

**UGS BOARD MEETING**  
**Department of Natural Resources**  
**Utah Geological Survey, Utah Core Research Center**  
**240 N. Redwood Road, Salt Lake City**  
**Wednesday, April 16, 2025**

The meeting of the UGS Board was called to order at 8:33 a.m.

**ATTENDANCE**

**Board members:** Ken Fleck – Vice Chair, David Garbrecht, Neil Burk, Becky Hammond, and Riley Brinkerhoff. Elissa Richards – Chair, Rick Chesnut, and Stephanie Barber-Renteria (Trust Lands) were not in attendance.

**UGS Staff:** Darlene Batatian, Cheryl Wing, Russell Fillmore, and Patrick Engberson were in attendance. Jessica Stern joined for staff introductions. Mark Milligan joined to give an update on 2025 Legislative session. Hugh Hurlow and Paul Inkenbrandt, joined to present on Groundwater and Wetlands update.

**ACTION ITEMS**

**Approval of Minutes from Previous Meeting**

Riley Brinkerhoff motioned to approve the minutes of the August 7, 2024, UGS Board meeting. Dave Garbrecht seconded the motion. The Board voted unanimously, and the motion carried.

**Formal Approval of Project Proposals**

Although contract proposals for external funding are provisionally approved by the Board by email, approval of contracts valued at greater than \$50,000 requires formal approval. The proposals are:

*FFSL Great Salt Lake Data Hub*; funding from FFSL; new funding to the UGS \$50,000; total project funding \$50,000; estimated start date 2/4/2025; estimated end date 6/30/2025.

*UGS Expanding the Groundwater Water-Level Network*; funding from the USGS; new funding to the UGS \$99,972.622; total project funding \$106,044.55; estimated start date 7/15/2025; estimated end date 6/30/2027.

*Hydrological Monitoring of Environmental Restoration Projects – Year 10*; funding from Utah's Watershed Restoration Initiative; new funding to the UGS \$161,322; total project funding \$215,096; estimated start date 7/1/2025; estimated end date 6/30/2026.

*Wetland Water Quality and Continuous Monitoring Data Tool Development and Data Sharing*; funding from the EPA; new funding to the UGS \$398,685; total project funding \$398,685; estimated start date 10/1/2025; estimated end date 9/30/2028.

*Phragmites modeling at Farmington Bay WMA*; funding from FFSL; new funding to the UGS \$56,501; total project funding \$74,826; estimated start date 7/1/2025; estimated end date 6/30/2026.

*Great Salt Lake Wetlands Integrated Monitoring Project*; funding from FFSL; new funding to the UGS \$117,114.72; total project funding \$146,393.40; estimated start date 7/1/2025; estimated end date 6/30/2027.

*Bathymetric and Sub-bottom Imaging of Groundwater Flow Pathways and Associated Depositional Features in Great Salt Lake*; funding from FFSL; new funding to the UGS \$57,262.82; total project funding \$74,453.54; estimated start date 7/1/25; estimated end date 6/30/2027.

Becky Hammond motioned to formally approve the project proposals. Riley Brinkerhoff seconded the motion. The Board voted unanimously, and the motion carried.

## **DIRECTOR'S REPORT**

### **Director's Report – April 2025**

#### **Contract proposals:**

Enclosed in the materials is the Contract Proposal spreadsheet from 2019 forward. This is a good indicator of how the survey is doing with outside funding awards, both federal funds and dedicated credits, and what's on the horizon.

#### **Personnel Changes**

##### *Retirements:*

Bill Keach – Director

Lucy Jordan – Groundwater (now engaged for peer and editorial review as on call vendor/consultant)

##### *Promotions/Reclassifications/New positions:*

Starr Soliz – Administrative Secretary

Cheryl Wing – Administrative Assistant

##### *New hires:*

Jessica Stern – Wetlands Coordinator, Wetlands

##### *Spotlight employees:*

Mark Milligan was recognized by DNR for his leadership and assistance with 2025 Legislative Session- Bill tracking, many meetings, and communication

Janae Wallace is part of the Groundwater section and has been with the UGS for 35 years.

