

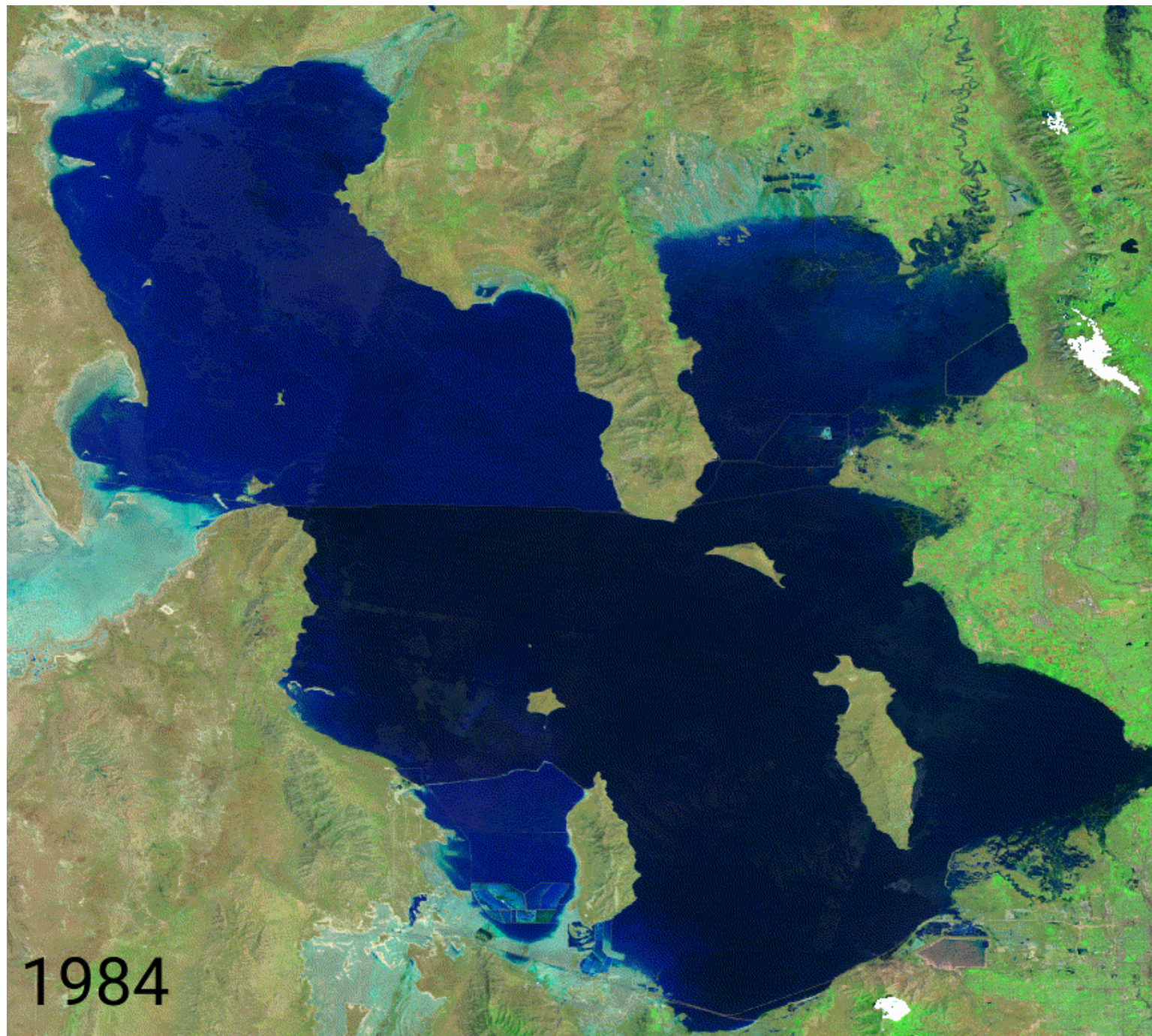
Western States Water Council

April 24, 2025

Great Salt Lake: We are all in this together

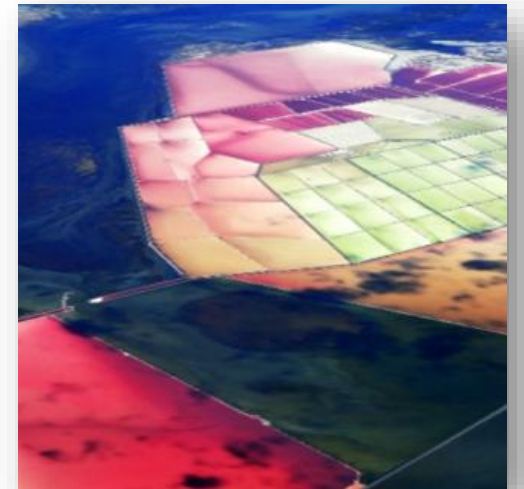


Candice Hasenyager | Director
Division of Water Resources



Source: Google Earth Engine

Importance of Great Salt Lake



Great Salt Lake is vital to the ecology, environment and economy - not just in Utah but in the Western Hemisphere







Great Salt Lake benefits and costs add up

Estimated Monetized Costs and Job Losses from Worst-Case Lake Elevation Levels, 2019\$

Type of Cost	Potential Annual Cost	Potential 20-Year Costs
Loss of Mineral Extraction Output	\$1.3 billion	\$19.3 billion
Landscape Mitigation Costs	\$191.5 million to \$610.4 million	\$2.8 billion to \$9.1 billion
Loss of Lake Recreation Output	\$81.1 million	\$1.2 billion
Loss of Brine Shrimp Industry Output	\$67 million	\$1.3 billion
Loss of Recreation Economic Value	\$33.8 million to \$81.9 million	\$502 million to \$1.2 billion
Health Costs	\$6.6 million to \$22.3 million	\$98.2 million to \$331.8 million
Loss of Ski Resort Spending	\$5.8 million to \$9.6 million	\$86.3 million to \$142.8 million

Source: ECONorthwest and Martin & Nicholson Environmental Consultants. (2019). Assessment of Potential Costs of Declining Water Levels in Great Salt Lake.



