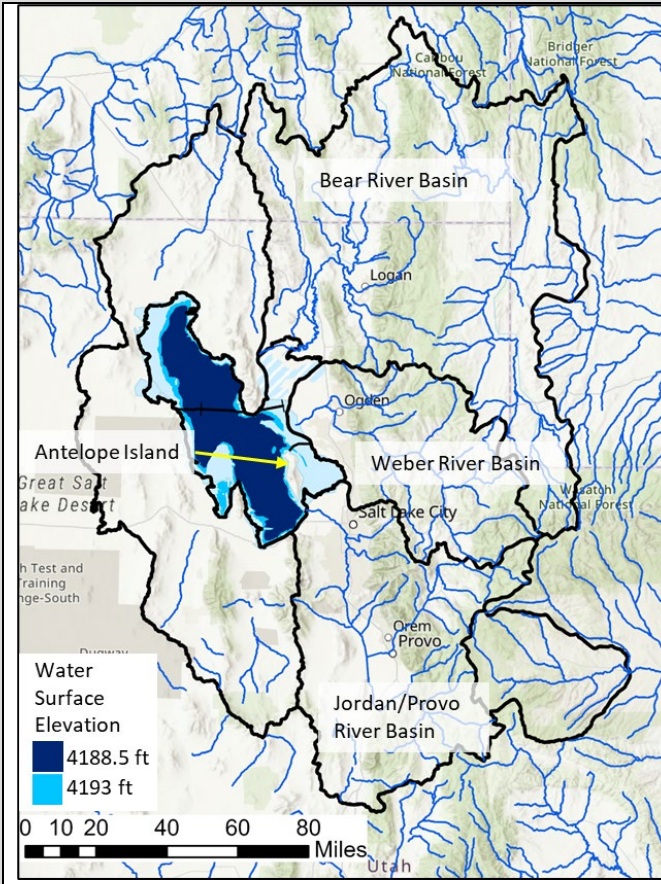


# CIROH Great Salt Lake Field Trip Fact Sheet

Prepared by David Tarboton, 5/11/23



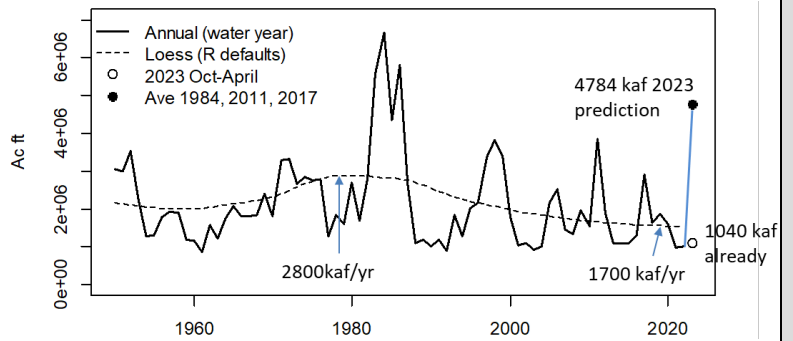
## Average Annual Water Balance

| Area                    | Area (km <sup>2</sup> ) | Precip. (mm) | Inflow (1000 acre-ft) | Stream-flow % | Overall %   | Runoff (mm) | Runoff ratio |
|-------------------------|-------------------------|--------------|-----------------------|---------------|-------------|-------------|--------------|
| Bear                    | 19262                   | 535          | 1283                  | 61%           | 39%         | 82          | 15%          |
| Weber (inc. Davis)      | 6326                    | 652          | 373                   | 18%           | 11%         | 73          | 11%          |
| Jordan/Provo            | 9963                    | 559          | 462                   | 22%           | 14%         | 57          | 10%          |
| West Desert             | 14604                   | 339          | -                     | -             | -           | -           | -            |
| <b>Total Streamflow</b> | <b>50155</b>            | <b>498</b>   | <b>2118</b>           | <b>100%</b>   | <b>65%</b>  | <b>56</b>   | <b>12%</b>   |
| Lake Precipitation      | 3608                    | 368          | 1077                  |               | 33%         |             |              |
| Groundwater             |                         |              | 75                    |               | 2%          |             |              |
| <b>Total</b>            | <b>53763</b>            | <b>486</b>   | <b>3270</b>           |               | <b>100%</b> |             |              |

