

INTERSTATE GROUNDWATER LAW IN THE SNAKE VALLEY:  
EQUITABLE APPORTIONMENT AND A NEW MODEL FOR  
TRANSBOUNDARY AQUIFER MANAGEMENT

Noah D. Hall & Benjamin L. Cavataro\*

*Abstract*

*As demand for freshwater increases and surface water supplies diminish, states increasingly tap groundwater to meet their water needs. Like rivers and lakes, groundwater aquifers cross state lines and create legal challenges for allocation and management. For over a century, the Supreme Court has applied its equitable-apportionment doctrine to allocate shared surface water supplies among states. The Court has not yet been faced with an equitable-apportionment action for groundwater, but several disputes are emerging around the country that may soon command the Court's attention.*

*This Article examines how the equitable apportionment doctrine can be applied to an interstate groundwater dispute, using the Snake Valley Aquifer shared by Nevada and Utah as a case study. Equitable apportionment is a viable doctrine for resolving interstate groundwater disputes, but it is not ideal. Instead, interstate compacts provide a constitutional mechanism for cooperation by which states may protect and utilize a shared natural resource. There are over twenty interstate compacts currently in effect, covering major interstate waters such as the Colorado River and the Great Lakes. Some of these compacts address connected groundwater, but none to date are focused on sustainable aquifer management. Recently, Nevada and Utah have developed a proposed agreement to manage the Snake Valley Aquifer. While the proposed agreement was rejected for political reasons, and the Snake Valley Aquifer dispute itself seems headed for litigation, the agreement*

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\* © 2014 Noah D. Hall and Benjamin L. Cavataro. Noah D. Hall, Associate Professor, Wayne State University Law School; J.D., University of Michigan Law School, 1998; B.S., University of Michigan School of Natural Resources & Environment, 1995. Benjamin L. Cavataro, J.D., University of Michigan Law School, 2014 (expected); B.A., University of Florida, 2011. This Article is based on a lecture given by Professor Hall during his 2012 University of Utah Wallace Stegner Center Young Scholar visit. The authors are grateful to Professors Robert Adler and Robin Kundis Craig and the many other members of the University of Utah faculty who provided helpful insights and comments during the visit. Zachary Zollinger (J.D., University of Michigan Law School, 2013) and Katherine Okonowski (J.D., Wayne State University Law School, 2012) contributed significantly to this Article.

*provides a model for sustainable and cooperative transboundary aquifer management.*

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## INTRODUCTION

As demand for freshwater in the United States increases, surface water supplies from rivers and lakes are becoming stressed and overallocated.<sup>1</sup> Demand for surface water already exceeds available supply from the Colorado River, the key source of water for many western states.<sup>2</sup> Climate change is expected to exacerbate this situation.<sup>3</sup> As surface waters become unavailable for use, states are increasingly tapping groundwater supplies to meet their water demands. Groundwater withdrawals have more than doubled in the last sixty years, increasing from 34 billion gallons per day in 1950 to nearly 80 billion gallons per day in 2005.<sup>4</sup> Groundwater withdrawals now account for almost one-fifth of freshwater use in the United States.<sup>5</sup>

Groundwater use is ordinarily a state-law matter.<sup>6</sup> But with more utilization of groundwater, interstate conflicts and disputes over the use of transboundary groundwater resources are emerging around the country, even outside the arid West.<sup>7</sup> This Article focuses on a recent dispute in the Snake Valley, which straddles the Nevada-Utah border in the Great Basin Desert, one of the driest areas in the country.

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<sup>1</sup> See generally Robert H. Abrams & Noah D. Hall, *Framing Water Policy in a Carbon Affected and Carbon Constrained Environment*, 50 NAT. RESOURCES J. 3 (2010) (addressing the immense stress on surface water supplies caused by massive changes affecting water supply and demand).

<sup>2</sup> See Noah D. Hall, *Interstate Water Compacts and Climate Change Adaptation*, 5 ENVTL. & ENERGY L. & POL'Y J. 237, 284–86 (2010).

<sup>3</sup> See *id.*; Abrams & Hall, *supra* note 1; Noah D. Hall et al., *Climate Change and Freshwater Resources*, 22 NAT. RESOURCES & ENV'T 30 (2008).

<sup>4</sup> JOAN F. KENNY ET AL., U.S. DEP'T OF THE INTERIOR, ESTIMATED USE OF WATER IN THE UNITED STATES IN 2005, at 43 tbl.14 (2009), available at <http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf>.

<sup>5</sup> *Id.* (noting that approximately 350 billion gallons of freshwater were withdrawn each day in 2005, of which 79.6 billion gallons were groundwater).

<sup>6</sup> CONG. BUDGET OFFICE, HOW FEDERAL POLICIES AFFECT THE ALLOCATION OF WATER 4 (2006) (“For interstate groundwater, the laws of each state govern access to and use of an aquifer’s resources withdrawn in its jurisdiction . . . even for the largest aquifer crossing state boundaries—the High Plains aquifer, which extends over 174,000 square miles and involves eight states . . . .”); Dean Baxtresser, Note, *Antiques Roadshow: The Common Law and the Coming Age of Groundwater Marketing*, 108 MICH. L. REV. 773, 788 n.69 (2010) (“As a whole, federal law rarely interferes with groundwater allocation at the state level . . .”).

<sup>7</sup> See A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES § 10:24 (2012) (“Interstate groundwater conflicts are becoming more common.”); Amy Hardberger, Comment, *What Lies Beneath: Determining the Necessity of International Groundwater Policy Along the United States-Mexico Border and a Roadmap to an Agreement*, 35 TEX. TECH L. REV. 1211, 1225 (2004) (“Until recently, almost all interstate water cases involved surface water.”).

In 2009, the U.S. Court of Appeals for the Fifth Circuit was faced with an interstate groundwater dispute between Tennessee and Mississippi.<sup>8</sup> It is only a matter of time before one of these disputes reaches the Supreme Court of the United States, pursuant to the Court's original jurisdiction to resolve disputes between states.<sup>9</sup> The dispute between Nevada and Utah over the Snake Valley Aquifer—which will likely end up before the Court—presents an important case study on the emerging law of interstate groundwater, perhaps foreshadowing how future interstate groundwater conflicts will be handled.

Part I of this Article details the geography, science, and politics of the Snake Valley Aquifer. Las Vegas's growth and limited water supplies have sent the city searching for water, proposing a pipeline to pump Snake Valley Aquifer three hundred miles south. At first, the concerns were addressed through a federal water resource study and the development of a cooperative agreement between the two states, carefully negotiated over a period of years. But cooperation has given way to politics, and the dispute now seems headed for litigation.

Part II of this Article discusses how, aided by a comprehensive federal study of the relevant water resources, Nevada and Utah developed a proposed interstate agreement to govern the use and management of the Snake Valley Aquifer: the Agreement for Management of the Snake Valley Groundwater System (Snake Valley Agreement).<sup>10</sup> We compare the Agreement to other federally approved interstate agreements—compacts<sup>11</sup>—which have been the preferred tool for cooperative interstate surface water management for nearly a century.<sup>12</sup> We review the Agreement's provisions in detail, including its extensive monitoring and environmental provisions, the careful balance between public supply and private rights that it strikes, and how the Agreement's drafters envisioned its practical operation. We discuss how the intense (and in our view, misguided) opposition in Utah, marked by misleading rhetoric and unsupported fears, led to the decision by the State of Utah to not sign the Agreement. Finally, we suggest that while the Snake Valley Agreement died a political death, the Agreement's provisions relating to groundwater allocation and environmental monitoring and protection can serve as a model for future interstate groundwater agreements, worthy of consideration by policymakers, scholars, practitioners, and water managers in future transboundary aquifer disputes.

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<sup>8</sup> See *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 632 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010).

<sup>9</sup> See U.S. CONST. art. III, §§ 1, 2.

<sup>10</sup> Agreement for Management of the Snake Valley Groundwater System, Utah–Nev., *opened for comments* Aug. 13, 2009 [hereinafter Final Proposed Agreement], available at [http://www.blm.gov/pgdata/etc/medialib/blm/nv/groundwater\\_development/water\\_rights.P ar.14440.File.dat/Final%20NV-UT%20Snake%20Valley%20Agreement.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/nv/groundwater_development/water_rights.P ar.14440.File.dat/Final%20NV-UT%20Snake%20Valley%20Agreement.pdf).

<sup>11</sup> U.S. CONST. art. I, § 10, cl. 3.

<sup>12</sup> See Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 409–13 (2006).

Part III of this Article explores the novel legal challenges of adjudicating an interstate groundwater dispute in the Supreme Court, which has original jurisdiction to hear disputes between states<sup>13</sup> and has developed the doctrine of equitable apportionment to resolve interstate disputes over shared surface waters.<sup>14</sup> While the Supreme Court has never applied its equitable apportionment doctrine to groundwater, the Court has applied the doctrine to other shared interstate natural resources.<sup>15</sup> Further, the Fifth Circuit recently held that equitable apportionment of groundwater was appropriate in the interstate dispute between Tennessee and Mississippi.<sup>16</sup> Applying the facts of the Snake Valley case to the precedents the Court developed, we then carry out an analysis of the key arguments and likely outcomes of a potential equitable apportionment action brought by Nevada against Utah over the Snake Valley Aquifer.

### I. CONFLICT IN THE SNAKE VALLEY

The Snake Valley Aquifer dispute provides an ideal case study to explore interstate groundwater law. In many ways, the dispute is a microcosm of water conflict in the United States in the twenty-first century. Water in this dry region has historically been used for local agriculture, with the Snake Valley Aquifer supporting a small community of residents and farmers on both sides of the Nevada-Utah border. While local water use for domestic supply and agriculture has remained fairly constant, climate change has led to a loss of winter snowpack, which feeds the aquifer. This will diminish water supplies in the future.<sup>17</sup> New water demands for the urban population in Las Vegas (three hundred miles away) now threatens the current local balance between supply and demand. Further, many stakeholders want to limit total water withdrawals to protect groundwater-

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<sup>13</sup> U.S. CONST. art. III, §§ 1, 2.

<sup>14</sup> See *Colorado v. New Mexico*, 467 U.S. 310 (1984) (*Colorado II*) (defining the doctrine of equitable apportionment); *Colorado v. New Mexico*, 459 U.S. 176 (1982) (*Colorado I*) (same); see also *infra* Part III (discussing equitable apportionment).

<sup>15</sup> See, e.g., *Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1024 (1983) (“Although that doctrine has its roots in water rights litigation, the natural resource of anadromous fish is sufficiently similar to make equitable apportionment an appropriate mechanism for resolving allocative disputes.”). The Fifth Circuit noted this in reasoning that equitable apportionment applies to groundwater. *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 630 n.6 (5th Cir. 2009), *cert. denied*, 130 S.Ct. 1319 (2010).

<sup>16</sup> See *Hood*, 570 F.3d at 632.

<sup>17</sup> Gregory T. Pederson et al., *The Unusual Nature of Recent Snowpack Declines in the North American Cordillera*, 333 *SCIENCE* 332, 332–35 (2011) (finding that runoff from winter snowpack accounts for 60% to 80% of water supply of the Colorado, Columbia, and Missouri river drainages, which support more than 70 million people living in the West and projecting that as warming-induced snowpack continues through the twenty-first century, the result will be a “substantial strain” on water infrastructure that will “threaten many current water storage and allocation strategies”).

dependent ecosystem functions and environmental services, most notably vegetation that prevents erosion and dust storms.

In short, the Snake Valley Aquifer dispute is not simply between two states, but also between growing cities and traditional farming and between consumptive water use and environmental protection. It provides an ideal setting to consider the viability of existing legal doctrines and regimes to address the emerging problems of interstate groundwater.

### A. *Geography and Natural History of the Snake Valley*

The Snake Valley straddles the border between Utah and Nevada in the Great Basin Desert. Located roughly three hundred miles north of Las Vegas, it is bounded on the west by the Snake Range (extending from south of the Kern Mountains to the southernmost part of White Pine County) and on the east by the Conger and Confusion ranges.<sup>18</sup> According to one reckoning, the south end of the valley lies some ten miles north of Modena, Utah, and the north end lies in the Great Salt Lake Desert, some sixty miles south-southwest of Wendover, Utah.<sup>19</sup>

The Snake Valley is a narrow, north-trending, continuous depression that is forty-three miles wide at its maximum extent.<sup>20</sup> Depending on how the area is defined, the Snake Valley itself may be said to be between five hundred and 3,480 square miles in area<sup>21</sup> and anywhere from ninety-five to 135 miles long from north to south.<sup>22</sup> But the Snake Valley is hydrologically connected to a much larger area. The U.S. Geological Survey's Utah-Nevada *Basin and Range Carbonate-Rock*

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<sup>18</sup> HELEN S. CARLSON, NEVADA PLACE NAMES: A GEOGRAPHICAL DICTIONARY 219 (1974); JOHN W. VAN COTT, UTAH PLACE NAMES 345 (1990).

<sup>19</sup> JAMES W. HOOD & F. EUGENE RUSH, U.S. DEP'T OF THE INTERIOR, WATER-RESOURCES APPRAISAL OF THE SNAKE VALLEY AREA, UTAH AND NEVADA 4 (1965), available at [http://images.water.nv.gov/images/publications/recon%20reports/rpt34-snake\\_valley.pdf](http://images.water.nv.gov/images/publications/recon%20reports/rpt34-snake_valley.pdf).

<sup>20</sup> *Id.* at 4 (stating that the Snake Valley is nearly forty-three miles in width and bounded "by latitudes 37°55' and 40°N. and longitudes 113°20' and 114°15'W").

<sup>21</sup> Compare *id.* (stating that the Snake Valley is 3,480 square miles in area), with Mitch Longson, *The Snake Valley Water Dispute: Forecast for Crisis or Catalyst for Change in America's Southwest?*, 12 HINCKLEY J. OF POL. 47, 49 (2011), available at <http://epubs.utah.edu/index.php/HJP/article/viewFile/506/372> (reporting that the Snake Valley is five hundred square miles in area).

<sup>22</sup> Compare HOOD & RUSH, *supra* note 19, at 4 (stating that the Snake Valley is 135 miles in length), with Longson, *supra* note 21, at 49 (stating the Snake Valley is about one hundred miles in length), and Peter D. Rowley et al., *Geology and Hydrogeology of the Snake Valley Area, Western Utah and Eastern Nevada*, in GEOLOGY & GEOLOGIC RESOURCES & ISSUES OF W. UTAH 251, 251 (Bryce Tripp et al. eds., 2009), available at [http://techplace.datapages.com/data/uga/data/081/081001/251\\_ugs810251.htm](http://techplace.datapages.com/data/uga/data/081/081001/251_ugs810251.htm) (stating the Snake Valley is ninety-five miles in length).

*Aquifer System Study* (BARCASS),<sup>23</sup> carried out in accordance with a mandate from the federal Lincoln County Conservation, Recreation, and Development Act of 2004,<sup>24</sup> examined a “study area” of 13,500 square miles, encompassing not only the Snake Valley, but also twelve other hydrographic areas.<sup>25</sup> Except for the Snake Valley, all of these hydrographic areas are located entirely in Nevada.<sup>26</sup> The Snake Valley includes the western parts of Iron, Millard, Juab, Beaver, and Toole counties in Utah and northeastern Lincoln and eastern White Pine counties in Nevada.<sup>27</sup>

The Snake Valley area was originally settled by Native Americans.<sup>28</sup> Archeological evidence suggests that the valley was first occupied between 10,000 to 12,000 years ago.<sup>29</sup> The valley’s first nonnative permanent settler arrived in 1861.<sup>30</sup> The Snake Valley remains sparsely populated today; it has some 1,000

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<sup>23</sup> U.S. GEOLOGICAL SURVEY, SCIENTIFIC INVESTIGATIONS RPT. 2007–5261, WATER RESOURCES OF THE BASIN AND RANGE CARBONATE-ROCK AQUIFER SYSTEM, WHITE PINE COUNTY, NEVADA, AND ADJACENT AREAS IN NEVADA AND UTAH (Alan H. Welch et al. eds., 2007), available at <http://pubs.usgs.gov/sir/2007/5261/pdf/sir20075261.pdf> [hereinafter BARCASS].

<sup>24</sup> Pub. L. No. 108-424 § 301 (e)(1) (2004) (discussed *infra* Part I.C).

<sup>25</sup> BARCASS, *supra* note 23, at 7, 9–10. “Hydrographic areas [HAs] in Nevada were delineated systematically by the U.S. Geological Survey and Nevada Division of Water Resources in the late 1960s” and continue to be used in scientific studies and reports, as well as for administration. *Id.* at 9 n.1. In Nevada, there are a total of 256 hydrographic areas and subareas located within fourteen major hydrographic regions or basins. *Water Words Dictionary*, NEV. DIV. OF WATER RESOURCES, <http://water.nv.gov/programs/planning/dictionary/> (follow “Appendix A-1” hyperlink).

Each HA is designated by a name and a number. In addition to the Snake Valley (254), the other HAs that were part of the USGS Report to Congress study area were Newark Valley (154), Little Smoky Valley (Northern and Central part) (155A and 155B); Jakes Valley (174), Long Valley (175), Butte Valley (Southern Part) (178B), Steptoe Valley (179), Cave Valley (180), Lake Valley (183), Spring Valley (184), Tippet Valley (185), White River Valley (207). See BARCASS, *supra* note 23, at 10 (map and legend of study area).

<sup>26</sup> BARCASS, *supra* note 23, at 10.

<sup>27</sup> HOOD & RUSH, *supra* note 19, at 4.

<sup>28</sup> See David B. Madsen, *Prehistoric Ceramics*, in 11 HANDBOOK OF NORTH AMERICAN INDIANS: GREAT BASIN 211–12 (William C. Sturtevant ed., 1978).

<sup>29</sup> THE DEP’T OF THE INTERIOR, BUREAU OF LAND MGMT., SOUTHWEST INTERTIE PROJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT AND PROPOSED PLAN AMENDMENT 3–4 (1993), <http://www.wapa.gov/dsw/environment/SWIP.htm> (linking to the Final Environmental Impact Statement and Proposed Plan Amendment, ch. 3, pt. 2) (stating that before nonnative settlement, the Snake Valley was successively occupied by Paleo-Indians, then Archaic cultures, then the agrarian Fremont culture, and finally by nomadic Numic-speaking peoples).

<sup>30</sup> *Garrison, Utah*, GREAT BASIN NAT’L HERITAGE AREA, <http://www.greatbasinheritage.org/great-basin-heritage-Garrison-Utah.html> (last visited Aug. 2012) (“Daniel A. Gonder, the first permanent settler in Snake Valley, was only nineteen when he arrived in

people and a number of tiny unincorporated communities: Callao, Trout Creek, Partoun, EskDale, Garrison, and Gandy in Utah, and Baker in Nevada.<sup>31</sup>

Underneath the Snake Valley, the aquifer divided by the Utah-Nevada border has around 132,000 acre-feet of water.<sup>32</sup> No state has more federally managed land than Nevada,<sup>33</sup> and like much of the rest of Nevada and Utah, the vast majority of the Snake Valley is federally managed land.<sup>34</sup> While historically Nevada's state government has only laid claim to lands near a water source,<sup>35</sup> since 1997 the state and Southern Nevada Water Authority (SNWA) have sought to release federally managed lands in Nevada in order to allow development, primarily around Las Vegas; the state wishes to pump water from the aquifer and pipe it to Las Vegas.<sup>36</sup>

### B. *The Rise of Las Vegas and the City's Search for Water*

The Snake Valley dispute is not really between the residents of Nevada and Utah that inhabit the border region. Rather, the dispute is between Las Vegas and the Snake Valley's residents on both sides of the border (but especially Utah). The growth of Las Vegas as a desert city and the city's ongoing efforts to reduce its water use are thus at the center of the Snake Valley Aquifer dispute. For water

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1861 and decided to settle on Snake Creek.”) (citing BOYD E. QUATE, PIONEERS OF SNAKE VALLEY 1865–1935 AS REMEMBERED BY THEIR DESCENDANTS (1993)).

<sup>31</sup> See Longson, *supra* note 21, at 48 (the Snake Valley has around one thousand inhabitants); LEWIS YOUNG ROBERTSON & BURNINGHAM, INC., SOCIO-ECONOMIC ANALYSIS, SNAKE VALLEY WATER—JUAB AND MILLER COUNTIES, UTAH 3 (2010) [hereinafter SOCIO-ECONOMIC ANALYSIS], available at <http://greatbasinwater.net/pubs/Snake%20Valley%20Economic%20Study%202010.pdf>; see also Henry Brean, *Utah Rejects Water Deal With Nevada*, LAS VEGAS REV.-J., Apr. 3, 2013, <http://www.reviewjournal.com/news/water-environment/utah-rejects-water-deal-nevada> (“Snake Valley covers an area roughly the size of Delaware but is home to just a few scattered towns and farms.”).

<sup>32</sup> SOCIO-ECONOMIC ANALYSIS, *supra* note 31, at 3.

<sup>33</sup> As of 2004, Nevada was by far the state with the greatest percentage of federally owned land, with 84.5% of the state owned by the federal government, compared with 69.1% in Alaska. *The Open West, Owned by the Federal Government*, N.Y. TIMES, Mar. 23, 2012, [http://www.nytimes.com/interactive/2012/03/23/us/western-land-owned-by-the-federal-government.html?\\_r=0](http://www.nytimes.com/interactive/2012/03/23/us/western-land-owned-by-the-federal-government.html?_r=0).

<sup>34</sup> Rowley et al., *supra* note 22; accord Longson, *supra* note 21, at 49.

<sup>35</sup> Emily Green, *Quenching Las Vegas' Thirst: Part 3, The Equation: No Water, No Growth*, LAS VEGAS SUN, June 15, 2008, <http://www.lasvegassun.com/news/2008/jun/15/equation-no-water-no-growth> (“[I]n 1880, fledgling Nevada persuaded Washington to downsize state-held land from 3.9 million acres to its choice of 2 million so it could concentrate development around existing settlements and lakes, rivers and springs. As far as Nevada was concerned, the federal government could control the other roughly 68 million acres.”).

<sup>36</sup> *Id.* The Snake Valley project is part of the broader Groundwater Development Project of the Southern Nevada Water Authority. See *Groundwater Development Project*, S. NEV. WATER AUTH., [http://www.snwa.com/ws/future\\_gdp.html](http://www.snwa.com/ws/future_gdp.html) (last visited Jan. 8, 2014).

wonks, Las Vegas presents a tale of two cities. With its rapid population growth and iconic images of luxurious water fountains surrounded by arid desert, Las Vegas can be portrayed as the poster child of unsustainable water use in America. However, Las Vegas has also implemented some of the nation's most progressive and effective water conservation policies, building a record of responsible water use that contradicts the negative images. Whether Las Vegas needs water because of, or in spite of, its water-use practices will be a central question before the Supreme Court in a potential equitable apportionment dispute (discussed in Part III, *infra*). But the reality is that Las Vegas needs more water for its population than can be met with local supplies, thus the city's search for water that eventually ended in the Snake Valley.

Las Vegas was first permanently settled by nonnatives in 1855.<sup>37</sup> Over the next 150 years, the Las Vegas area experienced explosive growth. Clark County, dominated by Las Vegas and its suburbs, grew almost exponentially in population, with double- and triple-digit percentage increases in population at every Census since 1920.<sup>38</sup> In 2012 Clark County's population was estimated to be just over 2 million, more than quadruple its 1970 population.<sup>39</sup> Its residents make up 72.5% of the state's population,<sup>40</sup> giving the area outsized political influence in this swing state.<sup>41</sup> The rapid expansion of the Las Vegas metropolitan area can be seen in NASA satellite imagery.<sup>42</sup> Until recently, Las Vegas was the national leader in an unprecedented quarter-century of growth not only in population, but also in economic activity; the state had the nation's fastest rate of economic growth and job creation.<sup>43</sup> While the Great Recession has abated growth somewhat,<sup>44</sup>

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<sup>37</sup> EUGENE P. MOEHRING & MICHAEL S. GREEN, *LAS VEGAS: A CENTENNIAL HISTORY* 1–4 (2005).

<sup>38</sup> Richard L. Forstall, *Nevada Population of Counties by Decennial Census: 1900 to 1990*, U.S. BUREAU OF THE CENSUS (Mar. 27, 1995), <http://www.census.gov/population/cencounts/nv190090.txt>; *State & County QuickFacts: Clark County, Nevada*, U.S. BUREAU OF THE CENSUS, <http://quickfacts.census.gov/qfd/states/32/32003.html> [hereinafter *Quick Facts*] (last visited Jan. 8, 2014). See also Debra L. Hughson, *Human Population in the Mojave Desert: Resources and Sustainability*, in *THE MOJAVE DESERT: ECOSYSTEM PROCESSES AND SUSTAINABILITY* 57, 66 (Robert H. Webb et al. eds., 2009) (“During the twentieth century, growth in Clark Country was nearly exponential, doubling about every 9.8 years . . .”).

<sup>39</sup> *QuickFacts*, *supra* note 38.

<sup>40</sup> *Id.*

<sup>41</sup> See Micah Cohen, *In Nevada, Obama, Ryan and Signs of a New (Democratic-Leaning) Normal*, N.Y. TIMES, Nov. 1, 2012, <http://fivethirtyeight.blogs.nytimes.com/2012/11/01/in-nevada-obama-ryan-and-signs-of-a-new-democratic-leaning-normal>.

<sup>42</sup> *Image of the Day: 25 Years of Growth in Las Vegas*, NASA EARTH OBSERVATORY, (Mar. 1, 2009), <http://earthobservatory.nasa.gov/IOTD/view.php?id=37228> (including satellite imagery from the Landsat 5 satellite, taken from 1984 to 2009).

<sup>43</sup> Ron Sylvester, *Economists: Las Vegas Poised for Steady, Sustainable Growth*, LAS VEGAS SUN, Dec. 10, 2012, <http://www.lasvegassun.com/news/2012/dec/10/economists-las>

demographers and economists continue to predict that Las Vegas will experience steady, continuous growth through 2050.<sup>45</sup>

As Las Vegas continued to grow, it experienced the strain of providing water to a burgeoning metropolitan area in the desert. On the cusp of major postwar growth, the Nevada Legislature and voters created the area's first public water authority, the Las Vegas Valley Water District, in 1948.<sup>46</sup> In the summer of 1954, the new district formally assumed control of the Las Vegas Land and Water Company, which had previously provided the area's water, after negotiating a purchase funded by a bond issue.<sup>47</sup> This purchase heralded a new era in which Las Vegas area water officials began to systemically plan to acquire and manage water resources for the ever-growing city.<sup>48</sup>

In October 1960, federal, state, and local leaders held a conference, attended by Nevada Senators Alan Bible and Howard Cannon, as well as Representative Walter Baring, on strategies to bring Colorado River water via Lake Mead to Las Vegas. Under the powerful influence of Senator Bible, the Bureau of Reclamation moved to study Las Vegas's needs and the Lake Mead proposal.<sup>49</sup> Due in large part to the personal friendships between Senator Bible and Presidents Kennedy and Johnson, Nevada was able to secure money for its Southern Nevada Water Project in October 1965.<sup>50</sup>

Funded by state bonds as well as federal loans, the Southern Nevada Water Project was a creature of the Great Society era; it involved a sprawling water infrastructure, including pipelines, mountain tunnels, pumping stations, and a

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-vegas-poised-steady-sustainable-gro/ (citing statement of Stephen Brown, Director, Center for Business and Economic Research, University of Nevada, Las Vegas).

<sup>44</sup> Las Vegas was hit extremely hard in the Recession. See Adam Nagourney, *Las Vegas Faces Its Deepest Slide Since the 1940s*, N.Y. TIMES Oct. 2, 2010), <http://www.nytimes.com/2010/10/03/us/03vegas.html> (describing Las Vegas's economic travails); Stacy J. Willis, *When the Earth Was Scorched: An Oral History of Development, Destruction and the Great Recession in Las Vegas*, VEGAS SEVEN (Aug. 16, 2012, 12:00 AM), <http://vegasseven.com/feature/2012/08/16/when-earth-was-scorched> (giving an oral history and timeline of the Great Recession's effect on Las Vegas).

<sup>45</sup> Ron Sylvester, *Economists: Las Vegas Poised for Steady, Sustainable Growth*, LAS VEGAS SUN, Dec. 10, 2012, <http://www.lasvegassun.com/news/2012/dec/10/economists-las-vegas-poised-steady-sustainable-gro/> (quoting Stephen Brown, Director, Center for Business and Economic Research, University of Nevada, Las Vegas).

<sup>46</sup> JAMES W. HULSE, NEVADA'S ENVIRONMENTAL LEGACY: PROGRESS OR PLUNDER 58 (2009) (noting that the LVVWD's creation allowed the city "to wean itself from its dependency on the private company established by Senator Clark four decades earlier"); MOEHRING & GREEN, *supra* note 37, at 161–62.

<sup>47</sup> HULSE, *supra* note 46, at 58; MOEHRING & GREEN, *supra* note 37, at 161–62.

<sup>48</sup> HULSE, *supra* note 46, at 58; MOEHRING & GREEN, *supra* note 37, at 162.

<sup>49</sup> GARY ELLIOTT, SENATOR ALAN BIBLE AND THE POLITICS OF THE NEW WEST 151 (1994).

