS RESERVOIR EXPANSION, AND PROJECT
ALTERNATIVES

Rebecca Mitchell of the Colorado Water Conservation Board moderated a panel discussion titled "Securing the Moffat Supply System: Weighing the Costs and Benefits of the Gross Reservoir Expansion, and Project Alternatives." Panelists shared Western Slope and Front Range perspectives on Denver Water's Moffat Collection System project and the accompanying expansion of the Gross Reservoir. The panel consisted of Charles Howe, Professor Emeritus in Economics at the University of Colorado; Barbara Green of Sullivan, Green, and Seavy, LLC; Amelia Whiting of Trout Unlimited; and Travis Bray of Denver Water.

The panel discussion began with an overview of Denver Water's Moffat Collection System. The existing Moffat supply system diverts water from the Fraser River through the Moffat Tunnel to South Boulder Creek. South Boulder Creek then flows into Gross Reservoir and the Gross Reservoir Dam releases water into the South Boulder Creek. The South Boulder Diversion Canal then diverts water from the South Boulder Creek to the Ralston Reservoir. The Ralston Reservoir ultimately provides water to Denver Water's Moffat Treatment Plant. Denver Water estimates an 18,000 acre-foot shortage of water in the coming decades. To meet this demand, Denver Water proposed expanding Gross Reservoir to hold an additional 76,000 acre-feet of water. This project would increase the dam's height from 340 feet to 465 feet. Notably, the Moffat system would not divert the additional water in dry years.

Charles Howe was the first to present on "The Economics of High Volume Interbasin Water Transfers." Professor Howe detailed the history of large interbasin transfers in Colorado. He explained the secondary economic and social impacts of interbasin transfers are important considerations and large water transfers out of depressed regions can result in severe regional economic and social disadvantages. He emphasized large transfers out of depressed regions require compensation for those regions but, even in light of these facts, legislation should not outright prohibit interbasin transfers.

Barbara Green next presented "Colorado River Cooperative Agreement and the Gross Reservoir Expansion—Western Slope Non-Opposition to Gross Reservoir Expansion." Ms. Green began by providing background information on the historical tensions between water interests on the Western Slope and the Front Range of Colorado. She then outlined the evolution of Article IV, Paragraph J of the newly minted Colorado River Cooperative Agreement. Article IV, Paragraph J prevents West Slope signatories, other than Grand

County, from objecting to any permits for the Moffat Collection System Project. Grand County is a National Environmental Policy Act consultant on the Project and is thus exempt from Article IV, Paragraph J. Last, Green described how this new agreement is a historic and positive step for relations between water rights interests on the Western Slope and the Front Range.

Amelia Whiting of Trout Unlimited then presented "Environmental Concerns: Why Trout Unlimited Supports the Windy Gap Firming Project and Not the Gross Reservoir Expansion." Trout Unlimited is a not-for-profit organization dedicated to the conservation, protection, and restoration of North America's cold-water fisheries and their watersheds. Whiting began by describing the Windy Gap Firming and Moffat Collection System Projects. She then described Trout Unlimited's objections to the Moffat Collection System expansion project. Specifically, Trout Unlimited objects to the Gross Reservoir Expansion because Denver Water will not agree to (i) reduce diversions if water temperatures are too high; (ii) guarantee flows that cleanse the river of sediment; or (iii) develop a program to monitor the rivers and adapt to developing situations.

Last, Travis Bray presented on "Securing the Northern Moffat System: Why Denver Water Needs to Increase its Moffat Supply System." Bray began by discussing Denver Water's three-prong approach to municipal water supply: Conservation, Recycling, and Supply. Next, Bray outlined the supply problems of the next twenty years, including the reliabilities and vulnerabilities of the north and south Denver supply systems. Bray then gave the history of the Moffat project from 1954 (the original Gross Reservoir completion date) to the present. Finally, he listed the following issues associated with the Moffat Collection System Project that still outstanding: new studies, conflict resolutions, and Boulder County voting issues. In an audience member question after the presentation, Bray commented on Denver Water's reluctance to agree to Trout Unlimited's conditions. Mr. Bray stated all of the objections are already-existing problems and the Gross Reservoir Expansion would not be responsible for these problems.

Christopher H. Butler

COURT REPORTS

FEDERAL COURTS

UNITED STATES SUPREME COURT

Ark. Game & Fish Comm'n v. United States, 133 S. Ct. 511 (2012) (holding (i) government-induced temporary flooding can give rise to a compensable taking claim under the Fifth Amendment; and (ii) on remand, the lower court should consider the duration of compensable taking, character of the land, owner's expectations about the land's use, and foreseeability of invasion when determining whether a compensable taking occurred).

The Arkansas Game and Fish Commission ("Commission") owns the Dave Donaldson Black River Wildlife Management Area ("Area"), a 23,000-acre tract of land along the Black River in Arkansas. In 1948, the US Army Corps of Engineers ("Corps") built the Clearwater Dam upstream from the Area and adopted the Water Control Manual ("Manual") to set seasonal water release rates. The Manual allowed deviations from normal release rates for agricultural, recreational, and other purposes. In 1993, pursuant to farmers' requests, the Corps approved deviations, allowing a slower than usual water release rate from the dam. The Corps continued implementing temporary deviations to water releases from 1994 through 2000, and proposed to revise the Manual in order to make the temporary deviations permanent.

While the deviations benefitted farmers, the Commission opposed the Manual revisions because they interfered with natural habitats and timber growing seasons by causing abnormally long downstream flooding. After testing the detrimental effects of the deviations on the timber and natural habitat of the Area, the Corps abandoned the planned revisions and ceased the temporary deviations.

In 2005, the Commission filed a lawsuit against the United States, seeking compensation under the Fifth Amendment Takings Clause. The Commission claimed government-induced temporary flooding resulted in the destruction of timber and caused a substantial change in terrain. These damages allegedly required costly reclamation measures.

The United States Court of Federal Claims ("claims court") ruled in favor of the Commission. The claims court concluded the cumulative effect of the water release rate was exceptionally damaging to the once-flourishing forests of the Area and awarded the Commission \$5.7 million in compensation. The United States appealed.

The United States Court of Appeals for the Federal Circuit ("appeals court") reversed the claims court, despite its acknowledgment that a temporary governmental action may give rise to a takings claim if permanent action of the same character would qualify as a taking. The appeals court, however, held flooding cases constituted an exception to this general rule and related claims were thus compensable only if flooding was permanent or inevitably occurring.

The Commission appealed and the United States Supreme Court granted certiorari on the issue of whether government-induced temporary flooding could ever give rise to a compensable takings claim.

Arguing that temporary flooding was an exception to the general rule, the United States' position was that, in order to create liability under the takings clause, government-induced flooding needed to be permanent. The Court disagreed. It rejected the United States' interpretation of earlier precedent, explaining the temporary flooding exception was erroneously parsed out from stand-alone sentences in prior precedent. Furthermore, the Court added that subsequent developments in jurisprudence superseded the cases the United States used to support its position.

The United States also argued that reversing the appeals court would disrupt public works in flood-control areas by making even the smallest flood qualify as a compensable taking. The Court rejected this position as a slippery slope argument, noting that this case was no different from other takings clause cases that unsuccessfully urged blanket exceptions from the Fifth Amendment without proper justification.

Finally, the United States asked the Court to address two additional issues: (i) the collateral nature of the flood damage; and (ii) the bearing of Arkansas water-right law on this case. The Court refused to express any opinion with regard to these issues because the parties did not brief the issues or argue them in the lower courts.

Accordingly, the Court reversed the appeals court's decision and held that government-induced temporary flooding can give rise to a compensable taking claim under the Fifth Amendment. The Court noted the majority of such claims depend on situation-specific, factual inquiries. Consequently, the Court remanded the case, directing the claims court to consider the duration of compensable taking, owner's reasonable investment-backed expectations regarding the land's use, and the degree of foreseeability related to the invasion.

Natasha Schissler

Los Angeles Cnty. Flood Control Dist. v. Natural Res. Def. Council, Inc., 133 S. Ct. 710 (2013) (holding the flow of water from an improved portion of a navigable waterway into an unimproved portion of the same waterway is not considered a discharge of a pollutant under the Clean Water Act).

The Los Angeles County Flood Control District ("District") operates a drainage system that collects, transports, and discharges storm water. Federal regulations define "storm water" as storm water runoff, snowmelt runoff, and surface runoff and drainage. Due to the highly polluted nature of the storm water at issue in this case, the Clean Water Act ("CWA") required the drainage systems' operators to obtain a National Pollutant Discharge Elimination System ("NPDES") permit before discharging the storm water into navigable waters. The District obtained a NPDES permit in 1990 and subsequently renewed its permit several times.

The Natural Resources Defense Council and Santa Monica Baykeeper ("Respondents"), both of which are environmental organizations, filed a citizen suit in United States District Court for the Central District of California ("district court"), alleging the District violated water quality measurement require-

ments under its NPDES permit. Acknowledging water in the storm sewer system showed levels of pollutant discharges exceeding statutory limits, the district court nevertheless granted summary judgment in favor of the District. Specifically, because the district court found many other entities had also discharged into the water system, jointly contributing to the levels of pollution, the district court ruled the record was insufficient to hold the District solely liable for the pollution.

Respondents appealed to the United States Court of Appeals for the Ninth Circuit (“Court of Appeals”), which reversed the district court in part, holding a “discharge of pollutants” within the meaning of the CWA occurred when polluted water left the District’s concrete channel system and entered downstream waterways without concrete linings. Because the District controlled the concrete portions of the system, the Court of Appeals held it was responsible for discharges leaving its system into those watercourses unprotected by concrete lining.

