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FOUNTAINS OF LIVING WATERS: HOW EARLY MORMON IRRIGATION INNOVATED THE LEGAL LANDSCAPE OF THE WEST

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I. Introduction

On July 24, 1847, Brigham Young and fellow members of the Church of Jesus Christ of Latter-Day-Saints completed a nearly one-thousand-mile journey from Nauvoo, Illinois, to the Great Salt Lake Valley in the State of Utah.[1] The Latter-Day-Saints, commonly known as "Mormons," fled religious persecution in the Protestant-dominated United States and sought spiritual liberation in the West. Their trek to the Great Salt Lake Valley was not a pleasant or easy one: winter arrived, and many members succumbed to disease. Yet, this harrowing journey only bolstered the Mormon reserve in building a prosperous life that honored their Heavenly Father and proved the rest of the nation wrong.

Water plays a vibrant role in Mormon theology. According to the Church of Jesus Christ of Latter-Day-Saints ("LDS"), water is far more than a lucrative resource: *water is life.* LDS doctrine maintains that "[t]he word of God, [leads] to the fountain of living waters, or to the tree of life, which waters are a representation of the love of God."[2] In Jesus' own words in the

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1. LIBRARY OF CONGRESS, TODAY IN HISTORY – JULY 24, https://www.loc.gov/item/today-in-history/july-24/, (last visited February 3, 2023).

2. 1 *Nephi* 11:25, BOOK OF MORMON.

Gospel of John, Christ proclaims that anyone who is thirsty should "come to [Him] and drink. Whoever believes in [Him], as Scripture has said, rivers of living water will flow from within them."[3]

Modern society often views the geological and geographical conditions of the Great Salt Lake Valley as harsh, leading to admiration of the plentiful farming and agricultural community that was only precipitated (no pun intended) by masterful irrigation systems often credited to the Mormon people after they settled in the Salt Lake City area.[4] While much of the innovation, especially in recent history, is rightfully credited to the Mormons and the State of Utah's legislature, the Mormons were certainly not the first community group to innovate irrigation and sophisticated farming in the West's harsh conditions. The Indigenous tribes have had a storied history of innovating in terms of farming in the area.[5]

Joseph Smith, the original leader and prophet LDS prophesied in 1842 that:

> [T]he Saints will continue to suffer much affliction and would be driven to the Rocky Mountains, many would apostatize, others would be put to death by our persecutors or lose their lives in consequence of exposure or disease, and some of you will live to go and assist in making settlements and build cities and see the Saints become a mighty people in the midst of the Rocky Mountains.[6]

In 1897, LDS leader Stephen H. Goddard gave an eye-witness account that "prophet Joseph mapped out on the floor with a piece of chalk a diagram of what he called the Great Salt Lake Basin or Valley and said that the Latter-Day-Saints would go there."[7] The LDS leaders did their due diligence in deciding where to settle – they relied on the reports of Fremont, Wilkes, Bonneville, and others "who had travelled This area, the Great Salt Lake Basin, would be the sacred place for their first Temple which still stands

3. *John* 7:38 (King James).

4. ALFRED RUDOLF GOLZ'E, RECLAMATION IN THE UNITED STATES 6 (Literary Licensing, LLC ed., 2013).

5. Ralph H. Hess, *The Beginnings of Irrigation in the United States*, 10 JOURNAL OF POLITICAL ECONOMY (1921).

6. Joseph Smith, *Manuscript History of the Church, 1838–1856, volume D-1 [August 1842–1 July 1843]*, 1362, THE JOSEPH SMITH PAPERS, https://www.josephsmithpapers.org/paper-summary/history-1838-1856-volume-d-1-1-august-1842-1-july-1843/5 (accessed February 15, 2024)

7. ANDREW JENSON, ED., RECOLLECTION BY STEPHEN H. GODDARD, JOURNAL HISTORY OF THE CHURCH (July 26, 1897, L.D.S. Church Historians Office, Salt Lake City, Utah).

today in Salt Lake City."[8] As of today, the Mormon Church's headquarters and most sacred religious sites are all in Salt Lake City, Utah, a region that is presently 62% Mormon.[9]

This paper will analyze the Mormon influences on the Appropriation Doctrine, specifically in the Western region of the United States. In doing so, we must lay a historical foundation with a survey of original Indigenous technology in irrigation and water use. The pre-contact Indigenous systems of irrigation and water use served as a valuable foundation for Mormons to continue in advancing productive water use. Section II of this paper will lay the historical groundwork of Indigenous water use and technology in the pre-Mormon-contact West. Section III of this paper will focus on the early Mormon irrigation innovations in Utah and the Western Region as a whole. Section IV of this paper will survey the post-Mormon legal underpinnings of Western water law. Finally, Section V will consider present day issues, controversies, and conversations surrounding Mormon water usage and water rights in the age of climate change and ever-advancing water technologies.

II. Early Indigenous Systems of Irrigation in the West

The Appropriation Doctrine heavily focuses on beneficial use. The two elements of the Appropriation Doctrine are: 1) priority, and 2) beneficial use. In an Appropriation Doctrine jurisdiction, water users must be the first to find the water and must put that water to productive or beneficial use. In regions like the Western United States which have markedly less water than the Eastern-most states, this system works and insures that the water in the region is used for the most productive purposes possible. For example, with the Mormon communities, a firsthand eyewitness account observed that "once a week is the rule for thus watering each crop; today a man takes enough for one portion of his garden; tomorrow for another; and so through this entire possessions and the week."[10] It is unlikely that an individual Mormon would be permitted to use communal water for any other purpose than bare survival,

8. *Id.*

9. .Associated Press, *Mormons Now a Minority in Utah's Biggest County, New Figures Show*, LOS ANGELES TIMES, (Dec. 15, 2018), https://www.latimes.com/nation/nationnow/la-na-utah-salt-lake-mormons-20181215-story.html.

10. SAMUEL BOWLES, EVOLUTION OF THE CONSERVATION MOVEMENT, 1850-1920 207-220 (photo. reprt. May 2002) (1869), https://memory.loc.gov/cgi-bin/ampage?collId=amrvg&fileName=vg32/amrvgvg32.db&recNum=199&itemLink=r?ammem/consrv:@field(DOCID+@lit(amrvgvg32div17))%23vg32200&linkText=1.

watering crops or generating other forms of capital due to the scarcity of the resource in the early days of Mormon contact with the West.