<sup>50</sup> HULSE, *supra* note 46, at 59.

distribution complex.<sup>51</sup> Commenced in 1966, the first stage was completed in 1971 with the first large-diameter water line providing 130,000 acre-feet per year to Las Vegas; the second and third stages, completed in April 1982, provided almost all of the rest of the water to which Nevada was entitled under the 1922 Colorado River Compact to the Las Vegas Valley—enough for almost one million people.<sup>52</sup> The population of the Las Vegas area now exceeds two million.<sup>53</sup>

By the late 1980s it became clear that Las Vegas's steep rate of growth, combined with its finite water resources, would lead to a critical water crisis by the turn of the twenty-first century.<sup>54</sup> Emerging onto the scene at this time was the dominant figure in Las Vegas water management: Patricia Mulroy, the general manager of the Las Vegas Valley Water District. A "practical visionary for the post-reclamation era," Mulroy has been described as a hard-driving, savvy, and creative administrator determined to secure more water for Las Vegas.<sup>55</sup> Considered a genius by some and reviled by others, by the 1980s Mulroy saw the central front of water management in the West moving away from the colossal federal water infrastructure of the past and toward political and financial negotiations to allocate existing water more efficiently within existing infrastructure.<sup>56</sup>

Notwithstanding a raft of water conservation measures,<sup>57</sup> a decline in per capita usage because of urbanization,<sup>58</sup> and the water banking deals negotiated

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<sup>51</sup> See *id.*; MOEHRING & GREEN, *supra* note 37, at 193–94.

<sup>52</sup> HULSE, *supra* note 46, at 59; MOEHRING & GREEN, *supra* note 37, at 194. For a detailed history of the Southern Nevada Water Project, later renamed the Robert B. Griffith Water Project, see generally JEDEDIAH ROGERS, U.S. BUREAU OF RECLAMATION, ROBERT B. GRIFFITH WATER PROJECT (FORMERLY SOUTHERN NEVADA WATER PROJECT) (2006), available at [http://www.usbr.gov/projects/ImageServer?imgName=Doc\\_1305577385454.pdf](http://www.usbr.gov/projects/ImageServer?imgName=Doc_1305577385454.pdf).

<sup>53</sup> See *QuickFacts*, *supra* note 38.

<sup>54</sup> Jon Christensen, *Build It and the Water Will Come*, in THE GRIT BENEATH THE GLITTER: TALES FROM THE REAL LAS VEGAS 115, 115 (Hal K. Rothman & Mike Davis eds., 2002).

<sup>55</sup> Christensen, *supra* note 54, at 115–17.

<sup>56</sup> *Id.* at 115–16.

<sup>57</sup> See *infra* notes 424–439 and accompanying text.

<sup>58</sup> Hughson, *supra* note 38, at 66 ("Per capita water consumption has declined from 7400 m<sup>3</sup>y<sup>-1</sup>p<sup>-1</sup> in 1910 to less than 400 m<sup>3</sup>y<sup>-1</sup>p<sup>-1</sup> today, in response to the transition from a sparsely populated agricultural economy to a densely populated urban/tourist economy."). Las Vegas's population increases almost entirely cancel out the decline in per capita water consumption. See also UNIV. OF MD., CTR. FOR INTEGRATIVE ENVTL. RESEARCH, ECONOMIC IMPACTS OF CLIMATE CHANGE ON NEVADA 10 (2008), <http://www.cier.umd.edu/climateadaptation/Nevada%20Economic%20Impacts%20of%20Climate%20Change.pdf> ("It is imperative to note that increasing demand for water due to population growth is not the primary cause for diminished water levels in the State of Nevada. Nevada has implemented very successful water conservation strategies that have allowed the state to reduce its water consumption by about 18 billion gallons from 2002 to 2006. This is

with other states, the growing demand from the population increases in Las Vegas began “pushing the limit of Nevada’s share of Colorado River water.”<sup>59</sup> Indeed, Nevada has squeezed every drop of water from its Colorado River allotment and more: because the apportionment of Colorado River water is based on net allocation (consumptive use), Nevada is able to use return-flow credits (used water recycling) and groundwater banking to withdraw from Lake Mead five-thirds (166%) of its apportionment since Nevada then returns a portion of its water back to the river.<sup>60</sup>

Exacerbating the water crisis was a new climate challenge: a series of droughts. The water level of Lake Mead dropped almost every year between 1985 and 1993, and while water levels rose between 1993 and 1998, even reaching a near-high point in 1998, drought conditions soon returned, and by 2006 Lake Mead’s water level was at its lowest level since 1968.<sup>61</sup>

As the supply of the Colorado River was running perilously close to insufficient, Las Vegas looked to the groundwater of the north in the sparsely populated Lincoln, Nye, and White Pine counties.<sup>62</sup> In 1989 the Las Vegas Valley Water District proposed a \$1.5 billion aquifer project, proposing the drilling of 140 wells to extract water, the construction of many new reservoirs to store it, and the laying of some one thousand miles of pipeline to connect it to Las Vegas, with the aim of diverting around 200,000 acre-feet of water to Las Vegas annually.<sup>63</sup> To do this, the Las Vegas Valley Water District filed 146 applications with the Nevada State Engineer in October 1989 to claim unappropriated groundwater in twenty-six valleys covering thirty different basins in four Nevada counties: “every drop” of available groundwater in a 20,000-square-mile area extending up to 250 miles north of Las Vegas.<sup>64</sup> These applications laid claim to 805,000 acre-feet of

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significant because during this time period the population of southern Nevada grew by 330,000 and the region sustained about 40 million visitors.”).

<sup>59</sup> Hughson, *supra* note 38, at 65.

<sup>60</sup> *Id.* at 65–66; *Return Flow Credits*, S. NEV. WATER AUTH., [http://www.snwa.com/ws/reclaimed\\_returnflow.html](http://www.snwa.com/ws/reclaimed_returnflow.html) (last visited Jan. 11, 2014).

<sup>61</sup> HULSE, *supra* note 46, at 60.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*; see also CHARLES FISHMAN, *THE BIG THIRST: THE SECRET LIFE AND TURBULENT FUTURE OF WATER* 61 (2011); Christensen, *supra* note 54, at 117; Hughson, *supra* note 38, at 65. The LVVWD also concurrently filed one application for surface water rights, to the Virgin River, a tributary of the Colorado River that starts near Zion National Park and flows through Nevada to Lake Mead. The Virgin River is a low-lying seasonal river that was not included in the Colorado River Compact because it was considered nonnavigable at the time. See HAL ROTHMAN, *NEON METROPOLIS: HOW LAS VEGAS STARTED THE TWENTY-FIRST CENTURY* 214 (2002) [hereinafter ROTHMAN, *NEON METROPOLIS*]; HAL K. ROTHMAN, *PLAYING THE ODDS: LAS VEGAS AND THE MODERN WEST* 157 (Lincoln Bramwell ed., 2007) [hereinafter ROTHMAN, *PLAYING THE ODDS*]; Christensen, *supra* note 54, at 117; Hughson, *supra*, at 38.

groundwater.<sup>65</sup> Nine of these applications were for Snake Valley groundwater with points of diversion within the State of Nevada.<sup>66</sup>

Although a number of the 1989 applications were subsequently withdrawn,<sup>67</sup> the applications still pending remain extraordinarily contentious and very much part of the present Snake Valley Aquifer dispute. Many protests were filed challenging the applications.<sup>68</sup> Foreshadowing the present resistance to the Snake Valley Agreement, ranchers in Nevada expressed outrage.<sup>69</sup> Opponents used as a “battle cry” the memory of the Owens Valley, which dried up after the construction of the Los Angeles Aqueduct and was a central part in the California water wars.<sup>70</sup> Twenty years on, a stalemate, and a rancorous raft of litigation,<sup>71</sup>

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<sup>65</sup> See ROTHMAN, NEON METROPOLIS, *supra* note 64, at 214; ROTHMAN, PLAYING THE ODDS, *supra* note 64, at 157; WATER IN THE WEST: A HIGH COUNTRY NEWS READER 233 (Char Miller ed., 2000) (all stating that applications totaled 805,000 acre-feet); Christensen, *supra* note 54, at 117. *But see* FISHMAN, *supra* note 64, at 61 (claiming applications totaled 865,000 acre-feet).

<sup>66</sup> For exact points of diversion, see the Applications for Permit to Appropriate the Public Waters of the State of Nevada Nos. 54022–30, available at [http://images.water.nv.gov/images/book\\_records/54000/54022.pdf](http://images.water.nv.gov/images/book_records/54000/54022.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54023.pdf](http://images.water.nv.gov/images/book_records/54000/54023.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54024.pdf](http://images.water.nv.gov/images/book_records/54000/54024.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54025.pdf](http://images.water.nv.gov/images/book_records/54000/54025.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54026.pdf](http://images.water.nv.gov/images/book_records/54000/54026.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54027.pdf](http://images.water.nv.gov/images/book_records/54000/54027.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54028.pdf](http://images.water.nv.gov/images/book_records/54000/54028.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54029.pdf](http://images.water.nv.gov/images/book_records/54000/54029.pdf); [http://images.water.nv.gov/images/book\\_records/54000/54030.pdf](http://images.water.nv.gov/images/book_records/54000/54030.pdf).

<sup>67</sup> Hughson, *supra* note 38, at 65.

<sup>68</sup> There are voluminous administrative and technical records on the October 17, 1989, applications. *See, e.g., In re Applications 53987 through 53992*, Ruling No. 5875 (Office of the Nev. State Eng’r, July 8, 2008), available at [http://www.blm.gov/pgdata/etc/medialib/blm/nv/groundwater\\_development/water\\_rights.Par.41567.File.dat/SNWA%20ruling%205875%20DDC.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/nv/groundwater_development/water_rights.Par.41567.File.dat/SNWA%20ruling%205875%20DDC.pdf); STANKA CONSULTING, LTD, COMMITTED GROUNDWATER RESOURCES IN FOUR NEVADA HYDROGRAPHIC AREAS: CAVE, DRY LAKE, DELAMAR, AND SPRING VALLEYS (2011), available at [http://water.nv.gov/hearings/past/springetal/browseabledocs/Exhibits%5CSNWA%20Exhibits/SNWA\\_Exh\\_097\\_Stanka%20Report.pdf](http://water.nv.gov/hearings/past/springetal/browseabledocs/Exhibits%5CSNWA%20Exhibits/SNWA_Exh_097_Stanka%20Report.pdf).

<sup>69</sup> *See, e.g.,* ROTHMAN, PLAYING THE ODDS, *supra* note 64, at 157 (“Despite Mulroy’s promise that she didn’t want to ‘wipe out’ rural Nevada, the cow counties saw the water grab as social genocide.”).

<sup>70</sup> Christensen, *supra* note 54, at 117. The history of the Los Angeles Aqueduct project and the Owens Valley is treated in Gary D. Libecap, Chinatown: *Owens Valley and Western Water Reallocation—Getting the Record Straight and What It Means for Water Markets*, 83 TEX. L. REV. 2055 (2005); William L. Kahrl, *Part II: The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927*, CAL. HIST. Q., Summer 1976, at 98, reprinted in 6 HASTINGS W.-NW. J. ENVTL. L. & POL’Y 255 (2000). The Los Angeles/Owens Valley water war was famously dramatized in the 1974 film

wears on. The State Engineer has granted the SNWA (the successor to the Las Vegas Valley Water District, as discussed below) groundwater withdrawal applications in just three basins, while many others remain pending.<sup>72</sup> One commentator has described the 1989 applications as “the longest running game of freeze tag in Nevada’s history.”<sup>73</sup>

The SNWA was formed in 1991, replacing the Las Vegas Valley Water District and bringing together the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City, the Big Bend Water District, and the Clark County Water Reclamation District into one powerful water authority dominated by Mulroy and the former Las Vegas Valley Water District.<sup>74</sup> Modeled after the Metropolitan Water District of Southern California, the new agency was intended “to stop parochial bickering and pursue new water supplies together.”<sup>75</sup> But for the residents of the Snake Valley, the formation of the new SNWA set the stage for conflict instead of cooperation.

### *C. Pipelines and Battle Lines: Setting the Stage for Negotiations*

Getting water from the Snake Valley to Las Vegas would require a new pipeline, and the pipeline’s route would unavoidably encounter federal land. Fortunately for Las Vegas, the city has some good friends in the United States Senate. In 2004 Nevada’s Senators Harry Reid and John Ensign inserted a clause into the Lincoln County Conservation, Recreation, and Development Act of 2004,<sup>76</sup> directing the federal Bureau of Land Management to release land for a SNWA pipeline.<sup>77</sup> However, Utah was concerned about conflicts over shared

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*Chinatown*. See Melinda Catren & Heidi Stern, *Film Review: Chinatown*, NEV. LAWYER, Sept. 2009, at 50 (reviewing CHINATOWN (Paramount Pictures, 1974)).

<sup>71</sup> See, e.g., *Great Basin Water Network v. Taylor*, 222 P.3d 665 (Nev. 2010), *withdrawn after reh’g and superseded*, 234 P.3d 912 (Nev. 2010); *Major Nevada Water Ruling Challenged*, U.S. WATER NEWS ONLINE (Aug. 2008), <http://web.archive.org/web/20130908173012/http://www.uswaternews.com/archives/arcrights/8majoneva8.html>.

<sup>72</sup> The State Engineer granted applications for groundwater in Tikapoo Valley and Three Lakes Valley in 2005 and Spring Valley in 2007. Hughson, *supra* note 38, at 65.

<sup>73</sup> Abby Johnson, *The 20-Year Long Game of Freeze Tag*, NEVADA APPEAL, Sept. 2, 2009, reprinted at [http://www.greatbasinwater.net/news/news\\_display.php?id=316](http://www.greatbasinwater.net/news/news_display.php?id=316).

<sup>74</sup> WILLIAM FULTON, *THE RELUCTANT METROPOLIS: THE POLITICS OF URBAN GROWTH IN LOS ANGELES* 327–28 (2d ed. 2001); Amara Rozgus, *Las Vegas, NV, Master Plan Focuses on Regional Flood Control, Neighborhood Drainage, and Sanitary Sewers*, in *CITIES AND WATER: A HANDBOOK FOR PLANNING* 98 (Roger L. Kemp ed., 2009).

<sup>75</sup> FULTON, *supra* note 74, at 327.

<sup>76</sup> Pub. L. No. 108-424, § 301(e)(3), 118 Stat. 2413, 2414 (2004). For the legislative history of the act, see 150 CONG. REC. 12,467 (2004) (introduction of bill in Senate by Sen. Ensign and Sen. Reid); 150 CONG. REC. 20,576–82 (2004) (statements of Representatives on bill, and passage of bill as originally introduced in House); 150 CONG. REC. 23,804–10 (2004) (statements of Representatives on bill, and concurring in the Senate amendments).

<sup>77</sup> 150 CONG. REC. S11, 113–14 (2004).

water supplies. Thus, Utah Senator Bob Bennett inserted a clause requiring an interstate agreement before pumping from any shared basins:

Prior to any transbasin diversion from ground-water basins located within both the State of Nevada and the State of Utah, the State of Nevada and the State of Utah shall reach an agreement regarding the division of water resources of those interstate ground-water flow system(s) from which water will be diverted and used by the project. The agreement shall allow for the maximum sustainable beneficial use of the water resources and protect existing water rights.<sup>78</sup>

The Lincoln County Conservation, Recreation, and Development Act of 2004 also required that a federal study be conducted of the Snake Valley and surrounding region.<sup>79</sup> The Act directed the Secretary of the Interior, through the United States Geological Survey (USGS), Desert Research Institute (DRI), and a designate of the State of Utah to undertake a study of the aquifers in the “basin-fill and carbonate-rock aquifers in White Pine County, Nevada, and adjacent areas in Nevada and Utah.”<sup>80</sup> The congressionally-mandated report—the *Utah-Nevada Basin and Range Carbonate-Rock Aquifer System Study* (BARCASS)—was transmitted to Congress in December 2007.<sup>81</sup> The Bureau of Land Management assisted USGS in the preparation of the report.<sup>82</sup>

BARCASS examined a study area of 13,500 square miles.<sup>83</sup> Most groundwater in the study area “flows through three types of aquifers—a shallow basin-fill aquifer, a deeper volcanic-rock aquifer, and an underlying carbonate-rock aquifer that forms the base of the ground-water flow system.”<sup>84</sup> Every valley in the study area contains basin-fill, where the primary source of groundwater in the area is located.<sup>85</sup> Typical basin-fill aquifer thickness in the study area is between 0.3 to 0.9 miles, with maximum thicknesses from about one mile to more than three miles.<sup>86</sup> Some groundwater is also pumped from the carbonate-rock aquifer, although in lesser amounts than from the basin-fill aquifer.<sup>87</sup> The deeper volcanic-rock aquifers “are not utilized as a significant source of water supply,” although some springs issue from them.<sup>88</sup> The groundwater quality of the area is good,

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<sup>78</sup> Pub. L. No. 108-424, § 301(e)(3), 118 Stat. 2413, 2414 (2004).

<sup>79</sup> *Id.* § 301(e)(1).

<sup>80</sup> BARCASS, *supra* note 23, at 7.

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> *Id.* at 7, 10. *See supra* note 25.

<sup>84</sup> BARCASS, *supra* note 23, at 1.

<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

meeting primary and secondary drinking water standards; few sampling sites showed the presence of contaminants.<sup>89</sup>

BARCASS also measured the mean annual natural discharge—the amount of groundwater annually consumed by evapotranspiration—of the various hydrographic areas in the study area.<sup>90</sup> The study determined that the highest annual recharge occurs in Steptoe Valley (154,000 acre-feet) and Snake Valley (about 111,000 acre-feet); the highest annual discharge occurs in Snake Valley (about 132,000 acre-feet) and Steptoe Valley (about 101,000 acre-feet).<sup>91</sup>

The Steptoe Valley recharge and Snake Valley discharge rates are significantly higher than previously estimated.<sup>92</sup> The study found significant interbasin groundwater flow, which causes differences in discharge and recharge rates in the valleys.<sup>93</sup> In five of the twelve hydrographic areas studied, recharge exceeds discharge (before any groundwater resources development) by 10,000 acre-feet or more on an average annual basis; this was most pronounced in Steptoe Valley, where recharge exceeds discharge by 53,000 acre-feet. Conversely, in two of the hydrographic areas studied, including the Snake Valley, discharge exceeds recharge by 10,000 acre-feet or more on an average annual basis. In the remaining four hydrographic areas, there is no pronounced difference between recharge and discharge rates.<sup>94</sup>

BARCASS reported that the carbonate rocks of the Egan, Schnell, Creek, and Snake mountain ranges, combined with the high precipitation and recharge rates of the area, make these ranges the source of “a large mound that is a primary source of recharge” for all three aquifer types in the area.<sup>95</sup> The direction and source of groundwater flow differs according to location; the primary source areas for groundwater flow to the Snake Valley are the Schnell Creek and Snake ranges, from which groundwater flows in a northeasterly direction.<sup>96</sup> The study found that the majority of the groundwater flow exits the study area through the White River Valley (39,000 acre-feet per year), followed by the Snake Valley (29,000 acre-feet per year), Tippet Valley (12,000 acre-feet per year), and Butte Valley (8,000 acre-feet per year).<sup>97</sup>

BARCASS found that average annual groundwater recharge of the study area is 530,000 acre-feet, and average annual discharge under predevelopment conditions was 440,000 acre-feet, with the difference indicating that some 90,000 acre-feet of groundwater “exits the study area annually by subsurface outflow.”<sup>98</sup>

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<sup>89</sup> *Id.* at 2.

<sup>90</sup> *Id.* at 60.

<sup>91</sup> *Id.* at 2.

<sup>92</sup> *Id.* at 4.

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

<sup>95</sup> *Id.* at 5.

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> *Id.* at 6.

The study found that current new regional groundwater use for the study was about 80,000 acre-feet. This figure includes the volume of water pumped from wells or diverted from springs, but excludes water that was pumped or diverted and subsequently returned.<sup>99</sup>

Starting in 2005, Nevada and Utah entered into nonpublic negotiations to apportion the water, eventually reaching a proposed agreement four years later.<sup>100</sup> Under the terms of the proposed Snake Valley Agreement,<sup>101</sup> unappropriated water would be essentially split evenly between the two states; an extensive environmental protection and water management scheme would be implemented; and provisions were made for ongoing data collection, monitoring, and dispute resolution.<sup>102</sup>

But with opposition from Utahns who saw the Snake Valley Agreement as a losing deal for Utah,<sup>103</sup> Utah Governor Gary Herbert delayed signing the document.<sup>104</sup> On April 3, 2013, after nearly four years of delay, Governor Herbert announced that he would not sign the Snake Valley Agreement, stating that “[a] majority of local residents do not support the agreement with Nevada. Therefore, I cannot in good conscience sign the agreement because I won’t impose a solution on those most impacted that they themselves cannot support” and saying that “[t]here is no more complex and emotional issue with which I have grappled as governor of this great state.”<sup>105</sup> The reaction in Utah was “universally ecstatic,”<sup>106</sup> with one opponent stating that Herbert “summoned his inner Churchill.”<sup>107</sup>

The political failure of the Agreement did not come as a surprise, given the depth of opposition led by a broad and politically powerful coalition of water consumers such as ranchers and farmers, environmentalists, and media and community leaders. Governor Herbert noted that the Snake Valley Agreement was

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<sup>99</sup> *Id.*

<sup>100</sup> Patty Henetz, *Did Utah Blink in Snake Valley Talks?*, SALT LAKE TRIB. Oct. 19, 2009, [http://www.sltrib.com/news/ci\\_13596248](http://www.sltrib.com/news/ci_13596248).

<sup>101</sup> Final Proposed Agreement, *supra* note 10, at 6–12.

<sup>102</sup> *Id.*; *see infra* Part II.B.

<sup>103</sup> *See infra* Part II.C.

<sup>104</sup> *E.g.*, Patty Henetz, *Herbert Agrees to ‘Go Slow’ on Snake Valley Water Deal*, SALT LAKE TRIB., Nov. 16, 2009, [http://www.sltrib.com/utah/ci\\_13802723](http://www.sltrib.com/utah/ci_13802723); Patty Henetz, *Herbert Pulling Back on Water Deal*, SALT LAKE TRIB., Jan. 8, 2010, [http://www.sltrib.com/news/ci\\_14152206](http://www.sltrib.com/news/ci_14152206).

<sup>105</sup> Press Release, Office of the Utah Governor, *Governor Will Not Sign Snake Valley Water Agreement* (Apr. 3, 2013), [www.utah.gov/governor/news\\_media/article.html?article=8675](http://www.utah.gov/governor/news_media/article.html?article=8675). *See also* Christopher Smart et al., *Herbert Rejects Snake Valley Water Pact With Nevada*, SALT LAKE TRIB., Apr. 4, 2013, <http://www.sltrib.com/sltrib/news/56090274-78/valley-agreement-snake-utah.html.csp>.

<sup>106</sup> Amy Joi O’Donoghue, *Gov. Gary Herbert Won’t Sign Snake Valley Water-Sharing Agreement*, DESERET NEWS, Apr. 3, 2013, <http://www.deseretnews.com/article/865577375/Herbert-wont-sign-Snake-Valley-water-sharing-agreement.html>.

<sup>107</sup> Brian Moench, *No End to Nevada’s Quest for Water*, SALT LAKE TRIB., Apr. 6, 2013, <http://www.sltrib.com/sltrib/opinion/56107724-82/utah-nevada-erionite-las.html.csp>.

“complex,” a “tough issue, and fraught with emotion,” stating that “only a handful of water attorneys understand the complexity and legal ramifications of it.”<sup>108</sup>

## II. A NEW MODEL FOR TRANSBOUNDARY AQUIFER MANAGEMENT

Despite the Snake Valley Agreement’s political death, the Agreement presents an ideal model for cooperatively managing an interstate aquifer and provides a superior alternative to equitable-apportionment litigation.

The first section of this Part examines the benefits of cooperation over conflict in interstate water disputes, as seen in the many interstate-compact regimes that allocate and manage interstate surface water resources, from the Colorado River to the Great Lakes. While these compacts are not focused on groundwater, some do address groundwater resources that are hydrologically connected to the subject surface water system, and the surface water compacts can also provide general guidance on structuring an interstate water agreement. The second section of this Part examines the specific provisions of the Snake Valley Agreement, designed to foster cooperative groundwater management, avoid injury to existing permitted users, minimize environmental impacts, and maximize the water available for beneficial use in each state.

### A. *Interstate Compacts and Groundwater*

A compact is best understood as a contract between states, subject to federal approval.<sup>109</sup> Article I, section 10, of the United States Constitution provides the authority and process for interstate compacts, stating: “No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or with a foreign Power . . . .”<sup>110</sup> Interstate compacts are typically negotiated by governors and other state agency officials, but enactment of a compact requires legislative approval. Once a compact has been approved by Congress and signed into law by the President, it becomes effective and has the full force and supremacy of federal law.<sup>111</sup> States’ duties and commitments in a federally approved compact can be enforced in federal court.<sup>112</sup>

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<sup>108</sup> Paul Foy, *Utah Governor Agonizing over Nevada’s Water Play*, ASSOCIATED PRESS, Mar. 29, 2013, <http://www.businessweek.com/ap/2013-03-29/utah-governor-agonizing-over-nevadas-water-play> (reporting statement of Gov. Herbert on March 29, 2013).

<sup>109</sup> See *Texas v. New Mexico*, 482 U.S. 124, 128 (1987).

<sup>110</sup> U.S. CONST. art. I, § 10, cl. 3.

<sup>111</sup> See *Culyer v. Adams*, 449 U.S. 433, 438 (1981) (stating that “congressional consent transforms an interstate compact . . . into a law of the United States”). “Although the Compact Clause itself requires only the consent of Congress,” usually given in the form of a statute or a joint resolution, “‘settled usage’ has granted the President veto power over consent,” as the president usually has with ordinary bills and joint resolutions. Note, *Charting No Man’s Land: Applying Jurisdictional and Choice of Law Doctrines to Interstate Compacts*, 111 Harv. L. Rev. 1991, 1993 (1998). “[T]he threat of a presidential

“There are [currently] twenty-seven interstate compacts for managing and allocating surface water resources . . . in the United States.”<sup>113</sup> The Great Lakes,<sup>114</sup> the Colorado River,<sup>115</sup> the Rio Grande,<sup>116</sup> the Arkansas River,<sup>117</sup> the Susquehanna River,<sup>118</sup> and the Delaware River<sup>119</sup> are all subject to interstate compacts. Surface water compacts vary as much as the waterbodies they address, but generally follow one of two approaches.<sup>120</sup> Western interstate water compacts tend to simply divide the waters by volume between the watershed states.<sup>121</sup> Eastern interstate water compacts tend to provide for more comprehensive regulation and management of water uses.<sup>122</sup>

While no interstate compacts to date have focused on groundwater,<sup>123</sup> some do address groundwater resources that are hydrologically connected to the subject

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veto has occasionally been an obstacle to compact formation.” *Id.* at 1994 n.19 (citing FREDERICK L. ZIMMERMANN & MITCHELL WENDELL, *THE INTERSTATE COMPACT SINCE 1925*, at 94 (1951); and FREDERICK L. ZIMMERMANN & MITCHELL WENDELL, *THE LAW AND USE OF INTERSTATE COMPACTS* 16–17 (1976)), available at <http://www.csg.org/knowledgecenter/docs/ncic/LawAndUse.pdf>). This presidential power to veto interstate compacts appears to have been actually exercised only once, when President Franklin Delano Roosevelt vetoed the Republican River Compact in 1942. Emanuel Celler, *Congress, Compacts, and Interstate Authorities*, 26 *LAW & CONTEMP. PROBS.* 682, 686 n.28 (citing H.R. Doc. No. 690, 77th Cong., 2d Sess. (1942)); Jill Elaine Hasday, *Interstate Compacts in a Democratic Society: The Problem of Permanency*, 49 *FLA. L. REV.* 1, 12–14, 22 & nn.51, 59 (1997).

<sup>112</sup> See *Texas v. New Mexico*, 482 U.S. at 124, 128 (1987).

<sup>113</sup> Hall, *supra* note 2, at 254.

<sup>114</sup> Great Lakes-St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat. 3739 (2008) [hereinafter Great Lakes Compact].

<sup>115</sup> Colorado River Compact, 70 *CONG. REC.* 324 (1928).

<sup>116</sup> Rio Grande Compact, Pub. L. No. 76-96, 53 Stat. 785 (1939).

<sup>117</sup> Arkansas River Compact, Pub. L. No. 81-82, 63 Stat. 145 (1949); Arkansas River Basin Compact of 1965, Pub. L. No. 89-789, 80 Stat. 1409 (1966); Arkansas River Basin Compact of 1970, Pub. L. No. 93-152, 87 Stat. 569 (1973).

<sup>118</sup> Susquehanna River Basin Compact, Pub. L. No. 91-575, 84 Stat. 1509 (1970).

<sup>119</sup> Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961) [hereinafter Delaware River Compact].

<sup>120</sup> See Nathan C. Johnson, Comment, *Protecting Our Water Compacts: The Looming Threat of Unilateral Congressional Interaction*, 2010 *WIS. L. REV.* 875, 888 (2010) (“Interstate water compacts . . . have historically taken two forms: western and eastern. Western compacts . . . take a limited water resource and divide it up into agreed upon allocations among the compacting states. Conversely, eastern compacts take a different approach—one similar to other modern compacts—and are created around centralized management authorities.”)

<sup>121</sup> *Id.*; see, e.g., Colorado River Compact, *supra* note 115, at 325; Rio Grande Compact, *supra* note 116.

<sup>122</sup> Johnson, *supra* note 120, at 888; see, e.g., Great Lakes Compact, *supra* note 114, at 3744; Delaware River Compact, *supra* note 119, at 691.