GREAT SALT LAKE ELEVATION

1986



2000



2022



RECORD HIGH

4211.65 FEET



AVERAGE

4202.2 FEET



RECORD LOW*

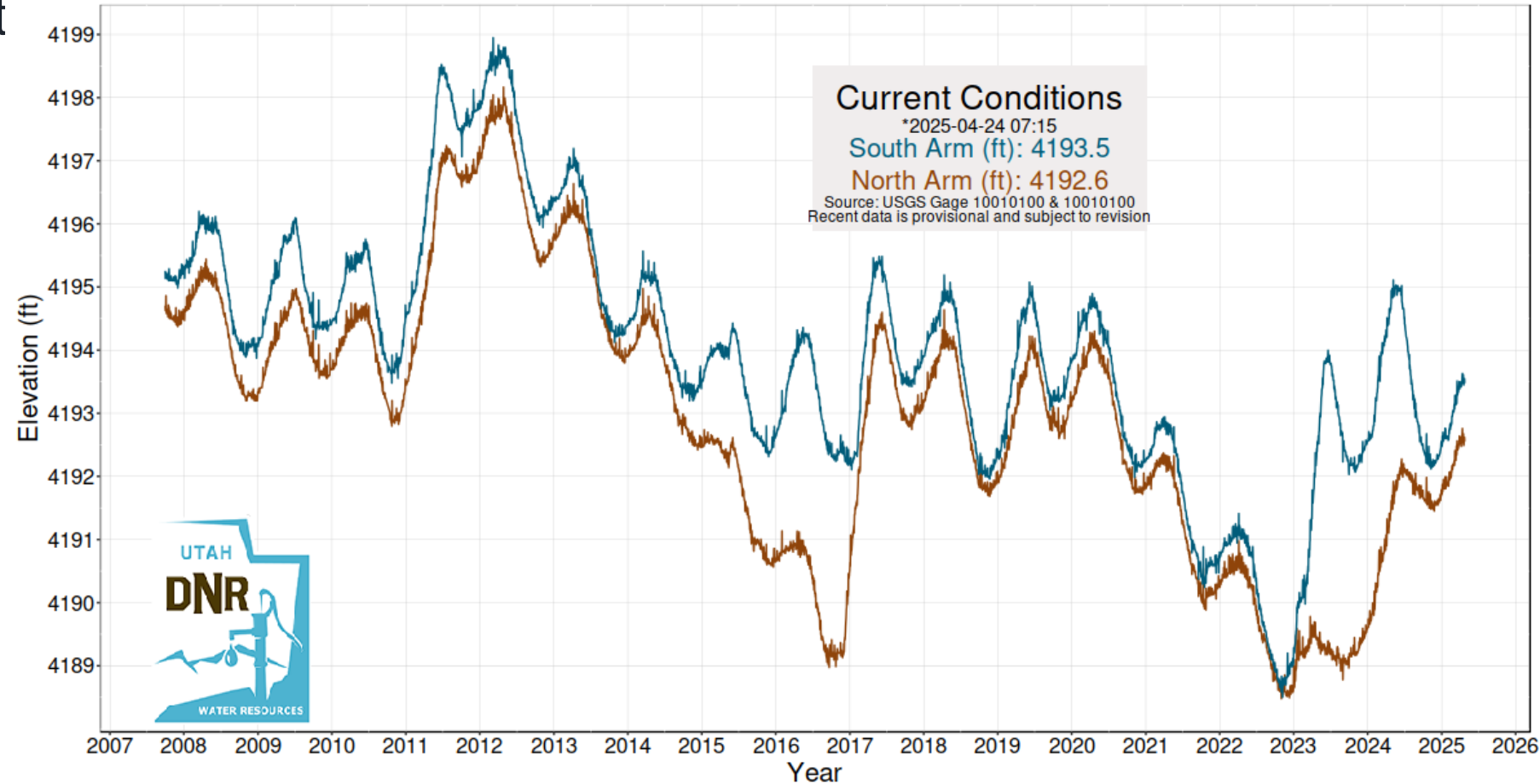
4188.5 FEET

*PROVISIONAL

Current-ish conditions

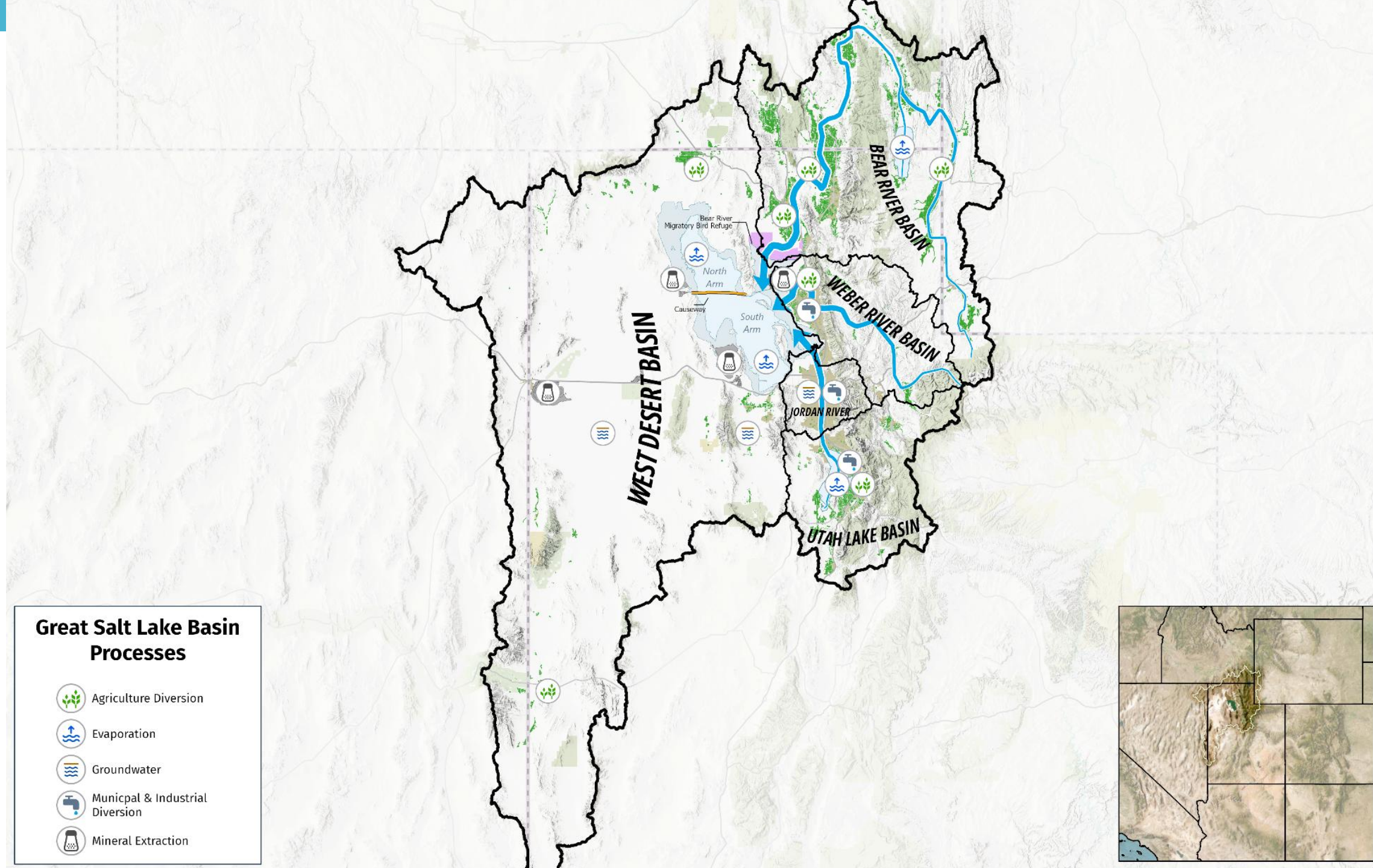
- Current: 4,193.5 feet
- 2021: 4,190.1
- 2022: 4,188.5
- Historic average inflows: 2 million acre-feet
- 2021 & 2022: 1 million acre-feet

