PLAZA 3 ROOM

MONDAY AFTERNOON

ROOM: Plaza3
TIME: Monday 1:00 PM
TITLE: Uncertainty learning and adaptive management
AUTHOR(S):
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ABSTRACT: The challenges of a new century require rethinking and reinvigorating approaches to management and science that ensure the resources and esthetic beauty we all appreciate are here for future generations. However, as perturbations to ecological systems become more complex and stakeholder interests diversify, the uncertainty inherent in policy decisions, and the pressure to adopt effective management actions has increased, leaving managers, policy makers, and the public overwhelmed. As a leader in science and management the Department of the Interior, led by the U.S. Fish and Wildlife Service and the U.S. Geological Survey, has increasingly favored incorporating adaptive management approaches as a means to overcome uncertainty and increase success in natural resource management. Here I outline an operational definition of adaptive management, identify circumstances when adaptive management approaches should be considered, and describe the process of incorporating adaptive management into natural resource management. By forcing stakeholders to confront unresolved uncertainty, adaptive management not only improves management performance, it also provides a basis to develop trust and partnerships between stakeholders and the public.
KEYWORDS: uncertainty, management

ROOM: Plaza3
TIME: Monday 1:20 PM
TITLE: Evaluating the efficacy of adaptive management approaches: is there a formula for success?
AUTHOR(S):
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ABSTRACT: Within the field of natural resource management, complex problems high in uncertainty exist where the application of adaptive management is appropriate. Adaptive management is a growing management-decision tool within the scientific community and has developed into two primary schools of thought: the North American school (e.g., Holling et al. 1995) and the Australian school (e.g., Possingham, et al. 1998). These two schools of thought may be differentiated according to degree of stakeholder involvement, emphasis on resilience, and level of model complexity. Because of these differences, adaptive management plans implemented under each of these schools may yield varying levels of success. We evaluated peer-reviewed literature focused on the incorporation of adaptive management to identify components of successful adaptive management plans. Our evaluation included adaptive management elements such as stakeholder involvement, definitions of objectives and alternatives, the use and complexity of predictive models, and the sequence in which these elements are applied. We also define a scale of degrees of success. Our results will include the relationship between the adaptive management process documented in the reviewed literature and our defined continuum of successful outcomes. This will be to the advantage of natural resource managers considering adaptive management as a management decision tool by identifying the elements of successful adaptive management implementations.
KEYWORDS: adaptive, management, success

ROOM: Plaza3
TIME: Monday 1:40 PM
TITLE: Putting the man in management: adaptive management and law
AUTHOR(S):
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ABSTRACT: Environmental law plays a key role in shaping policy for sustainability. In particular, the types of legal instruments, institutions, and the response of law to the inherent variability in socio-ecological systems is critical. Sustainability likely must occur via the institutions we have in place, combined with alterations in policy and regulation within the context of these institutions. The most effective approach is adaptive, in terms of both management and governance. Policy is not a linear process producing optimal results. Rather, policy is an iterative process that requires constant monitoring and recalibration of the parameters driving policy formulation. This ecosystem management arrangement is best characterized as a panarchy, with research on sustainability specific to the scale of interest.
KEYWORDS: panarchy, policy, law

ROOM: Plaza3
TIME: Monday 2:00 PM
TITLE: Implementing adaptive management in the national wildlife refuge system
AUTHOR(S):
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ABSTRACT: Managers within the National Wildlife Refuge System (NWRS) of the U.S. Fish and Wildlife Service routinely make decisions about the management of populations, habitats, and human users of the land. Most of these decisions, if not all, are made under considerable uncertainty about their effects. Decision making on NWRS lands is often well-suited for the application of adaptive management because many decisions are recurrent, and because spatial replication of the decision is frequently possible. Furthermore, adaptive approaches are scalable, with application ranging from resolving a local problem at the scale of a single management unit to addressing a widespread problem affecting scores of refuges across multiple regions. We are involved in several small to large-scale adaptive management efforts on NWRS lands in the northcentral U.S., and we provide a brief overview of some of them. The challenges we find in implementing adaptive decision frameworks in the NWRS turn out to be mostly ones of institutionalization of the process, not technical issues. Adaptive management is comprised of pieces that are not individually complicated but do interlock in a coordinated way. And adaptive management is by definition a process that takes place over time. Thus, while these pieces can be set in place by an initial collaboration between NWRS managers and outside experts, a meaningful implementation of adaptive management requires a full-time, dedicated manager - a "champion" - within the NWRS who nurtures the process from the set-up phase, manages the transition into the implementation phase, and oversees all the activities in support of prediction, monitoring, and assessment.
KEYWORDS: refuges, decisions, uncertainty

