



## Our Water. Our Future. Our Choice.

The purposes of the District include planning for and facilitating the long-term conservation, development, protection, distribution, management, and stabilization of water rights and water supplies for domestic, irrigation, power, manufacturing, municipal, recreational, and other beneficial uses, including the natural stream environment, in a cost-effective way to meet the needs of the residents and growing population of Cache County.

[www.cachewaterdistrict.com](http://www.cachewaterdistrict.com)

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### CACHE WATER DISTRICT BOARD OF TRUSTEES MEETING MINUTES

**March 6, 2023**

The Cache Water District Board of Trustees convened for a regular meeting on March 6, 2023, at 5:30 p.m. in the Cache County Historic Courthouse Council Chambers, 199 North Main Street, Logan, Utah.

#### **MEMBERS OF THE BOARD IN ATTENDANCE:**

Mark Anderson – Logan #3 Council District  
Jared Clawson – At-Large Position  
Jonathan Hardman – South Council District  
Kirt Lindley – At-Large Position  
Beth Neilson – Southeast Council District  
Jeff Ostermiller - Logan #2 Council District  
Max Pierce – North Council District  
Bret Randall – Northeast Council District  
Brett Roper – At Large Position  
Jeannie Simmonds – Logan #1 Council District  
Regan Wheeler – Agricultural Representative

#### **ATTENDANCE:**

Nathan Dausg, Steven Wood, Quinn Dance, Scott Clark,

#### **CALL TO ORDER**

Chairman Pierce called the meeting to order at 5:30 p.m.

The March 6, 2023 meeting agenda and the minutes from February 6, 2023, were approved.

**ACTION: Motion by Mr. Clawson to approve the agenda and the minutes as submitted. Seconded by Mr. Hardman. The motion was approved unanimously (10-0).**

**Yea: Anderson, Clawson, Hardman, Lindley, Neilson, Ostermiller, Pierce, Randall, Roper, Wheeler**

#### **PUBLIC COMMENT**

No public comments

## CALENDAR EVENTS

- Mar. 8 – Northern Utah Water Conference 9:00 a.m. – 3:00 p.m. (approx. 100+ attendees)
- Mar. 8 – Bear River Watershed Council – 3:00 p.m.
- Mar. 8 – Great Salt Lake Advisory
- Mar. 10 – Ag. Water Optimization – 10:00 a.m. (link sent out)
- Mar. 14-15 – USU Runoff Conference
- Mar 20-23 – Utah Water Users
- Apr. 3 – Regular Board Meeting
- Apr. 6 – Bear Lake Advisory

5:45 Jeannie Simmonds arrived

## FINANCIAL REPORT

See [-Attachment 1-](#)

Ms. Simmonds reviewed the report and explained how items are tracked. An audit will be scheduled for next month (the cost will be \$5,500). She will send out an update on the grants with a breakdown of the expenditure vs. what has been reimbursed. The challenge is that reimbursements come in at varying times. Chairman Pierce asked if there is a need to adjust budgets based on the timing of reimbursements. Mr. Daug's reviewed some of the line items.

## MANAGER'S REPORT

### **PL-566 PROJECT UPDATES**

No changes since last month, still waiting for updated contracts from NRCS to move forward.

### **BENEFITS OF BEAR RIVER UPDATE**

The contract for the study has been signed, it is anticipated to be completed by this fall.

### **LEGISLATIVE UPDATE**

S.B. 251 Secondary Metering Requirements (Sen. Hinkins) – A few exemptions were added, including one to meet with the State Engineer to help determine where strategic meters need to be installed (rather than each home). Another \$20 million was added for grant funding.

S.B.119 Per Capita Consumptive Use (Sen. McKell) – Requires reporting districts to calculate per capita consumptive use.

S.B. 118 Water Efficient Landscaping Incentives (Sen. Sandall) – Incentivizes efficient use of water including installation and maintenance of water-efficient landscaping. Cache County may not be eligible, because the bill authorizes water conservancy districts to receive grants to provide incentives, currently Cache Water District does not have the grant matching funds or means to implement this type of program. The requirement for a restrictive deed to be added was deleted. Mr. Daug's said it would be a good idea to meet with legislatures before next year to include a modification for more waterwise landscaping (e.g. drought tolerant grass). Mr.

Anderson said there are other less expensive options. The Board agreed to work on getting more information out regarding wise landscaping and less watering.

H.B. 349 Water Reuse Projects Amendments (Rep. Snyder) - Any waste treatment facility, after Nov. 1, will not be allowed to file for a reuse application for effluent water unless they have a mitigation plan to leave the same amount of water in the stream to get to the Great Salt Lake.

H.B. 299 Boating Amendments (Rep. Snyder) – Addresses financing water infrastructure related to boating. A portion of the registration fees will be put into a restricted account to help fund improvements. Hyrum Reservoir was a driving force behind this bill.

H.B. 207 Compact Commission Amendments (Rep. Snyder) - Changes the representative on the Bear River Commission from the Director of Water Resources to the State Engineer.

Mr. Daus informed the Board of the recent hearing on water rights. The basin is being closed to any new single-family appropriations. This will not affect the cities, but any parcel in the County that has not split since 1999 can file for a water right. The County is currently performing a GIS study to determine how many parcels this may affect. Mr. Daus is setting up a meeting with the County Council to discuss this issue and will draft a response after that meeting.

**APO REPORTS**

See [-Attachment 2-](#)

**GREAT SALT LAKE WATER REPORT**

See [-Attachment 3-](#)

**OTHER**

Mr. Ostermiller asked if the Water District has any assignment or purview over flooding issues and/or coordination. Mr. Daus said most cities have been working with their emergency management departments on possible solutions if this happens, this is not part of the scope of the District.

**ADJOURN**

The meeting adjourned at 7:30 p.m.