Irrigation is one of the most beneficial uses of water in these arid regions. Because there are few waterways, it is unlikely that most farms, especially junior farms, are settled near these streams or brooks. In cases of the unfortunate farm far from any waterway, creative watering innovation is the only saving grace. Accordingly, irrigation has deep and ancient roots.[11] While the Mormons were not the first community to put irrigation to beneficial use, The United States Supreme Court noted that "the afternoon of July 23, 1847, was the true date of the beginning of modern irrigation. It was on that afternoon that the first band of Mormon pioneers built a small dam across City Creek near the present site of the Mormon Temple and diverted sufficient water to saturate some five acres of exceedingly dry land."[12] But the Court put a caveat on their bold statement by qualifying that "there is still considerable disagreement among scholars concerning where and when irrigation was first practiced."[13] In 1825, about twenty years before Mormons made contact with the West, "the total acreage being irrigated in the Western States in the United States did not exceed 35,000 acres, primarily in the Spanish settlements of the Southwest."[14] However small the number of acres being irrigated, it is clear that irrigation was at least a semi-common practice that the Mormons did not invent entirely on their own.

Because Mormons arrived in Utah in 1847, pinpointing the start of the Mormon influence is simple. As elementary as it sounds, anything pre-1847 was a non-Mormon influence on irrigation, and after that date, we can hypothesize that the Mormons had some level of influence on the irrigation systems of the region.

The first irrigators in Utah were the native, indigenous inhabitants of the state's territorial bounds.[15] Likewise, it is clear that there was an indigenous presence throughout all of the Western States, where they left an original handprint on North American irrigation systems..[16] It is hypothesized that the

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11. Kelly C. Harper, *The Mormon Role in Irrigation Beginnings and Diffusions in the Western States: An Historical Geography*, BRIGHAM YOUNG UNIVERSITY THESES AND DISSERTATIONS 4764 (1974).

12. *State of California v. United States*, 438 U.S. 645, 649 (1978).

13. *Id.*

14. GEORGE THOMAS, EARLY IRRIGATION IN THE WESTERN UNITED STATES 31, 43 (University of Utah ed., 1948).

15. CHARLES HILLMAN BROUGH, IRRIGATION IN UTAH (Baltimore, The Johns Hopkins Press ed., 1898), https://archive.org/details/irrigationinutah00brourich/page/n11/mode/2up.

16. Harper, *supra* note 11.

Hohokam Tribe in Arizona were the first people group to irrigate in the West, roughly two-thousand years ago.[17] "Scholars have divided the Hohokam culture into four time periods – the Pioneer, the Colonia, the Sedentary, and the Classic. During the Pioneer period, the Hohokam were only floodwater irrigators, but during the colonial period a canal system was developed. Between 600 and 900 A.D. a large and well-built canal system was established."[18] The descendants of the Hohokam Tribe, after the culture of the Hohokam faded, moved southward, where they were known as extensive irrigators in Arizona.[19] In present day Phoenix, there is "an Indian tunnel several hundred feet long which diverted water to a canal some twenty miles in length."[20] In terms of the canal system in the Salt River Valley, there were roughly "250,000 acres of irrigated land by one thousand miles of canal and ditch."[21]

When Spain and their armies made contact with the North American mainland and its tribes, it is no surprise that they tried their hand at implementing the sophisticated irrigation systems that the Indigenous groups had developed and thrived off of. Spain was not new to the irrigation systems that the Indigenous tribes developed themselves – the Spaniards had a centuries-old irrigation system that they implemented back home.[22] The Spaniards were wise to settle and evangelize to the tribes in areas that had easy or *easier* access to water: "the most important physical factor in the selection of a mission site was the availability of water."[23] While there is perhaps little evidence that the Spanish had as much of a robust settlement in Utah as they did in Arizona, New Mexico, Texas, and California, one can hypothesize that a global powerhouse, like Spain had at least an indirect effect on later irrigation throughout the Western Region. There is less information on the indigenous tribes that inhabited Utah, but there is some evidence to show that the Indians of southern Utah did practice some irrigation.[24] "It may be noted that irrigation at some time or another was

17. *Id.*

18. *Id.* at 6. *See also* EDWARD H. PEPLOW JR., HISTORY OF ARIZONA (Lewis Historical Publishing Company Inc. ed., 1958)

19. Harper, *supra* note 11 at 6.

20. *Id. See also* Hess, *supra* note 5.

21. LEONARD M. CANTOR, A WORLD GEOGRAPHY OF IRRIGATION 13 (Oliver and Boyd ed., 1967).

22. Harper, *supra* note 11.

23. R. Louis Gentilcore, *Missions and Mission Lands of Alta California*, 51 ANNALS OF THE ASSOCIATION OF AMERICAN GEOGRAPHERS 46 (1961), https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-8306.1961.tb00368.x.

24. Harper, *supra* note 11 at 8.

practiced in nearly every Western State before the earliest Mormon attempts in 1847. Only the soil of Wyoming was not irrigated."[25]

Irrigation systems in the West existed long before the Mormons contacted Utah and beyond. The Mormons owe a great deal to their Western predecessors who charted the path for successful and flourishing water use.

III. Mormon Arrival in Utah and Early Irrigation Innovation

It may seem unusual to speak of the *Mormon* influence on a legal doctrine when we live in a society that places such an importance on the separation of church and state. Why and how could a religious group outside of the mainstream Protestant sect have such a lasting impact on our American common law? According to Samuel Bowles, editor of the *Springfield Republican*, who headed West to explore the newly settled lands and societies: the Mormon religion was the source of legal and political control. Bowles reported that "never on the American continent was there organized union of church and state as here. The political, social, and business organizations of Utah are, each and all, subservient to that of the church. The machinery of that is complete and intimate; it reaches everywhere, it controls everything."[26] The early Mormon settlement likely had many similarities to the colonies in the eighteenth century across the continental United States – religion and culture being the controlling agent of the culture. It is no surprise, then, that Mormon culture had such a strong foothold on secular society when they had full control over their church members in every aspect of their lives. The LDS members persevered and "through cooperative effort, for which they became well-known; canals, ditches, and dams were built, and the valleys in the immediate vicinity of the Great Basin Area were irrigated. As early as 1850 more than 16,000 acres were being artificially watered."[27]

Cartographers have referred to the Great Basin Area as the "Great American Desert."[28] It seems idiosyncratic for a people group looking to establish themselves, their economy, their livelihood, and their church in such an inhospitable region. An eyewitness that visited the Mormons in their early days in Utah observed that "the city lies directly below [a high plateau or bench of land] on a second or third bench or gradation, as the open plain

25. *Id.* at 10.