The United States Supreme Court granted certiorari to consider just one issue: whether, under the CWA, does the flow of storm water out of a concrete channel within a river qualify as the “discharge of a pollutant?” Answering that question the negative, the Court reversed the Court of Appeals. The Court relied on legal precedent that held pumping polluted water from one part of a water body into another part of the same body is not considered a discharge of pollutants under the CWA.

The language of CWA defines “discharge of a pollutant” as the addition of any pollutant to navigable waters from any point source. The Court pointed to the generally accepted meaning of the word “add” and explained that pollutants are not “added” when water is merely transferred between different portions of that water body. If such an addition were to be considered a discharge, the Court explained, the water would have to be transferred between two meaningfully distinct water bodies.

Ultimately, the Court held the flow of water from an improved portion of a navigable waterway into an unimproved portion of the same waterway does not qualify as a discharge of pollutants under the CWA. Therefore, the Court reversed the Court of Appeals and remanded the case for further proceedings.

Tyler Geisert

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

San Luis Unit Food Producers v. United States, 709 F.3d 798 (9th Cir. 2013) (holding the Reclamation Act, Central Valley Project Act, and San Luis Act, did not impose a duty on the Bureau of Reclamation to provide farmers with their preferred amount of water from the Central Valley Project).

In 1902, Congress passed the Reclamation Act (“Act”), which provided for the construction and operation of water collection, storage, and distribution projects in several of the Western States, in an effort to reclaim arid lands and support agriculture. The nation’s largest reclamation project, the Central Valley Project (“CVP”), managed by the United States Bureau of Reclamation (“Bureau”), provides water to California’s Central Valley.

In 1960, Congress passed the San Luis Act, authorizing the construction and operation of the San Luis Unit, an integral part of the CVP. In 1992, Congress passed the Central Valley Project Improvement Act ("CVPIA"), amending the purposes formerly enumerated for in the CVP. The CVPIA established river regulation, improvement of navigation, and flood control as CVP's first priorities. The CVPIA listed irrigation, domestic uses, fish and wildlife protection, and restoration as a second priority. For several decades, the Bureau delivered enough water to adequately irrigate farmers' lands in the area. However, when the Bureau began allowing significant amounts of water to flow free for the restoration of fish and wildlife, it significantly decreased the amount of water delivered to irrigation districts. As a result, the Bureau caused a decrease in the amount of irrigation water available to farmers in the Central Valley.

A group of farmers ("Farmers") sued the Bureau, claiming various statutes, including the Reclamation Act, CVP Act, and San Luis Act, required the Bureau to deliver an amount of water to irrigation contractors, consistent with historical use. The United States District Court for the Eastern District of California granted summary judgment in favor of the Bureau, and the Farmers appealed. The United States Court of Appeals for the Ninth Circuit ("Court of Appeals") reviewed the case *de novo*.

On appeal, Farmers argued the Bureau violated its statutory duties to (i) "operate" the San Luis Unit in a manner that fully utilizes it for irrigation above other purposes; (ii) to exercise its water rights to San Luis water; and (iii) to adequately recoup Project costs.

First asserting the Bureau has a duty to operate the San Luis Unit in a manner fully utilizing the water for irrigation purposes, the Farmers cited 43 U.S.C. § 521, which authorizes the Secretary of the Interior to contract with CVP water users to supply water for non-irrigation purposes, so long as there is no detriment to irrigation purposes. Farmers alleged the Bureau's re-allocation of water to support fish and wildlife was detrimental to the irrigation project and caused them injury. The Court of Appeals held the Bureau did not contract to provide water for the protection of fish and wildlife, but was required to do so by CVPIA. Thus, the Court of Appeals determined that the Farmers did not sufficiently identify a contract that caused the harm.

Farmers also cited the CVP Act's provision for the sale of electric energy, to allow full utilization of the CVP and accomplish the CVP's purposes of river regulation, irrigation, and other uses. The Farmers again argued that the Bureau must use CVP project water for irrigation purposes before other non-irrigation purposes. The Court of Appeals concluded that the Bureau did deliver water to irrigation contractors and the CVP Act does not require the delivery of any particular amount of water.

Farmers also relied on the San Luis Act, which states that the "principle purpose" of the San Luis Unit is to provide water for irrigation, and specifies necessary water capture, storage, and distribution features of the unit. Farmers argued the language of the San Luis Act created a mandatory duty to deliver Farmers' preferred amount of irrigation water prior to supplying water for fish and wildlife protection efforts. The Court of Appeals held the statute did not create a duty on the Bureau to distribute a specific amount of water for irriga-

tion, but merely described the necessary engineering features of the San Luis Unit.

Farmers next argued the Reclamation Act directed the Secretary of the Interior to use Bureau funds for the operation and maintenance of reclamation projects. Farmers argued the word "operation" meant "utilization of the works as fully practicable," and the Bureau must operate projects to the fullest practicable extent for irrigation before supplying water for non-irrigation purposes. The Court of Appeals ultimately held the Reclamation Act does not affirmatively require any particular managerial action on the part of the Bureau.

Farmers further argued the Bureau had a duty, under the Reclamation Act, to exercise its water rights within the San Luis Unit and to provide water to irrigation districts, consistent with the amount historically used. The Reclamation Act does require the Bureau to comply with any state water law restrictions that are consistent with federal law. Under section 1702 of the California Water Code, the State Water Resources Control Board ("Board") cannot grant a permit holder's application for a change in the "purpose of use" of a permit unless the change will not injure any legal user. Farmers claimed the Bureau's reduction in water collection to support fish and wildlife protection efforts changed the "purpose of use" and caused them injury, thus violating section 1702. The Court of Appeals held the plain meaning of section 1702 required the Board to make a "no injury" finding, but that section 1702 was in no way controlling over actions of the Bureau.

Farmers next argued the Reclamation Act provides that water rights acquired under the Act belong to the land irrigated and are measured by beneficial use. Farmers asserted they were entitled to the amount of water historically put to beneficial use. The Court of Appeals held the statement that "the beneficial use of water is the 'measure' of a water right," was too vague to be interpreted as a directive to the Bureau to deliver Farmers' preferred amount of irrigation water.

Farmers also cited the San Luis Act, which provides that construction of the San Luis unit would not begin until the Secretary of the Interior was able to secure the necessary water rights to satisfy the purposes of the Unit. The Farmers alleged that non-irrigation use or non-use of water compromised the Bureau's ability to satisfy the purposes of the Unit and was therefore impermissible under the San Luis Act. The Court of Appeals, however, held the statute only imposed a condition on the construction of the San Luis Unit and did not require that the Bureau deliver a certain amount of irrigation water prior to providing for fish and wildlife protection efforts.

Last, Farmers claimed the CVP required the Bureau to recover the costs associated with the construction, operation, and maintenance of the CVP through the sale of more irrigation water. The Court of Appeals disagreed, holding Congress intended those benefiting from reclamation projects to recover costs and the Secretary of the Interior to determine how to best recoup those costs. Therefore, the Court of Appeals held Farmers could not compel the Bureau to sell more irrigation water in order to recoup costs.

The Court of Appeals accordingly affirmed the district court's grant of summary judgment to the Bureau and further held that none of the statutes

Farmers cited imposed a duty on the Bureau to deliver the preferred amount of water to Farmers' irrigation contractors.

Holly Taylor

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEVADA

United States v. Alpine Land & Reservoir Co., 2012 WL 4442804 (D. Nev. 2012) (holding the state engineer did not err in (i) finding special administration rules under the Alpine Decree provided a change in point of diversion from one segment to another on the Carson River required an accompanying change in priority date; (ii) finding a constructive point of diversion, rather than a physical point of diversion, for the purposes of retaining priority would violate Nevada water law; and (iii) granting the change applications, as filed, would harm existing rights).

The United States District Court for the District of Nevada ("district court") issued the Alpine Decree in a previous ruling as a means of administering Carson River water rights. In the summer, some upper segments of the river are dry, while downstream segments have sufficient flows due to underground drainage or return flows from irrigation. During such conditions, it is physically futile for upstream junior appropriators to satisfy downstream senior appropriators' calls. Historically, farmers in the Carson River region administered the river in segments through mutual cooperation and practical experience with the physical limitations. The Alpine Decree formally divided the Carson River into eight segments and established autonomous administration of each segment.

The United States Fish and Wildlife Service ("FWS") filed seven applications with the Nevada State Engineer to change several of its water rights to the Stillwater National Wildlife Refuge. As part of its effort to restore and sustain the Lahontan Valley wetlands, FWS purchases water rights from willing sellers, and then applies to transfer those water rights for application in the Refuge. Each of the water rights was in the Carson River and listed the point of diversion as Buckland Ditch. Buckland Ditch is a point in Segment 7(e) of the Carson River as designated by the Alpine Decree. The State Engineer denied FWS's applications, reasoning the applications, as filed, would harm existing rights holders because the actual point of diversion would have been the Carson Dam, a point in Segment 8 downstream of the Buckland Ditch. FWS appealed the State Engineer's ruling to the district court.

On appeal, FWS claimed the State Engineer erred in (i) interpreting the Alpine Decree to require a change in priority when the point of diversion is changed to another segment of the Carson River; (ii) finding a constructive point of diversion, rather than a physical point of diversion for the purposes of retaining priority because it would violate Nevada water law; (iii) applying the wrong legal standard; (iv) relying on an extra-record comment when interpreting the Alpine Decree; and (v) denying the applications rather than granting them with conditions.