Next Meeting: April 3, 2023

# -Attachment 1-

4:26 PM  
03/03/23  
Accrual Basis

## Cache Water District Sales by Customer Detail January 2019 through December 2022

Type	Date	Num	Memo	Name	Item	Qty	Sales Price	Amount	Balance
<b>Bear River Study</b>									
Invoice	12/28/2022	53	Partner suppo...	Bear River Study	sponsors...	1	10,000.00	10,000.00	10,000.00
<b>Total Bear River Study</b>						1		10,000.00	10,000.00
<b>Cache County 2019</b>									
Invoice	03/01/2019	3	Annual suppo...	Cache County 2019	Cache Co...	1	250,000.00	250,000.00	250,000.00
Invoice	03/01/2019	4	Cloud Seedin...	Cache County 2019	Cache Co...	1	45,250.00	45,250.00	295,250.00
<b>Total Cache County 2019</b>						2		295,250.00	295,250.00
<b>Cache County 2020</b>									
Invoice	01/15/2020	7	Annual support	Cache County 2020	Cache Co...	1	275,000.00	275,000.00	275,000.00
<b>Total Cache County 2020</b>						1		275,000.00	275,000.00
<b>Cache County 2021</b>									
Invoice	12/14/2021	23		Cache County 2021	Property ...	1	201,457.92	201,457.92	201,457.92
Invoice	12/30/2021	25		Cache County 2021	Property ...	1	25,708.59	25,708.59	227,166.51
Invoice	03/01/2022	31		Cache County 2021	Property ...	1	1,670.41	1,670.41	228,836.92
Invoice	03/28/2022	32	final distribution	Cache County 2021	Property ...	1	79,648.53	79,648.53	308,485.45
<b>Total Cache County 2021</b>						4		308,485.45	308,485.45
<b>Cache County 2022</b>									
Invoice	01/31/2022	26		Cache County 2022	Property ...	1	1,486.56	1,486.56	1,486.56
Invoice	04/01/2022	37	Redemption o...	Cache County 2022	Property ...	1	2,856.14	2,856.14	4,322.70
Invoice	04/01/2022	36	Personal Prop...	Cache County 2022	Property ...	1	1,919.30	1,919.30	6,242.00
Invoice	05/02/2022	39		Cache County 2022	Property ...	1	4,575.88	4,575.88	10,817.88
Invoice	07/14/2022	43		Cache County 2022	Property ...	1	19,223.58	19,223.58	30,041.46
Invoice	08/25/2022	46		Cache County 2022	Property ...	1	3,431.17	3,431.17	33,472.63
Invoice	09/21/2022	48		Cache County 2022	Property ...	1	2,313.99	2,313.99	35,786.62
<b>Total Cache County 2022</b>						7		35,786.62	35,786.62
<b>NRCS</b>									
Invoice	07/01/2021	12		NRCS	Crockett	1	43,000.00	43,000.00	43,000.00
Invoice	07/12/2021	13		NRCS	Wellsville...	1	11,568.91	11,568.91	54,568.91
Invoice	07/23/2021	14		NRCS	Wellsville...	1	25,283.71	25,283.71	79,852.62
Invoice	08/02/2021	11	Periodic billing	NRCS	Crockett	1	31,500.00	31,500.00	111,352.62
Invoice	10/22/2021	18		NRCS	Crockett	1	39,000.00	39,000.00	150,352.62
Invoice	11/04/2021	19		NRCS	Wellsville...	1	17,159.89	17,159.89	167,492.51
Invoice	11/04/2021	20		NRCS	Wellsville...	1	51,368.46	51,368.46	218,860.97
Invoice	12/14/2021	22		NRCS	Crockett	1	50,500.00	50,500.00	269,360.97
Invoice	03/09/2022	33		NRCS	Crockett	1	17,348.09	17,348.09	286,709.06
Invoice	05/05/2022	38		NRCS	Wellsville...	1	31,618.96	31,618.96	318,328.02
Invoice	06/22/2022	41		NRCS	Wellsville...	1	76,209.81	76,209.81	394,537.83
Invoice	07/14/2022	42		NRCS	Wellsville...	1	34,039.61	34,039.61	428,577.44
Invoice	08/05/2022	44		NRCS	Wellsville...	1	136,000.00	136,000.00	564,577.44
Invoice	08/12/2022	45		NRCS	Crockett	1	100,000.00	100,000.00	664,577.44
Invoice	09/08/2022	47		NRCS	Wellsville...	1	25,000.00	25,000.00	689,577.44

Cache Water District  
Sales by Customer Detail  
January 2019 through December 2022