## **Recent Activities – Looking Forward**

Since the Board last Bill Keach, Utah Geological Survey's 7<sup>th</sup> Director and State Geologist, retired March 31, 2025. We thank Bill for his years of service to UGS and all he has done for the agency and our staff. Many thanks to our Board members and staff as well as DNR Administration and colleagues who took time to share their farewells and thanks at Bill's retirement party. Bill has a trip to Iceland coming and will enjoy spending time with his wife Marsha and visiting their family around the West.

Darlene Batatian is Acting Director and State Geologist until a formal appointment is made by DNR Executive Director Joel Ferry. This process is well underway, and we look forward to an announcement.

The 2025 legislative session was productive for UGS and resulted in the award of \$1.75 Million for Operation Gigawatt- Geothermal Investigations, in addition to an appropriation of \$6M in UGS General Funds, and a \$755K appropriation from the UGS Restricted Account for our FY26 funding. Operation Gigawatt - Geothermal funding will allow for the purchase of much needed equipment including a new GeoProbe. Mark Milligan, our Legislative Liaison, provides additional details on this and other legislative efforts in his summary, below.

UGS has navigated through federal funding uncertainties as the new administration fundamentally shifts priorities and issues executive orders, some of which have (or had) the potential to impact our current contracts and future funding. The good news is that all of UGS' signed/authorized contracts were eventually released for us to continue work. Future federal funding appears to be on track to support UGS at some level of sustainability: UGS has already been awarded several FY26 grants; STATEMAP funding appears to be viable (if not as high as FY25 levels) and EarthMRI appears committed to providing funding for critical minerals research.

Although the UGS budget continues to be challenging, particularly with federal funding uncertainties, UGS' leadership team is righting the balance sheet through renewed attention to financial performance and grant utilization. This has already resulted in increased capture of grant revenue and is helping close the gap between projected and actual budget. UGS' staff is responsive to these course corrections, and we are appreciative of their efforts as well as the responsiveness of our Finance team, Russ Fillmore and Ben Dlin, in providing analytics that helped us understand underlying issues and opportunities for mitigation. By a) developing expedient contract management tools, b) implementing 'proposal kickoffs to understand the impacts of cost share and staffing allocation for new work, and c) providing hands-on coaching and training for project managers, I am confident we will see ongoing improvements.

The UGS' work on critical minerals, geothermal, traditional fuels (oil and gas, coal), and water resources, as well as the geologic mapping that underpins these, informs strategic priorities at state, national and even international levels. We are working to increase our collaboration with stakeholders, and to elevate the visibility of UGS' research, data and subject matter experts (SMEs). UGS has assigned a new Public Information Officer (PIO) using 15-20% of Ben Dlin's time. We provided background information to support a recent trade mission from Utah to Canada focused on critical minerals that included DNR leadership and Governor Cox.

A strategic planning effort planned for the upcoming months will focus on revisiting UGS' statute and mission, creating intentional alignment for future program priorities, staffing, funding sources, and communications /outreach. We look forward to engaging our UGS Board in this effort.

New publications:

Geologic Map of the Duchesne 30' x 60' Quadrangle, Duchesne and Wasatch Counties, Utah  
By Douglas A. Sprinkel, <https://doi.org/10.34191/M-300DM>

Peer Reviewed Journal Article, Acta Paleontology, Cranial anatomy and stratigraphy of a new specimen of the tyrannosaurine dinosaur *Daspletosaurus* from the Judith River Formation of Central Montana, USA, by Ethan Cowgill.

Estimates of Lithium, Magnesium, and Potassium Resources in Great Salt Lake Brine, by Andrew Rupke, 21 p., 1 plate, OFR-769, <https://doi.org/10.34191/OFR-769>

Upcoming Events:

GSA Rocky Mountain Section meeting – 27 abstracts submitted by UGS staff

Utah Geographic Information Council – 7 GIS staff attendees

CNG-Cloud-Native GEO – 1 attendee

High School Interns – UGS will hire 2 interns for the summer.

