



Utah EPSCoR  
NSF EPSCoR RII Track 1

*innovative Urban Transitions and Arid-region  
Hydro-sustainability (iUTAH)*

Annual Report 2016 – 2017

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PIs: Michelle Baker, Zachary Aanderud, James Ehleringer, Courtney Flint,  
Courtenay Strong

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Compiled by: Andreas Leidolf, Assistant Director and Project Administrator

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## 1. OVERVIEW

### The iUTAH Vision

The vision for iUTAH EPSCoR is to lead the nation in scientific, educational, and innovative solutions for water management and sustainability through innovative interdisciplinary research and systems-level knowledge of the interactions among water, demand, and climate and development of a state-of-the-art hydroinformatics program that incorporates large data with interdisciplinary modeling and visualization.

### The iUTAH Mission

The mission of iUTAH is to enhance collaborative partnerships to better understand how to sustain Utah's water resources by (1) developing novel approaches to integrated research and training, and (2) expanding the state's economic, educational, and research competitiveness. Our efforts over the past five years have focused on:

- Enhancing Utah's research capacity and competitiveness in the science of interactions between society and the biophysical environment
- Leading research, training and education in coupled human-natural water resource systems
- Recruiting and training a diverse Science, Technology, Engineering, and Mathematics (STEM) workforce and the next generation of researchers
- Informing policy makers and our citizenry on the interactions between climate, land use, innovative management, and water sustainability
- Providing a lasting human and physical infrastructure comprised of a statewide consortium of researchers, educators and private-sector partners as well as a sustainable sensor and cyberinfrastructure (CI) network

### Goals of the iUTAH Project

The goals of the Utah Research Infrastructure Improvement (RII) Track 1 are to create sustainable infrastructure improvements to benefit water-related science and technology throughout the state, increase national research and development competitiveness, and expand our workforce of researchers, educators, and practitioners to ensure a vital economy and sustainable future (Table 1). Infrastructure improvements include:

- *Enhanced research capacity of the biophysical, social and engineered water environment.* This is being accomplished by building state-of-the-art water quality- and yield-monitoring networks in three focal watersheds that encompass a range of urbanization and future development. In addition, a Green Infrastructure Research Facility (GIRF) has been constructed, allowing for new research activities, as well as providing an important educational and outreach facility.
- *Building on Utah's existing strengths in hydrologic modeling and cyber-infrastructure from the CI-WATER and Cyber-infrastructure NSF EPSCoR awards.* iUTAH has pursued multiple interdisciplinary modeling approaches that have created new models; linked currently disparate models, data and computing approaches; and provided greatly enhanced forecasting capabilities for water managers and stakeholders.
- *Building programs to increase participation of underrepresented groups that include women, Hispanics and Native Americans.* A series of diversity training workshops have provided all iUTAH participants with best practices for recruitment and retention of diverse audiences. iUTAH has also aggressively recruited underrepresented groups for all EPSCoR-related activities and hires.
- *Providing educational opportunities for a scientifically literate Utah workforce and citizenry.* iUTAH has a number of programs that target K-12 students and teachers as well as undergraduate students. These programs have provided hands-on activities associated with the instrumented watersheds and GIRF. In addition, iUTAH has partnered with state museums to provide informal science education to thousands of Utah residents.
- *Providing societally relevant science and education regarding current and future water resources.* iUTAH has followed a rigorous external engagement plan that includes state, regional, county and local water management agencies and stakeholders. Our participatory modeling activities have provided first-hand knowledge of our enhanced sensor networks, data flows, and scenarios modeling capabilities. In turn, our research questions and modeling activities have been frequently informed by the needs expressed by our water resource managers and policy makers.

## Participating Institutions

As in the previous year, the iUTAH project actively engaged with all eleven post-secondary institutions in the state (Table 2). In addition to the three PhD-granting research universities Utah State University (USU—lead institution), University of Utah (UU), and Brigham Young University (BYU), the roster of participants and collaborators includes eight Primarily Undergraduate Institutions (PUI), with six open-enrollment schools. Of the ten partner institutions, seven were issued a subaward by USU and have a designated Principal Investigator (PI). Both participant and collaborating institutions engaged with iUTAH across a wide and growing spectrum of activities in Year 5.

## Key Accomplishments in Year 5

The iUTAH project claims a large number of accomplishments that reflect the maturity of the project and serve as a testament to the continuing high level of engagement and productivity among its 268 active participants. Across all project areas, iUTAH participants published 50 peer-reviewed journal articles in Year 5, representing 50% of the project total to date. An additional 34 manuscripts are submitted, are currently under review, or are awaiting publication. Among these publications are signature Research Focus Area (RFA) products, such as an overview of the Gradients Along Mountain to Urban Transitions (GAMUT) observatory, the urban typology developed by RFA 2, as well as manuscripts documenting innovations and advances in social science survey methodology.

iUTAH participants also submitted 34 grant proposals, with 14 awards totaling over \$7M, bringing the project total to almost \$30M in new external funding that was catalyzed by the RII Track-1 award. Included in the total are a National Science Foundation (NSF) CAREER Award to RFA 3 Co-lead Sarah Null, as well as a \$2.7M NSF Research Traineeship program grant in climate adaptation with seven iUTAH participants as Co-PIs or collaborators that is expected to continue iUTAH's legacy of interdisciplinary research and STEM workforce development. Several proposals prompted by research funded under iUTAH Research Catalyst Grants (RCG) were submitted by and awarded to PUI faculty.

In Year 5, iUTAH continued its work to help build the next generation STEM workforce for the state of Utah and the Nation by investing in science communication and Broader Impacts training for its research faculty participants; and mentoring a large cohort of undergraduate and graduate students and postdoctoral associates. Over the course of the past year, 104 undergraduate students—50% of them female—were involved in iUTAH programs, with about

half of them mentored at PUIs, the majority through RCGs; 34 of these students completed their degrees, representing almost 50% of the project total to date. The project also trained 52 graduate research assistants (GRA) in Year 5, 56% of them female; ten students completed their degrees, accounting for one third of all GRAs graduated to date. All four postdoctoral hires were retained in Year 5. Dr. Krishna Khatri (UU) was promoted to Research Assistant Professor; Drs. Melissa Haefner (USU) and Rachel Gabor (UU) were appointed to tenure-track faculty positions at Portland State University and The Ohio State University, respectively.

### Significant Problems, Opportunities, and Changes

Despite minor changes in the planning or execution of activities to meet project milestones; several significant personnel transitions; and the ongoing challenge of maintaining high levels of participant engagement on a project that is nearing the end of its lifespan; no significant problems that affected the overall scope, direction, or successful implementation of iUTAH projects were encountered in Year 5. Ongoing efforts to secure the sustainability of the statewide collaboration network built by iUTAH over the past five years received a number of setbacks, with legislative and institutional buy-in remaining elusive. As a result, project leadership revised its strategy by pursuing a charge account/recharge facility model to secure the continuity and longevity of core infrastructure. Participants across all RFAs and other project elements were actively engaged in seeking opportunities to strengthen and expand partnerships with nonprofits, local and state agencies, industry, and academic institutions across the state and region. A new partnership established with the American Association for the Advancement of Science (AAAS) may provide novel tools and approaches to archiving the institutional memory and knowledge base and legacy products generated by iUTAH participants.

## **2. RESEARCH AND EDUCATION PROGRAM**

### Research Focus Area 1—Biophysical System

*Key Accomplishments.* Both the water yield and water quality research groups set out to finish work towards achieving their core objectives during Year 5: to fully describe the water cycle by unraveling the processes most important to water balance, and detailing and explaining critical controls on water quality, along mountain-to-urban gradients in the semi-arid west. Key accomplishments in this area include improved understanding of the partitioning of precipitation into soil, ground-, and surface water components; the sources of and controls on

evapotranspiration; groundwater-surface water interactions; and the role of urbanization in controlling water quality. Another major achievement is the submission of an overview manuscript currently under review of the iUTAH core observatory GAMUT, which documents the design and installation of the sensor network, along with important lessons learned over a 5-year period of operation. Completion of this manuscript was timely, as new collaborations with state and municipal agencies are changing the face of GAMUT to be more responsive to stakeholder needs and priorities: for example, in the Logan River watershed, the canal and stormwater component of GAMUT was greatly expanded in response to data needs articulated by the City of Logan, which has agreed to fund installation and maintenance of new sensors in Year 6. At the same time, sensors are being relocated along the Provo River to better reflect priorities of the Utah Division of Water Quality (UDWQ), and new buoy-mounted sensors were added and integrated along the Provo River GAMUT to provide an early warning system for Harmful Algal Blooms (HAB) in Utah Lake (Box 1), into which the Provo River empties.

*Outputs and Outcomes.* RFA 1 researchers produced a number of relevant outputs during Year 5 (Table 3). With the exception of popular press publications, all output metrics exceed targets specified in the Strategic Plan. Of particular note is the submission of ten collaborative proposals, which resulted in \$3M in new external funding, as well as the publication of 16 peer-reviewed journal articles, with an additional eight papers currently under review.

**Box 1. UDWQ and iUTAH deploy harmful algae-tracking sensors in Utah Lake**

iUTAH's Erin Jones, a PhD student at Brigham Young University, and GAMUT technicians Dave Eiriksson and Dylan Dastrup helped deploy new algae-tracking sensors in Utah Lake in August 2016. The buoys, which are monitored by the Utah Lake HAB Network (<https://wqdatalive.com/public/669>), send data every 60 minutes that are then made available through the UDWQ website. In time, information collected by these sensors will be used in conjunction with a model to forecast potential HAB.

*Future Plans.* Year 6 goals for RFA 1 are focused on finishing work currently ongoing, particularly in the area of land use/climate change models and alternative futures scenario modeling in collaboration with RFA 3. RFA 1 efforts include: quantifying the impacts and potential adaptations to mitigate the effects of climate change on water resources; modeling Salt Lake City water quantity and quality under multiple uncertain change drivers; developing a systems-model approach to assessing riparian zone restoration; creating vulnerability assessments of water supply systems under climate change; modeling of circulation influences on precipitation deficits; and understanding interactions among snowpack, drought, and climate forcing. A critical broader goal is the sustainability of GAMUT. With the discontinuation of NSF EPSCoR funding



imminent, Utah's research universities are looking for ways to "adopt" the observatory infrastructure in proximity to their respective campuses. Proposals have been submitted to administrators at UU and USU for maintaining iUTAH infrastructure into the foreseeable future.

*Significant Problems, Opportunities, and Changes.* No significant problems were encountered in Year 5, and no substantive changes to RFA 1 objectives, goals, and milestones were made or are anticipated into Year 6. High levels of run-off expected for Spring 2017 provide a novel opportunity to add high-flow measurements to existing GAMUT rating curves. Planning is under way to take full advantage of this opportunity.

### Research Focus Area 2—Social and Engineered System

*Key Accomplishments.* Signature achievements in RFA 2 during Year 5 broadly fall into three categories: publication of seminal work products, completion of core activities, and successful integration of RFA 2 research with RFA 3 modeling activities. Year 5 saw the publication of the urban typology developed as an outgrowth of the "Utah's Water Future" household survey, as well as a series of papers documenting significant advances in survey methodology in a special issue of the *Journal of Rural Social Science*. Core activities that dominated much of RFA 2's work over the past five years were brought to a successful conclusion, including a series of presentations and town halls in Wasatch Range Metropolitan Area (WRMA) communities targeted for the household survey that received substantial interest from local citizens, municipal officials, and water managers; and the completion of key informant interviews in WRMA communities to assess interactional capacity and water programming, bringing to a close much of the water governance and policy work begun in Year 1. Finally, Year 5 saw the completion of another cross-RFA linkage, with research findings related to urban form and green infrastructure successfully integrated into RFA 3 modeling exercises.

*Outputs and Outcomes.* Researchers in RFA 2 had a productive Year 5, with output metrics significantly exceeding targets set by the Strategic Plan (Table 4). Input from RFA 2 informed ten collaborative proposals, and generated \$3.5M in new external funding. With 15 peer-reviewed publications, and almost 40 presentations, dissemination of signature achievements of both the social sciences and engineering groups far outpaced already ambitious goals. Of particular note is the large number of social science datasets that were archived in the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) Hydrologic Information System (HIS) HydroShare platform in Year

5, given that coding, analysis, and curation of these data, particularly where human subjects are involved, is frequently arduous and time-consuming.

*Future Plans.* A major Year 6 goal for all RFA 2 research groups is the documentation of the impacts of RFA 2 research on stakeholder decision-making. This effort is already underway, with 14 of 35 researchers interviewed, and scheduled for completion in Year 6; interviews with up to 30 external partners will further inform this work. Additionally, a synthesis manuscript highlighting new areas of inquiry that are emerging from iUTAH social science research on water and land use is planned. Another goal is the completion of modeling efforts with RFA 3 that simulate impacts of alternative urban growth scenarios on water and ecological outcomes. RFA 2 social scientists will also dedicate time and resources to support incorporation of Household Survey data into the CI Survey Data Viewer and to ensure data integrity and metadata accuracy and completeness. With GIRF construction complete, RFA 2's built systems group will focus their Year 6 activities on collecting and analyzing data from stormwater simulations, and on developing GIRF into a catalyst and core component of future research activities for iUTAH's statewide collaboration network.

*Significant Problems, Opportunities, and Changes.* A transition in co-leadership of RFA 2 during Year 5 introduced inevitable delays in the implementation of some research activities, and resulted in the expected minor adjustments to the direction and focus of ongoing research efforts that are the natural consequence of any significant personnel change. Despite this, no significant problems were encountered in Year 5, and no substantive changes to RFA 2 objectives, goals, and milestones were made or are expected for Year 6. Continuing the integration of social and physical science research with water management decision-making is essential to capitalizing on iUTAH's contributions to securing a sustainable water future for the citizenry and industries of Utah. Assessments conducted in Year 5 suggest that RFA 2's work has been highly impactful in this regard. Thus, pursuing opportunities for continued and expanded community-university and stakeholder-researcher partnership and collaboration are expected to be major opportunities for RFA 2 during Year 6.

### Research Focus Area 3—Coupled Human-Natural System

*Key Accomplishments.* A major goal for RFA 3 for many years has been the establishment of meaningful, sustained working relationships with state and municipal agencies in the water management and water policy sectors. This slow and deliberate process has now come to fruition, with RFA 3 researchers regularly asked to participate in a range of planning, strategy, and working group

meetings at the Salt Lake Department of Public Utilities (SLCDPU), the Utah Divisions of Water Resources (UDWRe), and UDWQ; as well as a range of other constituencies, such as the Cache Water District, the Cache Environmental Flows group, the Salt Lake Public Utilities Commission, the Utah Stormwater Advisory Committee, and the consortium of Utah Water Agencies. In Year 5, RFA 3 researchers participated in 31 such meetings, which have become catalysts for the development of stakeholder products and the provision of stakeholder services; the implementation of scenarios modeling workshops; as well as numerous visualization outreach activities in collaboration with the iUTAH Visualization Laboratory. Most importantly, these “slow-burn” activities have succeeded in creating an environment of mutual trust and respect, and a culture of cooperation and collaboration, that includes the sharing and exchange of data, co-development of models, and co-authoring of manuscripts with municipal and state agency scientists and engineers.

*Outputs and Outcomes.* Much as in Year 4, researchers in RFA 3 based primarily at UU and USU produced substantive outputs in Year 5 that significantly outpaced target metrics as laid down in the Strategic Plan (Table 5). With the exception of scenarios modeling workshops and visualization outreach activities, outputs exceeded set targets by factors of 1 to 15. Of particular note are numerous activities centered around stakeholder engagement, products, and services, as well as a large number of presentations—many of them invited talks to diverse stakeholders and constituencies—and publications. RFA 3 researchers also laid the groundwork for the next generation of coupled modeling research, with nine collaborative proposals submitted, and over \$6M in new external funding.

*Future Plans.* Core objectives for RFA 3 during Year 6 are focused on completing integration across RFAs by finalizing coupled modeling activities that evaluate change scenarios and adaptation/mitigation strategies; completing work on an optimization model that prioritizes stream barrier removal to improve aquatic habitat; and finishing the coupling of Water Evaluation and Planning models. Another goal is the development of additional stakeholder products, including an interactive online repository of water management controlled vocabulary, as well as agent-based modeling.

*Significant Problems, Opportunities, and Changes.* No significant problems were encountered in Year 5, and no substantive changes to RFA 3 objectives, goals, and milestones were made or are expected in year 6. A number of critical stakeholder relationships that have been carefully built and nurtured over the past two years, including with SLCDPU, UDWRe, and UDWQ, are beginning to bear fruit and pose exciting prospects for ongoing data sharing and exchange,

model co-development, and co-authoring of manuscripts. Strengthening these incipient relationships is both a major challenge and an opportunity for Year 6.

### 3. PROJECT ELEMENTS

#### Cyberinfrastructure

*Key Accomplishments.* CI's main accomplishment for Year 5 was the arduous but critical process of transitioning the deprecated iUTAH data repository to CUAHSI HIS HydroShare, an online collaboration platform for sharing data, models and code related to hydrologic science. With the iUTAH project nearing its end, and large numbers of participants submitting their datasets for storage, establishment of a sustainable partnership for the long-term archival of iUTAH data was imperative. To date, there are 23 iUTAH-affiliated registered users on HydroShare creating and curating finished datasets. This number is expected to grow significantly as additional datasets are finalized and published during the final year of the project. Another signature achievement of the CI group in Year 5 was the final release of software and publication of a manuscript describing the Survey Data Viewer, a novel visualization of social science data collected by RFA 2. This innovative and exciting work is scheduled for further expansion in Year 6.

*Outputs and Outcomes.* As in previous years, researchers in CI continued to produce relevant outputs and outcomes that greatly exceeded target metrics set in the Strategic Plan (Table 6). The large number of presentations and peer-reviewed publications attests to the emergence of the iUTAH CI group as a research enterprise in its own right, rather than merely playing a supportive role for other research teams. The substantial web presence maintained by the CI Modeling and Data Federation (MDF), including the parent website, the Time Series Analyst, and the Survey Data Viewer, continued to attract a large audience, with user numbers for Year 5 greatly increased over Year 4 (Table 7).

*Future Plans.* Building state-of-the-art CI to manage, process, store, analyze, and visualize large, continuous sensor data streams; and developing world-class expertise in hydroinformatics has always been one of the most important objectives of the iUTAH project. As such, it should come as no surprise that the list of planned activities for iUTAH CI as the project nears its end date and transitions out of EPSCoR funding is comprehensive, ambitious, and impressive. Specific CI goals for Year 6 include:

- Ensuring that all source code and software tools developed by iUTAH have current releases and updated documentation on open-source code repositories to enable efficient reuse.

- Completing the transition of the iUTAH data repository to HydroShare. This involves ensuring that all iUTAH participants deposit and publish their datasets in HydroShare in compliance with the iUTAH data policy; as well as generalizing iUTAH-specific functionality for automating the process of moving sensor datasets (e.g., GAMUT data) into HydroShare so that it can be made available to other CUAHSI HIS software users.
- Release of a working version of the model coupling software developed by iUTAH CI and publication of a manuscript demonstrating its utility via application to iUTAH RFA 3 use cases.
- Developing new capability for integrating data derived from laboratory analysis of water quality and other periodic/discontinuous samples with existing data infrastructure for continuous sensor datasets.
- Refreshing existing and adding additional storage to the iUTAH virtualization infrastructure to ensure transition to sustainable hardware and support.
- Making data from GIRF discoverable, accessible, and citable in the iUTAH MDF through establishment of regular data retrievals, new databases, and associated web services.
- Providing support for model coupling and execution on High Performance Computing.
- Working with the HydroShare development group to establish a DataONE member node, allowing for discovery of all published HydroShare resources by the scientific community through DataONE.
- Conducting experiments to assess the subjectivity of the Quality Assurance/Quality Control process for sensor data currently conducted by iUTAH Watershed Technicians and Trainees.
- Completing work on the GAMUT Equipment Management System, which had been de-prioritized in previous years.
- Incorporating iUTAH RFA 2 Household Survey data into the Survey Data Viewer, allowing for the sharing and visualization of a signature iUTAH product with a broader constituency across the state of Utah.
- Developing additional data visualization stories that provide animations or other illustrations of interesting events and phenomena captured by iUTAH data.
- Finalizing, testing, and deploying new Streaming Data Loader and Observations Data Model (ODM) Tools to map streaming GAMUT data to

the new database structure conceived during Year 5 and migrate the current data management platform for GAMUT to newer versions of tools based on CUAHSI ODM Version 2.

- Establishing and implementing corrections for fluorescent Dissolved Organic Matter (fDOM) data to mitigate known interference of extraneous parameters with GAMUT sensors.
- Developing surrogate relationships between streaming sensor data and periodic/discontinuous sample data to increase the utility and attractiveness of iUTAH core infrastructure to relevant constituencies by establishing predictive relationships between continuously sensed variables to parameters that currently require periodic sampling, and that are more relevant to water quality regulation (e.g., deriving estimates of total suspended solids or total phosphorus from *in situ* measurements of turbidity).

*Significant Problems, Opportunities, and Changes.* A significant problem encountered by iUTAH CI in Year 5 was the loss of a key researcher tasked with completion of the model coupling software. The iUTAH Leadership Team has since approved the hire of a postdoctoral associate in Year 6 to see this milestone to completion, with a suitable candidate having been identified and being recruited. Other than that, no substantive challenges or changes to CI objectives, goals, and milestones are expected during Year 6. Rather, it is anticipated that the productive work CI has performed over the past five years will provide a range of opportunities for additional efforts to further broad, overarching project goals and promote long-term sustainability in Year 6 and beyond.

### Diversity Enhancement

*Key Accomplishments.* Increasing participation of women and underrepresented minorities in water science and STEM continued to be a major focus for iUTAH EOD and Diversity Enhancement (DE) in Year 5. iUTAH Education, Outreach and Diversity (EOD) staff and DE team members were successful in expanding the signature programs Taking Learning Outdoors (TLO) administered by the Natural History Museum of Utah (NHMU), as well as “Water Runs Through This Book”-related activities with author Nancy Bo Flood, to rural audiences in southern Utah; expanded outreach to latinx/Hispanic audiences through participation in the 2016 Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Diversity in STEM Conference in Long Beach, California (Box 2) and the Latinos In Action Conference at UU in

**Box 2. iUTAH partners with the National Board of SACNAS**

iUTAH EOD Coordinator Ellen Eiriksson once again led the planning and implementation of a cross-jurisdictional EPSCoR booth at the 2016 SACNAS National Diversity in STEM Conference in Long Beach, California. Here, she was able to build on the trust developed with SACNAS organizers and board members over the years by forging a new partnership to leverage iUTAH's statewide network on behalf of finding sponsors and other partners; assisting with logistics, in advance of the 2017 conference in Salt Lake City, Utah; and helping to prepare a visit by the board in February of 2017.

Salt Lake City, Utah; and grew the successful WaterGirls program, significantly increasing the number of female teachers and Middle School girls reached in Year 5. New programs implemented in Year 5 included efforts to bring iUTAH research to Salt Lake City's most diverse neighborhoods through a new partnership with the Salt Lake City Open Space Lands Program.

