

Intermountain West Drought Early Warning System Utah Stakeholder Meeting

14 November 2017

Jordan Valley Water Conservancy District Education Center

Meeting Goals

- To review the current state of drought information and drought planning in Utah.
- To determine whether and how to address gaps in information provision and use, communication, and/or planning in order to strengthen drought resiliency.

Meeting Participants

Annex 1 contains the list of workshop attendees.

Meeting Agenda

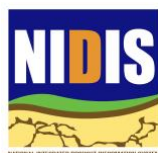
Annex 2 contains the meeting agenda.

Meeting Synthesis

Elizabeth Weight (NOAA/National Integrated Drought Information Systems (NIDIS)) presented information on NIDIS and Drought Early Warning Systems (DEWS). Seth Arens (Western Water Assessment (WWA)) presented information on WWA drought-related research, activities, and drought resources in Utah. Workshop participants discussed concerns regarding the impacts of drought in Utah and then identified gaps and opportunities to strengthen drought early warning in the state. This document synthesizes workshop participants' views and recommendations; this synthesis does not reflect the views or opinions of NIDIS or WWA, but instead seeks to capture the statements of meeting participants. Key points have been grouped by topic to facilitate reading and to support future action.

1. Drought Impacts of Concern in Utah

- 1.1. *Population growth and drought.* Drought vulnerability may increase with population growth and water may become the limiting factor for continued population growth. Recent water planning in the state includes the Governor's initiative to establish a State Water Strategy Advisory Team to develop recommendations for a 50-year water strategy. Some workshop participants stated that, in addition to this water resources planning, planning for drought may require additional attention, with an emphasis on drought in relation to the state's projected population growth. Future growth may require a significant shift in how water is being used, particularly in relation to balancing increasing urbanization and agricultural production. Participants are interested in learning more about drought planning efforts in the state.
- 1.2. *Agriculture and drought.* The interactions between water consumption, drought, and agriculture are complex. Meeting participants noted that the majority of water consumed in the state is for agricultural production. Drought can negatively impact agricultural production; for example, in 2014, the agricultural sector bore the brunt of water shortages in Weber Basin Water Conservancy District's service area. Despite the drought, farmers produced crops using 20% less water, i.e. through increased water efficiencies. Another meeting participant noted that drought can have positive economic benefits for farmers given that decreased production may result in increased prices.
- 1.3. *Economic impacts of drought.* Drought may slow economic growth. Tourism and recreation would be significantly impacted by drought and exacerbate drought impacts, e.g. drought at ski areas in Utah may reduce winter tourism, although impacts could be mitigated through snowmaking.



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- 1.4. *Public health impacts of drought.* These impacts include exposure to air pollutants from dust storms that originate from desert regions of Utah or drying terminal lake beds such as Sevier Lake and the Great Salt Lake.
- 1.5. *Increased wildfires from drought.* This is of particular concern given the state’s wet/dry cycles and heat. Observed and predicted future increases in temperature will likely lead to a greater incidence of drought and wildfire.
- 1.6. *Environmental impacts of drought.* Environmental impacts include decreases in environmental flows to Utah rivers and increased frequency of algal blooms, which are by-products of water scarcity, and impacts the Great Salt Lake ecosystem.

2. Gaps and Needs Identification for DEWS

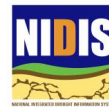
Participants discussed needs and opportunities for creating and/or strengthening Utah’s drought early warning capacity and processes. Points raised have been grouped according to the key components of an effective DEWS (Figure 1, below), which are: Observations and Monitoring; Predictions and Forecasting; Interdisciplinary Research and Applications; Education and Public Awareness; and Planning and Preparedness.



Figure 1: Key Components of a Drought Early Warning System

2.1. Gaps and Opportunities to Strengthen Drought Observations and Monitoring; Predictions and Forecasting; Interdisciplinary Research and Applications

- 2.1.1. *Understanding the range of decision-support tools available.* Good data and information is important for drought planning. Several workshop participants said that they do not know the universe of drought information, data, predictions, etc. It would be useful to understand the range of information and products available for use in decision-making.
- 2.1.2. *Improved outlooks and predictions.* Participants stated the USDM provides information about current drought, but it is not an effective drought prediction tool. Improved long-range forecasting and predictions are needed. In addition, dynamic tools are needed in order to track rapid changes in drought conditions.
- 2.1.3. *Improved drought tools.* Precipitation in Utah in the summer months can be significant in a short timeframe; current drought tools do not incorporate extreme events well because they are not calibrated to take into consideration run-off from these events. Extreme



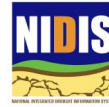
precipitation events during summer do not necessarily relieve drought conditions due to rapid runoff.

- 2.1.4. *Location-specific tools and information.* For example, ENSO forecasts are not very useful for Utah. In addition, it is challenging to down-scale some types of data to smaller population groups and/or smaller geographic areas to make it useful for decision making.
- 2.1.5. *Data analysis.* Data is good to have, but funds are needed for data analysis to make the information useful in drought decision-making.
- 2.1.6. *Improved organization and sharing of data.* Some organizations have information and data scattered internally, so the data is not readily accessible for management purposes. In addition, multiple organizations may have information and data that is useful for other organizations, but the data and information are not currently shared across organizations.