First, the district court found the State Engineer correctly interpreted the Alpine Decree to require a change in priority date when an application for a

change in the place of diversion contemplated moving water rights from one segment to another on the Carson River. Nevada water law generally permits a water right holder to change the point of diversion without losing priority of right. The Alpine Decree, however, modifies this right to limit it to changes within the original segment on the Carson River. The Water Master cannot enforce a senior priority awarded in one segment of the river against a junior priority awarded in another segment of the river. In this respect, the Alpine Decree awarded a limited right of priority. The district court reasoned that to carry over the priority date for a change in the place of diversion of a water right was contrary to the principle of reducing waste, which was something the Alpine Decree was intended to alleviate. Accordingly, the district court held State Engineer did not err in finding that the Alpine Decree requires that a change in point of diversion from one segment to another must result in a corresponding change of the priority date to the date of application for the change.

Next, the district court found that establishing a constructive point of diversion rather than a physical point of diversion, for the purposes of retaining priority, violated Nevada water law. FWS admitted it intended to divert water at Carson Dam, not Buckland Ditch. However, FWS argued Buckland Ditch was a valid "constructive" point of diversion because it was the point of diversion for administrative and accounting purposes. The district court found FWS failed to adequately address the issue of a constructive point of diversion and that use of constructive points is generally limited to appropriations without diversions.

Additionally, the district court ruled the State Engineer did not err in determining the applications, as filed, harmed existing water rights holders. The district court found FWS's proposal to divert and transfer water within a new segment of the river would conflict with existing water rights in several sections of the river.

Next, the FWS argued the State Engineer relied on an extra-record comment when interpreting the Alpine Decree. During a conference, the Federal Water Master made an extra-record comment to the State Engineer about the historical practice of requiring a change of date of priority in conjunction with changing a place of diversion from one river segment to another. The district court found whether the date of priority is lost is a question of law concerning the Alpine Decree and the reference to an extra-record explanation of historical practice is irrelevant to resolving that question. Therefore, the State Engineer correctly construed the Alpine Decree and its accompanying opinion regarding the loss of priority when the point of diversion is changed from one segment to another.

Finally, the district court rejected FWS's argument that the State Engineer erred in denying the applications, rather than granting them with conditions, because the applications did not provide an accurate location of diversion and FWS did not demonstrate any conditions that protected the public from adverse impacts of the applications.

Accordingly, the district court denied FWS's petition challenging the State Engineer's ruling.

Christopher Butler

STATE COURTS

CALIFORNIA

Central Basin Mun. Water Dist. v. Water Replenishment Dist. of S. Cal., 150 Cal. Rptr. 3d 354 (2012) (certified for partial publication) (holding that a water replenishment district (i) did not have to comply with the California Environmental Quality Act prior to declaring a water emergency because the declaration did not have any environmental impact; and (ii) declaration of a water emergency was a ministerial act for which the Water Replenishment District had no authority to modify existing physical solutions imposed by prior water rights adjudications).

The Water Replenishment District of Southern California ("WRD") declared a "water emergency" in the Central Basin, a groundwater basin within Los Angeles County, on November 19, 2010. Under the terms of a judgment from the Superior Court of Los Angeles County dating back to 1991 ("Judgment"), WRD may declare a water emergency when the basin resources "risk degradation." A water emergency declaration enlarges the portion of water that a pumper may carry over to another year, thereby preserving a pumper's right to water longer than usual. As a result, a pumper can extract a greater amount of water than his or her annual allotment due to the extended extraction period during a water emergency. A declared water emergency is limited in duration to one year. The Judgment was an equitable decree aimed at alleviating overdrafts and depletion of water resources in a given area, consistent with California's constitutional mandate to prevent waste.

The Central Basin Municipal Water District ("CBMWD") challenged WRD's declared water emergency on the ground that it did not comply with the California Environmental Quality Act ("CEQA"). CEQA is a broad environmental law, which mirrors many provisions of the National Environmental Policy Act, and applies to most public agency decisions to approve projects with potential adverse effects on the environment. CBMWD argued that WRD "ignored the significant environmental impacts" associated with declaring a water emergency. CBMWD argued that WRD should have considered the effects of increased short-term holding and long-term pumping by water users which occurred as a result of a water emergency declaration. CBMWD also argued WRD did not contemplate the effects of delayed replacement of overextracted groundwater because a water emergency increased pumpers' carry-over rights from one to five years.

WRD demurred to CBMWD's petition, and the Superior Court of Los Angeles County ("Superior Court") sustained WRD's demurrer. The Superior Court found in favor of WRD because the Judgment explicitly authorized WRD to declare the water emergency. And, though WRD was a public agency generally subject to CEQA, WRD acted as an agent of the court when it implemented the terms of the Judgment. The Superior Court reasoned groundwater usage authorized by the governing Judgment was exempt from CEQA because the Judgment approved the Watermaster's authority to resolve groundwater usage issues in the Central Basin. CBMWD appealed to the Second District, Division 8, California Court of Appeal ("Appeals Court").

The Appeals Court held CEQA was inapplicable in a water emergency declaration. It explained that CEQA distinguished between ministerial and discretionary projects. CEQA applies only to discretionary projects for which the agency must prepare an environmental impact report ("EIR"). The Appeals Court further explained ministerial projects are actions WRD may not influence when addressing environmental concerns. The Appeals Court specifically held the declaration of a water emergency has no environmental impact and therefore is not a project within the definition of the CEQA. The Appeals Court also held WRD had no discretion to alter the terms of the Judgment even if an EIR was prepared. Therefore, even if WRD considered the environmental effects of declaring a water emergency, an EIR would have no effect because WRD had no discretion to modify carry over rights or delayed replenishment.

The Appeals Court further held that even if CEQA was applicable, the Judgment's physical solution trumped the CEQA. The Appeals Court explained that where an existing judgment or decree implementing a constitutional mandate establishes a physical solution, the agency may not act in contravention of the physical solution. Therefore, WRD had no discretionary authority and only the court had the power to act.

Accordingly, the Appeals Court affirmed the trial court's ruling and allowed WRD's declared water emergency to stand.

Alex Bayee Besong

COLORADO

Town of Minturn v. Tucker, 293 P.3d 581 (Colo. 2013) (holding a substantive error existed in a recently-issued decree; the water court retained jurisdiction to correct such substantive errors; the town made a *prima facie* showing of the substantive error; and the water court did not abuse its discretion in allowing the substitution of more accurate historic use data).

The Town of Minturn ("Minturn") filed applications in Colorado District Court for Water Division Number 5 ("water court") for new water rights and changes to its existing water rights in 2005 and 2007. More than thirty parties opposed the applications, and Minturn subsequently entered into agreements with all opponents. Tucker's predecessors in interest were among the opposers, namely, Battle Mountain Corporation, Battle Mountain Limited Liability Company, and Sensible Housing Company.

Tucker eventually entered into a stipulation with Minturn, which contained provisions stating Tucker would not oppose entry of a proposed decree, provided the decree contained terms and conditions no less restrictive than those in the stipulation. After the water court entered of the final decree, Minturn discovered the stipulated decree based several consumptive use calculations on billing statements rather than more accurate calculations, which made the monthly calculations differ by one month and not reflect of actual monthly historical use numbers. Minturn petitioned the water court to correct the decree. Tucker was the only opposer to Minturn's petition to correct the decree. The water court granted Minturn's petition, and Tucker appealed. The Colorado Supreme Court reviewed the case *de novo*.

Minturn first argued COLO. REV. STAT. § 37-92-304(10) grants the water court authority to correct substantive or clerical errors in decrees. The Court began by analyzing the plain language of the statute and determined it plainly provided water courts the authority to correct such errors. The Court then looked to Minturn's petitions to determine whether it alleged facts sufficient to establish a *prima facie* showing of clerical error in the decree. The Court determined Minturn had met this burden, and upon such a showing, the water court had a duty to admit and consider all relevant testimony to establish the intent of the parties to the original stipulated decree.

The Court then reviewed the extrinsic evidence the water court had examined and held the water court did not abuse its discretion when it determined the parties intended to use the actual consumptive use figures, and not the data provided by the billing company. The language of the stipulation and proposed decree included specific provisions indicating the historic actual use of the applicant was the figure the parties intended to use at the time they entered into the stipulation.

The Court then considered whether the water court afforded Tucker a sufficient opportunity to rebut this evidence. Tucker supplied a supplemental response and affidavit, but did not provide expert testimony to rebut Minturn's expert testimony. Because the water court afforded Tucker an opportunity to provide contrary evidence, the Court held it did not abuse its discretion in giving more weight to Minturn's expert than to Tucker's own affidavit. In sum, the Court held Minturn met the requirements of COLO. REV. STAT. § 37-92-304(10) to petition the water court to correct substantive errors, and the water court did not abuse its discretion in correcting the errors.

The Court next addressed the "no less restrictive" provision of the stipulation to determine whether that provision precluded the water court from amending decrees. The stipulation between the parties contained language stating the opposers would not oppose the entry of a proposed decree as long as the decree contained terms and conditions that were no less restrictive than those the parties agreed upon in their stipulation.

Tucker argued any increase in the monthly limitations was *per se* less restrictive on Minturn, and thus against the intent and plain language of the stipulation. Minturn argued that, while the monthly use totals would be different, the yearly consumptive use was identical. The Court examined the stipulation and determined the phrase "no less restrictive" was open to more than one reasonable interpretation, and therefore was ambiguous. Having found ambiguity in the parties' stipulation, the Court then looked to the facts and circumstances surrounding the stipulation to determine the parties' intent at the time it was signed. The Court examined the language of all the stipulations in the case and concluded the intent of the various parties was to use "historical actual use" as the basis of the calculations, and the erroneous figures that had been incorporated into the decree were contrary to the parties' intent.