<sup>123</sup> See Hall, *supra* note 2, at 255–56.

surface-water system.<sup>124</sup> The Supreme Court in recent years has on several occasions found that specific interstate water compacts covered not only surface water, but also hydrologically connected groundwater, even though none of the compacts at issue expressly mentioned “groundwater.”<sup>125</sup> Given the emergence of interstate groundwater disputes, piggybacking groundwater management on an existing surface water compact may not be ideal. Instead, states should look to the provisions of the proposed Snake Valley Aquifer Agreement as a model for sustainable interstate groundwater management.

### *B. The Snake Valley Aquifer Agreement*

The final proposed Agreement for Management of the Snake Valley Groundwater System (Agreement)<sup>126</sup> was issued following seven public hearings and more than two hundred submitted comments on a draft Agreement released on August 13, 2009.<sup>127</sup> The Agreement, a thirteen-page document with three appendices, lays out in detail a new scheme of water management in the Snake Valley.<sup>128</sup> The Agreement would have crystallized a commitment by both states “to work cooperatively to . . . resolve present or future controversies” over Snake Valley groundwater; “assure the quantity and quality of the Available Groundwater Supply;” “minimize the injury to Existing Permitted Users;” “minimize environmental impacts;” “maximize the water available for Beneficial Use in each State;” and “manage the hydrologic basin as a whole.”<sup>129</sup> Importantly, “[t]he Agreement does not grant any water rights”; rather, it “merely allocates the Snake Valley groundwater resources between the two States, and provides for the joint

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<sup>124</sup> See, e.g., Great Lakes Compact, *supra* note 114; Delaware River Basin Compact, *supra* note 119.

<sup>125</sup> Barton H. Thompson, *Beyond Connections: Pursuing Multidimensional Conjunctive Management*, 47 IDAHO L. REV. 273, 282 (2011) (citing *Kansas v. Colorado*, 543 U.S. 86, 90–91 (2004) (interpreting the 1949 Arkansas River Compact); First Interim Report of the Special Master at 43–54, *Montana v. Wyoming*, 552 U.S. 1175 (2010) (No. 137, Original), 2010 WL 4111634 at \*43–54 (interpreting the 1950 Yellowstone River Compact); First Report of the Special Master at 44–45, *Kansas v. Nebraska*, 530 U.S. 1272 (2000) (No. 126), 2000 WL 3578999, at \*44–45 (interpreting the 1942 Republican River Compact)).

<sup>126</sup> Final Proposed Agreement, *supra* note 10.

<sup>127</sup> *Utah/Nevada Snake Valley Agreement*, U.S. DEP’T OF THE INTERIOR, BUREAU OF LAND MGMT., [http://www.blm.gov/nv/st/en/prog/planning/groundwater\\_projects/water\\_rights\\_home/utah\\_nevada\\_draft.html](http://www.blm.gov/nv/st/en/prog/planning/groundwater_projects/water_rights_home/utah_nevada_draft.html); RESPONSE TO PUBLIC COMMENTS RECEIVED BY THE STATES OF NEVADA AND UTAH ON THE AGREEMENT FOR THE MANAGEMENT OF THE SNAKE VALLEY GROUNDWATER SYSTEM AND THE SNAKE VALLEY ENVIRONMENTAL MONITORING AND MANAGEMENT AGREEMENT, UTAH DIV. OF WATER RIGHTS 9, [hereinafter RESPONSE TO PUBLIC COMMENTS], available at <http://waterrights.utah.gov/snakeValleyAgreement/comments.pdf>.

<sup>128</sup> See generally Final Proposed Agreement, *supra* note 10.

<sup>129</sup> *Id.* § 4.8.

management of the aquifer,” preserving the statutory discretion (and, under certain conditions, the statutory duty) of the state engineers of both Utah and Nevada to deny permits for withdrawals at points within the borders of the engineers’ respective states.<sup>130</sup> In other words, the Agreement provides a baseline for environmental protection; it would not have been the “last word” on water management and would not preempt or impair the state engineers’ authority to deny applications not in the public interest.<sup>131</sup>

The Agreement was strengthened by the federal participation behind it. It is well recognized that consultation with relevant federal authorities is a best practice in negotiating interstate agreements.<sup>132</sup> The Snake Valley Agreement, like other interstate agreements, preserves traditional state authority while taking advantage of a strong federal aegis;<sup>133</sup> the negotiation was carried out under a congressional

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<sup>130</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 8.

<sup>131</sup> *See, e.g.*, NEV. REV. STAT. ANN. § 533.370 (2)–(3) (LexisNexis 2012). This provision provides that “the State Engineer shall reject [an] application [for water withdrawals] and refuse to issue the requested permit” where “there is no unappropriated water in the proposed source of supply, or where its proposed use or change conflicts with existing rights or with protectable interests . . . or threatens to prove detrimental to the public interest.” *Id.* “In addition to the criteria set forth [elsewhere in the statute], in determining whether an application for an interbasin transfer of groundwater must be rejected pursuant to this section, the State Engineer shall consider” various conservation factors, including “[w]hether the proposed action is environmentally sound as it relates to the basin from which the water is exported.” *Id.* *See also* UTAH CODE ANN. § 73-3-8(1)(b) (LexisNexis 2012). The Utah provision provides that “if the state engineer . . . has reason to believe that an application to appropriate water . . . will unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare, it is the state engineer’s duty to withhold approval or rejection of the application until the state engineer has investigated the matter” and “[i]f an application does not meet the requirements of this section, it shall be rejected.” *Id.* On “the power [of state engineers] to reject applications that are contrary to the public interest,” see generally TARLOCK, *supra* note 7 at § 5:52.

<sup>132</sup> NAT’L CTR. FOR INTERSTATE COMPACTS, COUNCIL OF STATE GOV’TS, UNDERSTANDING INTERSTATE COMPACTS 1, *available at* [http://www.cglg.org/projects/water/CompactEducation/Understanding\\_Interstate\\_Compacts--CSGNCIC.pdf](http://www.cglg.org/projects/water/CompactEducation/Understanding_Interstate_Compacts--CSGNCIC.pdf) (suggesting that interstate compacts allow states to “[r]espond to national priorities in consultation or in partnership with the federal government.”).

<sup>133</sup> The federal government can provide valuable financial resources, information-gathering expertise, and technical assistance—as well as institutional prestige—to states as they negotiate and implement interstate agreements. Marliisa S. Briggert, Comment, *State Supremacy in the Federal Realm: The Interstate Compact*, 18 B.C. ENVTL. AFF. L. REV. 751, 763–64 (1991) (“Federal cooperation in interstate compacts offers significant advantages over pure interstate compacts without such federal participation.”). *See also* Note, *Congress and the Port of New York Authority: Congressional Supervision of Interstate Compacts*, 70 YALE L.J. 812, 819 (1961) (“Interstate agreements often deal with multistate problems which might otherwise be considered the responsibility of the federal government. State officials who negotiate interstate agreements are frequently aware of this

directive to come to an agreement,<sup>134</sup> a comprehensive federal study informed the negotiations,<sup>135</sup> federal agencies actively participated in the public-comment phase,<sup>136</sup> and the Agreement envisaged federal participation in environmental monitoring and management.<sup>137</sup> This federal participation within the state-led process likely helped refine the Agreement draft. Like other aspects of the Snake Valley Agreement, this should be emulated in future interstate water disputes.

### 1. *General and Interpretive Provisions*

The Agreement contained a number of interpretative and general provisions that explain its purpose and limit its scope. The preamble to the Agreement stated that it is “intended to define the water resource management responsibilities” of the states in the Snake Valley groundwater basin, to “define a framework for cooperation between the states” on associated natural resource issues, and to fulfill the 2004 congressional directive to “reach an agreement regarding the division of water resources, protection of existing water rights, and the maximum sustainable use of the waters prior to any interbasin transfer from groundwater basins located within both states.”<sup>138</sup> Before laying out its substantive provisions, the Agreement defines fourteen terms and phrases<sup>139</sup> and lays out a number of “findings.”<sup>140</sup>

The Agreement expressly disclaimed being an interstate compact, defining itself instead as a “state-to-state agreement” explicitly adopted “with the intention of avoiding an equitable apportionment action regarding the Snake Valley Groundwater Basin” in the Supreme Court.<sup>141</sup> While the political death of the Agreement makes the point moot, the lack of congressional approval could have undermined the enforceability of the Agreement had it been enacted outside of the constitutional compact process.<sup>142</sup> If the Agreement had been entered into,

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fact, and may be induced to act, in part, by a desire to preserve traditional state authority over the problem area.”).

<sup>134</sup> See *supra* notes 76–79.

<sup>135</sup> See *supra* notes 80–99.

<sup>136</sup> See Final Proposed Agreement, *supra* note 10, at § 5.5; *infra* note 198 and accompanying text.

<sup>137</sup> See *infra* note 198 and accompanying text.

<sup>138</sup> Final Proposed Agreement, *supra* note 10, at pmb1.

<sup>139</sup> *Id.* § 1 (providing for definition of various significant terms, including “adverse impact to an existing permitted use,” “available groundwater supply,” “beneficial use,” and “consumptive use”).

<sup>140</sup> *Id.* § 2.6 (acknowledging, e.g., that “recharge of the Snake Valley aquifer occurs primarily in Nevada, while groundwater discharge and consumption use has historically occurred primarily in Utah.”).

<sup>141</sup> *Id.* at pmb1.

<sup>142</sup> *U.S. Steel Corp. v. Multistate Tax Comm’n*, 434 U.S. 452, 468–69 (1978); see also Claire Carothers, Note, *United We Stand: The Interstate Compact as a Tool for Effecting Climate Change*, 41 GA. L. REV. 229, 234–36, 250 (2006) (noting that the “the lack of identification with a formal compact structure . . . increases the difficulty in

however, it might have been found to be a valid compact because Congress's 2004 directive to Utah and Nevada to mutually agree<sup>143</sup> could be viewed as implied congressional authorization for the states to enter into a groundwater compact.<sup>144</sup>

While the political process for compact approval can be daunting, the legal status of the resulting interstate compact typically justifies the effort and would be an ideal approach for the party states to pursue.

The Agreement provided that its provisions are binding on all the parties' successors in interest;<sup>145</sup> that nothing in the Agreement "shall be deemed to alter, amend or supersede the . . . statutory or administrative authorities of the State Engineers"<sup>146</sup> or to create any private right of action by or benefit of third parties;<sup>147</sup> that the Agreement would become effective immediately upon execution

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identifying and classifying the nature of the agreement," and suggesting that interstate agreements are "not likely to escape characterization as a compact" merely by characterizing the agreement as a "memorandum of understanding" or similar); David E. Engdahl, *Characterization of Interstate Arrangements: When Is a Compact Not a Compact?*, 64 MICH. L. REV. 63, 70–71 (1965); Todd Jefferson Hartley, *Handshake Deals: The Future of Informal State Agreements and the Interstate Compacts Clause*, 22 U. FLA. J.L. & PUB. POL'Y 91, 126 (2011) (suggesting that interstate "handshake deals . . . which establish sufficiently weighty regulatory schemes are simply not constitutional without federal approval"); Hasday, *supra* note 111, at 11–12 (1997) ("Every interstate agreement must win the approval of the party state legislatures, but only some interstate agreements are compacts, directly bound to the compact jurisprudence on permanency and constitutionally required to garner congressional as well as state assent. Only those agreements that may 'encroach upon or interfere with the just supremacy of the United States' must take the compact form and receive Congress' consent.") (quoting *U.S. Steel Corp.*, 434 U.S. at 468); Matthew Pincus, *When Should Interstate Compacts Require Congressional Consent?*, 42 COLUM. J.L. & SOC. PROBS. 511, 522–37 (2009) (describing and critiquing the *U.S. Steel* test).

<sup>143</sup> See *supra* note notes 76–79.

<sup>144</sup> In *Cuyler v. Adams*, the Supreme Court found that "Congress may consent to an interstate compact by authorizing joint state action in advance," as well as "by giving expressed or implied approval to an agreement the States have already joined." 449 U.S. 433, 441 (1981); accord *U.S. Steel*, 434 U.S. at 485 ("Congressional consent may also be given in advance of the adoption of any specific compacts, by general consent resolutions . . ."). The pre-approval of Congress has been given several times. *E.g.*, Weeks Act, ch. 186, 36 Stat. 961 (1911) (codified at 16 U.S.C. § 552 (2006)) (forest and navigable river conservation); Crime Control Consent Act of 1934, ch. 406, 48 Stat. 909 (1934) (codified at 4 U.S.C. § 112(a)(2006)) (crime prevention and enforcement); Act of Apr. 25, 1936 (Tobacco Control Act of 1936), ch. 249, 49 Stat. 1239 (1936); Federal Civil Defense Act of 1950, ch. 1228, 64 Stat. 1245, 1249 (1951) (civil defense); Act of Aug. 11, 1959, Pub. L. No. 86-154, 73 Stat. 333 (1959) (development or operation of airport facilities).

<sup>145</sup> Final Proposed Agreement, *supra* note 10, at § 8.7.

<sup>146</sup> *Id.* § 9.1.

<sup>147</sup> *Id.* § 9.4.

by the states;<sup>148</sup> that the individuals executing the Agreement were duly authorized to do so;<sup>149</sup> that modifications, amendments, or terminations of the Agreement would be binding only if evidenced in writing and signed by each state;<sup>150</sup> and that all notices concerning the Agreement would be sent via United States Mail to the state engineers.<sup>151</sup> Under the Agreement, both states agreed that “the State Engineers are vested with the exclusive jurisdiction to administer the terms” of the Agreement and would “make and enforce such regulations within their respective State as may be necessary to enable compliance” with the Agreement.<sup>152</sup>

## 2. *Water Classification and Management Scheme*

Under the Agreement, both states would have accepted the study conducted by the USGS in accordance with 2004 congressional mandate as “the best currently available scientific evidence of the hydrology of Snake Valley, and . . . sufficiently reliable for the purposes of the general allocation water within this [a]greement.”<sup>153</sup> The Agreement adopts the study’s determination that the “amount of groundwater annually consumed by evapotranspiration in Snake Valley”—that is, the annual natural discharge of the basin—is 132,000 acre-feet per year.<sup>154</sup> The Agreement defined the “available groundwater supply” as the “total amount of [g]roundwater available for appropriation and use on an annual basis from the Snake Valley Groundwater Basin,” as determined by the Agreement or by future agreement of the state engineers of both states.<sup>155</sup> “In an effort to be conservative in the protection of the Groundwater of Snake Valley, and to proceed cautiously in the development of future Groundwater resources,” the States agreed that the *available* groundwater supply as of the date of the Agreement was 108,000 acre-feet per year.<sup>156</sup> The Agreement then triages the available groundwater supply water into three categories, and equally divides the total between the two States.

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<sup>148</sup> *Id.* § 9.3; *cf.* *Doe v. Penn. Bd. of Probation & Parole*, 513 F.3d 95, 103–07 (3d Cir. 2008) (holding that an interstate compact does not create a private federal right of action and that a private individual was not a third-party beneficiary with enforceable rights under the compact in the absence of the states’ intent, whether explicit or inferred from the compact’s term, to create such rights).

<sup>149</sup> Final Proposed Agreement, *supra* note 10, at § 9.6.

<sup>150</sup> *Id.* § 9.5.

<sup>151</sup> *Id.* § 9.7.

<sup>152</sup> *Id.* § 4.3.

<sup>153</sup> *Id.* § 3.1 (referring to BARCASS).

<sup>154</sup> *Id.*; Endangered and Threatened Wildlife and Plants, 75 Fed. Reg. 35,398, 35,407 (proposed June 22, 2010), *available at* <http://www.gpo.gov/fdsys/pkg/FR-2010-06-22/html/2010-15070.htm>.

<sup>155</sup> Final Proposed Agreement, *supra* note 10, at § 1.3.

<sup>156</sup> *Id.* § 3.2.

*Allocated groundwater* is groundwater water “solely for satisfaction of water rights” in the area “with a priority date prior to October 17, 1989.”<sup>157</sup> “Unrecorded diligence claims” that are subsequently recognized are counted as allocated.<sup>158</sup> The 1989 date is significant, because this was the date the Las Vegas Valley Water District, the predecessor to the Southern Nevada Water Authority (SNWA), filed 147 applications with the Nevada State Engineer.<sup>159</sup>

Under the Agreement, “no new appropriations will be permitted under the Allocated Category,” although change applications seeking to move existing spring or surface rights to groundwater may be allowed.<sup>160</sup> The Agreement finds that water set aside in the Snake Valley for existing rights with a priority date prior to October 1989 comprises 55,000 acre-feet per year in Utah and 12,000 acre-feet per year in Nevada.<sup>161</sup> In explicitly protecting existing users’ rights to use and enjoy water, the Agreement avoids potential takings claims.<sup>162</sup>

*Unallocated groundwater* is groundwater that, under the Agreement, the state engineers of both states would have been free to appropriate in accordance with the law of their respective states.<sup>163</sup> This category includes rights with a priority date after October 17, 1989.<sup>164</sup> Under the Agreement, Utah would have received 6,000 acre-feet per year and Nevada would have received 35,000 acre-feet per year in unallocated water.<sup>165</sup>

*Reserved groundwater* is groundwater for which the state engineers “shall not grant any . . . withdrawal permits” unless the state engineers jointly agree, “following analyses of peer-reviewed data . . . , that additional groundwater can safely and sustainably be withdrawn from the Snake Valley Groundwater Basin, and that holders of permits to use water from the Allocated and Unallocated categories in this Agreement will not be unreasonably affected.”<sup>166</sup> Under the

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<sup>157</sup> *Id.* § 5.1.

<sup>158</sup> *Id.* An unrecorded diligence claim, under Utah water law, is a water-rights claim arising from beneficial use prior to the establishment of the state engineer permitting system. “[I]n 1935, groundwater rights were included for the first time in the State Engineer’s appropriation application system,” and so “groundwater rights acquired by beneficial use alone prior to 1935 are valid, even though not of record.” R.L. Knuth, *Conveyancing and Collateralizing Utah Water Rights*, 12 UTAH B.J. 12, 12 (1999).

<sup>159</sup> Final Proposed Agreement, *supra* note 10, at § 2.12; *see supra* text accompanying notes 63–73.

<sup>160</sup> Final Proposed Agreement, *supra* note 10, at § 5.1.

<sup>161</sup> *Id.* § 4.2, tbl.1.

<sup>162</sup> *See generally* James H. Davenport & Craig Bell, *Governmental Interference with the Use of Water: When Do Unconstitutional “Takings” Occur?* 9 U. DENV. WATER L. REV. 1 (2005) (discussing when government actions that interfere with private water rights constitute takings of private property that require just compensation).

<sup>163</sup> Final Proposed Agreement, *supra* note 10, at § 5.2.

<sup>164</sup> *Id.*

<sup>165</sup> *Id.* § 4.2, tbl.1.

<sup>166</sup> *Id.* §§ 3.3, 5.3.

Agreement, Utah would have been granted 5,000 acre-feet per year, and Nevada 19,000 acre-feet per year, in reserved groundwater supply.<sup>167</sup>

Under this careful tripartite division of water, therefore, water would have been equally divided between the two States. A full implementation of the agreement would have seen both Utah and Nevada receive 66,000 acre-feet per year.<sup>168</sup> This careful, equal division of water between the States was balanced with the Agreement's flexible allocation of water based on future cooperative scientific study. These principles in the Agreement would have fulfilled the congressional mandate to "equitably divide the water, protect existing water rights in both States and provide for the maximum sustainable beneficial use" of the Snake Valley Aquifer.<sup>169</sup> The States' negotiating teams stated that this was the central issue in the negotiations and acknowledged that the allocation was "the subject of intense debate."<sup>170</sup> Utah and Nevada, the negotiators said, "each made various concessions to narrow the gap on their differences," and "[a]s with all negotiations, in the end neither State received the full amount of water it desired."<sup>171</sup> In the end, taking into account the other side's position and the scientific evidence, the parties agreed that an even split of available water would be a fair division.<sup>172</sup>

Under the Agreement, Nevada would have agreed "to hold the [SNWA] Applications in abeyance through September 1, 2019"; the Nevada State Engineer would neither hold a hearing nor grant a permit on these applications prior to that date.<sup>173</sup> This ten-year period would allow time for "additional hydrologic, biologic, and other data to be collected."<sup>174</sup> The Agreement further provided that at least nine months before the Nevada State Engineer held a hearing on the SNWA applications, Utah and Nevada would confer, and any Utah state employees that the states agreed had "relevant information regarding the hydrologic, biologic, and environment resources of Snake Valley" would be invited by Nevada "to present such information during the hearing on the SNWA Applications."<sup>175</sup> Under the Agreement, Nevada also would have agreed to "provide public notice, at least one year prior to the export of Groundwater from Snake Valley and at least once each

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<sup>167</sup> *Id.* § 4.2, tbl.2.

<sup>168</sup> As the text accompanying notes 161 to 167 lays out, if fully implemented, Utah would have received 55,000 acre-feet per year in allocated groundwater, 6,000 acre-feet per year in unallocated groundwater, and 5,000 acre-feet per year in reserved groundwater, for a total of 66,000 acre-feet per year. Nevada would have received 12,000 acre-feet per year in allocated groundwater, 35,000 acre-feet per year in unallocated groundwater, and 19,000 acre-feet per year in reserved groundwater, also for a total of 66,000 acre-feet per year.

<sup>169</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 5.

<sup>170</sup> *Id.*

<sup>171</sup> *Id.* at 6.

<sup>172</sup> *Id.*

<sup>173</sup> Final Proposed Agreement, *supra* note 10, at § 8.1.

<sup>174</sup> *Id.*

<sup>175</sup> *Id.* § 8.2.

quarter following the commencement of such export, that any owner of an Existing Permitted Use may notify SNWA of a claim to an [a]dverse [i]mpact to its water right” arising from SNWA groundwater withdrawals.<sup>176</sup>

The Agreement provided that if any permits were granted pursuant to the SNWA applications, SNWA would establish a mitigation fund for as long as SNWA maintained groundwater development or withdrawal facilities in Snake Valley.<sup>177</sup> The fund would be “sufficient to accomplish the mitigation of any reasonably anticipatable Adverse Impact,” but at no time would have a balance of below \$3 million.<sup>178</sup> In response to public comments, the states made clear that the \$3 million figure “is in no way intended to quantify” or act as a limitation upon funding made by SNWA “to prevent or mitigate damages”; rather, the \$3 million is the sum “to be immediately available to address or cure any impairment problems due to SNWA’s pumping.”<sup>179</sup> The states agreed that the Fund would have been managed according to Governmental Accounting Standards Board principles.<sup>180</sup>

The Agreement contained a detailed procedure for claims of an adverse impact from any groundwater withdrawals. The Agreement provided that any existing permitted-use owner who believed that a groundwater withdrawal by SNWA caused an adverse impact to the owner’s existing permitted use could notify SNWA of its claim.<sup>181</sup> If the well or spring at the point of diversion of the existing permitted use was “not currently producing sufficient water to meet the immediate needs of the permit owner,” then under the Agreement the SNWA would be obligated to “provide qualified staff to meet in person with the permit owner” within ten business days.<sup>182</sup> If the well or spring that was the subject of the adverse-impact claim was currently producing sufficient water to meet the needs of the permit holder, then SNWA was obligated to respond within thirty days.<sup>183</sup> In either case, if the SNWA determined that an adverse impact either occurred or was likely to occur, it was obligated to “make an offer, binding on [SNWA], to the owner of the Existing Permitted Use to mitigate the Adverse Impact.”<sup>184</sup> The Agreement contained a nonexhaustive list of possible mitigation options that could be offered, including “[r]edistributing [g]roundwater withdrawals geographically,” “[r]educing or ceasing [g]roundwater withdrawals at specific points of diversion,” deepening wells, “repairing or replacing pumps and other infrastructure, and reimbursing for increased pumping costs,” “[p]roviding alternate water supplies,” and “[a]ugmenting water supply for senior rights and resources using surface and

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<sup>176</sup> *Id.* § 8.3.

<sup>177</sup> *Id.* § 8.5.

<sup>178</sup> *Id.*

<sup>179</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 8.

<sup>180</sup> *Id.* § 8.5.

<sup>181</sup> *Id.* § 8.4.

<sup>182</sup> *Id.* § 8.4(a).

<sup>183</sup> *Id.* § 8.4(b).

<sup>184</sup> *Id.* § 8.4.

Groundwater sources.”<sup>185</sup> The agreement provided that within ten days from either determining that no adverse impact occurred or would occur, or a rejection by any owner of a SNWA’s final offer to mitigate, the SNWA would “notify both State Engineers of such determination or rejection,” providing in writing “all pertinent details.”<sup>186</sup>

The Agreement also would have provided adequate protections to the interests in water held by the Confederated Tribes of the Goshute Reservation and Ely Shoshone Tribe of Nevada, two federally recognized tribes who made public comments on the draft agreement.<sup>187</sup> The state acknowledged the federal reserved water rights held by the Goshute and Ely Shoshone.<sup>188</sup> But “there is little chance that” either the surface water rights of Goshute, “fed by snowmelt high in the Deep Creek Mountains,” or water rights of the Ely Shoshone, “for their reservation in Steptoe Valley near Ely,” would “be adversely affected” or impaired in any way “by any additional groundwater pumping in Snake Valley.”<sup>189</sup> Even if some unforeseen adverse impacts on the tribes’ rights did occur, the protections of the Agreement and federal and state law would still be in place to provide an adequate remedy for both the Goshute and Ely Shoshone.<sup>190</sup>

### 3. *Monitoring and Environmental Protections*

The Agreement contained several layers of monitoring and environmental provisions. The most fundamental environmental restrictions were provided for in Section 5 of the Agreement. One part of Section 5 would have prohibited (1) groundwater mining or overdrafting (i.e., extracting groundwater beyond the aquifer’s safe yield); (2) the impairment of groundwater quality; and (3) the

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<sup>185</sup> *Id.*

<sup>186</sup> *Id.*

<sup>187</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 12–13; Letter from Alvin S. Marques, Chairman, Ely Shoshone Tribe, to Allen Biaggi, Director, Nev. Dep’t of Conservation & Natural Res. (Sept. 29, 2009), *available at* <http://waterrights.utah.gov/snakeValleyAgreement/comments/m027.pdf> (designated Comment No. 27); *Confederated Tribes of the Goshute Reservation*, Concerns on the Snake Valley Water Settlement, *available at* <http://waterrights.utah.gov/snakeValleyAgreement/comments/c175.pdf> (designated Comment No. 175). *See also* Indian Entities Recognized and Eligible to Receive Services from the Bureau of Indian Affairs, 77 Fed. Reg. 47,868, 47,869 (Aug. 10, 2012) (listing federally recognized tribal entities, along with official names and states).

<sup>188</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 12–13. On the doctrine of Indian reserved water rights generally, see *Winters v. United States*, 207 U.S. 564 (1908); *Arizona v. California*, 373 U.S. 546 (1963) (*Arizona I*); and A. DAN TARLOCK, LAW OF WATER RIGHTS AND RES. §§ 9:38–:50 (2011). It should be noted that “[t]he Supreme Court has never expressly extended *Winters* to groundwater, but little, if any, doubt remains that Indian tribes have groundwater as well as surface water rights.” TARLOCK, *supra*, note 7 § 9:42 (collecting authorities).

<sup>189</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 12, 13.

<sup>190</sup> *Id.*

degradation of the physical integrity of the groundwater basin (i.e., compaction of surfaces).<sup>191</sup> The second major environmental protection in Section 5 provided that “[t]he State Engineers, pursuant to their powers to administer the water in their respective states, shall condition approval of any application for interbasin transfer of water from Snake Valley . . . in excess of 1,000 afy” on (1) compliance with the Snake Valley Environmental Monitoring and Management Agreement (EMMA); (2) “the establishment of a process to protect [e]xisting [p]ermitted [u]ses from [a]dverse [i]mpacts;” and (c) the requirement “that all wells be equipped with access ports of sufficient diameter to allow the measurement of the water levels therein,” or some similar “reliable means to easily obtain water level data.”<sup>192</sup> The states stressed, in response to a “generally positive” public comment made by U.S. Department of the Interior agencies, that while the Agreement does contain many provisions aimed at mitigating adverse impacts, the Agreement also seeks to avoid adverse impacts in the first instance.<sup>193</sup>

The EMMA was appended to the Agreement as Appendix C.<sup>194</sup> The EMMA was to be entered into by both states and by the SNWA concurrently with the main Agreement. The EMMA provided for the coordination of environmental monitoring and management agreements and for ongoing cooperative monitoring of biological, hydrologic, and air quality data.<sup>195</sup> Specifically, the EMMA created a multidisciplinary Technical Working Group (TWG) to study and make recommendations<sup>196</sup> and a Management Committee of two executive-level principals of either party to review and approve, disapprove, or modify recommendations from the TWG.<sup>197</sup> Both states expressed, in responses to public comments, a willingness to have nonvoting representation of federal environmental agencies on the TWG, and particularly, “given its statutory duties regarding the

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<sup>191</sup> Final Proposed Agreement, *supra* note 10, at para. 5.4.

<sup>192</sup> *Id.* para. 5.5.

<sup>193</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 11–12 (responding to Letter from Stephen R. Palmer, Office of the Reg’l Solicitor, U.S. Dep’t of the Interior (for the Bureau of Land Mgmt. & U.S. Fish & Wildlife Srv.) & Peter A. Fahmy, Office of the Solicitor, Div. of Parks & Wildlife, U.S. Dep’t of the Interior (Nat’l Park Srv.), to Utah Dep’t of Natural Res. & Nev. Dep’t of Conservation & Natural Res. (Oct. 2, 2009), available at [http://waterrights.utah.gov/snakeValleyAgreement/comments/c197\\_01.pdf](http://waterrights.utah.gov/snakeValleyAgreement/comments/c197_01.pdf) (designated as Comment No. 197)).

