

UGS BOARD MEETING
Department of Natural Resources
Utah Geological Survey, Utah Core Research Center
240 N. Redwood Road, Salt Lake City
Wednesday, August 20th, 2025

The meeting of the UGS Board was called to order at 8:31 am

ATTENDANCE

Board members: Elissa Richards – Chair, Ken Fleck – Vice Chair, Becky Hammond, Neil Burk, Riley Brinkerhoff, Michael Hansen, Rich Borden (remote), and Andy Bedingfield (SITLA).

UGS Staff: Darlene Batatian, Stefan Kirby, Russ Fillmore, and Cheryl Wing.

Staff and Board Updates:

Stefan Kirby has been promoted to the Utah Geological Survey as Deputy Director. Stefan's 22 years of geological contributions through several UGS programs give him in-depth institutional knowledge that has already greatly contributed to our success, and the UGS is grateful for his partnership in leading UGS. The staff and mission of UGS continues to be focused on scientific excellence, and our team is energized, engaged and responsive.

UGS had two new Board Member appointments. They both were approved by the Governor August 13, 2025 and are pending Senate confirmation that will take place September 17, 2025. Michael Hansen will replace Rick Chesnut - "Field of geology as related to the practice of civil engineering" (Seat 13735) and Richard Borden will replace Dave Garbrecht as "Mineral Industry Representative 1" (Seat 13738).

Introductions were made across the Board for our new members.

ACTION ITEMS

Approval of Minutes from Previous Meeting

Riley Brinkerhoff motioned to approve the minutes from the April 16, 2025 UGS Board meeting. Becky Hammond seconded the motion. The Board voted unanimously, and the motion carried.

Formal Approval of Contract Proposals

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

WestGIN: Western States Geothermal Integration Network; funding from the DOE, new funding

to the UGS \$674,466; total project funding \$4,543,204; estimated start date 10/1/2025; estimated end date 9/30/2027.

Data-Basin: Stratigraphic Hydrothermal Data Acquisition and Reservoir Characterization in the Great Basin; funding from the DOE; new funding to the UGS \$604,347; total project funding \$755,434; estimated start date 10/1/2025; estimated end date 12/31/2027.

Geomorphic and Geochronologic Investigation of Late Quaternary Faults in the Bear River Graben, NE Utah, and Western Wyoming; funding from the USGS; new funding to the UGS \$54,155.63; total project funding \$77,365.18; estimated start date 1/1/2026; estimated end date 12/31/2026.

Paleoseismic Investigation of the Clarkston Section of the West Cache Fault Zone, Utah; funding from the USGS; new funding to the UGS \$104,307.40; total project funding \$147,960.57; estimated start date 4/1/2026; estimated end date 3/30/2027.

Bear Lake Groundwater Quality and Septic-System Density Study; funding from the BLRC/Utah Dept. Water Quality; new funding to the UGS \$62,932.66; total project funding \$89,903.81; estimated start date 1/1/2026; estimated end date 6/30/2027.

Geochemical and Geochronological Basemap of Utah's Great Basin and Transition Zone intrusive units; funding from the USGS; new funding to the UGS \$330,000; total project funding \$330,000; estimated start date 9/1/2025; estimated end date 8/31/2028.

Ken Fleck motioned to formally approve the proposals, Riley Brinkerhoff seconded the motion. The Board voted unanimously, and the motion carried.

International Travel:

Per statute the Board is required to approve foreign travel. We have 3 travels coming up. Stephanie Mills will travel to Brisbasne, Australia for an SEG conference, Jim Kirkland will travel to Hanover Germany to attend a Cretaceous Symposium and and Steve Bowman will travel to Fairbanks, Alaska to attend the Alaska Satellite Facility, NASA Distributed Active Archive Center User Working Group meeting. Board emails were sent out and approved

Director's Report – August 2025

Retirements:

Janae Wallace – Groundwater (29.5 years!)

Promotions/Reclassifications/New positions:

Stefan Kirby – Deputy Director

New hires:

Madeline Griem –Utah Core Research Center Assistant Curator

Recent Publication:

Great Salt Lake Shorelands Preserve Water Budget, Stream Monitoring, Vegetation Mapping, and Remote Sensing Analysis, by Claire Spangenberg Kellner, Rebecca Molinari, Diane Menuz, Peter Goodwin, and Hugh Hurlow, 48 p., 3 appendices, RI-289, <https://doi.org/10.34191/RI-289>

The Intersection of Framework Geology and Mineral Potential Assessment in the Gold Hill Mining District, by Stephanie E. Mills, 54 p., 4 appendices, SS-175, <https://doi.org/10.34191/SS-175>

Utah mining 2024—Metals, Industrial Minerals, Uranium, and Coal, by Stephanie E. Mills, Andrew Rupke, Michael D. Vanden Berg, and Taylor Boden, 26 p., C-139, <https://doi.org/10.34191/C-139>

Copper in Utah, by Stephanie E. Mills, 4 p., PI-107, <https://doi.org/10.34191/PI-107>

Interim Geologic Map of the Francis Quadrangle, Summit and Wasatch Counties, Utah, by Lauren J. Reeher and Abigail E. Conger, 15 p., 2 plates, scale 1:24,000, OFR-770DM, <https://doi.org/10.34191/OFR-770DM>

Interim Geologic Map of the Blanding North Quadrangle, San Juan County, Utah, by Matthew C. Morriss, 12 p., 2 plates, scale 1:24,000, OFR-771DM, <https://doi.org/10.34191/OFR-771DM>

Interim Geologic Map of the Huntsville Quadrangle, Weber and Cache Counties, Utah, by Greg N. McDonald, Adam P. McKean, Zachary W. Anderson, Elizabeth A. Balgord, and W. Adolph Yonkee, 26 p., 2 plates, scale 1:24,000, OFR-772DM, <https://doi.org/10.34191/OFR-772DM>

Interim Geologic Map of the Wildcat Mountain and East Part of the Currie 30' x 60' Quadrangles, Tooele County, Utah: Phase 1, by Donald L. Clark, Charles G. Oviatt, Eric H. Christiansen, Christian L. Hardwick, Kayla D. Smith, and David Page, 28 p., 2 plates, scale 1:62,500, OFR-773, <https://doi.org/10.34191/OFR-773>

UGS Program Update:

UGS' scientists, information management, and outreach staff continue to '*assess, advise, collect, distribute, and collaborate*' on numerous reports, websites, press releases, presentations, and collaborations through councils and working groups. Many are detailed in the program reports below, but here are a few highlights:

- 23 UGS scientists presented at the GSA Rocky Mountain Section Meeting in Provo, Utah, including poster sessions, oral presentations and field trips.
- A new inter-agency Critical Minerals Working Group sparked by Sen. Anne Milner has requested considerable input from UGS' Minerals Team, Steph Mills and Andrew Rupke, building new relationships and visibility for their work and expertise.
- STATEMAP team once again achieved the feat of delivering all work products on time.
- A bathymetric lidar survey of the Great Salt Lake is breaking new ground in deploying high tech airplane-mounted lidar to map the floor of a saline lake for the first time, ever.
- UGS' new Wetlands Program Coordinator Jess Stern has hit the ground running, launching planning for the State Wetlands Plan with her tremendous energy for outreach.

- UGS Public Information Officer Ben Dlin has created multiple opportunities to showcase UGS work through timely press releases, accommodating the very short timelines of journalists and the media, thus increasing UGS' profile and visibility. UGS is doing meaningful work and sharing it with the public, broadening our exposure. We are leveraging in house capabilities to expand our communications team.

Lastly, several recent reports - The Great Salt Lake Shorelands Preserve, 2024 Utah Mining Report, and Kirkland's Mancos Shale stratigraphic correlation paper- are exemplary for their collaborative work, data-rich assessments, and insightful conclusions. You will find new insights into wetlands along the Great Salt Lake and the impacts of phragmites and evapotranspiration, long term insights into Utah's mining production, and a deeper appreciation for our rich Cretaceous stratigraphic and paleontological history, as you consider which of these well written papers will receive the coveted Crawford Award!