Type	Date	Num	Memo	Name	Item	Qty	Sales Price	Amount	Balance
Invoice	10/13/2022	49		NRCS	Crockett	1	25,000.00	25,000.00	714,577.44
Invoice	12/13/2022	50		NRCS	Wellsville...	1	78,688.00	78,688.00	793,265.44
Invoice	12/16/2022	51		NRCS	Crockett	1	55,367.50	55,367.50	848,632.94
Total NRCS						18		848,632.94	848,632.94
<b>NUWU Sponsors</b>									
Invoice	02/05/2019	1		NUWU Sponsors	Sponsors...	1	250.00	250.00	250.00
Invoice	02/26/2019	2		NUWU Sponsors	Sponsors...	5	250.00	1,250.00	1,500.00
Invoice	04/15/2019	5		NUWU Sponsors	Sponsors...	1	500.00	500.00	2,000.00
Invoice	02/16/2022	34		NUWU Sponsors	Sponsors...	1	200.00	200.00	2,200.00
Invoice	03/08/2022	27	CRS	NUWU Sponsors	Sponsors...	1	200.00	200.00	2,400.00
Invoice	03/08/2022	28		NUWU Sponsors	Sponsors...	1	200.00	200.00	2,600.00
Invoice	03/29/2022	29	Smith Harviti...	NUWU Sponsors	Sponsors...	1	200.00	200.00	2,800.00
Invoice	03/29/2022	30	Utah Water U...	NUWU Sponsors	Sponsors...	1	200.00	200.00	3,000.00
Total NUWU Sponsors						12		3,000.00	3,000.00
<b>Public Employees Health Plan</b>									
Invoice	12/23/2021	24		Public Employees H...	Insurance...	1	957.00	957.00	957.00
Invoice	12/23/2022	52		Public Employees H...	Insurance...	1	208.00	208.00	1,165.00
Total Public Employees Health Plan						2		1,165.00	1,165.00
<b>State of Utah</b>									
Invoice	07/05/2019	6	Reimburseme...	State of Utah	Cloud Se...	1	22,271.86	22,271.86	22,271.86
Invoice	03/12/2020	8	Reimburseme...	State of Utah	Cloud Se...	1	19,163.00	19,163.00	41,434.86
Invoice	05/05/2020	9	Reimburseme...	State of Utah	Cloud Se...	1	1,900.50	1,900.50	43,335.36
Invoice	06/03/2022	40	Reimburseme...	State of Utah	Cloud Se...	1	22,658.10	22,658.10	65,993.46
Total State of Utah						4		65,993.46	65,993.46
<b>Wellsville Mendon Grant</b>									
Invoice	09/01/2021	15		Wellsville Mendon G...	Wellsville...	1	38,570.98	38,570.98	38,570.98
Invoice	09/01/2021	16		Wellsville Mendon G...	Wellsville...	1	5,000.00	5,000.00	43,570.98
Invoice	09/01/2021		Stmnt Change	Wellsville Mendon G...	Wellsville...	1	0.00	0.00	43,570.98
Invoice	01/14/2022	21	Progress billing	Wellsville Mendon G...	Wellsville...	1	73,984.00	73,984.00	117,554.98
Total Wellsville Mendon Grant						4		117,554.98	117,554.98
<b>TOTAL</b>						<b>55</b>		<b>1,960,868.45</b>	<b>1,960,868.45</b>

Cache Water District  
Profit & Loss Budget vs. Actual  
January 2023

	Jan 23	Budget	\$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
Cache County Property Taxes	0.00	275,000.00	-275,000.00	0.0%
PL-566 Watershed Grant	0.00	700,000.00	-700,000.00	0.0%
Restricted Income				
Northern Utah Water Conference	0.00	0.00	0.00	0.0%
Restricted Income - Other	0.00	153,000.00	-153,000.00	0.0%
Total Restricted Income	0.00	153,000.00	-153,000.00	0.0%
Wellsville-Mendon Study	81,395.88	800,000.00	-718,604.12	10.2%
Total Income	81,395.88	1,928,000.00	-1,846,604.12	4.2%
Gross Profit	81,395.88	1,928,000.00	-1,846,604.12	4.2%
Expense				
Office				
Bank Charges	0.00	0.00	0.00	0.0%
Insurance and Bonding	0.00	5,000.00	-5,000.00	0.0%
Office Supplies	153.64	2,000.00	-1,846.36	7.7%
Publications	0.00	4,500.00	-4,500.00	0.0%
Rent	0.00	5,500.00	-5,500.00	0.0%
Technology				
Cell Phone	0.00	0.00	0.00	0.0%
Computer and printer	0.00	0.00	0.00	0.0%
Technology - Other	0.00	3,000.00	-3,000.00	0.0%
Total Technology	0.00	3,000.00	-3,000.00	0.0%
Vehicle				
Fuel	0.00	2,500.00	-2,500.00	0.0%
Vehicle - Other	0.00	50,000.00	-50,000.00	0.0%
Total Vehicle	0.00	52,500.00	-52,500.00	0.0%
Total Office	153.64	72,500.00	-72,346.36	0.2%
Outreach				
Conservation	0.00	30,000.00	-30,000.00	0.0%
Dues	0.00	2,500.00	-2,500.00	0.0%
Lobbyist	0.00	10,000.00	-10,000.00	0.0%
Northern Utah Water Conference	0.00	0.00	0.00	0.0%
Sponsorships	0.00	2,500.00	-2,500.00	0.0%
Training	0.00	6,000.00	-6,000.00	0.0%
Website	0.00	2,000.00	-2,000.00	0.0%
Total Outreach	0.00	53,000.00	-53,000.00	0.0%
Personnel				
Salary and benefits	10,253.06	150,000.00	-139,746.94	6.8%
Travel and Mileage	503.10	5,000.00	-4,496.90	10.1%
Workers Compensation	0.00	0.00	0.00	0.0%
Total Personnel	10,756.16	155,000.00	-144,243.84	6.9%

Cache Water District  
Profit & Loss Budget vs. Actual  
January 2023

	Jan 23	Budget	\$ Over Budget	% of Budget
<b>Professional Fees</b>				
Administrative	0.00	1,500.00	-1,500.00	0.0%
Attorney Services	0.00	30,000.00	-30,000.00	0.0%
Audit	0.00	7,000.00	-7,000.00	0.0%
Financial Services	87.00	10,000.00	-9,913.00	0.9%
<b>Total Professional Fees</b>	87.00	48,500.00	-48,413.00	0.2%
<b>Project funding</b>				
Bear River Development	0.00	150,000.00	-150,000.00	0.0%
Cloud Seeding	31,257.00	63,000.00	-31,743.00	49.6%
Logan Observatory	0.00	5,000.00	-5,000.00	0.0%
Water Acquisition	0.00	20,000.00	-20,000.00	0.0%
Water Studies				
PL566 Logan River	0.00	700,000.00	-700,000.00	0.0%
Water Master Plan	0.00	0.00	0.00	0.0%
Weilsville/Mendon Irrigation	8,205.95	800,000.00	-791,794.05	1.0%
Water Studies - Other	0.00	120,000.00	-120,000.00	0.0%
<b>Total Water Studies</b>	8,205.95	1,620,000.00	-1,611,794.05	0.5%
<b>Total Project funding</b>	39,482.95	1,858,000.00	-1,818,517.05	2.1%
<b>Total Expense</b>	50,459.75	2,187,000.00	-2,136,540.25	2.3%
<b>Net Ordinary Income</b>	30,936.13	-259,000.00	289,936.13	-11.9%
<b>Net Income</b>	30,936.13	-259,000.00	289,936.13	-11.9%

