

Alternatives to Bear River Water Development



Implementing Inexpensive Alternatives to the
West's Largest New Water Project

Fourth Edition | September 2019



Bear River Watershed Map



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In 2006, the Utah Rivers Council published our first report on Bear River Development after completing a comprehensive analysis about the many inexpensive options to provide water for the future of the Wasatch Front. This 3rd edition summarizes new research conducted by Utah Rivers Council staff, colleagues and that of other agencies, which demonstrates that Bear River Development is completely unnecessary for Utah's future water needs. Although this is good news to Utah taxpayers, it is bad news for the many special interests that seek to profit from billions of dollars in spending for Bear River Water Development and we expect many to criticize these options.

If you are an elected official, we ask that you scrutinize the arguments made by proponents of Bear River Water Development and consider that these spending advocates are proposing one of the most expensive new water projects in the American West. Please know that viable and inexpensive alternatives exist to provide water for Utah's growing population, but these solutions have been widely ignored in favor of this costly diversion of the Bear River.

There are some who believe that water development is itself an intrinsic good, regardless of whether it is needed. Those who espouse such beliefs shouldn't camouflage their arguments with unsubstantiated claims we are running out of municipal water. If you are an elected official who ran for office on the platform of reducing government spending, we encourage you to educate yourself about the costs, debt, impacts and weak justification for the proposed \$2.5+ billion Bear River Development. If you are a Utah citizen you should make sure your elected officials know about the many inexpensive alternatives that make this taxpayer-funded spending proposal completely unnecessary.

For over 25 years, the Utah Rivers Council has been working to implement alternatives to this massive, costly and wasteful spending proposal. Yet because we also discuss the impacts of Bear River Development – which are numerous, serious and permanent – it is as if our advocacy for these inexpensive alternatives doesn't matter. Just because Utah is growing, doesn't mean we are running out of water. As the pages that follow demonstrate, our municipal water supply is growing as we pave irrigated farmland. We challenge the reader to keep an open mind and embrace the idea that we can provide water for future growth at a fraction of the cost of Bear River Water Development.



The Bear River near its headwaters on the northern slope of the Uinta Mountains.



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The Utah Rivers Council is a 501c3 grassroots nonprofit organization dedicated to the conservation and stewardship of Utah's rivers and sustainable clean water sources for Utah's people and wildlife. Founded in 1995, we work to protect Utah's rivers and clean water sources for today's citizens, future generations and healthy, sustainable natural ecosystems. We implement our mission through grassroots organizing, direct advocacy, research, education, community leadership and litigation.



The Myth That Northern Utah is Running Out of Water

One of the greatest innovations in 20th century business was the use of ‘inadequacy marketing.’ Madison Avenue brand managers needed a way to sell a host of previously unknown brands to American consumers and they realized that if they could make people feel inadequate, they could sell them virtually anything to solve this perceived inadequacy. From cars to mouthwash to makeup to pharmaceuticals, our media culture is saturated with inadequacy marketing used to sell the latest shiny thing.

Many of Utah’s largest water suppliers have mastered the art of inadequacy marketing by using fear to advance their own interests. For three decades, some of Utah’s largest water conservancy districts and the Utah Division of Water Resources have been fear-mongering and it is remarkable how many Utahns accept such claims without looking at facts and data. The 2015 Legislative Audit on Water disproved the claim Utah is running out of municipal water and demonstrated that there is an abundance of water in Northern Utah for future growth.

Utah is the #1 highest per person municipal water user in the United States

Even after the Audit was released, water development salesmen have worked to convince the media, the public and their elected decision makers that Utah is on the verge of crisis and is running out of water. In other words, these salesmen have worked to make people afraid. And it has worked well for them in their sales efforts.

In the 2016 Legislature, Utah water lobbyists – who outnumbered the lobbyists from any other single special interest during the session – convinced legislators to permanently fund Bear River Development and the Lake Powell Pipeline with \$40 million per year in sales tax spending. These salesmen accomplished this feat using fear, not by using facts and data.



For several decades, urban Utahns have been America’s most wasteful per person water users. The primary strategy to reduce this water waste is a seasonal advertising campaign. Wasting water on streets, sidewalks and gutters is not fiscally conservative yet is being encouraged by the fact that Utah has America’s cheapest water rates, afforded by the collection of property taxes. Photo: E. P. Kosmicki



The Utah Rivers Council led the effort to stop them, but we were outnumbered by paid lobbyists from Utah's largest water districts by a ratio of 10 industry lobbyists for every 1 URC staff member. In spite of these odds, we lost by just one vote in committee.

Cities outside Utah have spent decades investing in water conservation which has saved their constituents money. But over this time Utah's water leaders have invested in inadequacy marketing and drove home the claim that only by spending billions in costly new water projects like Bear River Development could we save ourselves from having to literally flee Utah's dystopian water future.

We were outnumbered by paid lobbyists from Utah's largest water districts by a ratio of 10 industry lobbyists for every 1 URC staff member.

The truth is the Jordan Valley Water District, the Weber Basin Water District and the Division of Water Resources have inflated future water needs, ignored inexpensive alternatives to Bear River Development, understated the amount of water that could be saved through water conservation, underestimated the amount of water available by embracing market economics, worked to discourage the conversion of surplus irrigation water sources and misinformed people into believing water conservation itself is a bad thing.

This report documents the many reasons why Northern Utah isn't running out of water and outlines some of the numerous inexpensive alternatives to Bear River Development. We hope you will carefully consider the benefits to implementing these alternatives and truly embrace the fiscal conservatism that guided the inception of these options.

The Bear River has been targeted by Utah's water development industry for billions in taxpayer-funded construction projects for decades. Proponents of the project have used hype and fear to sell the need for this unnecessary spending. Photo: Tim Kelly





Reasons Northern Utah Cities Aren't Running Out of Water

1. Utah water leaders don't know how much water urban residents use, making predictions of future use impossible. (see page 8)
2. The water use figure used by Utah water salesmen to show we "need" Bear River Development is the #1, highest municipal water use in the country and nearly twice the national average, meaning we could substantially reduce our water use without comprising our quality of life. (see page 23)
3. Our municipal water supply is growing as we pave irrigated farmland. (see pages 33-36)
4. Utah has America's cheapest municipal water rates, afforded by property, sales and income taxes, but spending advocates who receive these taxes fight to keep them in place instead of embracing market economics. (see page 28)
5. The growth in our water supply from agricultural water conversion, water conservation, basic market economics are being ignored by water development salesmen. (see page 36)
6. Secondary water use is almost completely unmetered, meaning that most of these users have no idea how much water they use and studies indicate that many use 100% more water than they should be using. (see page 39)
7. Water use projections by the Division of Water Resources have inflated water use significantly and the figure cited is the water use from the year 2000, 17 years ago. Equally troubling is that this data doesn't exist. (see page 6)
8. Municipal water use accounts for just 7% of the total water use in Utah, with most of this use going to overwater grass landscapes in the summer. (see page 33)
9. Utah's historic water leadership has had a culture which has actively discouraged water conservation. (see page 23)
10. Water planners consistently ignore how much less water will be used in the future as the price of water rises with population growth. (see page 25)



A Performance Audit of
Projections of Utah's Water Needs

The 2015 Legislative Audit of the Division of Water Resources

For one year, the Utah Rivers Council led an effort to initiate an audit of the Division of Water Resources, the agency proposing the \$2.5 billion Bear River Water Development. We ran a media campaign for over 6 months, announcing a series of well-documented reasons why the Division's claims that Utah is running out of municipal water were unfounded. We initiated a petition drive, signed by over 2000 people, calling for an audit of the agency that has spent decades claiming Bear River Water Development was essential but lacked any good data to prove it.

A subcommittee of the Legislature voted to initiate the Audit and after 16 months of investigation the Legislative Auditor General's Office released its Audit in May of 2015. The scorching Audit substantiated all our claims and documented many problems at this agency including its lack of basic data, its dismissal of inexpensive alternatives and its poor leadership in recommending good water policies.

Throughout this report, we feature selections from the Audit which summarize the many opportunities there are to save money and water in Utah. You can get a free electronic copy of the 2015 Water Audit at their website, https://le.utah.gov/audit/ad_2015dl.htm



Auditors present the scorching Audit of the agency proposing \$6 billion in new taxpayer spending including Bear River Development to the Utah Legislature. The Audit examined claims by the Division of Water Resources that Utah is running out of municipal water and found that no data exists to support this claim. This Audit continues to be referenced on Capitol Hill to this day.



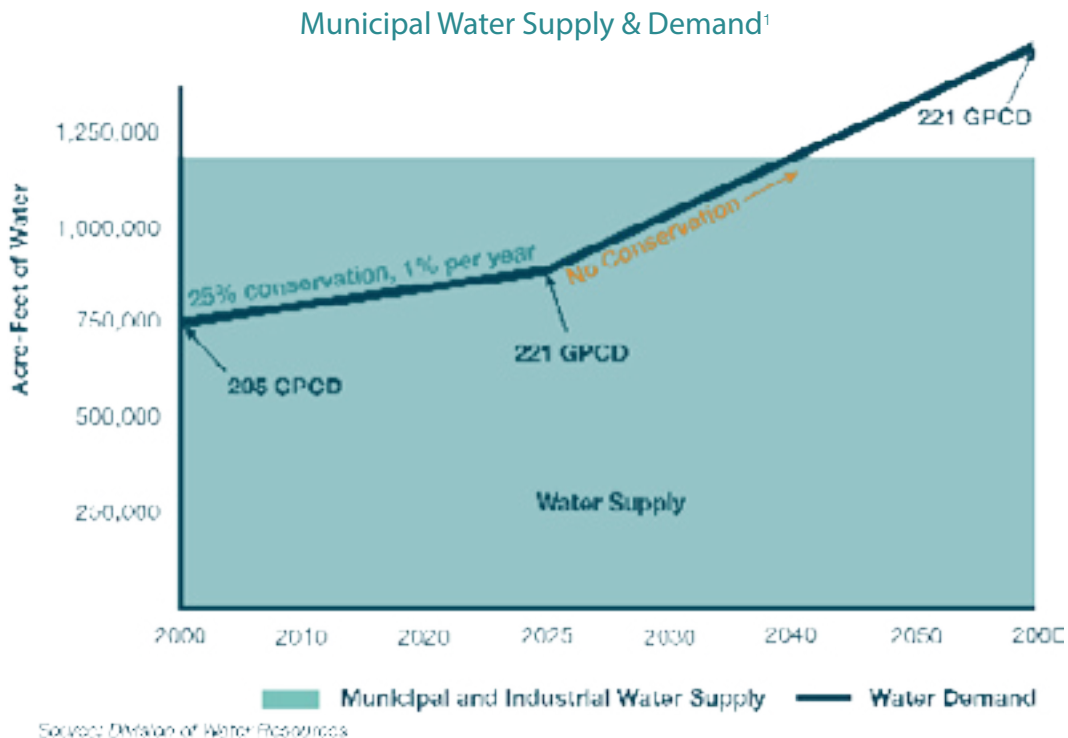
A Project Without A Purpose

For 25 years, some water leaders have worked to convince Utahns we are just a few years away from a water crisis in which we either run out of municipal water or presumably must restrict growth along the Wasatch Front. This fear mongering has been effective as many laymen cite Utah's growing population as the reason we must be running out of water. They don't know that our municipal water supply is actually growing.

Cooking the Books

The Division of Water Resources presents the graph below to "prove" Northern Utah is running out of municipal water. Although laymen might at first think this graph is based on complicated computer modeling, it was created simply by multiplying two numbers together: population growth times per person municipal water use, in gallons per capita day, or GPCD.

The blue line represents municipal water needs which are growing because our population is growing. Once this line exceeds our water supply the Division claims we will run out of water. This claim is based on marketing hype as one can readily see by looking at the data the Division used to make this 60 year guess of future water needs, in the bar graph on page 6.



The "proof" the Division of Water Resources uses to claim Northern Utah is running out of municipal water. Once the blue line exceeds municipal water supply, we have 'run out of water.' This claim is marketing hype because the water use was the highest year on record, from the year 2000, as can be seen in the bar graph on page 6, shown in brown.

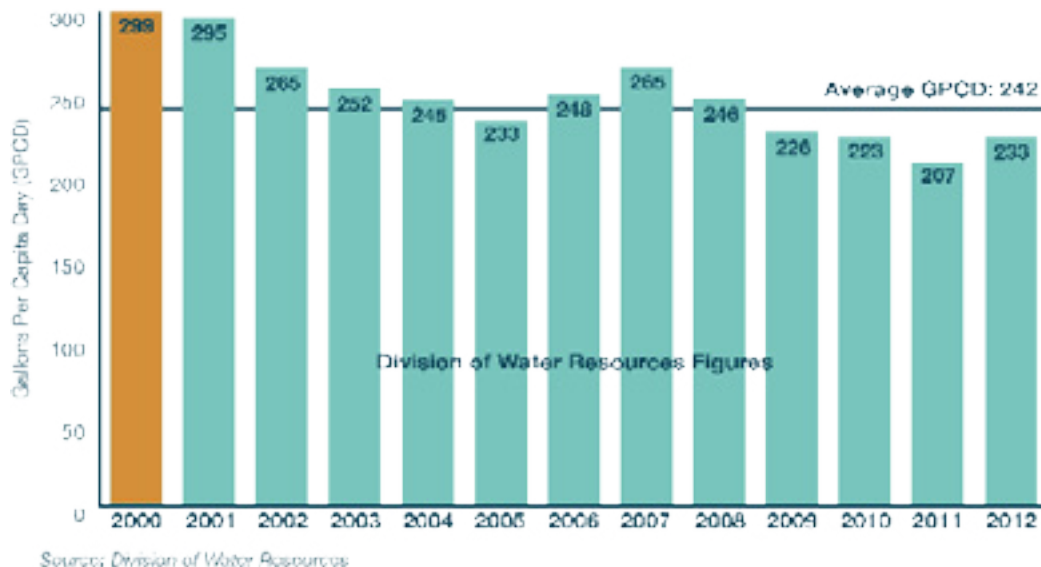


The Division capriciously selected the 2000 water use year as the statewide average of water use to base the next 60 years of future use. A quick glance of the bar graph below indicates the 2000 water use year had the single highest water use in the entire series. In other words, the Division cherry-picked the highest point in the data to represent the next 60 years, to inflate the need for Bear River water.

