

How and why Upper Colorado River Basin water, land and fire managers choose to use drought tools (or not)

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Preparing for and responding to drought requires integrating scientific information into complex decision making processes. In recognition of this challenge, regional drought early warning systems (DEWS) and related drought-information tools have been developed under the National Integrated Drought Information System (NIDIS). Despite the existence of many tools and information sources, however, the factors that influence if a tool(s) is (are) used, which tools are used, and how much benefit those tools provide remain poorly understood. Using the Upper Colorado River DEWS as a case study, this study investigated how water, land, and fire managers select from among many available tools.

The Upper Colorado River Basin (UCRB) was one of the first pilot areas, beginning in 2008, for implementation of a regional drought early warning system (DEWS) under the NIDIS program, which now supports eight regional DEWS. (The UCRB DEWS has recently been expanded and reconfigured into the Intermountain West DEWS). The selection of the UCRB for a pilot DEWS reflects the regional importance of drought monitoring for managing water supply for agriculture and other uses, and the need for effective decision support related to drought. New drought-information tools were developed specifically for the UCRB DEWS, and a number of others have been created since 2008, adding to the pre-existing toolkit for drought decision making. The various tools that are now available in the Upper Colorado River Basin region can be expected to be more or less suitable for different decision makers' needs. As a result, the broad decision context of this case study (managing drought) was fixed, but the information needs of users varied. This provided the opportunity to examine the varied choices decision makers make about which of the available tools to use or not use.

The research identified four broad categories of tool use that map to particular decision contexts. Water supply managers, land managers with rangeland management responsibilities, land managers focused on ecological health, and fire managers each use a suite of indicators and tools that match their particular decision context and timeframe at which they make decisions. Important differences also emerged in how respondents find out about tools, with water managers reporting strong inter-agency connections while land managers tend to rely on information from others within their agencies. Fire managers also play a key role in keeping others in the land management agencies informed about drought.