ABSTRACT

There is a finite amount of fresh water available for use by water users (geologic processes, plants, animals, and even humans). Thus, conflicts and disputes often arise over water allocation, especially in the western United States, where water reserves are already scarce. Water rights systems and policies are designed to allocate water fairly even when water runs short. However, the science and legal principles behind these water rights systems are difficult to communicate to stakeholders, leading to reduced participation and legitimacy of policies (Priscoli 2004; Reisner 1993). Earlier work suggests that interactive maps can support or enhance stakeholder knowledge creation or refinement by promoting exploration of map data (MacEachren 2000; MacEachren and Brewer 2004; Andrienko and Andrienko 1999). This study explores approaches to visualizing water rights policies at multiple scales in communities and landscapes of the Ruby River Basin in Montana. A series of interactive maps was created and shared with stakeholders to obtain feedback based on expert local knowledge. The results suggest that interactive maps are powerful vehicles for communicating water right policies to stakeholders if careful attention is paid to applying cartographic design principles in maps properly contextualized for local conditions. Results also suggest that interactive maps are particularly useful in multiple representations of data that cannot be conveyed effectively through symbology. Future research is needed to test whether such maps actually improve stakeholder knowledge and perception, and in tum spur public participation.