*Outputs and Outcomes.* For the second year in a row, iUTAH met or

exceeded its recruitment goals for many signature iUTAH programs, particularly in undergraduate, graduate, and postdoctoral training and mentoring, where participation by women was at or above 50% (Table 8). A more targeted approach to recruitment for the iUTAH Summer Research Experience for Undergraduates (REU) "iFellows" resulted in a 10% increase in the application rate of women. Even in programs where iUTAH has historically struggled to attract women participants, such as the more technically focused Traineeship program, or the cross-campus Hydroinformatics course, female participation held steady in Year 5. NHMU's TLO events in Moab, St. George, and Cedar City, reached an audience of over 4,000 participants from largely rural communities in southern Utah.

*Future Plans.* A substantial amount of effort has been devoted over the course of the iUTAH project to develop successful DE programs, many of which have the potential for continuation with new, external sources of funding. A major focus in Year 6 will thus be to promote these programs to interested stakeholders, potential partners, and future funders where possible; and to conduct summative assessment of all DE activities in coordination and collaboration with Project Management and the iUTAH External Evaluator. Another major goal of the DE team for Year 6 will be tracking student participation and demographics and assessing the extent to which the iUTAH project has been successful in recruiting and retaining groups underrepresented in or inattentive to STEM.

*Significant Problems, Opportunities, and Changes.* Development of a formal best practices handbook was deemed an overly ambitious goal that is not well-matched to the realities and needs of the iUTAH project and its stakeholders. A better approach for possible implementation during Year 6 is a comprehensive

assessment of progress toward a more inclusive STEM culture in the state of Utah, as well the formation of a committee of diversity practitioners in the state to help inform eventual development of a centralized resource, such as a website, portal, or online community, to leverage existing expertise, resources, and best practices and facilitate their broad dissemination among practitioners, primarily those in higher education.

### Workforce Development

*Key Accomplishments.* Year 5 was a banner year for iUTAH’s Workforce Development (WFD) team, which—in collaboration with Project Management staff (for details, see “Project Management”)—spearheaded two signature events to develop the capacity of iUTAH researchers and educators to compete in a 21<sup>st</sup> century scientific enterprise; greatly improved the ability of iUTAH to track relevant student outcomes by re-designing and re-administering the iUTAH Student Tracking Survey to all iUTAH student mentors, and by designing and administering an Undergraduate Student Experience Survey to over 200 students; and broadened and diversified the RCG program geared towards building research capacity among PUI faculty and developing and growing strong, sustainable undergraduate research programs at PUIs (Box 3).

*Outputs and Outcomes.* iUTAH continued the work of developing the next generation STEM workforce and building statewide research capacity among its student, faculty, and staff participants by promoting and supporting participation in workshops and conferences at the local, state, regional, national, and international level. In Year 5, over 300 iUTAH participants took part in almost 30 different events presenting oral presentations and posters, advancing their skills in workshops and seminars, developing new collaborations through social networking with colleagues and peers, and re-committing themselves to the ideals of inclusion and engaged scholarship (Table 9). Across all project elements, iUTAH engaged 104 undergraduate and 52 graduate

#### **Box 3. Re-imagining the iUTAH Research Catalyst Grant Program**

In Year 5, iUTAH WFD and Project Management recalibrated the successful RCG program to provide a more comprehensive and holistic solution to factors that limit PUI faculty participation in the statewide research enterprise. In addition to three traditional awards for research pilot projects, iUTAH also issued a professional development award to new Weber State University (WSU) faculty member Dr. Bridget Hilbig to attend a Council on Undergraduate Research Training Seminar on Building an Undergraduate Research Program; as well as a time-release award to Dr. Jacqueline Grant at Southern Utah University (SUU) for a 3-credit hour course release that would facilitate the writing of a competitive grant proposal to secure follow-on funding to a previous RCG award. Dr. Grant completed, submitted, and was awarded federal funding for her proposal in April 2017 by the Bureau of Land Management.



students in Year 5, with 32 and ten completing their degrees, respectively. All four postdoctoral associates hired in Year 3 were retained into Year 5, and three of them have since been promoted or have accepted faculty positions.

*Future Plans.* A substantial amount of effort has been devoted over the course of the iUTAH project to develop successful WFD programs, many of which have the potential for continuation with new, external sources of funding. A major focus in Year 6 will thus be to promote these programs to interested stakeholders, potential partners, and future funders where possible; and to conduct summative assessment of all WFD programs in coordination and collaboration with Project Management and the iUTAH External Evaluator. Some of this work, specifically an evaluation of student participation and experience across all iUTAH programs, is already ongoing and is expected to result in a manuscript in Year 6. A final, comprehensive goal for iUTAH WFD is the continued promotion of Broader Impacts work developed and practitioners empowered through the iUTAH project.

*Significant Problems, Opportunities, and Changes.* No significant problems were encountered in Year 5, and no substantive changes to WFD objectives, goals, and milestones were made or are expected in Year 6. iUTAH's expanded collaboration with administrations at Utah's premier research universities is expected to present ongoing opportunities to sustain the STEM pipeline built over the past five years, and to continue professional development and training of higher education faculty to meet the research challenges of the 21<sup>st</sup> century. iUTAH's new partnership with AAAS' Community Engagement Fellowship Program (CEFP) is likely to generate novel approaches and tools to support continued R1-PUI engagement.

### External Engagement

*Key Accomplishments.* With several signature outreach programs of years past winding down in Year 5, iUTAH EOD staff and External Engagement (EE) team members were busy seeking new opportunities to expand and grow incipient programs put in place during Year 4. Building on the initial success of NHMU's digital interactive exhibit "The Whole GAMUT," EE was able to secure an agreement with the Monte L. Bean Life Science Museum at BYU to extend this display to the Provo River Watershed in Year 6. The highly successful TLO program was extended to rural communities in southern Utah in Year 5, and integrated with another promising outreach effort centered around the award-winning iUTAH-sponsored book "Water Runs Through This Book" by Nancy Bo Flood (Box 4). Activities involving Flood are expected to greatly increase in Year 6. iUTAH also provided partial support for two full-time coordinators responsible

for USU Water Quality Extension (UWQE) citizen science and outreach programming, resulting in substantial growth in these programs in Year 5.

**Box 4. iUTAH-sponsored book “Water Runs Through this Book” wins multiple awards.**

Water Runs Through This Book, by Nancy Bo Flood and illustrated by Jan Sonnenmair, was supported by iUTAH EPSCoR as part of its mission to promote and strengthen education by building an inclusive, diverse, water-wise, and STEM-literate workforce for the future. Bo Flood, a well-established author who has written several books from a Navajo perspective, wrote this story, illustrated with photographic images, weaving science and poetry together while guiding readers of all ages to be more thoughtful and aware of water as a valuable resource. The book has garnered much recognition in the literary community. It has been shortlisted for a Green Earth Book Award, is a finalist in the young adult category for Colorado Author's League 2016 Awards, and winner of the 2015 Sigurd F. Olson Nature Writing Award (SONWA) for young adult literature. The book is also the featured book of Utah Water Week, hosted by the Intermountain Section of the American Water Works Association (AWWA), and will feature prominently in a series of outreach events at libraries across the state in Year 6.

*Outputs and Outcomes.* In Year 5, iUTAH programs engaged almost 30,000 people in the state, including 844 Teachers and almost 15,000 students (Table 10). While this represents a substantial reduction in output compared to Year 4, this is primarily due to the phasing out of successful, high-volume iUTAH programs conducted by The Leonardo. Programs still active in Year 5, on the other hand, experienced significant growth over Year 4, with TLO participation up by 63%, engagement with citizen science/UWQE outreach up by 48%, and visitation of the NHMU digital interactive increased by 82%. Engagement with the general public through the iUTAH website, social media, and the monthly e-Newsletter also increased, with noticeable growth in social media connections and e-Newsletter subscribers (Table 11). Page views of the iUTAH website were slightly down over Year 4, as were press releases, reflecting the fact that some of the outreach programs conducted by iUTAH that drive

traffic to the website (and generate news) were already winding down in Year 5.

*Future Plans.* A substantial amount of effort has been devoted over the course of the iUTAH project to develop successful EE programs, many of which have the potential for continuation with new, external sources of funding. A major focus in Year 6 will thus be to promote these programs to interested stakeholders, potential partners, and future funders where possible; and to conduct summative assessment of all EE programs in coordination and collaboration with Project Management and the iUTAH External Evaluator. Another goal will be the development of a new, strong, and impactful program at the recently completed GIRF that connects students with central iUTAH research themes using this new core facility as a living-learning laboratory. iUTAH EOD will also explore options to link this planned initiative with a related, ongoing redesign effort of the Williams Building complex at UU. EE will also oversee the completion and

deposition/archival of the Year 4 SI curriculum. Finally, with much work having gone into the development of the iUTAH website as (1) a valuable resource for a variety of audiences; and (2) a platform to support administration of the iUTAH project and communication and collaboration among its participants, a major focus for securing iUTAH's legacy in Year 6 will be the transition of the website and its associated resources to a new, sustainable platform, as well as revision, adaption, and augmentation of extant capabilities for collaboration where needed.

*Significant Problems, Opportunities, and Changes.* Significant delays in the completion of GIRF prevented the timely development and implementation in Year 4 of an associated citizen science program. Because site access and other logistical considerations make a citizen science program at GIRF no longer feasible, this milestone will be re-envisioned as an education program targeted toward undergraduate students. Although EE was successful in securing an agreement for the expansion of the digital interactive display "The Whole GAMUT" at NHMU/Red Butte Creek to a second location representing the Middle Provo River, an eventual extension to all three watersheds may not be feasible due to the lack of an apparent partner in the Logan watershed. This plan, articulated in the Year 4 Annual Report, may need to be abandoned.

### Project Management

*Key Accomplishments.* With the end of the iUTAH project approaching, core activities of Project Management staff focused on assessment and tracking of project outcomes; the strengthening of existing and addition/expansion of new collaborations and partnerships; as well as strategic planning of initiatives aimed at sustaining the statewide collaboration network built by iUTAH. Most of this work was conducted in close cooperation with EOD staff, the iUTAH Leadership Team, and high-level administration at Utah's R1 universities.

Key accomplishments during Year 5 include development of a new, comprehensive student-tracking template, which was administered to all iUTAH student mentors in March of 2017; achieved a 93% response/compliance rate; and greatly improved the quality and quantity of data available on student participation dating back to Year 1 of the iUTAH project. The resulting central database, managed by the iUTAH Assistant Director/Project Administrator (AD/PA), will inform project-end assessment and reporting, particularly as it relates to critical outcomes. Additionally, iUTAH project leadership and project management staff actively engaged with external consultants to conduct a comprehensive collaboration assessment of the iUTAH project from inception to close. This assessment, currently in draft form, will be presented to project

participants at the Year 5 Annual Symposium and is expected to result in the publication of a manuscript in Year 6. Finally, iUTAH staff, in collaboration with the iUTAH External Evaluator, re-designed the evaluation and assessment plan for the final year(s) of the project to include summative assessment of mentoring programs, particularly as it relates to graduate students and postdoctoral associates, and the experience of PUI faculty in participating in the iUTAH project and collaborating with faculty from R1 universities.

Achievements in the strengthening of existing partnerships include collaborations with the Offices of the Vice Presidents for Research at USU and UU to provide science communications training through the Alan Alda Center for Communicating Science to 128 faculty, postdoctoral associates, and senior graduate students representing all ten institutions of higher education in the state; and to facilitate successful integration of Broader Impacts into research and grant writing activities through an all-day forum and series of workshops conducted by regional and national Broader Impacts practitioners, and attended by a statewide audience of over 130 higher education faculty, students, and staff.

New collaborations developed in Year 5 include a cross-jurisdictional partnership with Alaska EPSCoR to facilitate development of a workshop proposal on team science and community building for NSF EPSCoR; an incipient relationship with the National Board of SACNAS to secure funding and logistical support for the 2017 National Meeting in Salt Lake City, Utah; and a partnership with AAAS to sustain the statewide collaboration network developed over the course of the iUTAH project in the form of a virtual statewide community-university partnership for sustainable integrated socio-environmental systems (Box 5).

**Box 5. iUTAH partners with AAAS to promote science community building in UTAH.**

In December 2016, the American Association for the Advancement of Science selected iUTAH AD/PA Andreas Leidolf as one of 19 inaugural Community Engagement Fellows. The AAAS Community Engagement Fellows pilot program, aimed at improving collaboration and community building in science, provides orientation and support to professionalize and institutionalize the role of community engagement managers in the scientific community.

iUTAH is optimistic that exposure to and advanced training in the novel approaches and tools utilized by this groundbreaking program will further the goal of sustaining and institutionalizing the statewide research and training collaborative iUTAH has built over the past five years in the form of a virtual Statewide Community-University Partnership for Sustainable Integrated Socio-environmental Systems.

Key accomplishments in pursuing sustainability of the statewide collaboration network built by iUTAH include a series of meetings with a diverse array of constituents and stakeholders in Spring of 2017, culminating in a workshop/forum held at UU in concert with the iUTAH Spring All-hands Meeting entitled “What’s

next for iUTAH's statewide partnership? Implications for the future of broader impacts in our state.”

*Outputs and Outcomes.* Project Management staff continued to expand iUTAH's statewide partnership in Year 5 with 28 new partner organizations, including five nonprofits, eight governmental agencies, and 16 academic institutions, bringing the total number of collaborating organizations to a record 108. Not surprisingly, participants also reported the highest ever number of collaborations in Year 5, 63, a 20% increase over Year 4.

iUTAH staff also served in important roles within the larger NSF EPSCoR community, with the iUTAH EOD Coordinator serving another term on the EOD Council, and the AD/PA assuming the role of Project Administrators' Council Chair-elect. Three iUTAH staff also gave oral and poster presentations or moderated interactive panels at the NSF EPSCoR PD/PA/EOD Winter Meeting in St. Croix, U.S. Virgin Islands, 26-27 January 2017. Staff professional development outside of EPSCoR to build human capacity for research development and administration of large collaborative, cross-institutional projects in Utah continued to be a focus in Year 5. EOD coordinator Ellen Eiriksson participated in a series of workshops at the University of Utah's Women's Leadership Summit, as well as in the 5<sup>th</sup> Annual National Alliance for Broader Impacts Summit. AD/PA Andreas Leidolf, in collaboration with AAAS and other external partners, developed a panel proposal for the Science of Team Science 2017 Conference, which was accepted.

After being honored with the Governor's Medal for Excellence in Science and Technology in Year 4, iUTAH Project Director Dr. Michelle Baker was selected as the recipient of the Pioneers of Progress Award for Science and Technology by The Days of '47, Inc. in April of 2017. AD/PA Andreas Leidolf was awarded a AAAS Fellowship to support his participation in the inaugural 2017 CEFP funded by the Alfred P. Sloan Foundation.

*Future Plans.* Broad objectives for iUTAH Project Management staff in Year 6 include ongoing project management, reporting and assessment, close-out, legacy activities, and sustainability initiatives. Specific goals are:

- Encouraging, facilitating, and supporting iUTAH research, CI, and EOD teams in achieving their goals, meeting stated objectives, completing milestones and attaining project metrics
- Representing Utah EPSCoR to NSF EPSCoR through participation in the National Conference and Spring PD/PA Meeting
- Conducting comprehensive assessments of scientific collaborations, student participation, and EOD programs; producing secondary media for

distribution to stakeholders and partners, as well as infographics for iUTAH website

- Performing project-end reporting to NSF
- In coordination with USU administration, overseeing the orderly close-out of the iUTAH award, including, as applicable, supporting auditors in the event of an external or internal audit
- Providing support for the continuity and sustainability of iUTAH project outcomes, including maintaining existing relationships with important stakeholders and partners across the state and nation; knowledge transfer and archiving; and the adaptation and application of project resources to new challenges and tasks (data repository, best practices, iUTAH inreach and outreach web and social media resources)
- Providing support for long-term sustainability of crucial project infrastructure, outcomes, and impacts, including collaborative capacity, community-university partnerships, and R1-PUI collaboration

*Significant Problems, Opportunities, and Changes.* No significant problems were encountered in Year 5, and no substantive changes to the continued conduct and management of the award are expected in Year 6. iUTAH's collaboration with AAAS CEFPP is scheduled to continue through Year 6 and may provide novel opportunities for sustaining a statewide community-university partnership for sustainable integrated socio-environmental systems in the state.

#### **4. SUMMARY OF PROGRESS TO DATE**

Progress-to-date relative to project goals, objectives, and milestones specified in the iUTAH Strategic Plan as revised on 23 June 2016 are summarized in tabular/graphic format in Tables 12-14. Table 12 lists Year 5 project milestones by RFA and project element: Of 75 milestones across all RFAs and project elements, 49 (65%) were accomplished, 21 (28%) were partially accomplished, and 5 (7%) were not accomplished. Unaccomplished and partially accomplished milestones were most prominent in RFA 2 and CI, and were primarily due to inevitable time delays associated with changes in co-leadership and key personnel in Year 4. Additionally, iUTAH CI participants are still in the process of completing the movement of the iUTAH data repository to new long-term storage and archival, which is a significant undertaking.

Table 13 provides an overview of the status of "legacy" milestones, i.e., milestones not or only partially accomplished that were held over from previous project years: Of seven milestones held over from Year 3, six (86%) saw

significant progress in Year 5, with two accomplished, and one changing from unaccomplished to “in progress.” Of four Year 4 legacy milestones, two (50%) have since been accomplished, with the other two remaining “in progress” or unaccomplished.

Table 14 summarizes future activities as laid out in the Year 4 Annual Report, as well as a small number of “legacy” activities held over from Year 3, and the extent to which these plans were realized in Year 5: Of 24 specific actions identified for implementation during Year 5, eleven were accomplished (46%), twelve (50%) remain in progress or have been partially accomplished, and one is unaccomplished (4%).

## **5. SPECIAL CONDITIONS**

There are currently no unmet Jurisdiction-Specific Terms and Conditions as specified in the “Utah Programmatic Terms and Conditions.” The most recent report of the iUTAH External Advisory Board is included with this annual report by attachment. Summative evaluation of the iUTAH project by External Evaluator Dr. Jacque Ewing-Taylor is ongoing, as is a comprehensive collaboration assessment by Dr. Alan Porter of SearchTech/Georgia Technological University. A draft report of the collaboration assessment is also included with this report by way of attachment.

## **6. APPENDIX (TABLES 1-14)**

**Table 1.** Goals, strategies, and timelines for the iUTAH project specified in the iUTAH Strategic Plan as revised 23 June 2016.

Goal	Strategy	Year
Create common research platform required to enhance interdisciplinary excellence in water and urban science	• Create integrated, instrumented watershed observatories across urbanization gradient	1-2
	• Create integrated, multi-institutional research teams	1-3
	• Engage existing and target new expertise in social sciences with an emphasis on maximizing interdisciplinary collaboration	2-4
	• Create an urban green infrastructure facility to test engineering solutions to water quality and quantity issues	3-5
Promote excellence and innovation in integrated modeling of coupled human-natural systems	• Create a highly integrated cyberinfrastructure data storage and modeling network in Utah providing state-of-the-art data storage and high throughput modeling capabilities	1-5
Enhance Utah economy and workforce	• Partner with private industry through sensor system design, development, and deployment	1-4
	• Partner with private industry and government agencies through student traineeship program	1-5
Grow a STEM-informed citizenry	• Engage women and underrepresented groups in STEM	2-5
	• Partner with statewide experts on recruitment and retention of diverse communities	2-5
Integrate research, education, and decision-making	• Build capacity for innovative data visualization, and bring together researchers, educators, and decision-makers together in a participatory modeling environment	3-5
	• Enhance STEM pipeline with an emphasis on female, Hispanic, Native American, rural, and first-generation college students	1-5



**Table 2.** List of iUTAH participating institutions of higher education in Utah.

<b>Institution</b>	<b>Type</b>	<b>Relationship to iUTAH</b>	<b>Year 1-5 Participation</b>
Brigham Young University	R1	Subaward	Full engagement across research/EOD spectrum
Dixie State University <sup>a</sup>	PUI (4-year)	Partner	Utah Water Survey, iFellows, Summer Institute, EOD teams
Salt Lake Community College <sup>a</sup>	PUI (2-year)	Subaward	Utah Water Survey, iFellows, Summer Institute, EOD Innovation Awards, EOD teams
Snow College <sup>a</sup>	PUI (2-year)	Partner	Utah Water Survey, iFellows
Southern Utah University	PUI (4-year)	Subaward	RCGs, iFellows, Summer Institute, EOD Innovation Awards, EOD teams, Management Team
University of Utah	R1	Subaward	Full engagement across research/EOD spectrum
Utah State University	R1	Main Award	Full engagement across research/EOD spectrum
Utah State University Eastern—Blanding <sup>a</sup>	PUI (2-year)	Partner	Native American STEM Mentorship Program, iFellows
Utah Valley University <sup>a</sup>	PUI (4-year)	Subaward	RCGs, iFellows, Summer Institute, EOD teams, Management Team
Weber State University <sup>a</sup>	PUI (4-year)	Subaward	RCGs, iFellows, Summer Institute, EOD Innovation Awards, EOD teams, Management Team
Westminster College	PUI (4-year)	Subaward	RCGs, iFellows, EOD teams, Management Team

<sup>a</sup> Open enrollment school

**Table 3.** Year 5 target metrics and outputs/outcomes for iUTAH Research Focus Area 1 (Biophysical System).

<b>Metric</b>	<b>Year 5 Target</b>	<b>Year 5 Output/Outcome</b>	<b>% of Target Midpoint</b>
Presentations	10-15	19	152%
Peer-reviewed publications	3-6	16	356%
Popular press publications	2-5	1	29%
Collaborative proposals	3-5	10	250%
Datasets published	5-10	9	120%

**Table 4.** Year 5 target metrics and outputs/outcomes for iUTAH Research Focus Area 2 (Social and Engineered System).

<b>Metric</b>	<b>Year 5 Target</b>	<b>Year 5 Output/Outcome</b>	<b>% of Target Midpoint</b>
Subgroup or planning meetings	3-10	10	154%
Stakeholder meetings	2-5	22	629%
Social science data collection protocols and instruments	2-3	5	200%
Datasets that document social and engineered aspects of the study area	3-5	15	375%
Synoptic sampling campaign of urban influence on water outcomes	1	8	800%
Presentations	5-8	39	600%
Peer-reviewed publications	3-5	15	333%
Popular press publications	2-3	2	80%
Collaborative proposals with input from RFA 2	1-2	10	667%
Team members working with RFA 3 on coupled modeling and participatory engagement	3-5	16	400%

**Table 5.** Year 5 target metrics and outputs/outcomes for iUTAH Research Focus Area 3 (Coupled Human-Natural System).

<b>Metric</b>	<b>Year 5 Target</b>	<b>Year 5 Output/Outcome</b>	<b>% of Target Midpoint</b>
Collaborative team meetings/workshops	5-8	12	185%
Model inventory meetings	2-3	0 <sup>a</sup>	N/A
Interdisciplinary model development workshops	1-2	2	133%
Stakeholder engagement meetings	1-3	31	1550%
Stakeholder products	1-3	5	250%
Model inventory	Annual Update	1 <sup>a</sup>	N/A
Scenarios modeling workshops	2-3	2	80%
Visualization outreach activities	3-5	3	75%
Presentations	1-5	26	867%
Peer-reviewed publications	2-3	11	440%
Popular press publications	1-2	6	400%
Collaborative proposals	1-2	9	600%

<sup>a</sup> Model inventory work completed in Year 4.