But if one averages water use over the entire data set instead of picking the single highest point in the data set, municipal water use drops by 18 percent. This is fascinating because the Division also claims Utahns have successfully reduced their water use by 18 percent, compared to the water use in the year 2000, because of the Slow the Flow water conservation campaign. In other words, averaging the data reduces use by 18%, meaning that urban Utah may not have conserved any municipal water through the State’s advertising campaign and instead water use may simply be fluctuating above and below the long-term average.

It is telling to note this same water demand graph has been shown to the public, the media and elected officials literally scores of times over the last 17 years and presented to the Utah Legislature as proof that Bear River Development needed funding in 2016. Another problem shown on the graph on page 5 is that Utah’s official municipal water conservation goal, as proposed by Governor Herbert, is to reduce municipal water use by 25 percent by the year 2025 and then stop saving water.² If we follow this conservation plan, Utah would reduce its municipal water use to 221 gpcd in the year 2025, still higher than the water use of Las Vegas, then stop saving water for the next 35 years.

2000-2012 Utah’s Municipal Water Use



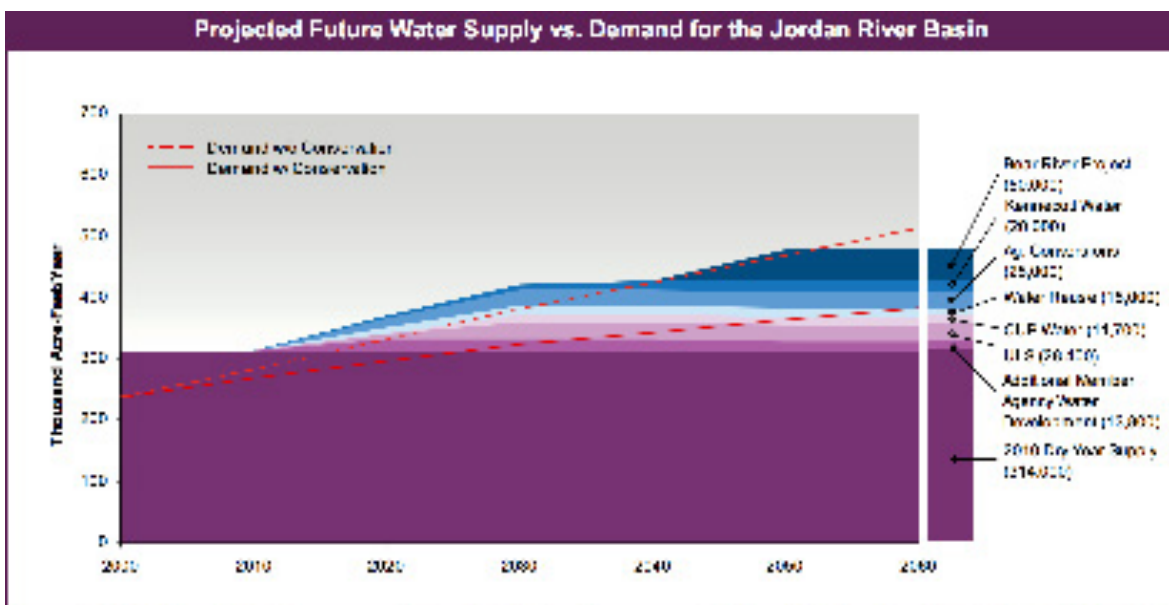
The 2000 water use year, shown in brown, is the single highest water use figure in the last 19 years but is used to project 60 years forward. By failing to average the data, the Division of Water Resources has exaggerated future water demand, as shown on page 5. The Division could not document this water use data to auditors from the Legislative Auditor General (see page 8).

No Data Exists to Show Bear River Development Is Needed

The Division's own documents show that Bear River Development is not needed. In the 2010 Jordan River Basin Plan, the Division includes a graph showing water supply vs. demand over time for the basin (see below).³ The dark purple portion shows 2010 municipal water supply in thousands of acre-feet and the lighter purple and blue portions show estimated additional supplies from a range of sources including water reuse, agricultural conversion, and proposed Bear River Development. The solid red line – water demand with conservation – shows that with conservation efforts, Jordan Valley Water District and the Metropolitan Water District of Salt Lake & Sandy have no need for Bear River Development. Since the red line doesn't encroach into the dark blue section of Bear River water, it's clear the 50,000 acre-feet of water the Jordan Valley Water District is slated to receive from Bear River is totally unnecessary if they focus on cheaper options like demand reduction, agricultural water conversion, and smaller water transfer projects.

The Division of Water Resources is also inconsistent in acknowledging growth in water supply, which is fundamental to planning for future water needs. This graph shows an increase in supply of almost 114,000 acre-feet by 2040 for the Jordan Valley Basin alone. However, if you look back at the Division's State Water Supply Graph on page 5 of this Alternatives Paper, you'll see that the water supply remains the same from 2000-2060. In that graph, the Division inaccurately shows no growth in water supply, which is misleading given the tens if not hundreds of thousands of acre-feet that will become available as agricultural lands are converted in the future (see Alternative 4). Much of this converted water can help us meet future municipal demand and eliminate the need for additional water development projects. However, the Division does not account for this increased supply in its statewide projections.

As if these problems aren't serious enough, consider that this entire 60 year projection of future water needs used to justify \$2.5 billion in spending for Bear River Development is based on the water use data for the year 2000 – which it turns out doesn't exist. See the Audit box, page 8.



Source: Utah Division of Water Resources, Jordan Valley Water Conservancy District and Metropolitan Water District of Salt Lake & Sandy.



A Performance Audit of
Projections of Utah's Water Needs

2015 Water Audit

The Division Doesn't Know
How Much Water Utahns Use

The Auditors noted in Chapter II that the Division of Water Resources doesn't know how much water Utahns are currently using and therefore has no way of accurately predicting future water needs. Division staff could not "document their methodology or provide Auditors with source documentation for the data in their baseline 2000 M&I report".⁴ The data they do have includes water use numbers collected between 1992-1999 and is not representative of actual use in the year 2000. This is hugely important because this is the data the Division uses to plan for future water demand.

The Auditors also uncovered major concerns regarding the annual collection and reporting of local water use data and found this data to be riddled with significant errors and omissions.⁵ This is outrageous given the fact that this data, which by the Division's own admission is "not accurate enough to make sound future water planning decisions,"⁶ is what the Division and Water District lobbyists use to convince decision makers that Utah is running out of water and therefore needs to construct Bear River Development.

The Auditors pointed out a number of other errors and inconsistencies including data reported for the wrong year, large amounts of secondary water use that was simply estimated by Division staff, intentional over reporting of water use, acceptance of water use data without verification, inconsistencies in water use reporting between the Divisions' numbers and internal city documents, and the use of data from cities that aren't in Utah. Astonishingly, the Auditors discovered that Division staff, after being unable to document water use data for a city simply Googled it and reported the water use data for Saratoga Springs, NY instead of Saratoga Springs, UT. This incident demonstrates a troubling lack of quality control within the Division of Water Resources.

Thanks to the Audit, we now know how little reliable data actually exists regarding Utah's water use. So it's fair to ask: if the data doesn't exist, how do they know that we're running out of water?

Left: A water supply and demand graph from the Division of Water Resources' 2010 Jordan River Basin Plan showing that with conservation, Bear River Development is totally unnecessary to meet the basin's future water demands.



A Brief History of Bear River Development

In 1991, the Utah Legislature passed the Bear River Water Development Act which authorized the Utah Division of Water Resources to build dams on the Bear River for water use along the Wasatch Front. A list of dam sites were created for construction but no substantial funding was identified to build the project.

It was a wake up call to Northern Utah farmers, ranchers, fiscal conservatives and conservationists across Utah. When the Utah Rivers Council was started in 1995, Bear River Water Development was one of the issues we were most concerned about so we began organizing these groups together and working to study and implement inexpensive alternatives to the unnecessary water project.

In 2002, we unveiled our legislation at the Utah Legislature to remove two damsites being proposed in the Bear River Development Act. These dams would have drowned 15 miles of prime farmland, Shoshone Nation burial grounds, and vital riverside wetlands along the Bear River to provide water for Salt Lake Valley lawns. After lots of hard work, the legislation passed unanimously on every vote but one, the House Floor vote, which still garnered over 70 Yes votes among the 75 house members.

Since then the project largely stayed in the shadows while the Division quietly continued to spend taxpayer money on consultants to plan new dams in new places. In 2014, the Division and their consultants unveiled their Bear River Development Concept Report and began pitching their proposal to county councils and other elected officials all over Northern Utah.

At the 2016 Legislature, dozens of water industry lobbyists passed a bill, SB80, to provide a permanent funding stream for Bear River Development. Approximately \$40 million in sales tax revenues will be diverted into an account annually which can be used for Bear River Development to advance the project.

Today, the fight against this unnecessary and destructive water project continues. Rocky Mountain Power is looking to divert Bear River water to Utah's cities, in part to help relicense one of their hydropower dams. The power company has also been trying to recruit conservationists to help move the project forward. Since Bear River Development is one of the largest and most destructive new water projects being proposed in the U.S., it is generating criticism from across the country.



Governor Michael Leavitt signs our Bear River legislation into law in 2002, removing two disastrous damsites from the Bear River Development Act. Photo: Tim Kelly



Bear River Development: Drying Up Utah's Farming Legacy

The Bear River is supporting some of the most important agricultural activities in Utah. Cache County and Box Elder County are home to some of Utah's most productive farmland and are often referred to as Utah's breadbasket. Box Elder and Cache counties produced crops and livestock in 2014 worth over \$400 million, accounting for 25% of all harvested cropland and 18% of all livestock in Utah's 29 counties. Cache County leads the state in dairy production while Box Elder leads Utah in the cultivation of wheat, safflower, corn and beef cattle.^{7,8,9} Proposed Bear River Development would devastate the vital agricultural legacy of this region, destroying farms and ranches that have been in production for generations.

The diversion of 220,000 acre-feet of water from the Bear River may only be the tip of the proverbial iceberg when it comes to impacts on local agriculture from Bear River Development. Once Bear River Development infrastructure is in place to divert Bear River water, powerful urban water purveyors with deep pockets will be perfectly situated to come in and buy up agricultural water rights, drying up farms that have been in production for over a century. As more and more water rights are sold off and lands are dried up, remaining farmers will find their water supply diminishing and face greater pressure to sell their land to development. While proponents of Bear River Development claim farmers could buy some of the project water, the water is likely to be far too costly for them to afford.

State water planners have indicated the Bear River Project will require 300,000 acre-feet of storage capacity, thereby requiring multiple new storage reservoirs.¹⁰ Five out of the six proposed Bear River reservoir sites would inundate prime farmlands in Box Elder, Weber and Cache counties. The proposed Cutler reservoir expansion alone would inundate nearly 2,000 acres of productive agricultural lands, while the Division's preferred combination of storage reservoirs – Fielding, Bear River Bird Refuge, and Temple Fork – would inundate almost 1,000 acres combined.¹¹

Bear River Development would inundate farmlands and prioritize water for the lawns of the Wasatch Front over Northern Utah's robust farming economy and the community it supports. Many believe that once the Bear River Water Development infrastructure is in place, more and more water will be transferred away from the farms and ranches in Utah's breadbasket of Cache and Box Elder Counties to the lawns of the Wasatch Front.





Bear River Water Development: America's Largest New Water Project

Bear River Development is one of the largest water projects proposed in North America today. The project would divert as much water as 2.4 million Americans use in an entire year for the lawns of the Wasatch Front.

Although its construction cost is projected at \$2.5 billion, this crude cost estimate has not been presented to the public or verified with an itemized breakdown.¹² This figure excludes many costs including operation and maintenance, environmental mitigation costs and the immense financing and interest costs that will be incurred from repaying the debt from the project. Total costs could grow to \$4-5 billion, with interest and financing effectively doubling the indebtedness upon Utahns.

Bear River Development would divert 250,000 - 300,000 acre-feet (AF) of water out of the Bear River in Northern Utah and deliver 220,000 AF for municipal use along the Wasatch Front.¹³ The entities that would receive water from the project are the Weber Basin Water District (50,000 AF), the Jordan Valley Water District (50,000 AF), the Bear River Water District (60,000) and the new Cache Water District (60,000 AF).