### ***Energy and Minerals –***

Our Geothermal Building Block was approved by the Utah Legislature in an amount of \$1.75 million. Kudos to Christian Hardwick and Eugene Szymanski for all their hard work in writing up this proposal. We are currently finalizing our research plan so when the money becomes available July 1, we can hit the ground running.

Stephanie Mills has been formally invited to submit final proposal documents for a new USGS-funded EarthMRI project titled: Geochemical and geochronological basemap of Utah's Great Basin and Transition Zone intrusive units. This 3-year project will bring about \$330k into the E&M group, with no UGS cost share.

E&M is still waiting on the fate of 3 pending DOE-funded CCUS projects and 2 pending DOE-funded mineral projects (all proposals have been recommended for award prior to the new federal administration). If finalized, these new projects would bring about \$1.2 million in new funding to the E&M group. We hope that communication with DOE is reestablished soon and that these projects will move forward.

Ryan Gall organized an amazing 3-day Uinta Basin/Green River Formation core workshop in February. Over 25 geologists from 11 different operators participated in this event, and the group looked at over 1 mile of core! We received tremendous feedback on this event, as many of the operators that participated were new to the basin. Also, a shout out to Ammon McDonald for helping swap out massive amounts of core each evening.

Elliot Jagniecki recently published a seminal paper on the geology of the Cane Creek shale in the journal Marine and Petroleum Geology titled: Sabkha deposition on an epicontinental-foredeep:

The petroleum-bearing Cane Creek interval of the Pennsylvanian Paradox Formation, in the Paradox Basin, Utah, U.S.A. This paper was the result of 5+ years of research on the Cane Creek shale in SE Utah, resulting from our DOE-funded project. We have already received very positive feedback on this paper from operators in the Paradox Basin.

<https://www.sciencedirect.com/science/article/abs/pii/S0264817225000376?via%3Dihub>

### ***Geologic Hazards –***

In February we hosted a successful and well attended Utah Quaternary Fault Parameters Working Group Meeting and Basin and Range Province Earthquake Working Group meetings.

We also supported and attended the Utah Liquefaction Advisory Group meeting at the University of Utah. In numerous meetings with different cities, we have been able to share and encourage the use of the UGS Model Geologic Hazard Ordinance. We continue to engage on geologic hazards issues and emergency response when requested by the National Park Service at Zion National Park and Glen Canyon National Recreation Area.

Our new InSAR specialist Tara Shreve has completed a first pass statewide InSAR velocity map from a Sentinel-1 time series spanning summer 2022 to fall 2024. The spatial resolution is 80x80 meters. Tara also has Sentinel-1 InSAR velocity maps from 2015-2024 for specific areas—Beryl Junction, Cedar City, Parowan, Milford, and Pahvant.

We are looking forward to the revised Utah Geologic Hazards Portal going live on the website soon. The Data Management Program has done a nice job with the new website design. Christian Hardwick and Adam McKean coauthored a publication with collaborators at the University of Utah, “Seismic imaging of the Salt Lake basin using joint inversion of receiver functions and Rayleigh wave data” in the Journal of Geophysical Research. We recently learned our USGS Cooperative Landslide Hazard Mapping and Assessment Program Grant proposal was recommended for funding but not funded. We are looking to prepare a proposal for the recent USGS Earthquake Hazard Program Grant Announcement.

### ***Groundwater & Wetlands–***

#### *Groundwater*

Groundwater currently has two active Federal grants - Soil Water Balance Model (US Bureau of Reclamation; Inkenbrandt PI) and Courthouse Wash Groundwater Monitoring (US National Park Service; Inkenbrandt PI). Both are currently available for billing. The SWB model is a large grant that is just getting underway. We have applied for National Groundwater Monitoring Network funding (USGS; Inkenbrandt PI) and will apply for a substantial grant from the EPA’s Data Exchange Program, although neither are included in the FY26 budget yet, though. Our Program has applied for two grants from the Division of Forestry Fire and State Lands Great Salt Lake Tech Team: “Great Salt Lake Wetlands Integrated Monitoring Project” which will investigate hydrologic and environmental chemical changes resulting from phragmites removal, and “Phragmites modeling at Farmington Bay WMA” which will develop advanced modeling techniques for using UAV imagery to map phragmites coverage and treatment effectiveness. Our two major studies for the Water Rights cooperative program, Sanpete Valley and Milford Valley,

are going very well and we expect them to finish on time and within budget. Diane Menuz, our Data Scientist, is gradually revolutionizing our data flow and management and database structure and processes.