<sup>194</sup> Utah and Nevada variously referred to this component of the Agreement as the Environmental Monitoring and Management Agreement (“EMM Agreement”) and the Snake Valley Monitoring, Mitigation and Management Plan (“3M Plan”). For brevity, we refer to it in this Article simply as EMMA.

<sup>195</sup> Snake Valley Environmental Monitoring and Management Agreement, para. G, [http://water.nv.gov/hearings/past/snake/documents/Snake\\_Valley\\_Environmental\\_Management\\_Agreement.pdf](http://water.nv.gov/hearings/past/snake/documents/Snake_Valley_Environmental_Management_Agreement.pdf) [hereinafter EMMA].

<sup>196</sup> *Id.* § 3.2.

<sup>197</sup> *Id.* § 3.1.

implementation of the Endangered Species Act,” a U.S. Fish and Wildlife Services representative.<sup>198</sup>

The EMMA mandated that the Utah-Nevada joint Management Committee would create a Management Response and Operation Plan before any diversion of groundwater by the SNWA could take place.<sup>199</sup> The Operation Plan would include “identification and definition of early warning indicators for effects to hydrologic, biologic, and air resources in the Area of Interest;” “[a] defined range of specific management response actions designed to” (1) avoid, (2) minimize, and (3) mitigate indicated effects; “[a] process for the TWG and Management Committee to review the early warning indicators” and determine the appropriate resource; and a process to evaluate and monitor the results of all management response actions.<sup>200</sup> The EMMA included a nonexclusive list of possible “management response actions,” including geographically redistributing groundwater withdrawals; reducing or ceasing groundwater withdrawals, augmenting water supply, and acquiring water rights; or acquiring property or water rights for the recovery of certain Special Status Species.<sup>201</sup> The parties agreed “that no management response action may be selected which” (1) could negatively impact the Conservation Agreements and Strategies for the least chub and Columbia spotted frog; (2) “otherwise causes the existing viable population of a species to decline to an extent which necessitates the species come under the purview of the Endangered Species Act,” or (3) “causes or contributes significantly to a violation of an applicable National Ambient Air Quality Standard (NAAQS) standard or Prevention of Significant Deterioration (PSD) increment.”<sup>202</sup>

The EMMA provided that SNWA and Utah would make a good-faith effort to create an Operation Plan within one year from the beginning of the “baseline period,” which begins when the SNWA provides notice to Utah that it plans to begin withdrawing groundwater from Snake Valley and must last at least five years.<sup>203</sup>

As part of the Agreement and the EMMA, Nevada would agree to participate with Utah in the Conservation Agreement and Strategy for the Columbia spotted frog and the Conservation Agreement and Strategy for the least chub.<sup>204</sup>

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<sup>198</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 12.

<sup>199</sup> EMMA, *supra* note 195, at §§ 2.3, 5.1.

<sup>200</sup> *Id.* § 5.1.1.

<sup>201</sup> *Id.* § 5.2.

<sup>202</sup> *Id.*

<sup>203</sup> *Id.* §§ 2.2, 5.3.

<sup>204</sup> Final Proposed Agreement, *supra* note 10, at § 7.1; EMMA, *supra* note 195, at § 5.2; see BAILEY ET AL., UTAH DIV. OF WILDLIFE RES., CONSERVATION AGREEMENT AND STRATEGY FOR THE COLUMBIA SPOTTED FROG (*RANA LUTEIVENTRIS*) IN THE STATE OF UTAH 3 (1998), available at [http://waterrights.utah.gov/snakeValleyAgreement/spotted\\_frog.pdf](http://waterrights.utah.gov/snakeValleyAgreement/spotted_frog.pdf) (recognizing that all signatories to the agreement have a responsibility to help the recovery efforts of the Columbia spotted frog); BAILEY ET AL., UTAH DIV. OF WILDLIFE RES., CONSERVATION AGREEMENT AND STRATEGY FOR THE LEAST CHUB (*IOTICHTHYS*

Importantly, the Columbia spotted frog and least chub are not the only species that the Agreement would protect since the agreement “is a vehicle to draft a Biological Monitoring Plan,” rather than the Plan itself.<sup>205</sup> The Agreement’s drafters envisaged the inclusion of “additional species, habitats, and areas” for identification and monitoring as part of the Plan through Conservation Action Planning process of The Nature Conservancy.<sup>206</sup> Moreover, before groundwater development operations began, the states would have detailed in their Management Response and Operation Plan a definition of “potential adverse impacts” to environmental resources and lay out “early warning indicators” and “management response actions to avoid impacts.”<sup>207</sup> In addition to the biological and hydrologic monitoring laid out in the interstate plan for the Snake Valley, Nevada would continue to carry out its own biological and hydrologic monitoring activities within Nevada, including through its Spring Valley Monitoring Plan, which covers the “the resources most likely to be impacted in the South Snake Valley.”<sup>208</sup>

The Agreement also addressed the concerns about impacts to air quality in the area from SNWA groundwater pumping, particularly along the Wasatch Front.<sup>209</sup> While worries about air quality featured prominently in opposition to the Agreement, “[w]ithout the Agreement, each State’s ability to responsibly deal with potential effects from any future groundwater withdrawals in Snake Valley is significantly reduced.”<sup>210</sup> Indeed, the Agreement provided for the development of one of the most extensive air-quality and public-health monitoring regimes ever implemented in conjunction with a groundwater project. The EMMA would have mandated that air quality and coincident meteorological parameters “be sampled and reported continuously on an hourly average basis” and “submitted hourly to Utah Division of Air Quality (UDAQ).”<sup>211</sup> Reports would be prepared that included summary tables and charts of “air quality data comparable to the NAAQS, maximum data, mean data, data quality and completeness, and other information deemed important by the TWG.”<sup>212</sup>

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*PHLEGETHONTIS*) IN THE STATE OF UTAH 2–3 (2005), available at [http://wildlife.utah.gov/pdf/LCCAS\\_30NOV05.pdf](http://wildlife.utah.gov/pdf/LCCAS_30NOV05.pdf) (stating that the State agencies with implemented cooperative agreements are responsible for the conservation and enhancement of the least chub and the ecosystems upon which they depend).

<sup>205</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 15.

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*; see, e.g., BIOLOGICAL WORK GROUP, BIOLOGICAL MONITORING PLAN FOR THE SPRING VALLEY STIPULATION (2009), available at [http://www.fws.gov/nevada/highlights/comment/spring\\_valley/Biological\\_Monitoring\\_Plan\\_Spring\\_Valley\\_Stipulation\\_Feb\\_09.pdf](http://www.fws.gov/nevada/highlights/comment/spring_valley/Biological_Monitoring_Plan_Spring_Valley_Stipulation_Feb_09.pdf) (describing an exhaustive biological monitoring plan for the Spring Valley).

<sup>209</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 6–7.

<sup>210</sup> *Id.* at 7.

<sup>211</sup> EMMA, *supra* note 195, at § 7.3.

<sup>212</sup> *Id.*

Because the EMMA would have provided for SNWA to install and operate an air monitoring station in Utah within one year of the Agreement's signing, Utah would have "at least nine years of baseline data before any withdrawals might begin."<sup>213</sup> As both states' negotiating teams pointed out in their responses to public comments on the draft agreement, the collection and public reporting of both baseline and post-development data points on particulate matter, precipitation, and other metrics would allow Utah, or Utah residents, in the event of any "unacceptable air quality deterioration," to "assert and prove" an adverse impact by pointing to any increase in air pollutants or particulate matter (evaluated under the National Ambient Air Quality Standards (NAAQS)) or declines in visibility (evaluated under the Prevention of Significant Deterioration standards).<sup>214</sup> As on other aspects of the Agreement, the Agreement's air-pollution provisions were cautious, prudent, and data driven; it is clear that "the health of Utah's citizens"—and Nevada's citizens—would have been "better protected with this Agreement than without it."<sup>215</sup>

The Agreement envisaged the ongoing use of future "scientifically reliable reports, studies, [and] data collection efforts" as "valuable tools in further refining the Available Groundwater Supply of Snake Valley," and under the Agreement the states would have used such studies, along with actual monitoring data, to revise groundwater estimates.<sup>216</sup> The Agreement would have mandated that "[a]ll data used or proposed to be used to revise estimates" and all "monitoring data" would be "shared between the States and . . . made available to the public on a periodic basis."<sup>217</sup> Both States would have committed to cooperation of data gathering, data sharing, and incorporation of monitoring data into a database.<sup>218</sup>

The extensive monitoring and analysis mandated by the Agreement would have provided a data-rich scientific backdrop upon which the state engineers, state water managers, and the entities created by the Agreement could tweak groundwater development to avoid any adverse impacts. Moreover, the data would

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<sup>213</sup> RESPONSE TO PUBLIC COMMENTS, *supra* note 127, at 7.

<sup>214</sup> *Id.*

<sup>215</sup> *Id.*

<sup>216</sup> Final Proposed Agreement, *supra* note 10, at § 3.4. *See also* John Ruple, *Clear Law and Murky Facts: Utah's Approach to Conjunctive Surface and Groundwater Management*, 47 IDAHO L. REV. 217, 253–54 (2011) ("All those with an interest in conjunctive water resource management must seek solutions based on sound science that incorporates flexibility to respond to new information and changed conditions. As Utah's chief water planner pointed out, conjunctive management really means adaptive management, and our efforts must begin with a clearer vision of what we are managing for.").

<sup>217</sup> Final Proposed Agreement, *supra* note 10, at §§ 3.4, 4.4. Presumably such disclosure would have been governed under the public-records law of Utah and Nevada. *See* UTAH CODE ANN. §§ 63G-2-101 to 108 (LexisNexis 2011 & Supp. 2012); NEV. REV. STAT. ANN. §§ 239.001–.330 (LexisNexis 2012).

<sup>218</sup> Final Proposed Agreement, *supra* note 10, at § 4.4.

also be available so that private parties and local governments could ensure that actions taken as part of the development of Snake Valley groundwater comply with federal environmental statutes, including the Endangered Species Act<sup>219</sup> and potentially the Clean Water Act.<sup>220</sup> Contrary to the statements of opponents of the Agreement, the Snake Valley groundwater management scheme created by the Agreement would have implemented a careful and orderly plan for the development of groundwater while ensuring protection of natural resources.

While “interstate compacts are time consuming to negotiate and adopt,” the existence of interstate agreements addressing issues likely to arise repeatedly, such as transboundary groundwater reserves, means that states “do not have to start from scratch.”<sup>221</sup> While interstate agreements will, of course, vary according to local conditions, ideally being flexible and adaptive in character, such agreements serve as important baseline models, especially on novel issues, because they show that cooperative interstate management is possible, demonstrate a framework within which states can work, and show how agreements work in practice.<sup>222</sup>

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<sup>219</sup> Endangered Species Act of 1973, 87 Stat. 884 (1973) (codified as amended at 16 U.S.C. §§ 1531–1544 (2006)). If a plaintiff believed that groundwater pumping was resulting in habitat loss in the basin, adversely impacting ESA-protected species, an action could be brought under the ESA. *See* *Sierra Club v. Lujan*, No. MO-91-CA-069, 1993 WL 151353, at \*21 (W.D. Tex. Feb. 1, 1993) (enjoining groundwater pumping of the Edwards Basin on ESA grounds), *vacated sub nom.* *Sierra Club v. City of San Antonio*, 112 F.3d 789 (5th Cir. 1997) (vacating injunction on *Burford* abstention grounds because subsequently enacted Texas legislation had created comprehensive regulatory scheme for Edwards Aquifer), *cert. denied*, 522 U.S. 1089 (1998).

<sup>220</sup> Federal Water Pollution Control Act Amendments of 1972, 86 Stat. 816 (1972) (codified as amended at 33 U.S.C. §§ 1251–1387 (2006)). It is unclear whether the CWA applies to groundwater. Baxtresser, *supra* note 6 at 788 n.69 (noting that “most courts have ruled that the Clean Water Act does not apply to groundwater”); *see also* James W. Hayman, *Regulating Point-Source Discharges to Groundwater Hydrologically Connected to Navigable Waters: An Unresolved Question of Environmental Protection Agency Authority Under the Clean Water Act*, 5 BARRY L. REV. 95 (2005); Jason R. Jones, Comment, *The Clean Water Act: Groundwater Regulation and the National Pollutant Discharge Elimination System*, 8 DICK. J. ENVTL. L. & POL’Y 93 (1999); Anna Makowski, *Beneath the Surface of the Clean Water Act: Exploring the Depth of the Act’s Jurisdictional Scope of Groundwater Pollution*, 91 OR. L. REV. 495 (2012). But if the CWA does apply to groundwater, the extensive data collected certainly would assist in asserting a CWA claim.

<sup>221</sup> Stephanie Showalter et al., *Converting the Erie Pier Confined Disposal Facility to a Processing and Reuse Facility: Is an Interstate Compact a Necessary Component?*, 41 J. MAR. L. & COM. 197, 234 (2010).

<sup>222</sup> *See* Hall, *supra* note 2, at 288–90, 321 (discussing the Delaware River Basin Compact, Susquehanna River Basin Compact, and Great Lakes-St. Lawrence River Basin Water Resources Compact “modern models of interstate water compacts that include adaptive tools” for “adapting to the risks and uncertainties of climate change”); *see also* Joseph W. Dellapenna, *Interstate Struggles Over Rivers: The Southeastern States and the*

Because the proposed Snake Valley Agreement was carefully drafted, equitable to both states, and environmentally and pragmatically wise, it should serve as a model for future transboundary aquifer disputes.

*C. Potential Unrealized: The Misguided Opposition to the Agreement*

As alluded to above, the Agreement was met with much opposition in Utah, leading directly to Governor Herbert's decision not to sign it.<sup>223</sup> In March 2013, for example, twenty-seven Utah groups sent a letter urging the governor to reject the Agreement.<sup>224</sup>

Two major themes emerged across the spectrum of Utahn resistance to the Agreement. The first was dire warnings of catastrophic consequences if the Agreement was signed. Opponents warned that the Agreement was an "evil project"<sup>225</sup> that would "lower water tables, threaten spring ecosystems, impact sensitive species, reduce fishing/hunting opportunities, promote dust storms," and possibly cause "[w]idespread desertification,"<sup>226</sup> all of which would disrupt the hydrology of the Snake Valley and put its wetlands and ranches into a "death spiral."<sup>227</sup>

The second theme, related to the first, was fiery rhetoric that cast the Agreement as a "Nevada water grab," with nefarious Nevadans plotting to "steal" water that rightfully belonged to Utah.<sup>228</sup> This characterization was pervasive,<sup>229</sup>

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*Struggle Over The 'Hooch*, 12 N.Y.U. ENV'T'L L.J. 828, 386 (2005) (discussing how interstate water agreements fall into three general "patterns").

<sup>223</sup> See *supra* text accompanying notes 104–108.

<sup>224</sup> Brian Maffly, *Nevada Water Deal a Raw Deal for Utah, Groups Tell Herbert*, SALT LAKE TRIB., Dec. 11, 2012, <http://www.sltrib.com/sltrib/news/55438688-78/according-agreement-environmental-herbert.html.csp>; Richard Piatt, *Battle Over Utah-Nevada Water Rights in Snake Valley Continues*, KSL.COM, Mar. 29, 2013, <http://www.ksl.com/?nid=148&sid=24590610/>.

<sup>225</sup> Brian Maffly, *Governor Discusses Water Battle in Snake Valley*, SALT LAKE TRIB., Mar. 21, 2013, <http://www.sltrib.com/sltrib/news/56036851-78/valley-herbert-utah-agreement.html.csp> (statement of an opponent of the Agreement who attended a public meeting).

<sup>226</sup> *Opportunity to Comment on the DEIS for SNWA's Snake Valley Pipeline*, FRIENDS OF GREAT SALT LAKE, <http://www.fogsl.org/advocacy/current-issues/257-opportunity-to-comment-on-the-deis-for-snwas-snake-valley-pipeline> (last visited Jan. 12, 2014).

<sup>227</sup> Brandon Loomis, *Goshutes Fear Losing Their Sacred Water—to Vegas*, SALT LAKE TRIB., Apr. 25, 2011, <http://www.sltrib.com/sltrib/politics/51665514-90/spring-goshutes-nevada-valley.html.csp>; Smart et al., *supra* note 105.

<sup>228</sup> See Angelyn N. Hutchinson, *Water Wars: Snake Valley Issue is Not as Simple as David vs. Goliath*, DESERET NEWS, Nov. 8, 2009, <http://www.deseretnews.com/article/705342944/Water-wars-Snake-Valley-issue-is-not-as-simple-as-David-vs-Goliath.html> ("It's easy to paint caricatures, putting the pugilists into their respective corners of the ring. On one side are the greedy Nevada would-be water purveyors who want to slip into Utah's already parched west desert and use big bucks and slick lawyers to steal precious water

almost memetic,<sup>230</sup> and typical of the “overzealous” and “colorful political rhetoric generated by questions of interstate water allocation.”<sup>231</sup> Typical of the public discourse was an op-ed jointly written by an Indian tribal official, a Snake Valley business owner, and an environmental activist under the title “10 Reasons Not to Give Utah Water to Nevada.”<sup>232</sup> Even Governor Herbert invoked this rhetorical sleight-of-hand in the lead-up to his decision to reject the agreement, making statements such as “[m]y goal is very clear. No. 1, we will not give up one molecule of water to Nevada that is Utah water.”<sup>233</sup>

Water consumers, with the most direct stake in any potential outcome, were the source of some of the most vocal objections. Ranchers, farmers, and miners were the central force in this group, crowding public hearings to express anger and disappointment at what they viewed as a “sellout” agreement.<sup>234</sup> The Utah Farm Bureau, the state’s farmer and rancher lobby, went on record in opposition to the

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from the aquifer. If they get it, as one Snake Valley rancher said, they will squander it on ‘gluttony, glitter, girls and gambling.’”); Ted Wilson, Letter to the Editor, *Water Grab Stakes*, SALT LAKE TRIB., Mar. 29, 2013, <http://www.sltrib.com/sltrib/opinion/56067998-82/nevada-utah-program-agreement.html.csp>.

<sup>229</sup> See, e.g., Robert Gehrke, *Utah’s Rejection of Water Deal Leaves Nevada With Few Good Options*, SALT LAKE TRIB., Apr. 4, 2013, <http://www.sltrib.com/sltrib/politics/56108808-90/nevada-utah-agreement-snake.html.csp>; Daniel McCool, *A Coalition to Stop Water Grab*, SALT LAKE TRIB., Apr. 2, 2013, <http://www.sltrib.com/sltrib/opinion/5608994-6-82/pipeline-utah-basin-stop.html.csp>.

<sup>230</sup> A meme is a unit of culturally transmitted information, susceptible to replication and spread by social imitation. See Neal A. Gordon, Note, *The Implications of Memetics for the Cultural Defense*, 50 DUKE L.J. 1809, 1816–19 (2001). Of course, “[t]he most widespread memes are not necessarily the most beneficial memes; they are simply the memes that are best at spreading.” *Id.* at 1820. Unhelpful or false memes appear frequently in journalism and political discourse. See, e.g., Dan Kahan, *The False and Tedious “Defective Brain” Meme*, CULTURAL COGNITION PROJECT, YALE LAW SCH. (Feb. 22, 2013, 7:54 AM), <http://www.culturalcognition.net/blog/2013/2/22/the-false-and-tedious-defective-brain-meme.html>.

<sup>231</sup> Douglas L. Grant, *The Future of Interstate Allocation of Water*, 29 ROCKY MTN. MIN. L. INST. 977, 977 (1983).

<sup>232</sup> Ruppert Steele et al., *10 Reasons Not to Give Utah Water to Nevada*, SALT LAKE TRIB., Jan. 15, 2010, <http://archive.sltrib.com/printfriendly.php?id=14201199&itype=ngpsid>.

<sup>233</sup> Paul Foy, *Utah Governor Agonizing Over Nevada’s Water Play*, BUS. WK. (Mar. 29, 2013) <http://www.businessweek.com/ap/2013-03-29/utah-governor-agonizing-over-nevadas-water-play> (statement of Gov. Herbert on March 28, 2012).

<sup>234</sup> Brandon Loomis, *Snake Valley Ranchers Riled by ‘Sellout’ Water Deal*, SALT LAKE TRIB., Aug. 17, 2009, [http://www.sltrib.com/news/ci\\_13148334](http://www.sltrib.com/news/ci_13148334); Brian Maffly, *Water A Life-and-Death Issue for Snake Valley*, SALT LAKE TRIB., Mar. 28, 2013, <http://www.sltrib.com/sltrib/news/56047882-78/agreement-utah-valley-snake.html.csp>; Peg McEntee, Column, *Herbert’s ‘My Hero’—Snake Valley Rancher Says It All*, SALT LAKE TRIB., Apr. 3, 2013, <http://www.sltrib.com/sltrib/politics/56101939-90/valley-snake-herbert-garland.html.csp>.

Agreement.<sup>235</sup> Utah's Indian tribes were also strongly opposed to the Agreement. Leaders of the 566-member Confederate Band of Goshute Indians, whose reservation is located in the Snake Valley, claimed that the Agreement was a "massive and reckless project" that would "steal our water," "decimate our people," and "destroy the livelihoods of . . . tribal communities."<sup>236</sup> The Goshute even established a special website to oppose the Agreement.<sup>237</sup> Utah's tribal leaders passed a joint intertribal resolution at their annual meeting demanding that the governor reject the Agreement.<sup>238</sup> Another large Utah water consumer, The Church of Jesus Christ of Latter-day Saints—one of the most powerful political and economic forces in Utah<sup>239</sup>—also opposed the Agreement.<sup>240</sup> This was not the first time the LDS Church publicly weighed in on the Utah-Nevada water dispute;<sup>241</sup> as it has historically, the Church continues to have influence on Western water law.<sup>242</sup>

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<sup>235</sup> See Christopher Smart, *Critics Warn of Dangers From Nevada Water Pipeline Plan*, SALT LAKE TRIB., Aug. 12, 2011, <http://www.sltrib.com/sltrib/news/52373517-78/nevada-utah-aquifers-blm.html.csp>; E-mail from Randy Parker, Chief Exec. Officer, Utah Farm Bureau Fed'n, to Michael Styler, Exec. Dir., Utah Dep't of Natural Res. (Sept. 30, 2009, 12:46 PM), available at <http://waterrights.utah.gov/snakeValleyAgreement/comments/c162.txt> (designated Comment No. 162).

<sup>236</sup> Associated Press, *Goshutes Blast BLM Study on Las Vegas Water Pipeline*, Aug. 5, 2012, <http://www.reviewjournal.com/news/nevada-and-west/goshutes-blast-blm-study-las-vegas-water-pipeline/>; *Goshute Tribes Fight for Water Rights in Face of 300-Mile Pipeline to Vegas*, INDIAN COUNTRY TODAY, Aug. 20, 2012, <http://indiancountrytodaymedianetwork.com/article/Goshute-tribes-fight-for-water-rights-in-face-of-300-mile-pipeline-to-vegas-130218> (quoting the chairman of the Confederate Tribes of the Goshute Indian Reservation and the tribe's website); Brandon Loomis, *Goshutes Fear Losing Their Sacred Water—to Vegas*, SALT LAKE TRIB., Apr. 25, 2011, <http://www.sltrib.com/sltrib/politics/51665514-90/spring-goshutes-nevada-valley.html.csp>; Smart et al., *supra* note 105.

<sup>237</sup> *Protect Goshute Water*, CONFEDERATE TRIBES OF THE GOSHUTE RESERVATION, <http://www.goshutewater.org/> (last visited Jan. 12, 2014).

<sup>238</sup> Joint Inter-Tribal Resolution #UTLAUG-06-11, *Opposing the Signing of the Utah-Nevada Agreement on the Snake Valley Groundwater Management System* (Aug. 11, 2011), available at <http://greatbasinwater.net/pubs/TribalLeadersOpposeWaterGrabbyNevada.pdf>.

<sup>239</sup> JOHN BURGHARDT WRIGHT, *ROCKY MOUNTAIN DIVIDE: SELLING AND SAVING THE WEST* 139 (1993).

<sup>240</sup> Smart et al., *supra* note 105.

<sup>241</sup> Amy Joi O'Donoghue, *Mormon Church Among Protesters of Las Vegas Water Plan*, DESERET NEWS, June 9, 2010, <http://www.deseretnews.com/article/700038615/Mormon-church-among-protesters-of-Las-Vegas-water-plan.html>.

<sup>242</sup> Brigham Daniels, *Revitalizing Zion: Nineteenth-Century Mormonism and Today's Urban Sprawl*, 28 J. LAND RESOURCES & ENVTL. L. 257, 271 n.82 (2008) ("Mormons did much to change the face of natural resources law, particularly water law."); A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 983, 1001 (2008)

Utah media and political leadership also organized against the deal. Officials in Salt Lake,<sup>243</sup> Juab,<sup>244</sup> Millard,<sup>245</sup> Utah, Beaver, and Tooele counties mobilized together with the Utah Association of Counties to urge the governor not to sign the Agreement.<sup>246</sup> Salt Lake County Mayor Peter Corroon, the leader of the state's most populous county, personally urged the governor to reject the Agreement.<sup>247</sup> Members of the Utah Legislature were also either skeptical of or opposed to the Agreement.<sup>248</sup> The *Salt Lake Tribune* consistently editorialized against the plan,<sup>249</sup> as did other Utah editorial boards and columnists.<sup>250</sup> Utah Democrats—while not a particularly powerful force in deep-red Utah<sup>251</sup>—also opposed the Agreement.<sup>252</sup>

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(“Water law’s communitarian, utilitarian strain, derived from the Mormon experience in pre-statehood Utah, required water to be put to an immediate productive use.”).

<sup>243</sup> Letter from Peter M. Corroon, Mayor, Salt Lake Cnty. & Joe Hatch, Salt Lake Cnty. Council Chair, to Michael R. Styler, Exec. Dir., Utah Dep’t of Natural Res. (Sept. 29, 2009), available at <http://waterrights.utah.gov/snakeValleyAgreement/comments/c104.pdf> (designated as Comment No. 104).

<sup>244</sup> Letter from Val W. Jones, Chairman, Juab Cnty. Bd. of Cnty. Comm’rs (Sept. 29, 2009), available at <http://waterrights.utah.gov/snakeValleyAgreement/comments/c107.pdf> (designated as Comment No. 107).

<sup>245</sup> Statement of Reasons for Millard County’s Opposition to the August 13, 2009 Proposed Agreement Between Utah and Nevada (Aug. 14, 2009), available at <http://waterrights.utah.gov/snakeValleyAgreement/comments/c003.doc> (designated as Comment No. 3).

<sup>246</sup> Brandon Loomis, *Counties Fear Utah Selling Out Snake Valley Water*, SALT LAKE TRIB., Aug. 2, 2009, [http://www.sltrib.com/news/ci\\_12968010](http://www.sltrib.com/news/ci_12968010); Amy Joi O’Donoghue, *Snake Valley Water Split Angers Utahns*, DESERET NEWS, Sept. 9, 2009, <http://www.deseretnews.com/article/705328741/Snake-Valley-water-split-angers-Utahns.html>; Amy Joi O’Donoghue, *Utah Counties Renew Objections to Snake Valley Water Plan*, DESERET NEWS, Oct. 30, 2012, <http://www.deseretnews.com/article/865565627/Utah-counties-renew-objections-to-Snake-Valley-water-plan.html>; Christopher Smart, *Millard County: Snake Valley Deal ‘Forfeits’ Utah Water*, SALT LAKE TRIB., Oct. 31, 2012, <http://www.sltrib.com/sltrib/news/55184343-78/utah-groundwater-agreement-county.html.csp>.

<sup>247</sup> Charlotte Duren, *Mayor Corroon Urges Governor to Oppose Snake Valley Agreement*, KCPW (Oct. 31, 2012), <http://kcpw.org/blog/local-news/2012-10-31/mayor-corroon-urges-governor-to-oppose-snake-valley-agreement>; News Release, Mayor Corroon Supports Millard County Opposing Proposed Snake Valley Agreement (Oct. 31, 2012), available at <http://news.slco.org/2012/elected/20121031.html>.

<sup>248</sup> Patty Henetz, *Utah Lawmakers Not Sold on Snake Valley Water Deal*, SALT LAKE TRIB., Aug. 19, 2009, [http://www.sltrib.com/news/ci\\_13162981](http://www.sltrib.com/news/ci_13162981).

<sup>249</sup> E.g., *Don’t Sign, Governor*, SALT LAKE TRIB., Jan. 9, 2010, [http://www.sltrib.com/opinion/ci\\_14151786/](http://www.sltrib.com/opinion/ci_14151786/); *Say No to Las Vegas*, SALT LAKE TRIB., Mar. 27, 2013, <http://www.sltrib.com/sltrib/opinion/56063378-82/valley-agreement-snake-utah.html.csp>; *Snake Valley Water*, SALT LAKE TRIB., Nov. 1, 2012, <http://www.sltrib.com/sltrib/opinion/55178585-82/utah-valley-nevada-snake.html.csp>.