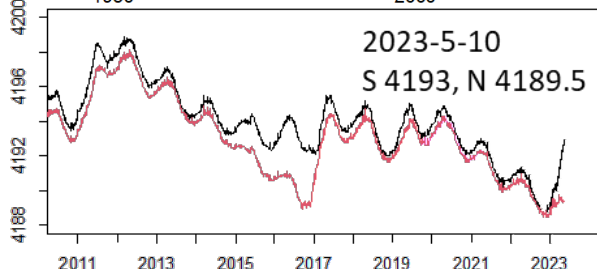
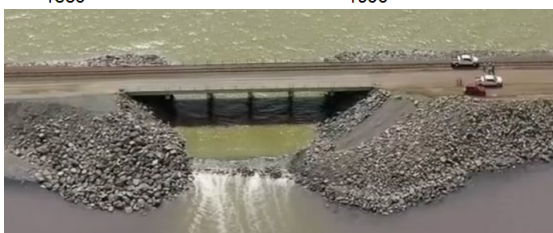
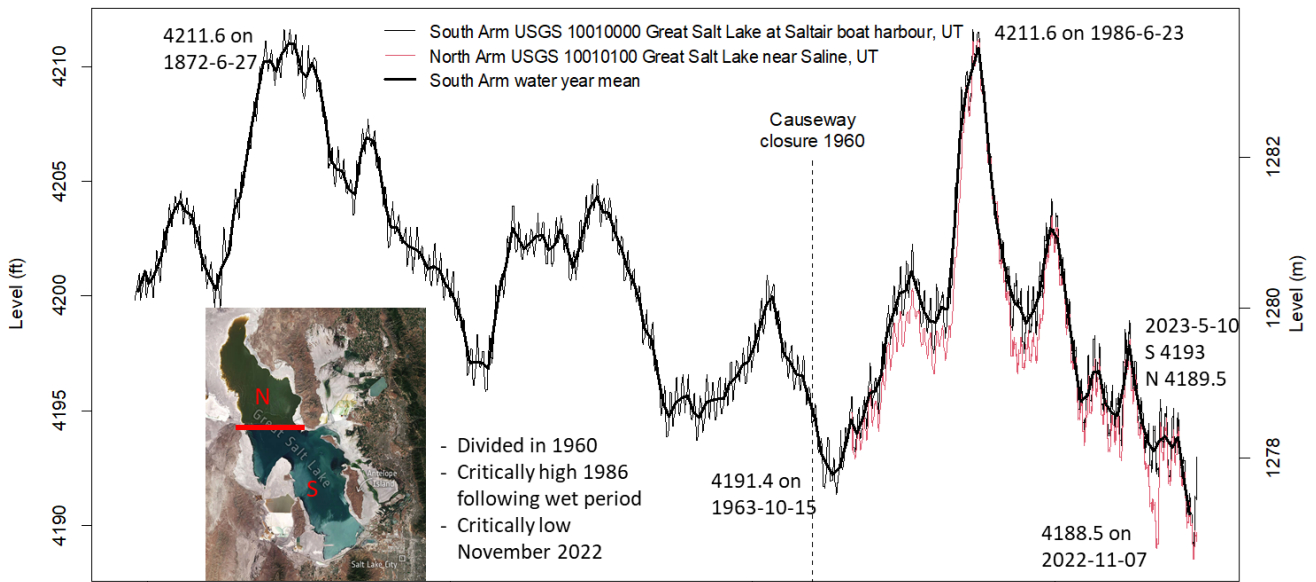
  

| Lake Evaporation | Area (km <sup>2</sup> ) | Depth (mm) | Volume (1000 acre-ft) |
|------------------|-------------------------|------------|-----------------------|
|                  | 3608                    | 1100       | 3217                  |