Great Salt Lake Elevations
Updated 04/24/2025



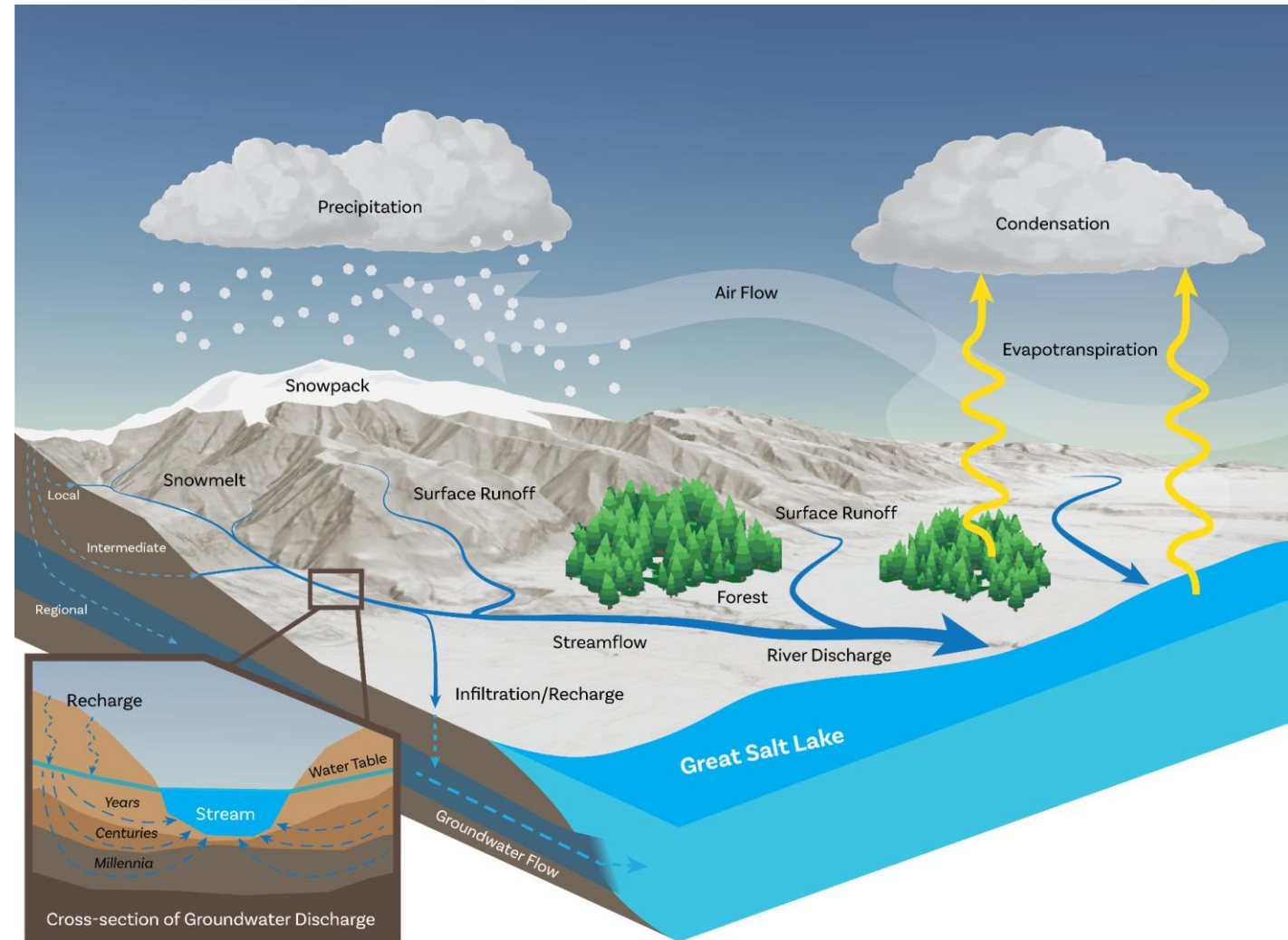
Great Salt Lake Basin Processes

-  Agriculture Diversion
-  Evaporation
-  Groundwater
-  Municipal & Industrial Diversion