## -Attachment 2-

### **APO SUBCOMMITTEE MEETINGS – 2/20/23**

#### **5:30 Local Outreach**

N Daus, M. Pierce, J. Clawson, J. Simmonds, B. Neilson, M. Anderson

- Summer localscapes classes in May. Mr. Daus has reached out to Jordan Valley to help with those.
- If the turf buyback bill passes the legislature the information will be passed along to the City Mayors/City Councils. Every City will have to adopt new ordinances. Mr. Daus will get information to Mr. Pierce to be put on the City Manager's meeting agenda in March.
- Mr. Daus said the Water Resources Board will be doing a tour of projects in August and questioned whether the District should also do a tour in May (as was done last year). Mr. Pierce said the May tour was well-attended; Mr. Daus will look into some possible projects. Ms. Neilson asked about creating an email list for these types of announcements to provide broader communication to those who might be interested (possibly gathering information on attendees of the conference). Ms. Simmonds said there is also a way to get alerts from a link on the new website.
- Casey Snyder will be reviewing some of the new legislative bills at the Northern Utah Water Conference.
- USU students will present projects in May.
- A few members will be attending the Logan Wilson Neighborhood meeting to discuss PL-566 projects.
- Not doing the Home Show in March; can do radio spots to help get information out.
- When completed, the Annual Report will be a good outreach tool.
- Ms. Simmonds was asked to put together a 3-year summary in all financial categories (excluding PL-566) for March 6 Board Meeting agenda.

#### **6:00 Conservation**

N Daus, M. Pierce, J. Clawson, J. Simmonds, B. Neilson, M. Anderson

- Historically when restrictions are put on, consumption usually rises.
- It is important to convince people that conservation is an important issue.
- Briefly discussed the idea of changing the water structure taxing rate. Mr. Daus said the bill will likely pass but will require a 2-year study to show the true cost of water and how taxes are being collected and what projects the funds are being used on.
- Mr. Daus will check on last year's end report for water checks.
- Secondary metering could be a tool for conservation if the program is implemented correctly. It will take time to create a good valley-wide system.
- There are different ways to achieve waterwise landscaping with turf and plants that require less water, which could be a good solution. Another good solution is educating people about watering less (without making major landscape changes).



## -Attachment 3-

B. Neilson Presentation to CWD – Based primarily on slides presented by GSL Strike Team on Feb. 8



# Great Salt Lake Policy Assessment

Presented by the Great Salt Lake Strike Team, a collaboration of Utah's Research Universities and Utah state agencies

February 8, 2023



# Great Salt Lake Strike Team Members

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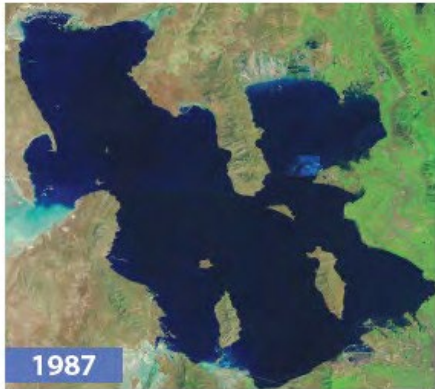
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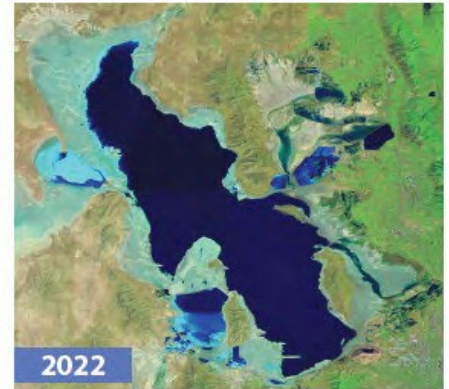
**Contemporary Record High**  
4,210.4 feet