The project would include at least 3 new dams that will impound 250,000 - 300,000 acre-feet of water and an approximately 90 mile long pipeline to deliver the water as far south as southern Salt Lake County. The Bear River Development Act authorizes seven potential dam sites:

1. Hyrum Dam
2. Avon
3. Mill Creek
4. Oneida Narrows
5. North Eden Creek
6. Washakie
7. Willard Reservoir useage

The Division of Water Resources released their concept report for the project in 2014 detailing dozens of additional proposed dam sites and a short list of the agency's six preferred dam sites:¹⁴

1. Fielding
2. Bear River Bird Refuge
3. Whites Valley
4. Temple Fork
5. Cub River
6. Above Cutler Dam

Each of these dam sites will have different impacts and their construction will leave a legacy of environmental and health impacts that will greatly alter the quality of life for millions of Wasatch Front residents and migratory birds traveling across the Western Hemisphere.



Proposed Bear River Water Development





America's Serengeti

The Great Salt Lake has been called America's Serengeti for birds. This saltwater marvel is the largest wetland area in the American West. Its 400,000 acres of wetlands provide habitat for over 230 bird species traveling from the tip of South America, north to the Northwest Territories and as far west as Siberia. These wetlands and surrounding mudflats are vital habitat for 8-10 million individual migratory birds with many species gathering at the Lake in larger populations than anywhere else on the planet.

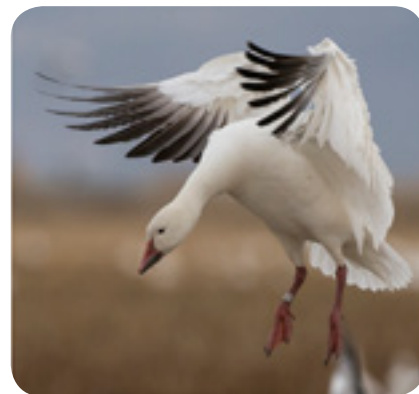
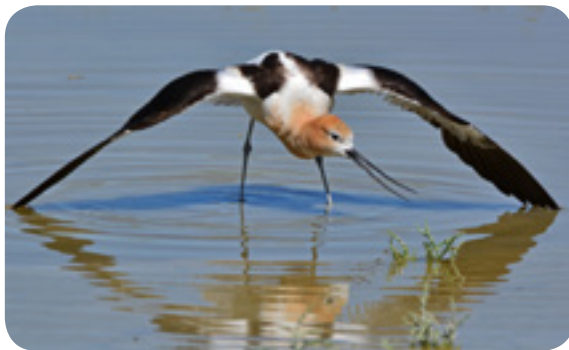


The Great Salt Lake is critical habitat for birds throughout the Western Hemisphere. Its hard to overstate the importance of the Bear River and the Great Salt Lake to migratory bird species with many species gathering in larger population numbers than anywhere else on the entire planet.



Many of these birds have amazing migration stories, such as the Wilson's Phalarope. Every year hundreds of thousands of Wilson's Phalaropes create an amazing spectacle at the Great Salt Lake. A single count of Wilson's Phalaropes during fall migration exceeded 500,000, which is 30-50% of the global population.¹⁵ Their migration spans nearly the entire Western Hemisphere and they stop only a few times, arriving exhausted at the Great Salt Lake. This hard working bird will eat enough to double its body weight in preparation for the final leg of its migration, a 56 hour non-stop flight to reach its wintering grounds in South America.

One million northern pintail ducks migrate from Siberia and stop at the Great Salt Lake, alongside 75 percent of all the tundra swans in the U.S.¹⁶ More than 1.7 million eared grebes come to the Lake, the second-largest staging population in North America.¹⁷ The Lake is also critically important to reproducing populations like the world's largest breeding population of white-faced Ibis.¹⁸ The list of bird species coming to the Lake from every corner of the Western Hemisphere goes on and on.



Clockwise from top left: American avocet, American white pelican, bald eagles, and snow geese all depend on the water the Bear River supplies to the Great Salt Lake. Photos: S. Earley



Impacts to the Great Salt Lake

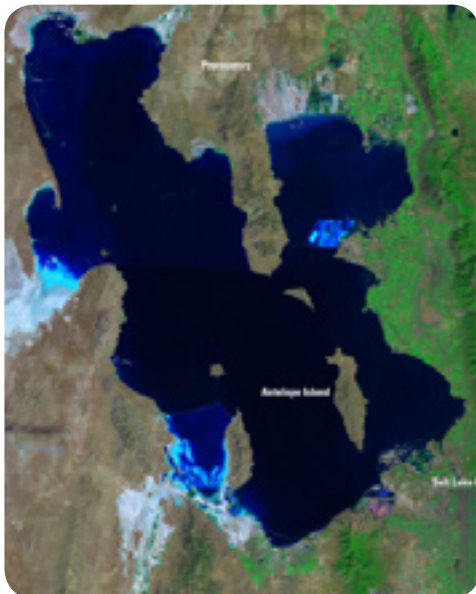
The Bear River is the single largest source of surface water entering the Great Salt Lake, providing 60 percent of the inflow to the Lake each year, on average.¹⁹ Proposed Bear River Development would divert 20 percent of the Bear River's annual flows upstream of the Bear River Migratory Bird Refuge. This diversion will significantly lower the level of the Lake, dropping its elevation between 2 – 4 feet, or more.²⁰ This would reduce the entire perimeter of the Great Salt Lake and dry up tens of thousands of acres of shoreline wetlands if not more.

A recent study found that in 2016 the Great Salt Lake had been reduced to roughly half of its average volume, due in large part to upstream diversions that continue to this day. The study estimated the Lake has dropped 11 feet in elevation because of these diversions.²¹

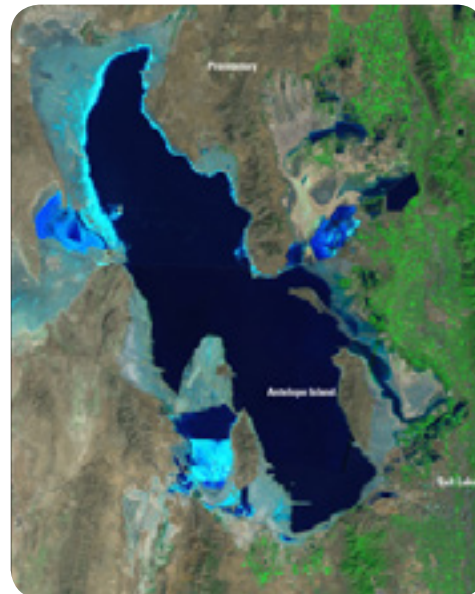
Even seemingly small drops in Lake levels can expose vast tracts of lakebed and dry-up thousands of acres of freshwater wetlands.

Decline in Great Salt Lake Surface Area

1985



2015



In 2016 the Great Salt Lake was just 48% of its average volume and in October 2016 the Great Salt Lake reached its lowest recorded level averaged between its north and south arms, at 4,191.2 feet. Upstream water diversions are a big part of this decline, as are increased air temperatures which reduce snowpack and annual runoff patterns. Bear River Development will exacerbate these problems.



Even seemingly small drops in Lake levels can expose vast tracts of lakebed and dry-up thousands of acres of freshwater wetlands that make up the Lake's salt marshes, mudflats, and playas. This can be devastating for birds like American white pelicans that raise their chicks on the isolated Gunnison Island where few predators visit. Lake levels dropped low enough recently that the island was no longer surrounded by water allowing coyotes to use the land bridge to prey upon these incredible birds. Bear River Development means more low Lake levels and more predators able to visit the island, spelling disaster for the colony.



Northern pintail ducks travel great distances to reach the Great Salt Lake. Photo: USFWS

A Hunting Tradition

The Great Salt Lake is a magnet for migratory waterfowl and waterfowl hunters alike and its 400,000 acres of surrounding wetlands are part of a tradition that stretches back more than a century. Many Utah waterfowl hunters launch their boats and set their decoy spread up on the Great Salt Lake because it is home to 75% of all wetlands in the state. The large numbers of waterfowl at the Lake can produce skies filled with ducks and memories that last a lifetime.

But the Lake supplies more than just memories for hunters. Waterfowl hunters at the Great Salt Lake spend nearly \$100 million each year, supporting 1,600 jobs and providing nearly \$37 million in income to Utah workers.²² Hunters fly in from around the globe to be part of this rich tradition.

Hunters have also been instrumental in conservation efforts and are one reason why some of the Lake's wetlands have been conserved and managed for future generations. If Bear River Development is advanced, the waterfowl that rely on the Great Salt Lake to rest and refuel during their migrations could soon have nowhere to land – and hunters nothing to hunt.



Wasatch Front Air Quality Disaster



Proposed Bear River Development threatens the health of millions of residents along the Wasatch Front. Bear River Development will lower the Lake several feet and expose lakebed and fine lakebed dust. Wind coming from the west and south will whip along the dry, cracked lakebed and create massive dust storms, exacerbating particulate air pollution problems along the Wasatch Front.

The air pollution problems in Owens Valley, California offer a cautionary tale for Utah. Owens Valley experienced some of the worst particulate air pollution ever recorded in the U.S. after the Owens River was diverted upstream of Owens Lake and sent to Los Angeles. Massive dust storms were created from the exposed lakebed, which caused many health problems for residents living in nearby communities. This dust led to higher cancer rates, lung disorders and diminished immunity for children and the elderly.²³ Residents literally placed towels under their doors to keep the dust out of their homes when the wind blew.

After years of litigation, Los Angeles has been forced to spend roughly \$2 billion and counting on air quality mitigation projects in the Owens Valley. Mitigation is ongoing and methods include sprinklers, gravel and trenching to try and reduce dust pollution problems. Los Angeles water users now pay 15 percent of their water bills to mitigate dust storms in the Owens Valley.²⁴



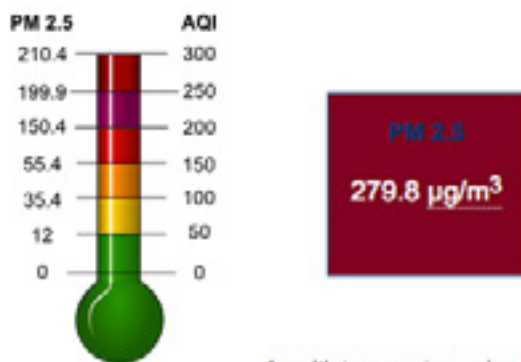
Owens Valley is plagued by massive dust storms, the result of Los Angeles exposing vast tracts of lakebed by diverting the Owens River.



Severe Particulate Pollution on April 14th, 2015

This isn't just a theory about what might happen in Utah. On April 14, 2015, Salt Lake City experienced extremely high air pollution levels after experiencing 40 mph sustained winds with 60-70 mph gusts.²⁵ Air quality levels for particulate matter reached 280 ug/m³ for PM 2.5. Keep in mind that a red air pollution day for PM 2.5 is declared when these levels reach 55 ug/m³.²⁶ The high winds combined with the near record low levels of the Great Salt Lake pushed PM 2.5 levels to what the EPA classifies as "hazardous."

April 14, 2015 4:00 PM (updated hourly)



A screen shot of the Utah Department of Air Quality website showing extremely high levels of PM 2.5 particulate matter levels on the Wasatch Front from dust storms. Bear River Development is likely to lead to an increase in such events in the future.

As with temperature, air pollution varies throughout the day.

Wind advisory had been issued for Tuesday. The possibility of blowing dust is elevated across the state of Utah. Try to avoid outdoor activity if blowing dust is observed. People with existing heart or respiratory ailments should take proper precautions.

The dust from the Great Salt Lake includes heavy metals such as arsenic, lead, selenium and mercury.²⁷ This means residents along the Wasatch Front could breathe in these toxins during dust storms. This dust would also impact our largest and most precious reservoir, our snowpack. The toxic metals in the dust would be deposited on our snowpack, which may not only affect the quality of our water, but the quantity as well.

When dust lands on mountain snow it reduces the snow's ability to reflect solar radiation, known as albedo. This causes the snow to melt faster, meaning that more dust translates into less snowpack and less runoff during the spring and summer which may reduce our water supply. Because snowmelt runoff provides over 85% of the drinking water of the Wasatch Front, these impacts could be quite serious to our water supply.