**Table 6.** Year 5 target metrics and outputs/outcomes for iUTAH Cyberinfrastructure (CI).

<b>Metric</b>	<b>Year 5 Target</b>	<b>Year 5 Output/Outcome</b>	<b>% of Target Midpoint</b>
CI staff supported	3	3	100%
Student programmers trained	1-2	2	133%
Virtual host servers added	1-2	6	400%
Data storage supporting visualization infrastructure by Year 5	100 TB	100 TB	100%
Disk capacity of large storage infrastructure in collaboration with CI-WATER	1 PB	1 PB	100%
Datasets from external partners accessible through iUTAH Modeling and Data Federation (MDF)	5-8	5	77%
Registered users of the modeling and data federation	50	23 <sup>a</sup>	N/A
Unique visits to Data Repository website	300-500	N/A <sup>b</sup>	N/A
Presentations	3-5	6	150%
Peer-reviewed publications	2-3	7	280%
Hydroinformatics course offerings	1	1	100%
Grad students trained in hydroinformatics course	15-20	30	171%
CI-related proposals	2-5	4	114%
iUTAH proposals that cite iUTAH MDF in their data management plans	2-3	16	640%

<sup>a</sup> During Year 5, iUTAH transitioned from the deprecated Data Repository at <http://repository.iutahepscor.org> to HydroShare (<http://www.hydroshare.org>). As of 30 April 2017, there are 23 registered iUTAH-affiliated users in HydroShare.

<sup>b</sup> Since moving from the iUTAH data repository to HydroShare, individual visits can no longer be tracked, because HydroShare usage metrics are at a system-wide level and not aggregated for the subset of iUTAH-related resources within HydroShare.

**Table 7.** Use metrics for iUTAH Cyberinfrastructure websites and applications based on Google Analytics for the period 13 April 2016 – 13 April 2017.

<b>Website/Application</b>	<b>No. of Unique Sessions</b>	<b>No. of Unique Users</b>	<b>No. of Countries</b>
iUTAH Modeling and Data Federation Website	1823	966	43
iUTAH Time Series Analyst	1659	729	36
iUTAH Survey Data Viewer	631	402	35

**Table 8.** Participation by women, under-represented minorities (URM), and students from Primarily Undergraduate Institutions (PUI) in select iUTAH Research and Education, Outreach and Diversity programs in Year 5.

Program	Participation		
	% Women	% URM	% PUI
<b>Research</b>			
Graduate Research Assistants	56%	7%	N/A
Postdoctoral Associates	50%	0%	N/A
<b>Education, Outreach and Diversity</b>			
iFellows	Applied: 48% Hired: 60%	Applied: 14% Hired: 27%	Applied: 48% Hired: 47%
Traineeship	17%	0%	N/A
Summer Institute	60%	11%	N/A
Taking Learning Outdoors	50%	13%	N/A
WaterGirls	100%	- <sup>a</sup>	6%
Utah Water Watch Citizen Science	52%	- <sup>a</sup>	N/A
Latinos in Action iUTAH Booth	54%	91%	37%
Cross-campus Hydroinformatics Course	20%	- <sup>a</sup>	N/A

<sup>a</sup> Not recorded or information not available

**Table 9.** Professional development activities and capacity building among iUTAH participants in Year 5.

Event	Type	Location	Date	iUTAH Participants	
				Students <sup>a</sup>	Faculty and Staff <sup>b</sup>
Utah Conference on Undergraduate Research	Conference	Salt Lake City, UT	19 February 2016	16	2
2016 American Association of Geographers Annual Meeting	Conference	San Francisco, CA	29 March-2 April 2016	2	0
10 <sup>th</sup> National Water Quality Monitoring Conference	Conference	Tampa, FL	2-6 May 2016	1	0
Friends of the Great Salt Lake 2016 Great Salt Lake Issues Forum	Conference	Salt Lake City, UT	11-13 May 2016	2	4
Society for Freshwater Science 2017 Annual Meeting	Conference	Raleigh, NC	4-8 June 2016	2	1
National Nonpoint Source Monitoring Workshop	Conference	Salt Lake City, UT	23-25 August 2016	1	2
10 <sup>th</sup> Annual Salt Lake County Watershed Symposium	Conference	West Valley City, UT	8-11 September 2016	3	18
2016 Forensic Isotope Ratio Mass Spectrometry Conference	Conference	Auckland, New Zealand <sup>c</sup>	18-23 September 2016	1	1



**Table 9.** Continued.

Event	Type	Location	Date	iUTAH Participants	
				Students <sup>a</sup>	Faculty and Staff <sup>b</sup>
Alan Alda Center for Communicating Science Workshops	Workshop	Logan, UT	3-4 October 2016	3	30
Alan Alda Center for Communicating Science Plenary	Conference	Logan, UT	5 October 2016	21	49
2017 Society for the Advancement of Chicanos/Hispanics and Native Americans in Science National Diversity in STEM Conference	Conference	Long Beach, CA	13-15 October 2016	2	1
Society of Research Administrators International Financial Research Administration Workshop	Workshop	San Antonio, TX	22 October 2016	0	1
Society of Research Administrators International Research Law Workshop	Workshop	San Antonio, TX	23 October 2016	0	1
2016 Society of Research Administrators International Annual Conference	Conference	San Antonio, TX	24-26 October 2016	0	1
Soil Science Society of America (SSA) Graduate Student Leadership Conference	Workshop	Phoenix, AZ	5 November 2016	1	0

**Table 9.** Continued.

Event	Type	Location	Date	iUTAH Participants	
				Students <sup>a</sup>	Faculty and Staff <sup>b</sup>
2016 International Annual Meeting of American Society of Agronomy, Crop Science Society of America, SSSA	Conference	Phoenix, AZ	6-9 November 2016	1	0
2016 American Water Resources Association Annual Conference	Conference	Orlando, FL	13-17 November 2016	1	0
2016 American Geophysical Union Fall Meeting	Conference	San Francisco, CA	12-16 December 2016	2	3
NSF EPSCoR PD/PA/EOD Winter Meeting	Conference	St. Croix, USVI	26-27 January 2017	0	5
Frank 2017 Public Interest Communications	Conference	Gainesville, FL	28 February-3 March 2017	0	1
2017 "Reflecting and Expanding on Our Broader Impact" Broader Impacts Forum Plenary	Conference	Salt Lake City, UT	31 March 2017	21	49
2017 "Reflecting and Expanding on Our Broader Impact" Broader Impacts Forum Workshops	Workshop	Salt Lake City, UT	31 March 2017	12	41

**Table 9.** Continued.

Event	Type	Location	Date	iUTAH Participants	
				Students <sup>a</sup>	Faculty and Staff <sup>b</sup>
National Conference on Undergraduate Research	Conference	Memphis, TN	6-8 April 2017	2	0
National Alliance for Broader Impacts Annual Summit	Conference	Stevenson, WA	26-28 April 2017	0	1
Social Media Strategy/Marketing Summit	Conference	Chicago, IL	26-28 April 2017	0	1
2017 American Water Resources Association Spring Conference	Conference	Snowbird, UT	30 April-3 May 2017	1	0
3 <sup>rd</sup> Annual Duck Family Graduate Workshop on Environmental Politics and Governance	Workshop	Seattle, WA	17-19 May 2017	1	0
EWRI World Environmental and Water Congress	Conference	Sacramento, CA	21-25 May 2017	1	0
Science of Team Science 2017 Conference	Conference	Clearwater Beach, FL	12-14 June 2017	0	1

<sup>a</sup> includes undergraduate and graduate students

<sup>b</sup> includes postdoctoral associates and technicians

<sup>c</sup> support provided with non-federal funds

**Table 10.** Participation in iUTAH Education, Outreach and Diversity (EOD) external engagement (EE)/outreach events in Year 5.

Program	Conducted by	Funded through <sup>a</sup>	Participants		
			Teachers	Students	Other
Taking Learning Outdoors	Natural History Museum of Utah	EOD/EE	142	3968	13
Citizen Science	Utah Water Watch	EOD/EE	19	47	248
Water Runs Through this Book	iUTAH/Nancy Bo Flood	EOD/DE	2	35	1
iUTAH WaterGirls	Salt Lake Community College	EOD Innovation Awards	9	98	10
UWQE Outreach Events	USU Water Quality Extension	EOD/EE	134	7460	2056
“The Whole GAMUT” Digital Interactive	Natural History Museum of Utah	EOD Innovation Awards	529	2149	11023
Summer Institute	UU Genetic Science Learning Center	EOD/WFD	9	18	N/A
iFellows	iUTAH	Participant Support	N/A	18	N/A
<b>Total:</b>			844	13793	13351

<sup>a</sup>DE = Diversity Enhancement; WFD = Workforce Development.







**Table 11.** iUTAH engagement with stakeholders and the public through electronic, online, and social media resources in Year 5.

<b>Milestone and Metric</b>	<b>Output/Outcome</b>	<b>% Change over Year 4</b>
Revise and augment iUTAH website	4,503 page views/month	-18%
Expand and diversify social media following		
• Facebook	249 new page likes	13%
• Twitter	171 new followers	36%
• LinkedIn	112 new connections	29%
Produce and expand bi-monthly newsletter		
• Newsletters circulated	12	20%
• Total subscribers (through 2 May 2016)	345	7%
• Readership engagement of newsletter:		
Open rate (email opened by subscribers)	32% <sup>a</sup>	
Click rate (email reader opened one or more stories)	11% <sup>b</sup>	
Evaluate and refine communication tools		
Press releases published in popular press	20	-50%






<sup>a</sup> Industry average is 16.5%.

<sup>b</sup> Industry average is 2.1%.







**Table 12.** Traffic Light Analysis (TLA) of Year 5 (1 August 2016 – 31 July 2017) iUTAH milestones as indicated in Strategic Plan or revised in Years 1-5.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
<b>Project Management</b>			
	Weekly EPSCoR staff meetings		25 out of 48 scheduled weekly meetings held (52%).
	Biweekly Leadership Team meetings		Meetings held regularly, but on an as needed basis; 18 meetings held over 24 two-week periods (75%); irregular business conducted via e-mail.
	Biannual all-hands meetings		Fall All-hands meeting: 4 November 2016, Provo, Utah. Spring All-hands meeting: 31 March 2017, University of Utah, Salt Lake City, Utah.
	Annual External Advisory Board and External Assessment meeting		Draft collaboration assessment by SearchTech in collaboration with Project Director and Assistant Director is complete and scheduled for presentation at Annual Symposium.
	Annual Symposium held		External assessment plan revised in collaboration between External Evaluator and Assistant Director at Annual NSF EPSCoR Winter Meeting; implementation is ongoing.
	Oversee all data and modeling repository activities		2017 iUTAH Annual Symposium and Summer All-hands Meeting is scheduled for 13-14 July 2017, Utah State University, Logan, Utah.
			Planning meeting scheduled for 17 May 2017.

**Table 12.** Continued.





<b>Project Component</b>	<b>Milestone</b>	<b>TLA<sup>a</sup></b>	<b>Explanation</b>
	Revise activities based on previous assessment; summative assessment of project management activities		Summative assessment of project management activities will take place during Year 6.
	Write final report		Final report will be submitted at the end of a Year 6 no-cost extension.
<b>Research</b>			
Research Focus Area (RFA) 1			
<i>Water Balance</i>	Archive all data sets		Data archival for GAMUT is almost complete, with Tier 1 data at 90%, 80% and 50% for the Red Butte Creek, Logan, and Provo watersheds, respectively; and Tier 2 data at 90%, 90% and 50%, respectively.
	Validate rating curves		All rating curves have been validated, with 10 datasets covering all aquatic GAMUT stations across all three watersheds. Limited high flow measurements may be added during the 2017 runoff to take advantage of record snowpack.
	Continue data collection		Data collection is ongoing and scheduled to continue through Year 6 and beyond.

**Table 12.** Continued.







Project Component	Milestone	TLA <sup>a</sup>	Explanation
<i>Water Quality</i>	Publish finalized water yield models for all watersheds		RFA 1 water yield work has resulted in 10 publications in Year 5, with 2 additional manuscripts under review. Work related to water balance in northern Utah is likely to continue, with 2 external proposals funded and several others under review.
	Create data repository		116 datasets stored for long-term archival and discoverable on CUAHSI HIS HydroShare.
	Continue data collection		Data collection is ongoing and scheduled to continue through Year 6 and beyond.
	Stream datasets		92 GAMUT datasets have been published and made accessible on HydroShare; 23 additional records relating water quality to: algae and cyanobacteria (6), nitrogen (4), and phosphorus (2).
	Create data repository		116 datasets stored for long-term archival and discoverable on HydroShare.
	Publish finalized water quality models for all three watersheds		RFA 1 water quality work has resulted in 6 publications in Year 5, with 5 manuscripts under review. Additional work is likely with several new proposals funded or under review.








**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation	
<i>Climate and Land Use Change</i>	Collaborate with RFA 3 to publish final coupled land-use, climate change models		Ongoing work by Brooks and collaborators (RFA 1), Bowen and collaborators (RFA 1), Null and collaborators (RFA 3) and Strong and collaborators (RFA 3) is expected to be completed in Year 6, and includes quantification of the interaction of climate and landscape on water resources, as well as modeling of other climate change impacts and adaptations; modeling Salt Lake City water quantity and quality under multiple uncertain change drivers; and developing a systems-model approach to assessing riparian zone restoration.	
	Collaborate with RFA 3 to publish scenarios models for 5, 10, and 15 year futures		In addition to extant accomplishments by researchers at UU and USU, including a vulnerability assessment of water supply systems under climate change; modeling of circulation influences on precipitation deficits; and snowpack drought and climate forcing; there is ongoing work in climate modeling and alternative future scenarios at both USU (Wang) and UU (Strong and Khatri) that will be finalized in Year 6.	
RFA 2	<i>Water and Land Use</i>	Document impacts of RFA 2 research on stakeholder decisions		Assessment of RFA 2 impacts is underway, with 14 out of 35 researchers interviewed; completion of this activity and interviews with up to 30 stakeholders and external partners is scheduled for Year 6.
	Identify new research questions and data needs to address emergent scientific and policy goals		New and evolving questions have prompted additional data needs and catalyzed numerous new research projects, grant proposal submissions and awards; a synthesis manuscript highlight new areas of inquiry emerging from iUTAH research is scheduled for completion during Year 6.	





**Table 12.** Continued.

<b>Project Component</b>	<b>Milestone</b>	<b>TLA<sup>a</sup></b>	<b>Explanation</b>
<i>Urban Form</i>	Receive first major collaborative grant		4 proposals awarded totaling over \$3.3M in new external funding.
	Document impact of improved knowledge on stakeholder decisions about urban design, growth, management, and water sustainability		Assessment of RFA 2 impacts is underway, with 14 out of 35 researchers interviewed; completion of this activity and interviews with up to 30 stakeholders and external partners is scheduled for Year 6.
<i>Built Systems</i>	Receive first major collaborative grant		4 proposals awarded totaling over \$3.3M in new external funding.
	Document impact of green infrastructure (GI) research on stakeholder decisions about GI planning and implementation		Assessment of RFA 2 impacts is underway, with 14 out of 35 researchers interviewed; completion of this activity and interviews with up to 30 stakeholders and external partners is scheduled for Year 6.
	Establish 1 new GI research site in extended network		New GI research sites established across extended network. Examples include work by Dupont (USU), as well as iUTAH's partial funding of a green roof demonstration project at USU.
	Receive first major collaborative grant		4 proposals awarded totaling over \$3.3M in new external funding.





**Table 12.** Continued.

<b>Project Component</b>	<b>Milestone</b>	<b>TLA<sup>a</sup></b>	<b>Explanation</b>
RFA 3			
<i>Interdisciplinary Modeling</i>	Dissemination of results and model products		RFA 3 results and model products disseminated widely and to diverse audiences via 3 popular press articles, 12 invited talks and guest lectures, 14 contributed talks, and 31 stakeholder engagement meetings.
	Publish model coupling methods and results		RFA 3 results published via 11 peer-reviewed journal articles.
<i>Coupling Research</i>	Publication and dissemination of results		Work on coupling Water Evaluation and Planning models and an associated manuscript is ongoing and scheduled for completion in Year 6.
	Evaluate scenarios of change and adaptation/mitigation strategies		With successful coupling of models by Strong (UU) and Null (USU) achieved, final calibration and publication are scheduled for Year 6.
<i>Scenarios Modeling and Visualization</i>	Publication and dissemination of results		4 presentations on scenarios modeling and visualization given at national and regional conferences in Year 5; 1 related manuscript accepted, with an additional submission; 1 manuscript in preparation.





**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
	Introduce stakeholders to live web-based visualizations through classroom use and presentation to state agencies		<p>Natural History Museum of Utah (NHMU) interactive approved for expansion (localized to the Middle Provo River GAMUT watershed) to BYU Bean Museum.</p> <p>Interactive web-based visualizations of urban typology, urban growth scenarios, and parcel-scale water use have been presented to and formed the basis of subsequent course assignments for UU students in GIS for Urban Planning (graduate) and Urban Ecology (undergrad) courses.</p>
	Assess usage of web-based visualizations through web analytics		<p>NHMU interactive display evaluated formally in a user-interaction formative evaluation; evaluation results are helping guide revision of the display.</p> <p>Interactive visualization of RFA 2 urban typology has been delayed by ESRI licensing issues that are expected to be resolved by the end of Year 5.</p>
<b>Cyberinfrastructure (CI)</b>			
	2-3 new proposals for CI-related research developed		4 proposals pending totaling \$4.5M in new external funding.
	All iUTAH Modeling and Data Federation source code and software tools have current releases and documentation on open source code repositories		<p>Software development is ongoing, with commits performed daily. Additional software releases, as well as maintenance and updating of associated documentation contained within software repositories are scheduled for Year 6.</p>






**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
	3-5 presentations describing iUTAH CI advances and contributions given at national conferences/meetings		6 CI-focused presentations at national and international conferences given in Year 5.
	2-3 publications about iUTAH CI work/products published in peer reviewed journals		3 CI-focused peer-reviewed journal articles submitted, with an additional 3 manuscripts submitted.
	Develop a new and sustainable partnership with a longterm data repository for transitioning published iUTAH datasets.		Functionality is extant, but significant work is needed to ensure that iUTAH participants deposit and publish all datasets in HydroShare in compliance with the iUTAH data policy.
	Finish and create a final release of the model coupling software under development and demonstrations using iUTAH RFA3 coupled modeling use cases.		With the researcher responsible for this milestone no longer with iUTAH, another researcher able to complete this task has been identified and is being recruited; expected deliverables include release of a working version of the software, and a manuscript demonstrating its utility via application to iUTAH RFA 3 use cases.








**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
	Prepare documentation and a final software release for our innovative tools for visualizing social science survey datasets.		The software is complete and a manuscript describing it has been published.
	Develop new capability for integrating data derived from laboratory analysis of water quality and other samples with the iUTAH CI for continuous sensor datasets		Implementation of this activity is imminent, with software development still in the initial stage. Completed work includes organizing sample-based water quality data in a database with full metadata descriptions; code development is ongoing.
	Refresh existing and add additional storage to the iUTAH virtualization infrastructure		To ensure transition to sustainable hardware and support, activities in Year 6 will focus on exploring options for storage of hardware and hosting.
	Support for model coupling and execution on High Performance Computing (HPC) is made available		With the researcher responsible for this milestone no longer with iUTAH, another researcher able to complete this task has been identified and is being recruited.

**Table 12.** Continued.







Project Component	Milestone	TLA <sup>a</sup>	Explanation
<b>Education, Outreach and Diversity</b>  Diversity Enhancement (DE)	Conduct diversity training workshop for new iUTAH participants		Diversity trainings held during all-hands meetings and iFellow cohort sessions; final diversity training will take place during 2017 iFellows program.
	Implement recruitment and retention programs for target populations		Recruitment strategies and practices have been adjusted to reflect formative assessment and informal feedback received from a statewide constituency; recruitment materials were updated to reflect images of diverse participants, and to encourage higher-quality applicants to EOD programs.  Retention: 2016 SI participant hired as Year 5 iFellow; Five Year 4 iFellows retained as Trainees or Undergraduate Research Assistants in Year 5.
	Up to 25% women and underrepresented minorities (URMs) in all iUTAH opportunities		iFellow applicants: 48% women, 8.6 % URM; iUTAH Traineeship: 23% Women, 8% URM; GRAs: 41% women, 7% URM; postdoctoral associates: 50% women, 0% URM.
	Design up to 2 museum programs for target populations		Taking Learning Outdoors (TLO)expanded to connect with Moab-area schools (rural southern Utah).
	Train near-peer mentors		Near-peer mentor training conducted during 2017 iFellows program.

**Table 12.** Continued.






<b>Project Component</b>	<b>Milestone</b>	<b>TLA<sup>a</sup></b>	<b>Explanation</b>
	Revise activities based on previous assessment; summative assessment of DET activities		Assessment of DE activities is underway on multiple fronts but will likely not be complete until well into Year 6, with many successful programs ongoing and not scheduled for completion until the end of Year 5.
Workforce Development (WFD)	Recruit and hire undergraduate iFellows; up to 14 iFellows, 50% PUI, 25% URM or women		58 applicants, 48% women, 14% URM, 48% PUI; 15 hires, 60% women, 27% URM, 47% PUI.
	Train near-peer mentors		Near-peer mentor training conducted during 2017 iFellows program.
	Recruit and hire up to 15 graduate research assistants		10 new graduate students hired.
	Create K12 curriculum materials from Year 4 Summer Institute (SI)		Work on Year 4 SI curriculum is ongoing.
	Deposit curriculum materials from SIs		Updated curricula are posted to Genetic Science Learning Center website as they become available; development of Year 4 SI is ongoing.
	Develop at least 1 cross campus graduate training course		30 graduate students trained in cross-campus Hydroinformatics course at UU, USU, and BYU.








**Table 12.** Continued.

<b>Project Component</b>	<b>Milestone</b>	<b>TLA<sup>a</sup></b>	<b>Explanation</b>
	Recruit and fund PUI faculty Research Catalyst Grants (RCGs)		4 PUI faculty at 4 PUIs (WSU, UVU, Westminster College, SUU) recruited and funded for 3 traditional research awards, 1 time-release award, and 1 professional development award.
	Review and fund 5 RCGs		5 RCG funded (3 traditional research grants, 1 time-release grant, 1 professional development grant).
	Recruit and hire postdoctoral scholars		All 4 postdoctoral associates retained from Year 4; Krishna Khatri (UU) promoted to Research Assistant Professor; Rachel Gabor appointed tenure-track faculty at The Ohio State University starting Fall 2017; Melissa Haefner (USU) appointed tenure-track faculty at Portland State University.
	Recruit and hire up to 10 UG Trainees		4 Trainees retained at UU and USU; 8 additional Trainees hired at UU, BYU, and USU.
	Survey participants to assess iUTAH collaborations		iUTAH Undergraduate Student Survey conducted in Spring 2017 by Brunson (USU) and Yeo (UU) in collaboration with EOD Staff and Project Leadership.
	Conduct year-end iUTAH Symposium		2017 iUTAH Annual Symposium and Summer All-hands Meeting is scheduled for 13-14 July 2017, Utah State University, Logan, Utah.