26. BOWLES, *supra* note 10 at 209.

27. GOLZ'E, *supra* note 4 at 10.

28. Norman K. Johnson, Charles T. DuMars, *A Survey of the Evolution of Western Water Law in Response to Changing Economic and Public Interest Demands*, 29 Nat. Resources. J. 347 (1989).

falls away into the lower valley, through which the River Jordan sluggishly winds its way from Utah Lake, forty miles south, into the Salt Lake itself, the home of all streams of the mountains and valleys around."[29]

The Mormons had a vision for their future, but that vision involved sophisticated innovation – which was likely daunting at the outset. Within their prosperous vision for the future, historians do not believe that the Mormons had any knowledge or experience with irrigation systems prior to their arrival in Utah. Brigham Young and his followers had never known a life or a region that did not have plentiful rainfall or bountiful water sources. While they had little experience with arid regions, "they quickly learned that they had staked their whole future upon a region which could not produce a speak of tame grass, an ear of corn, nor a kernel of wheat without skillful irrigation. Of the art of irrigation, they were utterly ignorant."[30] Little did the Mormon settlers know at the outset of their city planning, farming endeavors, and homesteading that the "Salt Lake shimmer[ed] with the sunlight in the far distance, and the delaying Jordan ribboning the gardens of grain and grass below … Salt Lake City spreads itself with luxuriance of space, and with luxuriance of garden and orchard growth, that almost hides its buildings."[31]

The Great Salt Lake Basin is a unique geographical and topographical region for farming. Bowles described the Salt Lake itself as being "the phenomenon of the whole interior basin. It lies across the valley fifteen miles from the city, is very irregular in shape, but about fifty miles wide by a hundred long." The Great Salt Lake is aptly named being "salter [sic] than any ocean; so salt, indeed, that fish cannot live in it, that three quarts will boil down to one quart of fine pure salt, and on whose dense waters the bather can float like a cork, thought the sharp brine must be kept from his mouth and eyes under penalty of severe smarting."[32]

A firsthand account of the Mormons in their early days in the Great Basin emphasized that "coming out of the last range of the Rocky Mountains, into this beautiful basin, no wonder [the Mormons] had a revelation to stop and plant their banners here."[33] And the "summer sun baked the earth; the winter snows covered it; only on living on roots and coarse herbs and the meanest of animals did they survive their first year; only by patient toil and the introduction of irrigation over their lands were they able to produce

29. BOWLES, supra note 10.

30. WILLIAM E. SMYTH, THE CONQUEST OF ARID AMERICA 54 (The Macmillan Co. ed., 1905).

31. BOWLES, *supra* note 10 at 211.

32. *Id.*

33. *Id.* at 209.

recompensing crops."[34] Crops provided a kind of stability for these early settlements. The crops fed the communities, allowed for individual farmers to make profits, and gave outward facing clout to the Mormons that proved their oppressors wrong and demonstrated resilience, bounty, and prosperity to the rest of the nation. The soil of this and the smaller neighboring valleys was especially favorable to the small grains. Fifty and sixty bushels was a very common crop of wheat, oats, and barley; and over ninety have been raised.[35] When the Mormon Church leaders were researching possible regions and areas to settle their communities, the pioneers relied most heavily on Lansford W. Hastings' *The Emigrants Guide to Oregon and California* which "referred to the Bear Valley and the Great Basin in generally favorable terms, and spoke of good vegetation in many of the valley areas."[36]

According to the Utah Division of Water Rights, the Utah Pioneers "in the late 1840s, were the first Anglo-Saxons to practice irrigation on an extensive scale in the United States."[37] And while Indigenous peoples were truly the first communities to innovate in the irrigation space, in the Mormon settlement era, the Mormons and any Anglo-Saxon visitor that came to visit their community likely believed that they were the first of their kind and the irrigation systems they built were completely novel. Bowles, when he visited, maintained that "the Mormons were the first people in the United States to resort to this means of counteracting the peculiarities of this western climate. They began it at once on their arrival in the Salt Lake Valley and have carried it to a good degree of perfection, especially in the city and its neighborhood."[38] Bowles went on to explain that "thus, lively brooks course down the gutters of the streets, keeping the shade trees alive and growing, supplying drink for animals and water for household purposes."[39]

The Mormons are well-known for their resourcefulness. That reputation is due in large part to the scarcity of water and large populations that needed access to the resource and large populations that needed access to the resource. The resourcefulness has carried from the early nineteenth century Mormon settlers into the new era of water use and appropriation in Utah and the greater Western region.

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34. *Id.* at 212.

35. *Id.* at 214.

36. Harper, *supra* note 11 at 30.

37. Utah Div. Water Rts., *Water Right Information*, UTAH.GOV, https://waterrights.utah.gov/wrinfo/default.asp (last updated July 19, 2011).

38. BOWLES, *supra* note 10 at 214.

39. *Id.* at 211.