Energy and Minerals

Our geothermal team has hit the ground running with implementing a research plan for the Geothermal Building Block funds awarded during the last legislative session. Equipment purchases are underway, including a new PowerProbe capable of measuring subsurface temperatures down to about 30-50 ft, new TEM (Transient Electromagnetics) equipment, and a new magnetotellurics system. We have also restarted the popular Geothermal Working Group (now called UGeN) with quarterly meetings and other social events.

Stephanie Mills published her seminal paper on the Gold Hill Mining District, which was the culmination of 3+ years worth of research in the area - <https://geology.utah.gov/publication-details/?pub=ss-175>

Stephanie, Andrew, Taylor, and myself were able to publish the annual Utah Mining Report for 2024 in a more timely fashion this year, with a nice article in the Deseret News featuring the report - <https://geology.utah.gov/publication-details/?pub=c-139>

Several of our federal grants are still pending and/or delayed. We have 3 new CCUS projects that were recommended for award, but are still pending (\$25M total, with about \$800k due to UGS). We have 2 new CORE-CM Phase 2 projects that were recommended for award, but are still pending (\$10M total, with about \$350k due to UGS). Two GTO (Geothermal Technology Office) proposals are still in review with decisions delayed about 3-4 months (fall 2025) (\$10M total, with about \$1.6M due to UGS). We hope some of these projects will move forward.

Stephanie and Andrew have significantly contributed to a state run effort to prepare a Utah Critical Minerals Strategic Plan, a priority of Sen. Milner.

We have successfully collected bathymetric lidar data for the perimeter of the south arm of Great Salt Lake, as well as areas around the U.S. Magnesium ponds, and three separate wetland areas in Farmington and Bear River Bays. We even hosted a plane and sensor tour at the Aero-Graphics hangar at Skypark attended by DNR Director Joel Ferry, DNR Deputy Director Nathan Schwebach, and DNR Communications Director Kim Wells. Data processing and delivery will take time (we generated petabytes of data).

Geologic Hazards

In April we participated in the Great Shake Out 2025. Adam Hiscock did a few new media interviews in support of the day of earthquake preparedness and education. This year we reengaged with SERT (State Emergency Response Team) group and have shifted our focus from one person attending their monthly meeting to having a number of staff receive the training and attend the meetings at the SEOC (State of Utah Emergency Operations Center). This will help us be more flexible in an emergency response. We finalized our Cooperative Agreement with Zion National Park. We will provide them with technical assistance to support public safety in Zion National Park for the next year. This will bring in \$59,933.28 to the UGS. Congratulations to Jessica Castleton and Ben Erickson on the new funding! Steve Bowman recently announced that we now have over 500,000 images in the UGS Aerial Imagery databases. Last fiscal year (FY2025: 7/1/2024, to 6/30/2025), we had 22,350,657 page views and over 321,000 individual downloads. Congratulations to Steve and all those involved in this milestone!

We have been focusing on streamlining the geologic hazards publication process by improving our use of technology and adopting a transparent review tracking tool. We are beginning to see the fruits of the effort with a number of geologic hazard maps progressing through review, including Bryce Canyon National Park, Cedar City area, Moab area, and a number of northern Utah 7.5-minute quadrangles (Cedar Fort, Saratoga Springs, Jordan Narrows, Baileys Lake, Antelope Island South, and Saltair NE). Additional Quaternary fault mapping for Central Utah is being reviewed for Contract Deliverable to the U.S. Geological Survey. These improvements are critical as a large northern Utah landslide inventory mapping project and the remainder of Salt Lake valley geologic hazards mapping will be entering review for publication early next year.

Groundwater & Wetlands

Groundwater

Paul Inkenbrandt and Kathryn Ladig led a field trip with partners and collaborators to several Utah Flux Network stations in southeastern Utah. This meeting was very informative and seemed to strengthen existing partnerships. The technology is advanced with many challenges and the group can help improve and troubleshoot issues. We are starting several new projects: Phragmites evapotranspiration and nutrient cycling, Modeling of UAV data for phragmites mapping, Bear Lake groundwater quality, and Three Creeks beaver dam analogue hydrologic monitoring. The Castle Valley water budget publication is nearing publication. Becka and I are participating in drafting the Division of Water Resources' new State Water Plan. Janae Wallace retired after 29-½ years at UGS; her last official day was August 1. Rachel Willmore is now shared between DMP and GWP, and will help us catch up on data processing. Diane Menuz has been making substantial progress on water level data flow, including processing raw data from pressure transducers, QA/QC, and flow to the groundwater database and groundwater-level portal. Post-doc Mark Radwin starts August 26 in a one-year position, his primary goals are to provide a tool for land management for the BLM and help finish a publication that past post-doc Jeremiah Bernau started.

Wetlands

New Grants - the Great Salt Lake Tech Team awarded us a grant to try new techniques for mapping Phragmites at Farmington Bay Waterfowl Management Area using drones. Drone flights were completed in July.

EPA Grants -

Utah Wetlands Protection - Jess Stern started working as the State Wetland Coordinator on March 31 and has dived right in to coordinating meetings with stakeholders from the Utah Wetland Working Group, reaching out to tribal partners, and looking into local wetland regulations. Jess has agreed to be the tribal liaison for the survey.

Duchesne Basin Mapping - the mapping team has already completely mapped 12% of their project area and another 10% is partially mapped. The team will also start mapping areas to target for restoration actions this month.

Utah Wetland Assessment Method - we have started field work visiting wetlands that are important to managers or have been targeted for restoration efforts. We will visit as many of these as we can and then report our results to land managers to get insight into what will help them make better decisions.

Older grants - a StoryMap for a grant that just wrapped up has been published. It's a great public information piece for a really complicated analysis:

<https://storymaps.arcgis.com/stories/079efa99ef60453b8d03261acd617b30>

Geologic Mapping & Paleontology

Mapping

On June 30th, the geologic mapping group completed and delivered this years STATEMAP work on time again. The group published the following 7.5' maps; Francis 7.5' (<https://doi.org/10.34191/OFR-770DM>), Blanding N (<https://doi.org/10.34191/OFR-771DM>), and Huntsville 7.5' (<https://doi.org/10.34191/OFR-772DM>). Each of these quads also include the new GeMS format GIS package. We also published a partial map of the Wildcat Mt. 30' x 60' (<https://doi.org/10.34191/OFR-773>). In addition to these published maps we produced a number of contract deliverable reports and maps that include; a partial map of the Dromedary Peak 7.5', a partially revised State Geologic Map, a workflow for creating 3D cross sections in ESRO software that includes 45 digitized and projected cross sections from existing maps, a report and table of geoheritage sites across Utah, and last but not least a major stratigraphic study of Flagstaff Formation and adjoining strat across central Utah. We also produced a number of GeMS GIS conversions of existing geologic maps that include 4 7.5's and 3 30'x 60's.

The group recently received our award letter for our current STATEMAP proposal. The total award of federal money was \$570,411. This is less than last year but broadly within the long term variability of STATEMAP awards. As part of this 2 year contract we will complete the following maps and projects; Grantsville 7.5', Burmester 7.5', Wanship 7.5', Mountain Dell 7.5', the paired Goulding and Monument Pass 7.5's on the Navajo Nation, a revised geologic map of Bryce Canyon National Park, and a final map of the Wildcat Mt. 30' x 60', final revision of the State 500k geologic map including revised cross sections, a stratigraphic study of the Uinta

Mountain Group with Carol Dehler as contractor, and 7 GeMS GIS conversions of existing maps.

Paleontology

The Paleo group recently returned from their annual summer field work at Doelling's Bowl north of Moab. The volunteers this year included a number of researchers from across the US and abroad. All of this activity, including Jim Kirkland opining on dinosaurs from a Cleopatra-esque pose, was captured by social media influencers using the twitch platform. The paleo group also recently applied for continued BLM funding for their best in the country paleo site database.

Geologic Information & Outreach

To support new communications priorities, GIO geologists have been adopting additional duties, including writing synopsis of new publications, writing press releases, and planning outreach to legislatures and other key stakeholders. Jackson Smith wrote his first press release about *Utah Mining 2024* which thanks to our PIO, Ben Dlin spawned a nice article in the *Deseret News*. Additionally, Jackson and Jim Davis have been collaborating with State Parks on displays and signage for Antelope Island and Wasatch Mountain State Parks. Jackson organized and facilitated two high school student interns that rotated through UGS programs during the summer. Their experiences were a huge success, and they reported a sparked interest in geology and an increased appreciation for science in general. In June Jackson presented to roughly 70 Utah teachers about our teaching resources. Their response was enthusiastic. Jim Davis led a Utah Geoheritage inventory project for StateMap, which was delivered in May. Jim is currently finishing a draft of a four page Public Information Series publication on phragmites.