**Average**  
4,199.6 feet



**Record Low**  
4,190.1 feet



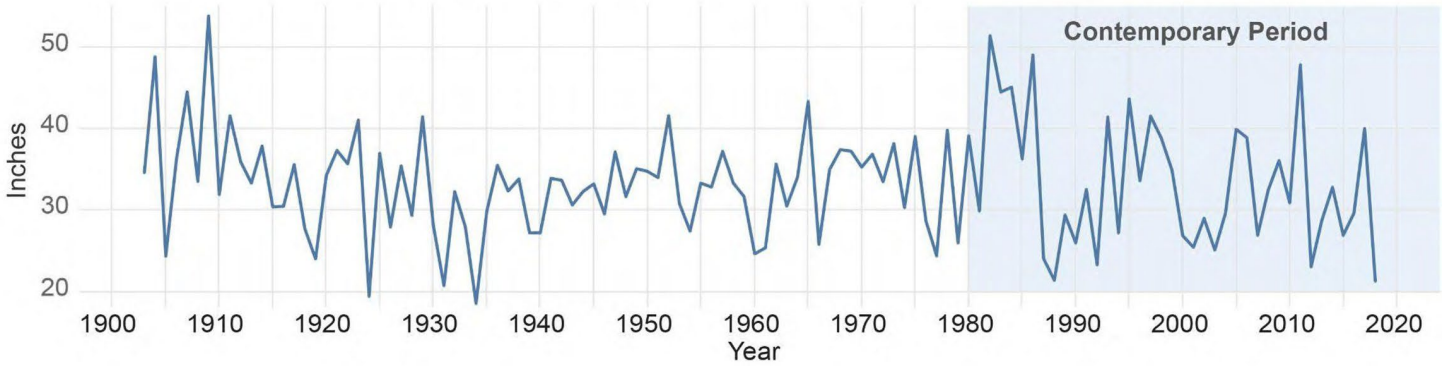
Source: Google Earth Engine

## Average Annual Elevation of Great Salt Lake, 1903–2022

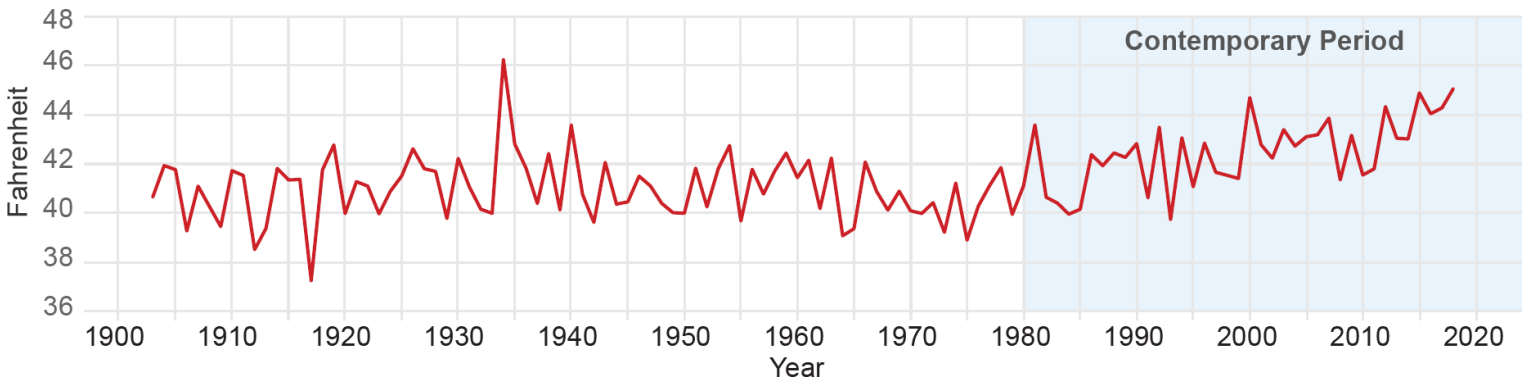


Sources: US Geological Survey Historical Elevation at Saltair Boat Harbor

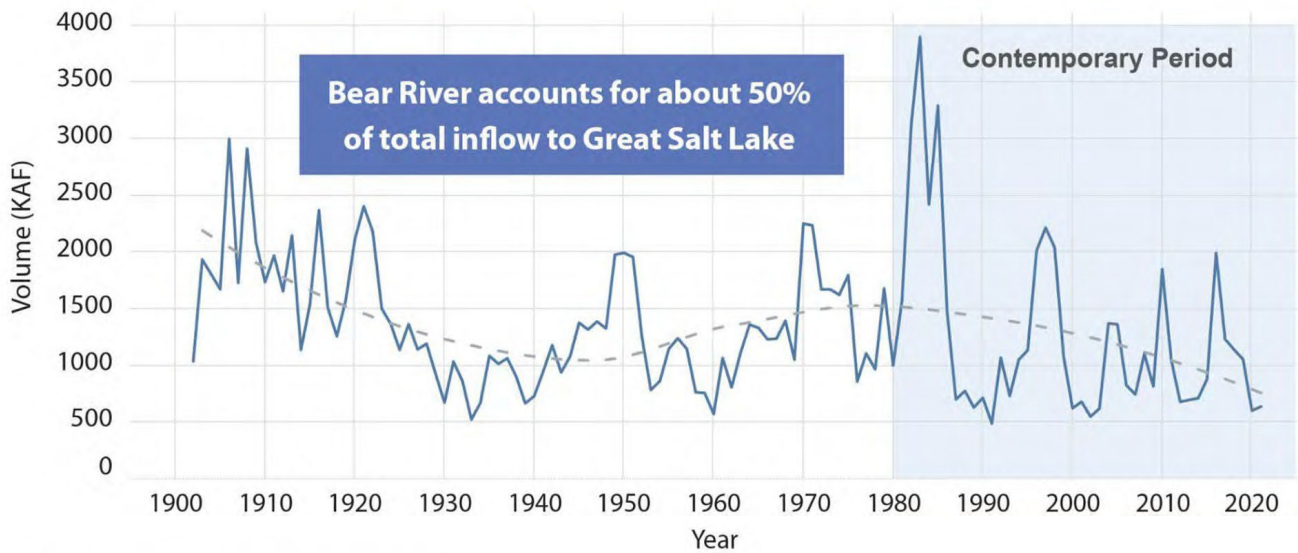
# Mean Northern Utah Annual Precipitation, 1903–2018