IV. A Legal Study of Post-Mormon-Contact Water Use in the West

With such little water to go around, the riparian system had no utility for the budding communities of Mormons. It became clear quite quickly that the Appropriation Doctrine, which has its underpinnings in the Doctrine of Discovery, was going to incentivize the most productive use of water in the region. The Mormons, who were settled adjacent to the miners taking advantage of the California gold rush, were aware that a basic tenet of mining law was that the miner who initially stakes a claim is first in time and therefore, first in right.[40] In general, the Western states all applied this legal principle to their state-specific water common law.[41] The Montana Supreme Court explicitly maintained that the settlers in California, who had a significant legal impact on the Mormons just East of them, further influenced Montana common law.[42] The Court stated in *Maynard v. Watkins* that "all early appropriations in Montana were made pursuant to the rules and customs of the early settlers of California which had been adopted in Montana territory given the force of law."[43]

In an arid region like Utah, water seemed more like a luxury than a useful resource, and the riparian systems of the "humid eastern regions" would not suffice. In particular:

> The Utah pioneers laid down the fundamental principal that since, in an arid country, the use of water for irrigation is the most important concern of the people, the doctrine of riparian rights must be abrogated, and the *proper* use of water in irrigation must constitute the fundamental claim of the individual upon the use of the freely flowing waters of a state. This doctrine, which now seems axiomatic, represents a great contribution to the conquest of the arid West by irrigation.[44]

There are three defining characteristics of Mormon water use – and really all Western water use – during their early days in the West: beneficial use, priority, and diversion of water.[45] The term beneficial was likely limited to farming, mining, and community use and "whether [the West] irrigated,

40. Johnson & DuMars, *supra* note 28.

41. *Irwin v. Phillips*, 5 Cal. 140, 146 (Cal. Sup. Ct. 1855).

42. Johnson & DuMars, *supra* note 28 at 350.

43. *Id.* at 349.

44. JOHN A. WIDTSOE, THE PRINCIPLES OF IRRIGATION PRACTICE 457 (The Macmillan Company ed., 1914).

45. Utah Div. Water Rts., *supra* note 37.

squash and corn, used water for domestic purposes, or sluiced for gold, the Spaniards, Indians, Mormons, and miners diverted water from its natural location and used it for beneficial purposes."[46] In terms of priority, "a chronological hierarchy was created among miners and the Mormons where early users who perfected their rights were protected against subsequent users . . . [but] in times of shortage senior rights were protected up the available supply, while junior users [may have] received nothing at all."[47]

While the Appropriation Doctrine was the controlling standard for water use within the Mormon communities and beyond, the doctrine was not an unchecked one. The corollary to "the 'first in time' principle … was loosely described as the concept 'use it or lose it.'"[48] If you were a senior water user, but you were not putting that right to good (beneficial) use, the law offered you little protection.[49] The law went to far as to quasi-declare that if you, a senior water user, stopped putting the water to beneficial use, the water right that the senior user had was now relinquished due to their lack of use, thus constituting the "lose it" principle.[50]

A major trait of the Western water innovation in the nineteenth century was the push for water diversion. In an appropriation doctrine jurisdiction, diversion of water was all important, especially for inland farmers who had no direct connection to a watercourse. In a typical scenario, "an irrigator would construct diversion works and possibly a ditch or canal to connect his land to a free-flowing stream."[51]

If the Mormons were only vaguely aware of irrigation before they made it to Utah, as is maintained broadly, what was the origin of their irrigation education?[52] Some scholars hypothesize that much like the Indigenous peoples who inhabited Utah before the Mormons, the Spanish had some degree of influence over the Mormons' innovations through the Santa Fe trade system and the Mormon Battalion.[53] The Santa Fe trade system developed between Santa Fe, New Mexico and Independence, Missouri, after 1822.[54] Within the Santa Fe irrigation system, "corn, rice, and wheat are their principal productions … their atmosphere is remarkably dry, and rain is

46. Johnson & DuMars, *supra* note 28 at 350.
47. *Id.*
48. *Id.*
49. *Id.* at 348.
50. *Id.* at 347.
51. *Id.* at 350.
52. Harper, *supra* note 11 at 15.
53. *Id.* at 16.
54. *Id.* at 17.

uncommon except in the months of July and August. To remedy this inconvenience, they substitute with tolerable advantage, the numerous streams which descend from the mountains … by damming … and conveying their water to farms in ditches."[55] Records show that "the explorers and traders who returned to the Western frontier of the United States spoke of their observations [of the Santa Fe trading system] and explained the use of irrigation to others."[56]

Just five years before the Mormons arrived in the West, California enacted their own appropriative water rights statute in 1872.[57] Under the statute, a user would be able to create a right by "posting, at the point of diversion, a document stating the intended amount of the right and its purpose of use, filing for the right in the county recorder's office, and taking the necessary steps to 'perfect' the right . . . with due diligence."[58] While it is true that some "western states officially adopted water codes before Utah, the first development of American water law occurred in the Mormon settlements. Often principles of water law were recognized and used among Mormons by custom before becoming law."[59] California's scheme seemed to be incredibly influential over Utah's own lawmaking, and even today, California is one of the biggest leaders in water conservation and appropriation.

In Utah, the state created the Office of the State Engineer in 1897, just ten years after the Mormons settled in the Great Salt Lake Basin. The primary duties of the State Engineer are to administer the water rights of individuals and municipalities of the state. In 1903, Utah enacted a complete water code. In 1913, the code was revised and reenacted.[60]

States adopted similar statutory schemes that gave the state agency administrative rights in overseeing water use in this order: Nebraska in 1895, Idaho (as well as previously mentioned Utah) in 1903, Nevada, New Mexico, North Dakota, Oklahoma, and South Dakota in 1905; Oregon in 1909; Texas in 1913; California in 1914; Kansas and Washington in 1917, and Arizona in 1919.[61]

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55. *Id.*

56. *Id.* at 18

57. California Water Code, Ch. 424, 1871-1872 Cal. Stat. 622 (amended 1943).

58. *Id.*

59. WELLS A. HUTCHINS, WATER RIGHTS IN THE NINETEEN WESTERN STATES 163 (Natural Resource Economics Division, Economics Research Service, United States Department of Agriculture, 1971).

60. Utah Div. Water Rts., *supra* note 37.

61. Act of Apr. 4, 1895, ch. 69, 1895, Neb. Laws 244; Act of Mar. 12, 1903 ch. 100, 1903 Utah Laws 88; Act of Mar. 11, 1903, no. 146, 1903 Idaho Laws 223; Act of Mar. I, 1905, ch.

Water laws passed in the early twentieth century serve as important foundations for current lawmaking surrounding the appropriation of water. Compacts, contracts, and state statutes have large ripple effects on the natural resources of Western states, and modern-day lawmakers in these Western states have a great responsibility to steward their natural resources.