Due to ongoing budget concerns, the geologist formerly in the bookstore is being replaced by a lower salaried geotech. Interviews are scheduled for the week of August 18th, and we hope to onboard someone in early September when we have a staff member out for a month on medical leave. Due to the staffing priorities and shortages mentioned, UGS Earth Science Week has been canceled for 2025. Schools are being notified and encouraged to sign up for 2026.

On the back burner but continuing to make slow progress—work on a replacement for *A Collector's Guide to Rock, Mineral, & Fossil Localities of Utah*, published by UGS in 1995 (and based on a 1979 UGS publication). This is a perennial big seller but out of stock in the bookstore. GIO staff are also collaborating on an article about UGS Earth Science Week activities and successes for an invited submission to *In the Trenches*, a publication of the National Association of Science Teachers.

In addition to preparation, layout, and promotion for all UGS publications, our Editorial Team implemented a social media campaign highlighting outside pubs by UGS authors. The 19th edition of the Calendar of Utah Geology is out for printing bids.

Data Management

Over the past quarter, the DMP team has advanced several key web applications. Major project milestones include the near-completion of the Carbon Storage Portal for its August beta, the final

review of the GSL Brine Hub, and the publication of a new Energy Resources site. The team also completed the draft for the Hazards Data Reviewer and made significant progress on an automated data ingestion pipeline. Alongside these projects, numerous bug fixes and feature enhancements were deployed across our web portals (e.g. Groundwater Monitoring, Geologic Hazards), including a new map-sharing function.

Southern Utah Regional Office

Geologic Hazards and Geologic Mapping Programs – Tyler Knudsen and Shad Ashton

Geologic-Hazard Mapping: The Cedar City Valley geologic-hazard-mapping study (4 7.5' quadrangles) has been reviewed by our Program Manager, is undergoing minor revisions, and will be passed onto Stephanie Carney for technical review soon. The Cedar City Valley maps will be a digital-map-only special study that will be available on the Geologic Hazards Portal. Since it will be a template for digital-only hazard-mapping Special Studies moving forward, we are spending extra time to get the formatting of the cover page and GIS metadata right. The Bryce Canyon geologic-hazards study (4 quadrangles) is now on its last stage of review and just needs to be approved by Darlene. Bryce Canyon will be published as a traditional Special Study with PDF plates, text document, and GIS mapping that will also be available on the Hazards Portal.

Geologic Mapping: Final edits to the Summit 7.5' quadrangle are being done as time allows and should be formally published as an OFR soon. Due to time constraints, I have not made progress on 7.5' backlog maps Enoch and Cedar City NW. My current STATEMAP (U5ST) project, Bryce Canyon 7.5' quad, is still on track to be completed in spring of 2026. I have provided additional assistance to Mathew Morriss with geology questions on the Oljeto 7.5' quadrangle on the Navajo Nation.

White Dome fault: UDOT subcontractor Gerhart Cole contacted me about the newly discovered Quaternary-active White Dome fault near St. George. My preliminary mapping of the fault shows the fault is near a new interchange UDOT would like to construct on SR-7 (Southern Parkway). To learn more about the fault, Gerhart Cole paid to run the 2 expedited OSL samples that I collected from a consultant's trench on the fault in February. The OSL age results provide evidence for a most recent rupture at about 182 ka consistent with the subdued scarp morphology and a middle Pleistocene rupture. I'll discuss results with Adam Hiscock and evaluate the next steps in getting this fault into the Quaternary fault & fold database of Utah.

USGS-funded Quaternary Fault Mapping: I'm working with Adam Hiscock and Rachel Adam on mapping quaternary faults in central Utah. I was responsible for mapping Sage Valley (north of Scipio), Scipio Valley, and faults in the Valley Mountain (between Scipio and Gunnison). Our mapping, special study zones, and text document are complete and working their way through review and are on track to be delivered to the USGS on time.

Subsidence/Fissure Mapping: I'm in the process of updating fissure mapping for Cedar City Valley, Parowan Valley, and the Escalante Desert (from Milford to Enterprise area). I have confirmed additional fissures with many more targets to field-check in coming months. Field

days in April and July in the Milford area have revealed an extensive network of ground cracks that appear to be “giant” desiccation cracks. The cracks form in fine-grained surficial sediment that was previously saturated. Groundwater decline (from excessive pumping) and drought have likely caused the cracks to form. Photos, mapping, and observations will be passed onto the Groundwater Program that is currently working on a groundwater budget/study of Milford Valley. I plan to spend several more days in the field to confirm fissures in the southern Escalante Desert (Beryl-Enterprise) and Parowan Valley. I have helped Tara Shreve (InSAR Specialist), the Groundwater Group, and others in planning what the final publication for USUB (statewide InSAR subsidence and fissure mapping) will look like. In April, I spent a few days with Tara and Rachel Adam in the Cedar City area looking at various types of earth fissures for training.

Notable Public Inquiries: I provided mapping and analysis to Gerhart Cole Inc., concerning UDOT’s planned re-construction of Cedar City’s southern interchange on I-15. Several strands of the Cross Hollow fault zone traverse the area near the interchange. I provided data and analysis to a St. George-area consultant regarding a suspected unmapped fault near new construction in Washington City. Evidence for the fault is currently weak, but the consultant will inform us if they find more evidence. I spoke at length with a Cedar City Mayoral candidate (Rebecca Munn) that was interested in understanding geologic-hazards affecting the city.

DOPL-Sponsored Southern Utah Geologic Hazards Conference: Due to time and budget constraints, this has been indefinitely postponed.

Outreach: In April, I helped organize and lead a geology hike with donors to the Natural History Museum of Utah. In June, I presented on Quaternary faults of southern Utah to an ongoing emergency preparedness seminar in Ivins City.

GSA Orem: I co-chaired a session with Janae Wallace on “Geology in Utah’s State and National Parks”. The session went well, and I presented on my Bryce Canyon hazard mapping.

Administration: Managed Geotech Shad Ashton, including tracking timesheets, performance management plans, leave requests, mentoring, end-of-employment paperwork, etc. Attended quarterly Southwestern Area Regional Managers meetings. Peer-reviewed fault mapping of Adam Hiscock and Rachel Adam, and rockfall mapping of Kristi Rasmussen. Participated in GEO committee planning. And I attended to other issues related to the operation of the Southern Utah office.

Shad Ashton Resignation: Shad’s last day of employment was July 31, 2025. He has moved to Las Vegas to pursue a geoscience master’s degree from UNLV. Shad will be missed. He finished his employment with the State strong completing a large number of aerial-imagery and subsurface-borehole data projects. Internship contacts were handed off to Stormie Elmer.

Data Management Program– Lance Weaver

Groundwater Monitoring Portal: For the last few months we’ve been working on a backlog of change requests and updates to the UGS Groundwater Monitoring Portal

application.

Postgres Interactive Maps Updates: We're working on transitioning our backend map technology this year from Arcgis Server to Postgres DB. As part of this transition I'm going through all of our interactive maps and rewriting the code to accommodate the transition of the backend sources which feed GIS data to our mapping applications.

3D Interactive Map Viewer: I continue to make small changes and tweaks to the UGS interactive map viewer. The UGS interactive map viewer is a javascript browser application which showcases all of the UGS's geologic maps with 3D capabilities much like Google Earth. With the viewer, UGS geologic maps are draped over a virtual 3D landscape with enhanced navigation and map viewing capabilities.

<https://Geology.utah.gov> Website Upkeep: I am constantly assisting Mackenzie in keeping our wordpress application which serves as the backend for our website secure and up to date, as well as helping to problem shoot the more technical aspects of any issues that come up.

Southern Utah Geologic Hazard Response: As needed, assisting Tyler and the Hazards program in visiting and assessing various geological hazards which occurring the area such as rock falls, landslides and sinkholes.