Our video *Are You Ready for the Storm?* explores the impacts to our air quality from Bear River Development. Check it out by visiting our website, utahrivers.org



Impacts to Bonneville Cutthroat Trout by Temple Fork Dam

One of the Division of Water Resources proposed dam sites for Bear River Development would have devastating impacts on one of Utah's most remarkable native fisheries. The Temple Fork River is a tributary stream of the Logan River, itself a tributary of the Bear River. Temple Fork is home to a rare population of Utah's official state fish, the Bonneville Cutthroat Trout. Bonneville Cutthroat Trout populations have dwindled due to habitat loss and other problems, and the fish is currently listed as a sensitive species.²⁸

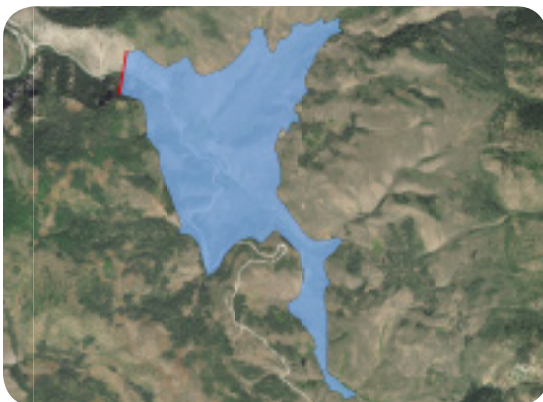
Bonneville Cutthroat Trout were thought to be extinct 40 years ago, until scientists found a few isolated populations thriving in areas like Temple Fork.²⁹ The Bonneville Cutthroat Trout population in the Logan River at Temple Fork is considered to be one of the most important in the state because these streams provide rare connected river habitat used by more than 30,000 individual trout.³⁰



Temple Fork River provides rare connected spawning habitat for one of Utah's largest native Bonneville cutthroat trout populations. Photo: J. Stevenson.

Because Temple Fork is connected to the Logan River, the trout are able to swim upstream to crucial spawning habitat in Temple Fork, Spawn Creek and other tributaries. Several groups including the Utah Division of Wildlife Resources, the Forest Service, Trout Unlimited, and Utah State University have been working to improve habitat in Temple Fork for decades.

The proposed Temple Fork Dam would impound approximately 50,000 acre-feet of water and inundate much of Temple Fork and all of its tributary Spawn Creek. Temple Fork is truly a gem in a state that has dried up many of its fisheries. The idea of destroying this place is shocking to anglers and biologists alike.



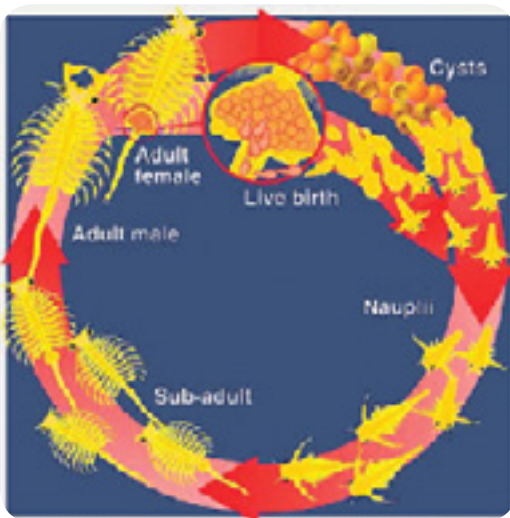
Map of the proposed Temple Fork Reservoir. This new reservoir would inundate important spawning habitat for the native Bonneville Cutthroat Trout, prized by anglers.



Utah's World-Renowned Brine Shrimp Industry

If the Bear River is diverted upstream of the Great Salt Lake, the changes to the timing and volume of freshwater flows will modify the Lake's salinity and could wreak havoc on the annual brine shrimp harvest, as well as imperil the broader ecosystem. Annual harvest of brine shrimp cysts (embryos) is a critical component of the global aquaculture industry and currently contributes over \$56 million dollars to Utah's economy, providing nearly 400 jobs, and producing 1/3 of the total brine shrimp supply worldwide.³¹

Life Cycle of Brine Shrimp



Brine shrimp live out their entire lives in the Great Salt Lake, and depend on freshwater flows like the Bear River to complete their life cycles. Graphic: USGS

Brine shrimp cysts are harvested for commercial aquaculture in the winter, when they are in an optimal suspended state of growth. High spring flows from the Bear River help trigger an end to the suspended state of these cysts as they hatch into juvenile brine shrimp.³² Bear River development would reduce the volume of water entering the Lake and change the timing of inflows, thereby disrupting the cyst hatch and reducing the total number of brine shrimp. Since the diversion will reduce the amount of freshwater flows into the Lake it will increase the salinity and temperature, which will likely diminish the reproductive capacity of female brine shrimp and reduce the number of adult shrimp needed to maintain sufficient cyst populations.^{33,34}

Fewer adult brine shrimp indirectly impacts bird populations because shrimp are a high-protein food source for resident and migrating bird species including the Wilson's phalarope, the eared grebe, and the American avocet.³⁵



Bear River Development would lower the Lake several feet, increasing salinity and diminishing brine shrimp harvests. Lower lake levels would inhibit the mineral industry's access to salt water, increasing their expenses and creating uncertainty around both permitting and operations. Photo: R. N. Bradshaw



Proposed Bear River Dam Sites

Bird Refuge Damsite. (Right) The proposed Bird Refuge Reservoir is an audacious dam proposal that would inundate wetlands inside the Bear River Migratory Bird Refuge. The reservoir would impound 100,000 acre-feet of Bear River water, impacting the natural functions of the remarkable Willard Spur ecosystem, which plays a key role in maintaining the water quality of the Great Salt Lake.

Proposed Bird Refuge Reservoir



Whites Valley Damsite. The proposed Whites Valley Reservoir would be located north of Interstate 84, several miles away from the Bear River. It would require additional infrastructure and large amounts of energy to pump the water uphill out of the Bear River. The reservoir would inundate farmland and habitat for upland and big game species in the area prized by local sportsmen.

Cub River Damsite. The proposed Cub River Reservoir would be located just upstream of the Cub River's confluence with the Bear River in Cache County and would impound 27,000 acre-feet of water. The relatively small reservoir would inundate a significant amount of riparian habitat and wetland acreage along the river.

Proposed Above Cutler Reservoir



Above Cutler Damsite. (Left) The Above Cutler Reservoir would impound 51,000 acre-feet of water on the Bear River upstream of Cutler Reservoir in Cache County. The reservoir would inundate wetlands, miles of riparian habitat and several important roadways. The reservoir would require extensive right of way purchases due to the large amount of private land it would impact.

Proposed Fielding Reservoir



Fielding Damsite. (Right) The proposed Fielding Reservoir in Box Elder County would inundate nearly 900 acres of productive farmland and eliminate miles of riparian habitat on the Bear River. The reservoir would store 70,000 acre-feet of water and provide project water to the Bear River Water District.



Rocky Mountain Power’s Proposal to Divert the Bear River

In April 2017, Rocky Mountain Power (RMP) issued a press release in which they announced their intention to divert the Bear River upstream of the Great Salt Lake for municipal use.³⁶ The amount of municipal water to be diverted from Bear River Water Development is anticipated to range between 220,000 – 250,000 acre-feet of water for Utah alone. Idaho’s municipal water use would be on top of this diverted water quantity.

RMP said they would divert the Bear River to help relicense one of their hydropower dams, Cutler Dam. In 2024, RMP’s license to operate Cutler Dam must be relicensed for continued operation by FERC, the Federal Energy Regulatory Commission.

Cutler Reservoir is loaded with large amounts of silt, which is reducing the amount of power being generated from the facility. Initial observations indicate the facility is only generating roughly 30% plant capacity, meaning its hydropower generation is very inefficient. RMP seeks to raise its reservoir three feet as part of its relicensing application, which would inundate farms, ranches and wetlands and is expected to generate significant opposition from farmers, ranchers and conservationists.

RMP has indicated in 2019 that they have backed away from diverting the Bear River for municipal use on the Wasatch Front, but until the final relicensing permit application is submitted one cannot know for certain what might happen.



Although at first Cutler Reservoir seems like a deep reservoir, comparison of these two photos looking downstream from the same location on different days shows this storage facility is brimming with sediment. Instead of dredging this sediment, Rocky Mountain Power had proposed to raise the reservoir in 2017, inundating miles of upstream farms and wetlands.



Alternative One The 40 by 30 Campaign: A Real Conservation Goal For Utah

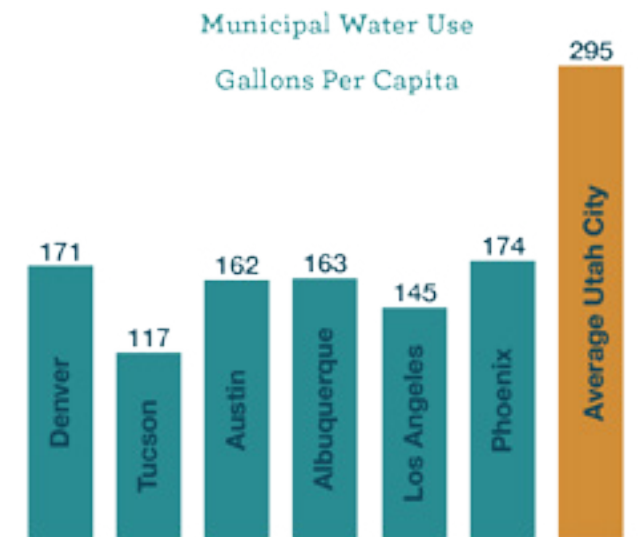
The Utah Rivers Council has initiated a new water conservation campaign for Utah called 40 by 30. We seek to lower Utah’s municipal water use to 175 gallons per person per day (gpcd) which is equivalent to the water use of Denver and hundreds of other U.S. cities. This reduction would represent a 40% reduction by the year 2030. Although a 40% reduction in water use may sound ambitious, the Utah Division of Water Resources claims Utah has reduced water use 18% from the water use in the year 2000, meaning Utah is already about halfway to achieving the 40% goal.³⁷

If Utah’s cities reduced their per capita water use to 175 gpcd there would be no need for Bear River Development. By simply reducing our municipal water use to 175 gpcd, we could save billions of dollars in spending and avoid the impacts of Bear River Development on ecosystems and local communities. Reducing our water demand to 175 gpcd can be achieved without compromising our lifestyles.

Although this is good news to taxpayers, it is important to understand that some of the vested interests seeking to receive the \$5-6 billion in new public spending, including \$2.5 billion from proposed Bear River Development, are more interested in receiving this money than in reducing water use. This is why they perpetuate the myth Utah is running out of water.

This opposition to water conservation has been pervasive at the Division of Water Resources. Its former Director, Dennis Strong, coined Strong’s Law, which was presented at the State Water Development Commission on August 14, 2012. Strong’s Law is defined as, “If water is conserved, something has to die.” It’s astonishing to hear an agency charged with leading the state’s water conservation initiatives misinforming people that something has to die to save water.

If Utah’s cities reduced their per capita water use to 175 gpcd there would be no need for Bear River Development.



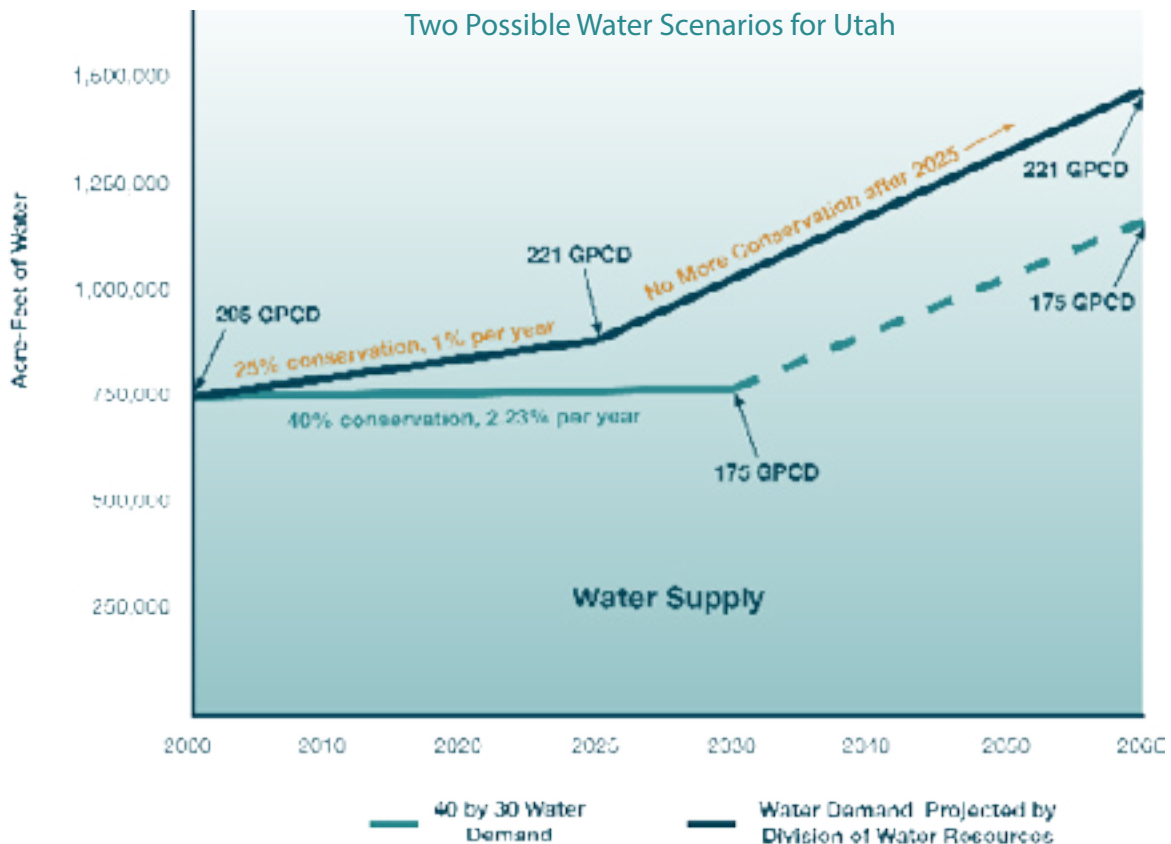
The municipal water use figure used by the Division of Water Resources to ‘prove’ we need to build Bear River Development, shown in brown, is about twice the national average and much higher than the water use of neighboring cities in the American West. The use of this figure by the Division will cost Utahns \$6+ billion in new spending and large water rate increases in the future.