V. Modern Day Water Considerations in Utah and the West

There can be no doubt that Brigham Young and his followers had an impactful influence on Western irrigation. At the same time, it is clear that Western irrigation as we see it today came from a host of influences. Irrigation increased exponentially once the Mormons created a sustainable and easily transferrable system. Its recorded that "as early as 1850 more than 16,000 acres were being artificially watered."[62] Further, "in the next fifty years, this knowledge of irrigation that the LDS used, and its practical application spread as far north and south as Canada and Mexico and as far east and west as California and Colorado."[63]

In present day Utah, still culturally and perhaps politically controlled by the Mormon Church, water appropriation is still the controlling doctrine. Current Utah law makes clear that the original tenants of the nineteenth century Appropriation Doctrine are still intact. In relevant part:

> (1) A person may acquire a right to the use of the unappropriated public waters in this state only as provided for in this title.
>
> . . . .
>
> (4) An appropriation may be made only for a useful and beneficial purpose.
>
> (5) (a) between appropriators, the one first in time is first in rights.

46, 1905 Nev. Stat. 66; Act of Mar. 16. 1905, chs. 102, 104, 1905 N.M. Laws 270, 284; Act of Mar. 1, 1905, ch. 34, 1905 N.D. Laws 44; Act of Feb. 25, 1905, ch. 21, 1905 Okla. Sess. Laws 274; Act of Mar. 3. 1905, ch. 132, 1905 S.D. Laws 201; Act of Feb. 24, 1909, ch. 216, 1909 Or. Laws 319; Act of Apr. 9, 1913, ch. 171, 1913 Tex. Sess. Law Serv. 358 (Vernon); Act of June 16, 1913, ch. 586, 1913 Cal. Stat. 1012; Act of Mar. 13, 1917, ch. 172, 1917 Kan. Sess. Laws 218; Act of Mar, 14, 1917, ch. 117, 1917 Wash. Laws 447; Act of Mar. 26, 1919, ch. 164, 1919 Ariz. Laws 278; *see generally* HUTCHINS, supra note 59 at 170-80.

62. GOLZ'E, *supra* note 4 at 12.

63. Harper, *supra* note 11 at 17. *See also* GOLZ'E, *supra* note 4 at 12.

> (b) A use designated by an application to appropriate any of the unappropriated waters of the state that would materially interfere with a more beneficial use of the water shall be dealt with as provided in Section 73-3-8.
>
> (6) A person may not acquire a right to the use of water either appropriated or unappropriated by adverse use or adverse possession.[64]

According to the Utah Division of Water Rights, all waters are public property, and the right to water necessarily includes the right to divert the water from its natural source for beneficial use.[65]

We can look to the actions of the modern LDS Church to determine what they view as "beneficial use" in the midst of an intrastate water shortage crisis as the Great Salt Lake is rapidly drying up. In times of climate variability, water sources' arsenals fluctuate – but this is not just any water source. The Great Salt Lake is a "keystone ecosystem in the Western Hemisphere. The lake and its wetlands provide minerals for Utah's industries, thousands of local jobs, and a habitat for ten million migratory birds. Fertilizer and brine shrimp feed millions of people worldwide [and] the lake provides $2.5 billion in direct economic activity yearly."[66]

According to a recent study conducted by Brigham Young University, "without a dramatic increase in water flow to the lake in 2023 and 2024, [the Great Salt Lake's] disappearance could cause immense damage to Utah's public health, environment, and economy."[67] The BYU study credits "excessive water use is destroying [the lake] … the lake is in uncharted territory. It has lost 73% of its water and 60% of its surface area. Our unsustainable water use is desiccating habitats, exposing toxic dust, and driving salinity to levels incompatible with the lake's food webs."[68] The lake is paramount to the Pacific Flyway, "providing food and habitat for more than 10 million migratory birds and wildlife throughout the Wasatch Front. Almost 350 bird species depend on the Great Salt Lake habitats, including globally significant numbers of Grebes, Swans, Plovers, Avocets, ducks,

64. UT. CODE TIT. 73, Ch. 3, § 1 (2010).

65. Utah Div. Water Rts., *supra* note 37.

66. Benjamin W. Abbott, et al., *Emergency measures needed to rescue Great Salt Lake from ongoing collapse*, BYU COLLEGE OF LIFE SCIENCES, https://pws.byu.edu/GSL%20report%202023 (last updated January 4, 2023).

67. *Id.*

68. *Id.*

owls, and blackbirds."[69] Perhaps surprisingly, the Great Salt Lake is also "one of the nation's biggest sources of magnesium and could soon provide lithium, a key mineral for renewable energy batteries."[70]

After what has been referred to as a "decades-long drought," the report estimates that "the lake needs an additional million acre-feet per year to reverse its decline."[71] BYU as a whole is sounding the alarms calling this an "all hands on deck emergency" and has now begun to call on the governor of Utah, the Utah legislature, and every water user and manager in the state to "conserve water and support state efforts."[72] It is no surprise that a state with one of the highest rates of water use in the United States is in the center of a water shortage crisis. But do the numbers really tell the whole story?[73]

According to the Utah Geological Survey ("UGS"), in 2010, Utah's public supply consumers used the most water per capita in the United States. UGS, however, was quick to set the record straight: "an internet search will yield many articles from mainstream, reputable media that have some form of the claim that … Utah has the highest per capita water use in the nation. While correct, the claim is only true for public supply consumers."[74] UGS further noted that "although state rankings are good for creating attention-grabbing headlines that inspire water-use awareness, they have little to do with scientific merit [since] arid states typically use more water for landscape and crop irrigation. In addition, irrigation … accounts for 82% of Utah's water use."[75]

Most recently, "[t]he Mormon Church, a Salt Lake City-based institution, one of the wealthiest organizations in Utah, will be donating more than 5,700 water shares that it holds in the North Point Consolidated Irrigation Company to the state."[76] This gift from the LDS Church "is thought to be the largest-

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. Mark Milligan, *Glad You Asked: Does Utah Really Use More Water Than Any Other State?,* UTAH GEOLOGICAL SURVEY, https://geology.utah.gov/map-pub/survey-notes/glad-you-asked/does-utah-use-more-water/?utm_source=pocket_mylist (last updated May, 2018).

