

COMMUNITY ENGAGEMENT AND EDUCATION

The National Drought Mitigation Center's Drought Impacts Toolkit

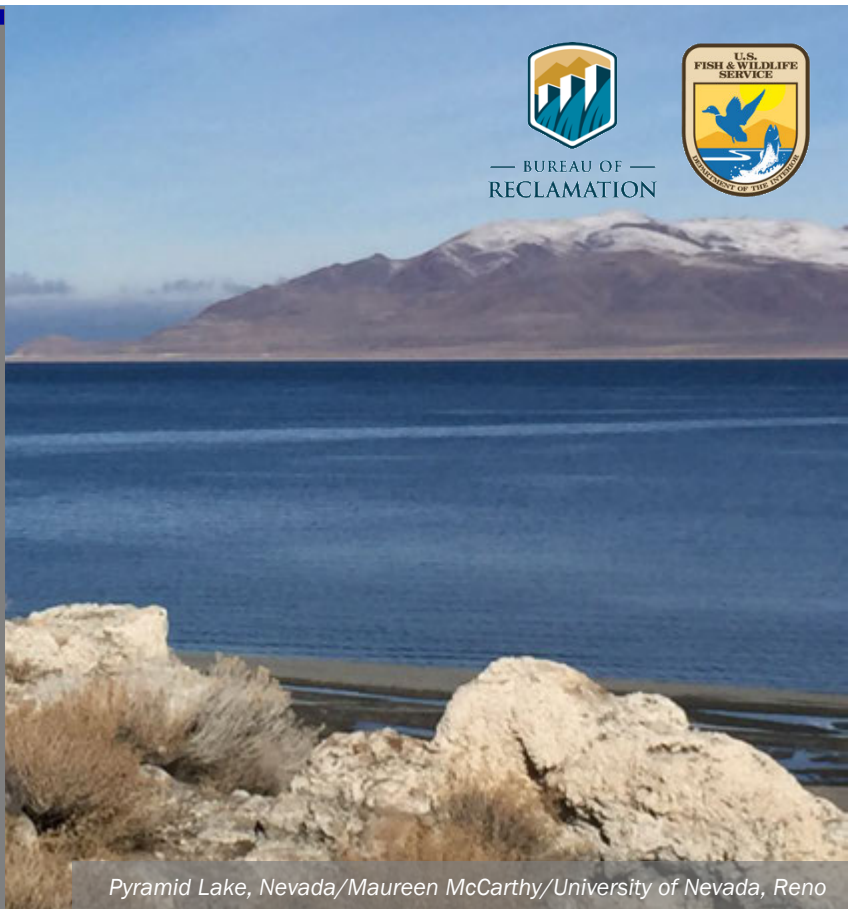


NATIONAL DROUGHT
MITIGATION CENTER
UNIVERSITY OF NEBRASKA

The National Drought Mitigation Center (NDMC), based out of the University of Nebraska-Lincoln, created the Drought Impact Reporter (DIR) in 2005 to serve as the Nation's archive of recorded drought impacts. However, needing multiple ways of interpreting drought data for a variety of users required additional tools to complement the DIR. As a result, the NDMC created the Drought Impacts Toolkit in 2018 to gather information from sources other than media, such as agency reports, citizen-science input, and crowdsourcing, and to display information in a variety of useful ways. All these resources help federal and state agencies better compile actionable information for the people they serve.



— BUREAU OF —
RECLAMATION



Pyramid Lake, Nevada/Maureen McCarthy/University of Nevada, Reno

KEY ISSUES ADDRESSED

Drought impacts manifest in a variety of ways such as crop damage and well level declines. Further, different people and communities have different informational needs depending on the resources they manage. Unlike other natural disasters that result in significant damage with a single event, the impacts of drought occur over time. Documenting continuously changing impacts is challenging because there is often a significant delay between a drought event and its impacts. This fact also makes it difficult to determine which actions are most effective in mitigating impacts. Crowdsourcing and citizen science efforts were needed to rapidly collect on-the-ground data from different sectors, while allowing more spatial coverage.

PROJECT GOALS

- Collect drought impact data for different sectors
- Provide multiple ways to display impact information to the user, including visuals
- Build agency and organization connections to provide information necessary to them
- Create a process of continuous tool feedback

IMPACT TO ACTION

Drought impact data can be used to identify vulnerabilities to improve drought resiliency and reduce environmental degradation.



LESSONS LEARNED

Accommodating the needs of different sectors experiencing drought requires the collection of a variety of different data, and thus, multiple databases to house this information efficiently.

The Toolkit's iterative process of integrating user feedback allows it to make continuous improvements. For example, with input from the Oregon Department of Forestry, the NDMC developed a series of forestry-related questions for use in the CMOR to guide observation reporting from the general public.

The DIR was a custom-built database and web display that was relatively difficult to modify. Now, the off-the-shelf capabilities of the Toolkit's features, such as Survey123 and ArcGIS Online, make it possible to change user submission forms and maps more easily.

PROJECT HIGHLIGHTS

By the User, for the User: The Toolkit compiles information provided by individuals experiencing drought. For instance, the Condition Monitoring and Observer Reports (CMOR) allow people experiencing drought to submit photos of drought on the landscape, providing a new way to communicate drought impacts.

Real-Time to Timeline: Cataloging the impacts of drought, especially in real-time through citizen science input, allows researchers to determine a timeline of drought impacts. This information helps inform the timing of mitigation efforts.

Agency Outputs: The Toolkit is used by a variety of government agencies and organizations to create resources, such as the weekly US Drought Monitor maps.

New Tools for Better Understanding: The NDMC added more tools to the Toolkit to communicate drought impacts in different ways. For example, the Toolkit includes a collection of written reports (post-drought assessments) and regular agency communications (press releases, etc.); systematic, quantified media searches (Media Drought Index); and Drought Tweets.

Collaborators

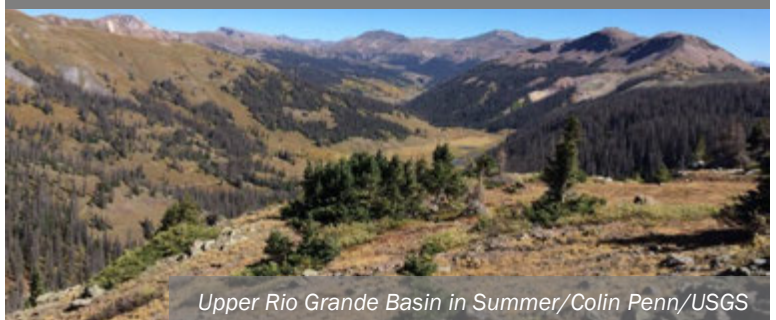
- State drought assessment teams
- Climate.gov
- US Drought Monitor

NEXT STEPS

- The NDMC aims to continue to display data differently, such as adding drought statistics to the Toolkit's Visual Drought Atlas metadata.
- The NDMC plans to combine map layers from several different tools into a single map. The outcome will allow users to cross-validate data and improve efficiency.
- In 2022, the data in the DIR will be displayed as a dashboard and include more contemporary maps.

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