<sup>250</sup> E.g., Peg McEntee, *Utah’s Snake Valley Water Is Worth Fighting For*, SALT LAKE TRIB., Dec. 5, 2012, <http://www.sltrib.com/sltrib/politics/55335832-90/snake-valley-sltrib-utah.html.csp>; *Water Project Could Wreck Ecology of the Snake Valley*, THE PARK

A number of Utah environmental groups expressed opposition to the Agreement, including the Utah Rivers Council,<sup>253</sup> Great Basin Water Network,<sup>254</sup> Friends of the Great Salt Lake,<sup>255</sup> Citizens for Dixie's Future,<sup>256</sup> and Utah Physicians for a Healthy Environment.<sup>257</sup> Environmentalists claimed that the Agreement "would have been a tragedy for the West Desert, creating an impact on a land area the size of Vermont and a dust bowl that would create dust problems across the entire Intermountain West."<sup>258</sup> The Utah Medical Association (UMA), the largest physicians' group in the state, opposed the agreement, claiming the Agreement would "expose the public to carcinogens, radiation and valley fever [coccidioidomycosis] and jeopardize Utahns' very lives."<sup>259</sup> The UMA and others who claimed that the Agreement would cause an "airpocalypse" put forth almost

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RECORD, Mar. 29, 2013, [http://www.parkrecord.com/ci\\_22902525/water-project-could-wreck-ecology-snake-valley](http://www.parkrecord.com/ci_22902525/water-project-could-wreck-ecology-snake-valley).

<sup>251</sup> Utah may be the most Republican state in the Union. *See, e.g.*, Jeffrey M. Jones, D.C., *Hawaii Most Democratic, Utah Most Republican State in '11*, GALLUP (Aug. 11, 2011), <http://www.gallup.com/poll/148949/hawaii-democratic-utah-republican-state.aspx>. *But see, e.g.*, Micah Cohen, *Utah: Very Republican, but Not Quite as Conservative as It Appears*, N.Y. TIMES, July 9, 2012, <http://fivethirtyeight.blogs.nytimes.com/2012/07/09/utah-very-republican-but-not-as-conservative-as-it-appears/>.

<sup>252</sup> Wayne Holland, *Snake Valley: Secret Talks, Quick Deals and a Sucker's Bet*, STANDARD-EXAMINER, Oct. 3, 2009, <http://www.standard.net/topics/opinion/2009/10/03/snake-valley-secret-talks-quick-deals-and-sucker39s-bet> (including an op-ed of Utah Democratic Party chair attacking agreement); Smart et al., *supra* note 105.

<sup>253</sup> Piatt, *supra* note 224.

<sup>254</sup> Letter from Susan Lynn et al. to Allen Biaggi, Dir., Nev. Dep't of Conservation & Natural Res. & Mike Styler, Dir., Utah Dep't of Natural Res. (Sept. 23, 2009), *available at* <http://waterrights.utah.gov/snakeValleyAgreement/comments/m025.pdf> (designated as Comment No. 25); *Utahns Protest Snake Valley Water Pact with Nevada*, SALT LAKE TRIB., Mar. 28, 2013, <http://www.sltrib.com/sltrib/news/56073626-78/valley-snake-agreement-nevada.html.csp> (reporting a statement of Steve Erickson, a member of the board of directors of the Great Basin Water Network).

<sup>255</sup> Amy Joi O'Donoghue, *Groups Urge Herbert to Hold Off on Snake Valley Water Agreement*, DESERET NEWS, Mar. 27, 2013, <http://www.deseretnews.com/article/865576823/Groups-urge-Herbert-to-hold-off-on-Snake-Valley-water-agreement.html>.

<sup>256</sup> *Id.*

<sup>257</sup> E-mail from Brian Moench, President of Utah Physicians for a Healthy Environment, to Utah Dep't of Natural Res. (Sept. 30, 2009, 12:07 AM), *available at* <http://waterrights.utah.gov/snakeValleyAgreement/comments/c138.txt> (designated as Comment No. 138); Brian Moench, *My View: Say No to Water Pipeline Agreement*, DESERET NEWS, Mar. 27, 2013, <http://www.deseretnews.com/article/865576746/Say-no-to-Water-Pipeline-agreement.html>; *see* McEntee, *supra* note 234.

<sup>258</sup> Matt Jensen, *Governor Will Not Sign Snake Valley Water Deal*, UTAH PUB. RADIO (Apr. 3, 2013, 4:31 PM), <http://www.utahpublicradio.org/post/governor-will-not-sign-snake-valley-water-deal> (quoting Zach Frankel, founding director of the Utah Rivers Council).

<sup>259</sup> Patty Henetz, *Snake Valley Water Deal Could Kill Utahans, Docs Warn*, SALT LAKE TRIB., Sept. 30, 2009, [http://www.sltrib.com/News/ci\\_13453299](http://www.sltrib.com/News/ci_13453299).

zero evidence that the project would actually increase dust storms and air pollution.<sup>260</sup> Rather, the putative public-health concerns were largely based on speculation (including claims that the Agreement would cause Great Basin aquifers to “disappear, creating a junior Sahara Desert”) and based on irrelevant comparisons (such as comparisons to the Aral Sea in Uzbekistan or the Owens Valley in California, neither of which had a monitoring and environmental protection agreement like the one proposed for Snake Valley) and the summary dismissal of the value of the Agreement’s built-in monitoring and safe-yield measures,<sup>261</sup> which in fact would be extensive and cautious,<sup>262</sup> or the ten-year study period that the Agreement would have mandated before a drop of groundwater could be withdrawn.<sup>263</sup>

Although support and opposition for the Agreement was fairly polarized across state lines, this pattern was not universal. For example, ranchers in rural White Pine County, Nevada, located in the Snake Valley, joined forces with their Utah counterparts to strongly oppose the Agreement.<sup>264</sup>

Conversely, a number of Utahns expressed support for the Agreement, arguing that the Agreement was equitable and provided useful measures for environmental protection. Supporters pointed out that Utah would fare worse if its refusal to sign the Agreement prompted protracted equitable-apportionment litigation, which could result in a court order with terms far less favorable for Utah and the environment. This was the conclusion of the review of the Agreement commissioned by Governor Herbert and conducted by water attorneys Steven E. Clyde, Dallin W. Jensen, and Warren H. Peterson—nicknamed the three water “wise men”<sup>265</sup>—released in October 2012.<sup>266</sup> Utah Department of Natural

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<sup>260</sup> Brian Moench, *Water Pact an Ecological Disaster*, SALT LAKE TRIB., Mar. 23, 2013, <http://www.sltrib.com/sltrib/opinion/56046241-82/dust-utah-valley-storms.html.csp>.

<sup>261</sup> *Id.* (asserting, with no evidence, that “[b]y the time monitoring detects vegetation die-off, the consequences will already have become irreversible.”).

<sup>262</sup> *See supra* Part II.B.3.

<sup>263</sup> *See supra* text accompanying notes 173–175.

<sup>264</sup> Emily Green, *Quenching Las Vegas’ Thirst: Part 4: Not This Water*, LAS VEGAS SUN, June 22, 2008, <http://www.lasvegassun.com/news/2008/jun/22/not-water/>; *see also* George Knapp, *Rural Residents Battle Southern Nevada Water Grab*, KLAS-TV (Sept. 22, 2006, 5:50 PM), <http://www.8newsnow.com/story/5442943/rural-residents-battle-southern-nevada-water-grab>; Longson, *supra* note 21, at 50 (“The ‘Utah side’ of the argument . . . can be more accurately termed the ‘rural side’ of the argument.”); Loomis, *supra* note 227.

<sup>265</sup> Judy Fahys, *Utah Board Wants Herbert to Reconsider Snake Valley Water Deal Rejection*, SALT LAKE TRIB., May 15, 2013, <http://www.sltrib.com/sltrib/news/56311015-78/utah-herbert-agreement-nevada.html.csp>; Paul Foy, *Nev. Water Official Says Utah in a Bad Place Rejecting Agreement*, STANDARD-EXAMINER, May 15, 2013, <http://www.standard.net/stories/2013/05/15/nev-water-official-says-utah-bad-place-rejecting-agreement>.

<sup>266</sup> Amy Joi O’Donoghue, *Report: Snake Valley Water Agreement Better Than Lawsuits*, DESERET NEWS, Oct. 29, 2012, <http://www.deseretnews.com/article/865565574/Report-Snake-Valley-water-agreement-better-than-lawsuits.html>; Christopher Smart, *Task Force Says Snake Valley Water Deal ‘Equitable’ for Utah*, SALT LAKE TRIB., Oct. 30,

Resources executive director Michael R. Styler offered similar warnings.<sup>267</sup> The chair of the Utah Republican Party<sup>268</sup> and at least two Utah media outlets also editorialized in favor of the Snake Valley Agreement, stating that an imperfect agreement would have been far better for Utah than no agreement at all.<sup>269</sup>

Much of the opposition to the Agreement was based on myth and ignores both legal and hydrological realities. Speculation about environmental damage was largely unsupported by the studies that have been conducted, while the Agreement includes extensive protections for current water users and provisions for water conservation. Most scientifically and legally unfounded were the notions of “Utah water” and a “Nevada water grab.” As the Utah Division of Water Resources’ Snake Valley Agreement Benefits Memo acknowledges: “Some have argued that any water [SNWA] takes ‘steals’ Utah’s water. This is incorrect, since Nevada is legally entitled to an equitable portion of the Snake Valley water.”<sup>270</sup> Indeed, a fact almost never brought up by opponents of the Agreement is that while “approximately 70% of the Snake Valley aquifer lies in Utah, . . . 60% of its recharge comes from snowpack in the Snake Range Mountains on the Nevada side

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2012, <http://www.sltrib.com/sltrib/news/55172176-78/agreement-utah-nevada-groundwater.html.csp>.

<sup>267</sup> E.g., Maffly, *supra* note 225 (reporting Styler’s statement that the Agreement “contains substantial protection measures that would be lost” if not signed); *see also* Patty Henetz, *Did Utah Blink in Snake Valley Talks?*, SALT LAKE TRIB., Oct. 19, 2009, [http://www.sltrib.com/news/ci\\_13596248](http://www.sltrib.com/news/ci_13596248).

<sup>268</sup> Dave Hansen, *The Truth About the Snake Valley Agreement*, STANDARD-EXAMINER, Oct. 24, 2009, <http://www.standard.net/topics/opinion/2009/10/24/truth-about-snake-valley-agreement>. In an op-ed, the Utah Republican Party chairman stated that, “[w]ithout an agreement, the Southern Nevada Water Authority has the ability to simply dig a pipeline and take water, without concern to the environment, Utah or its water users. . . . The worst gamble for Utah is to listen to those uninformed voices that believe Snake Valley is better protected with no agreement.” *Id.*

<sup>269</sup> Con Psarras, Editorial, *Snake Valley Water*, KSL-TV (Aug. 21, 2009), <http://www.ksl.com/?nid=238&sid=7611343> (“As much as its vocal opponents disdain it, the recently negotiated draft agreement between Utah and Nevada over water rights in Snake Valley provides a reasonable, proactive approach to addressing a very complex issue. . . . [T]he agreement’s basic framework is solid and warrants support.”); *Pumping Desert Water*, DESERET NEWS, Dec. 18, 2012, <http://www.deseretnews.com/article/765618071/Pumping-desert-water.html> (“The best way to protect Utah’s interests in this long struggle may be to sign an agreement between the two states that at least offers important protections for Utah. . . . [A]n agreement that provides for a clear mechanism to shut down pumps as soon as any environmental degradation is determined is much better than having no agreement at all.”).

<sup>270</sup> Memorandum from the Utah Div. of Water Rights, *Benefits of a Utah/Nevada Agreement on the Allocation and Management of the Snake Valley Aquifer 2* n.1, available at <http://waterrights.utah.gov/snakeValleyAgreement/SnakeValley-BenefitMemo.pdf>.

of the border,”<sup>271</sup> where the Snake Range’s “north-south ridge . . . rises above 13,000 feet to comb rain and snow from the desert air.”<sup>272</sup>

As discussed previously,<sup>273</sup> the Agreement would have been a far better approach to interstate groundwater management than protracted, adversarial equitable-apportionment litigation. While negotiations among sovereigns are often complex and difficult,<sup>274</sup> the advantages of a comprehensive, flexible cooperative scheme for interstate water management are highly significant.<sup>275</sup> Moreover, the advantages of cooperative management, and the drawbacks of equitable apportionment, are particularly pronounced in the context of groundwater because (a) if states choose to do nothing, the result will be a free-for-all that leads to groundwater depletion; (b) equitable apportionment outcomes are uncertain and unreliable; and (c) groundwater presents a host of complex issues specific to each

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<sup>271</sup> THREE PARAMETERS PLUS, INC. & COSHOW ENVTL., INC., BASELINE PHYSICAL HABITAT CONDITIONS OF WETLANDS IN SOUTHERN SNAKE VALLEY, UTAH: FINAL REPORT 1 (2010), available at [http://ugspub.nr.utah.gov/publications/Wildlife/Snake\\_Valley\\_Wetlands/Volume1-122010.pdf](http://ugspub.nr.utah.gov/publications/Wildlife/Snake_Valley_Wetlands/Volume1-122010.pdf) (report for the Utah Division of Natural Resources, citing BARCASS); see also Patricia Mulroy, *Beyond the Divisions: A Compact That Unites*, 28 J. LAND RESOURCES & ENVTL. L. 105, 114 (2008) (“The headwaters of the groundwater system in Snake Valley are firmly located within the state of Nevada. While most of the groundwater recharge (roughly 60 percent) is generated in Nevada, most of the land use occurs in Utah.”); Smart et al., *supra* note 105.

<sup>272</sup> Brean, *supra* note 31.

<sup>273</sup> See *supra* Part II.

<sup>274</sup> Carlton James Gausman, Comment, *The Interstate Compact as a Solution to Regional Problems: The Kansas City Metropolitan Culture District*, 45 U. KAN. L. REV. 897, 906 (1997) (noting that “[t]he most notable problem” of interstate compacts is the “difficulty of achieving agreement among the legislatures of different jurisdictions,” which makes negotiations “a slow and cumbersome process at best,” and that the average length of time to create compacts dealing “with river management and control” is 8.75 years). See also Gavin Clarkson & Jim Sebenius, *Leveraging Tribal Sovereignty for Economic Opportunity: A Strategic Negotiations Perspective*, 76 MO. L. REV. 1045, 1085 (2011) (“When approaching a negotiation, the parties must address its relevant context. A non-exclusive list of contextual factors includes economic, competitive, historical, political, institutional, and organizational matters.”).

<sup>275</sup> Gausman, *supra* note 274, at 906–07 (“Time delays . . . should not be ‘a fatal handicap to the compact,’ as the benefits outweigh the harms of political delay.”); Justin Newell Hesser, Comment, *The Nature of Interstate Groundwater Resources and the Need for States to Effectively Manage the Resource Through Interstate Compacts*, 11 WYO. L. REV. 25, 41–43 (2011) (arguing that “the best solution” for interstate groundwater disputes is an interstate compact that controls groundwater depletion, dispels uncertainty, and addresses the unique issues of each aquifer); Alyssa S. Lathrop, Comment, *A Tale of Three States: Equitable Apportionment of the Apalachicola-Chattahoochee-Flint River Basin*, 36 FLA. ST. U. L. REV. 865, 879, 899–901 (2009) (noting that “cooperative,” “forward-looking,” and “flexible” joint basin management regimes are far preferable to “extended litigation” as method of resolving Apalachicola-Chattahoochee-Flint river basin conflict among Florida, Georgia, and Alabama).

aquifer.<sup>276</sup> These considerations explain why interstate agreements are “the mechanism of ‘judicial and congressional preference’ in resolving interstate water disputes,” in preference to adjudication or congressional apportionment,<sup>277</sup> and what motivated Congress to its 2004 directive to Utah and Nevada in the first place.

In a presentation delivered in March 2003, before the proverbial lines for the dispute had been drawn, Deputy Utah State Engineer Boyd Clayton explained that the states had a choice: “cooperative Nevada/Utah aquifer management with common goals and built-in environmental protection,” or “individual state aquifer management agendas destined to inevitable discord.”<sup>278</sup> After years of painstaking negotiation, concessions, and studies to advance the first option, Utah ultimately chose the latter course.

The door to the Snake Valley Agreement is slammed shut, but it is not yet locked. Almost immediately after Governor Herbert announced that he would not sign the Agreement, several influential Utahns urged him to reconsider.

The most notable push for reconsideration came from the Utah’s Joint Gubernatorial and Legislative State Water Development Commission, a statutorily created body charged with determining “the state’s role in the protection, conservation, and development of the state’s water resources.”<sup>279</sup> The twenty-nine member bipartisan Commission is composed of thirteen voting members and sixteen nonvoting members.<sup>280</sup> The voting members are five state senators, appointed by the Senate president, and eight state representatives, appointed by the speaker of the state House.<sup>281</sup> The statute mandates balance on the Commission: no more than four of the Senate appointees and six of the House appointees may be from the same political party, and the Senate president and House speaker are directed by statute to appoint members, “to the extent possible,” who “represent both rural and urban areas of the state.”<sup>282</sup> The sixteen nonvoting members include representatives from each of the ten water districts in Utah, the executive directors of the State Department of Natural Resources and the Department of Environmental Quality, one representative each from the “organized

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<sup>276</sup> Hesser, *supra* note 275, at 41–43.

<sup>277</sup> See E. Leif Reid, Note, *Ripples From the Truckee: The Case for Congressional Apportionment of Disputed Interstate Water Rights*, 14 STAN. ENVTL. L.J. 145, 158–62 (1995); see also *Arizona v. California*, 373 U.S. 546, 564 (1963) (“In exercising [original] jurisdiction [of interstate disputes], we are mindful of this Court’s often expressed preference that, where possible, States settle their controversies by ‘mutual accommodation and agreement.’”).

<sup>278</sup> Boyd Clayton, *Utah/Nevada Ground-Water Agreement*, Utah Div. of Water Rights (Mar. 19, 2013) (Powerpoint presentation available at [http://www.waterrights.utah.gov/meetinfo/m20130318\\_wuw/20130319-bclayton-WUW.ppt](http://www.waterrights.utah.gov/meetinfo/m20130318_wuw/20130319-bclayton-WUW.ppt)).

<sup>279</sup> UTAH CODE ANN. § 73-27-102(1) (West 2004).

<sup>280</sup> *Id.* § 102(2).

<sup>281</sup> *Id.* § 102(2)(a)–(b).

<sup>282</sup> *Id.* § 102(2)–(3).

environmental” and “agricultural production” communities, the State Commissioner of Agriculture and Food, a member of the State Board of Water Resources, and an appointee of the Governor.<sup>283</sup>

On May 14, a little after two months after Governor Herbert announced that he would not sign the Agreement, the Commission weighed in publicly, voting to send the governor a letter “urging Herbert to reverse course and sign” an agreement, which the Commission urged would best protect “Snake Valley water rights and statewide interests.”<sup>284</sup> The letter warned that “[a]bsent an agreement, Nevada could take action that would allow the transfer of Utah water to Nevada without any Utah involvement or oversight” and that “[w]ithout [the] protections provided in the agreement, negative environmental impacts could affect the entire state, not just the Snake Valley area.”<sup>285</sup> All but a single member of the Commission voted to send the letter; the four representatives of Herbert’s administration (DEQ director Amanda Smith, DNR director Michael R. Styler, and Deputy Chief of Staff Mike Mower) abstained.<sup>286</sup> Among the leading members of the Commission is Washington County Water Conservancy District General Manager Ronald W. (Ron) Thompson, described as an influential figure in Western water circles.<sup>287</sup> It was Thompson who articulated a number of the Commission’s concerns.<sup>288</sup>

The Commission raised three concerns about Utah’s decision to back down from the Snake Valley Agreement, focusing on the merits of the Agreement, the reputational costs of rejecting the Agreement, and the broader breakdown in regional water management cooperation that a rejection would cause.

The Commission’s first argument was simple: Utah is unlikely to get a better deal than the Agreement offered. Thompson expressed a view that “the deal was

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<sup>283</sup> *Id.* § 102(2)(c).

<sup>284</sup> Fahys, *supra* note 265; see also Amy Joi O’Donoghue, *Group of Utah Legislators Wants Herbert to Reconsider Snake Valley Decision*, DESERET NEWS, May 14, 2013, <http://www.deseretnews.com/article/865580042/Group-of-Utah-legislators-wants-Herbert-to-reconsider-Snake-Valley-decision.html>; Brian Maffly, *Rejecting Nevada Water Deal Hurts Utah, Critics Say*, SALT LAKE TRIB., May 25, 2013, <http://www.sltrib.com/sltrib/news/56337675-78/utah-nevada-agreement-valley.html.csp>.

<sup>285</sup> Brian Maffly, *Herbert Not Budging on Snake Valley Deal*, SALT LAKE TRIB., June 18, 2013 <http://www.sltrib.com/sltrib/news/56478014-78/utah-agreement-nevada-valley.html.csp>.

<sup>286</sup> Fahys, *supra* note 265.

<sup>287</sup> Maffly, *supra* note 284. Thompson sits on the board of the National Water Resources Association, see *Board of Directors*, NAT’L WATER RESOURCES ASS’N, <http://www.nwra.org/about/board-directors/> (last visited Jan. 12, 2014), and has testified on water issues before Congress, see *Research to Improve Water-Use Efficiency and Conservation: Technologies and Practices: Hearing before the Subcomm. on Energy & Env’t of the H. Comm. on Sci., Space, and Tech.* 14–17, 110th Cong. (2007) (statement of Ronald W. Thompson, General Manager, Washington County Water Conservancy District).

<sup>288</sup> Maffly, *supra* note 284.

sensible and solid” and felt “mystified about the objections raised by” those who had opposed the deal.<sup>289</sup> “Ultimately they [the Nevadans] will figure out how to” go through with the Snake Valley project, Thompson warned, and Utah will get no more favorable terms than Nevada was offering in the proposed agreement, which Thompson stressed was “a strong agreement in Utah’s favor.”<sup>290</sup> Utah Senator Scott K. Jenkins of Plain City, a Republican and Commission member, stated that the decision not to sign the Agreement was “a colossal mistake . . . .”<sup>291</sup> Utah Senator Margaret Dayton of Orem, also a Republican and Commission member, expressed similar views.<sup>292</sup> As we discuss *infra*, this concern is highly salient because Nevada is likely to prevail in equitable-apportionment litigation.<sup>293</sup> Warren H. Peterson, one of the three water “wise men” who wrote the study urging Governor Herbert to sign the Agreement, gave a presentation to the Commission before the vote, urging a “reset” of agreement consideration allowing the governor to sign an “imperfect [but] good enough agreement.”<sup>294</sup> Peterson criticized the emotionalism that contributed to the political pressure on Governor Herbert to reject the Agreement, telling the Commission that the media “distort[ed] the facts about” the Agreement and stirred “up a frenzy of opposition,”<sup>295</sup> and criticizing “sound bite” rhetoric (such as “we can have crops or craps”) as “entertaining” but lacking in “probative value . . . .”<sup>296</sup>

The second concern raised by the Commission was that the rejection of the deal after years of negotiations exacted reputational costs of the state, risking “the state’s reputation for above-board dealing.”<sup>297</sup> When a state backs down from an agreement following exhaustive negotiations and signs of preliminary commitment, some reputational loss is incurred, which affects how willing other states will be to engage with the state in future.<sup>298</sup> Thompson stated that “the

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<sup>289</sup> Fahys, *supra* note 265.

<sup>290</sup> Maffly, *supra*, note 284 (alteration in original) (quoting Thompson as stating: “It’s a false premise that if Utah doesn’t come to an agreement, Nevada won’t be able to develop its water interest [in the Snake Valley].”).

<sup>291</sup> O’Donoghue, *supra* note 284.

<sup>292</sup> Amy Joi O’Donoghue, *Governor Herbert Says He Won’t Change His Mind on Snake Valley Water Sharing Agreement*, DESERET NEWS, June 18, 2013, <http://www.deseretnews.com/article/865581863/Governor-Herbert-says-he-wont-change-his-mind-on-Snake-Valley-water-sharing-agreement.htm> (quoting Dayton as stating: “The pumping may be in the future, but the time to address the concern is now . . . . I am disappointed that this is not a position that is shared by the executive branch.”).

<sup>293</sup> See *infra* Part III.C.

<sup>294</sup> Fahys, *supra* note 265 (alteration in original).

<sup>295</sup> O’Donoghue, *supra* note 284.

<sup>296</sup> Fahys, *supra* note 265.

<sup>297</sup> *Id.*

<sup>298</sup> See Brooks V. Rice, *The “Triumph” of the Commons: An Analysis of Enforcement Problems and Solutions in the Western Climate Initiative*, 22 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 401, 428–33 (2010) (citation omitted) (stating, in discussion of Western Climate Initiative, that “[w]hile not typically thought of as such, the reputational incentive

comity of how the states can work together is jeopardized,”<sup>299</sup> a deviation from Utah’s “long history [of] working with all the basin states and Nevada” along its “long border . . . .”<sup>300</sup> The concern about the credibility of Utah’s commitment to good-faith negotiations and cooperation was underscored by statements from the Nevadan side, sharply criticizing Utah on this very point.<sup>301</sup>

The Commission’s third concern, related to the second, centers on the effects of the Agreement’s rejection on regional water management cooperation. Interstate agreements are fundamentally reciprocal in nature, and several Commissioners expressed a well-founded fear that Utah’s rejection of the deal will return to haunt the state in its own pursuit of transboundary water resources. Thompson “publicly link[ed]” the Snake Valley groundwater project to Utah’s own proposed Lake Powell project, which seeks to build a 139-mile pipeline to deliver, at full development, 100,000 acre-feet per year of water from Lake Powell—part of Utah’s Upper Colorado River Compact allocation—to the Kanab and St. George areas in Washington, Kane, and Central Iron counties.<sup>302</sup> Like the Snake Valley Aquifer, the Lake Powell project implicates the rights of Lower Colorado River Basin states, including Utah, as well as the Indian tribes.<sup>303</sup> Because of this, Thompson said that it was “hypocritical for us [Utahns] to tell Nevada not to

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is very much a type of sanction” and that “[t]hough the actual impact may be small, failure to ‘get on board’ may be severe enough”). The significance of a reputation for cooperativeness (or lack of cooperativeness) is described in the analogous international context by Rachel Brewster, *Unpacking the State’s Reputation*, 50 HARV. INT’L L.J. 231, 236–37, 266 (2009) (“Reputation is a causal mechanism because it influences the future range of cooperative activities available to the state. Without a good reputation, other states will not want to enter into cooperative agreements that provide joint gains because of the possibility of opportunistic defection. . . . The state will be isolated when it needs the cooperation of other states to achieve its goals.”).

<sup>299</sup> Fahys, *supra* note 265.

<sup>300</sup> Maffly, *supra* note 284.

<sup>301</sup> See *infra* notes 309–313.

<sup>302</sup> Maffly, *supra* note 284; *Lake Powell Pipeline Background*, Utah Div. of Water Resources, <http://www.water.utah.gov/lakepowellpipeline/GeneralInformation/default.asp> (providing details and updates on the project) (last visited Jan. 14, 2014). The project was authorized in 2006 by the Utah Legislature. Lake Powell Pipeline Development Act, 2006 Utah Laws (S.B. 27), ch. 216, eff. May 1, 2006, (codified at UTAH CODE § 73-28-101 to 405). But, it has been stalled amid opposition and declining growth in the St. George area. Lee Davidson, *Slowing Growth May Delay or Kill Lake Powell Pipeline*, SALT LAKE TRIB., Jul. 31, 2012, <http://archive.sltrib.com/article.php?id=22352959&itype=storyID>; Amy Joi O’Donoghue, *Lake Powell Pipeline Foes Rejoice in Delay*, DESERET NEWS, Feb. 8, 2013, <http://www.deseretnews.com/article/865572677/Lake-Powell-pipeline-foes-rejoice-in-delay.html>.

<sup>303</sup> See Maffly, *supra* note 284; see generally Alice E. Walker, *Protecting Sacred Tribal Sites: The Lake Powell Pipeline Project*, ASPATORE (Apr. 2013), available at 2013 WL 2136517 (discussing how the Paiute Indians might approach the pipeline project in order to best mitigate its effects).

develop a water project” and warned that the soured relations resulting from rejection of the Snake Valley Aquifer Agreement would encourage Nevada to block Utah from obtaining the necessary water rights, regulatory approvals, and rights of way for its Lake Powell project.<sup>304</sup> Herbert soon reaffirmed his decision to kill the Agreement, stating in a reply letter to the Commission that he stands by his decision to reject the deal but hoped to renegotiate for a more equitable deal in the future.<sup>305</sup> In July and August 2013, the Governor began a series of seven public “listening sessions” on water issues ahead of a summit scheduled for October 2013.<sup>306</sup>

### III. EQUITABLE APPORTIONMENT OF INTERSTATE GROUNDWATER

If Governor Herbert does not reconsider his decision, and assuming Congress does not intervene,<sup>307</sup> the political death of the Snake Valley Agreement will almost certainly lead to litigation. The negotiation of the Agreement has occurred in the shadow of this prospect.<sup>308</sup> Now that the Agreement is likely kaput, both

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<sup>304</sup> Maffly, *supra* note 284. Of course, this argument did not appeal to those who are critics of both the Lake Powell and the Snake Valley projects, who would be happy to see both plans collapse. *See id.* (noting that opponents “ridiculed Thompson’s position as a self-serving gesture to protect the controversial Lake Powell Pipeline proposal”); O’Donoghue, *supra* note 302 (further detailing opposition and objections to Lake Powell project).

<sup>305</sup> Maffly, *supra* note 285 (noting Herbert hoped to “negotiate a new deal acceptable to Snake Valley residents”); O’Donoghue, *supra* note 292 (citing a letter to the commission).