74. *Id.*

75. *Id.*

76. Sharon Udasin, *Mormon Church to Make Massive Water Contribution to Great Salt Lake*, THE HILL, https://thehill.com/policy/equilibrium-sustainability/3901557-mormon-church-to-make-massive-water-contribution-to-great-salt-lake/ (last updated March 15, 2023).

ever permanent water contribution to benefit [the Great Salt Lake."[77] In an official statement from the LDS Church, Church leaders maintain that "the Church wants to be part of the solution because we all have a responsibility to care for and be good stewards of the natural resources that God has given to us."[78] The gift in total reaches and exceeds the 20,000 acre-feet mark and is only a drop in the bucket towards what the BYU report maintains is needed to reverse the adverse effects of the lake's rapid drying.[79] The Salt Lake Tribune reported in February that the Mormon Church "has at least 75,000 acre-feet of active water rights."[80] This gift "ensures that water 'can continue to flow to the lake in perpetuity,' according to the state Department of Natural Resources. For reference, typical U.S. suburban households use about one acre-foot of water annually."[81] In an interview with The Hill, the Republican Governor of Utah, Spencer Cox, underscored that "this water donation will make a real difference to the lake and the future of our state." The Church has made plans to "[replace] grass with rocks and water-wise landscaping around [their] neatly manicured churches [and reducing] water use by more than one-third outside the headquarters in Salt Lake City's Temple Square."[82] Church leaders have emphasized that "the church's focus on stewardship spanned back to the Brigham Young era, noting that the faith's forefather endorsed a "radical notion" that what is a public resource, not just a matter of private property rights."[83] Advocacy for a higher water price-tag could be political suicide for conservative lawmakers who rest their laurels on fighting for a state with a high quality of life thanks for an affordable cost of living – and drinking.

This problem is a big one but has a deceivingly simple solution: put more water into the lake. The term "deceivingly" modifies "simple" because "Utah's population grew by 18.4% over the past decade, making it the fastest

77. *Id.*

78. *Id.*

79. *Id.*

80. Peggy Fletcher Stack, Leia Larsen, *How the LDS Church Could Prevent its Headquarters From Becoming a Toxic Wasteland*, THE SALT LAKE TRIBUNE (Feb. 7, 2023, 11:26 PM), https://www.sltrib.com/religion/2023/02/06/lds-church-is-silent-great-salt/.

81. *Id.*

82. Udasin, *supra* note 76.

83. Sam Metz, *Mormon Church Gives Water Boost Imperiled Great Lake*, AP NEWS (Mar. 17, 2023, 6:43 PM), https://apnews.com/article/mormon-church-great-salt-lake-utah-water-c990bce8cffb373b41d713fb600cbc4d.

growing state in America."[84] The Utah Speaker of the House credits the climb in population to the "beautiful landscapes, business and family-friendly policies, and endless opportunities."[85] Utah is an inexpensive place to live as well – and some homes in the state have access to "the cheapest water in the nation, according to the Utah Rivers Council."[86] Zac Frankel, the executive director of the nonprofit Utah Rivers Council has indicated that "about 200,000 homes and businesses pay a flat fee for an entire season of irrigation water. It's called a secondary water system, made from converted agricultural supply in communities that are now largely suburban. These account for a disproportionately large segment of the state's water use."[87]

The Utah legislature has not taken the Great Salt Lake crisis lying down. In recent months, both chambers of the state lawmaking body have resolved to "preserve the lake, incentivize conservation and prepare for a hotter, drier future."[88] Lawmakers are currently "advancing proposals to set aside millions of dollars to divert more water to the lake, encourage the use of drought-resistant landscaping and cut down on unmetered water use through a combination of incentives and potential penalties."[89]

One of the ways that the legislature is looking to preserve water is a term they describe as "secondary metering." This process would, by 2030, "install meters on those connections to the amount of water they used can be measured for the first time. The plan comes after small-scale projects indicated people use about 30% less water simply by knowing how much they are using." In our current age of running sinks while brushing our teeth, washing our dishes *before* they are put in the dishwasher, and fifteen minute (or hour) long showers, there are not many individual checks on how much wasteful water we consume daily. While our water bills keep us rational and bring us a sense of self control, our human wastefulness and irrationality may come to a head with a process of secondary metering that keeps individual and commercial water users in check. According to Utah Republican Senator

84. *Utah Has Fastest Growing Population, 2020 Census Shows*, AP NEWS (Apr. 26, 2021, 6:23 PM), https://apnews.com/article/donald-trump-utah-coronavirus-pandemic-census-2020-covid-19-pandemic-560c4f5406724b83a81efe56b1011616.

85. *Id.*

86. Lindsay Whitehurst, *The Race is On to Save the Great Salt Lake: Will it Be Enough?* AP NEWS (Feb. 2, 2022, 11:08 PM), https://apnews.com/article/science-business-lakes-state-governments-utah-8b3001253833e47de518b8bd87f66811.

87. *Id.*

88. Sam Metz, Lindsay Whitehurst, *Water Proposals Trickle Through Utah State House in Last Days*, AP NEWS (Mar. 3, 2022, 7:01 PM), https://apnews.com/article/business-environment-and-nature-lakes-droughts-legislature-246307e0d55ed0ca76794947613e4a72.

89. *Id.*

Scott Sandall, "we can't conserve what we can't measure."[90] Perhaps putting a number figure to Utah water consumptions could lead to lasting change and personal awareness.