The Choice: Spending vs Thrift

The water demand chart below shows the reduction in water demand that would accrue if we reduced our municipal water use to 175 gpcd, the same amount of water that residents in Denver use today. This would save Utahns \$5-6 billion in future spending and large increases to their water rates. The dotted line shows the 40% water conservation campaign and the solid, dark blue line shows the projection by the Utah Division of Water Resources.

It is important to understand that some of the vested interests seeking to receive \$6 billion in new public spending are more interested in receiving this money than in reducing water use.



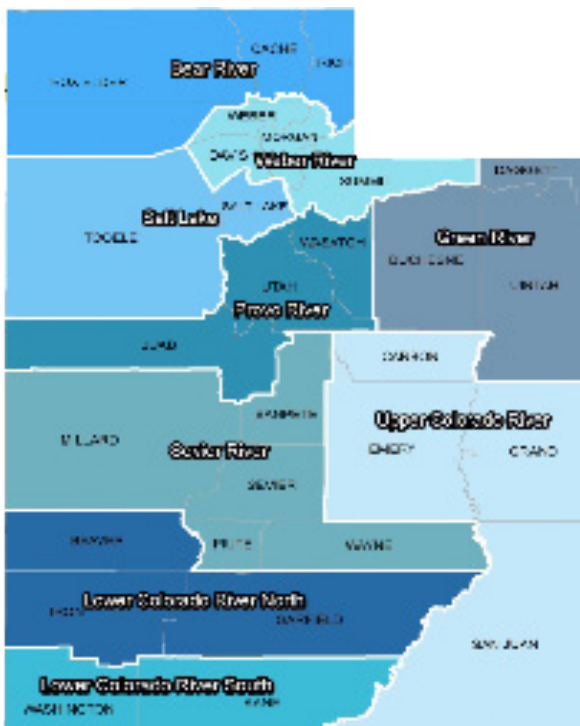


State Opposition to Water Conservation

The state of Utah has fallen behind other communities in the West with its water saving goals. The Governor of Utah had set a water savings goal of reducing water use by 25% per person over 25 years from 2000 to 2025, or 1% per year. But the Utah Division of Water Resources has released a new water plan, which cuts Utah's statewide water conservation goal by 50%, lowering the goal to a meager 0.5% savings per year. The Division of Water Resources' reduction of the water conservation goal is most likely a desire to get the Bear River Development approved.

Lowered Water Conservation Goals by the Division of Water Resources

Region	Baseline (gpcd) from 2015	% Reduction Over 50 Years	% Reduction Per Year
Bear River *	304	28	0.56
Salt Lake *	214	22	0.44
Weber River *	250	32	0.64
Lower Colorado River South **	303	15	0.30
Green River	270	14	0.28
Lower Colorado River North	286	30	0.60
Provo River	226	25	0.50
Sevier River	401	25	0.50
Upper Colorado River	337	25	0.50
State Average	288	24	0.48



The Division of Water Resources new water conservation goals for Utah by region can be seen in the table above. The map (left) corresponds to each regional goal. These anemic goals will keep Utah from making serious steps forward to save water.

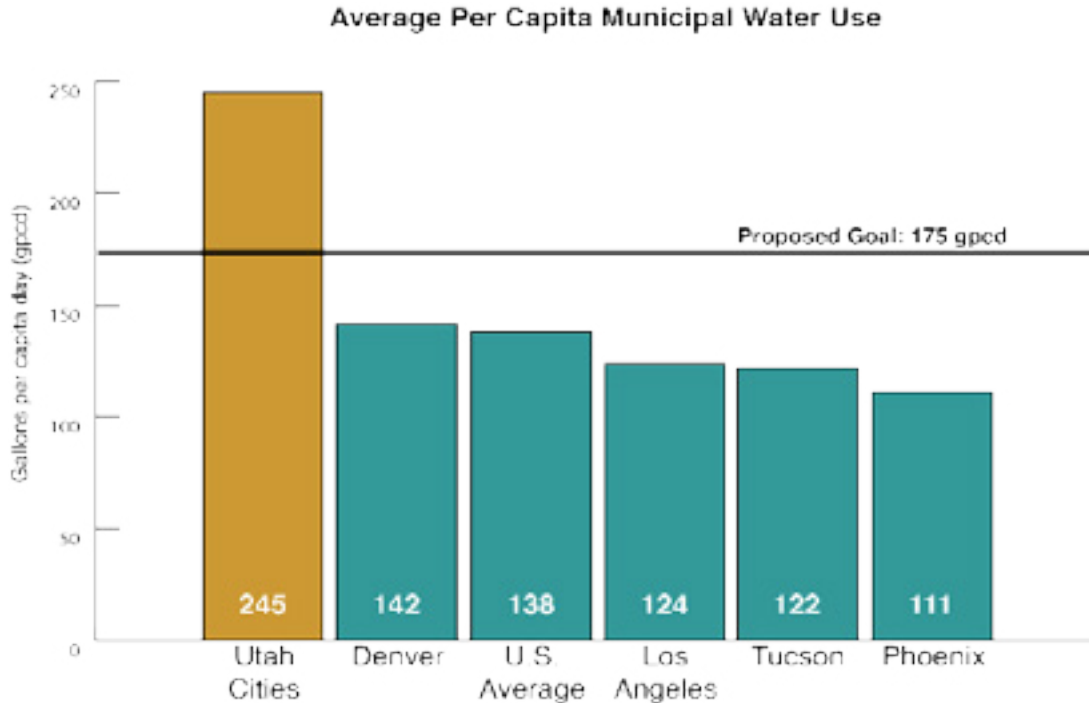


Division of Water Resources Kills Conservation Bill

During the 2019 Legislative Session the Utah Division of Water Resources opposed HB 143, a bill to encourage water conservation across the state of Utah. This opposition by the agency was to keep water use high enough to justify the \$2+ billion in new spending for Bear River Development.

Most water experts across the country believe water conservation is the cheapest source of new water, especially in areas with high municipal water use, like Utah. Many have questioned the Division's conflicts of interest because it is seeking billions in new water spending by perpetuating the myth that water conservation isn't a viable alternative source of water for the future.

The Division of Water Resources used a water conservation plan as a weapon to stop water conservation legislation in the 2019 Legislative Session



Above: It is clear that Utah has a long way to go in conserving water given our high municipal water use compared to cities across the U.S.



Save 2% for Utah Conserving Water is Good Business

Due to the lack of water conservation ambition in our state government, a community of businesses and individuals have stepped forward to usher in a new era in putting a stop to water waste here in Utah. Save 2% for Utah is a campaign to make water conservation a top priority as our state continues to grow. The aim is to adopt a water conservation goal of reducing municipal water use 2% per year, instead of the current target of 0.5%.



From breweries to nurseries, car dealerships to coffee shops, it is clear that businesses and citizens across the state want to save water and money with simple water saving initiatives. Not only do water wise business practices save communities and individuals money, it leaves water for our diverse aquatic ecosystems like the Bear River and the wetlands surrounding the Great Salt Lake. We are encouraging businesses to sign on and for citizens to sign our change.org petition to save water.



The Save 2% For Utah campaign is a coalition of businesses and individuals who want to reduce wasteful water practices here in Utah.



Setting a More Ambitious Water Saving Goal

Reducing our water waste is the inexpensive alternative to spending billions on water infrastructure projects. Weak water savings goals by spending proponents of Bear River Development make it clear that water conservation is not a priority at the state level. The growing number of businesses and individuals signing on to the Save 2% for Utah Campaign shows that Utahns want to get smart with their water. Reducing municipal water use by 2% per year will help keep money in the pockets of Utah citizens, and increase water availability for our growing population and natural habitats.

Utah Behind the Curve



Above: The water drops show the annual municipal water saving goals (in red) and time lines for communities throughout the West. While many states and cities are looking to reduce water use by substantial amounts, the Division of Water Resources has proposed reducing our already anemic water saving goal from 1.0% to 0.5% over the next 45 years.

Right: If your business wants to sign on to this campaign, scan the QR code!





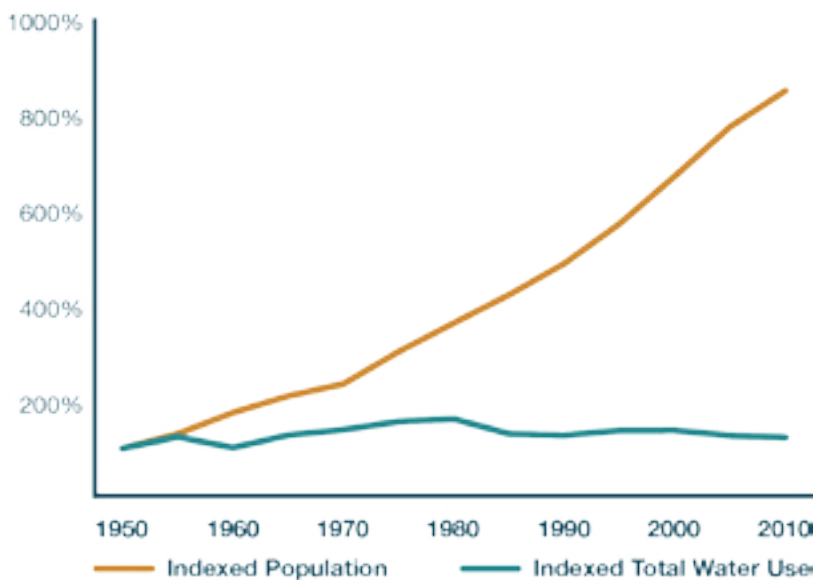
Growth Does Not Mean Water Shortage

The myth that Utah is running out of water because of population growth has been repeatedly disproven. Research shows that since 1980, municipal water demand has remained the same or been reduced at both the municipal and national level despite a growing population.³⁸ This decline includes both per-person and total water use in the municipal sector. Professor John Fleck at the University of New Mexico has studied this phenomenon extensively and notes that:

“In cities across the West, from Los Angeles and Las Vegas to Phoenix, Albuquerque, and Denver, total water use is dropping even as populations rise. Over and over we see water managers predicting that water demand will grow, even as it continually declines.”

In the 30 years between 1980 and 2010, the U.S. population increased by 37%, and yet there was a 39% decrease in municipal water use during this same time period.³⁹ This is largely due to changes in the economy from more water-intensive manufacturing to service-based industries, government policies and regulations requiring improvements to the water-efficiency standards of household appliances and fixtures, and meaningful conservation efforts by states and municipalities.

Phoenix, Arizona
Population Growth vs. Water Use



Phoenix, Arizona’s water demand has decreased by 24% from its peak in 1980, despite adding 3.7 million new residents during that same 30-year time period, and is roughly equivalent to water demand levels in 1955 when the state population was less than one-sixth of what it is now. Source: J. Fleck, UNM



This trend is affirmed in a national study done by the Pacific Institute in 2015.⁴⁰ Using data from the USGS, this study showed that:

“During much of the 20th century, M & I water use increased as the population grew... This trend reversed in 1985, after which total water use for M & I began to level off and then decline despite continued growth. As a result, per capita water use has declined in every five-year period over the last three decades, from 360 gpcd in 1980 to 220 gpcd in 2010.”⁴¹

Despite marginal reductions in municipal water use over the past 30 years, Utah is currently the highest per-person water user in America, according to the USGS.^{42,43} This is why the URC has initiated the 40 by 30 campaign, to challenge Utah cities to reduce their water use to levels on par with other Western cities.



2015 Water Audit

Current Utah Water Conservation Goals Are Inadequate.

According to Chapter III of the Legislative Audit titled, “Conservation and Policy Choices Can Reduce Demand for Water,” Utah isn’t actually trying very hard to save water and does not have sufficient water conservation goals, in terms of both deadlines and water use reduction targets.⁴⁴ In order to reduce future water demand, the State adopted a goal of reducing state-wide per capita water use 25 percent by the year 2025, using the 2000 per capita water use as a baseline.

In other words, as a State we are only trying to reduce our water use by 1 percent per year, which is not very ambitious for America’s #1, highest per person municipal water user. By contrast, during recent prolonged drought in California, the City of Los Angeles reduced its total water use by 20 percent in just one year.⁴⁵ Auditors pointed this out calling Utah’s current goal “overly cautious” and inconsistent with the water use reductions seen in other neighboring states.⁴⁶

Equally problematic is that after 2025, the State has no water conservation goals whatsoever. Auditors were critical of this, pointing out that current trends towards greater conservation indicate that per-person water use will continue to decline beyond 220 gpcd. By failing to take these trends into account, the Division is greatly overestimating future water demand and thus the need for massive new water projects like Bear River Development.