<sup>306</sup> These sessions were scheduled in March 2013 before the decision not to sign the Agreement was made. Amy Joi O’Donoghue, *Thirsty? Utah’s Water Future Will Be Mapped by Input in Upcoming Meetings*, DESERET NEWS, July 7, 2013, <http://www.deseretnews.com/article/865582750/Thirsty-Utahs-water-future-will-be-mapped-by-input-in-upcoming-meetings.html>.

<sup>307</sup> Warren H. Peterson suggested that Senator Harry Reid of Nevada, the Senate majority leader, could push through an amendment to the 2004 legislation allowing Nevada to begin groundwater development in the Snake Valley without Utah’s consent, telling the Commission that “[w]e’re getting ready to see a door closed here . . . .” Foy, *supra* note 265. But congressional apportionment is rare and politically difficult. *See infra* notes 381–385 and accompanying text.

<sup>308</sup> It is axiomatic that bargaining over legal matters occurs “in the shadow of” existing law. Robert H. Mnookin & Lewis Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950, 968 (1979). This is true when sovereigns negotiate with one another, as well as when private parties negotiate with each other, or when private parties negotiate with the state (as in plea bargaining), especially given the uncertainty of how transboundary water disputes would be resolved in the absence of agreement. *See generally* Ron M. Rosenberg, *When Sovereigns Negotiate in the Shadow of the Law: The 1998 Arizona-Pima Maricopa Gaming Compact*, 4 HARV. NEGOT. L. REV. 283 (1999) (analyzing the process by which the Salt River Pima-Maricopa Indian Community and the State of Arizona negotiated the first tribe-state gaming compact);

States have sent clear signals that they expect an equitable apportionment action to be filed by Nevada and are mobilizing for this protracted legal battle.

Following Utah's rejection of the Agreement, Nevada officials expressed anger and disappointment. Leo Drozdoff, the Director of the Nevada Department of Conservation and Natural Resources, stated that the agency was "disappointed by this decision and are evaluating all of our options in light of Gov. Herbert's decision," noting that the Snake Valley Agreement "was negotiated over many years and in good faith . . . ." <sup>309</sup> Mulroy, the Southern Nevada Water Authority (SNWA) general manager, stated that Utah's move was "an absolute slap in the face to the State of Nevada," asking "[w]hy would any state sit down and spend four years negotiating with Utah? . . . Their credibility has been completely undermined." <sup>310</sup>

These sentiments were echoed by other SNWA officials, who stated, "[w]e can't simply accept the governor saying, '[w]e're not going to sign,' and live with it . . . 'Congress directed the two states to reach an agreement. Congress did not give one state the authority to prevent the other from developing water resources within its own borders.'" <sup>311</sup>

Utah has also taken steps to prepare its legal defense. In 2013 the state enacted legislation that created a new mandate for the Constitutional Defense Council—a state body charged with "assist[ing] the governor and the Legislature" on various types of issues, including "a disagreement with another state regarding the use or ownership of water"—to "study, formulate, and recommend appropriate legal strategies and arguments" in preparation for such cases. <sup>312</sup> The bill also made one-time appropriations for Utah's interstate-dispute legal costs, and authorized future appropriations for "asserting, defending, or litigating an issue arising with another state regarding the use or ownership of water . . . ." <sup>313</sup>

Most likely, litigation over Snake Valley will take the form of an equitable apportionment action between Nevada and Utah before the Supreme Court of the United States. As detailed below, the Constitution vests the Supreme Court with original jurisdiction to hear disputes between the states. <sup>314</sup> In exercising this jurisdiction for disputes involving shared surface waters, the Supreme Court has

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Benjamin L. Snowden, *Bargaining in the Shadow of Uncertainty: Understanding the Failure of the ACF and ACT Compacts*, 13 N.Y.U. ENVTL. L.J. 134 (2005) (analyzing the failure of the Apalachicola-Chattahoochee-Flint River Basin Compact and the Alabama-Coosa-Tallapoosa River Basin Compact for lessons on negotiation structure).

<sup>309</sup> O'Donoghue, *supra* note 106.

<sup>310</sup> Foy, *supra* note 265.

<sup>311</sup> Brean, *supra* note 31 (statement of Southern Nevada Water Authority deputy general manager John Entsminger).

<sup>312</sup> Constitutionalism and Federalism Defense Act, H.B. 131, ch. 101, 2013 Utah Laws (codified at UTAH CODE § 63C-4a-203).

<sup>313</sup> *Id.* (codified at UTAH CODE § 63C-4a-402).

<sup>314</sup> *See* U.S. CONST. art. III, §§ 1, 2.

developed and applied the doctrine of equitable apportionment.<sup>315</sup> The Snake Valley Aquifer dispute could present the Supreme Court with its first opportunity to apply the equitable apportionment doctrine to groundwater.<sup>316</sup> While there are some differences between surface water and groundwater law, the resources and policy concerns are similar enough that equitable apportionment can be adopted and applied rationally in an interstate groundwater dispute, as demonstrated in the recent interstate dispute between Tennessee and Mississippi in the Fifth Circuit.<sup>317</sup> After exploring the equitable apportionment doctrine and its application to interstate groundwater disputes, this Part concludes with a brief analysis of a potential action brought by Nevada against Utah over the Snake Valley Aquifer.

It is important to note the federalism context for equitable apportionment. Since the enactment of the federal Clean Water Act in 1972,<sup>318</sup> the federal government has taken a central role in protecting interstate water quality. However, Congress has generally left protection of water quantity and management of water resources (including groundwater) to the states and is likely to continue to do so.<sup>319</sup> States have thus developed and crafted common law and statutory regimes to allocate and manage their water resources.

However, when water resources cross state lines and are subject to competing legal claims and uses, federal involvement becomes necessary. Congressional apportionment of the shared water resource has been approved by the Supreme Court as a mechanism to resolve interstate water disputes,<sup>320</sup> but has historically been used far less than interstate compacts. Congress has only twice used its power to apportion waters, but both instances involved Nevada—the Boulder Canyon Project Act<sup>321</sup> and Truckee-Carson-Pyramid Lake Water Rights Settlement Act.<sup>322</sup>

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<sup>315</sup> See generally *Colorado v. New Mexico*, 467 U.S. 310 (1984) (*Colorado II*); *Colorado v. New Mexico*, 459 U.S. 176 (1982) (*Colorado I*).

<sup>316</sup> See *Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1017 (1983) (“Although that doctrine has its roots in water rights litigation, the natural resource of anadromous fish is sufficiently similar to make equitable apportionment an appropriate mechanism for resolving allocative disputes.”). The Fifth Circuit noted this in reasoning that equitable apportionment applies to groundwater. *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 630 n.6 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010).

<sup>317</sup> See *Hood*, 570 F.3d at 632.

<sup>318</sup> Federal Water Pollution Control Act, Pub. L. No. 92-500, 86 Stat. 896 (1972) (codified at 33 U.S.C. §§ 1251–1376).

<sup>319</sup> See Hall, *supra* note 12, at 411; see also Robert Haskell Abrams, *Interstate Water Allocation: A Contemporary Primer for Eastern States*, 25 U. ARK. LITTLE ROCK L. REV. 155, 156 (2002) (“[D]espite the combination of the commerce power and the Supremacy Clause that together allow the national government to propound a meaningful water policy with allocative features, the national government has not done so and is unlikely to do so any time soon.”).

<sup>320</sup> *Arizona v. California*, 373 U.S. 546, 564–66 (1963).

<sup>321</sup> Pub. L. No. 70-642, 45 Stat. 1057 (codified as amended and supplemented at 43 U.S.C. §§ 617-617v (1928)). In this Act, Congress gave its approval for the Colorado River Compact and authorized the construction of the Hoover Dam. Margaret Bushman

As Congress has already played a role in framing the Snake Valley dispute, further congressional action is a viable option if the states cannot resolve the matter amicably.<sup>323</sup> Absent congressional apportionment, states are left to resolve their interstate disputes through either equitable apportionment in the Supreme Court (the focus of this Part) or an interstate compact (explored in Part II, *supra*).

#### A. *The Equitable Apportionment Doctrine*

When a state party wishes to have the Supreme Court adjudicate its dispute with another state, it files a motion for leave to file a bill of complaint in the Court.<sup>324</sup> While the Court has original, exclusive jurisdiction over suits between states,<sup>325</sup> and as such jurisdiction might appear mandatory, the Court “has rejected

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LaBianca, Note, *The Arizona Water Bank and the Law of the River*, 40 ARIZ. L. REV. 659, 664 (1998). This Act remains the foundational document of the “Law of the River” today. Douglas Kenney et al., *The Colorado River and the Inevitability of Institutional Change*, 32 PUB. LAND & RESOURCES L. REV. 103, 105 n.6, 140–41 (2011); James S. Lochhead, *An Upper Basin Perspective on California’s Claims to Water from the Colorado River, Part I: the Law of the River*, 4 U. DENV. WATER L. REV. 290, 291 n.5 (2001).

<sup>322</sup> Truckee-Carson-Pyramid Lake Water Rights Settlement Act, Pub. L. No. 101–618, § 204, 104 Stat. 3294, 3296–304 (1990).

<sup>323</sup> See Josh Clemons, *Interstate Water Disputes: A Road Map for States*, 12 SOUTHEASTERN ENVTL. L.J. 115, 128 (2004); see also Douglas L. Grant, *Interstate Allocation of Rivers Before the United States Supreme Court: The Apalachicola-Chattahoochee-Flint River System*, 21 GA. ST. U. L. REV. 401, 409–10 (2004). Commentators are split on the desirability of congressional apportionment. Compare Reid, *supra* note 277, at 177–79 (arguing that congressional apportionment is superior to other forms of apportionment), and Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1, 48–53 (1966) (same), with David N. Copas, Jr., *The Southeastern Water Compact, Panacea or Pandora’s Box? A Law and Economics Analysis of the Viability of Interstate Water Compacts*, 21 WM. & MARY ENVTL. L. & POL’Y REV. 697, 714–16 (1997) (arguing “that congressional apportionment should be avoided at all costs”). This debate is often beside the point, as congressional intervention is not forthcoming in the vast majority of cases. See Andrew Thornley, *A Tale of Two River Basins: The Southeast Finds Itself in a Rare Interstate Water Struggle*, 9 U. DENV. WATER L. REV. 97, 98 (2005) (“Congressional apportionment . . . is a politically non-viable option . . .”).

<sup>324</sup> See Anne-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Supreme Court’s Original Jurisdiction Cases*, 86 MINN. L. REV. 625, 639 (2002); see generally Vincent L. McKusick, *Discretionary Gatekeeping: The Supreme Court’s Management of Its Original Jurisdiction Docket Since 1961*, 45 ME. L. REV. 185 (1993) (detailing Supreme Court procedure and practice for managing its original jurisdiction docket).

<sup>325</sup> The original jurisdiction of the Supreme Court to adjudicate interstate disputes stems from the Constitution. U.S. CONST. art. III, §§ 1, 2 (“The Judicial Power [of the United States] shall extend . . . to Controversies between two or more States . . .”), while the exclusive jurisdiction of the Court to hear such disputes stems from statute, 28 U.S.C.

any notion that the presence of a state as a party is dispositive proof that the case falls within its original jurisdiction.”<sup>326</sup> The Court votes on whether to grant leave to allow the filing of a complaint commencing an original jurisdiction action, and a majority vote is required to grant such leave.<sup>327</sup> Original jurisdiction cases are exceedingly rare, with the Court docketing between zero and four per term; in the Court’s entire history, fewer than two hundred original jurisdiction cases have been decided.<sup>328</sup> While almost all of these have been interstate disputes,<sup>329</sup> only some were interstate water disputes, and only some of these involved apportionment of waters.

While Eleventh Amendment sovereign immunity does not apply to interstate disputes since such immunity does not extend to disputes between sovereigns,<sup>330</sup> interstate disputes face some of the same procedural hurdles as other cases. Interstate disputes, like all cases, must be justiciable, subject to the constitutional

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§ 1251(a) (2006) (“The Supreme Court shall have original and exclusive jurisdiction of all controversies between two or more States.”).

<sup>326</sup> Carstens, *supra* note 324, at 640. The Court has expressed concern about such fact-intensive cases overwhelming its discretionary-appeals docket. *See, e.g.*, *Washington v. Gen. Motors Corp.*, 406 U.S. 109, 113 (1972) (“The breadth of the constitutional grant of this Court’s original jurisdiction dictates that we be able to exercise discretion over the cases we hear under this jurisdictional head, lest our ability to administer our appellate docket be impaired.”).

<sup>327</sup> Carstens, *supra* note 324, at 639. This is in contrast to petitions to grant a writ of certiorari, the source of the vast majority (some 95%) of the Court’s docket, which require just four votes in grant under the Court’s longstanding “rule of four,” which generally provides that “the Court will schedule full briefing and oral argument whenever four Justices agree that a case deserves plenary consideration.” Richard L. Revesz & Pamela S. Karlan, *Nonmajority Rules and the Supreme Court*, 136 U. PA. L. REV. 1067, 1069 (1988).

<sup>328</sup> 17 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & EDWARD H. COOPER, *FEDERAL PRACTICE AND PROCEDURE* § 4042 n.1 (3d ed. 2007) (providing a term-by-term summary of original-jurisdiction cases from 1983 to 2003); Carstens, *supra* note 324, at 638–39 (noting that “[a]s of the late 1990s, the Court has decided roughly 170 original jurisdiction cases in its more than two hundred years of existence”).

<sup>329</sup> The modern statute provides that the Supreme Court has “original and exclusive jurisdiction” over only “controversies between two or more States,” and “original but not exclusive jurisdiction of all actions or proceedings to which ambassadors, other public ministers, consuls, or vice consuls of foreign states are parties”; “controversies between the United States and a State”; and “actions or proceedings by a State against the citizens of another State or against aliens.” 28 U.S.C. § 1251 (2006). There have been “only two cases prosecuted to judgment on the merits” under the other basis for the Court’s original jurisdiction—that of “actions or proceedings to which ambassadors, other public ministers, consuls, or vice consuls of foreign states are parties.” WRIGHT, MILLER & COOPER, *supra* note 328, § 4050 (identifying the only two cases as *Casey v. Galli*, 94 U.S. 673 (1876) and *Jones v. Le Tombe*, 3 U.S. 384 (3 Dall. 1798)).

<sup>330</sup> *See, e.g.*, *Blatchford v. Native Vill. of Noatak*, 501 U.S. 775, 782 (1991); *Principality of Monaco v. Mississippi*, 292 U.S. 313, 328 (1934); *South Dakota v. North Carolina*, 192 U.S. 286, 318 (1904).

limits of the Case or Controversy Clause of Article III,<sup>331</sup> as well as judicially created prudential doctrines.

It is well established that interstate water disputes are justiciable and are not subject to the political-question doctrine since the creation of original jurisdiction for interstate disputes made clear that the Court has a duty to adjudicate even these sensitive and politically charged questions.<sup>332</sup> Standing is almost always present in major interstate water disputes since such disputes either directly implicate sovereign interests or are subject to the doctrine of *parens patriae*.<sup>333</sup> The doctrines of mootness<sup>334</sup> and ripeness<sup>335</sup> also apply. In interstate water disputes a controversy is ripe when the case is of “serious magnitude and fully and clearly proved” so as to warrant adjudication by the Court.<sup>336</sup> Thus, a “potential threat of injury, representing as it does only a possibility for the indefinite future, is no basis for a decree in an interstate suit” because the Court “cannot issue declaratory decrees.”<sup>337</sup> Put differently, the Court “will not exert its extraordinary power to control the conduct of one State at the suit of another, unless the threatened invasion of rights is of serious magnitude and established by clear and convincing

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<sup>331</sup> See U.S. CONST. art. III, § 2.

<sup>332</sup> WRIGHT, MILLER & COOPER, *supra* note 328, § 4051 (“And as the remedies resorted to by independent States for the determination of controversies raised by collision between them were withdrawn from the States by the Constitution, a wide range of matters, susceptible of adjustment, and not purely political in their nature, was made justiciable by that instrument.”) (citing *Kansas v. Colorado*, 185 U.S. 125, 141 (1902)); see also *South Carolina v. North Carolina*, 558 U.S. 256, 267 (2010) (“this Court exercises . . . jurisdiction to resolve controversies between States that, if arising among independent nations, ‘would be settled by treaty or by force’”) (quoting *Kansas v. Colorado*, 206 U.S. 46, 98 (1907)); *Nebraska v. Wyoming*, 325 U.S. 589, 608 (1945). The Court stated that over-appropriation of water “has precipitated a clash of interests which between sovereign powers could be traditionally settled only by diplomacy or war. The original jurisdiction of this Court is one of the alternative methods provided by the Framers of our Constitution.” *Id.*

<sup>333</sup> *South Carolina*, 558 U.S. at 274 (“[A] State’s sovereign interest in ensuring an equitable share of an interstate river’s water is precisely the type of interest that the State, as *parens patriae*, represents on behalf of its citizens.”); see also 81A C.J.S. *States* § 530 (2013) (explaining doctrine of *parens patriae*); Romualdo P. Eclavea, Annotation, *State’s Standing to Sue on Behalf of its Citizens*, 42 A.L.R. FED. 23 (1979).

<sup>334</sup> WRIGHT, MILLER & COOPER, *supra* note 328, § 4051 (“Original jurisdiction cases are likely to involve enduring disputes. But if the dispute should disappear by settlement or otherwise, there is little reason to suppose that the principles of mootness should be any different for original actions than for other actions.”) (citing *Arkansas v. Texas*, 351 U.S. 977 (1956) (dismissing interstate original jurisdiction case as moot)).

<sup>335</sup> *Id.*

<sup>336</sup> *Colorado v. Kansas*, 320 U.S. 383, 393 & n.8 (1943) (citing *Missouri v. Illinois*, 200 U.S. 496, 520–21 (1906) (*Missouri II*) and five other interstate original jurisdiction cases).

<sup>337</sup> *Nebraska v. Wyoming*, 325 U.S. 589, 608 (1945) (citing *Arizona v. California*, 283 U.S. 423, 462–64 (1931)).

evidence.”<sup>338</sup> Perhaps this is rooted in the idea that original jurisdiction “is one of the mighty instruments which the framers of the Constitution provided so that adequate machinery might be available for the peaceful settlement of disputes between States” and, thus, not appropriate for de minimis disputes.<sup>339</sup> Accordingly, the Court has a number of times rejected (without opinion) a state’s motion for leave to file a complaint invoking the Court’s original jurisdiction,<sup>340</sup> taking as “relevant considerations . . . not only the seriousness and dignity of the claim, but also the availability of another forum.”<sup>341</sup>

Water apportionment cases present “[p]articularly close questions” of justiciability.<sup>342</sup> The Court has held that where the dependable natural flow of a stream is insufficient to meet all appropriate rights, “the clash of interests” involved is “of that character and dignity” to make the controversy justiciable, even if water has not yet begun to be withdrawn as part of the project at issue.<sup>343</sup>

Once the prerequisites of standing are established, analysis on the merits of equitable apportionment begins. Equitable apportionment rests on two related rationales. The first, explained by Justice Holmes, is a practical one: water is a “necessity of life that must be rationed among those who have power over it,” and where two states “have real and substantial interests” in interstate water, those interests “must be reconciled as best they may be.”<sup>344</sup> The second, derived from our constitutional scheme and international law,<sup>345</sup> respects the states as

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<sup>338</sup> *Connecticut v. Massachusetts*, 282 U.S. 660, 669 (1931).

<sup>339</sup> *Georgia v. Penn. R.R. Co.*, 324 U.S. 439, 450 (1945).

<sup>340</sup> *E.g.*, *California v. West Virginia*, 454 U.S. 1027, 1027 (1981) (denying motion for leave to file bill of complaint in case concerning “alleged breach of contract covering athletic contests between two state universities” without opinion); *see also id.* at 1028 (Stevens, J., dissenting from denial of motion for leave to file bill of complaint) (“The fact that two sovereign States have been unable to resolve this matter without adding to our burdens does not speak well for the statesmanship of either party but does not, in my opinion, justify our refusal to exercise our exclusive jurisdiction . . .”).

<sup>341</sup> WRIGHT, MILLER & COOPER, *supra* note 328, § 4053.

<sup>342</sup> *Id.* at § 4051.

<sup>343</sup> *Nebraska*, 325 U.S. at 609–10 (“The fact that Colorado’s proposed projects are not planned for the immediate future is not conclusive in view of the present over-appropriation of natural flow.”).

<sup>344</sup> *New Jersey v. New York*, 283 U.S. 336, 342–43 (1931).

<sup>345</sup> The principle that the states of the United States are juridically equal is analogous to the international-law principle that sovereign states are juridically equal to one another. *See* Thomas H. Lee, *Making Sense of the Eleventh Amendment: International Law and State Sovereignty*, 96 NW. U. L. REV. 1027, 1027–33 (2002) (noting that “the Founders understood the States as sovereign entities bound together in an interdependent coexistence very much like the community of nations,” and suggesting that the Eleventh Amendment is “consistent with the sovereign equality principle, presuming no difference between the sovereign dignity of a State and a nation-state, a powerful statement in itself about the sovereign dignity of the American states”); *see also* ROBERT A. KLEIN, *SOVEREIGN EQUALITY AMONG STATES: THE HISTORY OF AN IDEA* 143 (1974).

sovereigns: the sovereign states are juridical equals and have “equality of right” among them.<sup>346</sup> Because of this, whenever

the action of one state reaches, through the agency of natural laws, into the territory of another state, the question of the extent and the limitations of the rights of the two states becomes a matter of justiciable dispute between them, and this court is called upon to settle that dispute in such a way as will recognize the equal rights of both and at the same time establish justice between them.<sup>347</sup>

Of course, equality of right does not mean an “equal division of the water,” but instead means an “equal level or plane on which all the states stand, in point of power and right, under our constitutional system.”<sup>348</sup>

Equitable apportionment is a doctrine of federal common law.<sup>349</sup> “It is a flexible doctrine which calls for ‘the exercise of an informed judgment on a consideration of many factors to secure a ‘just and equitable’ allocation,’ taking into account “‘the delicate adjustment of interests which must be made.’”<sup>350</sup> The Court has said it approaches interstate water cases “[s]itting, as it were, as an international, as well as a domestic, tribunal,” and applying “[f]ederal law, state law, and international law, as the exigencies of the particular case may demand. . . .”<sup>351</sup>

Determining what “equity” means in water law is highly challenging.<sup>352</sup> The adaptive nature of equity allows flexibility in a range of highly fact-dependent and often technical interstate apportionment cases, but makes articulating standards and

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<sup>346</sup> *Kansas v. Colorado*, 206 U.S. 46, 97 (1907).

<sup>347</sup> *Id.* at 97–98. This test, with its mention of “reaching through the agency of natural laws,” indicates that any interstate flow resource, whether surface water, groundwater, or migratory fish, may be subject to equitable apportionment. *See infra* Part III.

<sup>348</sup> *Wyoming v. Colorado*, 259 U.S. 419, 465 (1922).

<sup>349</sup> *Hinderlider v. LaPlata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 110 (1938) (Brandeis, J.) (“For whether the water of an interstate stream must be apportioned between the two States is a question of ‘federal common law’ upon which neither the statutes nor the decisions of either State can be conclusive.”). Congress has the power to displace the federal common law of equitable apportionment under its Commerce Clause powers, as it has displaced the common law of nuisance for interstate water pollution by enacting the Clean Water Act. *See City of Milwaukee v. Illinois*, 451 U.S. 304, 317–19 (1981) (*Milwaukee II*). But Congress has chosen not to do so.

<sup>350</sup> *Colorado v. New Mexico*, 459 U.S. 176, 183 (1982) (*Colorado I*) (quoting *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945)).

<sup>351</sup> *Kansas v. Colorado*, 185 U.S. 125, 146–47 (1902).

<sup>352</sup> For a consideration of meaning of equity in the water-law context, see Jason A. Robison & Douglas S. Kenney, *Equity and the Colorado River Compact*, 42 ENVTL. L. 1157, 1174–81 (2012).

deciding cases difficult.<sup>353</sup> The intrinsically subjective nature of equity, along with a relative small body of interstate water law cases, means that equitable apportionment cases are frequently unpredictable.<sup>354</sup>

The Court has, however, laid down a number of key principles in the form of a multifactor balancing test that guides how it will equitably apportion water.<sup>355</sup> The Court has said that its aim is “always to secure a just and equitable apportionment ‘without quibbling over formulas.’”<sup>356</sup> The Court will

consider all relevant factors, including “physical and climatic conditions, the consumptive use of water in the several sections of the river, the character and rate of return flows, the extent of established uses, the availability of storage water, the practical effect of wasteful uses on downstream areas, [and] the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former.”<sup>357</sup>

When “both states recognize the doctrine of prior appropriation, priority becomes the ‘guiding principle’ in an allocation between the competing states.”<sup>358</sup> But the Court has stressed that “state law is not controlling” and that “the just apportionment of interstate waters is a question of federal law that depends ‘upon a consideration of the pertinent laws of the contending States and *all other relevant facts.*’”<sup>359</sup>

That “the rule of priority is not the sole criterion” was underscored in the Court’s 1982 decision in *Colorado v. New Mexico*.<sup>360</sup> In this case, Justice Marshall wrote:

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<sup>353</sup> See Joseph W. Dellapenna, *Interstate Struggles Over Rivers: The Southeastern States and the Struggle Over the ‘Hooch*, 12 N.Y.U. ENVTL. L.J. 828, 883 (2005) (“Finding a fair apportionment of the water between two or more competing states is as difficult as devising a reasonable apportionment of water between two competing private riparian users.”).

<sup>354</sup> Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States’ Proposal and Beyond*, 8 NEV. L.J. 964, 991 (2008) (“Equitable apportionment requires the weighing of multiple factors that are incommensurable, and there is a dearth of precedent on how to weigh competing factors. For these reasons, unpredictability is the hallmark of equitable apportionment litigation.”).

<sup>355</sup> For an excellent overview of the application of the equitable apportionment doctrine, see A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381, 392 (1985).

<sup>356</sup> *Colorado v. New Mexico*, 459 U.S. 176, 183 (quoting *New Jersey v. New York*, 283 U.S. 336, 343 (1931) (Holmes, J.)).

<sup>357</sup> *Id.* (quoting *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945)).

<sup>358</sup> *Id.* at 183–84 (quoting *Nebraska*, 325 U.S. at 618).

<sup>359</sup> *Id.* at 184 (quoting *Connecticut v. Massachusetts*, 282 U.S. 660, 670–71 (1931)).

<sup>360</sup> *Id.* at 188.

We recognize that the equities supporting the protection of existing economies will usually be compelling. The harm that may result from disrupting established uses is typically certain and immediate, whereas the potential benefits from a proposed diversion may be speculative and remote. Under some circumstances, however, the countervailing equities supporting a diversion for future use in one state may justify the detriment to existing users in another state. This may be the case, for example, where the state seeking a diversion demonstrates by clear and convincing evidence that the benefits of the diversion substantially outweigh the harm that might result. In the determination of whether the state proposing the diversion has carried this burden, an important consideration is whether the existing users could offset the diversion by reasonable conservation measures to prevent waste. This approach comports with our emphasis on flexibility in equitable apportionment and also accords sufficient protection to existing uses.<sup>361</sup>

The Court has continued to reaffirm that “equitable apportionment . . . should turn on the benefits, harms, and efficiencies of competing uses . . . .”<sup>362</sup> At the same time, the Court has continued to give teeth to the requirement that the state seeking a diversion prove

by clear and convincing evidence, the existence of certain relevant factors . . . . [F]or example, the extent to which reasonable conservation measures can adequately compensate for the reduction in supply due to the diversion, and the extent to which the benefits from the diversion will outweigh the harms to existing users.<sup>363</sup>

Additionally, “[t]his evidentiary burden cannot be met with generalizations about unidentified conservation measures and unstudied speculation about future uses.”<sup>364</sup> Thus, the Court has retained significant roles for both utilitarian analysis and for preservation of historic rights.

#### *B. Applying the Equitable Apportionment Doctrine to Groundwater*

Although the Supreme Court has never before explicitly adjudicated an interstate dispute over groundwater,<sup>365</sup> it has considered groundwater issues within

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<sup>361</sup> *Id.* at 187–88.

<sup>362</sup> *Colorado v. New Mexico*, 467 U.S. 310, 323 (1984) (*Colorado II*).

<sup>363</sup> *Id.* at 323–24.

<sup>364</sup> *Id.* at 324.

<sup>365</sup> Hesser, *supra* note 275, at 36 (“The Supreme Court has only equitably apportioned interstate surface waters . . . .”); A. Dan Tarlock & Darcy Alan Frownfelter, *State Groundwater Sovereignty After Sporhase: The Case of the Hueco Bolson*, 43 OKLA. L.

the equitable apportionment of groundwater-connected surface water. Over a century ago, the Supreme Court recognized that groundwater flowing alongside the Arkansas River should be treated as part of the flow of the river in an interstate equitable-apportionment case.<sup>366</sup> Moreover, the Court has applied the equitable-apportionment doctrine in an interstate dispute outside of the surface water context; in *Idaho ex rel. Evans v. Oregon*,<sup>367</sup> the Court held that interstate runs of anadromous fish, such as salmon and steelhead trout, were a resource that could be equitably apportioned, explicitly drawing parallels to water law.<sup>368</sup>

Further, the Fifth Circuit Court of Appeals recently held that interstate groundwater is subject to the equitable apportionment doctrine. In *Hood ex rel. Mississippi v. City of Memphis*,<sup>369</sup> the court was faced with an interstate dispute between Mississippi and Tennessee over the Memphis Sand Aquifer, which lies beneath the territory of both states.<sup>370</sup> The Memphis Sand Aquifer is replenished primarily from precipitation that occurs in western Tennessee<sup>371</sup> and is the primary water supply for Memphis, Tennessee. The Memphis Light, Gas and Water Division (MLGW), a unit of the City of Memphis,<sup>372</sup> supplies over 257,000 customers through the Memphis Sand Aquifer, operating ten water pumps and 175 wells through the county.<sup>373</sup>

As a result of the extensive pumping to supply water to Memphis, a cone of depression has formed.<sup>374</sup> This is a reduction of water levels centered around

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REV. 27, 27 (1990) (“[T]he United States Supreme Court had never directly equitably apportioned an aquifer . . .”).