### Wetlands

Michael Herrman started in early January as a Project Specialist 1 working primarily on mapping wetlands in the Duchesne River Basin and has already brought high quality work to the projects he is assigned. That project is in full swing with three mappers working to identify wetlands and springs in the Strawberry River drainage and assign codes that tell us what type of wetland as well as ecological functions it might provide. A StoryMap illustrating the mapping process and applications was published in

February: <https://storymaps.arcgis.com/collections/581ac0b202154028bb27bbc3f75c765b>.

Two other projects have final reports going through the review process and will hopefully be finalized soon: wetland mapping around Utah Lake, including an analysis of how wetland area has changed over time, and an assessment of the condition of wetlands in the mountainous region of Utah. We are through the first season of testing how wetland assessment methods developed by UGS and the UDWQ compare and will continue data analysis and summer field work selection in the upcoming quarter.

Jess Stern started her position as the State Wetland Coordinator on March 31 and we're so excited to have her here to work on engaging with the wetland stakeholders around the state. She will be working on a grant that will produce a 5-year Utah Wetland Program Plan, coordinate the state Wetland Working Group, and do research in wetland protection policies locally and nationally.

We are working on several miscellaneous projects in between our major Wetland Program Development Grants. This includes a public information doc about the differences between native and introduced Phragmites, monitoring restoration projects at The Nature Conservancy's GSL Shorelands Preserve, and phragmites mapping around GSL. The majority of funding for the Wetlands Program comes from large EPA Wetland Program Development Grants, so the federal funding freezes and uncertain future situations have made planning difficult. However, all of our grants have been un-frozen and haven't required a review or adjustments yet.

## ***Geologic Mapping & Paleontology –***

### Mapping

The geologic mapping group is working away on a variety of maps and other deliverables for the current STATEMAP contract that ends on 6/30/25. This package of work will include new geologic maps of the following 7.5' quadrangles; Francis, Blanding N, Huntsville, and partial map of the Dromedary Peak area centered on Little Cottonwood Canyon. In addition to these maps, we will have several 30'x60' maps that include; a revised Panguitch quad, final Grouse Creek quad, and part of the Wildcat Mountain quad(located near the UT/NV line). We will also deliver a new stratigraphic study on the Flagstaff FM across its mapped extent including the Uinta Basin.

We have published several noteworthy maps recently that include a final map publication of the Duchesne 30'x60' (<https://doi.org/10.34191/M-300DM>), that includes a complete descriptive booklet and GIS, as well as the Salt Lake City N 7.5' (<https://doi.org/10.34191/OFR-768DM>), that covers the core of downtown Salt Lake City and includes revised fault traces for the Wasatch fault in this critical area.

Looking forward, it appears that despite all the federal uncertainty and drama, the STATEMAP grant still exists and we will receive an award this year. Fingers crossed on this until the contract is signed

### Paleontology

The Paleo group has been active as always. Recently their time has been spent assisting in collection of fossils from a site of proposed development adjoining the St. George Dinosaur Discover museum. This work has been high profile and several media outlets have posted stories that include commentary from Jim Kirkland and Don DeBlieux. Plans are also being made for assorted summer paleo fieldwork that include a potential trip to examine an important Eocene? mammal site high on Thousand Lake Mt. This site may hold some of the very earliest Rhino remains according to Jim Kirkland.