The Court next examined whether the corrected decree was indeed no less restrictive than the terms the parties agreed upon in the stipulation. In doing so, the Court examined Minturn's actual historic water use, and determined the corrected figures correlated to the historic use, as was the parties' intent. Furthermore, the Court concluded the water court's assertion that the

corrections would not injure other vested rights was based on sufficient evidence. While Tucker argued the change would injure his rights, he did not provide any evidence to support this assertion. However, the Court found that, if Tucker could proffer evidence of injury, COLO. REV. STAT. § 37-92-304(6) allowed the water court to retain jurisdiction over the adjudication for five years on the question of injury to his vested rights.

Accordingly, the Colorado Supreme Court affirmed the decision of the water court to allow substitution of Minturn's corrected historic use figures.

Winslow Taylor

Nat'l Ski Areas Ass'n, Inc. v. U.S. Forest Serv., No. 12-cv-00048-WJM, 2012 WL 6618263 (D. Colo. Dec. 19, 2012) (holding (i) the US Forest Service's 2012 Directive was vacated because it violated the Administrative Procedure Act, the Regulatory Flexibility Act, and the National Forest Management Act; and (ii) plaintiffs were entitled to remedial and injunctive relief because of these violations).

National Ski Areas Association, Inc. ("Association") sought a nationwide injunction from the United States District Court for the District of Colorado ("court") to set aside the US Forest Service's ("USFS") March 6, 2012 Directive ("2012 Directive"). The 2012 Directive changed the nature and treatment of ski area water rights on federal land by requiring permit holders to transfer their water rights to the United States, should the Forest Service decline to reauthorize the ski area's permit. The Association claimed (i) the 2012 Directive exceeded USFS's statutory authority, compelled uncompensated taking of private property, violated the Regulatory Flexibility Act ("RFA"); and (ii) USFS did not provide public notice or opportunity to comment, as required by the Administrative Procedure Act ("APA") and the National Forest Management Act ("NFMA").

USFS first argued the Association did not have standing to pursue its claim because of the applicability of the harmless error doctrine. USFS contended the Association did not suffer injury because the agency's failure to follow the APA procedural requirements amounted to a mere harmless error. Moreover, USFS argued the informal input opportunities it presented went beyond the APA requirements. Additionally, USFS claimed Association could not demonstrate that its procedural injury was not redressable.

The court, however, did not find USFS's arguments convincing. The court pointed out that the harmless error doctrine was narrow scope and, thus, limited to insignificant errors. Therefore, complex issues or instances of disregard for important rulemaking procedures were outside the doctrine's scope. Although Association had offered informal opportunities to comment on the rulemaking, the court held that this was not a sufficient substitute for the formal notice and comment procedures required by the APA. Also, the court concluded that the normal redressability requirement does not apply in cases involving enforcement of procedural rights under the APA and NFMA. In short, the court found that Association satisfied the standing requirements in the case.

The court next examined the Association's procedural claim under the APA. USFS argued the rule was merely an interpretive rule because of its na-

ture and because it was published in its manual. The court, however, concluded the 2012 Directive was a legislative rule because carried the force of the law and imposed new duties and obligations on the Association. The court further explained that publishing a rule in a manual did not necessarily make it an interpretive rule. Because the court found the 2012 Directive was a legislative rule, the court concluded the APA required public notice and opportunity for comment from interested parties. The record demonstrated USFS failed to follow this procedure when it promulgated the 2012 Directive. Accordingly, the court ruled in favor of the Association on its procedural APA claim.

The court next examined the Association's RFA claim. Under the RFA, agencies must examine the economic impact of a rule upon small businesses, and provide an opportunity for such entities to participate in the rulemaking process. The court found several members of the Association fit the definition of a "small business": entities having less than \$7 million in annual receipts averaged over three years. USFS admitted it did not assess the economic impact on these entities. Accordingly, the court found USFS had not complied with the RFA.

Next, the court considered the Association's final claim under NFMA. NFMA requires USFS, upon the formulation of rules and standards applicable to USFS programs, to establish procedures for providing the public adequate notice and opportunity to comment. USFS argued the 2012 Directive was exempt from these procedures because USFS's own regulations specifically exempt Forest Service Handbook materials from NFMA's notice-and-comment requirements. The court rejected this argument, stating an agency cannot use its own regulations to avoid a statutorily mandated process like notice and comment procedure. Therefore, the court found that the 2012 Directive violated NFMA.

The court then examined the relief available to the Association. In doing so, the court implemented a two-part test to determine whether it should vacate the 2012 Directive. The test examined (i) the seriousness of USFS's deficiencies; and (ii) the potential for disruptive consequences. The court had little difficulty concluding USFS's APA violation rose to the level of "serious deficiencies." Similarly, the court found that the disruptive consequences of vacating the 2012 Directive would be minimal, because USFS admitted it had operated for years without a national directive regarding ski area water rights.

Finally, the Association sought to enjoin enforcement of the 2011 and 2012 Directives that were included in existing ski area permits. In determining whether to grant injunctive relief, the court applied a four-factor test considering the (i) injury suffered; (ii) remedies available at law; (iii) balance of hardships to the respective parties; and (iv) public interest involved. The court found all four factors favored the Association in this case and granted the injunctive relief.

In sum, the court vacated the USFS's 2012 Directive because it violated the APA, RFA, and NFMA, and found the Association was entitled to the narrow injunctive relief requested.

Chris Stork

HAWAII

In re ‘Āao Ground Water Management Area High-Level Source Water Use Permit Applications, 287 P.3d 129 (Haw. 2012) (holding a state agency’s denial of an application to amend instream flow standards was improper because the agency failed to consider the effect of the denial on native practices and the feasibility of protecting such practices, while also improperly (i) placing the burden of showing stream loss on parties to the proceeding; (ii) considering solely aquatic instream use; (iii) speculating with regard to a factory’s change of ownership; and (iv) factoring cost into its analysis of alternative use).

The Waihe‘e River, Waiehu stream, ‘Āao stream, and Waikap stream collectively comprise the system known as Nā Wai ‘Ehā, or the “four great waters of Maui.” None of the four streams have consistent surface flows and they each remain dry at least part of the year. Together, the parties Hui O Nā Wai ‘Ehā and Maui Tomorrow Foundation, Inc. (“Hui/MTF”), petitioned the Hawaii Commission of Water Resource Management (“Commission”) to amend the interim instream flow standards (“IIFS”) for each of Nā Wai ‘Ehā’s four waterways. The IIFS dictate the amount of water that must remain in a stream. IIFS assessments take into consideration many different factors, including fish and wildlife habitat, recreation, aesthetics, navigation, water quality, and native Hawaiian rights. Various other entities were parties to the proceeding including, Hawaiian Commercial & Sugar Company (“HC”).

The Commission considered amending the IIFS for Nā Wai ‘Ehā. Although the Commission made several findings of fact that Nā Wai ‘Ehā was a historical and cultural center for native Hawaiians, the Commission only increased the IIFS for the Waihe‘e River and Waiehu stream. The Commission did not increase the IIFS for the ‘Āao and Waikap streams. The Commission also removed restrictions prohibiting new diversions on the ‘Āao and Waikap streams.

In reaching its decision, the Commission relied on the US Geological Survey’s (“USGS”) data on current instream flow. The Commission also relied on a hydrologist’s calculations that purported to represent the irrigation requirements of Nā Wai ‘Ehā’s nearby fields. The Commission further considered the instream flows necessary to maintain a healthy fish population and the streams’ water loss due to evaporation and seepage. The Commission required HC, along with other parties to the proceeding, to establish how much water the streams lost as a result of evaporation and seepage.

Finally, the Commission considered the availability of alternate water sources in the Nā Wai ‘Ehā area. First, the Commission took judicial notice of reports that a nearby pineapple factory was in the process of changing ownership and the new owners, unlike the previous owners, would not make use of wastewater to irrigate its fields. Second, the Commission considered the yield of HC’s Well Number Seven. HC testified that using Well Number Seven was costly, would reduce aquifer recharge, and would increase the salinity of the well’s water. Thus, the Commission found Well Number Seven was not a viable alternative source of water. The Commission reasoned increasing the IIFS for the ‘Āao and Waikap streams would remove available water supply.

Given the lack of alternative sources, both the pineapple factory and HC depended on that supply. Thus, the Commission concluded it would not increase the IIFS for these two streams and would allow new diversions from the streams as well.

Hui/MTF appealed the Commission's decision to the Supreme Court of Hawaii. First, the Court addressed whether it had jurisdiction to hear the appeal. The Court noted state law allows judicial review of an agency hearing if a party's due process rights are implicated. A party's due process rights are implicated if his or her property interests are at stake in the agency's decision.

The Court held a hearing over the amendment to the IIFS because the regulations implicated native Hawaiians' property rights and because the IIFS affected native Hawaiians' right to exercise traditional and customary irrigation methods. Native Hawaiians possess a property right to these methods, which the Court noted state law clearly codifies. Also, in addition to the property rights at issue, the complexity and significance of the IIFS required judicial review. Thus, the Court held it had jurisdiction over the appeal.

Second, the Court reviewed the Commission's factual findings concerning Nā Wai 'Ehā's historical and cultural significance. The Court held, despite the factual findings, the Commission failed to consider two factors it was required to consider. Namely, it was required to consider (i) the effects the revised IIFS would have on native Hawaiian practices, and (ii) the feasibility of protecting such practices. The Commission's failure to consider these factors was particularly apparent with regard to kalo cultivation and fishing and hunting rights.