# Mean Northern Utah Air Temperature, 1903–2018



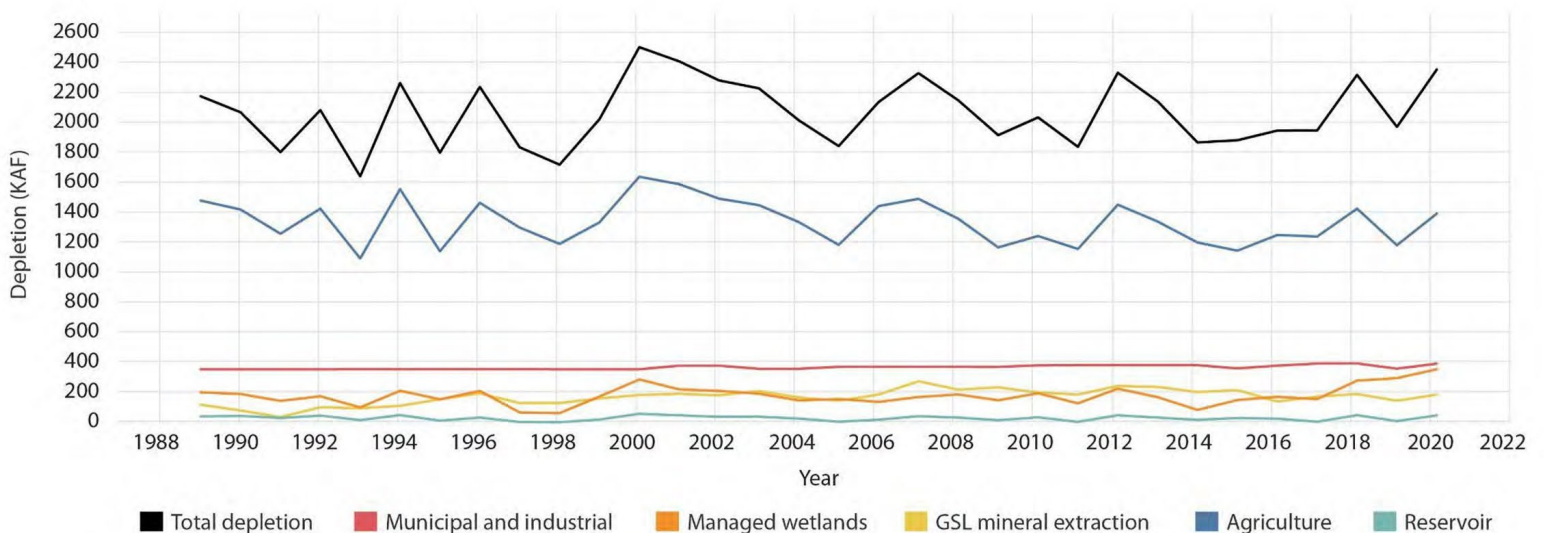
# Bear River Annual Streamflow, 1903–2022



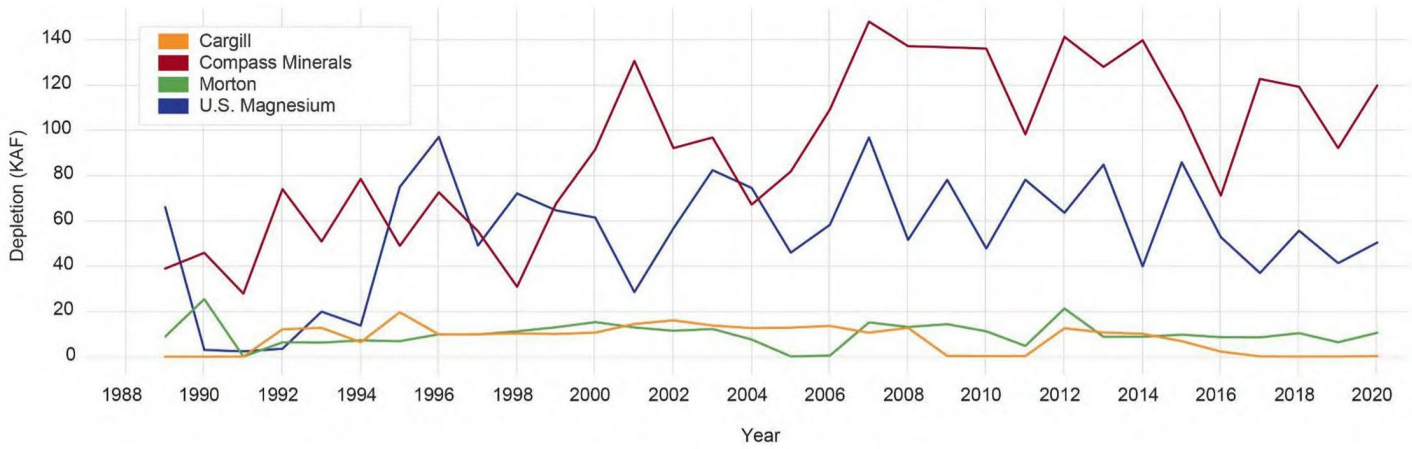
Note: Trend line generated using LOESS regression.

Source: Data from USGS gage 10126000 Bear river Near Corrinne with missing data (1957-1963) and values prior to 1949 derived from USGS gage 10118000 Bear River near Collinston (Analysis by David Tarboton)

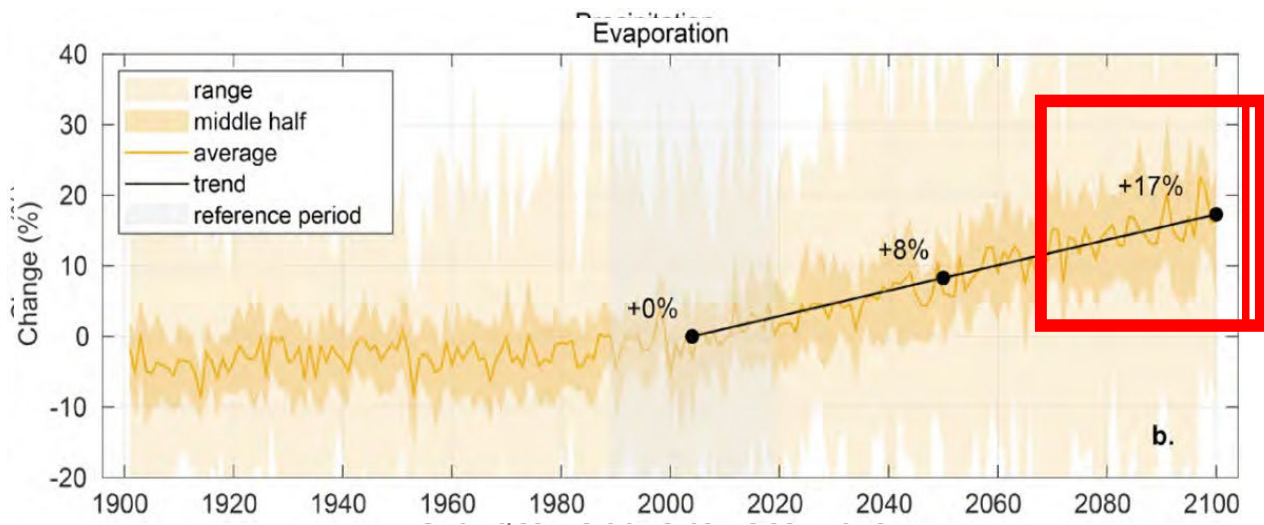
# Human Water Depletion by Type, 1989–2018