**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
External Engagement (EE)	Revise activities based on previous assessment; summative assessment of WFD activities		Year 5 programs revised based on assessment of previous assessment. Assessment of WFD activities is underway on multiple fronts but will likely not be complete until well into Year 6, with many successful programs (e.g., research catalyst grants, iFellows REU, SI curriculum development) ongoing and not scheduled for completion until the end of Year 5.
	Recruit and engage K-12 cohorts for museum programs: 200 students; 30 teachers		TLO (NHMU): 17 teachers, 2500 students; "Leo On Wheels" Water Carts (The Leonardo): 6 teachers, 630 students; Green Roof Agriculture Exhibit and Outreach at the Frehner Museum (SUU): 60 teachers, 1740 students.
	Conduct Utah Water Watch (UWW) K-12 programs at iUTAH facilities		USU Water Quality Extension/iUTAH outreach signs operational in all three iUTAH watersheds.
	Summative assessment of K-12 activities		Assessment of EE activities is underway on multiple fronts but will likely not be complete until well into Year 6, with many successful programs ongoing and not scheduled for completion until the end of Year 5.
	Recruit and engage public audiences for museum programs		TLO conducted in Moab area.

**Table 12.** Continued.








Project Component	Milestone	TLA <sup>a</sup>	Explanation
	Conduct citizen science programs at iUTAH facilities		UWW Harmful Algal Bloom (HAB) training program conducted in Year 5. This program will enhance the ability to detect HABs in Utah Lake with the help of the expanded GAMUT network there.
	Summative assessment of public engagement activities		Assessment of EE activities is underway on multiple fronts but will likely not be complete until well into Year 6, with many successful programs ongoing and not scheduled for completion until the end of Year 5.
	Revise and augment iUTAH Website; up to 1,000 unique visitors per month		Continued revision and augmentation of iUTAH website during Year 5, with new focus on successes, outcomes, and impacts; 1301 visitors per month (7% increase over Year 4).
	Expand and diversify social media following; up to 100 new followers		Social media following growing by 1-5 interactions per week; Facebook: 249 new page likes (11% increase over Year 4); Twitter: 171 new followers (46% increase); LinkedIn: 41 new connections/followers (37% increase).
	Produce and expand audience for bi-monthly newsletter		Monthly e-Newsletter sent to 345 total subscribers (13% increase); 11% click rate on 1+ articles (industry standard 2.4%).

**Table 12.** Continued.

Project Component	Milestone	TLA <sup>a</sup>	Explanation
	Evaluate and refine inter-term communication tools		0.75 FTE Communications Specialist hired in Year 4 will be retained at 50% effort in Year 6.
	All iUTAH participants utilize Drupal for reporting activities		Participants added as they join the project; 306 registered users of ER-Core (Drupal), with 34% showing activity during Year 5.
	Revise activities based on previous assessment; formative assessment of EE activities		Continuous assessment conducted during monthly EE calls.  Assessment of EE activities is underway on multiple fronts but will likely not be complete until well into Year 6, with many successful programs ongoing and not scheduled for completion until the end of Year 5.

<sup>a</sup> Green = milestone accomplished or on track to being accomplished by the end of Year 5; yellow = milestone not yet accomplished, ongoing work that may or may not be completed by the end of Year 5; red = milestone not addressed, in conceptualization or planning stage, or may need to be revised.









**Table 13.** Traffic Light Analysis (TLA) of Year 3 and 4 “legacy” iUTAH milestones.

Project Component	Milestone	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
<b>Research</b>					
RFA 1—Water Quality	Finalize water quality transport models	N/A			Rather than producing a single model of water yield, we have focused on studying the most important water balance processes along mountain-to-urban gradients; including partitioning of precipitation into soil, ground, and surface water components; water sources and controls on evapotranspiration; and groundwater-surface water interactions. This work has resulted in 10 publications in Year 5, with 2 additional manuscripts under review. Work related to water balance in northern Utah is likely to continue, with 2 external proposals funded and several others under review.
RFA 1—Climate Change and Land Use	Publish datasets	N/A			Rather than producing a single water quality model, research in this area has focused on the roles of atmospheric deposition, groundwater/surface water exchange, and urbanization as focal points controlling water quality. This work has resulted in 6 publications in Year 5, with 5 manuscripts under review. Additional work is likely with several new proposals funded or under review.
RFA 2—Urban Form	Publish first papers—urban form				Jackson-Smith, D., P.A. Stoker, M. Buchert, J. Endter-Wada, C. Licon, M. Cannon, S. Li, Z. Bjerregaard, and L. Bell. 2016 Differentiating urban forms: a neighborhood typology for understanding urban water systems. <i>Cities and the Environment</i> 9:5.

**Table 13.** Continued.





Project Component	Milestone	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
RFA 2—Built Systems	Incorporate urban form research results into RFA 3 coupled modeling				RFA 2 results on urban form incorporated into RFA 3 coupled systems modeling exercise (Buchert, UU, and Rosenberg, USU).
	Analyze data from Green Infrastructure Research Facility (GIRF) experiment				With GIRF construction completed only recently, data are not expected to come online and be available for analysis until Year 6; Cyberinfrastructure (CI) support for and integration of GIRF data streams is ongoing.
<b>Cyberinfrastructure</b>					
	Initial release of collaborative model sharing tool				With the researcher responsible for this milestone no longer with iUTAH, another researcher able to complete this task has been identified and is being recruited; expected deliverables include release of a working version of the software, and a manuscript demonstrating its utility via application to iUTAH RFA 3 use cases.
	Databases and software to support GIRF data deployed				CI support for and integration of GIRF data streams is ongoing, and is expected to eventually include establishing regular data retrievals, establishing new databases, and web services to support these data.
	Support for model coupling and execution on High Performance Computing (HPC) is made available	N/A			With the researcher responsible for this milestone no longer with iUTAH, another researcher able to complete this task has been identified and is being recruited.

**Table 13.** Continued.

Project Component	Milestone	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
<b>Education, Outreach, and Diversity</b>					
Diversity Enhancement	Update best practices handbook				This activity is scheduled to be replaced by a comprehensive assessment of progress toward a more inclusive STEM culture in the state of Utah over the iUTAH project period.
External Engagement	Develop citizen science program at GIRF				With GIRF construction only recently completed, and the implementation of a citizen science program not feasible given site access and logistics, we nevertheless expect to build successful external engagement and/or workforce development programs at this core facility in Year 6.
	Conduct citizen science program at GIRF	N/A			






<sup>a</sup> Green = milestone accomplished or on track to being accomplished; yellow = milestone not yet accomplished, ongoing work that may or may not be completed by target date; red = milestone not addressed, in conceptualization or planning stage, or may need to be revised.

**Table 14.** Traffic Light Analysis (TLA) of the implementation of “legacy” planned activities from Year 4 Annual Report and Year 4 planned activities during Year 5.









Project Component	Planned Activity	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
<b>Research</b>					
General	Completion of signature research products	N/A	N/A		RFA 1 has an overview paper of iUTAH’s core facility GAMUT under review; RFA 2 published its urban typology paper; other synthesis paper efforts are ongoing and expected to be completed in Year 6.
	Maintenance and expansion of critical stakeholder relationships	N/A	N/A		All RFAs have put considerable effort into strengthening stakeholder relationships: RFA 1, led by researchers at BYU, has greatly expanded its collaboration with the Utah Division of Water Quality; RFA 2 has built important relationships with water managers and policy makers at the municipal and state level; RFA 3 is sharing data and models and collaborating on manuscripts with the Salt Lake Department of Public Utilities and the Utah Divisions of Water Quality and Water Resources. Cementing these relationships for the future will be an ongoing effort for Year 6 and beyond.
RFA 1	Continued data collection by GAMUT	N/A	N/A		All sensors are online and streaming data; funding for continued operation of GAMUT at UU has been secured, and similar efforts are underway at USU and BYU.
	Publication and archival of datasets	N/A	N/A		116 datasets archived and published.







**Table 14.** Continued.

<b>Project Component</b>	<b>Planned Activity</b>	<b>Year 3 TLA<sup>a</sup></b>	<b>Year 4 TLA</b>	<b>Year 5 TLA</b>	<b>Explanation</b>
	Continued water yield and water quality research across all watersheds	N/A	N/A		Several new external grants related to water yield/quality research funded and submitted; 23 manuscripts published or under review; additional manuscripts are anticipated with nine (9) RFA 1 graduate students expected to finish their degrees during Year 6.
	Completion and publication of land-use and climate change scenarios modeling work for 5, 10, and 15 year futures	N/A	N/A		Substantive progress made during Year 6; ongoing work at UU and USU is scheduled for completion in Year 6.
RFA 2	Expansion of the Utah Water Survey	N/A	N/A		Expansion is being considered after transition of this successful program from Jackson-Smith (USU) to Yeo (UU).
	Data collection at Green Infrastructure Research Facility (GIRF)	N/A	N/A		Data collection on pre-existing bioswales continued, and data collection in new pods is scheduled to commence Spring/early summer of 2017; Cyberinfrastructure (CI) support in place.
	Documentation of impacts of research results on stakeholder knowledge and decision making	N/A	N/A		Effort is ongoing, with 14 researchers interviewed to date; additional interviews, including with up to 30 stakeholders, are scheduled for Year 6.





**Table 14.** Continued.

<b>Project Component</b>	<b>Planned Activity</b>	<b>Year 3 TLA<sup>a</sup></b>	<b>Year 4 TLA</b>	<b>Year 5 TLA</b>	<b>Explanation</b>
RFA 3	Exploration of additional stakeholder engagement opportunities through iUTAH green infrastructure research	N/A	N/A		iUTAH provided partial support and expertise for a green roof demonstration project at USU, including interpretive signs.
	Continued publication and dissemination of results, modeling software, and model products	N/A	N/A		Numerous publications, presentations, and stakeholder engagement meetings in Year 5.
	Evaluation of change scenarios and adaptation/mitigation strategies	N/A	N/A		Ongoing work that awaits finalization and calibration in Year 6.
Cyberinfrastructure	Assessment of stakeholder relationships by evaluating the use and impact of web-based tools and visualizations, and stakeholder products	N/A	N/A		Assessment of Natural History Museum of Utah (NHMU) digital interactive is being used to revise the exhibit and expand the display to a second watershed.
	Identify and develop new capabilities and data services to support coupled and integrated modeling activities				Work is scheduled for completion in Year 6, once a new researcher has been recruited; a suitable candidate has been identified.
	Establishment of a sustainable partnership with a long-term data repository	N/A	N/A		iUTAH data repository successfully migrated to HydroShare.


**Table 14.** Continued.

Project Component	Planned Activity	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
	Update the iUTAH Data Policy and Modeling and Data Federation databases to meet the unique needs of modeling and simulation work	N/A	N/A		Revisions to the iUTAH Data Policy to accommodate modeling and simulation work effective in Year 5.
	Release of all iUTAH-produced software on open source repositories	N/A	N/A		All iUTAH software available on GitHub; model coupling software scheduled for completion in Year 6.
<b>Education, Outreach and Diversity</b>					
General	Continued diversification of membership across all teams	N/A	N/A		iUTAH EOD leveraged existing diverse team memberships and expertise to greatly expand community partnerships to include new EOD partners at local (schools, university Broader Impacts communities), regional (Utah Water Week/Intermountain Section of the American Water Works Association), and national (SACNAS) level.
Diversity Enhancement	Continued development of relationships with state and national groups to increase diverse participation	N/A	N/A		New partnerships with Rose Park Elementary, municipal libraries, UU/USU Vice President for Research Offices, Intermountain Section of the American Water Works Association, SACNAS.

**Table 14.** Continued.

<b>Project Component</b>	<b>Planned Activity</b>	<b>Year 3 TLA<sup>a</sup></b>	<b>Year 4 TLA</b>	<b>Year 5 TLA</b>	<b>Explanation</b>
	Completion of recruitment and retention handbook	N/A	N/A		This milestone is under revision for Year 6.
Workforce Development	Improvement of iFellow recruitment strategy; faculty engagement and professional development; and linkage with stakeholder interests and objectives	N/A	N/A		Intense recruiting effort enlisting faculty and staff at institutions across the state resulted in increased success/acceptance rate of PUI students over Year 4.  Mentor training conducted during 2017 iFellows program.  Faculty mentors encouraged to emphasize and facilitate stakeholder linkages.
External Engagement	Expansion of NHMU digital interactive to all 3 iUTAH watersheds	N/A	N/A		Revision of Red Butte Creek exhibit (NHMU) is ongoing; expansion to Provo River (Bean Museum) has been approved and funded; Logan River expansion is currently lacking a viable partner/venue.
	Expansion of outreach program with author Nancy Bo Flood using the iUTAH-commissioned book “Water Runs Through This Book”	N/A	N/A		Outreach program greatly expanded during Year 5, including participation in NHMU’s Taking Learning Outdoors in southern Utah, new library partnerships/programs, a teacher workshop at The Leonardo, and programing associated with Utah Water Week 2017, where “Water Runs Through This Book” will be the featured book.

**Table 14.** Continued.

Project Component	Planned Activity	Year 3 TLA <sup>a</sup>	Year 4 TLA	Year 5 TLA	Explanation
	Continue Citizen Science programs and general water education activities in partnership with Utah Water Watch and Utah Water Quality Extension.	N/A	N/A		Funding for a green roof demonstration project at USU, including interpretative signage, has been committed.

<sup>a</sup> Green = milestone accomplished or on track to being accomplished; yellow = milestone not yet accomplished, ongoing work that may or may be completed by target date; red = milestone not addressed, in conceptualization or planning stage, or may need to be revised.

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## Preview of Award 1208732 - Annual Project Report

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### Cover

Federal Agency and Organization Element to Which Report is Submitted:	4900
Federal Grant or Other Identifying Number Assigned by Agency:	1208732
Project Title:	iUTAH-innovative Urban Transitions and Aridregion Hydro-sustainability
PD/PI Name:	Michelle A Baker, Principal Investigator Zachary T Aanderud, Co-Principal Investigator James R Ehleringer, Co-Principal Investigator Courtney G Flint, Co-Principal Investigator Courtenay Strong, Co-Principal Investigator
Recipient Organization:	Utah State University
Project/Grant Period:	08/01/2012 - 07/31/2018
Reporting Period:	08/01/2016 - 07/31/2017
Submitting Official (if other than PD\PI):	Michelle A Baker Principal Investigator
Submission Date:	05/10/2017
Signature of Submitting Official (signature shall be submitted in accordance with agency specific instructions)	Michelle A Baker

### Accomplishments

#### \* What are the major goals of the project?

*In accordance with the instructions provided in the NSF EPSCoR Research Infrastructure Improvement Annual Reporting Guidelines document, the Annual Project Report has been submitted as a pdf-format attachment and includes the content specified in the Guidelines.*

**\* What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?**

Major Activities: *Nothing to add.*

Specific Objectives: *Nothing to add.*

Significant Results: *Nothing to add.*

Key outcomes or Other achievements: *Nothing to add.*

**\* What opportunities for training and professional development has the project provided?**

*Nothing to add.*

**\* How have the results been disseminated to communities of interest?**

*Nothing to add.*

**\* What do you plan to do during the next reporting period to accomplish the goals?**

*Nothing to add.*

### Supporting Files

Filename	Description	Uploaded By	Uploaded On
iUTAH Annual Report 2016-2017.pdf	Narrative of annual report,	Michelle Baker	05/10/2017

## Products

### Books

Ehleringer, J.R., S. Daniel, S. Torti, B. Bowen, and T. Parks (2016). *Embedded in Nature: The University of Utah Field Stations* University of Utah. Salt Lake City. Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = No ; ISBN: 978-0-692-81221-1

### Book Chapters

### Inventions

### Journals or Juried Conference Papers

Alminagorta, O., D. E. Rosenberg, and K. M. Kettenring (). Systems modeling to improve the hydroecological performance of diked wetlands. *Water Resources Research*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1002/2015WR018105

Armstrong, A., and D. Jackson-Smith (). Connections and collaborations of local water management organizations in Utah. *Society and Natural Resources*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Bailey, B.N., and R. Stoll (2016). The creation and evolution of coherent structures in plant canopy flows and their role in turbulent transport. *Journal of Fluid Mechanics*. 789 425. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Barnett, M., D. Jackson-Smith, and M. Haeffner (). Influence of recreational activity on water quality perceptions and concerns in Utah: A replicated analysis. *Journal of Outdoor Recreation and Tourism*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Biederman, J.A., T. Meixner, A.A. Harpold, D.E. Reed, E.D. Gutmann, J.A. Gaun, and P.D. Brooks (2016). Riparian zones attenuate nitrogen loss following bark beetle-induced lodgepole pine mortality. *Journal of Geophysical Research: Biogeosciences*. 121 (3), 933. Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = No ; DOI: 10.1002/2015JG003284

Bowling, D., E. S. Schulze, and S. Hall (2016). Revisiting streamside trees that do not use stream water: Can the two water worlds hypothesis and snowpack isotopic effects explain a missing water source?. *Ecohydrology*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1002/eco.1771

Buahin, C.A. and J. S. Horsburgh (2016). From OpenMI to HydroCouple: Advancing OpenMI to Support Experimental Simulations and Standard Geospatial Datasets. *Environmental Modelling and Software for Supporting a Sustainable Future. 8th International Congress on Environmental Modeling and Software*. 1 153. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Buahin, C.A., N. Sangwan, C. Fagan, C. Rae, D.R. Maidment, J.E. Nelson, J.S. Horsburgh, and V. Merwade (2017). Probabilistic Flood Inundation Delineation Using a Rating Curve Library Approach. *Journal of the American Water Resources Association*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1111/1752-1688.12500

Burnham, M., Z. Ma, J. Endter-Wada, and T. Bardsley (2016). Water management decision-making in the face of multiple forms of uncertainty and risk. *Journal of the American Water Resources Association*. 52 (6), 1366. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Burns, M.A., H.R. Barnard, R. Gabor, D.M. Mcknight, and P.D. Brooks (2016). Dissolved organic matter transport reflects hillslope to stream connectivity during snowmelt in a montane catchment. *Water Resources Research*. 52 (6), 4905. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Crow-Miller, B., H. Chang, P. Stoker, and E.A. Wentz (2016). Facilitating collaborative urban water management through university-utility cooperation. *Sustainable Cities and Society*. 27 475. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.scs.2016.06.006

Edwards, E.C., R.C. Bosworth, P. Adams, V. Baji, A. Burrows, C. Gerdes, and M. Jones (2017). Economic Insight from Utah's Water Efficiency Supply Curve. *Water*. 9 214. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Ehleringer, J.R., E. Barnette, Y. Jameel, B.J. Tipple, and G.J. Bowen (2016). Urban water - a new frontier in isotope hydrology. *Isotopes in Environmental and Health Studies*. 52 477. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1080/10256016.2016.1171217

Feng, Y, S.J. Burian, A. Petit-Boix, A. Josa, J. Rievadevall, X.G. Durany, and D.S. Apul (2016). Life Cycle Assessment of the Cost and the Social and Ecosystem Services of Rainwater Harvesting in Dry Climates. *EWRI World Environmental & Water Resources Congress*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Feng, Y., and S.J. Burian (2016). Improving evapotranspiration mechanisms in the U.S. Environmental Protection Agency's Storm Water Management Model. *Journal of Hydrologic Engineering*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1061/(ASCE)HE.1943-5584.0001419

Feng, Y., S.J. Burian, and E. Pardyjak (). Green Roof Evapotranspiration Observation and Estimation in Salt Lake City, Utah. *Ecohydrology*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Feng, Y., S.J. Burian, and E. Pardyjak (). Green roof evapotranspiration observation and modeling in Salt Lake City, Utah. *Ecological Engineering*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Feng, Y.C., S. Burian, and C. Pomeroy (2016). Potential of green infrastructure to restore predevelopment water budget of a semi-arid urban catchment. *Journal of Hydrology*. 542 744. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes



Flint, C., A.S. Jones, and J.S. Horsburgh (). Data management dimensions of social water science. *Journal of the American Water Resources Association*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C., X. Dai, D. Jackson-Smith, J. Endter-Wada, R. Hale, S. Yeo, M. Dolan (). The geography and sociology of water risk concerns in Utah. *Risk Analysis*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C. (). Vantage Points and Mountain Methods. *Mountain Research and Development*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C.G. (2016). Framing the human dimensions of mountain systems: Integrating social science paradigms for a global network of mountain observatories. *Mountain Research and Development*. 36 (4), 528. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C.G., C. Mascher, Z. Oldroyd, P.A. Valle, E. Wynn, Q. Cannon, A. Brown, and B. Unger (2016). Public intercept interviews and surveys for gathering place-based perceptions: Observations from community water research in Utah. *Journal of Rural Social Science*. 31 (3), 104. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C.G., C. Mascher, Z. Oldroyd, P.A. Valle, E. Wynn, Q. Cannon, A. Brown, and B. Unger (). Gathering water voices: Innovations for public intercept interviews and undergraduate research. *Journal of Rural Social Science*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Flint, C.G., X. Dai, D.B. Jackson-Smith, J. Endter-Wada, S.K. Yeo, R.L. Hale, and M.K. Dolan (2017). Social and geographic contexts of water concerns in Utah. *Society & Natural Resources*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1080/08941920

Gleeson, E.H., S. Wymann von Dach, C.G. Flint, G.B. Greenwood, M.F. Price, J. Balsiger, A. Nolin, and V. Vanacker (2016). Mountains of our future earth: Defining priorities for mountain research—A synthesis from the 2015 Perth III conference. *Mountain Research and Development*. 36 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1659/MRD-JOURNAL-D-16-00094.1

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Goodsell, T.H., G.T. Carling, Z.T. Aanderud, S. Nelson, D.P. Fernandez, and D.G. Tingey (2017). Thermal groundwater contributions of arsenic and other trace elements to the middle Provo River, Utah, USA. *Environmental Earth Sciences*. 76 (7), 268. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1007/s12665-017-6594-9

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Horsburgh, J.S., A.S. Jones, M. Ramirez, and J. Caraballo (). Time Series Analyst: Interactive Online Visualization of Environmental Time Series Data. *Environmental Modelling & Software*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Horsburgh, J.S., M.E. Leonardo, A.M. Abdallah, and D.R. Rosenberg (). Measuring water use, conservation, and differences by gender using an inexpensive, high frequency metering system . *Environmental Modelling & Software*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Hsu, L., E. Mayorga, J.S. Horsburgh, M.R. Carter, K.A. Lehnert, and S.L. Brantley (2017). Enhancing Interoperability and Capabilities of Earth Science Data using the Observations Data Model 2 (ODM2). *Data Science Journal*. 16 (4), 1. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.5334/dsj-2017-004.