Next, the Court held the Commission's reliance on USGS data was proper because the Commission only used that data as an initial starting point in its analysis. From that starting point, the Court held it was proper for the Commission to (i) use one of the USGS figures, and adapted that figure throughout its analysis; (ii) utilize USGS data in estimating how much water the streams lost; and (iii) use this information to determine the stream flow necessary to support a habitat for fish. The Court also held the Commission's use of the hydrologist's calculations was not in error, because the Commission was not required to calculate precise figures when adjudicating the IIFS. Instead, the Commission only needed to estimate instream and offstream demands.

The Court also explained the controlling statutory scheme required the Commission to weigh instream uses against non-instream uses. Loss of water through evaporation and seepage decreases the value of diverting water, a non-instream use. Thus, the Commission properly considered the fact that such losses were sustained by the Nā Wai 'Ehā system. However, the Commission erred in placing the burden of proof of these losses on the parties to the IIFS proceeding, including HC. Instead, the Court concluded the Commission itself should have estimated the losses. Further, the Commission was permitted to make reasonable estimates at that stage of the proceedings, but it did not provide any analysis as to its conclusions regarding losses. Accordingly, the Court held the Commission failed to properly balance instream uses against non-instream uses, in keeping with its obligation to "protect instream values to the extent practicable."

The Court next examined the Commission's judicial notice of the pineapple factory's ownership status. The Court held the Commission improperly considered the ownership of the pineapple factory. While holding taking judicial notice of the change of ownership itself was not improper, the Court held the fact the Commission went on to predict the impact of that change on the water supply was improper due to evidentiary rules and its speculative nature.

Finally, the Court held the Commission properly considered HC's alternative source, Well Number Seven. Similar to its analysis of the system loss, the Court concluded state law required the Commission to balance the instream values with the importance of the non-instream uses when considering alternative sources. Allowing a user to divert from the stream when that user has access to an alternative source diminishes the importance of diverting for a non-instream use. The Court held, however, the Commission did not simply balance the instream values against the noninstream values. Specifically, the Court noted the Commission considered the cost to HC as the determinative factor in concluding Well Number Seven was not a viable alternative source to diverting Nā Wai 'Ehā water. Also, the Court analyzed the Commission's failure to consider recycled wastewater as a sufficient alternate source. Based on these considerations, the Court held the Commission erred, because the wastewater was enough to provide a significant contribution to Nā Wai 'Ehā users' needs.

Accordingly, the Court vacated the Commission's findings of fact, conclusions of law, decision, and order, and remanded the matter to the Commission for further proceedings.

Aubrey Markson

IDAHO

Pioneer Irrigation Dist. v. City of Caldwell, 288 P.3d 810 (Idaho 2011) (holding a ditch owner had discretion to grant or deny an encroachment on its easements or rights-of-way and may engage in self-help removal of an unpermitted encroachment if the encroachment unreasonably or materially interferes with the ditch owner's easements or rights-of-way; however, ditch owner does not have exclusive interest in the easements or rights-of-way, and judicial review of ditch owner's decision to grant, deny, or remove an encroachment is limited to whether the decision was arbitrary and capricious or made in an unreasonable manner).

Pioneer Irrigation District ("Pioneer") filed suit against the City of Caldwell ("City") in 2008, seeking declaratory and injunctive relief for removal of urban storm water discharge conduits constructed by the City without Pioneer's permission. Pioneer alleged that, because the City adopted a new municipal storm water management manual, the City caused or permitted developers to install storm water discharge pipes that discharged municipal storm water into Pioneer's irrigation delivery and drainage facilities without Pioneer's permission. Pioneer claimed these discharge pipes unreasonably and materially interfered with its irrigation easements and rights-of-ways. Pioneer sought several declarations, including that Pioneer was authorized to remove and prohibit future construction of unauthorized, unreasonable encroachments, under Idaho Code Ann. § 42-1209 ("statute").

The Idaho District Court, Third Judicial District, Canyon County ("district court") granted most of Pioneer's motion for summary judgment, holding: (i) Pioneer had discretion to permit or deny encroachments of its easements or rights-of-way; (ii) Pioneer may engage in self-help under the statute if an encroachment unreasonably or materially interferes with Pioneer's easements or rights-of-way; (iii) judicial review of Pioneer's decisions to grant, deny, or remove an encroachment is limited to whether the decisions were arbitrary and capricious, or made in an unreasonable manner; and (iv) Pioneer has exclusive interests in its irrigation easements and rights-of-way. The City appealed the district court's partial summary judgment ruling to the Idaho Supreme Court.

The Court reviewed the district court's decision *de novo*. It first explained that under a plain language reading of the statute, a ditch owner must meet four conditions to engage in self-help removal: (i) the encroachment must occur after the statute's effective date; (ii) the ditch owner did not permit the encroachment's construction; (iii) the encroachment unreasonably or materially interferes with the use and enjoyment of the easement or right-of-way; and (iv) the ditch owner requested that the party responsible for encroachment remove it. The statute further places the financial burden for removal on the encroaching party.

The statute is silent, however, as to the situation in which the encroaching party fails to act upon the demand within a reasonable period of time. Looking to public policy, the Court reasoned that, because irrigation facilities play an "essential role" in Idaho, the statute advances the public policy of preventing parties from constructing encroachments that unreasonably or materially interfere with irrigation operations.

Further, the Court reasoned, forcing a ditch owner into time-consuming litigation without letting the owner engage in self-help contradicts this policy. Additionally, the Court stated a ditch owner should execute self-help at the encroacher's expense, such that a ditch owner may remove an encroachment first and then sue the encroacher for damages. The Court found its holding consistent with common law predating the statute, in that an easement owner has a right to removal so long as the encroachment is unreasonable and there is no "breach of peace."

Because the Idaho Legislature imposed certain specific duties upon ditch owners, the Court held that, in some situations, it will be imperative for ditch owners to have the authority to respond quickly to unreasonable encroachments of their easements and rights-of-ways, and to address or remove those encroachments without judicial pre-approval. The Court reasoned that this advances the legislative objective to permit ditch owners to meet the needs of water users and protect the persons and property of third parties.

The Court held Pioneer was therefore entitled to deference in its decisions involving the maintenance of its irrigation ditches and the approval, denial, or removal of encroachments thereof. According to the Court, the Legislature granted irrigation districts the authority to make such decisions through the statute, which allows a ditch owner to review, permit, or deny a third party's request for encroachment.

The Court further held ditch owners, particularly irrigation districts, must also satisfy comprehensive statutory obligations and risk exposure to liability for failing to reach those obligations. Judicial review of a ditch owner's decision to grant, deny, or remove an encroachment, the Court held, is therefore limited to whether the ditch owner's decisions were arbitrary and capricious, or whether the ditch owner reached its decisions in an unreasonable manner.

Finally, the Court overturned the district court's ruling that Pioneer had an exclusive right to its primary easement and right-of-way. The Court cited a long list of common law rulings that all indicated a ditch owner's easement interests are not absolute, even if the owner is an irrigation district entitled to judicial deference in its decision-making process. The Court refused to read a statute as abrogating the common law without evidence the Legislature intended to do so. Pioneer's ownership of its easements and rights-of-ways was therefore neither absolute nor exclusive, and could potentially interfere with the ownership interests of landowners and other third parties.

Accordingly, the Court affirmed in part and reversed in part the district court's ruling.

Chris Stevens

Ruddy-Lamarca v. Dalton Gardens Irrigation Dist., 291 P.3d 437 (Idaho 2012) (holding (i) the less intrusive installation method for a water pipe defined the permissible width of an easement; and (ii) the trial court's order directing the easement owner to make every effort to preserve trees and drain field on the servient estate was reasonable).

Dalton Gardens Irrigation District ("District"), owner of an express easement over Ruddy-Lamarca's ("Lamarca") land, unsuccessfully appealed the trial court's determination of the width of its easement in this case. The District's easement granted it a "right-of-way for the construction, enlargement, and maintenance of all canals, flumes, and water tanks of the vendor, heretofore constructed or hereafter to be constructed, over and across said lands for the irrigation of other lands."

Historically, the District has owned a four-inch buried pipe on the easement across Lamarca's five-acre tract of land, which is located in Kootenai County, Idaho. The District sought to replace the existing four-inch pipe with a new ten-inch pipe. The District's proposed method of replacing the existing pipe, however, required the use of heavy machinery and supplies, and the space required for the excavated soil measured approximately thirty to forty feet in width. This could have potentially killed two forty-to-fifty-year-old maple trees on Lamarca's property and caused Lamarca's septic system to fail.

At trial, the District Court, First Judicial District, Kootenai County ("trial court") found that the District had both an express and a prescriptive easement that were identical in location and width to one another. The trial court determined the easement to be sixteen feet in width, with its centerline at the location of the present pipeline. The trial court also found that the District had previously acquiesced in the location of the trees and drain field, and ordered the District to "make every effort" to preserve them when repairing, maintaining, or replacing the pipeline. The District timely appealed to the Supreme Court of Idaho.

On appeal, the Court affirmed the trial court's ruling that the easement was sixteen feet in width, no larger, and the District must make every effort to preserve the maple trees and septic drain field when replacing its pipe. The Court began its analysis by defining two types of easements: an indefinite express easement and a prescriptive easement. An indefinite express easement is defined by the intent of the parties "as demonstrated by the easement's initial use." A prescriptive easement exists when there is continuous and uninterrupted use by a party of the easement during the prescriptive period.

The District first argued the "initial use" aspect of its express easement should include the initial method and dimensions of construction, which was forty feet wide. The Court disagreed and stated that previous Idaho cases defined "initial use" by the constructed size, not by the method of construction. In other words, the District's "initial use" was not the forty-foot wide construction area, but rather the existing four-inch pipe. The Court then determined that the real issue in the case did not concern the primary easement, but rather the scope of a secondary easement. The term "secondary easement" refers to the right to enter and repair and do those things necessary for the full enjoyment of the easement, provided such activities are reasonable.