Outreach: Responded to public inquiries; presented to local elementary schools and scout groups.

UGS Interactive Map Template: As the UGS's increasingly uses interactive online maps to display our data and research, we're constantly working on the templates and user interface to our interactive maps to make them easier to update and maintain. Currently working to switch many of our older maps such as the quaternary faults map to the new Arcgis "calcite" templates.

UGS Strategic Planning update:

Our strategic planning kickoff, "*Return to Mission*," started in April, with a workshop for UGS Program Managers focused on revisiting our [enabling statute](#) to develop alignment of our work, staffing and funding with our mission. Our code instructs us to "*assist and advise... collect and distribute... survey... investigate... [and] cooperate...*" in the assessment of geologic resources. Our constituents include state and local agencies, state educational institutions, the public, and industry. These directives point to our responsibility to conduct geological studies in service to informed development of Utah's geologic resources.

Clarity on our statutory responsibilities helped frame important decisions, as we were immediately confronted with a serious challenge from initial FY26 budget estimates of a \$1-2M deficit. Paused federal funding (STATEMAP, CoreCM and CCUS) added to budgetary uncertainty. As nearly 85% of UGS' expenses is personnel, organization charts and personnel costs were scrutinized. Five planned voluntary separations (grad school, retirements etc) created savings from attrition; a small reduction in force trimmed two non-essential positions (Media

Specialist/Videographer; DNR Bookstore Geologist position downgraded to Geotech). This reduced staff from 92 to 85. To forestall a potentially deeper RIF, I consulted with DNR Executive Director Joel Ferry, who offered support in seeking additional permanent funding for UGS in the next legislative session. We are able to hold our present level of staffing for now.

In addition, implementing financial management discipline at the project level bore fruit. In January, we identified several opportunities to improve revenue: better timekeeping attention to grant hours charged; prioritizing grant funded work; pausing work on 'peripheral' projects not mission focused; and working to collect revenues and complete work on time, rather than deferring revenue through no-cost extensions. Overall, these improvements in grant performance resulted in an **addition of \$1M in revenue above projections**, a testament to how responsive our staff are to improving when given training and coaching.

To address federal funding uncertainty, we engaged with our federal delegations over the past month to leverage support for paused DOI and DOE program funding. UGS has been building a relationship with Sen. John Curtis' Policy Advisor, and at our last breakfast I discussed the impact of stalled federal funding on UGS' ability to move national and state strategic energy & minerals priorities forward. Stefan and I were introduced to Sen. Mike Lee's Policy Director (Chair, Senate Energy and Resources Committee) and followed up our call with a fact sheet about paused funding. Coincidentally, STATEMAP funding award letters were released last week: UGS is poised to receive a two-year STATEMAP award in excess of \$570K. We hope this is a sign that remaining DOI and DOE federal funding will shortly come through. EPA funding is also looking positive in both House and Senate appropriations bills. At the request of AASG, I will be joining other State Geologists in Washington DC in late September to continue to forge these important relationships on behalf of Utah and other state geological surveys.

Overall, due to our staff's efforts to boost revenue collection, confirmed federal grant awards, and reduced staff, we are now projected to finish FY26 'in the black'. Working with our Finance team, we have prepared a single Building Block request for an approx. \$750,000 to \$1M permanent general fund increase. At the direction of DNR leadership we may also pursue securing this additional funding through an increase in UGS' portion of severance tax. To help build support, I will be meeting with Utah Petroleum Assoc. Executive Director, and we are considering a legislative tour to showcase UGS' contributions to Utah (and the nation's) strategic imperatives for energy and critical minerals independence, and water management. We would greatly appreciate the support of our Board in reaching out to Utah's legislators to support UGS' additional funding as we get our legislative preparations underway.

Financial Update – Russ Fillmore

Fiscal Year 2025 was a strong financial year for the Utah Geological Survey (UGS), ending on June 30 with a positive outcome. Total spending was below both our fixed funding appropriations and revenue from outside collections.

Key Financial Highlights

- **Nonlapsing Funds:** We will carry forward **\$1,272,200** in nonlapsing funds into FY 2026.
- **Lapsing Funds:** Lapsing funds for the fiscal year totaled **\$278,923**.
- **Revenue Growth:** Total revenue increased by **\$632,796** compared to FY2024, driven by a significant boost in federal funding collections.

- **Mineral Lease Royalty Income:** This funding source exceeded initial projections by over **\$450,000**, reaching a total allocation of **\$1,953,307** to the UGS restricted account.

Adjustments and Outcomes

The positive financial outcome was a direct result of our proactive management and adaptability throughout the year.

- **Legislative Fixes:** During FY 2025, a legislative fix corrected a funding separation issue between the Mineral Lease and UGS Restricted fixed funding sources. This allowed us to fully utilize the combined allocations from the OGM severance tax and federal mineral lease royalties in one restricted account appropriation.
- **Revenue Optimization:** Despite initial projections anticipating a 15% drop in outside revenue collections for some programs, increased budgetary scrutiny allowed our teams to maximize revenue. This resulted in an increase of **\$777,947** in federal funds compared to the previous year.
- **Grant Program Resilience:** Several grant programs faced temporary pauses due to Presidential Executive Orders and DEI-related issues. Our program managers and leadership successfully navigated these challenges by revising applications, leading to the resumption of funding for all affected programs.

Outlook for FY 2026

While federal funding remains uncertain due to federal funding reductions, UGS leadership is optimistic. We are confident in our ability to deliver impactful outcomes that align with both state and federal priorities, positioning the UGS as an important partner. We will continue to focus on fiscal discipline and seek grants and contracts with low state dollar cost share requirements to contribute to long-term stability and success at UGS.

Board Discussion Items:

- Board Field Trip was discussed and potentially planned to do a critical minerals/West Desert trip. It will be an overnight in Wendover, Utah and potential leaders will be Stephanie Mills and Don Clark. The field trip is planned to take place October 9-10, 2025.
- Meeting dates for next year were set as:
 - Jan 21, 2026
 - April 15, 2026,
 - August 12, 2026,
 - September, 17-18, 2026

Board adjourned 10:36



UGS Board Meeting
August 20, 2025
Utah Geological Survey



Agenda

8:30	Welcome and Introductory Comments	Elissa Richards, Chair
8:40	Action Items Approval of minutes of UGS Board meeting, April 16, 2025 Formal approval of project proposals since last meeting <u>International Travel (previously approved- review)</u>	Board
8:55	Director's Report Introductions: Deputy Director, new UGS Staff Introductions: Prospective Board Members Director's Update – Strategic Planning, Budget/Staffing, Building Block request	Darlene Batatian
9:30	Break	
9:45	Financial Update	Russ Fillmore
10:30	Board Field Trip, January Meeting	Darlene Batatian
10:45	Closing Comments, Adjourn	Elissa Richards
11:30	Crawford Award Discussion and Vote-Closed Meeting	Board



Contract Proposals

WestGIN: Western States Geothermal Integration Network; funding from the DOE; new funding to the UGS **\$674,466**; total project funding \$4,543,204; estimated start date 10/1/2025; estimated end date 9/30/2027.

Data-Basin: Stratigraphic Hydrothermal Data Acquisition and Reservoir Characterization in the Great Basin; funding from the DOE; new funding to the UGS **\$604,347**; total project funding \$755,434; estimated start date 10/1/2025; estimated end date 12/31/2027.

Geomorphic and Geochronologic Investigation of Late Quaternary Faults in the Bear River Graben, NE Utah, and Western Wyoming; funding from the USGS; new funding to the UGS **\$54,155.63**; total project funding \$77,365.18; estimated start date 1/1/2026; estimated end date 12/31/2026.



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Contract Proposals

Paleoseismic Investigation of the Clarkston Section of the West Cache Fault Zone, Utah; funding from the USGS; new funding to the UGS **\$104,307.40**; total project funding \$147,960.57; estimated start date 4/1/2026; estimated end date 3/30/2027.

Bear Lake Groundwater Quality and Septic-System Density Study; funding from the BLRC/Utah Dept. Water Quality; new funding to the UGS **\$62,932.66**; total project funding \$89,903.81; estimated start date 1/1/2026; estimated end date 6/30/2027.