Jackson-Smith, D., C.G. Flint, M. Dolan, C. Trentelman, G. Holyoak, and B. Thomas (2016). Effectiveness of the drop-off/pick-up survey methodology in different neighborhood types. *Journal of Rural Social Sciences*. 31 (3), 35. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Jackson-Smith, D., P.A. Stoker, M. Buchert, J. Endter-Wada, C. Licon, M. Cannon, S. Li, Z. Bjerregaard, and L. Bell (2016). Differentiating Urban Forms: A neighborhood typology for understanding urban water systems. *Cities and the Environment*. 9 (1), Article 5. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; OTHER: [Http://digitalcommons.lmu.edu/cate/vol9/iss1/5](http://digitalcommons.lmu.edu/cate/vol9/iss1/5)

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Melcher, A.A., and J.S. Horsburgh (). An urban observatory for quantifying phosphorus and suspended solids loads in combined natural and stormwater conveyances. *Environmental Monitoring and Assessment*. . Status = SUBMITTED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

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Morsy, M.M., J.L. Goodall, A.M. Castronova, P. Dash, V. Merwade, J.M. Sadler, M.A. Rajib, J.S. Horsburgh, and D.G. Tarboton (2017). Design of a metadata framework for environmental models with an example hydrologic application in HydroShare. *Environmental Modelling and Software*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

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Null, S.E., and L. Prudencio (2016). Climate change effects on water allocations with season-dependent water rights. *Science of the Total Environment*. 571 943. Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = No

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Oerter, E., M. Malone, A. Putman, D. Drits-Esser, L. Stark, and G. Bowen (). Every Apple has a Voice: Using Stable Isotopes to Teach about Food Sourcing and the Water Cycle. *Hydrology and Earth System Sciences*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 0.5194/hess-2017-115

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Wang, Z., B. Yang, S.-J. Li, and C. Binder (2016). Economic benefits: Metrics and methods for landscape performance assessment. *Sustainability*. 8 424. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Warren-Kretzschmar, B., and C. Licon (2016). Using Geodesign as an Educational Environmental Planning Tool – a case study in Cache Valley, Utah. *Journal of Digital Landscape Architecture*. . Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = No

Weintraub, S.R., P.D. Brooks, and, G.J. Bowen (2016). Interactive effects of vegetation type and topographic position on nitrogen availability and loss in a temperate montane ecosystem. *Ecosystems*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1007/s10021-016-0094-8

Wurtsbaugh, W.A., C. Miller, S.E. Null, J. DeRose, P. Wilcock, M. Hahnenberger, F. Howe, and J. Moore (). Human threats to the world's saline lakes. *Nature Geoscience*. . Status = UNDER\_REVIEW; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Yang, B., and S. Li (). Design with Nature: Ian McHarg's ecological wisdom as actionable and practical knowledge. *Landscape and Urban Planning*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Zapata-Rios X., C. Rasmussen, J. McIntosh, P.D. Brooks., P.A. Troch, and J. Chorover (2016). Influence of climate variability on water partitioning and effective energy and mass transfer (EEMT) in a semi-arid critical zone. *Hydrology and Earth System Sciences Journal*. 20 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

## Licenses

## Other Conference Presentations / Papers

## Other Products

## Other Publications

Strong, C., S. Burian, and J. Scalzitti (2015). *CHPC support of water resources research*. University of Utah Center for High Performance Computing Newsletter. Status = PUBLISHED; Acknowledgement of Federal Support = No

Wurtsbaugh, W., C. Miller, S.E. Null, P. Wilcock, M. Hahnenberger, and F. Howe (2016). *Impacts of Water Development on Great Salt Lake and the Wasatch Front*. White Paper to the Utah State Legislature.. Status = PUBLISHED; Acknowledgement of Federal Support = No

Wurtsbaugh, W., C. Miller, S.E. Null, P. Wilcock, M. Hahnenberger, and F. Howe (2016). *Water development has lowered Great Salt Lake*. Friends of Great Salt Lake Newsletter. Status = PUBLISHED; Acknowledgement of Federal Support = No

## Patents

## Technologies or Techniques

## Thesis/Dissertations

## Websites

## Participants/Organizations

**What individuals have worked on the project?**

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
Baker, Michelle	PD/PI	6
Aanderud, Zachary	Co PD/PI	2
Ehleringer, James	Co PD/PI	2
Flint, Courtney	Co PD/PI	2
Strong, Courtenay	Co PD/PI	2
Bain, Bonnie	Faculty	1
Balling, Rick	Faculty	1
Bates, Scott	Faculty	1
Bedford, Daniel	Faculty	2
Black, Frank	Faculty	2
Bowen, Gabriel	Faculty	2
Bowen, Brenda	Faculty	1
Bowling, Dave	Faculty	1
Brazelton, William	Faculty	1
Broadbent, Jeff	Faculty	1
Brooks, Paul	Faculty	2
Brunson, Mark	Faculty	2
Buchert, Martin	Faculty	6
Bunds, Michael	Faculty	1
Burian, Steve	Faculty	1
Cadet, Eddy	Faculty	1
Carling, Greg	Faculty	2

Ciaccio, Jen	Faculty	1
Clay, Christy	Faculty	1
Denton, Guy	Faculty	1
Dupont, Ryan	Faculty	2
Edwards, Eric	Faculty	1
Edwards, Boyd	Faculty	1
Emerman, Steve	Faculty	1
Endres, Carla	Faculty	1
Endter-Wada, Joanna	Faculty	2
Ewing, Reid	Faculty	1
Gill, Richard	Faculty	1
Govedich, Fred	Faculty	2
Grant, Jacqueline	Faculty	1
Hale, Rebecca	Faculty	1
Hall, Steven	Faculty	1
Hansen, Neil	Faculty	1
Hilbig, Bridget	Faculty	1
Hinners, Sarah	Faculty	1
Homs, Daniel	Faculty	1
Horsburgh, Jeff	Faculty	2
Howe, Peter	Faculty	1
Hungerford, Hilary	Faculty	2
Hunter, Laura	Faculty	1
Huntly, Nancy	Faculty	1

Jensen, Ryan	Faculty	1
Johnson, Gary	Faculty	1
Jones, Norm	Faculty	1
Jones, Scott	Faculty	2
Kesar, Shalini	Faculty	1
Li, Shujuan	Faculty	1
Licon, Carlos	Faculty	1
Malone, Molly	Faculty	1
Matty, David	Faculty	1
Mesner, Nancy	Faculty	1
Monhardt, Becky	Faculty	1
Monson, Christopher	Faculty	1
Moore, Jeffrey	Faculty	1
Moyer-Horner, Lucas	Faculty	1
Neilson, Bethany	Faculty	2
Null, Sarah	Faculty	2
O'Neill, Bill	Faculty	1
Pardydjak, Eric	Faculty	1
Pomeroy, Christine	Faculty	2
Power, Mitchell	Faculty	1
Rosenberg, David	Faculty	2
Shah, Jennifer	Faculty	1
Simon, Alexander	Faculty	1
Skiles, McKenzie	Faculty	1



St. Clair, Sam	Faculty	1
Stark, Louisa	Faculty	1
Stoker, Philip	Faculty	1
Stoll, Rob	Faculty	1
Tarboton, David	Faculty	1
Toke, Nathan	Faculty	1
Trentelman, Carla	Faculty	1
Wairepo, Anne	Faculty	1
Wang, Simon	Faculty	1
Wang, Weihong	Faculty	1
Weaver, Kim	Faculty	1
Weeg, Matthew	Faculty	1
Yang, Bo	Faculty	2
Yeo, Sara	Faculty	1
Zanazzi, Alessandro	Faculty	1
Faatz, Renee	Community College Faculty	1
Hahnenberger, Maura	Community College Faculty	1
Howe-Taylor, Marian	Community College Faculty	1
Keleher, Mary Jane	Community College Faculty	1
Poole, Daniel	Community College Faculty	1
Arthur, Suzanne	K-12 Teacher	1
Arvizo, Joel	K-12 Teacher	1
Bohne, Brittany	K-12 Teacher	1
Carling, Nate	K-12 Teacher	1

Felsch, Brian	K-12 Teacher	1
Gibbons, Lora	K-12 Teacher	1
Kaly, Kristina	K-12 Teacher	1
King, Crystal	K-12 Teacher	1
McEntee, Katherine	K-12 Teacher	1
Mouton, Leslie	K-12 Teacher	1
Obrien, Ken	K-12 Teacher	1
Shiozawa, Natalie	K-12 Teacher	1
Gabor, Rachel	Postdoctoral (scholar, fellow or other postdoctoral position)	12
Haeffner, Melissa	Postdoctoral (scholar, fellow or other postdoctoral position)	12
Khatri, Krishna	Postdoctoral (scholar, fellow or other postdoctoral position)	12
Oerter, Erik	Postdoctoral (scholar, fellow or other postdoctoral position)	2
Andrews, Adrienne	Other Professional	1
Bailey, Ellen	Other Professional	6
Bo Flood, Nancy	Other Professional	2
Bringhurst, Kerry	Other Professional	1
Dash, Pabitra	Other Professional	1
DeMillion, Marcy	Other Professional	1
Dintelman, Sue	Other Professional	1
DuRoss, Erika	Other Professional	1
Eiriksson, Ellen	Other Professional	12
Gardner, Sare	Other Professional	1

Goetz, Tamara	Other Professional	1
Huenemann, Jeannine	Other Professional	9
Huff, Terra	Other Professional	6
Keleher, Chris	Other Professional	1
Kiefer, Julie	Other Professional	1
Leidolf, Andreas	Other Professional	12
McEntire, Anna	Other Professional	2
Menlove, Rebecca	Other Professional	2
Muffoletto, Mary-Ann	Other Professional	1
Nelson, Adelbert	Other Professional	1
Pendleton, Jackie	Other Professional	1
Rhodes, Kevin	Other Professional	1
Robinson, Eli	Other Professional	1
Rosenthal, Carol	Other Professional	3
Runburg, Madlyn	Other Professional	1
Seppi, Jessica	Other Professional	1
Smith, Katie	Other Professional	1
Young, Sarah	Other Professional	1
Anderson, Jessica	Technician	4
Carlisle, Jobie	Technician	2
Cox, Chris	Technician	12
Dastrup, Dylan	Technician	12
Eiriksson, Dave	Technician	12
Jones, Amber	Technician	9

Keele, Rusty	Technician	1
Lorimer, Matt	Technician	1
Reed, Justin	Technician	1
Reeder, Stephanie	Technician	1
Miller, Matt	Staff Scientist (doctoral level)	1
Abdallah, Adel	Graduate Student (research assistant)	6
Beltram, Makenzi	Graduate Student (research assistant)	6
Betts, Dave	Graduate Student (research assistant)	6
Buahin, Caleb	Graduate Student (research assistant)	6
Carney, Clint	Graduate Student (research assistant)	6
Carothers, Taya	Graduate Student (research assistant)	6
Checketts, Hannah	Graduate Student (research assistant)	6
Dean, Taylor	Graduate Student (research assistant)	6
Eager, Kyle	Graduate Student (research assistant)	6
Fernandez, Rosa	Graduate Student (research assistant)	6
Ge, Muyang	Graduate Student (research assistant)	6
Gelderloos, Andrew	Graduate Student (research assistant)	6
Hale, Colin	Graduate Student (research assistant)	6
Hansen, Carly	Graduate Student (research assistant)	6
Jameel, Yusuf	Graduate Student (research assistant)	6
James, Ryan	Graduate Student (research assistant)	6
Jones, Erin	Graduate Student (research assistant)	6
Kelso, Julia	Graduate Student (research assistant)	6
Kraft, Maggie	Graduate Student (research assistant)	6

Leri, Julie	Graduate Student (research assistant)	6
Li, Enjie	Graduate Student (research assistant)	3
Maxwell, Jordan	Graduate Student (research assistant)	6
McKasy, Meaghan	Graduate Student (research assistant)	6
Melcher, Anthony	Graduate Student (research assistant)	6
Mihalevich, Bryce	Graduate Student (research assistant)	6
Miksch, Matthew	Graduate Student (research assistant)	6
Miller, Brett	Graduate Student (research assistant)	6
Millington, Mallory	Graduate Student (research assistant)	6
Mouzon, Nathaniel	Graduate Student (research assistant)	6
Nielsen, Brianne	Graduate Student (research assistant)	6
Ogata, Elizabeth	Graduate Student (research assistant)	6
Oliver, Mary	Graduate Student (research assistant)	6
Packer, Brian	Graduate Student (research assistant)	6
Parajuli, Kshitij	Graduate Student (research assistant)	6
Perelet, Alexei	Graduate Student (research assistant)	6
Prudencio, Liana	Graduate Student (research assistant)	6
Randall, Matt	Graduate Student (research assistant)	6
Richens, Jared	Graduate Student (research assistant)	6
Russel, Kerri	Graduate Student (research assistant)	6
Russell, Victoria	Graduate Student (research assistant)	1
Sapkota, Pratibha	Graduate Student (research assistant)	6
Smith, Kimi	Graduate Student (research assistant)	6
St. Clair, Bryn	Graduate Student (research assistant)	6

Tagore, Pratiti	Graduate Student (research assistant)	6
Thomas, Blake	Graduate Student (research assistant)	6
Tulley-Cordova, Crystal	Graduate Student (research assistant)	6
Uzunian, Adrian	Graduate Student (research assistant)	6
Wall, Hailey	Graduate Student (research assistant)	6
Welker, Chelsea	Graduate Student (research assistant)	6
Wolf Rife, Trixie	Graduate Student (research assistant)	6
Yusuf, Humaira	Graduate Student (research assistant)	6
Yuvshanova, Sofiya	Graduate Student (research assistant)	6
Harper, Mario	Non-Student Research Assistant	3
Andreini, Jeremy	Undergraduate Student	1
Andrus, Cade	Undergraduate Student	2
Araujo, Amanda	Undergraduate Student	2
Arrieta, Francisco	Undergraduate Student	2
Barnett, Matthew	Undergraduate Student	2
Barrett, Chelsee	Undergraduate Student	1
Barton, Ben	Undergraduate Student	2
Bentz, Andrew	Undergraduate Student	3
Betzer, Brittany	Undergraduate Student	2
Blue, Nathan	Undergraduate Student	2
Bohne, Lucas	Undergraduate Student	2
Boyer, Brett	Undergraduate Student	3
Brophy, Dane	Undergraduate Student	3
Brown, Austin	Undergraduate Student	2

Burrows, Amberlee	Undergraduate Student	2
Call, Margaret	Undergraduate Student	3
Caraballo, Juan	Undergraduate Student	2
Clark, Reid	Undergraduate Student	2
Clayson, Mariah	Undergraduate Student	1
Collins, Scott	Undergraduate Student	3
Curtis, Crystal	Undergraduate Student	2
Daines, Amanda	Undergraduate Student	1
Dean, Kent	Undergraduate Student	2
Diaz, Christian	Undergraduate Student	1
England, Margaret	Undergraduate Student	1
Evensen, Arthur	Undergraduate Student	1
Fordham, Kyle	Undergraduate Student	1
Frias, Alexis	Undergraduate Student	1
Fryar-Ludwig, Kenneth	Undergraduate Student	2
Gabel, Drew	Undergraduate Student	3
Gerdes, Coleman	Undergraduate Student	2
Gottschalk, Jake	Undergraduate Student	2
Griffin, Natasha	Undergraduate Student	3
Harkness, Esther	Undergraduate Student	1
Hatanaka, Alexander	Undergraduate Student	1
Haytayan, Areg	Undergraduate Student	4
Hill, Makenna	Undergraduate Student	2
Hole, Tyler	Undergraduate Student	2

Holt, Rebekha	Undergraduate Student	1
Joe, Dustin	Undergraduate Student	2
Johnson, Christianna	Undergraduate Student	2
Jones, Shelley	Undergraduate Student	2
Keck, Marissa	Undergraduate Student	2
Larsen, Kenneth	Undergraduate Student	1
Lillquist, John	Undergraduate Student	3
Madsen, Belinda	Undergraduate Student	1
Malcarne, Zach	Undergraduate Student	2
Martin, Alexandria	Undergraduate Student	1
Mascher, Charles	Undergraduate Student	3
Massachi, Stella	Undergraduate Student	1
Maughan, Gideon	Undergraduate Student	2
Meunrath, Michelle	Undergraduate Student	2
Morgan, Jessica	Undergraduate Student	2
Ochoa, Alan	Undergraduate Student	2
Oldroyd, Zack	Undergraduate Student	2
Pacheco, Vinicius	Undergraduate Student	1
Payne, Tyler	Undergraduate Student	1
Peterson, Hannah	Undergraduate Student	1
Preston, Jacob	Undergraduate Student	1
Rakotoarisaona, Henintsoa	Undergraduate Student	1
Ramirez, Maurier	Undergraduate Student	2
Rhein, Nayla	Undergraduate Student	1



Rider, Ben	Undergraduate Student	3
Ross, Sarah	Undergraduate Student	2
Rudd, Jake	Undergraduate Student	2
Salcedo, Andrea	Undergraduate Student	1
Saldivar, Jeremy	Undergraduate Student	1
Scott, Abigail	Undergraduate Student	1
Searle, Sydney	Undergraduate Student	1
Shaw, Mercede	Undergraduate Student	2
Shepherd, Natalie	Undergraduate Student	2
Shumway, Maverik	Undergraduate Student	1
Soule, William	Undergraduate Student	1
Stout, Rebekah	Undergraduate Student	2
Tennant, Hyrum	Undergraduate Student	3
Thomas, Anne	Undergraduate Student	2
Todd, Mariah	Undergraduate Student	2
Trentman, Madelene	Undergraduate Student	1
Trice, Jack	Undergraduate Student	2
Unger, Bethany	Undergraduate Student	2
Uribe, Alex	Undergraduate Student	1
Wells, Jack	Undergraduate Student	1
Willey, Darianne	Undergraduate Student	2
Wofford, Ellen	Undergraduate Student	1
Wolf, Margaret	Undergraduate Student	2
Wright, Ian	Undergraduate Student	2

Wynn, Elizabeth	Undergraduate Student	2
Zeller, Benjamin	Undergraduate Student	3
Baker, Shannon	High School Student	1
Belnap, Christian	High School Student	1
Galang, Jose	High School Student	1
Gibbons, Andrew	High School Student	1
Hakkarinen, Jaik	High School Student	1
Larsen, Dallin	High School Student	1
Ocampo, Mitzy	High School Student	1
Staley, Zoe	High School Student	1
Tmecherur, Nicole	High School Student	1
Ewing-Taylor, Jacqueline	Consultant	2
Garner, Jon	Consultant	1
Porter, Alan	Consultant	2
Beyale, Joydino	Research Experience for Undergraduates (REU) Participant	3
Bottelberghe, Heather	Research Experience for Undergraduates (REU) Participant	3
Boyer, Katelyn	Research Experience for Undergraduates (REU) Participant	3
Christensen, Darcie	Research Experience for Undergraduates (REU) Participant	3
Corkery, Georgie	Research Experience for Undergraduates (REU) Participant	3
Elliott, Cynthia	Research Experience for Undergraduates (REU) Participant	3
Hackett, Andrew	Research Experience for Undergraduates (REU) Participant	3

Hamilton, Greta	Research Experience for Undergraduates (REU) Participant	3
Henderson, Stacy	Research Experience for Undergraduates (REU) Participant	3
Lee, Rebecca	Research Experience for Undergraduates (REU) Participant	3
Martinez, Gabriela	Research Experience for Undergraduates (REU) Participant	3
Steele, Mitch	Research Experience for Undergraduates (REU) Participant	3
Tate, Shanae	Research Experience for Undergraduates (REU) Participant	3
Vidal, Luis	Research Experience for Undergraduates (REU) Participant	3
Wetterlin, Lily	Research Experience for Undergraduates (REU) Participant	3
Whalen, Adam	Research Experience for Undergraduates (REU) Participant	3
Young, Sandra	Research Experience for Undergraduates (REU) Participant	3

**Full details of individuals who have worked on the project:**

**Michelle A Baker**

**Email:** michelle.baker@usu.edu

**Most Senior Project Role:** PD/PI

**Nearest Person Month Worked:** 6

**Contribution to the Project:** Principal investigator/Project Director

**Funding Support:** Utah State University, Utah Science Technology Research initiative

**International Collaboration:** No

**International Travel:** No

**Zachary T Aanderud**

**Email:** zachary\_aanderud@byu.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Co-leader of research focus area 1

**Funding Support:** Brigham Young University

**International Collaboration:** No

**International Travel:** No

---

**James R Ehleringer**

**Email:** jim.ehleringer@utah.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Lead PI of University of Utah sub award. Infrastructure team lead.

**Funding Support:** University of Utah

**International Collaboration:** No

**International Travel:** No

---

**Courtney G Flint**

**Email:** courtney.flint@usu.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Co-lead of research focus area 2.

**Funding Support:** Utah State University

**International Collaboration:** No

**International Travel:** No

---

**Courtenay Strong**

**Email:** court.strong@utah.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Co-lead of research focus area 3.

**Funding Support:** University of Utah

**International Collaboration:** No

**International Travel:** No

---

**Bonnie Bain**

**Email:** bain@dixie.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at DSU participating in research at iUTAH

**Funding Support:** DSU

**International Collaboration:** No

**International Travel:** No

---

**Rick Balling**

**Email:** balling@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Scott Bates**

**Email:** scott.bates@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in EOD programming at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Daniel Bedford**

**Email:** dbedford@weber.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at WSU participating in research at iUTAH

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Frank Black**

**Email:** fblack@westminstercollege.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at Westminster College participating in research at iUTAH

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

---

**Gabriel Bowen**

**Email:** gabe.bowen@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked: 2**

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Brenda Bowen**

**Email:** [brenda.bowen@utah.edu](mailto:brenda.bowen@utah.edu)

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Dave Bowling**

**Email:** [david.bowling@utah.edu](mailto:david.bowling@utah.edu)

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked: 1**

**Contribution to the Project:** RFA1 co-lead

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**William Brazelton**

**Email:** [william.brazelton@utah.edu](mailto:william.brazelton@utah.edu)

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Jeff Broadbent**

**Email:** [jeff.broadbent@usu.edu](mailto:jeff.broadbent@usu.edu)

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Paul Brooks**

**Email:** paul.brooks@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** iBUGI co-lead and RFA1

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Mark Brunson**

**Email:** mark.brunson@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** EOD Director and RFA3

**Funding Support:** USU and USTAR

**International Collaboration:** No

**International Travel:** No

---

**Martin Buchert**

**Email:** martin.buchert@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 6

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Michael Bunds**

**Email:** michael.bunds@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA1

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Steve Burian**

**Email:** burian@eng.utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Eddy Cadet**

**Email:** cadeted@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Greg Carling**

**Email:** greg.carling@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Jen Ciaccio**

**Email:** ciaccio@dixie.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Dixie participating in research at iUTAH

**Funding Support:** Dixie

**International Collaboration:** No

**International Travel:** No

---

**Christy Clay**

**Email:** cclay@westminstercollege.edu

**Most Senior Project Role:** Faculty



**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Westminster College participating in research at iUTAH

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

---

**Guy Denton**

**Email:** Guy.Denton@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Ryan Dupont**

**Email:** ryan.dupont@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Eric Edwards**

**Email:** eric.charles.edwards@gmail.com

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA2

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Boyd Edwards**

**Email:** boyd.edwards@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Steve Emerman**

**Email:** stevenE@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA1

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Carla Endres**

**Email:** carla.endres@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Joanna Endter-Wada**

**Email:** joanna.endter-wada@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Reid Ewing**

**Email:** ewing@arch.utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Richard Gill**

**Email:** rgill@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Fred Govedich**

**Email:** govedich@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** RCG award

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**Jacqueline Grant**

**Email:** jacquelinegrant@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at SUU participating in research at iUTAH

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

---

**Rebecca Hale**

**Email:** halereb3@isu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Idaho State University participating in research at iUTAH