The Utah Speaker of the House of Representatives, Brad Wilson's plan "to set aside $40 million for a trust to save the Great Lake got final approval … and awaits a signature from Governor Spencer Cox. The proposal would focus on ways to get more water into the shrinking lake, which hit its lowest level in recorded history last year.[91]

Another legislative approach has been coined as a "Flip Your Strip" campaign.[92] This approach incentivizes individuals "to replace thirsty grass with drought tolerant landscaping that uses less water."[93] This proposal from Representative Ryan Wilcox would "prohibit cities, counties, and homeowners' associations from requiring residents to plant traditional grass yards, rather than water wise landscaping such as mulch, rocks, and plants that can be sustained through drip irrigation rather than sprinklers."[94] In the alternative, another proposal would put a check on government water use by requiring agencies to limit their grass growing around state owned buildings while also scaling sown on water consumption gradually.[95]

Similar to the grass limits and secondary metering, the Utah legislature has taken a page out of the Appropriation Doctrine's book by formally implementing statutes that codify the use it or lose it principle that finds its roots in the nineteenth century appropriation doctrine. Water use in Utah is unique in that "unused water that flows past cities and farms into the Great Salt Lake has been considered 'wasted' since the body is too salty for fish or most other aquatic creatures to survive."[96] In this legislative scheme, "farmers [could] let water flow downstream to the Great Salt Lake and other water bodies without the risk of losing their water rights – and get paid for it. Farmers would decide whether to sell their water, likely based on their harvests and balance sheets for the year."[97]

Utah, although seemingly ecologically progressive, is not without its water-related controversy. In September of 2020, "six states in the U.S. West that rely on the Colorado River to sustain cities and farms rebuked a plan to

90. *Id.*
91. *Id.*
92. *Id.*
93. *Id.*
94. *Id.*
95. *Id.*
96. *Id.*
97. *Id.*

build an underground pipeline that would transport billions of gallons of water through the desert of southwest Utah."[98] The plan, known as the Lake Powell Plan, would divert 86,000 acre feet of water into Washington County, Utah.[99] State water leaders from Arizona, California, Colorado, Nevada, New Mexico, and Wyoming wrote a joint letter "urg[ing] the U.S. government to halt the approval process for the project, which would bring water 140 miles from Lake Powell in northern Arizona to the growing area surrounding St. George, Utah."[100]

Utah maintains that they have a vested right in the waters of Lake Powell vis-à-vis the Colorado River Compact of 1922.[101] The Compact was signed by state representatives of the aforementioned Western states in Santa Fe in November of 1922 and was approved by Congress in 1928 in the Boulder Canyon Project Act of that same year.[102] The Compact was created under by states and under the supervision of the then United States Secretary of Commerce, Herbert Hoover.[103] In the Compact itself, the Commission states that:

> the major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado River System; to establish the relative importance of different beneficial uses of water, to promote interstate comity; to remove causes of present and future controversies; and to secure the expeditious agricultural and industrial development of the Colorado River Basin, the storage of its waters, and the protection of life and property from floods.[104]

This Commission "put in motion plans for the construction of the Hoover Dam and formation of Lake Mead to serve as a water savings account for the Lower Basin and Lake Powell as the reservoir for the Upper Basin.[105] The

98. Sam Metz, *6 Western States Blast Utah Plan to Tap Colorado River Water*, AP NEWS (Sept. 9, 2020, 4:58 PM), https://apnews.com/article/arizona-colorado-droughts-wyoming-utah-bbbb07c5b9c4d16a39a1e3c2d7a5f1d7.

99. *Id.*

100. *Id.*

101. Boulder Canyon Project Act of 1928, 43 U.S.C. § 617 (1994).

102. Daniel Tyler, *Delphus Emory Carpenter and the Colorado River Compact of 1922*, 1 U. DENV. WATER L. REV. 228, 230 (1998).

103. 43 U.S.C. § 617 (1994).

104. *Id.*

105. Amy Joi O'Donoghue, *The Colorado River is the Lifeblood of the West. How Much Longer Will It Last?* DESERET NEWS (December 19, 2022, 9:45 PM), https://www.

Commission came to consensus in a "four-page document to allocate the water of the Colorado River, which would be formally ratified four years later. Since Utah was one of the seven states present at the 1922 Summit, the state maintains that it has a vested property right in what Lake Powell has to offer. The environmental climate in 2020 is much different than the climate in 1922. "What the architects of the compact didn't know [at the time of ratification] is that the water was divvied up during an unusually wet year, and given these conditions, they predicted there would always be enough water."[106] Such erroneous calculations one-hundred years ago have placed the seven Western states in this Lake Powell Pipeline standoff with Utah at the center. n 2020, "the six-state letter reflects widespread fears that pulling more water from reservoirs could jeopardize the future of the already over tapped river and signals the possibility of court challenges … when the drought contingency plans between the states expires in 2026."[107]

Utah has a massive footprint on the Western water use. The state is leading the way in conservation by stewarding their natural resources productively and beneficially. In March of 2023, the Utah House of Representatives passed H.B. 513, also known as the Great Salt Lake Amendments.[108] As amended, H.B. 513 expands the 2.6% state severance tax to *any* person engaged in the "business of mining or extracting metalliferous minerals in the [state of Utah.]"[109] The main purpose of the severance tax is to dissuade mineral extractors from depleting the water source of the lake to then extract metals and other minerals that exist within the brine of the Great Salt Lake.[110] The 2023 amendments to H.B. 513 specifically add fifteen minerals that the severance tax applies to if they are extracted. In addition to the taxation scheme imposed on mineral extractors, H.B. 513 adds an Emergency Trigger Provision which imposes a limit or prohibition on extraction when the salinity levels of the lake do not satisfy the ecological conditions needed for a healthy habitat for brine shrimp and brine fly.[111]

On the floor of the Utah House of Representatives, Representative Casey Snider, the sponsor of HB 513, framed the bill as "setting in motion a process

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deseret.com/utah/2022/12/19/23473939/colorado-river-compact-allocation-history-drought-population-growth.

106. *Id.*
107. Metz, *supra* note 98.
108. H.B. 513, 2023 Leg., 208th Gen. Sess. (Utah 2023).
109. *Id.*
110. *Id.*
111. *Id.*

that will at least identify how the minerals in the lake are captured."[112] Specifically, Representative Snider was particularly concerned with lithium extraction and the processes that extraction companies are using to mine for the lithium in the lake.[113]

The mission of H.B. 513, according to Representative Snider, is twofold. First, the scheme will incentivize extraction companies to use technology that uses effective and non-wasteful techniques to extract lithium and other valuable minerals in the form of a lessened tax rate. Second, the severance tax and royalty agreement imposed on the extractors will incentivize non-wasteful extraction processes and capture any royalties on the extraction back into the state revenue stream.[114]

With respect to the severance tax scheme, Snider explained that the lake has been producing salt and chloride for many years, but the state only pays a mineral lease payment. Under the new scheme of the bill, any future leases involving more valuable minerals would have a lease *and* royalty agreement[115].