-  Mineral Extraction



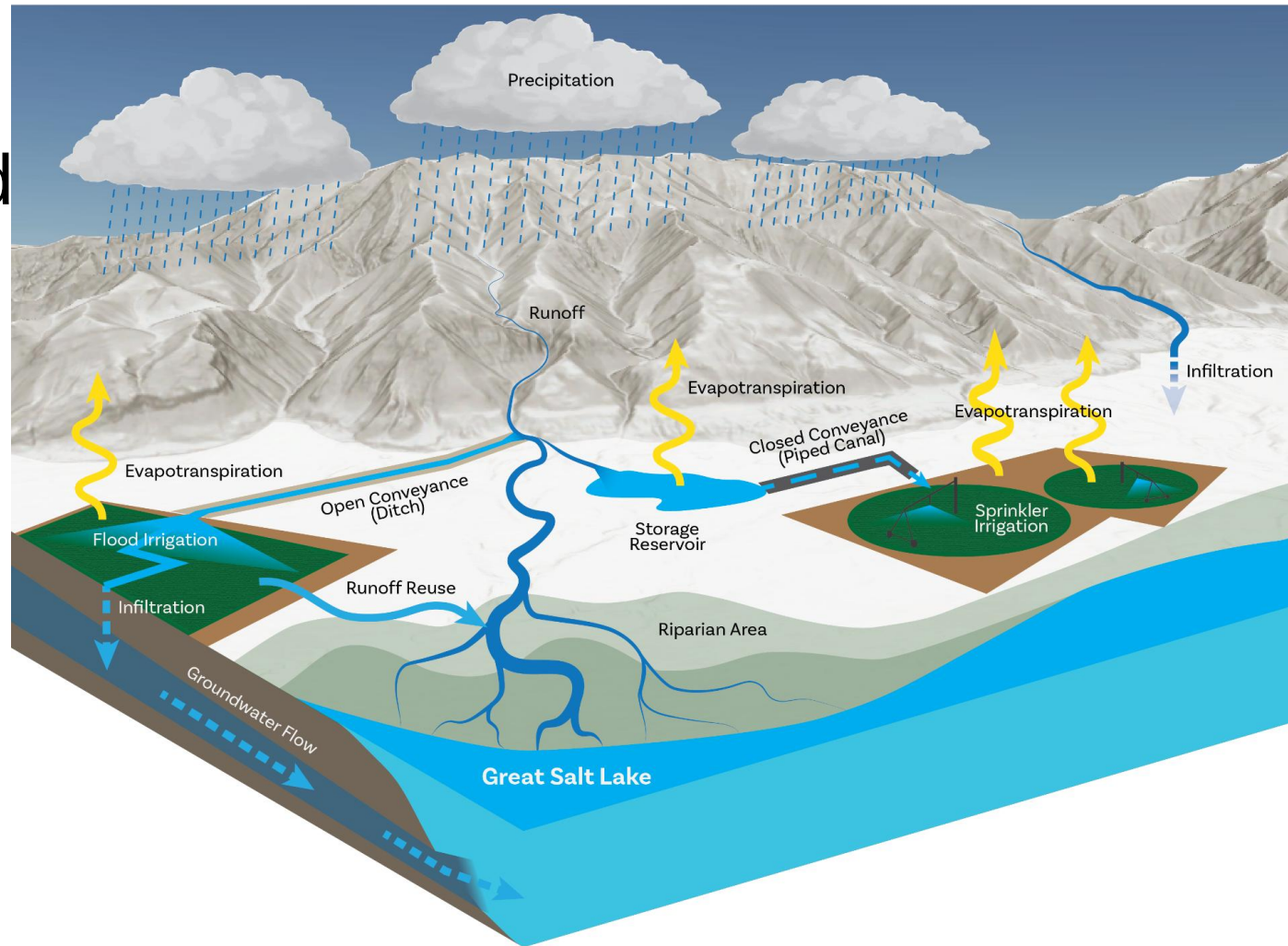
The GSL Basin is Complex

- 36,000 mi²
- 4 states
- 18 counties
- 141 cities
- 70 groundwater aquifers
- 1,300 reservoirs
- 150,000 water rights