Geochemical and Geochronological Basemap of Utah's Great Basin and Transition Zone intrusive units; funding from the USGS; new funding to the UGS **\$330,000**; total project funding \$330,000; estimated start date 9/1/2025; estimated end date 8/31/2028.



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International Conference Travel

UGS Board Policy for Foreign Travel by UGS Employees:

Requests from Utah Geological Survey staff to travel to foreign countries are to be reviewed and approved by the Board of the Utah Geological Survey, prior to submission to the Department of Natural Resources for approval, except in emergency response situations. A one-page summary of the proposed travel will be submitted to the Board for their review. The summary is to include purpose of travel, how it relates to the Survey's mission, and the budget for the trip (including any cost-share or funding by another agency). We must be sensitive to: (1) where Utah taxpayer funds are spent, and (2) how travel to foreign countries fits within the mission of the UGS. Exceptions will be considered if it can be shown that foreign travel will be of unusually great benefit to the state. The division director or designee must pre-approve all foreign travel proposals, including those written into grant proposals. A majority of the Board (four members) is needed for approval.

Stephanie Mills- Society of Economic Geologists (SEG) 2025 Conference – Brisbane, AU

Invited to present @2025 SEG Conference about 2026 SEG Conference, to be held in Salt Lake City, Utah.
All costs covered by SEG. September 23-30, 2025

Jim Kirkland – Cretaceous Symposium, Hannover Germany August 30-Sept 6, 2025

Steve Bowman – Alaska Satellite Facility User Working Group, Fairbanks AK Sept 16-20



Agenda

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UGS has a New Deputy Director!

**Stefan Kirby, UGS Deputy Director
Geologic Mapping Program Manager**



Darlene: Energy & Minerals, Groundwater, GIO/Comms
Stefan – Geologic Mapping, Geologic Hazards, GIS, Data Management



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WELCOME!!

Madeline Griem
UCRC Assistant Curator



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Retirement
Janae Wallace
29.5 years!

Service Award
Hugh Hurlow – 30 years



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Board Members

THANK YOU – Dave Garbrecht, Rick Chesnut – Outgoing Board Members

Please Welcome New/Prospective UGS Board Members:

- Richard Borden – “Mineral Industry Representative 1” (Seat 13738)
Replacing David Garbrecht
- Michael Hansen – “Field of Geology as applied to Civil Engineering”
(Seat 13735) Replacing Rick Chesnut

*Approved by Governor’s Board of Commissions
Senate Confirmation Hearings Sept 13.*



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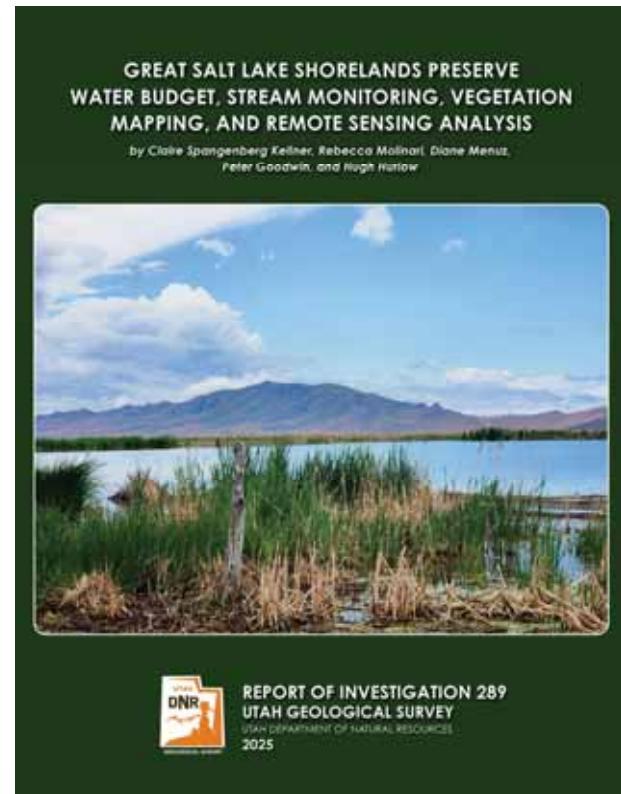
New Publications

Great Salt Lake Shorelands Preserve Water Budget, Stream Monitoring, Vegetation Mapping, and Remote Sensing Analysis

Claire Spangenberg Kellner,
Rebecca Molinari, Diane Menuz,
Peter Goodwin, and Hugh Hurlow

RI-289

<https://doi.org/10.34191/RI-289>



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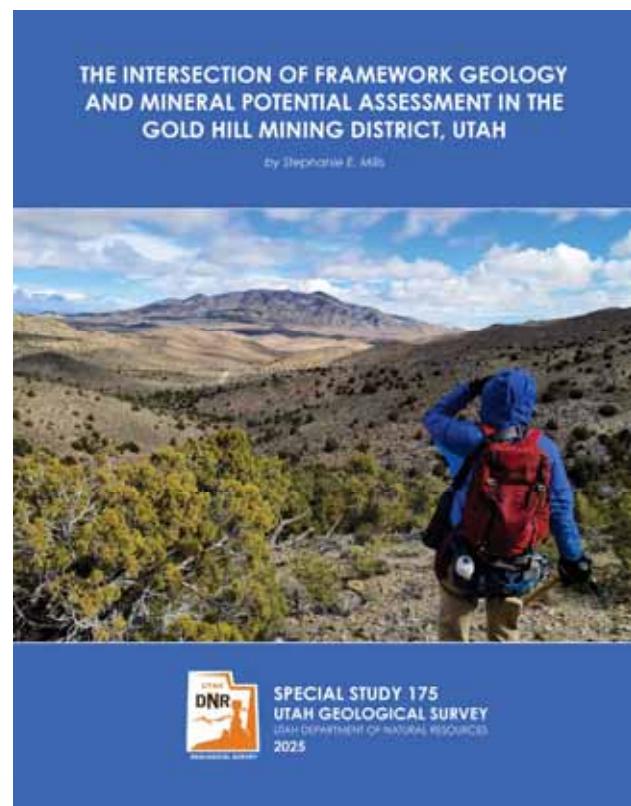
New Publications

The Intersection of Framework Geology and Mineral Potential Assessment in the Gold Hill Mining District

Stephanie E. Mills

SS-175

<https://doi.org/10.34191/SS-175>



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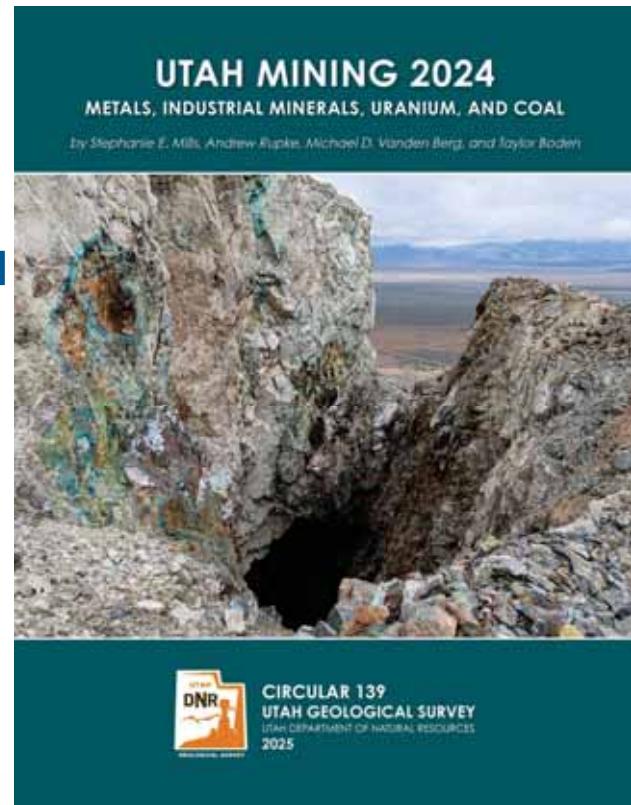
New Publications

Utah Mining 2024 – Metals, Industrial Minerals, Uranium, and Coal

Stephanie E. Mills, Andrew Rupke,
Michael D. Vanden Berg, and Taylor
Boden

C-139

<https://doi.org/10.34191/C-139>



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New Publications

Copper in Utah

Stephanie E. Mills

PI-107

<https://doi.org/10.34191/PI-107>



As one of the top copper-producing states, and home to one of only two copper smelters in the U.S., Utah is an essential domestic provider of this everyday metal.

