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Erin N. Rivers
Utah State University, erin.rivers@usu.edu

Hope Braithwaite
Utah State University, hope.braithwaite@usu.edu

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Forecasting and Adapting to Drought: Integrating Federal, State, and Local Perspectives on Drought at the Spring Runoff Conference

Erin Rivers and Hope Braithwaite

Abstract

In response to an urgent need to connect stakeholders and the public to information about the impacts of the drought in Utah, USU Extension organized the 2022 Spring Runoff Conference. The conference was attended by 135 state and federal agency professionals, local water managers, and USU faculty and students. A majority of participants reported knowledge gain and intentions to adopt water conservation practices.

Introduction

The western United States is experiencing an unprecedented megadrought that has persisted for the entirety of the 21st century (Williams et al., 2022). A megadrought is described as a severe drought lasting more than 10 years (Steiger et al., 2021). Western states have been persistently warm and dry for the last two decades; 2000 to 2021 was the driest period in history which was punctuated by the driest and third warmest year ever recorded between 2020 and 2021 (Mankin et al., 2021; Williams et al., 2022). The nexus between extreme water scarcity and mounting pressures on water supplies in Utah highlights the urgent need to connect Utahns to emerging research and management perspectives on drought outlooks, planning, and conservation.

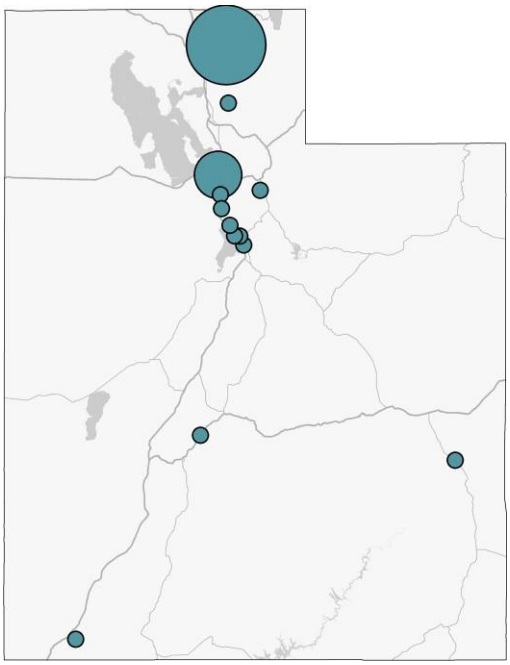
In the last 10 years, Utah State University (USU) has published more than 1,000 documents related to drought, including climate modeling and drought prediction, the ecological impacts of drought on natural resources and wildlife, and the social dimensions of drought. Connecting the public with this information is critical as the state faces complex challenges in managing water supplies and mitigating the irreversible damage to Utah's natural resources during severe drought conditions. In response, USU Extension provided a forum to connect stakeholders and the public with important information about drought at the *Spring Runoff Conference*. The Spring Runoff Conference convened university experts, federal and state agencies, natural resource managers, and community members to share cutting-edge research on drought forecasting and conservation practices and community strategies for adapting to drought through water efficient practices.

Response and Target Audience

USU Extension organized the 2022 Spring Runoff Conference to connect stakeholders and the public to research and information about the severity of the current megadrought in Utah. The goal of the 2022 Spring Runoff Conference was to improve public knowledge about the impacts of the megadrought in Utah and promote behavior change to improve water efficiency. The conference facilitated a method of distributing information and educational resources about drought and conservation strategies to federal and state agency professionals, natural resource managers, Extension County Faculty, and members of the public.

A total of 135 participants attended, including 11 USU Extension County Faculty and Specialists, 24 agency professionals from the Utah Department of Environmental Quality (Division of Water Quality, Division of Drinking Water), the Utah Department of Natural Resources (Division of Water Resources; Division of Wildlife Resources; Division of Forestry, Fire, and State Lands; Utah Geological Survey), and the Utah Department of Agriculture and Food. Also, in attendance were seven (7) members of non-profits and local water districts; and 93 university faculty and staff. Participants were predominantly from the Wasatch Front (29%) and Logan (67%), but conference attendance represented all regions of Utah (see Figure 1). Participants identified predominantly female (60%) and white (80%), with 30% identifying as male, 7.5% identifying as Hispanic or Latinx, 5% identifying as American Indian or Alaskan, and 2.5% identifying as Asian.