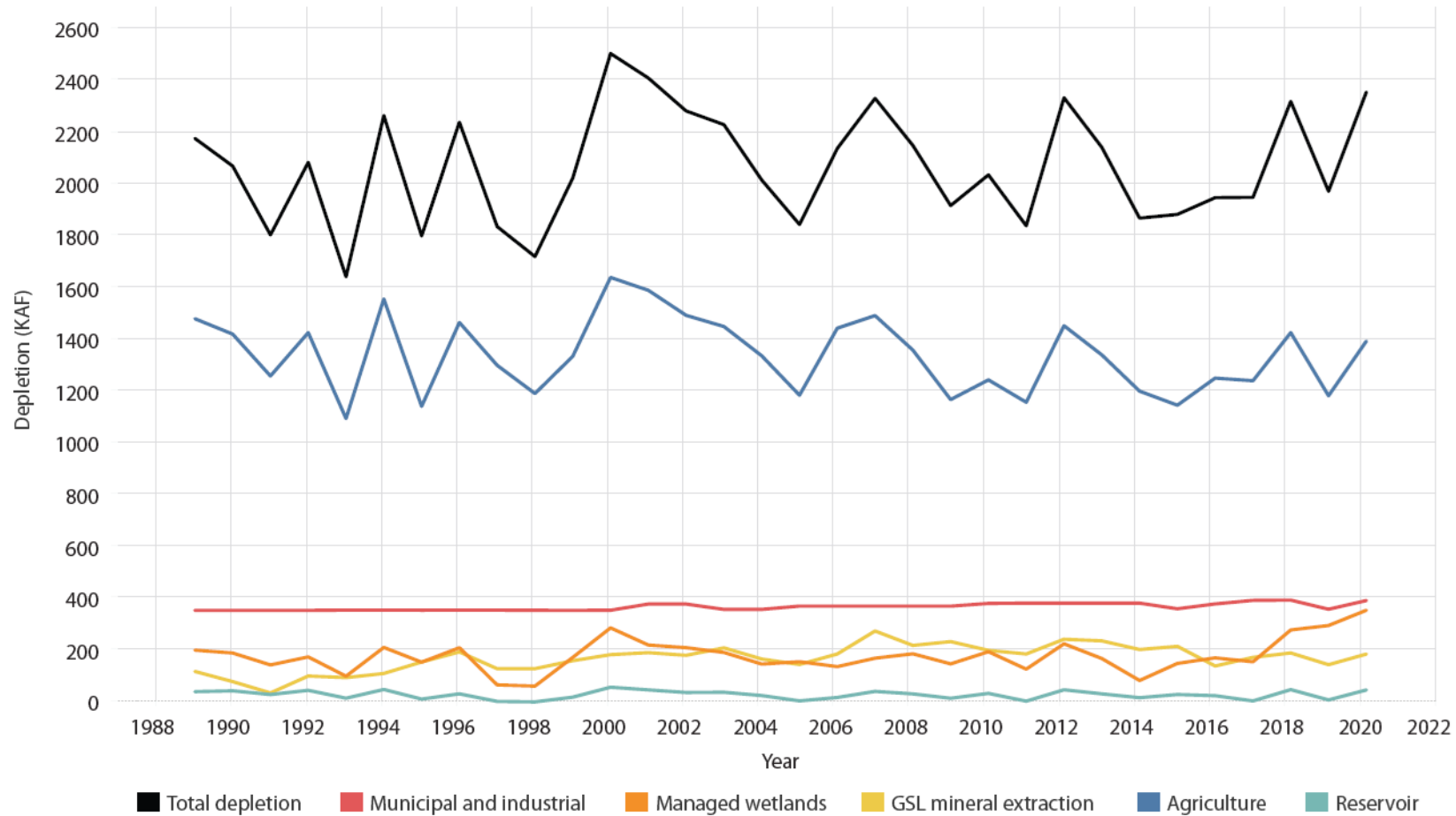


The GSL Basin is Complex

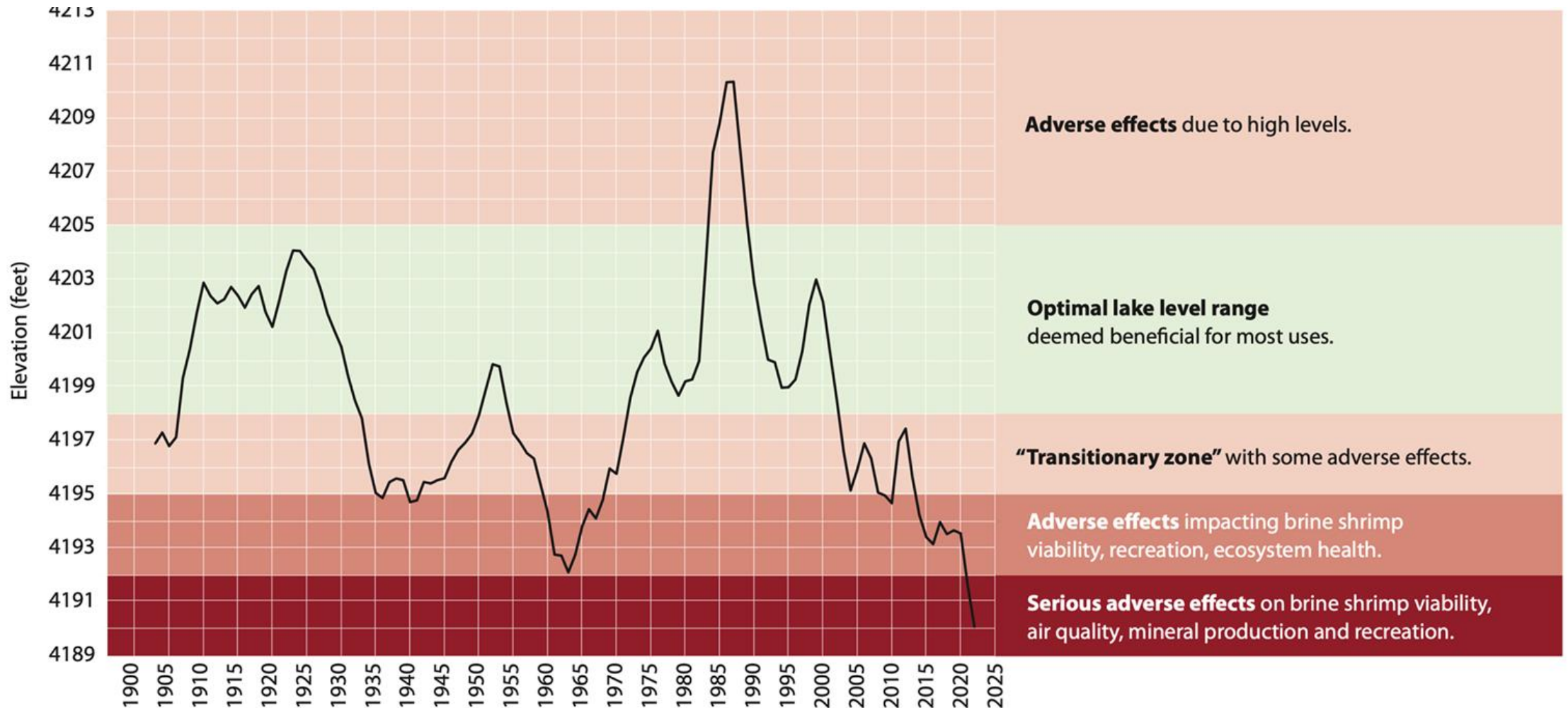
- 2.8 million humans
- 1.5 million acres of farmland
- 693 thousand urban acres
- 184,000 acres wetlands
- Behaviors
- Attitudes
- Values



Human Depletions



Not all water levels provide the same benefits