COPPER IN EVERY DAY LIFE

Copper is a metal used by almost everyone on the planet. It is both ductile (can be stretched into wires) and malleable (can be hammered or pressed into sheets), and was one of the first metals ever used. The Bronze Age was defined by mixing copper and tin to create the alloy known as bronze. Brass is another common alloy made with copper and zinc. In modern times, copper is the third most commonly used metal behind aluminum and iron.

Copper is used in modern life in a variety of applications, such as electrical wires, plumbing, and construction materials. Copper is particularly useful in electrical applications because it is an excellent conductor of electricity and heat.



COPPER MINING IN UTAH

In Utah, over 45 billion pounds of copper have been produced since mining began in the late 1800s, worth over \$205 billion at modern metal prices—about as much as the annual gross domestic product (GDP) of a small country like New Zealand. Utah is the second largest copper producing state in the U.S., behind Arizona, and copper has generated more value for Utah than any other metal. The importance of copper to Utah's economy is why it is Utah's state mineral.



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New Publications – Francis 1:24,000

Interim Geologic Map of the Francis Quadrangle, Summit and Wasatch Counties, Utah

Lauren J. Reeher and Abigail E. Conger

2 plates, scale 1:24,000

OFR-770DM

<https://doi.org/10.34191/OFR-770DM>



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New Pubs – Blanding North

Interim Geologic Map of the Blanding North Quadrangle, San Juan County, Utah

Matthew C. Morrise

2 plates, scale 1:24,000

OFR-771DM

<https://doi.org/10.34191/OFR-771DM>



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New Pubs – Huntsville 1:24,000

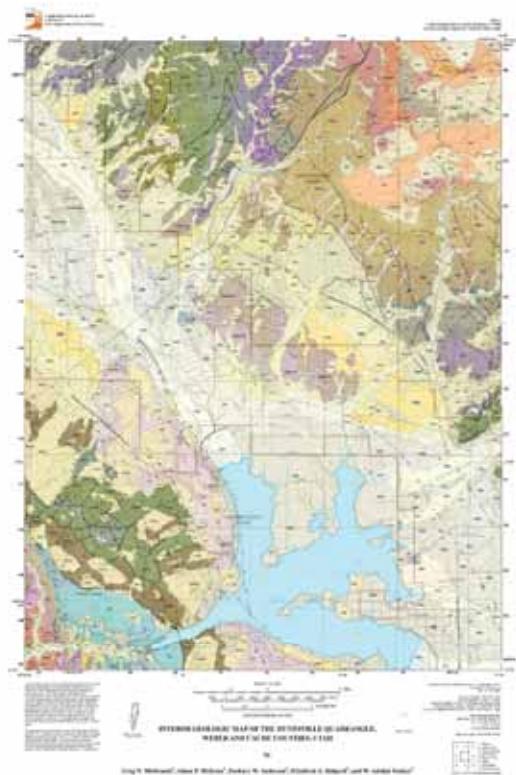
Interim Geologic Map of the Huntsville Quadrangle, Weber and Cache Counties, Utah

**Greg N. McDonald, Adam P. McKean,
Zachary W. Anderson, Elizabeth A.
Balgord, and W. Adolph Yonkee**

2 plates, scale 1:24,000

OFR-772DM

<https://doi.org/10.34191/OFR-772DM>



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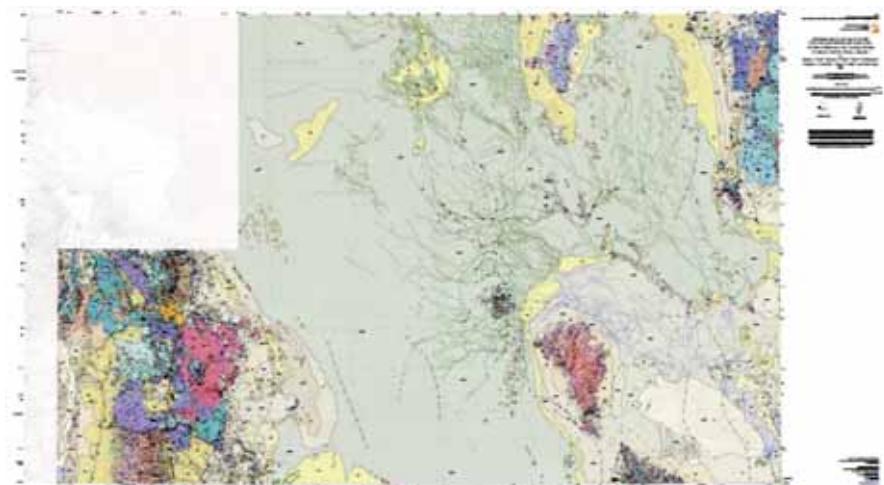
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New Publications – Wildcat Mtn & Currie 30x60

Interim Geologic Map of the Wildcat Mountain and East Part of the Currie 30' x 60' Quadrangles, Tooele County, Utah: Phase 1

Donald L. Clark, Charles G. Oviatt, Eric H. Christiansen, Christian L. Hardwick, Kayla D. Smith, and David Page

2 plates, scale 1:62,500 OFR-773
<https://doi.org/10.34191/OFR-773>



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Director's Update

New Director's Goals for First 90 Days:

New Director's Immediate Challenge:

Strategic Planning

Funding Shortfall

- Strategic Planning: *"Return to Mission"*
- Budget & Staffing Challenges & Successes
- FY26 Building Block Request



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Strategic Planning “Return to Mission”

- **Return to Mission – Revisit our Statute**
 - **What does our statute say we do? Who do we serve?**
 - Assist, advise, collect, distribute, survey, cooperate...
 - State & local agencies... to facilitate economic use
- **Align Our Work to Our Mission - Are we *in alignment*?**
 - *Where aren't we?*
- **Align Staffing to Mission/Work**
 - *What staff does UGS need to accomplish this work?*
- **Funding - How much \$\$ does a ‘right-sized’ UGS need to operate?**



FY26 Preliminary Budget Estimate			
	LOW OUTSIDE FUNDING ESTIMATE	MID OUTSIDE FUNDING ESTIMATE	HIGH OUTSIDE FU ESTIMATE
REVENUE			
GF (1000)	6,027,300	6,027,300	6,027,300
GF - Operation Gigawatt Geothermal - 1X	1,750,000	1,750,000	1,750,000
GF Restricted - UGS Oil, Gas, & Mining (1137)	3,247,000	3,247,000	3,247,000
GF Restricted - LEDA	28,800	28,800	28,800
Outside Funding	3,000,000	3,400,000	3,800,000
Non-Lapsing GF	900,000	900,000	900,000
UNADJUSTED REVENUE TOTAL	13,203,100	13,603,100	14,003,100
REVENUE ADJUSTMENTS			
Pass-through Revenue Adjustment	(800,000)	(800,000)	(800,000)
Critical Mineral Carry-Forward	(275,000)	(275,000)	(275,000)
GSL Carry-Forward	(30,000)	(30,000)	(30,000)
BSF Carry-Forward	(305,000)	(305,000)	(305,000)
Adjustment Total	(1,410,000)	(1,410,000)	(1,410,000)
Adjusted Revenue Total	11,793,100	12,193,100	12,593,100
EXPENDITURES			
AA Personnel Services	11,900,000	11,900,000	11,900,000
BB Travel/In State	110,000	110,000	110,000
CC Travel/Out of State	60,000	60,000	60,000
DD Current Expense	750,000	750,000	750,000
EE Data Processing Current Expense	600,000	600,000	600,000
FF Data Processing Capital Expenditure	-	-	-
GG Capital Expenditure	150,000	150,000	150,000
HH Other Charges/Pass Through	800,000	800,000	800,000
UNADJUSTED EXPENDITURE TOTAL	14,370,000	14,370,000	14,370,000
EXPENDITURE ADJUSTMENTS			
Pass Through Adjustment	(800,000)	(800,000)	(800,000)
Critical Mineral Spending	(150,000)	(150,000)	(150,000)
GSL Spending Activity	(30,000)	(30,000)	(30,000)
BSF Spending Activity	(50,000)	(50,000)	(50,000)
Expenditures Adjustment Total	(1,030,000)	(1,030,000)	(1,030,000)
Adjusted Expenditure Total	13,340,000	13,340,000	13,340,000
End-of-Year Balance	(1,546,900)	(1,146,900)	(746,900)

***Preliminary Budget Estimates Only

How Did We Get Here?