The District next argued that its secondary easement rights should allow the proposed installation of the ten-inch pipe. While, historically, trees had not unreasonably interfered with the District's secondary easement, the Court noted the District's proposed method of installation required three pieces of heavy machinery and forty feet of width. Lamarca's proposed alternative method, by contrast, only required one piece of heavy machinery and sixteen feet of width. As such, the Court concluded a sixteen-foot width was reasonable for the District's purposes and that scope of the secondary easement was limited to sixteen feet in width. The Court ultimately concluded that requiring the District to make every effort to preserve the maple trees and septic drain field was reasonable and also in line with burdening the servient estate as little as possible, a hallmark of Idaho easement law.

Accordingly, the Court affirmed the trial court's conclusion that the District's easement had a sixteen-foot width and that the District had to make every effort to preserve the maple trees and septic drain field on Lamarca's property.

Skylar Marshall

MONTANA

Bostwick Props., Inc. v. Mont. Dep't of Natural Res. & Conservation, 296 P.3d 1154 (Mont. 2013) (holding (i) the Montana Department of Natural Resources and Conservation had the authority to deny developer a water permit; (ii) runoff from impermeable surfaces could not be used in calculating net depletion of surface water; (iii) uncertain hydrological connections and senior water right holders' ability to bring later administrative actions did not shift developer's burden of proof as to lack of adverse effect; (iv) *de minimus* use did not establish developer's lack of adverse effect; (v) developer proved lack of adverse effect when the mitigation plan would only potentially adversely affect one party and that party stipulated that the developer would not adverse-

ly affect that party; and (vi) developer was not prejudiced by the bias of the Montana Department of Natural Resources and Conservation).

Bostwick Properties ("Bostwick") filed an application with the Montana Department of Natural Resources and Conservation ("DNRC") for a water use permit for municipal use in a subdivision in Gallatin County, Montana. When DNRC failed to take action within the statutorily-required timeframe, Bostwick sought a writ of mandate to require DNRC to issue the permit or, alternatively, to hold a hearing on the matter. After Bostwick filed the writ, DNRC denied Bostwick's water use permit. Specifically, DNRC denied the permit on the grounds Bostwick failed (i) to demonstrate no net depletion of surface water; and (ii) to prove legal availability of water and lack of adverse impact.

The District Court for Gallatin County ("district court") then granted Bostwick's writ of mandate request, which DNRC appealed to the Supreme Court of Montana. The Court reversed the district court's decision and remanded the case to DNRC to hold a hearing on Bostwick's permit application, because Bostwick had not proved lack of adverse effect and DNRC had no legal duty to grant Bostwick's permit. On remand, Bostwick requested DNRC remove itself from the permit application due to bias. DNRC denied Bostwick's request.

After holding a hearing on Bostwick's permit application, DNRC again denied the permit, determining (i) Bostwick's water use would cause a net depletion of surface water; (ii) Bostwick failed to demonstrate lack of adverse effect; and (iii) Bostwick's mitigation proposal was inadequate because the mitigation plan was to purchase a water right that would only provide water during irrigation season. Bostwick sought review by the district court, which agreed with DNRC that Bostwick failed to show no net depletion or lack of adverse effect, but found Bostwick's proposed mitigation plan to be adequate as a matter of law. Both Bostwick and DNRC appealed the district court's decision to the Court.

The Court addressed five issues on appeal. First, it addressed whether DNRC had the authority to deny Bostwick's permit. Bostwick argued Montana law required DNRC to grant the permit because Bostwick had settled all objections to the application. The Court held that not only must Bostwick resolve all objections, but a developer must also prove legal availability of water and lack of adverse effect by a preponderance of the evidence. The Court further held, if Bostwick had failed to establish these elements, DNRC had the authority to deny Bostwick's permit.

The second issue the Court addressed was whether DNRC and the district court properly required Bostwick to mitigate its water use. Bostwick presented four theories to support the proposition that it would not cause net depletion of surface water or adversely affect senior rights and was thus not obligated to mitigate its water use.

First, Bostwick asserted, because paved roads and parking lots in its proposed development prevent water from being used by native plants or evaporating, the water can be collected and used to recharge the Gallatin River. Bostwick argued DNRC should have considered this runoff when calculating whether net depletion exists. The Court responded in three ways. Specifically,

the Court concluded: (i) Montana law did not require DNRC to consider any sources of water other than those sources listed in the proposed permit; (ii) to consider other sources would be contrary to legislative intent; and (iii) doing so would cause an absurd result if Bostwick could factor that water into its calculation, even though it did not have the right to use it.

Next, Bostwick argued that, because there was no way to determine when its proposed extraction of groundwater would cause the Gallatin River to lose water, the DNRC could show no net depletion or adverse effect. Bostwick asserted DNRC must grant the permit if it could not prove net depletion. The Court held this attempt to shift the burden of proof to DNRC was impermissible and Bostwick failed to satisfy its burden of showing lack of any adverse effect.

Bostwick then argued the amount of water it applied for was *de minimus* and would not adversely affect senior rights. The Court held it was Bostwick's burden to demonstrate a lack of adverse effect and it failed to do so. Finally, Bostwick asserted senior rights holders could force Bostwick to stop using water through the administration of priorities. The Court once again concluded that the law was clear; it was Bostwick's burden to show it would not jeopardize senior rights, and it failed to make that showing.

The third issue on appeal was whether the district court properly determined the adequacy of Bostwick's mitigation proposal. Bostwick proposed to mitigate its water usage through the purchase of a water right, but that water right only granted Bostwick water during the irrigation season. The district court noted Bostwick's non-irrigation season usage could only potentially adversely affect one party, FWP, who said Bostwick's proposal would not adversely affect them. The Court held, while generally settling with objectors was not enough, because there was only one affected party who would not suffer adverse effects, Bostwick met its burden of showing its mitigation plan was adequate.

The fourth issue the Court addressed was whether DNRC could require Bostwick to specifically identify a water right it would use for mitigation purposes. Bostwick argued providing DNRC with other details, including the amount and location of water, timing, and seniority rights, was sufficient. The Court agreed with DNRC that the identification of the specific water right was necessary to fully evaluate the mitigation plan.

The final issue the Court addressed was whether DNRC was biased and therefore prejudiced Bostwick to the point of violating its due process rights. Bostwick argued DNRC's bias during the permit application procedure violated its right to due process. The Court remanded the case to DNRC after the first denial of Bostwick's application, despite Bostwick's request a neutral party hold the hearing. The district court held there was no prejudice because it independently came to the same conclusions as DNRC. The Court found the district court's reasoning to be persuasive and ultimately held Bostwick failed to show substantial prejudice.

Accordingly, the Court affirmed the judgment of the district court on all counts.

Leigh Auerbach

NEW MEXICO

Tri-State Generation & Transmission Ass'n v. D'Antonio, 289 P.3d 1232 (N.M. 2012) (holding the New Mexico State Engineer's adoption, by legislative direction, of new Active Water Management regulations for the administration of water rights in priority were not unconstitutional on separation of powers, due process, and vagueness grounds).

In 2003, the New Mexico Legislature enacted N.M. STAT. ANN § 72-2-9.1 ("statute"), directing the New Mexico Office of the State Engineer to adopt rules to administer water allocations efficiently and in priority. In 2004, the State Engineer, pursuant to the statute, developed the Active Water Resource Management ("AWRM") regulations, which allow the State Engineer to identify water districts in need of management and to appoint water masters to those districts. Under AWRM regulations, these water masters evaluate their respective districts' water supplies and manage the allocation of that supply according to users' priority dates.

AWRM regulations establish "administrable water rights" to impound, store, or release water according to the elements a court or the State Engineer determines to be appropriate. When the task falls to the State Engineer, the State Engineer determines the users' priority date using the following hierarchy: (i) final adjudicatory decrees; (ii) adjudicatory subfile orders; (iii) offer of judgments; (iv) hydrographic surveys; (v) issued licenses; (vi) issued permits; and (vii) historic beneficial uses. The State Engineer then publishes the priority dates, and water users may appeal the determinations. Tri-State Generation & Transmission Association, Inc. ("Tri-State"), an electric power cooperative with water rights, filed suit challenging the AWRM regulations on separation of powers, due process, and vagueness grounds.

The District Court of Socorro County ("district court") found the statute violated Article III, Section 1 of the New Mexico Constitution because the State Engineer's authority to determine priority dates originated from a century-old statute granting weight to licenses and adjudications only. Therefore, the district court reasoned, the State Engineer could only consider evidence of adjudications or licensing (items (i), (ii), (iii), and (v) above) when determining administrable rights. The district court found the remaining provisions of AWRM regulations unconstitutionally exceeded the scope of the State Engineer's statutory authority, in violation of due process and contrary to constitutional guarantees of *inter se* adjudication of water rights.

The State Engineer appealed the district court's decision to the New Mexico Court of Appeals ("appeals court"), which affirmed the district court in part. The appeals court held that, because the statute did not grant the State Engineer new authority to adopt AWRM regulations, the regulations unconstitutionally exceeded the State Engineer's existing authority. The appeals court, however, reversed the district court's due process ruling as speculative. The State Engineer petitioned for certiorari, and Tri-State also cross-petitioned for certiorari to the New Mexico Supreme Court.