Alternative Two Conservation Pricing Saves Water By Using the Free Market

Numerous university experts and countless peer-reviewed studies show the basic economic principle of supply and demand applies to water just as it does with other commodities.⁴⁷ When the price of water goes up, people tend to use less water. One cannot just ignore the massive body of research which shows the more water costs, the less water people use.⁴⁸

Utah residents pay some of the lowest water prices in the nation, which partially explains why they consume more water than residents in other states. Because pricing influences the demand for water, many Western cities have introduced tiered pricing structures that increase the price of water with increasing volume of water used.

Utah residents pay some of the lowest water prices in the nation, which partially explains why they consume more water than other states.

In a tiered pricing structure, the bulk of costs are borne by the biggest water users. The first block of water is priced relatively low and should be sufficient for most basic indoor water needs. The price then increases for customers who use more than this baseline amount, usually for landscapes outside the home. The rates should be structured so that the upper tiers are priced significantly higher than the base tier.⁴⁹ Notice the rate comparison graph on page 28 and see how tiered rates of other western cities greatly outpace those of cities in Utah.

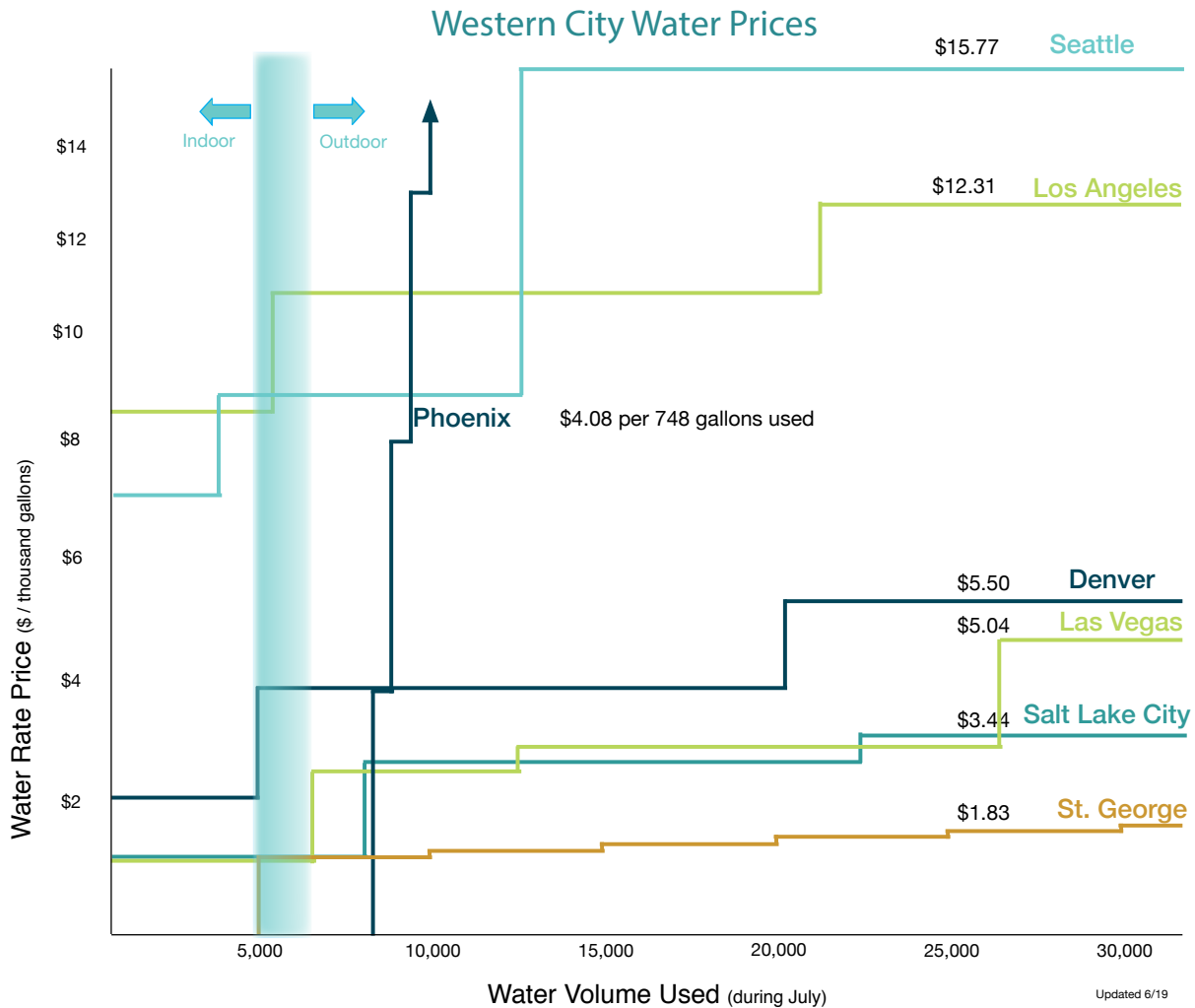


2015 Water Audit Conservation Pricing Saves Water

The 2015 Audit found that in comparison to other Western cities and states, nearly all Utah cities charge relatively low, flat rates for municipal water, which often leads to water waste. An independent study by Auditors showed that tiered pricing structures have been effective at reducing per-capita consumption in many other states, using pricing signals to encourage conscientious water use and reduce inefficiency. According to Auditors, most Utah cities that currently use block pricing do not employ a significant enough price differential between the blocks to adequately encourage conservation and reduction of waste. As the Auditors note:

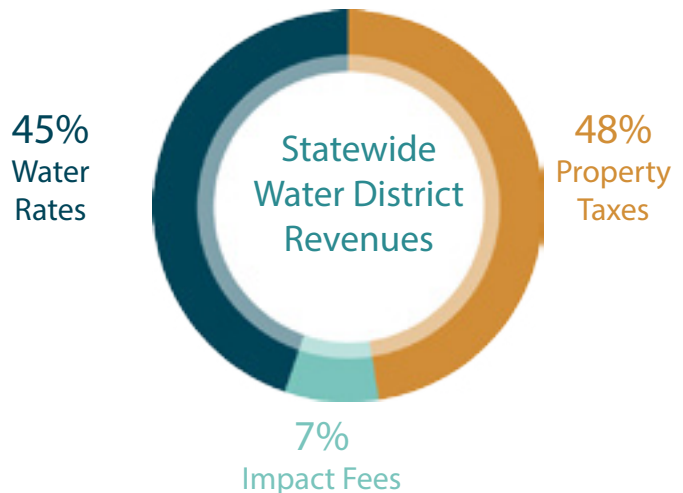
“Pricing water below cost prevents normal market forces from taking effect; without a strong pricing signal, consumers are not led to use the resource efficiently... We found that the majority of current rate structures used in Utah do not adequately encourage water conservation.”⁵⁰

Auditors recommend that in order to bring Utah’s municipal water use in line with other Western cities and states, conservation pricing should be introduced and expanded.



Above: Tiered water rate structures have proven to be effective at reducing water use in cities across the Western U.S. but many Utah's cities have significantly cheaper water rates because water districts in Utah collect property taxes to lower the price of water.

Right: Property taxes collected by Utah water districts in 2015 explain why Utah has America's cheapest water rates and highest municipal water use, per person. Utah water districts make more money from property taxes than from selling water, in direct conflict to Utahns support for the role of the free-market. These taxes benefit government and exempt institutions that use large amounts of water.





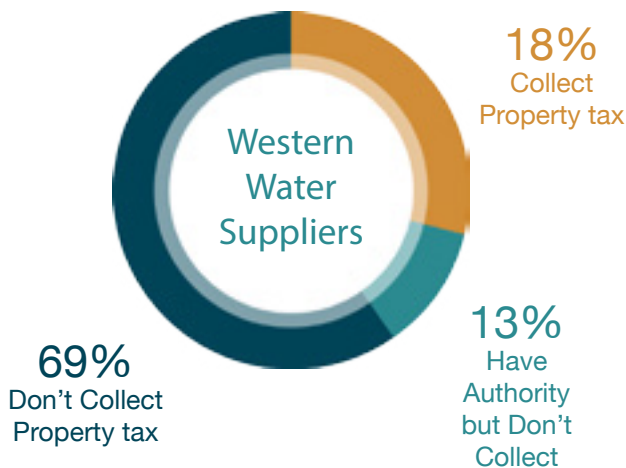
Alternative Three Phasing Out Property Taxes that Encourage Water Waste

No one disputes that consumers purchase more of an inexpensive commodity than of a more expensive commodity. This is the cornerstone of market economics: cheap prices drive high consumption. Although most Utahns embrace these free market principles, Utah's ubiquitous practice of collecting property taxes to lower the price of water runs in direct conflict with this values system.

In Utah, property taxes collected on homes and businesses by government water suppliers lower the price of water, sometimes drastically, which encourages water users to become water wasters. These property tax subsidies explain why Utah's municipal water rates are the cheapest in the U.S. and our municipal water use is the #1, highest in the nation, per person.

Most urban water districts (82%) in the American West outside Utah don't collect property taxes, even when they have the option. Every water district in Utah collects property taxes on homes and businesses which lowers the price of water and encourages waste.

It is telling that most Western water suppliers do not collect property taxes for water and pay for operations with water sales revenue, not property tax collections.⁵¹ A recent survey of Western water suppliers showed over 80 percent of water suppliers do not collect property taxes as a source of revenue for water suppliers.⁵²



In the areas outside Utah where property taxes are collected by water suppliers, the revenues are used to pay off a specific water infrastructure project and when the bond is paid off, the property tax goes away. But in Utah these same property taxes pay for staff salaries, lobbying contracts and any other general purpose authorized by the unelected water district board of directors.

These property taxes for water explain why Utah's municipal water rates are the cheapest in the U.S. and our municipal water use is the #1, highest in the nation, per person.



Our video *In Your Wallet Or Your Hose* explores the hidden water subsidy found in your tax bill. Check it out by visiting our website, utahrivers.org



“The fundamental water problem in Utah (and other western states) is not that existing supplies will prove to be inadequate to meeting increasing future demands... The basic problem is that pricing policy has been infected and distorted by political favors in the form of subsidies and concessions to different interest groups. Using property taxes as a revenue substitute for direct water prices is one such example.”

Dr. B. Delworth Gardner, Professor Emeritus, Brigham Young University.⁵³

Many Utah voters are surprised to learn they pay two, three or even four different property taxes for water on their homes and businesses, while large government landowners and nonprofits pay no taxes. This means that government golf courses, schools, universities and other exempt users are forcing Utah taxpayers to absorb the burden of their water waste. For example, the University of Utah uses more than 10 percent of all the water in Salt Lake City on an annual basis, but pays no property taxes whatsoever.⁵⁴

Although most people know that cheap prices drive higher consumption, collectors of the property tax for water refuse to concede that Utah’s extremely high water use is related to our cheap water prices. In their 2010 publication, *Municipal and Industrial Water Use in Utah*, the Division of Water Resources cites a number of reasons why Utah’s municipal water use is so high including: climate, traditions of early settlers, topography, lot size, watering techniques and other causes.⁵⁵ In addressing Utah’s abnormally low water prices, the Division erroneously claims that:

*“Information collected by DWRe indicates that this again [low water rates], is mainly the result of large quantities of high quality water in close proximity to the urban areas of the state. Proximity translates to low distribution costs. High quality translates to low treatment costs.”*⁵⁶

This claim is unsubstantiated as evidenced by comparing the water treatment costs in Denver, which lies close to its high quality water source, as shown in the table below. The treatment costs in Salt Lake City and Denver are about the same, yet Denver’s water rates are significantly higher. Metro Water District, which provides water to Salt Lake City, receives ~27% of its total revenues from the collection of property taxes, whereas Denver Water receives no revenues from the collection of property taxes.⁵⁷

Treatment & Delivery vs. Retail Cost of Water^{58,59}

Price (\$/1,000 gals)	Salt Lake City	Denver
Treatment & Delivery Costs	\$0.70	\$0.79
Retail Cost of Water	\$2.50	\$5.78

Contrary to claims by water development industry salesmen, cheap treatment and delivery costs do not correlate with cheap water rates for the consumer.



Alternative 3

Phasing out property taxes for water would mean Utah taxpayers would pay only for the water they use and no individual or institution would get a free ride to waste water. Phasing out these taxes would extend our water supply while eliminating the need for billions of dollars in unnecessary government spending. The day has come for Utah water suppliers to utilize the free market and make water prices more transparent and equitable by phasing out the property tax for water.

Phasing out property taxes on water would help reduce government spending on new water infrastructure including delivery systems, treatment plants and the need for importing new water sources. Removing the property tax would also avoid large future rate increases by delaying or eliminating the need for replacement of current systems and expensive new water sources.⁶⁰



Above: If property taxes for water were phased out of the revenues of water districts, indoor water rates would not have to increase, meaning that only outdoor water rates would have to increase. This would ensure that large, institutional water users pay the entire cost of their water use such as schools, government golf courses and other users.

Below: A model developed at the University of Utah shows how much water could be saved if property taxes for water were phased out. Source: Moulding, 2011.