<sup>366</sup> *Kansas v. Colorado*, 206 U.S. 46, 114–15 (1907); *see also* *Washington v. Oregon*, 297 U.S. 517, 524–26 (1936) (surface waters in dispute were hydrologically connected to subterranean waters, and reasonableness of well-pumping was part of conflict).

<sup>367</sup> 462 U.S. 1017 (1983).

<sup>368</sup> *Id.* at 1024 (“Although that doctrine has its roots in water rights litigation, the natural resource of anadromous fish is sufficiently similar to make equitable apportionment an appropriate mechanism for resolving allocative disputes.”). The Fifth Circuit noted this in reasoning that equitable apportionment applies to groundwater. *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 630 n.6 (5th Cir. 2009).

<sup>369</sup> 570 F.3d 625 (5th Cir. 2009), *cert. denied*, 130 S. Ct. 1319 (2010).

<sup>370</sup> *Hood*, 570 F.3d at 627.

<sup>371</sup> W.S. PARKS & J.K. CARMICHAEL, U.S. GEOLOGICAL SURVEY, WATER-RESOURCES INVESTIGATIONS REPORT 88-4182, GEOLOGY AND GROUND-WATER RESOURCES OF THE MEMPHIS SAND IN WESTERN TENNESSEE 7 (1990), *available at* [http://pubs.usgs.gov/wri/wri88-4182/pdf/wrir\\_88-4182\\_a.pdf](http://pubs.usgs.gov/wri/wri88-4182/pdf/wrir_88-4182_a.pdf).

<sup>372</sup> *Hood*, 570 F.3d at 627.

<sup>373</sup> *About*, MEMPHIS LIGHT, GAS & WATER DIV., <http://www.mlwg.com/about/> (last visited Jan. 12, 2014).

<sup>374</sup> DAVID LEWIS FELDMAN & JULIA O. ELMENDORF, ENERGY, ENV’T & RES. CTR., UNIV. OF TENNESSEE-KNOXVILLE, WATER SUPPLY CHALLENGES FACING TENNESSEE: CASE STUDY ANALYSES AND THE NEED FOR LONG-TERM PLANNING 55 (2000), *available at* [http://eerc.ra.utk.edu/divisions/wrrc/water\\_supply/Report.PDF](http://eerc.ra.utk.edu/divisions/wrrc/water_supply/Report.PDF) (report prepared for the Environmental Policy Office, Tennessee Department of Environment and Conservation).

Memphis's pumping wells, causing a change in the natural movement, or gradient, of the aquifer's water. Thus, the water in the Mississippi portion of the Memphis Sand Aquifer has allegedly been diverted to Tennessee's territory.<sup>375</sup>

The subsequent change in gradient from Mississippi's portion of the aquifer to the Memphis area spurred Mississippi's attorney general to file a lawsuit against Memphis, leading to the first reported case concerning an interstate subsurface water dispute.<sup>376</sup> Mississippi alleged that the water held in the Mississippi portion of the aquifer is Mississippi's sovereign property<sup>377</sup> and that this water has been taken due to Memphis drawing more water than it can replenish in the aquifer.<sup>378</sup> Mississippi sought compensation in the form of past and future damages, and equitable relief.<sup>379</sup>

The first case was brought in the U.S. District Court for the Northern District of Mississippi.<sup>380</sup> An initial issue before the district court was the City of Memphis's attempt to join the State of Tennessee as a defendant party.<sup>381</sup> The burden of disputing the joinder fell on Mississippi, who opposed it.<sup>382</sup> The court ultimately rejected Mississippi's claim that only Mississippi water was involved in the lawsuit,<sup>383</sup> stating relief could not be granted until it was determined "which portion of the aquifer's water is the property of which State."<sup>384</sup> The court cited the Supreme Court's precedent of applying equitable apportionment for resolving

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<sup>375</sup> See Alan B. Cameron, *Mississippi v. Memphis: A Study in Transboundary Ground Water Dispute Resolution*, SEA GRANT L. & POL'Y J., at 2 n.1, [http://nsglc.olemiss.edu/SGLPJ/Presentations\\_09/cameron.pdf](http://nsglc.olemiss.edu/SGLPJ/Presentations_09/cameron.pdf) (citing to extensive reports about the aquifer diversions); see also J.V. Brahana & R. E. Broshears, *Hydrogeology and Ground-Water Flow in the Memphis and Fort Pillow Aquifers in the Memphis Area, Tennessee*, U.S. DEP'T OF THE INTERIOR, WATER RESOURCES INVESTIGATIONS REPORT 89-4131 (2001), available at <http://pubs.usgs.gov/wri/wri894131/pdf/wri89-4131.pdf>; *Potential for Leakage Among Principal Aquifers in the Memphis Area, Tennessee*, U.S. DEP'T OF THE INTERIOR, WATER-RESOURCES INVESTIGATIONS REPORT 85-4295 (1986), available at [http://pubs.usgs.gov/wri/wri85-4295/pdf/wrir\\_85-4295\\_a.pdf](http://pubs.usgs.gov/wri/wri85-4295/pdf/wrir_85-4295_a.pdf); Gerald K. Moore, *Geology and Hydrology of the Claiborne Group in Western Tennessee*, U.S. DEP'T OF THE INTERIOR, WATER-SUPPLY PAPER 1809-F (1965), available at <http://pubs.usgs.gov/wsp/1809f/report.pdf>.

<sup>376</sup> Hood, *ex rel. Mississippi v. City of Memphis*, 533 F. Supp. 2d 646, 648 (N.D. Miss. 2008).

<sup>377</sup> Hood *ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 627 (5th Cir. 2009) ("Mississippi alleges that part of the groundwater that Memphis pumps from the Aquifer is Mississippi's sovereign property and that the state must therefore be compensated.").

<sup>378</sup> *Id.*

<sup>379</sup> *Id.*

<sup>380</sup> Hood, 533 F. Supp. 2d at 646.

<sup>381</sup> *Id.* at 647.

<sup>382</sup> *Id.*

<sup>383</sup> *Id.* at 649.

<sup>384</sup> *Id.* at 648.

interstate water disputes, concluding that the Supreme Court would have to apportion Memphis Sand Aquifer between the two states.<sup>385</sup>

The district court ultimately found that Tennessee was a necessary and indispensable party, but that it did not have the jurisdiction to join the state.<sup>386</sup> The court reasoned that joining Tennessee was necessary “because in its absence complete relief cannot be accorded among those already parties to the action.”<sup>387</sup> As the Supreme Court has original and exclusive jurisdiction for controversies between two or more states,<sup>388</sup> the district court reasoned that Mississippi would have an adequate remedy if the action were dismissed because the state would be able “to petition the Supreme Court for apportionment of the waters of the Memphis Sands aquifer in a suit that properly joins . . . the State of Tennessee.”<sup>389</sup> Since not joining Tennessee would result in extreme prejudice, but there were still options available to the plaintiffs, the district court dismissed the case without prejudice. As only the Supreme Court has exclusive jurisdiction for disputes between states,<sup>390</sup> the opinion intimated that Mississippi should pursue the action through this channel.

Instead, Mississippi appealed the district court’s ruling to dismiss the case to the Fifth Circuit.<sup>391</sup> Mississippi again argued that Tennessee was not an indispensable party because the suit did not involve Tennessee’s sovereign interests.<sup>392</sup> Mississippi further argued against the equitable apportionment of the Memphis Sand Aquifer, claiming that it owned the groundwater resources within its sovereign territory.<sup>393</sup>

The Fifth Circuit affirmed the district court and held that the Memphis Sand Aquifer was an interstate water source and that allocation of the resource must happen “before one state may sue an entity for invading its share.”<sup>394</sup> The court rejected the argument that Mississippi owned a “fixed resource” interest in the aquifer water, stating that water “is not a fixed resource like a mineral seam, but instead migrates across state boundaries.”<sup>395</sup> The Fifth Circuit pointed to Supreme Court precedent that ruled that state boundaries do not determine the amount of water a state is entitled to in regards to an interstate source.<sup>396</sup> Thus, the court

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<sup>385</sup> *Id.*

<sup>386</sup> *Id.* at 651.

<sup>387</sup> *Id.* at 649.

<sup>388</sup> 28 U.S.C. § 1251(a) (2006).

<sup>389</sup> *Hood*, 533 F. Supp. 2d at 650.

<sup>390</sup> 28 U.S.C. § 1251(a).

<sup>391</sup> *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625 (5th Cir. 2009).

<sup>392</sup> *Id.* at 629.

<sup>393</sup> *Id.*

<sup>394</sup> *Id.* at 629–30 (citing *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92 (1938)).

<sup>395</sup> *Id.* at 630.

<sup>396</sup> *Id.* at 630–31.

concluded that the aquifer had to be allocated like other interstate water sources that were subject to multistate disputes:

The fact that this particular water source is located underground, as opposed to resting above ground . . . is of no analytical significance. The Aquifer flows, if slowly, under several states, and it is indistinguishable from a lake bordered by multiple states or from a river bordering several states depending upon it for water.<sup>397</sup>

The Fifth Circuit concluded that “a judgment rendered in Tennessee’s absence would be enormously prejudicial to Tennessee’s sovereign interest in its water rights”<sup>398</sup> and that Mississippi would still have an adequate remedy if the suit was dismissed, by petitioning the Supreme Court.<sup>399</sup> Mississippi filed a petition for writ of certiorari to the Supreme Court.<sup>400</sup> Again Mississippi argued that the groundwater was not a shared natural resource and that equitable apportionment was not required, nor appropriate for the pursued action—since Mississippi was not challenging Tennessee’s “sovereignty over ground water within” the state, and Tennessee had not moved to intervene, then there was no controversy between the states.<sup>401</sup> Mississippi also contended that their own statutory and legal authority gave them authority over both ground and surface waters within Mississippi state boundaries.<sup>402</sup> The Supreme Court denied certiorari,<sup>403</sup> letting the Fifth Circuit’s holding stand—another indicator that the Court views interstate groundwater as subject to the equitable apportionment doctrine.

### C. *Equitable Apportionment of the Snake Valley Aquifer*

From the above discussion, there is strong precedent to apply the equitable apportionment doctrine to interstate groundwater resources. But how would the doctrine apply in practice? The Memphis Sand Aquifer dispute gives only a few clues, suggesting the importance of meeting the Supreme Court’s jurisdictional thresholds to accept original jurisdiction. For a more detailed exploration of the application of equitable apportionment factors to interstate groundwater, the Snake Valley Aquifer dispute presents an ideal case study. Assuming the Supreme Court would grant original jurisdiction (which seems likely, as discussed *supra*), the Court’s factors announced in *Colorado v. New Mexico (Colorado I)*<sup>404</sup> provide a

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<sup>397</sup> *Id.* at 630.

<sup>398</sup> *Id.* at 633.

<sup>399</sup> *Id.*

<sup>400</sup> Petition for Writ of Certiorari, *Mississippi v. City of Memphis*, 130 S. Ct. 1319 (2010) (No. 09-289), 2009 WL 2876189.

<sup>401</sup> *Id.* at 14.

<sup>402</sup> *Id.* at 17.

<sup>403</sup> *Mississippi v. City of Memphis*, 130 S. Ct. 1319 (2010).

<sup>404</sup> 459 U.S. 176 (1982).

useful framework for determining an equitable apportionment of a shared water resource:

- (1) the existing uses of water from [the Snake Valley Aquifer], and the extent to which present levels of use reflect current or historical water shortages or the failure of existing users to develop their uses diligently;
- (2) the available supply of water from [the Snake Valley Aquifer], accounting for factors such as variations in streamflow, the needs of current users for a continuous supply, the possibilities of equalizing and enhancing the water supply through water storage and conservation, and the availability of substitute sources of water to relieve the demand for water from the [shared water resource];
- (3) the extent to which reasonable conservation measures in both states might eliminate waste and inefficiency in the use of water from [the Snake Valley Aquifer];
- (4) the precise nature of the proposed interim and ultimate use in [Nevada] of water from [the Snake Valley Aquifer], and the benefits that would result from a diversion to [Nevada];
- (5) the injury, if any, that [Utah] would likely suffer as a result of any such diversion, taking into account the extent to which reasonable conservation measures could offset the diversion.<sup>405</sup>

Further, the Supreme Court would consider the relevant state law doctrines and potential claims for interstate nuisance alleged by Utah.

### *1. Existing Uses of Snake Valley Aquifer*

Around 10,425 acre-feet of water from the aquifer under Snake Valley is used each year in Nevada.<sup>406</sup> Irrigation comprises the vast majority of use: 10,325 acre-feet per year, or 99% of use.<sup>407</sup> The remainder is used for minor domestic, quasi-municipal, commercial, and stock watering purposes.<sup>408</sup>

Around 26,637 acre-feet of water are drawn from the aquifer under Snake Valley in Utah.<sup>409</sup> Like Nevada, irrigation comprises the vast majority of uses in

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<sup>405</sup> *Id.* at 189–90.

<sup>406</sup> *Utah Water Rights Analysis*, UTAH DIV. OF WATER RIGHTS, <http://waterrights.utah.gov/snakeValleyAgreement/tabulation.htm> (last visited Jan. 12, 2014) (follow “snake\_surface\_underground\_analysis” hyperlink to Excel spreadsheet, then select the “Sources and Uses Tabulation” tab, then scroll down to “Snake Valley Summary of Permitted Rights”).

<sup>407</sup> *Id.*

<sup>408</sup> *Id.*

<sup>409</sup> *Id.*

Utah (25,638 acre-feet per year, or 96% of use).<sup>410</sup> The remaining 4% of water is used for domestic and stockwatering purposes.<sup>411</sup>

2. *Available Supply from Snake Valley Aquifer: Variations in Regeneration, Needs of Current Users for Continuous Supply, Ways to Enhance/Equalize Supply via Storage/Conservation, Availability of Substitute Sources to Relieve Demand*

The available water supply from the Snake Valley Aquifer is determined through the recharge rate, taking into account related factors of variability, storage, and substitute sources. Recharge of the aquifer occurs in the form of snowpack and precipitation runoff from nearby mountain ranges,<sup>412</sup> primarily in Nevada, and the majority of consumptive use and groundwater discharge occurs in Utah.<sup>413</sup> The recharge rate for Snake Valley has been calculated by the USGS to be 111,000 acre-feet per year.<sup>414</sup> However, reports have varied on this point, and on average the recharge rate determined is around 100,000 acre-feet per year.<sup>415</sup> The annual discharge in Snake Valley has been calculated at 132,000 acre-feet per year.<sup>416</sup> The historic variability will likely increase with climate change. “Climate variability and the climate periods used [in calculating these estimates] add uncertainty to the recharge estimates.”<sup>417</sup> The difference in these two statistics is offset by groundwater “entering or exiting a valley as interbasin ground-water flow,” moving primarily from Nevada into Utah.<sup>418</sup> A smaller amount of water leaves Snake Valley and moves north into the Great Salt Lake Desert regional flow system (presumably holding saline water from the Great Salt Lake at bay), while a

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<sup>410</sup> *Id.*

<sup>411</sup> *Id.* Domestic uses are listed under the “quasi-municipal” label, referring to nonmunicipal corporations that provide water for domestic supply, such as a water district. 1 MCQUILLIN MUN. CORP. § 2:17 (3d ed. 2013); 94 C.J.S. *Water* § 605 (2013). Quasi-municipal uses range from water supplied by a large water district to a single domestic well used by multiple dwellings. *See generally* Michael J. Pearce, *Quasi-Municipal Water Districts in Arizona: A Review of Statutory Formulae*, 23 ARIZ. L. REV. 883 (1981) (examining the nature of municipal water delivery in Arizona and offering proposed statutory modifications); *Frequently Asked Questions*, NEV. DIV. OF WATER RES., <http://water.nv.gov/faq/water.cfm> (last updated Jan. 8, 2014).

<sup>412</sup> BARCASS, *supra* note 23, at 45.

<sup>413</sup> Final Proposed Agreement, *supra* note 10, at §2.6.

<sup>414</sup> BARCASS, *supra* note 23, at 2.

<sup>415</sup> THOMAS MYERS, GREAT BASIN WATER NETWORK AND THE FEDERATED TRIBES OF THE GOSHUTE INDIANS, HYDROGEOLOGY OF SPRING VALLEY AND SURROUNDING AREAS 19 (2011), available at <http://www.water.nv.gov/hearings/past/springetal/> (select “exhibits,” then “GBWN exhibits,” and then “GBWN\_Exh\_001”).

<sup>416</sup> BARCASS, *supra* note 23, at 2.

<sup>417</sup> *Id.* at 48.

<sup>418</sup> *Id.* at 4, 70–71 (noting that Snake Valley has a deficit in total amount of groundwater if interbasin flows are not accounted for and referring to fig. 41, showing the direction of water flow).

significant amount moves south into the White River Valley, and some water exits the area to the northwest, as well, into the regional flow systems of the Butte and Ruby valleys.<sup>419</sup>

Most current uses of the water are for irrigation of crops, and, thus, year-round supply is not needed. Nonirrigative uses are around 1,000 acre-feet per year. However, there is no realistic alternative source available. Nevada is apportioned 300,000 acre-feet of water each year under the Colorado River Compact.<sup>420</sup> Utah receives over four times as much, at 1,369,000 acre-feet of water each year from the Colorado River.<sup>421</sup>

### 3. *Extent to Which Reasonable Conservation in Each State Might Eliminate Waste/Inefficiency in Use of Water from the Snake Valley Aquifer*

Since the vast majority of Nevada's proposed groundwater withdrawal of 51,000 acre-feet of water<sup>422</sup> would be destined for the Las Vegas metropolitan area, the water conservation efforts undertaken in Las Vegas are an important consideration. While improved conservation measures could be taken in the areas of Nevada near Snake Valley, there is relatively little waste that would occur in the transportation of water to Las Vegas (via closed pipeline)<sup>423</sup> and eventual use for municipal water supply.

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<sup>419</sup> *Id.* at 70 (estimating 7,000 acre-feet moving north, and 39,000 acre-feet moving south in a given year, and 8,000 acre-feet moving northwest).

<sup>420</sup> *See* Boulder Canyon Project, 43 U.S.C. § 617c (2006) (requiring ratification of the Colorado River Compact and specifying 300,000 acre-feet to Nevada).

<sup>421</sup> *See* Upper Colorado River Basin Compact, art. III (a) (1948), UTAH CODE ANN. § 73-13-10 (West 2004). The Compact allots Utah 23% of the 7,500,000 acre-feet specified in the 1922 Colorado River Compact. Each Colorado River Compact state's share is generally reduced pro rata in times of drought. *See* Colorado River Compact, arts. III, IV (1922). Utah's share has subsequently been reduced due to drought and other factors. *See* D. Larry Anderson, *Utah's Perspective: The Colorado River*, UTAH DIV. OF WATER RES., at 4–5, 8 (2002), available at <http://www.water.utah.gov/interstate/thecoloradoriverart.pdf> (stating that Utah's share of the Colorado River is currently 1,369,000 afy).

<sup>422</sup> Henry Brean, *BLM Signs Off on Water Pipeline, But Spares Snake Valley*, LAS VEGAS REV.-J., Aug. 2, 2012, <http://www.reviewjournal.com/news/nevada-and-west/blm-signs-water-pipeline-spare-snake-valley>.

<sup>423</sup> Well-designed, newly built water infrastructure, together with good monitoring practices, would minimize waste. *See* HENRY LIU, PIPELINE ENGINEERING 387 (2003). Liu notes that “[t]he danger or seriousness of pipeline leaks and rupture depends mainly on the type of fluid transported through the pipe”; because water is a “mostly benign” fluid, a leak, though it is “a cause for concern and requires action,” would “not affect public safety, nor . . . damage the environment.” *Id.*

Since the 1980s, Las Vegas has taken many steps toward increasing water efficiency.<sup>424</sup> In 2002 nearly 70% of Las Vegas's use occurred outdoors.<sup>425</sup> The SNWA has "taken the lead in providing incentives for additional outdoor conservation measures, including rain sensors, irrigation controllers, and pool covers."<sup>426</sup> In 1999 the SNWA instituted a "cash for grass" turf-rebate program, in which residents were paid to remove grass lawns altogether (at up to \$1.50 per square foot removed).<sup>427</sup> The program has paid out some \$167.8 million to both residential and commercial landowners since its inception and saves an estimated 8.4 million gallons (approximately twenty-six acre-feet) of water annually.<sup>428</sup> Some 90% of the SNWA's cumulative water conservation budget was being spent on turf removal between 2000 and 2005.<sup>429</sup> The city also limited the hours and days on which residents may use water for watering plants and washing cars, restricted the operation of commercial car washes, limited the refilling of swimming pools and hot tubs, and required all ornamental fountains to recirculate water.<sup>430</sup>

The city's famous resorts along the Las Vegas Strip use water conservation techniques, such as double plumbing and capturing and reusing water from sinks and showers to the extent that only three percent of the city's water goes to the Las Vegas Strip.<sup>431</sup> Water budgets have been imposed on the region's four-dozen golf courses.<sup>432</sup> Fines are levied for noncompliance with all of these regulations.<sup>433</sup> Las Vegas also introduced conservation pricing—tiered billing for water use. Water officials have also begun to crack down on well owners who take more than their

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<sup>424</sup> ROBERT J. GLENNON, UNQUENCHABLE: AMERICA'S WATER CRISIS AND WHAT TO DO ABOUT IT 9–11 (2009) (outlining the many water conservation measures implemented in Las Vegas).

<sup>425</sup> *Id.* at 12.

<sup>426</sup> HEATHER COOLEY ET AL., PAC. INST., HIDDEN OASIS: WATER CONSERVATION AND EFFICIENCY IN LAS VEGAS 26–27 (2007), available at [http://www.pacinst.org/reports/las\\_vegas/hidden\\_oasis.pdf](http://www.pacinst.org/reports/las_vegas/hidden_oasis.pdf) (comparing Southern Nevada Water Authority favorably to the Metropolitan Water District of Southern California (Los Angeles area); Seattle Public Utilities; Irvine Ranch Water District (Orange County, California); Albuquerque-Bernalillo County Water Utility Authority; and City of Tucson).

<sup>427</sup> Henry Brean, *Turf-Rebate Program Sees Success*, LAS VEGAS REV.-J., Feb. 21, 2011, <http://www.lvrj.com/news/turf-rebate-program-sees-success-116586443.html>.

<sup>428</sup> *Id.*

<sup>429</sup> COOLEY et al., *supra* note 426 at 29.

<sup>430</sup> Dave Kavanaugh, *Very Dry Winter Forces Las Vegas, N.M., To Act*, ALBUQUERQUE J. Jan. 31, 2006, <http://www.abqjournal.com/news/state/429232nm01-31-06.htm>.

<sup>431</sup> GLENNON, *supra* note 424, at 13.

<sup>432</sup> David Owen, *Drying Out: America's Courses Are Curbing Their Addiction to Water*, GOLF DIGEST (Nov. 2009), [http://www.golfdigest.com/magazine/2009-11/environment\\_davidowen\\_waterconservation](http://www.golfdigest.com/magazine/2009-11/environment_davidowen_waterconservation).

<sup>433</sup> GLENNON, *supra* note 424, at 12.

permits allow, imposing large fines pursuant to a 2007 state law.<sup>434</sup> Today, Las Vegas recycles virtually 100% of its water.<sup>435</sup> Nevada also entered into an agreement with Arizona to bank 1.2 million acre-feet of water in an Arizona aquifer at a cost to Las Vegas of \$330 million, although Arizona no longer banks water for Las Vegas.<sup>436</sup>

The “dramatic conservation scheme” that Las Vegas began in 1989 has been phenomenally successful.<sup>437</sup> The statistics tell the tale: total water use in 2009 for the Las Vegas metropolitan area was “almost exactly what it was in 1999” although the area grew by 685,000 people over the same period.<sup>438</sup> The population in Las Vegas grew by 330,000 from 2002 to 2006, yet annual water use decreased by 18 billion gallons over the same period.<sup>439</sup> Over the last two decades, per capita water use in Las Vegas for all purposes has fallen dramatically, from 350 gallons per day to 165 gallons per day.<sup>440</sup> This is not to say that Las Vegas could not do even better.<sup>441</sup> But it does indicate a remarkable level of water-conservation success.

In contrast to Nevada’s experience, Utah has taken few steps toward conservation, especially in the region surrounding the Snake Valley Aquifer. A recent study of state laws and policies on water efficiency and conservation conducted by the Alliance for Water Efficiency and the Environmental Law Institute gave Utah a grade of C+, while giving Nevada a B-.<sup>442</sup>

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<sup>434</sup> Stephanie Tavares, *Water Officials to Crack Down on Overuse of Private Wells*, LAS VEGAS SUN, May 29, 2009, <http://www.lasvegassun.com/news/2009/may/29/water-officials-crack-down-overuse-private-wells/>.

<sup>435</sup> *Q&A: Pat Mulroy on Las Vegas and the Journey to Water Efficiency*, CIRCLE OF BLUE (Oct. 12, 2012, 12:38 PM), <http://www.circleofblue.org/waternews/2012/world/qa-pat-mulroy-on-las-vegas-and-the-journey-to-water-efficiency> (interview of Patricia Mulroy by J. Carl Ganter at the Fifth Annual WaterSmart Innovations Conference in Las Vegas).

<sup>436</sup> GLENNON, *supra* note 424, at 9–11.

<sup>437</sup> FISHMAN, *supra* note 64, at 58.

<sup>438</sup> *Id.*

<sup>439</sup> *Id.* at 13.

<sup>440</sup> *Nevada Water Director Criticizes Utah*, KSL.COM (Apr. 14, 2010, 9:25 PM), <http://www.ksl.com/?nid=148&sid=10387603> (citing the Great Basin Water Network’s water-use figures). *Cf.* GLENNON, *supra* note 424, at 12 (stating that per capita water consumption in Las Vegas in the late 1980s was 350 gpd).

<sup>441</sup> *Nevada Water Director Criticizes Utah*, *supra* note 440 (reporting that Los Angeles, Tucson, and Albuquerque have lower per capita water consumption than Las Vegas, at 125 gpd, 114 gpd, and 110 gpd, respectively).

<sup>442</sup> ALLIANCE FOR WATER EFFICIENCY & ENVTL. LAW INST., *THE WATER EFFICIENCY AND CONSERVATION STATE SCORECARD: AN ASSESSMENT OF LAWS AND POLICIES* 5, 56, 64 (2012), available at <http://www.allianceforwaterefficiency.org/uploadedFiles/News/NewsArticles/NewsArticleResources/AWE-State-Scorecard-Report-Final-September-2012.pdf>.

While Utah has made strides in water conservation recently,<sup>443</sup> the state remains “America’s most wasteful water user.”<sup>444</sup> In 2006 Utah’s average monthly water price per gallon was \$1.35 per 1,000 gallons; in contrast, Nevada’s water price was \$2.80 per 1,000 gallons.<sup>445</sup> This meant that the cost of water in Utah was 43% below the national average and 45% below the average for western states, while the cost of water in Nevada was 18% above the national average and 16% above the average for western states.<sup>446</sup> While many factors contribute to the cost of water,<sup>447</sup> cheap water encourages unsustainable agricultural and land use practices and is often an indicator of waste and inefficiency.<sup>448</sup> Indeed, per capita consumption of water is 165 gallons per day in Las Vegas, while per capita consumption of water in Salt Lake City is much higher at 240 gallons per day, and consumption in the fast-growing St. George, Utah area is 254 gallons per day.<sup>449</sup>

Even critics of the Snake Valley Agreement acknowledged that “[w]e don’t do a very good job of conservation here in Utah.”<sup>450</sup> Indeed, Utah’s “inflexible and regressive water law contains several absurd provisions that work to promote the waste of water, creating perverse incentives for water users.”<sup>451</sup> The primary water use in Utah is irrigation,<sup>452</sup> and the most common method is surface flooding, followed by sprinklers.<sup>453</sup> These inefficient irrigation processes should weigh

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<sup>443</sup> UTAH DIV. OF WATER RES., THE COST OF WATER IN UTAH: WHY ARE OUR WATER COSTS SO LOW 14 (2010) [hereinafter THE COST OF WATER], available at <http://www.water.utah.gov/Reports/The%20Cost%20of%20Water%20in%20Utah.pdf> (stating that, from 1995 to 2005, Utahns reduced their overall per capita water use from 320 gpd to 260 gpd, a 19% decrease).

<sup>444</sup> UTAH RIVERS COUNCIL, CROSSROADS UTAH: UTAH’S CLIMATE FUTURE 5 (2012) [hereinafter UTAH’S CLIMATE FUTURE], <http://www.utahrivers.org/wp-content/uploads/2012/10/Crossroads.pdf>; see also *id.* at 7 (“Utah has one of the worst records for river protection in the West.”).

<sup>445</sup> THE COST OF WATER, *supra* note 443, at 4 tb.1 (citing 2006 American Water Works Association database).

<sup>446</sup> *Id.*

<sup>447</sup> *Id.* at 5–16 (listing several factors).