Recognition that past fiscal challenges had caught up with us:

- Securing grants without considering overall, long term impacts of match cost to UGS budget (match comes from General Funds)
 - Matching funds grew from **\$600K (2020) to \$1.9M ANNUALLY!!**
- Staff added to perform this work – grew from **70 to 92 people**
- We did not ask the Legislature to adjust our funding
- Lost focus on our statutory responsibilities & mission
- Some lack of attention to grant performance/billing
- **Depleted reserves**

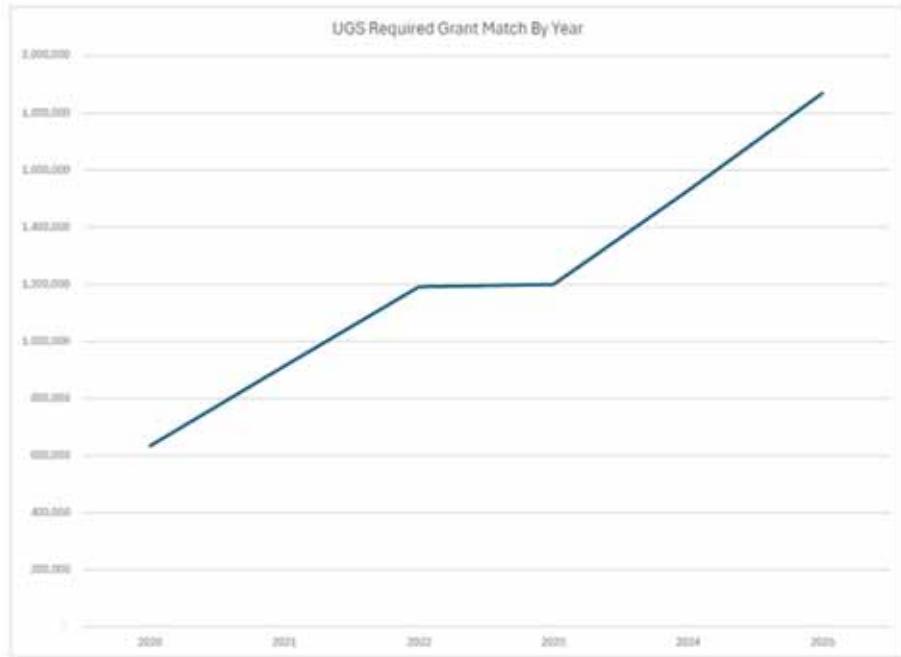


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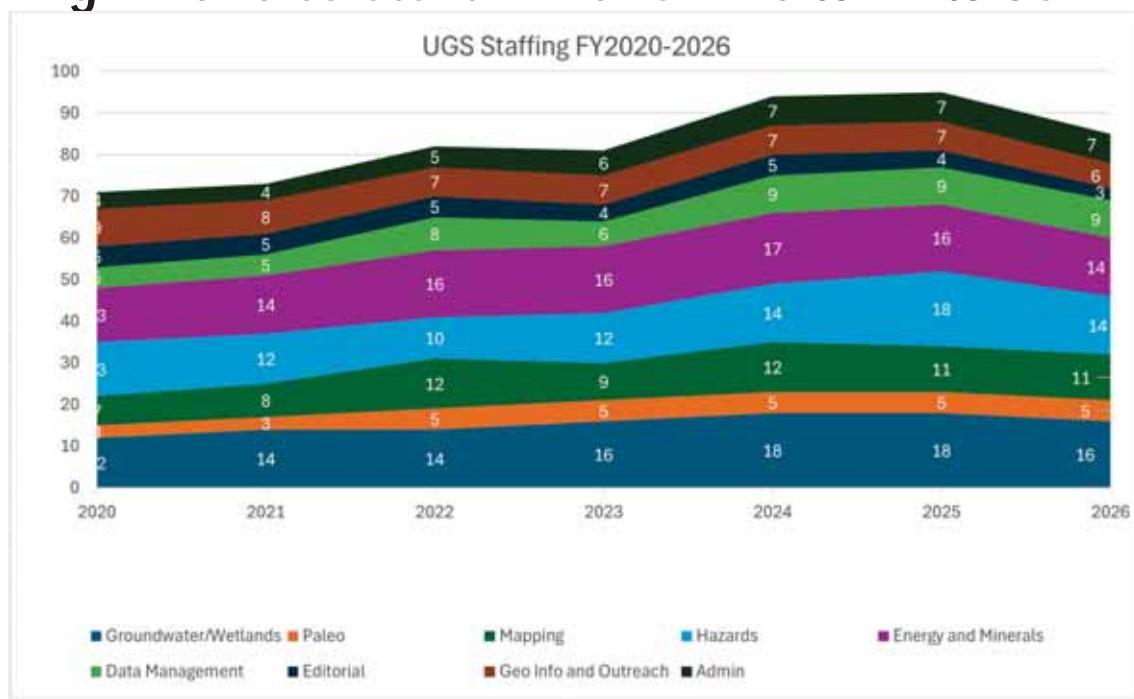
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Grant Match (2020 to 2025) **\$600K to \$1.9 Million**



Staffing – 2020 to start FY2026: 70 to 92 to 85



Fiscal Management & Redirection

January: Awareness that revenue projections were not being met.
Redirected staff to focus on grant performance
Lax timesheet coding to grants/Spotty focus on grant projects
Needed to capture every \$ revenue to avert FY25 deficit

In April, FY26 budget forecast indicated **(\$1.5M) shortfall**

- Initiated review of mission, staffing, personnel costs
- If cuts had to be made, minimize impacts to UGS mission & staff
- Many evaluations of org chart!



FY 2026 – Significant Potential Deficit Required Action

- Uncertainty about how FY25 would end (carryover?)
- FY26 - Suspended/delayed federal funds - \$1-2M+
- Depleted reserves to keep us afloat in FY25
- Initial FY26 Estimate: (\$1.5M deficit)
- Assessed staffing needs: Focus on our statutory mission
- 5 voluntary separations (retirement, grad school)
- Workforce adjustment plan (RIF) – 2 people. Minimal impact to UGS' ability to conduct our science mission. Soft landing – 2 months lead time
 - *Videographer; Bookstore Geologist >> Geotech*
- Reduced anticipated shortfall by 50% - still had a forecasted -\$850K deficit



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Strategy to Address FY26 Projected Budget Shortfall Securing General Funds & Federal Funds

- Consultation w/ DNR Executive leadership: How did we get here/Asked for advice.
- DNR Executive Director Joel Ferry- Understands UGS' role & mission, accepted corrective actions, offered support through severance adjustment.
- **GOAL: Increase UGS funding by approx. \$1m permanent, ongoing funds**
 - Implement staffing reductions, reach out to industry (UPA, UMA)
 - Submitted as Building Block for now – Exploring Severance Adjustment?
 - Legislative session will be critical for UGS funding.
- **Federal Funding: Opened direct channel w/ Federal delegation:** Senators Lee, Curtis
 - Phone call, Sent a letter requesting release of paused federal funds
- Joining AASG in Washington DC to promote work of state geological surveys to our Federal reps
- **STATEMAP Award! \$577K+**



FY 2026 – Stable, for Now....