The Substantial Savings from Phasing Out the Water Tax for Utah Cities⁶¹

City	Water Savings	Current Price at 15,000 gal	Change in Price	Average Property Tax Refund
Salt Lake City	-16%	\$2.15	\$0.93	\$98
Sandy	-14%	\$2.63	\$0.96	\$109
South Jordan	-13%	\$1.77	\$0.55	\$116
West Jordan	-25%	\$1.26	\$0.98	\$80
Riverton	-24%	\$1.33	\$0.95	\$101
Herriman	-15%	\$1.85	\$0.73	\$105
Bluffdale	-26%	\$1.95	\$1.57	\$153
St. George	-27%	\$1.00	\$0.88	\$193



An economic model created in 2012 at the University of Utah in partnership with the Utah Rivers Council demonstrates how much water could be saved if property taxes for water were phased out.⁶² This model took over a year to develop and assumes revenue neutrality for the water suppliers now collecting property taxes.⁶³

Low income populations, who use significantly less water than large lot landowners, would actually benefit from phasing out property taxes and could easily see no water rate increases if property taxes for water were phased out.⁶⁴ The model assumes that indoor water rates would not need to be raised if property taxes were phased out, meaning low income populations would not have to see water rate increases for the water they consume.

Although the collectors of the property tax claim phasing out property taxes would affect bond ratings, the Division of Water Resources has conducted no credible studies to support such claims. In contrast, a variety of publications and documents have examined this statement and rejected it.⁶⁵ Moreover, one can argue that having low borrowing costs for government water suppliers encourages wasteful government spending and unnecessary indebtedness, something most Utahns eschew.



A Performance Audit of
Projections of Utah's Water Needs

2015 Water Audit

The Problem of Property Taxes for Water

The 2015 Water Audit criticized Utah's widespread collection of property taxes for water and recommended that water provider reliance on property tax collections be reduced.⁶⁶ As the Auditors note, these subsidies artificially lower the cost of water to the consumer, leading to inefficient use, and they do nothing to promote conservation. Assessing property taxes to subsidize water use burdens individuals based on their property value, regardless of how much water they use. This means that low water users are subsidizing the high use of their more consumptive neighbors.

As the Auditors point out, Utahns pay relatively little for their water compared to other Western cities.⁶⁷ This is in no small part due to the collection of property taxes to subsidize water rates, which is not commonplace in other western states.

According to Auditors, property tax collections don't just supplement income for Utah water districts as many of these agencies rely heavily on local property taxes and other fees that are unrelated to water use. For example, one of the largest water districts in the state, the Central Utah Water District received \$48 million, some 70% of its income from collecting property taxes in 2012. This practice is ironic for a state that prides itself on embracing free market principles.

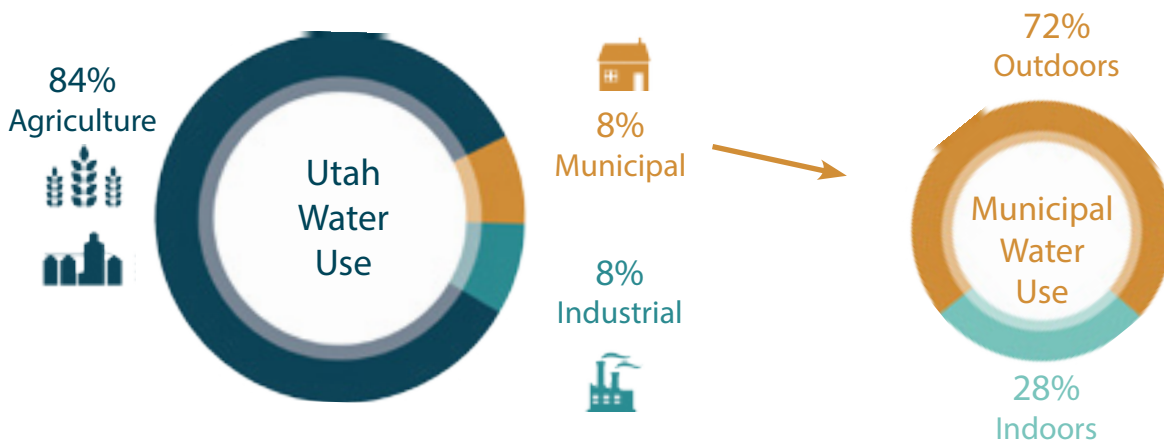


Alternative Four Converting Surplus Agricultural Water

Many people assume Utah is running out of water because of urban growth, but our growing population doesn't mean we're running out of municipal water. Large amounts of water currently used for agriculture could be transferred for municipal use in the future, and this transfer could make up a significant portion of Utah's future water supply. However, this existing water source is largely being ignored by state water planners.⁶⁸

Roughly 84% of Utah's water is used by our farms. Our municipal and industrial use, essentially everything that isn't farming or ranching makes up about 16% of Utah's total water use.⁶⁹ After hard industrial applications are taken out, many are surprised to learn that our urban residents use just about 6-8% of Utah's total water on lawns and this use includes all schools, universities, golf courses and government institutions.

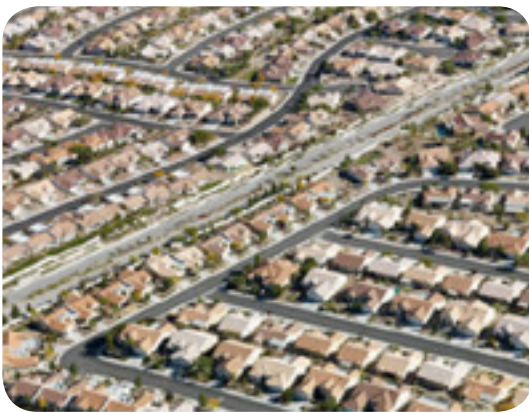
On average, Utah loses 30 acres of farmland each day to urban development.⁷⁰ While the paving of Utah's farmland is nothing to celebrate, this land conversion creates a surplus of water because most urban land uses less water per acre than agricultural land. Unlike the vast acreage of irrigated farmland that was previously flood-irrigated or utilized large sprinkler systems, a large portion of the new municipal acreage isn't watered at all. Much of the municipal sector land acreage is covered by streets, sidewalks, driveways and parking lots, which use no water whatsoever.



Roughly 84% of Utah's water is used by our farms and ranches, while our municipal and industrial use makes up just 16% of Utah's total water use. Municipal water use itself accounts for just 8% of all the water used in Utah, with the vast majority of it used on lawns in the summer months. This municipal use includes all schools, universities, golf courses and government institutions.

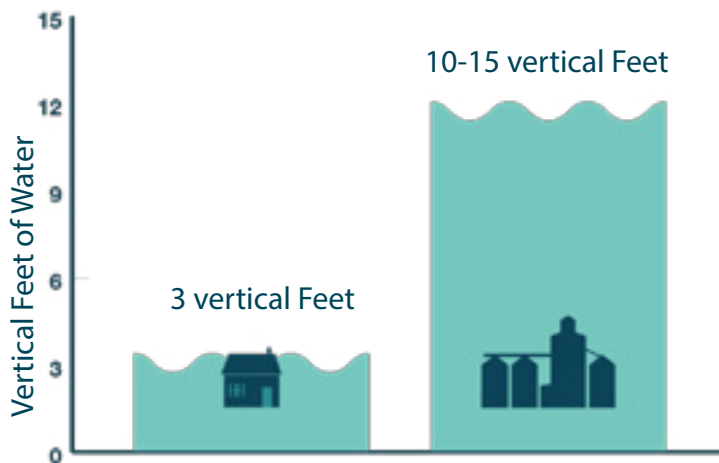


Consider that grass shouldn't use more than 2.5 – 3 feet of water during an entire summer, but a farm might use 10-15 vertical feet of water on its irrigated fields.⁷¹ Since a typical ¼ acre home lot might have a lawn of roughly ⅓ acre or less, the water used per acre in the urban sector is dramatically less than when it was an irrigated field. Furthermore, a substantial portion of the municipal landscape is devoted to office buildings and strip malls, with much of the land mass converted to parking lots and the buildings themselves. Because of these factors, municipal indoor water use is only a small fraction of the water used previously by irrigated agriculture. These land use changes demonstrate that urban lands use less water than irrigated fields by total acreage.



Above: Most municipal water is used on grass although the proportion of urban lands covered by grass is relatively small. By contrast, vast acreages of farmland are irrigated, helping to explain why the municipal sector uses so much less water than the agricultural sector.

Agricultural vs. Municipal Water Use



Left: Municipal land requires far less water than agricultural land. This helps explain why the conversion of agricultural lands to the municipal sector creates a surplus of water.



Views of Mount Olympus

1887



2015



Left: A farmer growing wheat in 1887 in the Salt Lake Valley with Mt. Olympus in the background. P: Utah State Historical Society. Right: Today, irrigated farmland has been replaced by houses, stripmalls and parking lots which use much less water than farmland.

Utah's top water managers agree that paving irrigated farmland creates a water surplus. In a meeting of the Utah House Natural Resources, Agriculture and Environment Committee, officials from several water districts testified about the water surplus created by urbanization. On February 4, 2014, Ron Thompson, General Manager of the Washington County Water District acknowledged that a water surplus is created when irrigated cropland is urbanized, explaining that in his area, six acre-feet of water is needed per acre of agricultural land, but that six houses are not being built on each acre of converted farmland.⁷² This inference implies that a Utah family uses one acre foot of water per year, although the U.S. average is closer to a family of four using 1/2 an acre-foot of water per year.

At the same committee meeting, Tage Flint, General Manager of the Weber Basin Water District agreed urbanization creates a water surplus, noting that in his district, urbanization creates a 20 percent surplus of water on the urban side.⁷³ Other documents prepared by the Division of Water Resources indicate there are large amounts of agricultural water inside suburbia that can be transferred to municipal use.

In the 2009 Weber Basin Water Plan, it is expected that some 147,000 acre-feet of surplus farm water will be available for urban uses in the coming decades, as shown in the table below.⁷⁴ This quantity is nearly three times as much water as the Weber Basin Water District would receive from proposed Bear River Development, yet the Division is ignoring this water source in its planning efforts.

Estimated Past, Present and Future Agricultural Water Use/Diversions

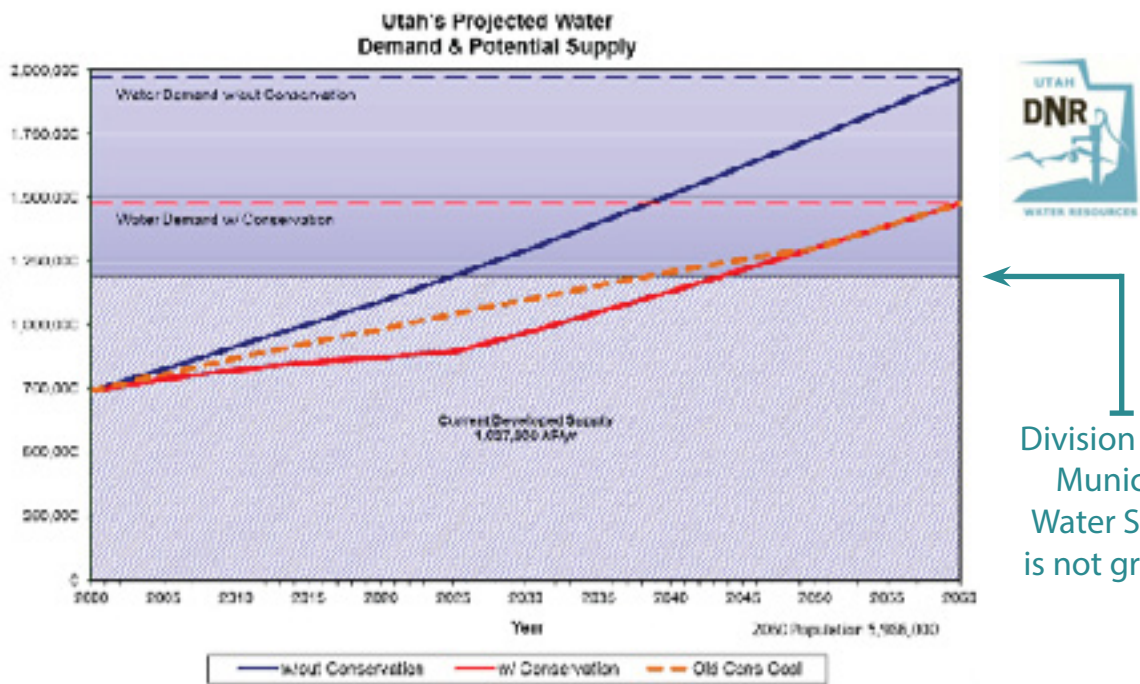
County	Estimated Diversion (acre-feet)*					
	1987	1999	2003	2007	2030	2060
Davis	125,700	96,100	89,400	82,100	30,900	19,400
Morgan	41,600	35,100	35,800	33,300	28,600	18,000
Summit	90,500	102,400	96,500	86,000	71,400	49,000
Weber	214,900	165,100	138,100	127,400	107,400	74,800
BASIN TOTAL	472,700	398,700	359,800	308,800	238,300	161,200



In the Salt Lake Valley, surplus agricultural water is also being ignored even though an array of planning documents summarize the surplus of available water. In the 1997 Jordan River Basin Plan, Division planners noted there were 143,000 acre-feet of agricultural water inside the Salt Lake County area.⁷⁵ This is a massive quantity of agricultural water flowing through the canals of the Salt Lake Valley, yet the agency is underestimating the amount of water that will be transferred by future agricultural water conversion inside Salt Lake County.