Concerns for Great Salt Lake today





U.S. Army Corps
of Engineers



U.S. Environmental
Protection Agency



U.S. Fish &
Wildlife Service



US Geological
Survey

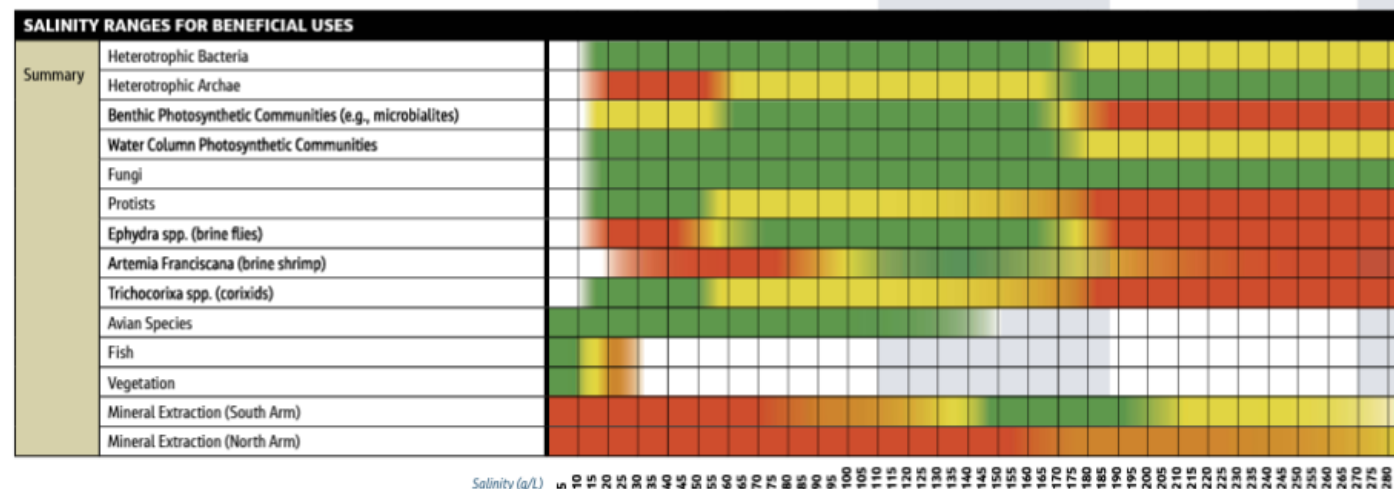
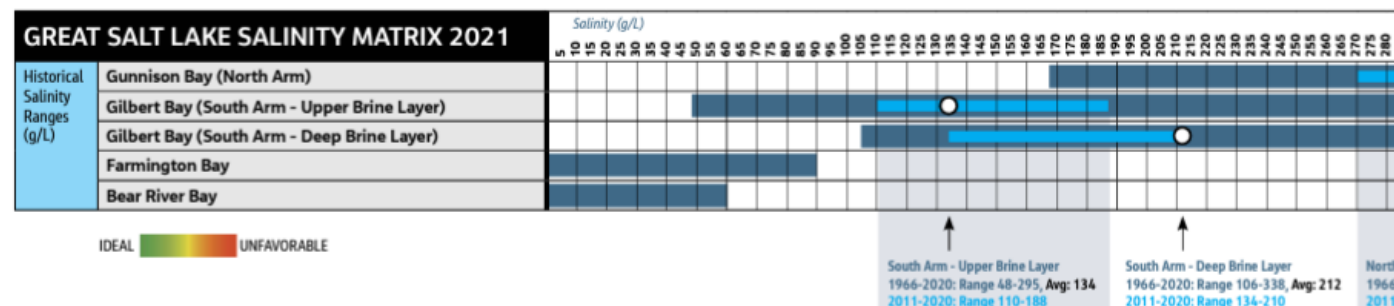
Great Salt Lake Salinity