**Funding Support:** Idaho State University

**International Collaboration:** No

**International Travel:** No

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**Steven Hall**

**Email:** steven.j.hall@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** UU PosDoc by iUTAH

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

---

**Neil Hansen**

**Email:** neil\_hansen@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Bridget Hilbig**

**Email:** bridgethilbig@weber.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Awardee

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Sarah Hinnners**

**Email:** sarah.hinnners@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Daniel Homs**

**Email:** hornsda@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UVU participating in research at iUTAH

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Jeff Horsburgh**

**Email:** jeff.horsburgh@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Faculty

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Peter Howe**

**Email:** peter.howe@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Hilary Hungerford**

**Email:** hilary.hungerford@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at UVU participating in research at iUTAH

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Laura Hunter**

**Email:** lhunter@uen.org

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UEN participating in research at iUTAH

**Funding Support:** UEN

**International Collaboration:** No

**International Travel:** No

---

**Nancy Huntly**

**Email:** nancy.huntly@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Ryan Jensen**

**Email:** ryan.jensen@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Gary Johnson**

**Email:** garyjohnson@weber.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA2

**Funding Support:** Weber St.

**International Collaboration:** No

**International Travel:** No

---

**Norm Jones**

**Email:** njones@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Scott Jones**

**Email:** scott.jones@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Shalini Kesar**

**Email:** kesar@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at SUU participating in research at iUTAH

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**Shujuan Li**

**Email:** shujuan.li@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Carlos Licon**

**Email:** carlos.licon@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Molly Malone**

**Email:** molly.malone@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**David Matty**

**Email:** dmatty@weber.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Weber St. participating in research at iUTAH

**Funding Support:** Weber St.

**International Collaboration:** No

**International Travel:** No

---

**Nancy Mesner**

**Email:** nancy.mesner@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Becky Monhardt**

**Email:** rebecca.monhardt@loras.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Loras College participating in research at iUTAH

**Funding Support:** Loras College

**International Collaboration:** No

**International Travel:** No

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**Christopher Monson**

**Email:** christophermonson1@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No



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**Jeffrey Moore**

**Email:** jeff.moore@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Lucas Moyer-Horner**

**Email:** lucas.m.horner@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** co-lead iFellows

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Bethany Neilson**

**Email:** bethany.neilson@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU Water Lab participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Sarah Null**

**Email:** sarah.null@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Bill O'Neill**

**Email:** oneillb@dixie.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Dixie participating in research at iUTAH

**Funding Support:** Dixie

**International Collaboration:** No

**International Travel:** No

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**Eric Pardyjak**

**Email:** pardyjak@gmail.com

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Christine Pomeroy**

**Email:** christine.pomeroy@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Mitchell Power**

**Email:** mitchell.power@geog.utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**David Rosenberg**

**Email:** david.rosenberg@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Jennifer Shah**

**Email:** jennifer.shah@envst.utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Alexander Simon**

**Email:** alex.simon@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**McKenzie Skiles**

**Email:** mckenzie.skiles@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Awardee

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Sam St. Clair**

**Email:** stclair@byu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at BYU participating in research at iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Louisa Stark**

**Email:** louisa.stark@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH. Director of iUTAH's Summer Institute

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Philip Stoker**

**Email:** philip.a.stoker@gmail.com

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at University of Arizona participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Rob Stoll**

**Email:** rstoll@eng.utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UU participating in research at iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**David Tarboton**

**Email:** david.tarboton@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Nathan Toke**

**Email:** nathan.toke@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Carla Trentelman**

**Email:** carlatrentelman@weber.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Weber St. participating in research at iUTAH

**Funding Support:** Weber St.

**International Collaboration:** No

**International Travel:** No

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**Anne Wairepo**

**Email:** anew@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at UVU participating in research at iUTAH

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Simon Wang**

**Email:** simon.wang@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA1 and RFA3

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Weihong Wang**

**Email:** weihong.wang@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Awardee

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Kim Weaver**

**Email:** weaver@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**Matthew Weeg**

**Email:** matthewweeg@suu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG award

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

---

**Bo Yang**

**Email:** bo.yang@usu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Faculty at USU participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Sara Yeo**

**Email:** sara.yeo@utah.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA2

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Alessandro Zanazzi**

**Email:** alessandro.zanazzi@uvu.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Awardee

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Renee Faatz**

**Email:** renee.faatz@snow.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at Snow College participating in research at iUTAH

**Funding Support:** Snow College

**International Collaboration:** No

**International Travel:** No

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**Maura Hahnenberger**

**Email:** mhahnenb@bruinmail.slcc.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** External Engagement/Outreach, EOD innovation award

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Marian Howe-Taylor**

**Email:** marian.howe-taylor@slcc.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at SLCC participating in research at iUTAH

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Mary Jane Keleher**

**Email:** maryjane.keleher@slcc.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Faculty at SLCC participating in research at iUTAH

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Daniel Poole**

**Email:** daniel.poole@slcc.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RFA2

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Suzanne Arthur**

**Email:** suzita27@hotmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Horizonte ITC

**International Collaboration:** No

**International Travel:** No

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**Joel Arvizo**

**Email:** joel.arvizo@slcschools.org

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** EOD Innovation Awardee and K-12 Teacher working with iUTAH

**Funding Support:** Rose Park Elementary

**International Collaboration:** No

**International Travel:** No

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**Brittany Bohne**

**Email:** bohne.brittany@gmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant



**Funding Support:** Granite Connection High School

**International Collaboration:** No

**International Travel:** No

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**Nate Carling**

**Email:** ncarling@alpinedistrict.org

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Westlake High School

**International Collaboration:** No

**International Travel:** No

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**Brian Felsch**

**Email:** brian.felsch@gmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Wasatch High School

**International Collaboration:** No

**International Travel:** No

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**Lora Gibbons**

**Email:** lgibbons@mountainheightsacademy.org

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Mountain Heights Academy

**International Collaboration:** No

**International Travel:** No

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**Kristina Kaly**

**Email:** kristina.kaly@slcschools.org

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** External Engagement/Outreach, EOD innovation award

**Funding Support:** Rose Park Elementary

**International Collaboration:** No

**International Travel:** No

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**Crystal King**

**Email:** mnking2000@comcast.net

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** West High School

**International Collaboration:** No

**International Travel:** No

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**Katherine McEntee**

**Email:** katie.mcentee@utah.edu

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Bryant Middle School

**International Collaboration:** No

**International Travel:** No

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**Leslie Mouton**

**Email:** leslie.mouton78@gmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Mount Jordan Middle School

**International Collaboration:** No

**International Travel:** No

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**Ken Obrien**

**Email:** Ken.Obrien@slcschools.org

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** External Engagement/Outreach, EOD innovation award

**Funding Support:** Rose Park Elementary

**International Collaboration:** No

**International Travel:** No

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**Natalie Shiozawa**

**Email:** psychonat@gmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Horizonte ITC

**International Collaboration:** No

**International Travel:** No

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**Rachel Gabor**

**Email:** rachel.gabor@utah.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 12

**Contribution to the Project:** RFA1 and RFA2

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Melissa Haeffner**

**Email:** melissahaeffner@gmail.com

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 12

**Contribution to the Project:** RFA2

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Krishna Khatri**

**Email:** krishna.khatri@gmail.com

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 12

**Contribution to the Project:** RFA3

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Erik Oerter**

**Email:** erik.oerter@berkeley.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 2

**Contribution to the Project:** RFA1

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Adrienne Andrews**

**Email:** adrienneandrews@weber.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Diversity specialist at Weber St

**Funding Support:** Weber St.

**International Collaboration:** No

**International Travel:** No

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**Ellen Bailey**

**Email:** ellen.bailey@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Water Quality Extension

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Nancy Bo Flood**

**Email:** wflood@hotmail.com

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Navajo Nation representative, diversity specialist

**Funding Support:** Navajo Nation

**International Collaboration:** No

**International Travel:** No

---

**Kerry Bringhurst**

**Email:** kerry.bringhurst@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** External Engagement/Outreach, EOD innovation award

**Funding Support:** UPR

**International Collaboration:** No

**International Travel:** No

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**Pabitra Dash**

**Email:** pabitra.dash@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Programmer at USU Water Lab participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Marcy DeMillion**

**Email:** marcy\_demillion@nps.gov

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Education specialist with the National Park Service

**Funding Support:** US NPS

**International Collaboration:** No

**International Travel:** No

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**Sue Dintelman**

**Email:** sue@pleiades-software.com

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Pleiades Software, Inc. - private enterprise representative

**Funding Support:** Pleiades Software, Inc.

**International Collaboration:** No

**International Travel:** No

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**Erika DuRoss**

**Email:** EDuRoss@theleonardo.org

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Education specialist from The Leonardo

**Funding Support:** The Leonardo

**International Collaboration:** No

**International Travel:** No

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**Ellen Eiriksson**

**Email:** ellen.eiriksson@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 12

**Contribution to the Project:** iUTAH EOD coordinator

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Sare Gardner**

**Email:** saregardner@gmail.com

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** iUTAH Staff Assistant

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Tamara Goetz**

**Email:** tgoetz@utah.gov

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** State EPSCoR Committee Member from GOED

**Funding Support:** Utah GOED

**International Collaboration:** No

**International Travel:** No

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**Jeannine Huenemann**

**Email:** jeannine.huenemann@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 9

**Contribution to the Project:** Communications Specialist

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Terra Huff**

**Email:** terra.huff@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 6

**Contribution to the Project:** Financial Officer of IUTAH at USU

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Chris Keleher**

**Email:** ChristopherKeleher@utah.gov

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Member of iUTAH management team

**Funding Support:** State of Utah

**International Collaboration:** No

**International Travel:** No

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**Julie Kiefer**

**Email:** exploreutahscience@gmail.com

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Member of EUS

**Funding Support:** EUS

**International Collaboration:** No

**International Travel:** No

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**Andreas Leidolf**

**Email:** andreas.leidolf@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 12

**Contribution to the Project:** Assistant Director/Project Administrator

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Anna McEntire**

**Email:** anna.mcentire@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Rebecca Menlove**

**Email:** bmenlove@nhmu.utah.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 2

**Contribution to the Project:** NHMU, educational specialist

**Funding Support:** NHMU

**International Collaboration:** No

**International Travel:** No

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**Mary-Ann Muffoletto**

**Email:** maryann.muffoletto@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Communications Specialist working with iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Adelbert Nelson**

**Email:** mansel.nelson@nau.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Diversity specialist of Northern Arizona U

**Funding Support:** Northern Arizona U

**International Collaboration:** No

**International Travel:** No

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**Jackie Pendleton**

**Email:** outreach@thelivingplanet.com

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** EOD supplement from The Living Plant Aquarium

**Funding Support:** The Living Plant Aquarium

**International Collaboration:** No

**International Travel:** No

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**Kevin Rhodes**

**Email:** krhodes@campbellsci.com

**Most Senior Project Role:** Other Professional



**Nearest Person Month Worked:** 1

**Contribution to the Project:** Workforce Development Team Member

**Funding Support:** Campbell Scientific LLC

**International Collaboration:** No

**International Travel:** No

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**Eli Robinson**

**Email:** eli.robinson@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** USU Water Quality Extension

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Carol Rosenthal**

**Email:** carol.rosenthal@usu.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Staff Assistant

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Madlyn Runburg**

**Email:** mrunburg@nhmu.utah.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** NHMU, educational specialist

**Funding Support:** NHMU

**International Collaboration:** No

**International Travel:** No

---

**Jessica Seppi**

**Email:** jseppi@nhmu.utah.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** NHMU, educational specialist

**Funding Support:** NHMU

**International Collaboration:** No

**International Travel:** No

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**Katie Smith**

**Email:** ksmith@theleonardo.org

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Education specialist from The Leonardo

**Funding Support:** The Leonardo

**International Collaboration:** No

**International Travel:** No

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**Sarah Young**

**Email:** sarah.young@schools.utah.gov

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** State of Utah

**Funding Support:** State of Utah

**International Collaboration:** No

**International Travel:** No

---

**Jessica Anderson**

**Email:** janderson@uen.org

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 4

**Contribution to the Project:** Technician from UEN

**Funding Support:** UEN

**International Collaboration:** No

**International Travel:** No

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**Jobie Carlisle**

**Email:** jobie@usu.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Technician at USU

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Chris Cox**

**Email:** chisrycx@gmail.com

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 12

**Contribution to the Project:** Technician at USU

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

---

**Dylan Dastrup**

**Email:** dylандаstrup@comcast.net

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 12

**Contribution to the Project:** BYU Technician sponsored by iUTAH

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

---

**Dave Eiriksson**

**Email:** dave.eiriksson@utah.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 12

**Contribution to the Project:** UU technician sponsored by iUTAH

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

---

**Amber Jones**

**Email:** amber.jones@usu.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 9

**Contribution to the Project:** USU Water Lab Tech sponsored by iUTAH

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

---

**Rusty Keele**

**Email:** rkeele@uen.org

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Technician from UEN

**Funding Support:** UEN

**International Collaboration:** No

**International Travel:** No

---

**Matt Lorimer**

**Email:** matt.lorimer@usu.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** CI, systems administrator

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Justin Reed**

**Email:** jreed@uen.org

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Technician at UEN working with iUTAH

**Funding Support:** UEN

**International Collaboration:** No

**International Travel:** No

---

**Stephanie Reeder**

**Email:** stephanie.reeder@usu.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Technician-Programmer at USU Water Lab

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Matt Miller**

**Email:** mamiller@usgs.gov

**Most Senior Project Role:** Staff Scientist (doctoral level)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** USGS official, water data and advise provider

**Funding Support:** USGS

**International Collaboration:** No

**International Travel:** No

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**Adel Abdallah**

**Email:** amabdallah@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Makenzi Beltram**

**Email:** makenzibeltran@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Dave Betts**

**Email:** davebetts@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Caleb Buahin**

**Email:** caleb.buahin@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Water Lab graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Clint Carney**

**Email:** clint.carney@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Taya Carothers**

**Email:** taya.carothers@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Hannah Checketts**

**Email:** hannahchecketts@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU graduate student participating in iUTAH research.

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Taylor Dean**

**Email:** taylor.dean@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Kyle Eager**

**Email:** kyle.eagar@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Rosa Fernandez**

**Email:** amelina20@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Muyang Ge**

**Email:** muyang.ge@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Andrew Gelderloos**

**Email:** argelderloos@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student sponsored by iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Colin Hale**

**Email:** halecolin1@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU Graduate Student sponsored by iUTAH

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Carly Hansen**

**Email:** carlyahansen@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** Volunteer on iUTAH WaterGirls program, an iUTAH EOD Innovation Award-sponsored project.

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Yusuf Jameel**

**Email:** yusuf8ysf@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Ryan James**

**Email:** ryjamesj@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Erin Jones**

**Email:** erinfjones3@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU graduate student sponsored by iUTAH

**Funding Support:** BYU

**International Collaboration:** No



**International Travel:** No

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**Julia Kelso**

**Email:** julia.kelso@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Maggie Kraft**

**Email:** maggi.kraft@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Julie Leri**

**Email:** julie.leri@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU Graduate Student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Enjie Li**

**Email:** enjie.li@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 3

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Jordan Maxwell**

**Email:** jdmax29@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU graduate student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Meaghan McKasy**

**Email:** meaghan.mckasy@utah.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU Graduate Student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Anthony Melcher**

**Email:** tmelcher@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Bryce Mihalevich**

**Email:** bryce.mihal@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Matthew Miksch**

**Email:** miksch@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Brett Miller**

**Email:** brett.alan.miller@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Mallory Millington**

**Email:** malmillington@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Nathaniel Mouzon**

**Email:** nmouzon@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Brianne Nielsen**

**Email:** brnnnielsen@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No  
**International Travel:** No

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**Elizabeth Ogata**

**Email:** bethogata@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** Graduate researcher working on iUTAH

**Funding Support:** USU Presidential Doctoral Research Fellowship

**International Collaboration:** No

**International Travel:** No

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**Mary Oliver**

**Email:** OliverLeeMary@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Brian Packer**

**Email:** bnoelpacker@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU graduate student participating in iUTAH research.

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Kshitij Parajuli**

**Email:** kshparajuli@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Alexei Perelet****Email:** a.perelet@utah.edu**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** UU graduate student participating in iUTAH research**Funding Support:** UU**International Collaboration:** No**International Travel:** No**Liana Prudencio****Email:** lianap566@gmail.com**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** USU Graduate Student participating in iUTAH research**Funding Support:** USU**International Collaboration:** No**International Travel:** No**Matt Randall****Email:** mattrandall3@gmail.com**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** BYU graduate student participating in iUTAH research.**Funding Support:** BYU**International Collaboration:** No**International Travel:** No**Jared Richens****Email:** richensj@gmail.com**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** USU Graduate Student participating in iUTAH research**Funding Support:** USU**International Collaboration:** No**International Travel:** No**Kerri Russel****Email:** kerriarussell@gmail.com**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU graduate student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Victoria Russell**

**Email:** victoriarussell@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Volunteer on iUTAH WaterGirls program, an iUTAH EOD Innovation Awards-sponsored project.

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Pratibha Sapkota**

**Email:** pratibha.sapkota@utah.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Kimi Smith**

**Email:** kimi.smith@utah.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student sponsored by iUTAH

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Bryn St. Clair**

**Email:** brynstclair@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** BYU Graduate Student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Pratiti Tagore**

**Email:** pratiti.tagore@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Blake Thomas**

**Email:** blakhthomas@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Crystal Tulley-Cordova**

**Email:** tulleycordova@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU graduate student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Adrian Uzunian**

**Email:** auzunian@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Hailey Wall**

**Email:** wall0635@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Chelsea Welker**

**Email:** chelseawelker@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** UU Graduate Student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Trixie Wolf Rife**

**Email:** trixwolf55@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Humaira Yusuf**

**Email:** humaira.nabeela.bd@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU Graduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Sofiya Yuvshanova**

**Email:** sofiya.yuvshanova@aggiemail.usu.edu

**Most Senior Project Role:** Graduate Student (research assistant)



**Nearest Person Month Worked:** 6

**Contribution to the Project:** USU graduate student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Mario Harper**

**Email:** mario.harper@usu.edu

**Most Senior Project Role:** Non-Student Research Assistant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Programmer at USU Water Lab participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Jeremy Andreini**

**Email:** jeremy.andreini@hotmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG undergrad

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Cade Andrus**

**Email:** nesquik24@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Amanda Araujo**

**Email:** amanda.araujo5214@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** BYU Undergraduate Student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Francisco Arrieta**

**Email:** francisco.arrieta@aggiemail.usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Matthew Barnett**

**Email:** matthew.barnett@aggiemail.usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Chelsee Barrett**

**Email:** u0883945@uemail.utah.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Ben Barton**

**Email:** benbarton12@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Andrew Bentz**

**Email:** abentz27@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Brittany Betzer**

**Email:** brittanybetzer@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Nathan Blue**

**Email:** nathanblue@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Lucas Bohne**

**Email:** lucas.bohne@utah.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** UU Undergraduate Student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Brett Boyer**

**Email:** boyer.brett@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Dane Brophy**

**Email:** dane.brophy@aggiemail.usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Austin Brown**

**Email:** austin.brown@aggiemail.usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Amberlee Burrows**

**Email:** amberleeburrows@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Margaret Call**

**Email:** amber.margaret.call@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Juan Caraballo**

**Email:** juan.caraballo17@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Water Lab undergraduate student sponsored by iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Reid Clark**

**Email:** reidclark@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Mariah Clayson**

**Email:** mariah.clayson@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at SUU

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**Scott Collins**

**Email:** fmg333@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Crystal Curtis**

**Email:** crystalhacking@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Amanda Daines**

**Email:** amandadaines@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Kent Dean**

**Email:** deaner12.td@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Christian Diaz**

**Email:** czd0726@westminstercollege.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at Westminster College

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

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**Margaret England**

**Email:** menglandjohns@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Arthur Evensen**

**Email:** evensen.arthur@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at UVU

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Kyle Fordham**

**Email:** kyle.fordham@uvu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at UVU

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Alexis Frias**

**Email:** alexisfrias@weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Kenneth Fryar-Ludwig**

**Email:** fryar.ludwig@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Drew Gabel**

**Email:** andrew@gabelhaven.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

---

**Coleman Gerdes**

**Email:** colemanagerdes@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Jake Gottschalk**

**Email:** jake.gottschalk17@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Natasha Griffin**

**Email:** natasha.a.griffin@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No



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**Esther Harkness**

**Email:** esharkness@hotmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at SUU

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

---

**Alexander Hatanaka**

**Email:** alexhatanaka22@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** DSU

**International Collaboration:** No

**International Travel:** No

---

**Areg Haytayan**

**Email:** areg.haytayan@usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 4

**Contribution to the Project:** iUTAH office assistant

**Funding Support:** iUTAH

**International Collaboration:** No

**International Travel:** No

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**Makenna Hill**

**Email:** makennahill@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Tyler Hole**

**Email:** tylerhole@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Rebekha Holt**

**Email:** rebekahholt@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at WSU

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Dustin Joe**

**Email:** djoe1776@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Christianna Johnson**

**Email:** christiannajohnson18@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Shelley Jones**

**Email:** shelstar17@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Marissa Keck**

**Email:** for1school1projects@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** UVU Undergraduate Student participating in iUTAH research

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Kenneth Larsen**

**Email:** klarsen217@hotmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**John Lillquist**

**Email:** johnlillquist@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

---

**Belinda Madsen**

**Email:** belindacmadsen@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Volunteer on iUTAH WaterGirls program, an iUTAH EOD Innovation Awards-sponsored project.