### ***Geologic Information & Outreach –***

GIO is working closely with DMP to produce a print publication based on the UGS rockhounder app, which mostly uses locations from UGS's *Rock, Minerals, and Fossils of Utah*. This pub is very out of date and nearly out of print, but still a strong seller. Hence we are completing a cycle from print to web to print. Jim Davis's publication, *Utah Hot Springs*, is through technical review. This is a big project (the review copy is about 100 pages) and has been a long time in the making. Jackson Smith has been busy updating the landforms teaching kit and reviewing (maybe rewriting) a Brief Geologic History of Millard County written by the Utah office of tourism. The Editorial Team has been working on an updated Megablock video for the upcoming grand opening of Utahrapator State Park. Bookstore website traffic and sales, both online and instore, are up compared to last year, despite a decrease in state park pass sales. This is due to the efforts of our manager, Michelle Ricketts, whose marketing efforts included the design and use of thank you and referral cards and email campaigns.

UGS grants analyst, Ben Dlin, agreed to take on public information officer (PIO) duties (with support from other GIO staff). Ben has a wealth of prior experience in PR/marketing and is excited to elevate the great stories, science, and people in our division.

### ***Data Management***

The Data Management Program has made significant progress on several applications. The Geochronology app was updated and published, now using data from CloudSQL. An update to the Building Stones tour app is nearing completion and will soon be reviewed. The new Geologic Hazards Portal was soft-released and received positive feedback, with final review pending. A UI fix was released for the Hazards Portal. Additionally, the Utah Groundwater Data Hub update was released and will undergo review. A new version of the Energy Resources app was also released, featuring new topics on Unconventional Fuels and Nuclear.

Ongoing efforts include work on the GSL Hub/Data Hub with Abby completing Experience Builder training and finishing a mockup. Interface updates are in progress for the Mineral Resources app and the Wetlands app. Clinton has begun converting the Hazards application's report generator to pull data directly from Postgres. Planning is underway for a collaborative geothermal project and a new Great Salt Lake data and trends app/interface. Furthermore, work continues on the CCUS web application, and the UGS website homepage is undergoing a major update.

**Cedar City office – Please see the separate report from Tyler and Lance**

### **2025 Legislative Session Update –**

This was another prolific, record breaking legislative session with 962 bills and resolutions proposed, of which 582, or 60% passed. In 2024 the legislature proposed 940 and passed 591, or 63%.

Selected UGS relevant passed legislation:

- **HB 160 Professional License Degree Amendments**, Gricius–This bill strikes language requiring licensed geologists to have a degree from an **accredited** institution. 58-76-302. Qualifications for licensure.  
(3) (a) ~~a bachelors or graduate~~ at a minimum, a bachelor's degree in the geosciences ~~granted through an institution of higher education that is accredited by a regional or national accrediting agency~~
- **HB 249 Nuclear Power Amendments**, Albrecht–This bill includes language that creates the Nuclear Energy Consortium within the Office of Energy Development (OED). The bill lacks specific language calling for expertise in geologic hazards on the Consortium; however, both OED and DNR Admin have stated that they recognize the need for such expertise early in the process of citing any potential nuclear power plants.
- **HB 352 Geologic Carbon Storage Amendments**, Watkins–No UGS impact. This bill will help Utah gain primacy over Class VI injection wells (used for injection of CO<sub>2</sub>).
- **HB 355 Mining and Critical Infrastructure Materials Amendments**, Snider–No UGS impact. This bill provides critical infrastructure materials (sand, gravel, or rock aggregate) operators with expanded rights to progress, extend, enlarge, or grow their operations on contiguous or new lands they own or control before May 7, 2025.
- **HB 412 Boards and Commissions Revisions**, Burton–This bill strikes the requirement for the UGS Board that *no more than four members may be of the same political party*. 79-3-302. Members of board -- Qualifications and appointment...  
(4) ~~(c) No more than four members may be of the same political party.~~
- **SJR 11 Joint Resolution Regarding Critical Minerals**, Milner–This senate joint resolution highlights Utah's mining history, current position as a top mining jurisdiction, and potential for future critical minerals production. Furthermore, it calls on private industry to form a technical working group to create an executable strategy to position Utah as the national leader for critical minerals.