Current Conditions

- North Arm: 271 – 353 g/l
- South Arm: 116 g/l

Salinity Advisory Committee

- South Arm Ideal range: 120-160 g/l
- Fall 2022: 185 g/l
- Adverse impacts



Ecological problems of high salinity



Potential endangered species listing



Dust hot spots



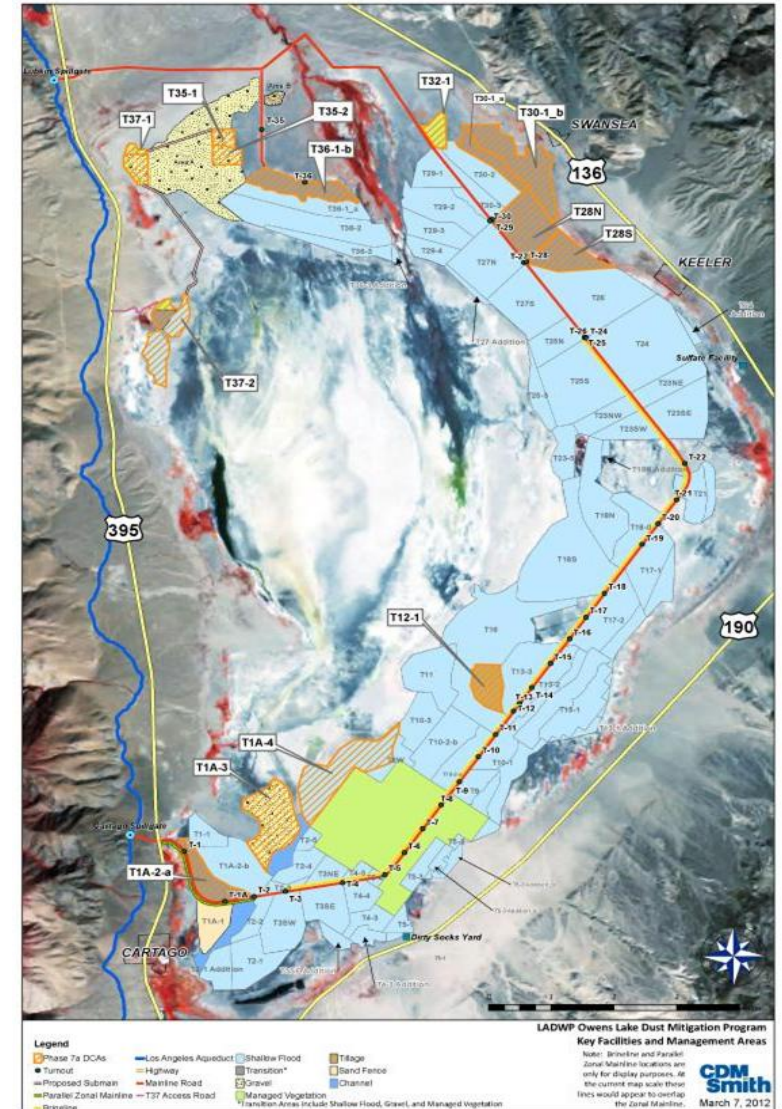
Drying lakes and dust

Owens Lake

- \$3.6 billion by 2025
- Estimated \$75 million/year to maintain
- Roughly 1/5 of a person's water bill in L.A.
- 1/15 the size of GSL



“Dust mitigation is estimated to be at a minimum of \$1.5 billion in capital costs with ongoing annual maintenance of \$15 million.”
-Office of the Utah Legislative Auditor General (2023)



Public Trust



What is the state doing about concerns?