The Court considered four issues on appeal. First, the Court considered whether the State Engineer had authority to implement AWRM regulations. Applying two canons of statutory construction, the Court held the Legislature

intended to expand the State Engineer's authority by enacting the statute. The Court reasoned that enacting legislation entitled, in part, "An Act Relating to Water *Providing Authority for State Engineer*" indicated a grant of legislative authority by its plain meaning. Further, the statute's placement within the chosen statutory framework did not limit this intent. Specifically, the Court held that, because the Legislature did not dictate the specific sub-section for the statute, the statute's placement within the overall statutory scheme did not limit the scope of the statute and its expansion of the State Engineer's authority.

Second, the Court examined Tri-State's claim that AWRM regulations violated separation of powers principles, because only *inter se* adjudication could determine water rights in New Mexico. The Court distinguished adjudication from administration, holding the Legislature constitutionally permitted the State Engineer to administer the state's water supply. The Court noted that, while the State Engineer lacks the authority to adjudicate water rights, nothing in the New Mexico Constitution actually requires adjudication. Instead, the Court concluded the New Mexico Constitution broadly states that the waters of the state "be subject to appropriation for beneficial use, in accordance with the laws of this state." The Court held the Legislature constitutionally delegated the task of administering water rights to the State Engineer.

Third, the Court addressed Tri-State's claim that AWRM regulations violated procedural due process requirements. The Court held there was no violation for three reasons. First, to prevail, Tri-State needed to establish the regulations deprived it of liberty or property without affording Tri-State adequate procedural protections. According to the Court, because a water right involves a right to use water, not to own water, regulation of water rights is an exercise of police power, not deprivation.

Second, regulation of water rights by the State Engineer, where permissible, upholds the system of prior appropriation. Because AWRM regulations established a system for the administration of priority dates, the Court held it upheld prior appropriation and accordingly, *inter se* adjudication was not required.

Finally, a claim is ripe for review only when a party presents an actual controversy stemming from non-speculative harm. Tri-State claimed a lack of water would destroy its property. The Court, however, held Tri-State's claim was not yet ripe for review, because the State Engineer had yet to make a priority determination as to Tri-State's rights and Tri-State had yet to appeal any forthcoming determination.

Finally, the Court addressed Tri-State's argument that the AWRM regulations were impermissibly vague. The Court explained a statute violates due process when it is so vague that people of ordinary intelligence guess at its meaning and differ as to its application. Applying this standard, the Court held the statute was not impermissibly vague because it provided an express hierarchy with corresponding examples and gave sufficient notice to those the statute would potentially affect.

Accordingly, the Court (i) reversed the appeals court's decision regarding the separation of powers claim; (ii) affirmed, in part, the appeals court's speculative due process decision; and (iii) held the statute was not impermissibly vague.

James Fogg

WASHINGTON

In re Yakima River Drainage Basin, 296 P.3d 835 (Wash. 2013) (holding, in a dispute between the Yakima Nation and non-tribal landowners over the adjudication of Yakima River Basin water rights, (i) the Yakima Nation's practicably irrigated acreage needed to be re-calculated; (ii) the Yakima Nation had a right to store water in the Yakima River; (iii) non-tribal users had rights to excess water, within certain limitations; and (iv) the future development exception should narrowly applied).

The Yakima River Basin ("Basin") has been the subject of several cases and agreements, dating back to the 1855 Treaty between the United States and the Yakima Nation ("Nation"), which created the Yakima Reservation. Under the well-known *Winters Doctrine*, reservation of land by the federal government for the creation of an Indian Reservation is generally accompanied by an implied water right sufficient in quantity to meet all present and future water needs of tribal members on the reservation. In 1908, the Bureau of Indian Affairs (on behalf of the Nation) and the US Secretary of the Interior entered into the so-called "Code Agreement," which apportioned the waters of Ahtanum Creek. Under the Code Agreement, the Nation received twenty-five percent of the natural flow of the Creek and the non-tribal Northside users received seventy-five percent of the flow.

Beginning in 1977, Washington has endeavored to complete a basin-wide adjudication of all water rights in the Basin. The adjudication culminated in the current conflict between the United States, the Nation, the Washington Department of Ecology ("DOE"), Ahtanum Irrigation District ("AID"), John Cox Ditch Company, the Washington Department of Natural Resources ("DNR"), and several individual water users. The parties, as appellants and cross-appellants before the Supreme Court of Washington, brought various challenges to the Yakima County Superior Court's ("trial court") final order determining the parties' respective water rights in the Basin. The Washington Court of Appeals transferred the case to the Court for direct review.

The Court considered four major issues on appeal: (i) whether various cases and agreements prior to, and since, 1977 effectively determined the Northside users' water rights and/or the Nation's practicably irrigable acreage - which is the measure of water necessary to irrigate all the irrigable acreage on a reservation; (ii) whether non-Nation water users had a right to excess water; (iii) whether the Nation had a right to storage of water; and (iv) whether the trial court correctly applied the future use exception.

First, the Court decided the threshold question of whether previous litigation in the Yakima River Basin determined the terms of Northside users' water rights. The Court held the *United States v. Ahtanum Irr. Dist.* litigation in 1956 was an adjudication of the water rights for the Northside users, and, therefore, the Court need not adjudicate those rights again. After settling this threshold question, the Court moved on to the question of what practicably irrigable acreage the Nation held. The Court reversed the trial court's determination regarding the Nation's irrigable acreage on the grounds the trial court relied on old documents that were approximate claims rather than findings of

fact. As a result, the Court remanded the issue of the quantification of the Nation's practicably irrigable acreage.

Next, the Court addressed the question of whether previous agreements or cases provided a right to the Nation for water storage in the Yakima River. The Court held a plain language reading of the Pope Decree, the most recent federal court opinion on the Yakima River Basin, granted such a right to the Nation. The Court remanded that issue, as well, to the trial court to include a storage right in its calculations of the Nation's irrigable acreage.

The Court then turned to the question of whether the Northside users had a right to take in any excess water from the Yakima River after the Nation received its share of the water. The Court upheld the trial court's ruling granting excess water to qualifying Northside users, stating their right to excess water existed regardless of whether or not there would, in reality, ever be excess water.

The Court also upheld the limitations the trial court placed on excess water rights. Based on its reading of the Pope Decree, the Court held Northside users only have excess water rights until July 10th of each year. Additionally, the Pope Decree imposed a time limit of either thirty or forty-five days, during which the Northside user could collect excess water. The Court upheld the trial court's ruling validating the forty-five day period because the trial court based its decision on a sufficient amount of evidence, including ten years of water flow data that indicated when there was usually excess water. The Court, however, refused to extend an allowance of excess water rights to junior rights users, which are those users not recognized by the Pope Decree. The Court reasoned that entities not party to the Code Agreement were not included in the Pope Decree and, as such, do not have a place in the allocation of water rights for the Yakima River Basin.

After settling the issues of water use, the Court turned to the question of how to correctly apply the "future development exception." The Court reversed the trial court on this issue, which had found that the resumption of irrigation fit within the definition of the exception. The Court held the trial court had applied the exception too broadly. The Court further held the exception applied narrowly to those instances in which steps toward actual development within a defined span of time are satisfied. Merely resuming irrigation does not suffice.

Accordingly, the Court remanded the case to the trial court for further factual findings on the Nation's practicably irrigable acreage and excess water rights; upheld the Northside users' rights to excess water, within certain limitations; and reversed the trial court's determination on an individual Northside user's future development excuse for nonuse of its water rights.

Shannon Love

INTERNATIONAL

NEW ZEALAND

New Zealand Māori Council v. Attorney General, SC 98/2012 [2013] NZSC 6 (Supreme Court of New Zealand) (holding (i) the partial privatization

of Mighty River Power will not impair to a material extent the New Zealand government's ability to remedy any breach of the Treaty of Waitangi with respect to Māori water rights; (ii) the proposed sale of shares in Mighty River Power is consistent with the principles of the Treaty; (iii) the proposed sale of shares is reviewable by the Court for consistency with the principles of the Treaty; (iv) the proposed sale of shares is not in breach of the Waikato-Tainui Raupatu Claims Settlement Act 2010; and (v) the consultation between the New Zealand government and Māori following the recommendation of the Waitangi Tribunal was consistent with the principles of the Treaty).

In this case, the New Zealand Supreme Court upheld the Government of New Zealand's ("Government") partial privatization of a major hydroelectric power producer, despite valid Māori claims to ownership and control over the underlying water rights. The decision has national and international implications for freshwater management and the nature of water rights.

Mighty River Power Limited ("Mighty River Power") produces and markets 15-18% of New Zealand's electricity, with 60% coming from hydroelectricity.¹ Mighty River Power is currently a state-owned enterprise. In 2012, the Government sought to privatize 49% of the company pursuant to the State-Owned Enterprises Amendment Act 2012. The Government will also seek to partially privatize Meridian Energy Limited and Genesis Energy Limited, accounting for an additional 47% of New Zealand's energy production, again with a substantial portion of this coming from hydroelectricity.² These privatizations will involve similar issues.

The Māori parties claimed privatization of Mighty River Power is inconsistent with the Government's obligations under the 1840 Treaty of Waitangi ("Treaty").³ Partial privatization would impair the Government from settling ongoing misuse and misappropriation of Māori proprietary water rights, which would in turn violate the Treaty.

The permanent Waitangi Tribunal ("Tribunal"), which was established to determine Treaty breaches, recommended that the privatization should not proceed until nationwide consultation with Māori could be held. One approach considered by the Tribunal was "shares plus," a combination of Māori-held shares and control in the partially privatized company.

The Government disagreed with the Tribunal's recommendations and the dispute proceeded to litigation. The High Court found in favor of the Gov-

1. Mighty River Power Commerce Committee, *Financial Review FY2011/2012*, Mighty River Power (April 5, 2012), http://www.mightyriver.co.nz/PDFs/Results/Presentations/MIGHTY-RIVER-POWER_CommerceCommittee_financial-rev.aspx. 30% of Mighty River Power's energy production is geothermal.