In addition to legislative action to reduce extraction waste in the Great Salt Lake, the Utah Rivers Council is taking a more hostile approach to the problems facing the water shortage. The nonprofit organization is, in its own words, "suing the State of Utah for its failure to protect the Great Salt Lake." The Council maintains that "[a]lthough many Utah politicians have held a myriad of media appearances on the shores of the lake to talk about how much 'they care,' no substantive efforts have been taken to raise the Great Salt Lake water levels."[116]

The Council's complaint rests primarily on the Public Trust Doctrine under Utah law, which provides that the Utah general public owns the natural resources within the state and the state holds and manages the resources in trust for the benefit and use of the general public (here, the beneficiaries of the trust.)[117] The complaint alleges that "as trustee, the State of Utah has an ongoing obligation to protect the Great Salt Lake's waters and underlying

112. *Id.*
113. *Id.*
114. *Id.*
115. *Id.*
116. Utah Rivers Counsel, *We Are Suing the State for Its Failure to Protect the Great Salt Lake*, UTAH RIVERS COUNSEL, https://utahrivers.org/blog-post/2023/9/19/we-are-suing-the-state-for-its-failure-to-protect-the-great-salt-lake.
117. Complaint, *Utah Physicians for a Healthy Env't v. Utah Dep't of Nat. Resources*, THIRD JUD. DIST. CT. OF UTAH, UNREPORTED, https://earthjustice.org/wp-content/uploads/2023/09/2023-0906-great-salt-lake-complaint.pdf.

lands, so that Utah residents can continue to use them for navigation, commerce, brine shrimp fishing, recreation, and uses recognized under the public trust doctrine."[118] Further, the complaint alleges that the state has breached its fiduciary duties to the general public by failing to review and modify upstream diversions that will allow the lake to sustain an appropriate water level.[119]

Environmental equilibrium in the State of Utah will not be as simple as levying a tax on mineral extractors and producers or the legislature will run the risk of smothering other valuable environmental causes. Lithium – one of the key resources used in the electronic vehicle movement in the United States and beyond – exists abundantly within the Great Salt Lake.[120] Companies "mine the lake by pumping its water into shallow evaporation ponds, concentrating its brine with natural heat and sunlight, then pulling out the desired materials."[121] This process is essential in keeping up with the supply demands of lithium batteries in recent years. However, since the adoption of H.B. 513, the Utah Division of Forestry, Fire and State Lands (FFSL) have stifled lithium production and have refused to issue any permits to any extractors or producers.

The Utah State legislature is faced with the impossible task of tackling all environmental concerns within the borders of their state. If the Utah legislature remains tough on the extractors and producers of minerals in the Great Salt Lake, they will continue to block deals between major motor companies in the electronic vehicle space and mineral extractors. Utah has not yet approved such a deal between Ford Motor Company and Compass Minerals which would supply the motor conglomerate with roughly 11,000 metric tons of lithium by 2025 for electric vehicle production.[122]

At the end of the day, the Utah legislature and LDS have a duty to steward the resources that the public has entrusted them with protecting and allocating. While the Mormon Church does not have fiduciary duties to the citizenry of the State of Utah, they arguably have a much loftier responsibility to the members of their church within Utah and beyond. According to Mormon doctrine, the Lord "make[s] every man accountable, as a steward

118. *Id.*

119. *Id.*

120. Leia Larson, *Mining company responds to concerns about its plans at Great Salt Lake, but lawmakers aren't happy* (August 16, 2023, 7:00 AM), https://www.sltrib.com/news/environment/2023/08/16/compass-responds-concerns-about/.

121. *Id.*

122. *Id.*

over earthly blessings, which [he] has made and prepared for [his] creatures."[123]

VI. Conclusion

All people groups that have inhabited the Western arid states have confronted the issue of water in creating sustainable and prosperous communities. From the Hohokam tribe that likely began the first irrigation systems on the continent to the Spaniards who brought their own systems of water use, adaptability was and is the cornerstone of all societies that purport to take on the West and make it home.

From the beginnings of the LDS journey to the West, water was a primary concern. Where do we settle? How will we sustain ourselves? What makes most sense economically? These were heavy questions and water availability was at the heart of each of these considerations.

If we start at the Mormon religious premise that water is life, the LDS responsibility to steward the resource become automatically heavier and more meaningful. From a spiritual standpoint, these issues of water rights and water use are matters of life and death. Do we conserve our scarce resource and continue protecting native flora and fauna? Or do we allow for the individual liberties of individual water users to define "beneficial use" for themselves? These are hard questions with no simple answers.

The Mormons are onto something when they look at water and see it for something much more meaningful than a bundle of sticks that can be converted to cold, hard cash. Water, according to the Mormons, is a gift from God, their Creator, and to reduce it to capital cheapens the life-giving gift that their God has graciously given them.

It would be easy for Mormons to just talk the talk – it sounds lovely to call water a gift, the source of life, and so on. The optics of speaking of a natural resource highly is only going to result in good press, especially in a state that so highly values the natural beauty it holds. LDS Church, however, didn't just talk the talk – they put their water where their mouth is. In donating some of their water rights, the Mormons made good on their promise to steward what God has given them in a time when the state desperately needs it. Their donation was a message of hope and a message of rebuke to many skeptics around the world who maintain that large-scale religious institutions are primarily concerned with their own money-making schemes.

123. *Doctrine and Covenants 104*, CHURCH OF JESUS CHRIST, https://www.churchofjesuschrist.org/study/scriptures/dc-testament/dc/104?lang=eng&id=13-15#p13 (last visited Feb. 20, 2024).

Donating the significant amounts of water to the state wasn't just a good optical move for the Mormon Church (even if it did give their PR team a nice boost), it was a form of mission to the citizens of Utah while setting a sterling example for other religious organizations around the world with similar land rights.