- Adaptively managing the causeway breach
- Getting more water to the lake
- Better protecting important habitat areas
- Collecting better data and science
- Investing millions of dollars



Railroad causeway modifications



Spencer J. Cox
Governor

EXECUTIVE ORDER 2023-02

Directing the Utah Division of Forestry, Fire, and State Lands to Raise the Great Salt Lake Causeway Berm

WHEREAS, the Great Salt Lake is owned and managed by the state of Utah as sovereign land held in trust for the public;

WHEREAS, the Great Salt Lake is of regional and hemispheric biological importance due to its role as a major North American migratory bird flyway, as vital shorebird breeding habitat, and due to its size and influence on the climate and ecology;

WHEREAS, when the surface level elevation of the Great Salt Lake is low, the Great Salt Lake ecosystem is at grave risk – migratory and shorebirds are vulnerable, wetlands are jeopardized, wildlife habitat decreases, recreation access and opportunities are minimized, search and rescue efforts become more challenging, and mineral extraction is impacted;



Delivering water to Great Salt Lake

- Changes on leased or acquired water rights
- Working with water districts to maximize wet years
- Working with mineral companies to reduce the amount of water used
- Metering and tiered pricing for all municipal water use
- Split season leasing
- Incentives for water wise landscaping

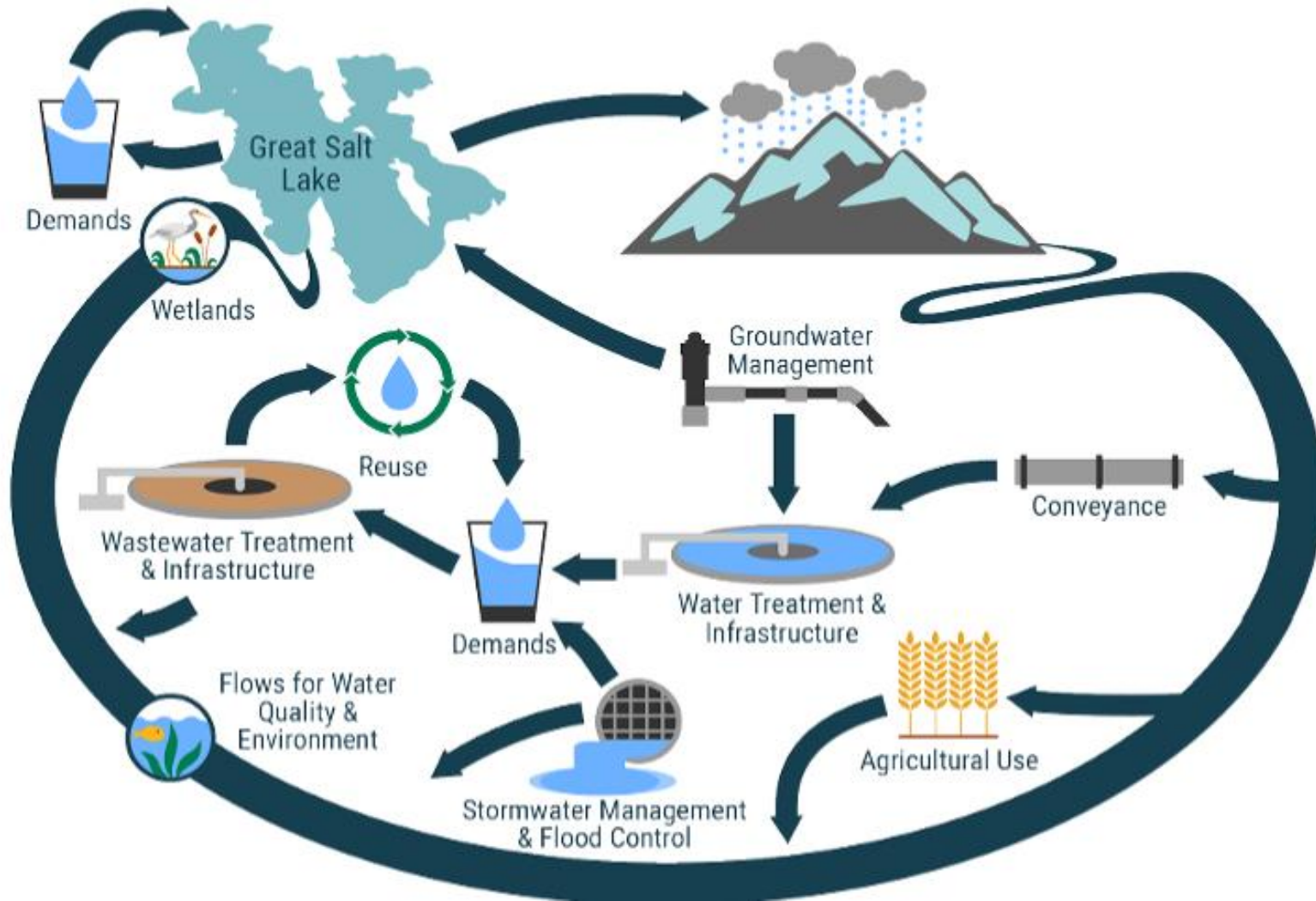
Saved water change applications



Measurement = Better Data



Better understanding the basin



Investments in the Watershed

- **Agricultural optimization** - \$200 million
- Great Salt Lake **dust monitoring** - \$232,000 one-time and \$44,000 ongoing
- Great Salt Lake (Bear Lake) lakebed topography - \$1.8 million
- **Secondary water meters** - \$250 million
- Landscaping incentive program - \$5 million one time and \$3 million ongoing
- **Cloud Seeding** - \$12 million one-time and \$5 million ongoing
- **Measurements** and data enhancements - \$5 million one-time and \$44,000 ongoing
- US Bureau of Reclamation - **Great Salt Lake Water Delivery Program** - \$50 million



Great Salt Lake Basin: Connections, challenges and solutions

An educational resource developed by the Utah Division of Water
Resources, with support from the Great Salt Lake Strike Team

April 17, 2025

Public Trust

Mark Stratford
Legal Advisor to State Engineer



PAGLEY THE SALT LAKE TRIBUNE
23

WELL, THAT
WAS A GOOD
WATER
YEAR!

LAKE MUST BE
THIS HIGH
BEFORE YOU CAN
BREATHE EASY