2. New Zealand Ministry of Economic Development, *New Zealand Energy Data File, 2011 Calendar Year Edition*, New Zealand Government (2012), <http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/energy-data-and-modelling/publications/energy-data-file/energydatafile-2011.pdf>.

3. The Treaty of Waitangi recognized Māori ownership of lands and properties, gave Māori the rights of British subjects, and ceded to the Crown a right of governance. The parties to the treaty differ as to the nature of that governance, as well as other issues. The Treaty is generally considered the founding document of New Zealand.

ernment, as did the Supreme Court on direct appeal and in a unanimous opinion. The Supreme Court heard the case on a “tight timetable” and cautioned, “that circumstance and the fact that some of the arguments touch on fundamental elements of the New Zealand legal order prompt caution in straying beyond matters essential to disposition of the appeal.” In the weeks following the decision, hundreds of thousands of New Zealand citizens registered to purchase shares in the privatized portion of Mighty River Power, to be listed on the New Zealand and Australian stock exchanges. One estimate of the money that will be raised by the sale equates to US \$1.5 billion.⁴

The Supreme Court’s decision considers, among other issues, whether the Government followed the proper procedure for privatizing a major state-owned enterprise, the Court’s power to review the Government’s decision to do so, and whether the Government properly considered the Tribunal’s recommendations. This Special Court Report focuses on a major water rights issue, of interest to US practitioners, specifically the nature of water rights in New Zealand, and how Māori water rights may fit within that legal framework.

The Tribunal found that Māori rights and interests in water bodies were essentially ownership rights, and that the Treaty guaranteed those rights.⁵ Specifically, the Tribunal identified the proprietary water rights guaranteed by the Treaty as the exclusive right to control access to and use of water. These rights are based on historical control and management of water bodies, such as restrictions on travel over waterways. Māori do not claim sole or exclusive ownership and control over water, but maintain that there are ongoing breaches of their residual water rights as established and protected by the Treaty.

The Government does not dispute that Māori have water rights established by the Treaty. The Government also concedes that, at least in some cases, these claims can be described as “residual property rights.” However, the Government claims that, under Common Law, “no one owns the water” until contained (for example, put in a tank or bottled), and that New Zealand law does not provide for ownership of water in rivers and lakes.

Consistent with this view, perpetual water rights do not currently exist under New Zealand law. Water resource consents granted pursuant to the Resource Management Act (“Act”) are limited to a maximum of thirty-five years. Water resource consents are considered limited proprietary interests. However, depending on their terms, resource consents can be subject to modification, limitation for instream flow protection or other values (through water

4. David Hargreaves, *Ensuring Strong Demand for Mighty River Power shares in Australia is key to the Government’s partial privatization plan*, INTEREST.CO.NZ, (March 5, 2013, 8:17 AM), <http://www.interest.co.nz/opinion/63413/opinion-ensuring-strong-demand-mighty-river-power-shares-australia-key-government%E2%80%99s-pa>.

5. The Tribunal made its recommendations in the form of an interim report. Waitangi Tribunal, *The Stage 1 Report on the National Freshwater and Geothermal Resources Claim, WAI2358*, New Zealand Waitangi Tribunal (December 7, 2012), <http://www.waitangi-tribunal.govt.nz/scripts/reports/reports/2358/C2257DAB-CB5D-481F-9018-6A4F35044D0B.pdf>.

conservation orders),⁶ negative impact due to granting additional consents,⁷ or as pertinent to this case, to redress the Government's Treaty obligations. Mighty River Power's hydropower resource consents contemplate for review due to any Treaty settlement.

The High Court found "there can be no doubt" that the Māori have "claims of a type of proprietary interest in freshwater . . . including . . . the source of water used by [Mighty River Power] to generate electricity." However, the High Court also supported the Government's view that, "There are only two forms of property in New Zealand, real and personal. A resource consent is neither."

The High Court added that, in the case of Mighty River Power, "[t]he hoped for Māori control . . . is expressly prohibited, citing that the Māori would have at best a minority interest in the resulting privatized company," that the hydropower project is already in place, and that there are corporate issues with granting one group of shareholders greater rights. The High Court suggested that the Māori could gain greater say in the New Zealand-wide management of water through revision of the Act rather than through the privatization process. The Act is in fact going through extensive review and revision, as described below.

Like the High Court, the Supreme Court confirmed the Māori water rights, but struggled with what forms those rights could take. One problem cited by the Court is that "the [Māori] were not very specific as to . . . relief which is substantially in prospect and would become materially harder to obtain post-privatization." The Court summarized the possible forms of settlement as: (i) the "shares plus" concept; (ii) "modern water rights" in the form of water permits issuable by the Māori as a regulating authority; or (iii) royalty payments for water use.

The Supreme Court also agreed with the High Court that, in this instance, granting the Māori exclusive control over water may be practically impossible, finding, "The [Māori] are not seeking, and in any event the [Government] could not agree to, settlements which would be inconsistent with the continuing efficient operation of the current power-generating capacity." The Court added, "Since it is however implausible to suggest that the use of the water could be withheld from the generation of electricity . . . in effect proprietary recognition through the water permits is likely to be of value as reparation only to provide a basis for payment to Māori of royalties in respect of the particular waters used . . ." and that both Mighty River Power minority shareholders and other power producers would resist such payments.

6. A water conservation order is essentially "a national park for a river," encompassing wild and scenic, recreational, fisheries, and other values. Maree Baker-Galloway, Public Lecture, March 21, 2013, 7:00 p.m., Burns Hall, Dunedin, New Zealand. See Resource Management Act, Part 9.

7. *But see Aoraki Water Trust v. Meridian Energy Ltd.*, 2 NZLR 268 [2005] (citing that subsequent water permit is subject to priority in time, and not to be devalued by subsequent permits during the permit term).

Nevertheless, the Court cited previous settlements broadly recognizing Māori rights to water and waterways as indicative of the Government's willingness to recognize those rights subsequent to privatization. In particular, the Court found that Māori claims to the Waikato River "have received substantial redress," while nevertheless remaining incomplete. The Supreme Court also noted that the thirty-five-year limit for water resource consents was established by the Act to ensure that the Government could remedy Treaty violations even if the Government transferred water rights.⁸

The Supreme Court's decision could be interpreted as tacitly supporting essentially a dual system of water rights in New Zealand. "Modern water rights" (for example, resource consents), will remain subject to the Government's "no one owns the water" view; while Māori proprietary rights may be recognized, at least in some instances, as possessing greater ownership indicia of ownership and control.

This approach would be somewhat analogous to Native American tribal water rights established by *Winters v. United States*, 207 U.S. 564 (1908), in the sense that the Māori rights are established by the Treaty independent of any subsequent permitting process. However, this approach would be different than that established by *Winters* in that the rights granted to the Māori would be an different type of water right than those granted through the subsequent permitting process. An additional interpretation of the decision is that Māori ownership of permanent water rights could be recognized unless exclusive control would be practically impossible, for example due to prior establishment of a major hydroelectric project.

This case is one component of major changes to, and arguably a crisis in, New Zealand freshwater management. First, the issues in this case will arise in negotiations and/or litigation regarding the upcoming partial privatization of Meridian Energy Limited and Genesis Energy Limited. Second, the Tribunal will continue its inquiry into remedying the Government's treaty violations of Māori water rights. The Supreme Court noted that the Government "will be required to respond to" the Tribunal's recommendations.

Third, the Government is in the midst of revising the Act, including the sections governing water allocation and quality.⁹ This process involves Māori stakeholders on multiple levels, and Government has committed not to issue additional water resource consents until this process is finished. Shortly after the Supreme Court's decision, the Government released a framework for "freshwater reform for 2013 and beyond" discussion, proposals, and com-

8. One issue in this case is whether the Government was in fact transferring water rights; the Supreme Court said that it was not because the resource consents will continue to be owned by Mighty River Power.

9. New Zealand Ministry of the Environment, *Fresh Start for Fresh Water reforms 2012*, New Zealand Government (2011), <http://www.mfe.govt.nz/issues/water/freshwater/fresh-start-for-fresh-water/>.

ment.¹⁰ Possible changes to freshwater management include limitations on or changes to water conservation orders.

Fourth, the Court issued its decision in the midst of an historic drought, which has reduced agricultural production and brought a renewed concern for areas of the New Zealand with over-allocated water supplies.¹¹ The drought has heightened calls for changes to freshwater management.¹² The question of “who owns water,” and what water rights are, will remain an important issue in the course of these changes, which in turn will provide examples for other countries seeking to effectively manage a limited freshwater resource.

*Will Stenzel, Esq. & Dr. Jacinta Ruru*¹³

10. New Zealand Ministry of the Environment, *Freshwater reform 2013 and beyond*, New Zealand Government, (March 2013), <http://www.mfe.govt.nz/publications/water/freshwater-reform-2013/freshwater-reform-2013.pdf>.

11. BBC News Asia, *New Zealand North Island hit by worst drought in 30 years*, BBC News Asia (March 15, 2013, 5:45 GMT): <http://www.bbc.co.uk/news/world-asia-21797095>.

12. Brian Fallow, *From here on every drop counts*, The New Zealand Herald (March 14, 2013, 5:30 AM), http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10871078.

13. Will Stenzel, Esq. is a Colorado water law attorney visiting New Zealand with his spouse, who is on a US State Department Fulbright grant at the University of Otago. Stenzel is a visiting staff member at the law school. Dr. Jacinta Ruru is an Associate Professor at the University of Otago Law School in New Zealand. Her research focuses on exploring indigenous peoples' legal rights to land and water.