Figure 1: Map of Conference Attendees



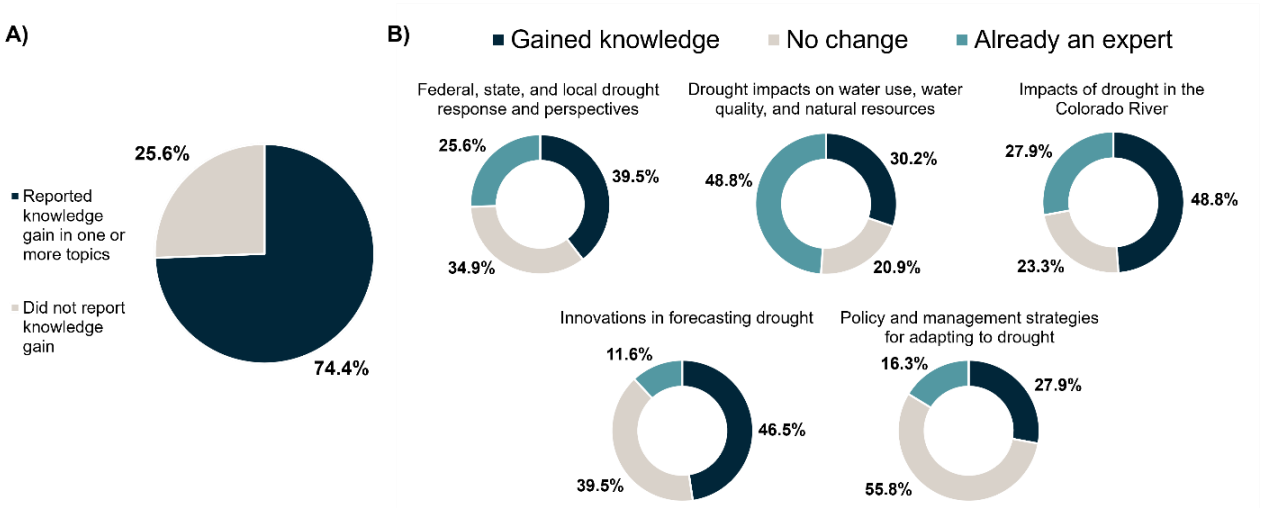
Note. Circle size indicates the number of participants representing each location: small circles indicate 1-5 participants, the medium circle represents 30 participants, and the large circle represents 90 participants.

Outcomes and Impact

The 2022 Spring Runoff Conference convened a diverse group of stakeholders. During five (5) hours of educational activities facilitated by USU Extension, there were also 12 presentations from two (2) federal agencies, and four (4) state agencies. A post-event survey was conducted to evaluate short-term outcomes of the conference. Survey results (n = 45) described changes in participants' knowledge and intentions to adopt water conservation practices after conference attendance. A majority of participants (74%) reported knowledge gain in one or more topics about drought as a result of attending the conference (Figure 2).

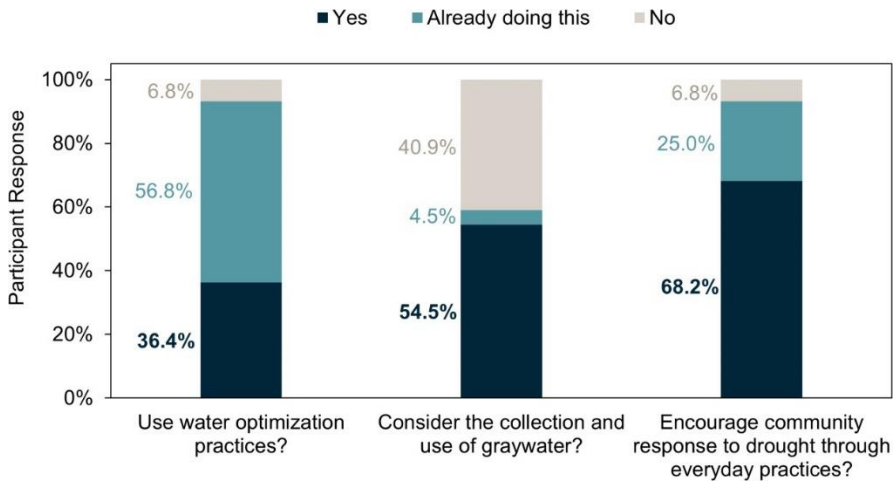
Notably, about 40% of participants indicated they gained knowledge about federal, state, and local drought response and perspectives, 49% indicated they gained knowledge about the impacts of drought in the Colorado River, and 47% indicated they gained knowledge about innovations in forecasting drought (Figure 2). While some participants indicated they were already an expert in the topics presented at the conference, the majority of participants left the conference with knowledge about critical issues surrounding the drought in Utah.

Figure 2: Knowledge Gained by Conference Participants



As a result of the conference, about 36% of participants reported they intend to use water optimization practices, 55% reported they intend to consider the collection and use of graywater, and 70% reported they intend to encourage community response to drought through everyday practices (Figure 3). Many participants indicated they were already participating in these practices. For example, about 57% of participants indicated they are already utilizing water optimization practices.

Figure 3. Intended Behavior Change reported by Participants



Public Value and Next Steps

Providing education through a conference format is an effective strategy for USU Extension to engage stakeholders and clientele. There is an urgent need to address water issues and management strategies in Utah (Narine, 2019), and it is critical for USU Extension to continue providing up-to-date resources to help communities respond to emerging challenges in water management and conservation. USU Extension plans to continue planning and implementing the Spring Runoff Conference annually to provide a forum for agency professionals, Extension faculty, and the public to connect and share resources for managing water quality and improving water efficiency. Creating and sustaining synergy between community needs, state agency management priorities, and USU research is essential to foster a coordinated response to the growing water challenges in the state for a sustainable water future.

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