- **Attention to grant performance yielded an additional \$1M in revenue**
 - FY 2025 ended “in the black”
 - Carryover funds into FY26
- **Updated operating budget forecast:** No deficit for FY26!
- **FY 27 and beyond:** Requesting funds to support a ‘right sized’ UGS (about present staffing levels)
- No guarantee we will be awarded additional funds; May still make staffing changes as we adjust focus on our mission
- **Thank you Russ, Ben, and Stefan** for constant consultations, scenario evaluations



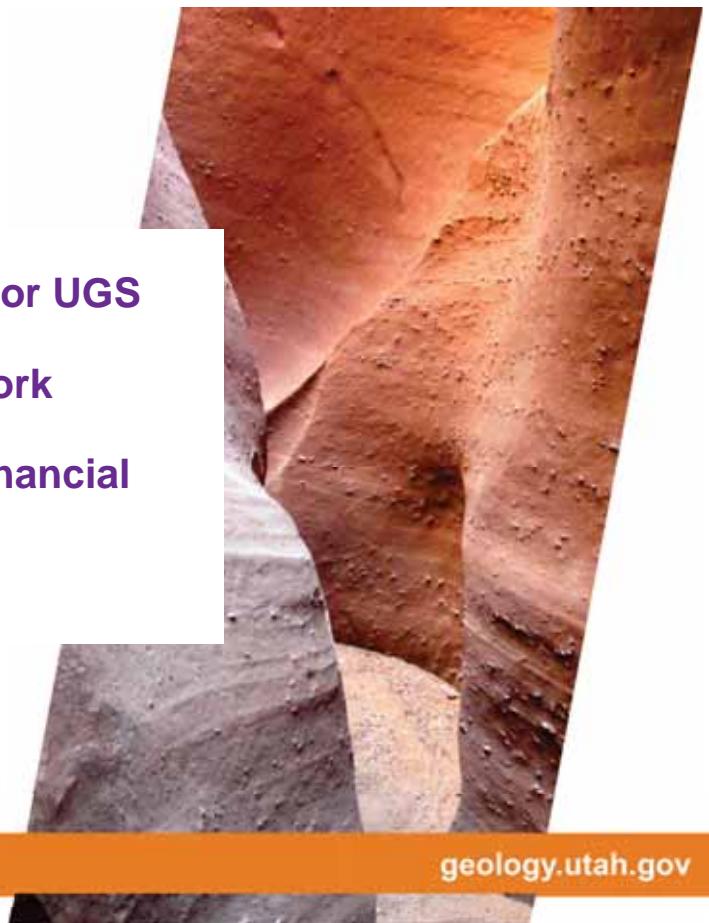
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Clear Goals

- Envision a vibrant and healthy future for UGS
- Develop a value proposition for our work
- Leverage that to request permanent financial support for UGS



9:30 Break

9:45 Financial Update Russ Fillmore

10:30 Board Field Trip, January Meeting Darlene Batatian

10:45 Closing Comments, Adjourn Elissa Richards

11:30 Crawford Award Discussion and Vote-Closed Meeting Board



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FY25 Financial Update – Russ

Financial documents in the Board packet include:

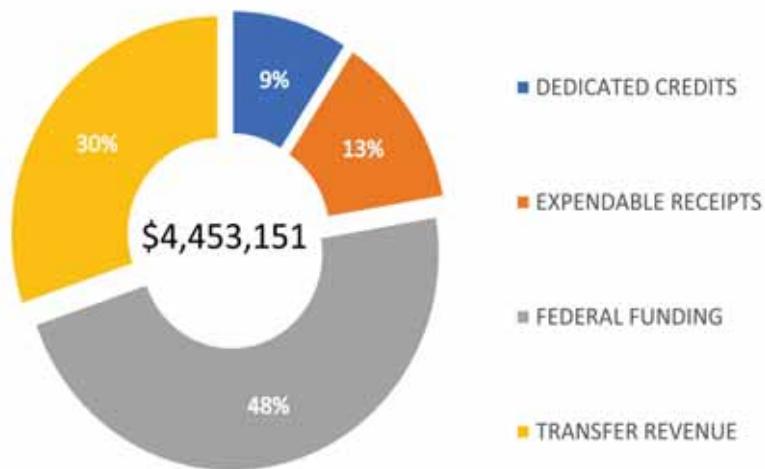
- FY25 Closing Report
- FY25 Final Operating Budget Summary Report
- Contract Proposals Tracking Summary



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FY 2025 Revenue Collections



FY 2025 Expenditures



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FY25 Financial Update – Russ

FIXED FUNDING	\$10,766,926
OUTSIDE REVENUE COLLECTION	\$4,453,151
TOTAL FUNDING	\$15,220,077
EXPENDITURES	\$13,668,954
<u>END OF YEAR BALANCE</u>	<u>\$1,551,123</u>
LAPSING FUNDS	\$278,923
NON-LAPSING FUNDS	\$1,272,200



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FY25 Financial Update – Russ

Bonneville Salt Flats Restoration project

FY24 Carryover	\$330,740
Expenditures	\$61,947
Balance to FY26	\$268,793

Great Salt Lake Groundwater Studies

FY24 Carryover	\$297,849
Expenditures	\$277,234
Balance to FY26	\$20,615

Critical Minerals Study

GF Appropriation:	\$400,000
Expenditures	\$135,184
Balance to FY26	\$265,816



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FY25 Financial Update – Russ

State Fixed Funding Carryover

FY23 to FY24 \$1,212,073

FY24 to FY25 \$561,458



FY 2024 to FY 2025 COMPARISON - FUNDING

FIXED FUNDING	2024	2025	Difference
General Funds	5,784,800	5,943,000	158,200
GF One-Time (Critical Minerals)		400,000	400,000
Fund 1137 OGM	733,900	3,194,900	2,461,000
Mineral Lease	1,872,153	-	(1,872,153)
Land Exchange	47,639	36,630	(11,009)
COLLECTION REVENUE			
Dedicated Credits	411,198	408,315	(2,883)
Expendable Receipts	151,791	583,485	431,694
Federal Funds	1,334,960	2,112,906	777,947
Transfers	1,922,407	1,348,445	(573,962)
NON-LAPSING CARRY FORWARD			
Non-lapse	2,056,400	1,192,397	(864,003)
Total Revenue	14,315,247	15,220,078	904,831



FY 2024 to FY 2025 COMPARISON - FUNDING

EXPENDITURES:	2024	2025	Difference
AA Personnel Services	10,645,510	11,263,486	617,975
BB Travel/In State	102,807	115,488	12,681
CC Travel/Out of State	52,672	55,596	2,924
DD Current Expense	704,125	775,010	70,885
EE Data Processing Current Expense	554,385	560,932	6,547
FF Data Processing Capital Expenditure	17,096	-	(17,096)
GG Capital Expenditure	72,611	183,956	111,346
HH Other Charges/Pass Through	973,644	714,487	(259,157)
Total Expenses	13,122,850	13,668,954	546,104



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FY 2025 BUDGET TO ACTUAL

REVENUES:	BUDGET	ACTUALS	DIFFERENCE
General Funds	5,943,000	5,943,000	-
GF One-Time (Critical Minerals)	400,000	400,000	-
Fund 1137 OGM	3,194,900	3,194,900	-
Mineral Lease	-	-	-
Land Exchange	36,630	36,630	-
Dedicated Credits	412,687	408,315	4,371
Expendable Receipts	295,934	583,485	(287,551)
Federal Funds	2,623,932	2,112,906	511,026
Transfers	2,574,345	1,348,445	1,225,900
Non-lapse	1,192,397	1,192,397	-
Total Revenue	16,673,824	15,220,078	1,453,746



FY 2025 BUDGET TO ACTUAL

EXPENDITURES:	BUDGET	ACTUAL	DIFFERENCE
AA Personnel Services	11,426,673	11,263,486	163,187
BB Travel/In State	167,826	115,488	52,338
CC Travel/Out of State	43,891	55,596	(11,705)
DD Current Expense	919,125	775,010	144,116
EE Data Processing Current Expense	633,187	560,932	72,255
GG Capital Expenditure	-	183,956	(183,956)
HH Other Charges/Pass Through	1,910,677	714,487	1,196,190
Total Expenses	15,101,379	13,668,954	1,432,425



FY25 Financial Update – Russ

We will now start on the fiscal year 2026 operating budget. Then next month, we will prepare the fiscal year 2027 budget request for the Legislature.



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Board Field Trip and Meeting Dates

- **Board Field Trip – Sept/October**
 - Geothermal Frontiers or Critical Minerals Tour or?
 - *Need to change date- Darlene is away*
- Next Board Meeting: Wednesday, January 14, 2026



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Crawford Award



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Thanks for all you do!

DIVISIONS



OFFICES



WE ARE DNR

We protect and enhance Utah's natural resources for current and future generations.



OUR CORE VALUES



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