<sup>448</sup> See, e.g., SARAH F. BATES ET AL., SEARCHING OUT THE HEADWATERS: CHANGE AND REDISCOVERY IN WESTERN WATER POLICY 135 (1993) (“Artificially cheap water helped to build a rural economy that has not proved to be sustainable in some areas. The lure of cheap water caused many farmers to develop agriculturally marginal lands. Now water is being transferred from farmlands to cities, leaving [rural] places . . . with few economic options.”).

<sup>449</sup> Nevada Water Director Criticizes Utah, *supra* note 440.

<sup>450</sup> *Id.* (quoting Steve Erickson, Utah Coordinator, Great Basin Water Network).

<sup>451</sup> Edward A. Fornataro, Note, *The Last Untapped River in Utah: An Argument Against the Development of Bear River*, 28 J. LAND RESOURCES & ENVTL. L. 141, 142 (2008).

<sup>452</sup> *Utah Water Rights*, *supra* note 406.

<sup>453</sup> JAMES V. BARNHILL ET AL., SMALL ACREAGE IRRIGATION SYSTEM SELECTION (2009), available at [http://extension.usu.edu/files/publications/publication/AG\\_SmallAcreage\\_2009-01pr.pdf](http://extension.usu.edu/files/publications/publication/AG_SmallAcreage_2009-01pr.pdf).

against Utah in the equitable-balancing test.<sup>454</sup> Utah ranchers typically water livestock (the second-largest use of Snake Valley groundwater) from a variety of water sources, such as open air troughs, canals, ponds, and storage tanks.<sup>455</sup>

Recent trends show no indication that this attitude is changing. A 2012 report by the Utah Rivers Council found the state was “woefully unprepared” for the impact of climate change on water and other natural resources and was engaged in a “risky” failure to act.<sup>456</sup>

The Court should not limit its “reasonable conservation” analysis to water policy, but also should consider states’ broader efforts on energy issues (such as policies on energy conservation and renewable energy production) because of the deeply interdependent relationship between energy and water (the energy-water nexus). Water is, of course, necessary for energy: thermoelectric power-plant cooling, hydropower generation, and fossil-fuel extraction, refining, and processing together account for an estimated 41% of daily fresh water withdrawals and 49% of total overall daily water withdrawals in the United States.<sup>457</sup> But water and energy are connected more broadly as well. Energy is necessary to supply, transport, distribute, and use water in almost every conceivable way, and state policies have an effect on how much energy is consumed and how energy is produced.<sup>458</sup> Moreover, the decision-making/policy-making processes for water and energy policy have “intertwined features.”<sup>459</sup>

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<sup>454</sup> See A. Dan Tarlock, *Safeguarding International River Ecosystems in Times of Scarcity*, 3 U. DENV. WATER L. REV. 231, 255–61 (2000) (“[U]nder some interpretations of equitable apportionment, traditional practices such as the use of flood waters for irrigation may be inefficient . . . . Waste counts against a state in the balancing test, and conservation has traditionally meant that water should be efficiently consumed.”).

<sup>455</sup> Kevin Heaton, *Save Time & Money: Using Remote Sensing Technology to Monitor Stock Tanks*, UTAH STATE UNIV. COOPERATIVE EXTENSION, <http://extension.usu.edu/rangelands/htm/utah-projects/biwgk/water> (last visited Jan. 14, 2014).

<sup>456</sup> UTAH’S CLIMATE FUTURE, *supra* note 444, at 4; Judy Fahys, *Climate Change Report Calls Utah Policies ‘Risky’*, SALT LAKE TRIB., Oct. 25, 2012, <http://www.sltrib.com/sltrib/news/55148513-78/utah-report-climate-state.html.csp> (discussing UTAH’S CLIMATE FUTURE).

<sup>457</sup> *Energy and Water in the Western and Texas Interconnects: Water Scarcity Impacts Energy Production*, SANDIA NAT’L LAB., [http://energy.sandia.gov/?page\\_id=1741](http://energy.sandia.gov/?page_id=1741) (last visited Jan. 14, 2014).

<sup>458</sup> See generally GOV’T ACCOUNTABILITY OFFICE, ENERGY-WATER NEXUS: AMOUNT OF ENERGY NEEDED TO SUPPLY, USE, AND TREAT WATER IS LOCATION-SPECIFIC AND CAN BE REDUCED BY CERTAIN TECHNOLOGIES AND APPROACHES (2011), available at <http://www.gao.gov/assets/320/316893.pdf>; U.S. DEP’T OF ENERGY, ENERGY DEMANDS ON WATER RESOURCES: REPORT TO CONGRESS ON THE INTERDEPENDENCY OF ENERGY AND WATER (2006), available at <http://www.sandia.gov/energy-water/docs/121-RptToCongress-EWwEIAComments-FINAL.pdf>.

<sup>459</sup> Steve A. Conrad, *Decision-Support for the Water-Energy Nexus in the American West*, in THE WATER-ENERGY NEXUS IN THE AMERICAN WEST 197–99 (Douglas S. Kenney & Robert Wilkinson eds., 2011).

On this score, Utah rates poorly. Governor Herbert has publicly questioned the scientific basis for climate change, and under his administration the state has withdrawn from the Western Climate Initiative.<sup>460</sup> The Utah House of Representatives, for example, overwhelmingly passed a resolution in 2010 condemning “climate alarmists” and calling upon the EPA to “immediately halt its carbon dioxide reduction policies.”<sup>461</sup> The resolution’s lead sponsor claimed that the concept of global warming was “a conspiracy to control world population.”<sup>462</sup> More recently, a state House committee killed a bill that would have allowed Utah state land managers to consider climate change in land management decisions.<sup>463</sup> These choices do not inspire much confidence in Utah’s commitment to reasonable conservation.

Nevada has a mandatory renewable energy portfolio standard<sup>464</sup> that is “among the most aggressive in the nation.”<sup>465</sup> Nevada’s policies are “in the forefront of the renewable energy industry,” featuring an ambitious 25% renewable energy target by 2025 and “strong net metering and interconnection policies.”<sup>466</sup> By contrast, and “unlike many other states in the region, Utah does not have a mandatory renewable portfolio standard,” despite the fact that the state has vast renewable-energy potential.<sup>467</sup>

Because Nevada’s commitment to reasonable conservation is demonstrably greater than Utah’s, this factor will weigh in Nevada’s favor.

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<sup>460</sup> Fahys, *supra* note 456; see also Josh Smith, *Utah Legislature: Senate Committee Wants Utah Out of Climate Initiative*, DESERET NEWS, Mar. 3, 2010, <http://www.deseretnews.com/article/700013360/Utah-Legislature-Senate-committee-wants-Utah-out-of-climate-initiative.html>. Utah appears to be backsliding; Utah joined the Western Climate Initiative under Governor Huntsman, who preceded Governor Herbert in office.

<sup>461</sup> Suzanne Goldenberg, *Utah Delivers Vote of No Confidence for “Climate Alarmists”*, GUARDIAN, Feb. 12, 2010, <http://www.guardian.co.uk/environment/2010/feb/12/utah-climate-alarmists>.

<sup>462</sup> Judy Fahys, *Lawmaker: Climate Change Just Ruse to Control Population*, SALT LAKE TRIB., Feb. 5, 2010, [http://www.sltrib.com/News/ci\\_14337716](http://www.sltrib.com/News/ci_14337716).

<sup>463</sup> Judy Fahys, *Utah Lawmakers Kill Climate Change Bill, But Not Discussion*, SALT LAKE TRIB., Feb. 4, 2013, <http://www.sltrib.com/sltrib/politics/55764715-90/agenda-bill-climate-committee.html.csp> (last updated May 21, 2013, 11:31 PM).

<sup>464</sup> S.B. 395, 75th Sess. (Nev. 2009), enacted June 8, 2009, *codified at* NEV. REV. STAT. § 704.7821 (2009).

<sup>465</sup> Michael Saunders, *An Overview of Nevada’s Renewable Energy Portfolio Standard*, NEV. LAW., July 2009, at 6, 7.

<sup>466</sup> LESLEY HUNTER, AM. COUNCIL ON RENEWABLE ENERGY, *RENEWABLE ENERGY IN THE 50 STATES* 69 (2012), *available at* <http://www.acore.org/files/pdfs/states/2012-50state-report-lowres.pdf>.

<sup>467</sup> *Id.* at 101.

4. *Precise Nature of Proposed Interim and Ultimate Use in Nevada of Water from Snake Valley and the Benefits that Would Result if Nevada Started Pumping*

Nevada would use the water pumped from the Snake Valley primarily to supply water to the Las Vegas metropolitan area, which has a population of over two million people. Snake Valley, in contrast, has about one thousand people.<sup>468</sup> Las Vegas received over 39.7 million visitors in 2012, a record number.<sup>469</sup> The Snake Valley area of Utah receives some 3,000 tourists annually.<sup>470</sup> The Las Vegas metropolitan area had a GDP of \$92.76 million in 2011.<sup>471</sup> Snake Valley's economic output is likely thousands of times smaller.

Water uses in the Snake Valley continue to be irrigation, stock watering, and domestic uses, but there is a potential for alternative-energy development and expanded recreational and tourism uses, both of which require water.<sup>472</sup>

5. *Injury, if Any, Utah Would Suffer as a Result of Nevada Pumping, Considering Reasonable Conservation Measures that Could Offset Pumping by Nevada*

Drip irrigation can use up to one-third less water than surface (flood) irrigation and does well with alfalfa,<sup>473</sup> the main crop in the Snake Valley.<sup>474</sup> Currently, about 25,000 acre-feet of ground water are used for irrigation each year in the Snake Valley area of Utah. If, at best, one-third less of that was used, about 8,300 fewer acre-feet of water would be used each year. This minimally offsets the 51,000 acre-feet of water to be piped to Las Vegas. There are other factors which conservation could not offset, such as less available grazing land due to a dropped water table.<sup>475</sup> Typically, when grazing is not possible, Snake Valley farmers feed their cattle alfalfa grown locally; this could lead to an increased demand for alfalfa and a decreased ability to produce it given a lowered water table.<sup>476</sup> Lastly, the cost

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<sup>468</sup> See *supra* text accompanying note 31.

<sup>469</sup> 2012 *Las Vegas Year-To-Date Executive Summary*, LAS VEGAS CONVENTION & VISITORS AUTH., [http://www.lvcva.com/includes/content/images/media/docs/ES-YTD2012 8.pdf](http://www.lvcva.com/includes/content/images/media/docs/ES-YTD2012%208.pdf); Joe Myxter, *Jackpot! Las Vegas Attracted Record Number of Visitors in 2012*, NBC NEWS, Feb. 8, 2013, <http://www.today.com/travel/jackpot-las-vegas-attracted-record-number-visitors-2012-1B8310114>.

<sup>470</sup> See SOCIO-ECONOMIC ANALYSIS, *supra* note 31, at 23 (noting the number of annual visitors to Fish Springs National Wildlife Refuge).

<sup>471</sup> Press Release, U.S. Dep't of Commerce, Bureau of Econ. Analysis, Economic Growth Continues Across Metropolitan Areas in 2011 (Feb. 22, 2013), *available at* [http://www.bea.gov/newsreleases/regional/gdp\\_metro/2013/pdf/gdp\\_metro0213.pdf](http://www.bea.gov/newsreleases/regional/gdp_metro/2013/pdf/gdp_metro0213.pdf).

<sup>472</sup> SOCIO-ECONOMIC ANALYSIS, *supra* note 31, at 24–25.

<sup>473</sup> Cary Blake, *Drip Irrigation Increasing Alfalfa Yields*, W. FARM PRESS (May 18, 2009), <http://westernfarmpress.com/alfalfa/drip-irrigation-increasing-alfalfa-yields>.

<sup>474</sup> SOCIO-ECONOMIC ANALYSIS, *supra* note 31, at 19.

<sup>475</sup> *Id.* at 20.

<sup>476</sup> *Id.*

to feed one head of cattle is around twenty-five times more expensive when using alfalfa than grazing.<sup>477</sup>

As discussed *infra*, the groundwater law of both states allows for reasonable drawdown in the water table, which may affect phreatophytes.<sup>478</sup> A model developed by the SNWA's expert witness predicts the water table in the Spring Valley, which neighbors the Snake Valley, will drop two hundred feet (sixty-one meters) in seventy-five years.<sup>479</sup> A USGS study using groundwater-flow models to estimate the effects of groundwater pumping in the Snake Valley also found that the water level was likely to drop, albeit by a more modest amount.<sup>480</sup> Greasewood is the most common phreatophyte in the Great Basin, and its roots can reach up to fifty-nine feet (eighteen meters) below ground.<sup>481</sup> If the table is drawn down far enough to kill grazing grasses (and note that cattle ranching is big business in Utah's Snake Valley), greasewood will occupy that space.<sup>482</sup> If the table is drawn down far enough to kill greasewood, significant topical erosion is possible.<sup>483</sup>

Lastly, there is some concern that by pumping a large amount of water from the aquifer, the flow of water within the aquifer may reverse; it currently travels from south to north, preventing saline water from the Great Salt Lake area from infiltrating Snake Valley water supplies.<sup>484</sup>

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<sup>477</sup> *Id.*

<sup>478</sup> See William D. Nichols, *Groundwater Discharge by Phreatophyte Shrubs in The Great Basin as Related to Depth to Groundwater*, 30 WATER RESOURCES 3265 (1994), available at <http://water.nv.gov/hearings/past/spring/browseable/exhibits%5CUSBLM/BLM-1523.PDF>.

<sup>479</sup> PAUL CUTILLO, EXPERT WITNESS STATEMENT FOR THE U.S. DEP'T OF THE INTERIOR 2 (2006), available at <http://images.water.nv.gov/images/hearings%20exhibits/spring%20valley/August%204th/USDI/Exhibits/Exhibit%232504/Report/Cutillo-Witness-Statement.pdf> (discussing results of hydrogeologist Timothy J. Durbin's model developed for the Southern Nevada Water Authority).

<sup>480</sup> KEITH J. HALFORD & RUSSELL W. PLUME, U.S. GEOL. SURVEY, SCI. INV. 2011-5032, POTENTIAL EFFECTS OF GROUNDWATER PUMPING ON WATER LEVELS, PHREATOPHYTES, AND SPRING DISCHARGES IN SPRING AND SNAKE VALLEYS, WHITE PINE COUNTY, NEVADA, AND ADJACENT AREAS IN NEVADA AND UTAH 37-38 (2011), available at <http://pubs.usgs.gov/sir/2011/5032/>.

<sup>481</sup> AMY M. MATHIE ET AL., U.S. GEOL. SURVEY, SCI. INV. 3169, PHREATOPHYTIC LAND-COVER MAP OF THE NORTHERN AND CENTRAL GREAT BASIN Ecoregion: CALIFORNIA, IDAHO, NEVADA, UTAH, OREGON, AND WYOMING 5 (2011), available at [http://pubs.usgs.gov/sim/3169/sim3169\\_pamphlet.pdf](http://pubs.usgs.gov/sim/3169/sim3169_pamphlet.pdf).

<sup>482</sup> BUREAU OF LAND MGMT., NEV. STATE OFFICE, CLARK, LINCOLN, AND WHITE PINE COUNTIES GROUNDWATER DEVELOPMENT PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT, ch.3.5, at 47 (Aug. 2012), available at [http://www.blm.gov/nv/st/en/prog/planing/groundwater\\_projects/snwa\\_groundwater\\_project/final\\_eis.html](http://www.blm.gov/nv/st/en/prog/planing/groundwater_projects/snwa_groundwater_project/final_eis.html) (follow "Chapter 3.5" hyperlink).

<sup>483</sup> See *id.* at ch. 3.5, at 47; *id.* at ch. 3.1, at 83 (follow "Chapter 3.1" hyperlink).

<sup>484</sup> STEFAN KIRBY & HUGH HURLow, UTAH GEOLOGICAL SURVEY, HYDROGEOLOGIC SETTING OF THE SNAKE VALLEY HYDROGEOLOGIC BASIN, MILLARD COUNTY, UTAH, AND WHITE PINE AND LINCOLN COUNTIES, NEVADA: IMPLICATIONS FOR POSSIBLE EFFECTS OF

### 6. *Additional Consideration—State Water Law Doctrines*

Pure prior appropriation is the governing doctrine in both states for the use of groundwater,<sup>485</sup> as well as surface water. Because Utah and Nevada both use the same basic prior-appropriation legal doctrine for groundwater, the Supreme Court would not be faced with the complicating issues that would arise if the two states had very different groundwater law doctrines, such as the rule of capture and correlative rights. Surface and groundwater sources are inextricably intertwined, as surface water can be both a source of and result of groundwater supplies.<sup>486</sup> Both states have developed reasonable limitations on groundwater use and agreed it was applicable in the final Utah-Nevada Agreement.<sup>487</sup> Neither state limits the use of groundwater to overlying lands or otherwise restricts use of groundwater to a local area.

Utah follows the safe-yield doctrine. The safe yield of an aquifer is “the amount of groundwater that can be withdrawn from a groundwater basin over a period of time without exceeding the long term recharge of the basin or unreasonably affecting the basin’s physical and chemical integrity.”<sup>488</sup> Nevada employs (but has not codified) the similar perennial-yield doctrine.<sup>489</sup> The perennial yield is “the maximum amount of groundwater that can be salvaged each

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PROPOSED WATER WELLS 33–34 (2005), available at <http://geology.utah.gov/online/ri/ri-254.pdf>; Ted McDonough, *Reservoir Hogs*, SALT LAKE CITY WKLY., Oct. 26, 2006, at 22–24, 26.

<sup>485</sup> GARY BRYNER & ELIZABETH PURCELL, *GROUNDWATER LAW SOURCEBOOK OF THE WESTERN UNITED STATES* 21, 52 (2003).

<sup>486</sup> BARCASS, *supra* note 23, at 45, 50 (noting that recharge occurs via runoff in streambeds, and discharge can occur via spring and seep flow).

<sup>487</sup> See Final Proposed Agreement, *supra* note 10, at §§ 2.8, 2.9.

<sup>488</sup> UTAH CODE ANN. § 73-5-15(b) (West 2004). See also UTAH DIV. OF WATER RES., *UTAH’S WATER RESOURCES: PLANNING FOR THE FUTURE* 67 (2001), available at [http://ww.w.water.utah.gov/planning/SWP/SWP2001/SWP\\_pff.pdf](http://ww.w.water.utah.gov/planning/SWP/SWP2001/SWP_pff.pdf) (defining “safe yield”).

<sup>489</sup> *Pyramid Lake Paiute Tribe of Indians v. Ricci*, 245 P.3d 1145, 1149 (Nev. 2010) (upholding state engineer’s authority to limit amount of water permitted to pump to unappropriated perennial yield); *Bacher v. Office of the State Eng’r*, 146 P.3d 793, 800 n.34 (Nev. 2006) (referencing two decisions of the state engineer relying on perennial-yield doctrine in denying permit); see also Amber L. Weeks, *Defining the Public Interest: Administrative Narrowing and Broadening of the Public Interest in Response to the Statutory Silence of Water Codes*, 50 NAT. RESOURCES J. 255, 268 n.57 (2010) (citing Applications 49038 et al. to Appropriate the Public Waters within the Lower Reese River Valley Hydrographic Basin, Ruling No. 5288, at 7 (Nev. State Eng’r Oct. 6, 2003)) (“The State Engineer reasoned that since approval of the applications would result in groundwater withdrawal exceeding the basin’s perennial yield, approval of the applications would both conflict with existing rights and be contrary to the public interest.”).

year over the long-term without depleting the groundwater reservoir.”<sup>490</sup> The perennial yield cannot be more than “the natural recharge” of the groundwater reservoir and is usually “limited to the maximum amount of natural discharge.”<sup>491</sup>

Since Las Vegas needs its water for domestic purposes—its growing population—and since the Snake Valley predominantly uses water for irrigation and stock watering, the Court also should consider the special importance of municipal (sanitation and city supply) and domestic (drinking, cooking, and washing) uses of water, which have historically been accorded special solicitude in water law and have been given preference over use for irrigation and manufacturing.

Although the domestic-use preference is sometimes more associated with riparian states than prior-appropriation states,<sup>492</sup> it is by no means alien to the West.<sup>493</sup> While one state, Montana, eschews any use of preference,<sup>494</sup> many more prior-appropriation states provide that when not enough water is available for all uses, preference is given to domestic uses. Colorado<sup>495</sup> and Idaho<sup>496</sup> provide for a domestic-use preference in their state constitutions, while Arizona,<sup>497</sup> California,<sup>498</sup> Kansas,<sup>499</sup> and Wyoming<sup>500</sup> have statutes to the same effect.

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<sup>490</sup> FRED W. WELDEN, LEGIS. COUNSEL BUREAU, HISTORY OF WATER LAW IN NEVADA AND THE WESTERN STATES 8 (2003), available at <http://www.leg.state.nv.us/Division/Research/Publications/Bkground/BP03-02.pdf>.

<sup>491</sup> *Id.*

<sup>492</sup> See, e.g., *Mettler v. Ames Realty Co.*, 201 P. 702, 705 (Mont. 1921) (“The common-law doctrine [of riparianism] . . . classifies the uses to which water may be applied and gives preference to the so-called natural uses.”).

<sup>493</sup> See TARLOCK, *supra* note 7 at § 5:36; Robert E. Beck, *Use Preferences for Water*, 76 N.D. L. REV. 753, 765 (2000) (specifying that constitutions and statutes of “both riparian and prior appropriation states contain preferred uses for water”).

<sup>494</sup> *Mettler*, 201 P. at 707 (“[S]everal provisions must be accepted as indicating the public policy of Montana respecting the subject now under review. They recognize . . . that the one first in time is first in right without reference to the so-called natural and artificial uses.”).

<sup>495</sup> COLO. CONST. art. XVI, § 6 (“Priority of appropriation shall give the better right as between those using the water for the same purpose; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose . . .”).

<sup>496</sup> IDAHO CONST. art. XV, § 3 (“[W]hen the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall . . . have the preference over those claiming for any other purpose . . .”).

<sup>497</sup> ARIZ. REV. STAT. § 45-157 (2012) (providing for preference for “domestic and municipal uses,” although limiting preference to pending applications).

<sup>498</sup> CAL. WATER CODE § 106 (West 2010) (“It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation.”); *id.* § 1460 (“The application for a permit by a municipality for the use of water for the municipality or the inhabitants thereof for

Most importantly, both Utah and Nevada have historically recognized the special status of domestic uses in some form. Utah enacted a statute in 1917 granting preference to domestic uses of water, but this provision was repealed in 2009<sup>501</sup> at the instigation of the Utah farm lobby.<sup>502</sup> Still, the Utah Supreme Court has recognized “[t]hat domestic use is the most beneficial use for water and that irrigation is the next most beneficial use in the arid western states is a self-evident and well recognized fact regardless of any statute” and has not receded from that proposition.<sup>503</sup> Nevada has a domestic use exception for groundwater used by single-family households, exempting such uses from permitting requirements.<sup>504</sup> The widespread application of domestic use preferences, and recognition (at least implicitly) by both Utah and Nevada, underscores that providing water for its most basic purpose, sustaining human life, is a paramount interest.<sup>505</sup>

While predicting outcomes of fact-specific litigation can be challenging, it seems highly likely that an equitable apportionment action of the Snake Valley Aquifer will result in a roughly equal allocation of the annual safe yield between Nevada and Utah. Using a conservative estimate of the annual safe yield at 100,000 acre-feet, Nevada could reasonably expect an allocation that is at least in the ballpark of its desired diversion to Las Vegas. While the details are exceptionally hard to predict, the essence of an expected adjudication would be that Nevada gets the quantity of water that it would have gotten under the proposed Snake Valley Agreement.

An additional consideration is that equitable-apportionment litigation is phenomenally expensive. While any approach to managing water will involve large-scale costs, most would agree that expenditures on studies, infrastructure,

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domestic purposes shall be considered first in right, irrespective of whether it is first in time.”).

<sup>499</sup> KAN. STAT. § 82a-707(b) (2012) (“Where lawful uses of water have the same date of priority, such uses shall conform to the following order of preference: [a] Domestic, [b] municipal, [c] irrigation, [d] industrial, [e] recreational and water power uses.”).

<sup>500</sup> WYO. STAT. § 41-3-102 (2009) (“preferred uses shall include rights for domestic and transportation purposes,” with “water for drinking purposes” and “for municipal purposes” first in order of preference).

<sup>501</sup> UTAH CODE ANN. § 73-3-21 (West 2008), *repealed by* 2009 Laws of Utah chap. 283 § 1, effective May 11, 2010.

<sup>502</sup> John C. Ruple & Robert B. Keiter, *Water for Commercial Oil Shale Development in Utah: Allocating Scarce Resources and the Search for New Sources of Supply*, 30 J. LAND RESOURCES & ENVTL. L. 95, 97 n.18 (2010); J. Craig Smith & Scott M. Ellsworth, *A Preference for Domestic Water Use in Utah: A Relic of the Past?*, WATER RESOURCES COMMITTEE NEWSLETTER (A.B.A. Sec. of Env’t, Energy & Resources, Water Resources Comm.), Nov. 2009 at 9.

<sup>503</sup> *Tanner v. Bacon*, 136 P.2d 957, 963 (Utah 1943).

<sup>504</sup> NEV. REV. STAT. ANN. §§ 534.013, 534.180 (LexisNexis 2012).

<sup>505</sup> See Laura A. Schroeder et al., *Domestic Groundwater Exemptions: Competing Uses Put Pressure on Western Water Right Requirements, But Constitutional Right to Life May Trump the Prior Appropriation Doctrine*, 47 WILLAMETTE L. REV. 405, 424 (2011).

conservation, and cooperative water management are more beneficial than the transaction costs of litigation, including attorneys' fees, the costs of studies and experts' fees, and opportunity costs. Experience says that these costs will be massive; for example, equitable-apportionment litigation between Kansas and Colorado over the Arkansas River Basin,<sup>506</sup> between New Mexico and Texas over Elephant Butte,<sup>507</sup> and between North and South Carolina over the Catawba River each cost millions.<sup>508</sup> The costs of original jurisdiction equitable apportionment actions are especially troubling at a time when states, and their offices of attorneys general, have experienced budget strains.<sup>509</sup>

The uncertainties and costs of litigation reinforce the need for a better solution to managing interstate groundwater disputes. As with surface water disputes, cooperation can produce a better outcome than litigation. The Supreme Court, like many commentators, has repeatedly stated that interstate agreements are the optimal way to resolve interstate water disputes. As just one example, in *Colorado v. Kansas*<sup>510</sup> the Court offered the following advice to the party states:

Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the Federal constitution. We say of this case, as the court has said of interstate differences of like nature, that such mutual accommodation and agreement should, if possible, be the medium of settlement, instead of invocation of our adjudicatory power.<sup>511</sup>

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<sup>506</sup> Tim Carpenter, *A.G. Six to Argue Before Justices*, TOPEKA CAPITAL-J., Nov. 27, 2008, [http://cjonline.com/stories/112708/kan\\_360470374.shtml](http://cjonline.com/stories/112708/kan_360470374.shtml) (stating that Kansas "spent millions" in its suit against Colorado).

<sup>507</sup> Staci Matlock, *State Locked the Costly Legal Battle: AG Says Agreement on Elephant Butte Releases Favors Texas*, SANTA FE NEW MEXICAN, Aug. 15, 2011, at A1.

<sup>508</sup> CHRIS MAYDA, *A REGIONAL GEOGRAPHY OF THE UNITED STATES AND CANADA: TOWARD A SUSTAINABLE FUTURE* 211 (2013) (pointing out that the Carolinas spent millions battling each other); Associated Press, *SC Attorney General Seeks Millions to Fight NC in Water Dispute*, Feb. 27, 2008, <http://www.witn.com/home/headlines/16019747.html> (reporting that by early 2008 the South Carolina attorney general's office had already been allocated \$1.4 million to fund Catawba River litigation, and that the attorney general estimated that South Carolina could spend in excess of \$3 million on the case).

<sup>509</sup> See, e.g., 2011 APPROPRIATIONS REPORT, NEVADA LEGISLATURE, NEVADA LEGISLATIVE COUNSEL BUREAU, FISCAL ANALYSIS DIVISION 74, available at <http://www.leg.state.nv.us/Division/fiscal/Appropriation%20Reports/2011AppropriationsReport/4Electcd%20Officials.pdf> ("For the 2011–13 biennium, the Legislature approved \$104.2 million in total funding for the [Office of the Attorney General], a 7.5 percent decrease from the amount approved for the 2009–11 biennium of \$112.6 million.").

<sup>510</sup> 320 U.S. 383 (1943).

<sup>511</sup> *Id.* at 392.

The proposed Snake Valley Aquifer Agreement provides a model solution for states to use in taking the Supreme Court's repeated advice to avoid litigation with cooperation and interstate compacts.

#### CONCLUSION

As states increasingly utilize groundwater to meet their growing demands for freshwater resources, disputes over interstate aquifers will become more common and pervasive. The Supreme Court's equitable apportionment doctrine can be applied to these disputes with the same limited success as with surface water systems. The Snake Valley Aquifer dispute shows that litigation is a possible solution, but not an ideal one. Instead, states should use the compact mechanism that has been applied to surface water systems, tailored with specific provisions for the complexities of groundwater management. The Snake Valley Aquifer Agreement, rejected for political reasons, offers a model for sustainable interstate groundwater management. Given the cost and expected outcomes of equitable-apportionment litigation, Utah should reconsider an agreement with Nevada to cooperatively use and manage the Snake Valley Aquifer.