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Zach Malcarne**

**Email:** zachary.malcarne@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Alexandria Martin**

**Email:** arm1205@westminstercollege.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at Westminster College

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

---

**Charles Mascher**

**Email:** charles.mascher@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Stella Massachi**

**Email:** smassachi1212@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

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**Gideon Maughan**

**Email:** gideon.maughan@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Michelle Meunrath**

**Email:** michellesolorzano@mail.weber.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Jessica Morgan**

**Email:** jess.morgan@aggiemail.usu.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Alan Ochoa**

**Email:** a.ocho@live.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Zack Oldroyd**

**Email:** zack.oldroyd@aggiemail.usu.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Vinicius Pacheco**

**Email:** 10548630@my.uvu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at UVU

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Tyler Payne**

**Email:** tylerpayne1@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at WSU

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Hannah Peterson**

**Email:** Hannah.peterson65@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG undergrad

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Jacob Preston**

**Email:** prestonjdb@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** SUU

**International Collaboration:** No  
**International Travel:** No

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**Henintsoa Rakotoarisaona**

**Email:** hentsrak@yahoo.fr

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG undergrad

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Maurier Ramirez**

**Email:** mauriel.ramirez@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student at USU Water Lab participating in research at iUTAH

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Nayla Rhein**

**Email:** nayla.rhein@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**Ben Rider**

**Email:** riderbenjamin@aggiemail.usu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Sarah Ross****Email:** sarah.ross1192@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research**Funding Support:** USU**International Collaboration:** No**International Travel:** No**Jake Rudd****Email:** jacob.rudd@aggiemail.usu.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research**Funding Support:** USU**International Collaboration:** No**International Travel:** No**Andrea Salcedo****Email:** andreasalcedo@weber.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** SI Participant**Funding Support:** WSU**International Collaboration:** No**International Travel:** No**Jeremy Saldivar****Email:** venturesomemoose@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** RCG Undergraduate Student at UVU**Funding Support:** UVU**International Collaboration:** No**International Travel:** No**Abigail Scott****Email:** afs0309@westminstercollege.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1



**Contribution to the Project:** RCG Undergraduate Student at Westminster College

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

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**Sydney Searle**

**Email:** sydneysearle@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at WSU

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Mercede Shaw**

**Email:** mercedepearl22@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** UU Undergraduate Student participating in iUTAH research

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

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**Natalie Shepherd**

**Email:** natalieshep23@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Maverik Shumway**

**Email:** maverikshumway@hotmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at SUU

**Funding Support:** SUU

**International Collaboration:** No

**International Travel:** No

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**William Soule**

**Email:** williamsoule@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

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**Rebekah Stout**

**Email:** rebekahstout1@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Hyrum Tennant**

**Email:** hyrumtennant@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Anne Thomas**

**Email:** aet\_artist@sbcglobal.net

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** BYU Undergraduate Student participating in iUTAH research

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

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**Mariah Todd**

**Email:** 10773545@my.uvu.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** UVU Undergraduate Student participating in iUTAH research

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Madelene Trentman**

**Email:** mpt0907@westminstercollege.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at Westminster College

**Funding Support:** Westminster College

**International Collaboration:** No

**International Travel:** No

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**Jack Trice**

**Email:** jack.trice96@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Bethany Unger**

**Email:** bethanyquinnunger@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

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**Alex Uribe**

**Email:** aturibe90@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at UVU

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

---

**Jack Wells**

**Email:** wells11.89@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at UVU

**Funding Support:** UVU

**International Collaboration:** No

**International Travel:** No

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**Darianne Willey**

**Email:** dariannewilley@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** USU Undergraduate Student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Ellen Wofford**

**Email:** ellenwofford@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** RCG Undergraduate Student at WSU

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Margaret Wolf**

**Email:** maw0912@westminstercollege.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Westminster College Undergraduate Student participating in iUTAH research

**Funding Support:** Westminster College

**International Collaboration:** No  
**International Travel:** No

---

**Ian Wright**

**Email:** ianwright1@mail.weber.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** WSU Undergraduate Student participating in iUTAH research

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

---

**Elizabeth Wynn**

**Email:** ewynn610@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Undergrad student participating in iUTAH research

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Benjamin Zeller**

**Email:** zeller.benjamin.j@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iUTAH Trainee

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

---

**Shannon Baker**

**Email:** bakersh@carbonschools.org

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Carbon High School

**International Collaboration:** No

**International Travel:** No

---

**Christian Belnap****Email:** nicolebelnap@gmail.com**Most Senior Project Role:** High School Student**Nearest Person Month Worked:** 1**Contribution to the Project:** SI Participant**Funding Support:** Altamont High School**International Collaboration:** No**International Travel:** No**Jose Galang****Email:** jfgalang2018@gmail.com**Most Senior Project Role:** High School Student**Nearest Person Month Worked:** 1**Contribution to the Project:** SI Participant**Funding Support:** Juan Diego High School**International Collaboration:** No**International Travel:** No**Andrew Gibbons****Email:** a12t12g12@gmail.com**Most Senior Project Role:** High School Student**Nearest Person Month Worked:** 1**Contribution to the Project:** SI Participant**Funding Support:** Stansbury High School**International Collaboration:** No**International Travel:** No**Jaik Hakkarinen****Email:** jaik2000@gmail.com**Most Senior Project Role:** High School Student**Nearest Person Month Worked:** 1**Contribution to the Project:** SI Participant**Funding Support:** Brighton High School**International Collaboration:** No**International Travel:** No**Dallin Larsen****Email:** dallinlarsen10@gmail.com**Most Senior Project Role:** High School Student**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Jordan High School

**International Collaboration:** No

**International Travel:** No

---

**Mitzy Ocampo**

**Email:** mitzy.m.ocampo@gmail.com

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** West High School

**International Collaboration:** No

**International Travel:** No

---

**Zoe Staley**

**Email:** zoestaley@gmail.com

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Ogden High School

**International Collaboration:** No

**International Travel:** No

---

**Nicole Tmecherur**

**Email:** ntmecherur9445@gmail.com

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** SI Participant

**Funding Support:** Ogden High School

**International Collaboration:** No

**International Travel:** No

---

**Jacqueline Ewing-Taylor**

**Email:** jacque@unr.edu

**Most Senior Project Role:** Consultant

**Nearest Person Month Worked:** 2

**Contribution to the Project:** U Nevada Reno

**Funding Support:** U Nevada Reno

**International Collaboration:** No  
**International Travel:** No

---

**Jon Garner**

**Email:** jon.garner@searchtech.com

**Most Senior Project Role:** Consultant

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Consultant at SearchTech working with iUTAH

**Funding Support:** SearchTech

**International Collaboration:** No

**International Travel:** No

---

**Alan Porter**

**Email:** alan.porter@isye.gatech.edu

**Most Senior Project Role:** Consultant

**Nearest Person Month Worked:** 2

**Contribution to the Project:** External Assessment Team

**Funding Support:** Georgia Tech

**International Collaboration:** No

**International Travel:** No

---

**Joydino Beyale**

**Email:** joydinobeyale@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** USU Eastern Blanding

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Heather Bottelberghe**

**Email:** heather.bottelberghe@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** SLCC

**International Collaboration:** No



**International Travel:** No  
**Year of schooling completed:**  
**Home Institution:**  
**Government fiscal year(s) was this REU participant supported:**

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**Katelyn Boyer**

**Email:** katelyn.boyer@aggiemail.usu.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Darcie Christensen**

**Email:** darc.c@aggiemail.usu.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Georgie Corkery**

**Email:** georgie.corkery@utah.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Cynthia Elliott**

**Email:** cindeazy@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Andrew Hackett**

**Email:** andrewhackett@mail.weber.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** WSU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Greta Hamilton**

**Email:** hamilt4@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Stacy Henderson**

**Email:** shendersonutah@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** SLCC

**International Collaboration:** No  
**International Travel:** No  
**Year of schooling completed:**  
**Home Institution:**  
**Government fiscal year(s) was this REU participant supported:**

---

**Rebecca Lee**

**Email:** beccalee323@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

---

**Gabriela Martinez**

**Email:** gmarti50@bruinmail.slcc.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** SLCC

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

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**Mitch Steele**

**Email:** mcsteele8@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Shanae Tate**

**Email:** r.shanae.tate@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** BYU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

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**Luis Vidal**

**Email:** luisguillermo.vidal@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

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**Lily Wetterlin**

**Email:** lily.wetterlin13@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

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**Adam Whalen**

**Email:** adam.whalen@utah.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** UU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Sandra Young**

**Email:** s.k.y@aggiemail.usu.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** iFellow

**Funding Support:** USU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**What other organizations have been involved as partners?**

<b>Name</b>	<b>Type of Partner Organization</b>	<b>Location</b>
American Association for the Advancement of Science	Other Nonprofits	Washington, D.C.
American Water Works Association	Other Nonprofits	Denver, CO
Christina River Basin Critical Zone Observatory	Other Nonprofits	Delaware, Pennsylvania and Maryland
Utah Water Watch	Academic Institution	Logan, Utah
Wasatch Dendroclimatology Research Group (WaDR)	Academic Institution	Logan, UT
Washington State University (WaSU)	Academic Institution	Pullman, Washington
Weber County Library	State or Local Government	Ogden, UT
Weber State University	Academic Institution	Ogden, Utah
Weber State University Energy and Sustainability Office	Academic Institution	Ogden, UT
Western Water Assessment (WWA)	Other Nonprofits	Colorado, Western US

Westminster College	Academic Institution	Salt Lake City, Utah
Cirrus Ecological Solutions LC	Industrial or Commercial Firms	Logan, Utah
City of Logan	State or Local Government	Logan, Utah
Climate Adaptation Science	Academic Institution	Logan, UT
Consortium of Universities for the Advancement of Hydrologic	Academic Institution	National
Delaware EPSCoR	Academic Institution	Delaware
Dixie State University (DSU)	Academic Institution	Southern Utah
Dixie State University Office of Sponsored Programs	Academic Institution	St. George, UT
Envision Utah	Other Nonprofits	Utah
Explore Utah Science	Other Nonprofits	Utah
Arizona State University	Academic Institution	Tempe, Arizona
Four Corners School of Outdoor Education	Academic Institution	Monticello, Utah
Garth and Jerri Frehner Museum of Natural History	Other Nonprofits	Cedar City, Utah
Global Change and Sustainability Center	Academic Institution	Salt Lake City, Utah
Hillyard, Anderson, and Olson PC	Industrial or Commercial Firms	Logan Utah
HydroShare	Academic Institution	National
International Neuroinformatics Coordinating Facility (INCF)	Other Nonprofits	Stockholm, Sweden
Jordan High School	School or School Systems	Sandy, Utah
Jordan River Commission	State or Local Government	Salt Lake City, UT
Jordan Valley Water Conservancy (JVWCD)	State or Local Government	West Jordan, UT
Judge Memorial High school (Judge)	Academic Institution	Salt Lake City, Utah
Arkansas EPSCoR	State or Local Government	Arkansas

Logan Northwest Field Irrigation Company	Industrial or Commercial Firms	Logan, Utah
Logan, Hyde Park and Smithfield Canal Company	Industrial or Commercial Firms	Logan, Utah
Loras College	Academic Institution	Dubuque, Iowa
Loveland Living Planet Aquarium	Other Nonprofits	Draper, Utah
Natural History Museum of Utah	Other Nonprofits	Salt Lake City, Utah
Nevada EPSCoR	State or Local Government	Las Vegas, NV
Nevada System of Higher Education	State or Local Government	Reno, Nevada
New Hampshire EPSCoR	Academic Institution	New Hampshire
New Mexico EPSCoR	Academic Institution	New Mexico
North Dakota EPSCoR	Academic Institution	Fargo, ND
Arkansas Science and Technology Authority	State or Local Government	Little Rock, Arkansas
North Dakota State University	Academic Institution	Fargo, ND
North Logan Library	State or Local Government	North Logan, UT
Pleiades Software, Inc	Industrial or Commercial Firms	Salt Lake City, Utah
Politecnio di Milano	Academic Institution	Italy
Portland State University	Academic Institution	Portland, Oregon
Providence Blacksmith Fork Irrigation Co.	Industrial or Commercial Firms	Providence, Utah
Purdue University	Academic Institution	West Lafayette, IN
Rose Park Elementary	School or School Systems	Salt Lake City, Utah
SACNAS	Other Nonprofits	Santa Cruz, CA
STEM Evaluation Associates	Other Nonprofits	Western US
Bear River Watershed Council	Other Nonprofits	Providence, Utah
Salt Lake City Department of Public Utilities	State or Local Government	Salt Lake City, Utah
Salt Lake Community College	Academic Institution	Salt Lake City, Utah

Salt Lake County	State or Local Government	Salt Lake City, Utah
Seven Canyons Trust	Other Nonprofits	Salt Lake City, UT
Snow College	Academic Institution	Ephraim, Utah
South Dakota State University	Academic Institution	Brookings, South Dakota
Southern Utah University	Academic Institution	Cedar city, Utah
Southern Utah University Sponsored Projects Office (SPARC)	Academic Institution	Cedar City, UT
Thanksgiving Point Institute	Other Nonprofits	Lehi, Utah
The Leonardo	Other Nonprofits	Salt Lake City, Utah
Brigham Young University	Academic Institution	Provo, Utah
Tracy Aviary	Other Nonprofits	Salt Lake City, Utah
Triangle Coalition for STEM Education (Triangle)	Other Nonprofits	Washington D.C.
Tufts University	Academic Institution	Massachusetts
USDA Natural Resources Conservation Service	Other Organizations (foreign or domestic)	National
United States Geological Survey	Other Organizations (foreign or domestic)	Salt Lake City, Utah
United States National Park Service	Other Organizations (foreign or domestic)	National
University of Alaska Anchorage	Academic Institution	Anchorage, Alaska
University of Hawaii	Academic Institution	Hawaii
University of Idaho	Academic Institution	Moscow, Idaho
University of Kansas	Academic Institution	Lawrence, KS
Campbell Scientific, Inc.	Industrial or Commercial Firms	Logan, Utah
University of Life Sciences & Natural Resources (BOKU)	Academic Institution	Vienna, Austria
University of Missouri	Academic Institution	Columbia, Missouri



University of New Hampshire	Academic Institution	New Hampshire
University of New Mexico	Academic Institution	Albuquerque, New Mexico
University of North Carolina Chapel Hill	Academic Institution	North Carolina
University of Rhode Island	Academic Institution	Kingston, Rhode Island
University of Texas at Austin	Academic Institution	Texas
University of Utah	Academic Institution	Salt Lake City, Utah
University of Utah Office of the VPR	Academic Institution	Salt Lake City, UT
University of Virginia	Academic Institution	Charlottesville, Virginia
Canyon Concepts LLC	Industrial or Commercial Firms	Tucson, Arizona
University of Washington	Academic Institution	Seattle, WA
University of Wyoming	Academic Institution	Laramie, Wyoming
Utah Automated Geographic Resource Center	State or Local Government	Salt Lake City, Utah
Utah Department of Environmental Quality	State or Local Government	Salt Lake City, Utah
Utah Department of Natural Resources	State or Local Government	Salt Lake City, Utah
Utah Education Network	Academic Institution	Salt Lake City, Utah
Utah Governor's Office of Economic Development	State or Local Government	Salt Lake City, Utah
Utah Partners in Flight	State or Local Government	Salt Lake City, UT
Utah Public Radio	Other Nonprofits	Logan, UTah
Utah Science, Technology, and Research Initiative	State or Local Government	Salt Lake City, Utah
Central Utah Water Conservancy District	State or Local Government	Orem, Utah
Utah State Board of Education	State or Local Government	Salt Lake City, UT
Utah State Office of Education	State or Local Government	Salt Lake City, Utah
Utah State University - Eastern	Academic Institution	Blanding, Utah

Utah State University Office of the VPR	Academic Institution	Logan, UT
Utah State University Uinta Basin Campus	Academic Institution	Vernal, Utah
Utah State University Water Quality Extension	Academic Institution	Logan, Utah
Utah Stormwater Advisory Committee (USWAC)	State or Local Government	Utah
Utah System of Higher Education	State or Local Government	Salt Lake City, Utah
Utah Valley University	Academic Institution	Orem, Utah
Utah Water Research Laboratory (UWRL)	Academic Institution	Logan, Utah

### Full details of organizations that have been involved as partners:

#### American Association for the Advancement of Science

**Organization Type:** Other Nonprofits

**Organization Location:** Washington, D.C.

**Partner's Contribution to the Project:**

Financial support

In-Kind Support

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are participating in a AAAS-funded project to advance the body of knowledge on and formalize the role of the science community manager/science engagement professional.

#### American Water Works Association

**Organization Type:** Other Nonprofits

**Organization Location:** Denver, CO

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH EOD Staff are partnering with the Intermountain Section of AWA on organizing outreach events associated with Utah Water Week.

#### Arizona State University

**Organization Type:** Academic Institution

**Organization Location:** Tempe, Arizona

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Researchers from ASU are partnering with iUTAH on a series of projects that investigate urban water use across the west, and the nature of collaboration between public utilities and university

researchers.

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### **Arkansas EPSCoR**

**Organization Type:** State or Local Government

**Organization Location:** Arkansas

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with Arkansas EPSCoR staff on representation, networking, and professional development for the EPSCoR Project Administrators' community.

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### **Arkansas Science and Technology Authority**

**Organization Type:** State or Local Government

**Organization Location:** Little Rock, Arkansas

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the Arkansas Science and Technology Authority participates in a consortium that developed and maintains the EPSCoR reporting module ER-Core, using the open source content management platform Drupal.

---

### **Bear River Watershed Council**

**Organization Type:** Other Nonprofits

**Organization Location:** Providence, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The Bear River Watershed Council, located in Providence, Utah, is a non-profit organization working to protect Northern Utah's watersheds. It is the recipient of a 2014 iUTAH EOD Innovation Award, with ongoing engagement with the iUTAH project through the organization's disbandment in 2016.

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### **Brigham Young University**

**Organization Type:** Academic Institution

**Organization Location:** Provo, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** BYU is one of Utah's three major research universities located in Provo, Utah. BYU faculty and students actively engaged with iUTAH represent five academic departments (Biology, Civil and Environmental Engineering, Geography, Geology, and Plant and Wildlife Sciences) and work within and across all three iUTAH Research Focus Areas.

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### **Campbell Scientific, Inc.**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** Staff of Campbell Scientific, a scientific instrumentation company headquartered in Logan, Utah, serve on iUTAH education, outreach and diversity teams.

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**Canyon Concepts LLC**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Tucson, Arizona

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of Canyon Concepts, LLC, a consulting firm focused on establishing collaborative relationships located in Tucson Arizona, serve on iUTAH education, outreach and diversity teams.

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**Central Utah Water Conservancy District**

**Organization Type:** State or Local Government

**Organization Location:** Orem, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The CUWCD, headquartered in Orem, Utah, has been an active collaborator in the design and upkeep of the iUTAH GAMUT observation network, providing help with site selection, logistical support and access to facilities and electrical power.

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**Christina River Basin Critical Zone Observatory**

**Organization Type:** Other Nonprofits

**Organization Location:** Delaware, Pennsylvania and Maryland

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** Christina River Basin CZO is an NSF-funded environmental observatory partnered with the University of Delaware located in Newark, Delaware. iUTAH is collaborating with personnel from Christina River CZO in the development of functionality for the Python-based software stack used to manage the streaming datasets from the GAMUT network.

---

**Cirrus Ecological Solutions LC**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH researchers are collaborating with Cirrus, an environmental consulting firm located in Logan, Utah, on understanding and quantifying the impact of dissolved organic carbon (DOC) on dissolved oxygen impairment to the Lower Jordan River, and on understanding the loading of DOC and other pollutants to the Jordan River in support of the development and revision of the Jordan River total maximum daily loads document.

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**City of Logan**

**Organization Type:** State or Local Government

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** UTAH is partnering with the City of Logan to share datasets, plan for current and potential future monitoring sites and data collection activities, and obtain legal access to monitoring sites within Logan City. This relationship is currently being expanded to include data collection using smart metering devices in residential households. iUTAH researchers are also collaborating with Logan City Public Works to evaluate performance of stormwater collection and treatment systems, to measure flow and monitor water quality from canal/stormwater discharges to the Logan River, and to evaluate the implementation and long-term performance of alternative stormwater management systems.

---

**Climate Adaptation Science**

**Organization Type:** Academic Institution

**Organization Location:** Logan, UT

**Partner's Contribution to the Project:**

In-Kind Support

Collaborative Research

**More Detail on Partner and Contribution:** The Climate Adaptation Science program at Utah State University prepares graduate researchers for careers integrating science with management and policy while advancing climate adaptation science in the Interior West. The program's faculty include several iUTAH scientists who are helping to develop and deliver its innovative interdisciplinary training activities.

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**Consortium of Universities for the Advancement of Hydrologic**

**Organization Type:** Academic Institution

**Organization Location:** National

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** iUTAH is using and extending cyberinfrastructure software and tools originally developed as part of the CUAHSI Hydrologic Information System for managing data from the GAMUT network. All of iUTAH's software development activities are shared via open-source code repositories, with plans in place to

integrate these developments into the software stack supported by the NSF-Supported CUAHSI Water Data Center, a community serving data center for the hydrologic science community. In addition, several iUTAH participants also serve as faculty representatives to CUAHSI.

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### **Delaware EPSCoR**

**Organization Type:** Academic Institution

**Organization Location:** Delaware

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH EOD Staff are partnering annually with Delaware EPSCoR to plan and implement a cross-jurisdictional EPSCoR booth at the SACNAS National Conference to increase representation of underrepresented minorities in STEM.

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### **Dixie State University (DSU)**

**Organization Type:** Academic Institution

**Organization Location:** Southern Utah

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** Dixie State University is a four-year regional university located in St. George in southern Utah. It primarily serves residents of Utah, southern Nevada, and southern California and, as an open-enrollment school, has a large population of non-traditional students. Faculty at DSU serve on iUTAH education, outreach and diversity teams.

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### **Dixie State University Office of Sponsored Programs**

**Organization Type:** Academic Institution

**Organization Location:** St. George, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Dixie State University is a four-year regional university located in St. George in southern Utah. It primarily serves residents of Utah, southern Nevada, and southern California and, as an open-enrollment school, has a large population of non-traditional students. iUTAH Project Office Staff are collaborating with Sponsored Programs Office Staff at DSU to advance research and educational opportunities for DSU faculty and staff.

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### **Envision Utah**

**Organization Type:** Other Nonprofits

**Organization Location:** Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Envision Utah engages people to create and sustain communities that are

beautiful, prosperous, healthy and neighborly for current and future residents. iUTAH personnel served on the technical team that developed the water portions of the comprehensive "Your Utah, Your Future" survey, and assisted with interpretation of survey data.

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### **Explore Utah Science**

**Organization Type:** Other Nonprofits

**Organization Location:** Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** EUS produces original reporting and multimedia broadcasting of Utah-centric science news and information. It is the recipient of a 2014 EOD Innovation Award.

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### **Four Corners School of Outdoor Education**

**Organization Type:** Academic Institution

**Organization Location:** Monticello, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Four Corners School of Outdoor Education is a non-profit organization located in Monticello, Utah, that provides lifelong learning experiences about the Colorado Plateau bioregion for people of all ages and backgrounds through education, service, adventure, and conservation programs. Four Corners School has partnered with iUTAH diversity enhancement by providing diversity training activities for iUTAH participants.

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### **Garth and Jerri Frehner Museum of Natural History**

**Organization Type:** Other Nonprofits

**Organization Location:** Cedar City, Utah

**Partner's Contribution to the Project:**

In-Kind Support

Facilities

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** The Garth and Jerri Frehner Museum of Natural History is a museum located on the campus of Southern Utah University in Cedar City, Utah. Museum staff serve on iUTAH education, outreach and diversity teams and have been recipients of iUTAH Research Catalyst Grants and EOD Innovation Awards (2014, 2015).

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### **Global Change and Sustainability Center**

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The GCSC, located at The University of Utah in Salt Lake City, serves as a

hub to coordinate, promote and accelerate interdisciplinary research and training on issues related to the environment and sustainability, from local to global scales. It is the recipient of a 2015 EOD Innovation Award.

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### **Hillyard, Anderson, and Olson PC**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Logan Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Hillyard, Anderson and Olsen PC is a law firm located in Logan, Utah. Principals from the firm serve on iUTAH education, outreach and diversity teams.

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### **HydroShare**

**Organization Type:** Academic Institution

**Organization Location:** National

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** HydroShare is a collaborative online partnership to promote sharing of and better access to data and models in the hydrologic sciences. iUTAH is looking towards HydroShare as a potential partners in the long-term curation and archival of iUTAH datasets. HydroShare is a new and emerging hydrologic information system and collaborative data sharing environment that may be a viable repository for long term deposition of iUTAH datasets.

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### **International Neuroinformatics Coordinating Facility (INCF)**

**Organization Type:** Other Nonprofits

**Organization Location:** Stockholm, Sweden

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with program managers at INCF on a AAAS-funded project to advance the body of knowledge on and formalize the role of the science community manager/science engagement professional.

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### **Jordan High School**

**Organization Type:** School or School Systems

**Organization Location:** Sandy, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Jordan High School is a public high school located in Sandy Utah. It is the recipient of a 2014 EOD Innovation Award.