2.2. Gaps and Opportunities to Strengthen Drought Planning and Preparedness

- 2.2.1. *The state drought plan.* The state drought plan is outdated and disconnected with the drought plans of different state agencies. It may be useful to update the state drought plan using a collaborative, multi-sector, multi-layered planning process. If the state updates its drought plan, the goals should be to produce a plan and also to ensure that the plan is implemented and evaluated regularly and continually refined (e.g. through scenario exercises). The state water supply plan includes drought contingency and also a climate management plan, which are elements of drought planning. The Utah Division of Emergency Management is updating the state's hazard mitigation plan, which could include a drought plan, but it is preferable for the hazard mitigation plan to refer to a separate drought plan developed by the state. Bureau of Reclamation grant(s) could support basin studies and/or drought planning; in this process, it would be valuable to examine multiple basins. Meeting participants said that such studies and the information gathered would be very valuable for their internal planning. Some participants stated that one drought plan may not fit the needs of all stakeholders; instead, it may be preferable to develop a framework for drought mitigation and to support collaborative planning and implementation processes.
- 2.2.2. *Planning processes.* Some participants stated that a collaborative drought planning process may be more valuable than a state drought plan alone, because a plan may be too cumbersome to implement and/or may be written in order to check off a box but not developed to be implemented. It is not clear what drought planning processes have been or are being undertaken in the state; participants would value more information regarding drought planning efforts. Agencies represented at the meeting feel disconnected from other agencies and feel that they are making decisions independently of others; there is a need for and interest in collaborative planning and meetings like the DEWS meeting in order to learn from each other and to share knowledge and information. It would be valuable to engage the Governor's office in drought planning processes. Planning processes may be improved if the starting point is common agreement on definitions of drought and measurements of drought thresholds.
- 2.2.3. *Challenges to drought planning.* Some of the challenges to improved drought planning include: policy processes tend to be reactionary; policy change is difficult and requires political will to address the challenges of water variability given population growth and economic growth; there is lack of clarity regarding roles and responsibilities for water allocation in drought situations. Significant financial resources have been allocated to flood infrastructure, but not for drought resiliency.

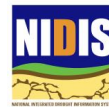
2.3. Gaps and Opportunities to Strengthen Drought Awareness and Education



- 2.3.1. *Educate the public.* It is important to communicate drought better to and educate the public about the implications of drought. People often increase water consumption in times of drought because they are concerned that their water will be cut off.
- 2.3.2. *Educate the public sector.* It is important to communicate to and educate the state legislature, state agencies, and the Governor's office to strengthen pro-active drought mitigation and response. An important role of the state is to communicate key drought messages to the public, e.g. messages from water suppliers who understand the water situation.
- 2.3.3. *Apply lessons learned in effective communication.* The Division of Emergency Management was cited as an example of an agency that provides effective messaging to the public and effective inter-agency collaboration.
- 2.3.4. *General communication.* Raise awareness among all sectors by presenting about drought at conferences, sponsoring conferences, leveraging opportunities to share information about drought impacts, etc.

2.4. Potential Areas to Strengthen DEWS in Utah

- 2.4.1. Hold a workshop or webinar to present drought planning tools and drought information resources.
- 2.4.2. Facilitate information transfer and learning across states that have been pro-actively planning for drought, e.g. between Colorado and Utah, because the two states have similarities in regards to population expansion and economic growth, limited water resources, etc.
- 2.4.3. Continue multi-sector stakeholder discussions and form a core team to determine next steps for DEWS that leverage and build on current processes, networks, hubs, etc.
- 2.4.4. Update the state drought plan based on current science using a multi-sector, multi-layered, and iterative planning approach.
- 2.4.5. Strengthen awareness, education, and communication regarding drought among the public and public sector.
- 2.4.6. Conduct further studies, e.g. basin-wide studies, that are needed to assess drought risks and vulnerabilities in order to support risk-based drought mitigation and planning.
- 2.4.7. Collate and share drought plans developed by various agencies and data/research that can be used to support drought planning.



Annex 1: Intermountain West Drought Early Warning System – Utah Workshop Agenda

Intermountain West DEWS – Utah stakeholder meeting

Meeting goal: *Participants of this meeting will review the current state of drought information and drought planning in Utah and determine whether and how to address gaps in information and/or planning.*

10:00 – 11:00 Presentations

10:00-10:15 Group introductions

10:15 – 10:35 *Elizabeth Weight, NOAA, National Integrated Drought Information System, Drought Information Coordinator for the Intermountain West and Southern Plains Regions*

- The National Integrated Drought Information System (NIDIS)
- Drought Early Warning Systems (DEWS)
- Intermountain West DEWS in Utah

10:35 – 11:00 *Seth Arens, Western Water Assessment*

- Drought information resources for Utah and drought research in Utah

11:00 – 11:15 BREAK

11:15 – 12:15 Small-group discussion: Drought Information and Planning in Your Organization

- What does drought mean to your organization?
- How does drought impact your organization?
- What impacts concern you most?
- What drought information resources does your organization use?
- What other drought information do you need?
- Does your organization consider drought in long-term planning or operations?
- What drought planning efforts has your organization done?

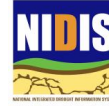
12:15 – 1:00 LUNCH – Networking, informal discussions

1:00 – 2:30 Small-group discussion: Drought in Utah

- What are the most significant impacts of drought in Utah?
- What vulnerabilities to drought are most important in Utah?
- What drought planning efforts exist in Utah?
- Is the state drought plan being used?
 - Is it integrated with other levels of government?
- Do current drought planning efforts meet the needs of Utah?
- Who are the appropriate participants in Utah drought planning?
- Where can NIDIS add value? How can NIDIS best support drought early warning in Utah?

2:30 – 3:00 Synthesis

Summary of small group discussions. Synthesis of information from small-group discussions. Next steps in developing the Intermountain West DEWS in Utah.



Annex 2: Intermountain West Drought Early Warning System – Utah Workshop Attendees

Name	Email	Organization
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