

[Prof. Joe Kasprzyk](#)

[Department of Civil, Environmental and Architectural Engineering \(CEAE\)](#)

[University of Colorado, Boulder, CO](#)

Defining the Role of Water Resources Systems Analysis in a Changing Future

Water Resources Systems Analysis (WRSAs) refers to the use of simulation modeling, optimization, data analysis, and decision science to aid water resources planning and management problems (such as determining the capacity and operating policy of multi-reservoir systems). This presentation is based on an editorial in the *Journal of Water Resources Planning and Management* that outlines the role that WRSAs can play in diagnosing the water resources challenges of a changing future. We show how collaborative modeling at the Center for Advanced Decision Support for Water and Environmental Systems (CADSWES), directed by Prof. Edie Zagona, supports negotiation within complex water resources systems, and how tools from CADSWES are combined with multi-objective optimization and interactive visualization to help aid decision making in these systems. We also discuss ongoing and future research projects that address the water-energy nexus -- the interaction between water resources and power generation.

Kasprzyk, JR, RM Smith, AS Stillwell, K Madani, D Ford, D McKinney, S Sorooshian (2018) "Defining the Role of Water Resources Systems Analysis in a Changing Future" *Journal of Water Resources Planning and Management* 144(12).

<https://ascelibrary.org/doi/10.1061/%28ASCE%29WR.1943-5452.0001010>