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## **Jordan River Commission**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** Jordan River Commission is a governmental entity serving as a resource to local communities, and provides planning, restoration, and responsible development along the river corridor.

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## **Jordan Valley Water Conservancy (JWVCD)**

**Organization Type:** State or Local Government

**Organization Location:** West Jordan, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** JWVCD is primarily a wholesaler of water to cities and improvement districts within Salt Lake County, and is a political subdivision of the State of Utah and one of the largest water districts in the state.

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## **Judge Memorial High school (Judge)**

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Judge Memorial is a diverse, co-educational, college preparatory school centrally located in Salt Lake City, Utah <http://www.judgememorial.com/>

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## **Logan Northwest Field Irrigation Company**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH is partnering with the Logan, Hyde Park and Smithfield Canal Company to study the canal water system within the Logan City and Cache County.

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## **Logan, Hyde Park and Smithfield Canal Company**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Canal company in Cache Valley

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### Loras College

**Organization Type:** Academic Institution

**Organization Location:** Dubuque, Iowa

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Loras College is a private Catholic liberal arts college located in Dubuque, Iowa. Faculty from Loras College served on iUTAH education, outreach and diversity teams.

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### Loveland Living Planet Aquarium

**Organization Type:** Other Nonprofits

**Organization Location:** Draper, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the Loveland Living Planet Aquarium, an important iUTAH stakeholder located in Draper, Utah, serve on iUTAH education, outreach and diversity teams. It is also the recipient of a 2014 EOD Innovation Award.

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### Natural History Museum of Utah

**Organization Type:** Other Nonprofits

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** NHMU, located on the University of Utah campus in Salt Lake City, is an active participant and partner of iUTAH. In addition to NHMU staff serving on the iUTAH management and education, outreach and diversity teams, NHMU coordinates the Taking Learning Outdoors Program. The iUTAH Visualization Lab (iVL) is currently developing innovative programming and interactive exhibits for NHMU in collaboration with their staff. NHMU is also the recipient of a 2015 EOD Innovation Award.

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### Nevada EPSCoR

**Organization Type:** State or Local Government

**Organization Location:** Las Vegas, NV

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with Nevada EPSCoR staff at the Nevada System of Higher Education on representation, networking, and professional development for the EPSCoR

## **Nevada System of Higher Education**

**Organization Type:** State or Local Government

**Organization Location:** Reno, Nevada

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the Nevada System of Higher Education Sponsored Programs Office and EPSCoR participates in a consortium that developed and maintains the EPSCoR reporting module ER-Core, using the open source content management platform Drupal.

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## **New Hampshire EPSCoR**

**Organization Type:** Academic Institution

**Organization Location:** New Hampshire

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH EOD Staff are partnering annually with New Hampshire EPSCoR to plan and implement a cross-jurisdictional EPSCoR booth at the SACNAS National Conference to increase representation of underrepresented minorities in STEM.

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## **New Mexico EPSCoR**

**Organization Type:** Academic Institution

**Organization Location:** New Mexico

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with New Mexico EPSCoR staff at the University of New Mexico on representation, networking, and professional development for the EPSCoR Project Administrators' community.

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## **North Dakota EPSCoR**

**Organization Type:** Academic Institution

**Organization Location:** Fargo, ND

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with North Dakota EPSCoR staff at North Dakota State University on representation, networking, and professional development for the EPSCoR Project Administrators' community.

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## **North Dakota State University**

**Organization Type:** Academic Institution

**Organization Location:** Fargo, ND

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, NDSU takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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## North Logan Library

**Organization Type:** State or Local Government

**Organization Location:** North Logan, UT

**Partner's Contribution to the Project:**

In-Kind Support

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH EOD Staff are partnering with the North Logan Library on outreach events involving the iUTAH-funded book "Water Runs Through This Book" by Nancy Bo Flood.

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## Pleiades Software, Inc

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of Pleiades Software, Inc., a private software development company located in Salt Lake City, serve on iUTAH education, outreach and diversity teams.

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## Politecnio di Milano

**Organization Type:** Academic Institution

**Organization Location:** Italy

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Polimi is the largest technical university on Italy, located in Milan. iUTAH is partnering with Polimi on coupled modeling research conducted in Research Focus Area 3.

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## Portland State University

**Organization Type:** Academic Institution

**Organization Location:** Portland, Oregon

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Researchers from Portland State University are partnering with iUTAH on a series of projects that investigate urban water use across the west, and the nature of collaboration between public utilities and university researchers.

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### **Providence Blacksmith Fork Irrigation Co.**

**Organization Type:** Industrial or Commercial Firms

**Organization Location:** Providence, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH is partnering with the Providence Blacksmith Fork Irrigation Company to study the canal water system within the City of Logan and Cache County.

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### **Purdue University**

**Organization Type:** Academic Institution

**Organization Location:** West Lafayette, IN

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Purdue University is a partner in HydroShare, iUTAH's long-term data repository.

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### **Rose Park Elementary**

**Organization Type:** School or School Systems

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Rose Park Elementary is a public school in Salt Lake City, Utah, serving a diverse urban population with a large percentage of underrepresented minority students. It is also the recipient of a 2015 EOD Innovation Award that engaged students in water quality monitoring of the Jordan River.

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### **SACNAS**

**Organization Type:** Other Nonprofits

**Organization Location:** Santa Cruz, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Leadership and EOD Staff are collaborating with the Board of SACNAS to identify potential partners and sponsors for the 2017 SACNAS National Conference in Salt Lake City, Utah.

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## **STEM Evaluation Associates**

**Organization Type:** Other Nonprofits

**Organization Location:** Western US

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** STEM Evaluation Associates provides both formative and summative assessment of iUTAH activities on an ongoing basis.

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## **Salt Lake City Department of Public Utilities**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** The Salt Lake City DPU is the oldest retail water provider in the west. iUTAH is partnering with SLCDPU for permitting of its GAMUT stations. SLCDPU is also an important stakeholder for GAMUT data products and iUTAH coupled modeling efforts.

---

## **Salt Lake Community College**

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Faculty from SLCC serve on iUTAH education, outreach and diversity teams and participate in iUTAH research projects. It is also the recipient of a 2015 EOD Innovation Award.

---

## **Salt Lake County**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** iUTAH is partnering with Salt Lake County for permitting of its GAMUT stations. Salt Lake County is also an important stakeholder for GAMUT data products.

---

## **Seven Canyons Trust**

**Organization Type:** Other Nonprofits

**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Seven Canyons Trust is working to daylight and rehabilitate the seven canyon creeks, restoring the health and beauty to the hydrology of the Salt Lake Valley.

---

**Snow College**

**Organization Type:** Academic Institution

**Organization Location:** Ephraim, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Snow College is a two-year state college located in Ephraim, Utah. It serves a six-county area in Utah, and has a student body that aims to transfer to four-year institutions or enter the workforce after earning an associate degree. A Snow College undergraduate participated in the 2015 iUTAH iFellows program.

---

**South Dakota State University**

**Organization Type:** Academic Institution

**Organization Location:** Brookings, South Dakota

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, SDSU takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

---

**Southern Utah University**

**Organization Type:** Academic Institution

**Organization Location:** Cedar city, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** SUU is a small primarily undergraduate institution located in Cedar City, Utah. Faculty and staff from SUU are active participants in iUTAH research and EOD activities and serve on iUTAH management and education, outreach and diversity teams.

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**Southern Utah University Sponsored Projects Office (SPARC)**

**Organization Type:** Academic Institution

**Organization Location:** Cedar City, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** SUU is a small primarily undergraduate institution located in Cedar City, Utah. iUTAH Project Office Staff are collaborating with SPARC Office Staff at SUU to advance research and educational

opportunities for SUU faculty and staff.

---

### **Thanksgiving Point Institute**

**Organization Type:** Other Nonprofits

**Organization Location:** Lehi, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the Thanksgiving Point Institute, a non-profit museum and experiential learning facility located in Lehi, Utah, serve on iUTAH education, outreach and diversity teams. It is also the recipient of a 2013 EOD Innovation Award.

---

### **The Leonardo**

**Organization Type:** Other Nonprofits

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** In 2014, iUTAH partnered with Salt Lake City's downtown science museum, The Leonardo, to develop an interactive water exhibit and supplemental K-12 curriculum through an EOD Innovation Award. In 2015, this partnership was renewed through a second award to develop water programming for The Leonardo's mobile science outreach program "Leo on Wheels." As an important iUTAH stakeholder, staff of The Leonardo also serve on iUTAH education, outreach and diversity teams. The Leo has also received iUTAH funding to support hispanic students visiting the museum to view their Water-themed photo exhibit.

---

### **Tracy Aviary**

**Organization Type:** Other Nonprofits

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Researchers in iUTAH's iVL are collaborating with Tracy Aviary to inform discussions on restoring Jordan River riparian habitat.

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### **Triangle Coalition for STEM Education (Triangle)**

**Organization Type:** Other Nonprofits

**Organization Location:** Washington D.C.

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The Triangle Coalition for STEM Education is a non-profit organization located in Washington, D.C. It administers the Albert Einstein Distinguished Educator Fellowship Program. Utah educator Rebecca Sansom participated on iUTAH education, outreach and diversity teams while serving as an Albert Einstein Distinguished Educator Fellow.



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## **Tufts University**

**Organization Type:** Academic Institution

**Organization Location:** Massachusetts

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** Tufts University is a partner in HydroShare.

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## **USDA Natural Resources Conservation Service**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** National

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the USDA's Natural Resources Conservation Service participated in iUTAH stakeholder meetings to finalize the design for the GAMUT network.

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## **United States Geological Survey**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH's GAMUT observation network ties in with existing USGS gauging stations. USGS staff use GAMUT data in their research and serve on advisory committees for graduate students supported by iUTAH.

---

## **United States National Park Service**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** National

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the National Park Service serve on iUTAH education, outreach and diversity teams.

---

## **University of Alaska Anchorage**

**Organization Type:** Academic Institution

**Organization Location:** Anchorage, Alaska

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the University of Alaska takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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### **University of Hawaii**

**Organization Type:** Academic Institution

**Organization Location:** Hawaii

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** TAlong with iUTAH and Utah State University, the University of Hawaii takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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### **University of Idaho**

**Organization Type:** Academic Institution

**Organization Location:** Moscow, Idaho

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH researchers are collaborating with colleagues at the University of Idaho on an assessment of news coverage of water issues. Collaborations include methods development as well as comparative analysis of water news coverage in Idaho, Washington and Utah.

---

### **University of Kansas**

**Organization Type:** Academic Institution

**Organization Location:** Lawrence, KS

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with Kansas EPSCoR staff at the University of Kansas on representation, networking, and professional development for the EPSCoR Project Administrators' community.

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### **University of Life Sciences & Natural Resources (BOKU)**

**Organization Type:** Academic Institution

**Organization Location:** Vienna, Austria

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH researchers are collaborating with colleagues at BOKU on empirical assessments of human-nature-relationships and their role in landscape and natural resource governance. iUTAH-based

research is included as an empirical case in this ongoing collaboration involving scholarly article publication and conference presentations.

---

## **University of Missouri**

**Organization Type:** Academic Institution

**Organization Location:** Columbia, Missouri

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the University of Missouri takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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## **University of New Hampshire**

**Organization Type:** Academic Institution

**Organization Location:** New Hampshire

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the University of New Hampshire takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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## **University of New Mexico**

**Organization Type:** Academic Institution

**Organization Location:** Albuquerque, New Mexico

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, the University of New Mexico takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

---

## **University of North Carolina Chapel Hill**

**Organization Type:** Academic Institution

**Organization Location:** North Carolina

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The University of North Carolina at Chapel Hill is a partner in HydroShare.

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## **University of Rhode Island**

**Organization Type:** Academic Institution

**Organization Location:** Kingston, Rhode Island

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Along with iUTAH and Utah State University, The University of Rhode Island takes part in a consortium that developed and maintains the EPSCoR reporting module ER-Core using the open source content management platform Drupal.

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## University of Texas at Austin

**Organization Type:** Academic Institution

**Organization Location:** Texas

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The University of Texas at Austin is a partner in HydroShare.

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## University of Utah

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** As the largest research institution in the state, The University of Utah, located in Salt Lake City, is an essential part of iUTAH research, education, outreach and diversity efforts. Faculty and students involved with iUTAH come from seven academic departments (Atmospheric Sciences, Biology, City and Metropolitan Planning, Civil and Environmental Engineering, Communication, Geology, and Mechanical Engineering), as well as from the the Environmental Fluid Dynamics Laboratory, the Genetic Science Learning Center, the Global Change and Sustainability Center, and the Natural History Museum of Utah. iUTAH also maintains a satellite project office at the Intermountain Network Scientific Computation Center (INSCC) on the University of Utah campus. The iUTAH Education, Outreach and Diversity coordinator is based out of this office.

---

## University of Utah Office of the VPR

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**

Financial support

In-Kind Support

Facilities

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** As the largest research institution in the state, The University of Utah, located in Salt Lake City, is an essential part of iUTAH research, education, outreach and diversity efforts. iUTAH Project Office Staff are collaborating with the Office of the VPR at UU in advancing science communication and broader impacts in the state.

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## University of Virginia

**Organization Type:** Academic Institution

**Organization Location:** Charlottesville, Virginia

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The University of Virginia is a partner in HydroShare. It is also a participating institutions in a collaboratively taught, cross-campus graduate course in Hydroinformatics that is spear-headed by iUTAH participants.

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## University of Washington

**Organization Type:** Academic Institution

**Organization Location:** Seattle, WA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with administrators at the University of Washington on a AAAS-funded project to advance the body of knowledge on and formalize the role of the science community manager/science engagement professional.

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## University of Wyoming

**Organization Type:** Academic Institution

**Organization Location:** Laramie, Wyoming

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** The University of Wyoming is a participating institution in a collaboratively taught, cross-campus graduate course in Hydroinformatics that is spear-headed by iUTAH participants.

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## Utah Automated Geographic Resource Center

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** The UAGRC provides geospatial data that are incorporated into data viewer applications designed by the iUTAH Modeling and Data Federation. In turn, iUTAH is working towards distributing some of its geospatial datasets to a broader audience through UAGRC.

---

## Utah Department of Environmental Quality

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** UTAH researchers are collaborating with DEQ's Division of Water Quality on understanding and quantifying the impact of dissolved organic carbon (DOC) on dissolved oxygen impairment to the Lower Jordan River, and on understanding the loading of DOC and other pollutants to the Jordan River in support of the development and revision of the Jordan River total maximum daily loads document. Researchers in RFA3 are involved in participatory modeling exercises with DEQ's Division of Water Quality.

---

## Utah Department of Natural Resources

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the Utah DNR serve on iUTAH management and education, outreach and diversity teams. Researchers in iUTAH's iVL are collaborating with UDNR's Division of Wildlife Resources and Partners in Flight program to inform discussions on restoring Jordan River riparian habitat. Researchers in iUTAH's RFA3 are recalibrating and updating existing UDWR hydrologic models with iUTAH land-use models.

---

## Utah Education Network

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** iUTAH's partnership with UEN dates back to the inception of the project. In addition to UEN staff serving on the iUTAH communications team and maintaining the iUTAH website iutahepsc.org, UEN also lends its expertise to the production of educational and promotional videos for iUTAH.

---

## Utah Governor's Office of Economic Development

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Staff of the Utah GOED serve on iUTAH management and education, outreach and diversity teams.

---

## Utah Partners in Flight

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** PIL is a cooperative effort involving partnerships among public and private agencies and institutions in each state to address the growing concerns about declines in the populations of many land bird species.

---

### **Utah Public Radio**

**Organization Type:** Other Nonprofits

**Organization Location:** Logan, UTah

**Partner's Contribution to the Project:**

In-Kind Support

Collaborative Research

**More Detail on Partner and Contribution:** UPR is the recipient of a 2015 iUTAH EOD Innovation Award, which supports production of The Source, a monthly one-hour radio program focused on Utah's water resources.

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### **Utah Science, Technology, and Research Initiative**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Financial support

In-Kind Support

Facilities

**More Detail on Partner and Contribution:** USTAR is a state organization that aims to increase innovation, entrepreneurship, and investment throughout the state. USTAR provides part of the required matching funds for the iUTAH grant, as well as office space for the iUTAH Project Office.

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### **Utah State Board of Education**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** USBE staff serve on iUTAH education, outreach and diversity teams and participate in the State EPSCoR Committee.

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### **Utah State Office of Education**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** USOE staff serve on iUTAH education, outreach and diversity teams and participate in the State EPSCoR Committee.

---

### **Utah State University - Eastern**

**Organization Type:** Academic Institution

**Organization Location:** Blanding, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Faculty from Utah State University Eastern's Blanding campus are actively involved with iUTAH's efforts to promote and sustain a diverse STEM workforce in the state. iUTAH is also an active participant in USU Eastern's Native American Mentorship Program.

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### **Utah State University Office of the VPR**

**Organization Type:** Academic Institution

**Organization Location:** Logan, UT

**Partner's Contribution to the Project:**

Financial support

In-Kind Support

Collaborative Research

Personnel Exchanges

**More Detail on Partner and Contribution:** iUTAH Project Office Staff are collaborating with the Office of the VPR at UU in advancing science communication in the state.

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### **Utah State University Uinta Basin Campus**

**Organization Type:** Academic Institution

**Organization Location:** Vernal, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Faculty from the Utah State University Uintah Basin Campus, located in Roosevelt and Vernal, Utah, serve on iUTAH education, outreach and diversity teams.

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### **Utah State University Water Quality Extension**

**Organization Type:** Academic Institution

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Financial support



Collaborative Research

**More Detail on Partner and Contribution:** USU Water Quality Extension works to help people understand the link between water quality, land use, and everyday activities. It is the recipient of a 2014 EOD Innovation Award. In addition, Utah Water Watch, which is administered by USU Water Quality Extension, conducts citizen science monitoring throughout the state of Utah.

---

### **Utah Stormwater Advisory Committee (USWAC)**

**Organization Type:** State or Local Government

**Organization Location:** Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH is partnering with Utah SWAC to identify information needs of local stormwater managers and the challenges faced in meeting state and federal regulations.

---

### **Utah System of Higher Education**

**Organization Type:** State or Local Government

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

In-Kind Support

**More Detail on Partner and Contribution:** USHE staff serve on iUTAH education, outreach and diversity teams and participate in the State EPSCoR Committee.

---

### **Utah Valley University**

**Organization Type:** Academic Institution

**Organization Location:** Orem, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Utah Valley University is a large, primarily undergraduate institution located in Orem, Utah. Faculty from Utah Valley University are active participants in iUTAH research and EOD activities and serve on iUTAH management and education, outreach and diversity teams.

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### **Utah Water Research Laboratory (UWRL)**

**Organization Type:** Academic Institution

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** UWRL is a stand-alone facility at Utah State University that works with the academic, government, and private sectors to address technical and societal aspects of water-related issues. UWRL faculty and staff are actively engaged in numerous iUTAH research and EOD activities.

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## Utah Water Watch

**Organization Type:** Academic Institution

**Organization Location:** Logan, Utah

**Partner's Contribution to the Project:**

In-Kind Support

Collaborative Research

**More Detail on Partner and Contribution:** UWW is a water quality education and data collection program that seeks to increase awareness about the importance of water quality and promote stewardship of Utah's aquatic resources. Staff serves on the iUTAH education, outreach /diversity teams, and received an iUTAH EOD Innovation Award (2012, 2013).

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## Wasatch Dendroclimatology Research Group (WaDR)

**Organization Type:** Academic Institution

**Organization Location:** Logan, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** WaDR combines the expertise from interrelated fields (dendrochronology, geography, geology, tree physiology, climatology, and anthropology) and multiple institutions to examine the climate record of the past ~2000 years for No. Utah.

---

## Washington State University (WaSU)

**Organization Type:** Academic Institution

**Organization Location:** Pullman, Washington

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH researchers are collaborating with colleagues at Washington State University on an assessment of news coverage of water issues. Collaborations include methods development as well as comparative analysis of water news coverage in Idaho, Washington and Utah.

---

## Weber County Library

**Organization Type:** State or Local Government

**Organization Location:** Ogden, UT

**Partner's Contribution to the Project:**

In-Kind Support

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH EOD Staff are partnering with the Weber County Library on outreach events involving the iUTAH-funded book "Water Runs Through This Book" by Nancy Bo Flood.

---

## Weber State University

**Organization Type:** Academic Institution

**Organization Location:** Ogden, Utah

**Partner's Contribution to the Project:**

In-Kind Support

Collaborative Research

**More Detail on Partner and Contribution:** Weber State University is a large, primarily undergraduate institution located in Ogden, Utah. Faculty and staff from Weber State are active participants in iUTAH research and EOD activities and serve on iUTAH management and education, outreach and diversity teams.

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### **Weber State University Energy and Sustainability Office**

**Organization Type:** Academic Institution

**Organization Location:** Ogden, UT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** iUTAH researchers are partnering with the Energy and Sustainability Office at WSU to address sustainability issues on campus.

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### **Western Water Assessment (WWA)**

**Organization Type:** Other Nonprofits

**Organization Location:** Colorado, Western US

**Partner's Contribution to the Project:**

Personnel Exchanges

**More Detail on Partner and Contribution:** WWA is a university-government research partnership on the issues of climate change and water sustainability. The Utah Liaison for WWA regularly meets with resource managers and other stakeholders to better understand their needs for climate information and to connect them to the research and resources of WWA and its partners. In addition to sharing this expert knowledge base with iUTAH, WWA has helped to initiate and sustain relationships between iUTAH participants and key stakeholder agencies such as Salt Lake City Public Utilities.

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### **Westminster College**

**Organization Type:** Academic Institution

**Organization Location:** Salt Lake City, Utah

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Westminster College is a private, primarily undergraduate institution located in Salt Lake City, Utah. Faculty from Westminster College are active participants in iUTAH research and EOD activities and serve on iUTAH management and education, outreach and diversity teams.

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### **What other collaborators or contacts have been involved?**

Nothing to report

## Impacts

**What is the impact on the development of the principal discipline(s) of the project?**

*Nothing to add.*

**What is the impact on other disciplines?**

*Nothing to add.*

**What is the impact on the development of human resources?**

*Nothing to add.*

**What is the impact on physical resources that form infrastructure?**

*Nothing to add.*

**What is the impact on institutional resources that form infrastructure?**

*Nothing to add.*

**What is the impact on information resources that form infrastructure?**

*Nothing to add.*

**What is the impact on technology transfer?**

*Nothing to add.*

**What is the impact on society beyond science and technology?**

*Nothing to add.*

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## Changes/Problems

**Changes in approach and reason for change**

*Nothing to add.*

**Actual or Anticipated problems or delays and actions or plans to resolve them**

*Nothing to add.*

**Changes that have a significant impact on expenditures**

*Nothing to add.*

**Significant changes in use or care of human subjects**

*Nothing to add.*

**Significant changes in use or care of vertebrate animals**

*Nothing to add.*

## Significant changes in use or care of biohazards

*Nothing to add.*

## Special Requirements

Responses to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.

*Nothing to add.*

### Supporting Files

Filename	Description	Uploaded By	Uploaded On
iUTAH EAB Report July 2016.pdf	EAB report	Michelle Baker	05/10/2017
iUTAH Collaboration Assessment Report DRAFT.pdf	Draft collaboration assessment	Michelle Baker	05/10/2017