Selected UGS relevant failed legislation:



- **SB 114 Veteran Access to State Parks**, Kwan–This bill sought to give veterans free or discounted state parks passes, which would have affected foot traffic in the bookstore. The bill failed in the House.
- **SB 247 Severance Tax Revenue Amendments**, Hinkins–This bill would have increased UGS percentage of severance tax revenue. The original version increased it from 2.5% to 5% (for the first \$50M of revenue). A substitute scaled that back to 3.5%, but the bill failed on the Senate floor. There was pushback from the Utah Petroleum Association and to a lesser degree from the Utah Mining Association. UGS funding still needs to be addressed.
- **HB 513 Utah Commission for Earthquake Preparedness**, Peterson–This was an attempt to reinvent the now defunct Utah Seismic Safety Commission(USSC). Like last year's USSC bill, this easily passed the House but died in the Senate. It did not make it out of the Senate Revenue and Taxation Committee.

### **Funding and Budget –**

Included in the Board packet is the FY25 UGS Budget-Actual-Forecast Summary (thru March 2025), FY25 UGS Contracts Proposals Tracking, and the UGS FY 2026 Funding Appropriations Report. The UGS March forecast indicates a FY25 surplus of \$753,008. Part of that surplus estimate is \$30,901 obligated for the Great Salt Lake Groundwater studies, \$287,022 obligated for the Bonneville Salt Flats Restoration project, and \$265,000 obligated for Critical Minerals studies. The balance of \$170,085 is general funds operating funding. Federal funding collections through March 2025 are at 56% (\$1.1M of \$2.097M projected). This amount is lower than anticipated and may require a revised forecast. Program managers and staff are reminded of the importance of billing priority projects and properly charging grant programs accurately. UGS finance staff communicate frequently with program managers to discuss both the finance and project status of each project. The greatest positive impact on the UGS budget has been cost savings generated by vacant position savings. Here is a breakdown of the revenue and expenditure comparison between fiscal year FY 2024 and FY 2025 (Comparing July 2023-March 2024 and July 2024-March 2025).

| <b>Revenue and Expenditures</b>        | <b>FY 2024<br/>(thru March)</b> | <b>FY 2025<br/>(thru March)</b> | <b>Difference</b> |
|----------------------------------------|---------------------------------|---------------------------------|-------------------|
| Outside Collection Revenue             | 2,453,173                       | 2,242,997                       | (210,176)         |
| AA Personnel Services                  | 7,338,432                       | 8,022,092                       | 683,660           |
| BB Travel/In State                     | 66,115                          | 83,683                          | 17,568            |
| CC Travel/Out of State                 | 42,532                          | 47,049                          | 4,517             |
| DD Current Expense                     | 492,444                         | 571,464                         | 79,020            |
| EE Data Processing Current Expense     | 402,312                         | 427,131                         | 24,819            |
| FF Data Processing Capital Expenditure | 45,677                          | -                               | (45,677)          |
| GG Capital Expenditure                 | 72,611                          | 138,386                         | 65,776            |
| HH Other Charges/Pass Through          | 683,193                         | 476,143                         | (207,050)         |
| <b>Total Expenditures (thru March)</b> | <b>9,143,315</b>                | <b>9,765,948</b>                | <b>622,632</b>    |

### **PRESENTATIONS**

Hugh Hurlow and Paul Inkenbrandt gave the Board a presentation on Utah Flux Network, Utah Groundwater Data Hub update, and Great Salt Lake Wetlands Hydrology Studies.

## **BOARD DISCUSSION ITEMS**

- Board Terms Riley Brinkerhoff and Becky have been confirmed. Looking for 2 people to fill Dave Garbrecht and Rick Chesnut's positions)
- Proposed Dates for UGS Board meetings
  - Meeting, Wednesday, August 20, 2025
  - Field trip, Sept. 18 - Sept. 19, 2025, Great Salt Lake area?? Gather ideas.
  - Meeting, Wednesday, January 14, 2026
- Set a date to hold a special meeting with the board to discuss the designation of the St. George Dinosaur Discovery site at Johnson Farms as a Paleontological landmark.

Board adjourned 10:58 am.