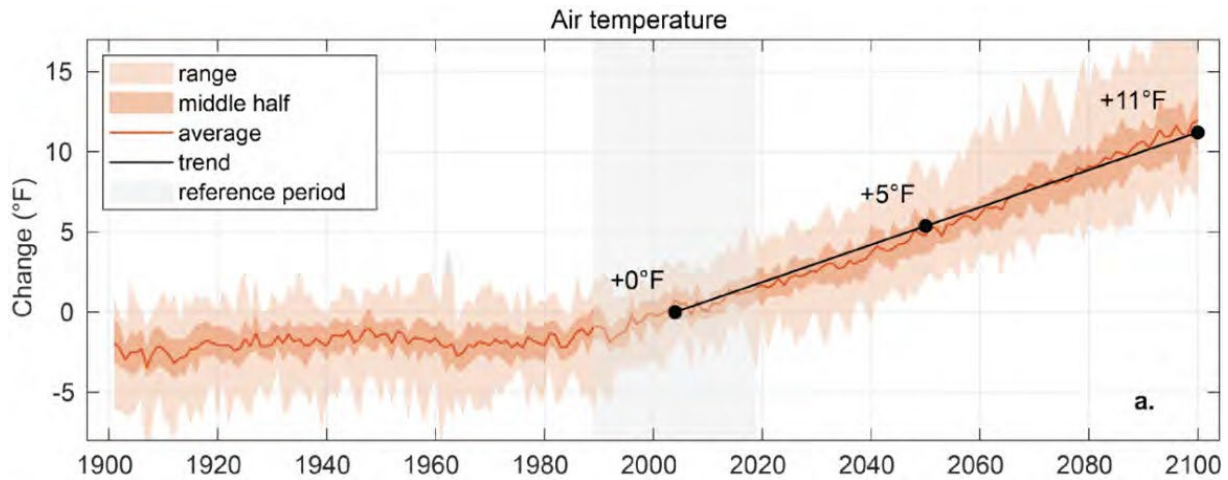


# Mineral Extraction Water Depletions on Great Salt Lake, 1989–2018



## Projected Trends in the Great Salt Lake Basin, 2022-2100





Projections indicate that slight increases in precipitation (on average) will be more than offset by increases in temperature and evaporation, **creating a further challenge for the lake .**

Note: The analysis is based on a high greenhouse gas emission scenario referred to as Shared Socioeconomic Pathway (SSP) 585, 30 global climate models from the Coupled Model Intercomparison Project Phase 6 (CMIP6).

Source: Data from CMIP6; Analysis by Courtenay Strong, 2022.

**Figure 7: Estimated Contribution of Impacts on Current Record Low Elevation**



Direct Evaporation from Climate Warming

**Estimated Impact: 8–11%**



Natural Variability (Precipitation and Runoff Efficiency)

**Estimated Impact: 15–23%**



**Policy Lever** Natural and Human Consumptive Use

**Estimated Impact: 67–73%**

Source: Analysis from Great Salt Lake Strike Team, 2022; Mohammed, I., & Tarboton, D. (2012). An examination of the sensitivity of the Great Salt Lake to changes in inputs. *Water Resources Research*, Volume 48, Issue 11. <https://doi.org/10.1029/2012WR011908>

Average Annual Elevation of the Great Salt Lake with Elevation Zones, 1903-2022



# Policy Options



## **Conservation**

- Commit conserved water to Great Salt Lake
- Optimize use of agricultural water
- Optimize municipal and industrial water pricing
- Limit municipal and industrial water use growth
- Utilize water banking and leasing
- Conduct active forest management in Great Salt Lake headwaters
- Optimize Great Salt Lake mineral extraction



## **New Water**

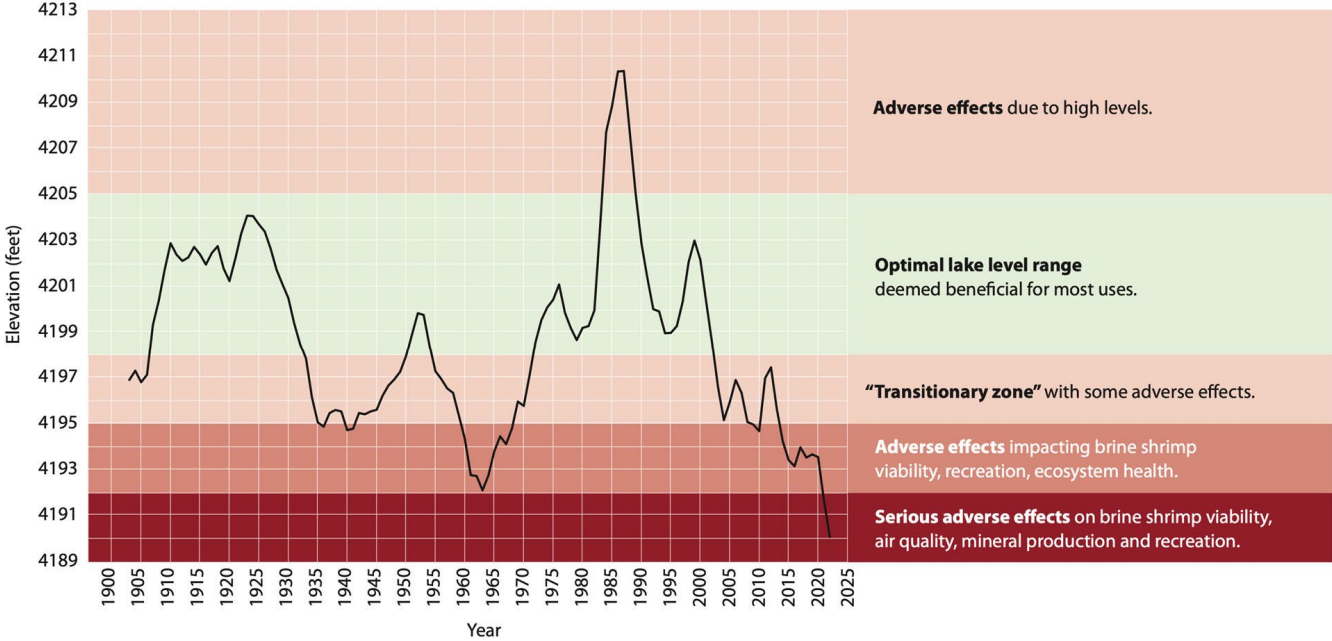
- Import water
- Increase winter precipitation with cloud seeding