In spite of these observations, the Division of Water Resources erroneously claimed that no surplus water is created by urbanization and that just as much water is needed to irrigate an acre of farmland as is needed for an acre of urban development.⁷⁶ Only after State Auditors documented the growth in our municipal water supply would this stubborn agency verbally concede that Utah’s municipal water supply is growing.

Yet projections of Utah’s future water supply made by the Division continue to imply that our municipal water supply is static. The Division has failed to include agricultural water transfers in their future projections of water supply, thereby implying a future municipal water shortage, to help make the case for spending billions of dollars on Bear River Development.



Above: The Division of Water Resources often fails to convey that our municipal water supply is growing, as a function of converting surplus agricultural water.

Left: According to the 2009 Weber River Basin State Plan, the Weber Basin will have 147,000 acre-feet of agricultural water available for municipal use by 2060, but only a fraction of this water is included in the Division’s water supply forecasts. This is enough water for a city of 1.2 million people.



A Performance Audit of Projections of Utah's Water Needs

2015 Water Audit

The Growth in Municipal Water Supply Needs to be Discussed and Considered by the Division

The Auditor's most potent criticism comes in Chapter IV, "Growth in Future Water Supply Should Be Reported to Policy Makers." Auditors found that Utah's municipal water supply is actually growing as Utah continues to pave its irrigated farmland, thereby transferring the water to new uses. According to Auditors, when the growth in municipal water supply from agricultural water conversions is not shown, the Division's charts imply an impending water shortage.⁷⁷

Auditors found in the Weber River Basin alone, the Division was not reporting some 52,000 acre-feet of the agricultural water projected to be available for municipal use by 2060. That's enough water for a city of 416,000 people. The Auditors noted:

"In fact, 52,000 acre-feet (ignored by the Division) is roughly equivalent to the amount that the Weber River Basin expects to obtain from the Bear River Project."⁷⁸

This is a curious omission by the Division, considering that if the Weber Basin Water District has no need for water from the Bear River, it would undermine the Division's claims the region is running out of water and needs \$2.5 billion for Bear River Development. Auditors also noted:

"Statewide, there appears to be far more water available for agricultural conversions than anticipated in the Division's water plans."⁷⁹

The Division's ignoring large quantities of unused agricultural water amounts to little more than cooking the books and is bad for taxpayers, bad for irrigators and bad for the future of Utah's rivers.



Left: One only need visit KSL.com classifieds to find agricultural water rights for sale, yet the Division of Water Resources has repeatedly ignored this growing source of water.



Alternative Five

Removing Landscape Ordinances Requiring Grass

Many Northern Utah municipalities and homeowner associations require residents to landscape a significant portion of their yards with grass. In some cities, conscientious residents that try to use less water outside their homes by landscaping with drought-tolerant plants or artificial turf may even be fined. This makes no sense in a state with the country's highest per-person municipal water use and where officials are proposing to spend billions of dollars to import new water.

Some 70 percent of the water in Utah's cities is used primarily to irrigate grass.⁸⁰ Requiring people to plant water-intensive turf grass prevents conscientious individuals from conserving water at their own homes. Giving individuals the freedom to choose their landscapes is not only fair, it is a cheap and easy way to save water and money in our cities.

For over 15 years the URC has administered our Rip Your Strip Program, which empowers residents to convert their hard-to-water parking strip into a beautiful—and money saving—drought-tolerant garden. The program has not only reduced outdoor water waste by wasting less water on sidewalks and gutters, it helped to amend local landscaping policies and transform the landscaping practices of neighborhoods throughout Northern Utah cities.

The success of the program has shown that once people are familiar with low water-use landscaping and have a successful parking strip project under their belt, they are eager to apply these principles to more of their property. Eliminating antiquated and draconian landscape ordinances at the municipal level would help to encourage beautiful, drought-tolerant landscaping and reduce water waste, without infringing on people's individual liberties.



Many people mistakenly think that drought-tolerant means no vegetation, but drought-tolerant gardens can be filled with wildflowers, grasses and cacti that are beautiful and require little water.



Residents turning their parking strip into a drought-tolerant garden as part of the URC's Rip Your Strip program.



Alternative Six Metering Secondary Water Reduces Water Waste

Installing meters on secondary water systems has the potential to greatly reduce Utah's municipal water use. Secondary water systems utilize the surplus irrigation water left over after farmlands are converted to municipal landscapes. These systems allow residents to irrigate grass with untreated water sources through either pressurized sprinkler systems or by flood irrigation. Secondary water use encourages overuse because these systems are generally unmetered and the water is offered at a flat annual rate.

A Division of Water Resources study found that water users in Davis and Weber Counties use 113 gallons per capita per day (gpcd) more water than residents of adjacent Salt Lake County, which generally does not offer secondary water to its residents.⁸¹ The Division study also noted that:

"Recent DWRe studies indicate that some secondary customers in Davis and Weber counties over-water their landscapes by more than 100 percent."⁸²

The Weber Basin Water District claims there are more secondary water users in the Weber River Basin than in the rest of the state combined.⁸³ The vast majority of these users have no idea how much water they use and since they pay just a small annual fee for virtually unlimited use, many consume far more water than they need. Much like an all-you-can-eat buffet, a flat fee leads to water waste.

According to a lengthy research project conducted by Utah State University researchers in conjunction with the Weber Basin Water District, simply installing meters to let water users know how much water they use can lead to significant water savings. Researchers installed meters on hundreds of secondary water connections in the Weber Basin and sent each participant a monthly summary of use, along with information comparing their use to the local average. After 3 years, the researchers found that water use declined by an average of 25 percent on the metered connections.⁸⁴ This reduction occurred without any mandate to curtail use or increase secondary water rates, but by simply providing users with data on how much they used each month.

Installing meters on the users of secondary water would provide huge amounts of water and eliminate the need for Bear River Development for pennies on the dollar. Secondary water systems are untreated irrigation canals converted to irrigate municipal grass landscapes after growth has occurred on farmland.





The participants in this secondary water metering study represent only a small fraction of the total number of secondary water users in the basin. If a meter was installed on each of the roughly 100,000 secondary water connections in Weber and Davis Counties, tens of thousands of acre-feet of water could be saved annually. The potential water savings from metering alone virtually eliminates the need for new water development in these districts. The cost of installing meters on all Weber Basin secondary water users ranges from \$50 – 100 million, making it a cost-effective alternative to spending \$2.5 billion on proposed Bear River Development.



A Performance Audit of
Projections of Utah's Water Needs

2015 Water Audit

Poor Data on Unmetered Secondary Water

Auditors critiqued the lack of good data around Utah's secondary water systems. Because these systems are largely unmetered, the state has to rely on crude estimates for current secondary water use totals. Auditors found that when attempting to quantify secondary water use, the Division simply guessed:

"Because most secondary water use is unmetered, the Division relies on its staff to estimate the amount of secondary water used in each community. This practice means about 23 percent of the water use reported by the Division is not based on actual data but on staff estimates."⁸⁵

Twenty-three percent of Utah's municipal and industrial water use is almost equal to the amount that would be diverted by the proposed Bear River Development.⁸⁶ That is an enormous amount of water to simply guess. How can we possibly know what future water demand will be when such a large portion of our current water use is based solely on speculation?

The Auditors went on to urge state lawmakers to adopt legislation requiring universal metering of all water service connections, including secondary connections, in order to improve secondary water pricing, control, conservation, and reporting.



Alternative Seven Harvesting the Rain

A rainwater harvesting revolution is sweeping the nation with over 100 U.S. cities distributing tens of thousands of rain barrels to their residents to help save water and improve water quality in local streams, rivers and lakes. There is enormous potential to reduce municipal water use in Utah by implementing rainwater collection programs.

Rainwater harvesting can help growing communities expand their water supply. Rain barrels are placed under roof downspouts and collect the water that falls during rainstorms to be used later on landscapes when needed. Utah law allows one to collect up to 2500 gallons of water at any given time and residents with more than two rain barrels are required to register, for free, with the Utah Division of Water Rights.⁸⁷

Rainwater harvesting is cost-effective and can conserve large amounts of water. It is estimated that between 15,020 - 22,940 gallons of rainwater fall on a Salt Lake County house during the Spring, Summer and Fall. A GIS model developed at Utah Valley University found that from April through October, Salt Lake City could collect 400 - 525 million gallons of water on residential buildings alone.⁸⁸ Incorporating rainwater harvesting practices on commercial buildings would increase this potential water savings.

Rainwater harvesting also helps improve water quality of local streams. Much of the rain that falls becomes runoff, which is funneled into stormwater systems and nearby waterways. Retaining rainwater where it falls by barrel collection helps reduce the amount of stormwater runoff that scours our streets, driveways and gutters and washes urban pollutants into local water bodies. This is a valuable water quality benefit because runoff is the number one source of pollution in our waterways nationwide.

Utah municipalities can use rain barrels to demonstrate progress in complying with Clean Water Act regulations. Many urban communities struggle to manage stormwater runoff and to meet requirements for their federal stormwater discharge permit. Rainwater harvesting helps communities obtain low impact development credits and achieve compliance through the public education and outreach for small municipal separate storm sewer systems (MS4s).



Stormwater runoff is the largest polluter of waterways across the U.S. Rainwater harvesting helps reduce the amount of polluted runoff entering our streams, rivers and lakes and can be used by communities to comply with federal and state water quality regulations.



Rainwater is great for plants because it is free of salts and chemicals like chlorine used in water treatment processes.⁸⁹ Using rainwater to irrigate landscapes filters atmospheric pollutants and nutrients from the water as it is released into porous landscapes and moves through the soil. This process more closely mimics the natural hydrological cycle and helps recharge groundwater sources.

Rain barrels have proven to be wildly popular among Utah residents. The Utah Rivers Council created a community rainwater harvesting initiative in 2015 called RainHarvest, by partnering with municipalities to subsidize the cost of rain barrels for their residents. Salt Lake County, Millcreek, Murray, Sandy, Park City, Summit County, Ogden and Eagle Mountain have partnered with the Utah Rivers Council over the last several years to distribute over 4360 rain barrels to Utah residents. This means every time it rains enough to fill a 50-gallon barrel 218,000 gallons of water are saved through this simple practice. Over time this savings will grow to millions of gallons of water.

Rainwater harvesting not only helps Utahns reduce water demand on municipal systems and improve water quality of local rivers and lakes, it helps educate local residents about the importance of water conservation and creates a new generation of water stewards interested in all aspects of water sustainability. Once someone starts capturing the rain, they grow passionate about conserving water and conscious of how our water use is connected to our rivers and the wildlife species they support.

At one rainy RainHarvest event in 2015, URC staff and volunteers distributed over 1,050 rainbarrels in just 4 hours.



RainHarvest Case Study: San Diego County

Faced with prolonged drought and state-mandated water reductions, San Diego County and the Solana Center partnered to sell over 2000 Ivy rain barrels to County residents in 2015. Some 1700 of the barrels were sold in just six weeks and this one rain barrel event is now helping the community save over 100,000 gallons of water every time it rains enough to fill a 50 gallon barrel. Due to popular demand the County and Solana Center have continued to distribute discounted rain barrels to residents.



Alternative Eight New Practices in Landscape Management

In recent years, cities across the West have been offering “cash for grass” as a way to incentivize residents to transition from bluegrass lawns to more water wise landscaping. These programs not only help people save money on their water bills, they produce significant long-term water conservation savings for communities.

The success of Southern California municipalities in providing rebates for turf grass removal provides Utah with a good example of how to save water.⁹⁰ Removing turfgrass from a typical 1000 ft² lawn could earn Los Angeles area homeowners \$400-\$600 and offers the opportunity to never have to mow the lawn again. Similar programs have been offered by other cities like Las Vegas. These turf replacement programs augment existing water supplies and are cheaper alternatives to tapping new water sources via multi-billion dollar capital projects.

Despite the success of these programs, some Utah cities still require homeowners to install grass landscapes and have issued fines for removing and replacing turf grass. These disincentives penalize Utahns who try to be good water stewards and reinforce Utah’s wasteful water using climate.

Allowing Grass Dormancy to Save Water

One argument we hear against conserving water is that in order to reduce water use, we need to remove our grass.⁹¹ This is simply not true since Utahns can greatly reduce their water use without removing one blade of grass. By simply not overwatering our lawns, or for that matter watering sidewalks and streets or watering during rain storms we can save large amounts of water. Many residents and institutions turn their sprinklers on too early in the spring, often months before they need to begin watering.

Another way to save large amounts of water is to train grass to enter its dormancy phase earlier in the year at the end of the irrigation season. When grass is stressed by heat or drought it enters a period of dormancy where growth is suspended and the grass blades turn brown. Many people incorrectly assume that brown grass means dead grass but that’s not actually the case. According to Utah State University turf grass expert Kelly Kopp, as long as the crown (the point from which grass blades grow upward) stays alive, most grass is capable of recovery once temperature and moisture conditions improve.⁹² Minimal irrigation in the summer – meaning as little as one inch of water per month – can keep grass alive.

For many Northern Utah residents, allowing grass to enter dormancy during July or August is a smart and easy way to conserve water while maintaining their lawns. Dormancy is part of a natural lifecycle that does not hurt the grass and by activating this suspended growth stage, residents can save water and reduce the need for costly projects.

Offering cash incentives to remove water guzzling landscapes has helped many drought-stricken communities reach and even surpass their water conservation goals.





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