

**American Water Resources Association**  
**2009 SUMMER SPECIALTY CONFERENCE**  
***Adaptive Management of Water Resources II***  
**June 29 – July 1, 2009**  
Snowbird, UT

**Monday, June 29**

**3:30 PM – 5:00 PM**

**Session 12: Social Science Aspects in Adaptive Management Including Consensus Building**

**1. The Drama of the Commons and its Impact on Adaptive Management: A Social Science Perspective on the Slippery Nature of Water Policy - Kaitlin Steiger-Meister, University of Minnesota, Saint Paul, MN**

From its earliest use adaptive management was defined in interdisciplinary terms to demonstrate the interplay of environmental, social, and economic issues, and their subsequent influence on natural resource management (Holling, 1978). Though adaptive management relies heavily on scientific methodologies in the design, implementation, and evaluation of management plans, it also recognizes the impact of institutional and social structures on policy decisions (Schreiber et al, 2004). Yet as adaptive management evolves, the interaction, or lack of interaction, between social and institutional structures has emerged as a hurdle to successful implementation. Echoing trends found in literature related to managing the commons, implementation of adaptive management is potentially hindered by inadequate institutional structures that limit stakeholder participation (Berkes, 2002). Using water policy and the management of Minnesota's surface waters as a platform for inquiry, research incorporates theory related to common pool resource management to reveal and examine institutional and social hurdles unique to adaptive management and in particular management of common pool water resources.

**2. Scientific Uncertainty and Coalitions in Water Policy Subsystems - Miriam Cope, University of Illinois, Urbana-Champaign, Urbana, IL (co-authors: Stephen Gasteyer, David Holt)**

Much has been written about the impact of perceptions of nature and core values on natural resources management decisions, conflicts over resource use, and resolution of those conflicts. A growing body of literature (Jenkins-Smith, et al, 1993; Sabatier, 2007) links perceptions and core values to social networks and advocacy coalitions around particular water management options. These factors continue to be important even as the growth of access to information technology and the ability to disseminate scientific data has enabled greater data input into water decision-making forums, even in rural areas in industrialized nations such as the United States. Using a modified advocacy coalition approach (Jenkins-Smith, et al, 1993; Sabatier, 2007), this paper will test hypotheses about the role of trust and data uncertainty in influencing water resources management regimes, specifically in the context of water conflict. Our research focuses on the Republican River Basin in Nebraska, which is subject to a 1943 interstate compact and more recently, a settlement (2003) that requires the inclusion of consumptive use of ground water in total water use calculations. Based on analysis of documents, interviews and participant observation, we investigate the role of perceptions of nature, core values, and advocacy coalitions in interpreting information about conjunctive use of water in this basin. We relate these interpretations to water management decisions regarding compliance with the 2003 settlement. We discuss how these findings may contribute to better predicting the social constraints to optimal water management and conflict resolution, specifically discussing how these findings contribute to coupled human and natural systems models.

**3. Decision Support Tools for Adaptive Management Implementation on the Platte River - Chadwin Smith, Headwaters Corporation, Lincoln, NE**

The Platte River Recovery Implementation Program (Program) is utilizing a Structured Decision Making (SDM) approach to implement the Program's Adaptive Management Plan (AMP) on the Platte River through management actions and experiments. A team of Program staff and cooperators, all members of the Program's Adaptive Management Working Group (AMWG), conducted a SDM workshop in July 2008

to develop specific, measurable objectives for implementing adaptive management and relating the response of target species to management actions. The workshop was facilitated by Dr. Andrew Tyre of the University of Nebraska-Lincoln. The workshop included the use of Rapid Prototyping as a means to develop simple ecological models that utilize Program monitoring data, species life history parameters, and other data to predict possible species response to management actions over the course of the Program's First Increment (2007-2019). The workshop resulted in specific objectives for implementing adaptive management and the development of models for the endangered whooping crane (*Grus americana*) and interior least tern (*Sternula antillarum*), and the threatened piping plover (*Charadrius melodus*). Those models are now being utilized to help guide Program management actions, establish habitat goals, refine the definitions of "available habitat", and ultimately assess progress toward meeting broader Program objectives. The AMWG kicked off a series of additional SDM workshops in December 2008 to help define specific means objectives for several adaptive management experiments related to sediment augmentation, flow consolidation, mechanical actions, and pulse flows. The workshops are designed to provide design details for the experiments, identify data needs and gaps, and help guide overall implementation of the AMP over the next five years. The SDM process is helping the AMWG to better define objectives, assess alternatives, and ensure monitoring and research data are directly linked to evaluating the Program's priority hypotheses – keeping the Program focused on "need to know" information as opposed to "nice to know" information. Structured Decision Making and Rapid Prototyping are proving to be valuable tools for rigorous implementation of adaptive management on the Platte River.

#### **4. Water in the West: Values, Science and Policy - Anya Plutynski, University of Utah, Salt Lake City, UT**

Water is the central limiting resource for the economic development of the West. Water is also central to ecological health and welfare, as well as quality of life, recreation, aesthetic, and cultural value. With anticipated changes in climate, water distribution will become increasingly problematic in the West. This talk will address how scientists and policy makers may communicate effectively, and in particular, how they communicate about uncertainty and the role of ethical aspects of decision making. For example, when asking whether current practices and policies are sustainable, how are such judgments made? Given that much of the science surrounding water and climate involve uncertainty, how do scientists both explain the science, and acknowledge uncertainty, while providing a reasonable answer to skepticism, e.g., about climate change? Where and when should and can values play a role in scientific communication, if at all? Unlike many sciences, environmental sciences (broadly conceived – e.g., ecology, climate science) are increasingly called upon to provide clear guidelines for policy. Environmental scientists are called upon to make empirically well- founded claims about "risk," "endangerment," "contamination," and "pollution," yet all these terms are normative, and not simply empirical. That is, it is not the science per se that tells us about "risk," but the scientists. To what extent are the environmental sciences evaluative as well as strictly empirically grounded enterprises? Arguably, scientists make evaluative decisions all the time – for instance, when choosing a null hypothesis, or assigning where to place the "burden of proof." This study will examine these questions in the context of water policy in the west. Research methods include interviews with scientists, policy makers, and local activists.