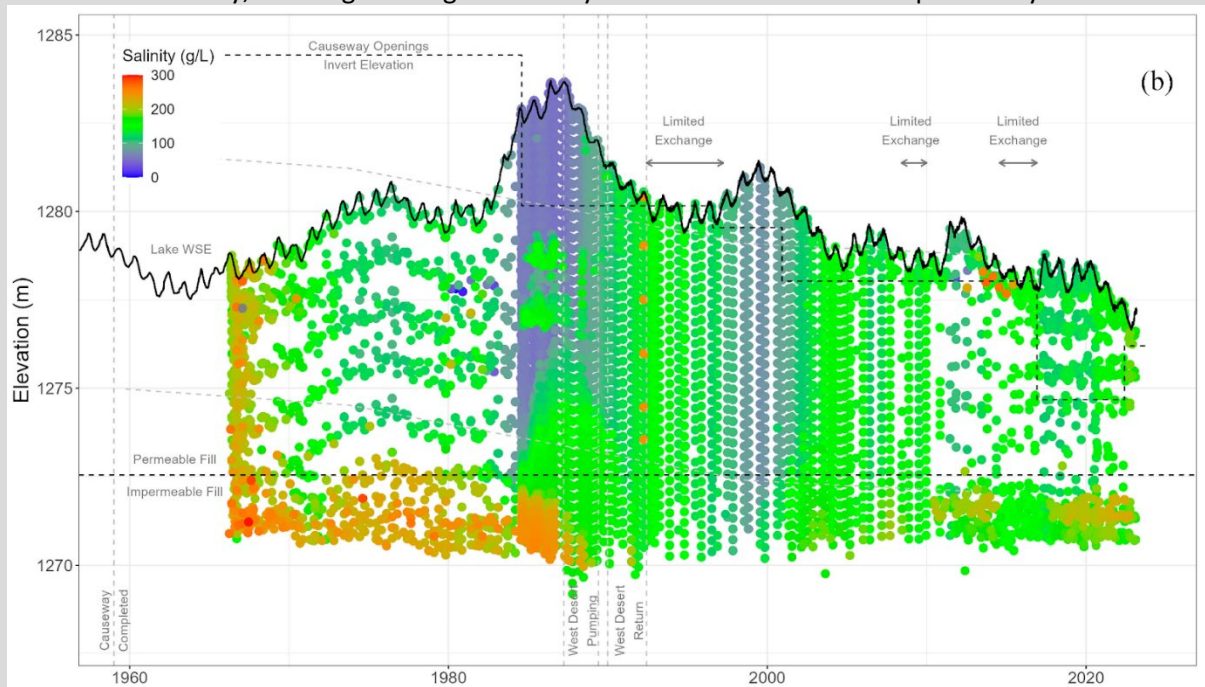
## Great Salt Lake Annual River Inflows



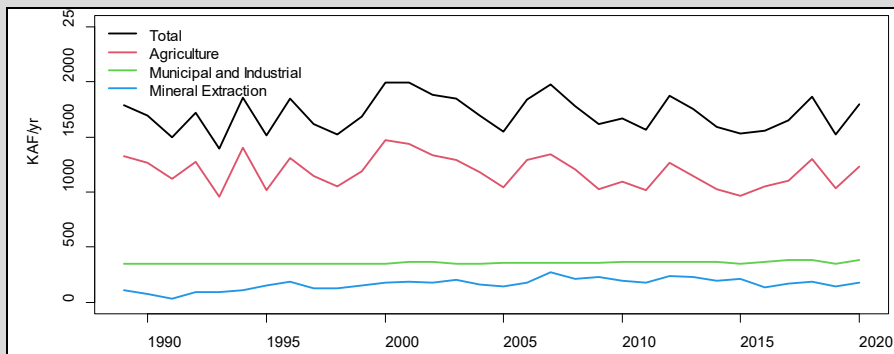
## Great Salt Lake Water Surface Elevation Record



## Salinity, exchange through causeway and the occurrence of deep brine layer



## Basin Wide Water Use



| Average Annual Depletion | Thousand Acre Ft |
|--------------------------|------------------|
| Agriculture              | 1188             |
| Municipal and Industrial | 358              |
| GSL Mineral Extraction   | 165              |
| <b>Total</b>             | <b>1711</b>      |

From Utah Division of Water Resources

## GSL management considerations

- Brine shrimp industry
- Mineral industries. Lithium, Magnesium, Potash
- Dust from exposed lake bed (and contaminants in the dust)
- Ecosystem - Birds, especially migratory
- Managed wetlands (Private duck clubs)
- Flooding (west desert pumping in 1986)
- Recreation

## Sources and Links

Great Salt Lake Strike Team: <https://gardner.utah.edu/great-salt-lake-strike-team/>

Tarboton Conference presentation: <https://hydrology.usu.edu/dtarb/Tarboton-SRC-March-2023.pdf>

Great Salt Lake: <https://greatsaltlake.utah.gov/>

Utah Division of Water Resources: <https://water.utah.gov/great-salt-lake/>

Merck and Tarboton 2023: <http://doi.org/10.3390/w15081488>

Mohammed and Tarboton 2012: <http://dx.doi.org/10.1029/2012WR011908>

Wurtsbaugh et al. 2017: <https://doi.org/10.1038/ngeo3052>

Abbott et al. 2023: <https://pws.byu.edu/great-salt-lake>

Loving et al. 2000: <https://doi.org/10.3133/wri004221>

Antelope Island State Park: <https://stateparks.utah.gov/parks/antelope-island/>