## **Engineering Solutions**

- Raise the causeway berm
- Mitigate dust transmission hotspots

# Average Annual Elevation of Great Salt Lake with Elevation Zones, 1903-2022



Sources: US Geological Survey Historical Elevation at Saltair Boat Harbor; Utah Division of Forestry, Fire and State Lands, GSL Lake Elevation Matrix, 2013

## Range of Conservation Needed (KAF/year)

Target Elevation (ft.)	Fill in 5 years	Fill in 10 years	Fill in 20 years	Maintain
4,189 ft.	-	-	-	0-268
4,192 ft.	116-700	0-524	0-442	0-404
4,195 ft.	629-1,213	270-854	127-711	95-679
4,198 ft.	1,332-1,916	760-1344	541-1,125	494-1,078

# Scenarios for addressing Great Salt Lake Water Levels

Sector	Average Depletion, 1989-2020	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
		Equal percentage reductions to prevent further decline		Equal percentage reductions		Primary reliance on municipal and industrial conservation to achieve desirable lake level in 20 years		Primary reliance on agricultural conservation to achieve desirable lake level in 20 years	
		Percent	Volume (KAF/year)	Percent	Volume (KAF/year)	Percent	Volume (KAF/year)	Percent	Volume (KAF/year)
Agriculture	1,188	17.5%	208	35%	416	20%	238	42%	499
Municipal and Industrial	358	17.5%	63	35%	125	69%	247	20%	72
GSL Mineral Extraction	165	17.5%	29	35%	58	69%	114	20%	33
Total	1,711		300		599		599		604

Note: Average depletion values in this table exclude the West Desert, as conservation in the West Desert is not deemed to be a viable option for getting water to the lake.  
Source: Analysis by Great Salt Lake Strike Team, 2023

## Key Findings

### How did we get here?

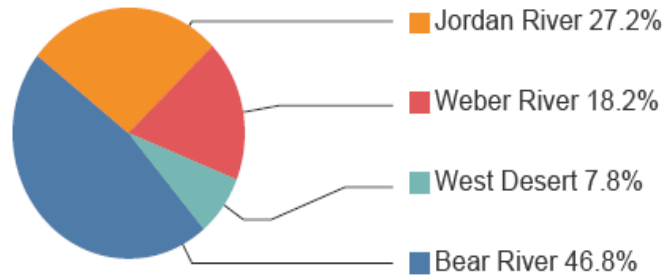
- i. Despite some dry years, no long-term trend in precipitation.
- ii. Human and natural consumptive water use are the main drivers of low lake levels. Other smaller contributing factors include natural precipitation variability and climate warming.
- iii. Plan for similar or less water available in the GSL basin in coming decades.

### What can we do?

- i. Scenarios to different lake elevation range goals.
- ii. Policy assessments: Conservation, new water, engineering solutions.
- iii. Committing conserved water to the lake is key.



**Average Natural Flow by Basin, 1989-2018**



Source: Great Salt Lake Water Budget, Utah Division of Water Resources, 2022

*Table 1. Major Inflows to Great Salt Lake. All units are thousand acre-feet.*

Mean Annual	Major Inflows to Great Salt Lake			
	1981-1990	1991-2000	2001-2010	2011-2020
Bear River <sup>a</sup>	1,861	1,255	876	1,131
Weber River <sup>b</sup>	487	405	199	308
Jordan River <sup>c</sup>		593	432	476
Groundwater <sup>d</sup>	75	75	75	75
Precipitation <sup>e</sup>	1,283	1,081	744	814
Total Inflow		3,409	2,326	2,804

Table 2. Summarized water budget of the Great Salt Lake Basin. Units are in thousand acre-feet. All values are mean annual volumes (1989-2018)

SUB-BASIN	DEPLETIONS						Outflow
	Natural Flow	Agricultural	Municipal & Industrial	Riparian <sup>a</sup>	Reservoir Evaporation <sup>b</sup>	Import <sup>c</sup>	
Bear River <sup>d</sup>	2,030	739	31	30	146	-35	1,050
Weber River	756	178	67	9	36	-55	411
Jordan River <sup>e</sup>	1,133	266	256	23	205	176	559
West Desert	224	158	6	22	2	-5	32
Great Salt Lake <sup>f</sup>	0	0	166	180	2,170	0	-2,516
<b>TOTAL</b>	<b>4,144</b>	<b>1,341</b>	<b>527</b>	<b>263</b>	<b>2,558</b>	<b>81</b>	<b>-464</b>