ROOM: Plaza3
TIME: Monday 2:20 PM
TITLE: Injecting adaptive management into state wildlife action plans
AUTHOR(S):
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ABSTRACT: To ensure effective allocation of federal wildlife funds, Congress charged each state with developing a statewide wildlife plan with the expressed goal of conserving wildlife and vital natural areas before they become exceedingly rare and costly to protect. Although initially successful in development, in practice, implementation of the State Wildlife Action Plans has proven challenging due to the vast area, numbers of species, and inherent long-term nature of the plans. Using the Nebraska Natural Legacy Plan as an example, here I outline how the incorporation of strategic decision making within an adaptive management framework can help facilitate effective implementation of State Wildlife Action Plans by identifying 1) species and habitats of conservation and public concern, 2) key uncertainties concerning wildlife, managers, policy makers, and the public, 3) effective research, monitoring, outreach, management and policy actions to address uncertainty, and 4) methods and protocols to ensure continued reassessment of the needs of wildlife and people in Nebraska. As communities continue to grow, and wildlife and the habitats they depend upon are increasingly threatened, effective implementation of State Wildlife Action Plans is imperative if managers are to succeed at conserving wildlife and the lands and waters where they live for future generations. By incorporating proactive yet adaptable approaches into traditional management methodology we can better achieve these long-term goals.
KEYWORDS: management

ROOM: Plaza3
TIME: Monday 2:40 PM
TITLE: Challenges to applying adaptive management to restoring great rivers: the Upper Mississippi River Navigation and Ecosystem Sustainability Program
AUTHOR(S):
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ABSTRACT: Severity of impacts, diversity of competing uses, interjurisdictional governance, and ecological complexity of great rivers present challenges to applying adaptive management to their restoration. A complex assortment of social-ecological restoration needs within the Upper Mississippi River System (UMRS) is being undertaken through a long-term commitment to adaptive management via the US Army Corps of Engineers Navigation and Ecosystem Sustainability Program (NESP). NESP is authorized for the dual purposes of improving navigation efficiency and environmental sustainability. Components of adaptive management being developed include a general conceptual model, goals and objectives, performance criteria, monitoring programs, decision support, and environmental report cards. Improving upriver passage of migratory fishes through navigation dams is a major objective of NESP and is used to demonstrate opportunities and challenges for adaptive learning. Hypothesized benefits and costs of fish passage were evaluated and alternative designs compared. A nature-like fishway at Lock and Dam 22 was selected and is being designed as an active adaptive management experiment. It can be modified post-construction to assess effects of different widths and flow patterns on its ability to pass fishes. Designing and implementing pre-and post-monitoring programs to address effectiveness (e.g., Is there a detectable population level response within the upriver reach?) as well as performance (e.g., Is there a significant increase in the number of fish passing through Dam 22 following construction?) are discussed.
KEYWORDS: restoration, sustainability, fishway

ROOM: Plaza3
TIME: Monday 3:40 PM
TITLE: Catching managers - catching anglers - catching fish
AUTHOR(S):
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ABSTRACT: A fishery consists of three components: fish, water and anglers. Management and research historically focused on life history of fishes. More recently, the focus also included quality of the environment. Now, the focus also includes anglers and their influence on fish and the environment. A shift in the process of management has been suggested along with this shift in the subject. Adaptive management is the order of the day. Many managers are disdained with this new order, arguing that management is adaptive by design. Regardless, adaptive management is a new paradigm whereby uncertainty is recognized as a key part of complex systems that must be considered when interpreting significant and non-significant results. To illustrate, a conceptual model will be presented on temporal and spatial participation patterns for anglers in a watershed that can be used to identify uncertainty in responses of angler participation to management actions (e.g., change in regulation) as well as responses of fish communities to changes in angling pressure.
KEYWORDS: fishery, management, anglers

ROOM: Plaza3
TIME: Monday 4:00 PM
TITLE: Learning by doing - active adaptive management on the Platte River
AUTHOR(S):
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ABSTRACT: The Platte River Recovery Implementation Program (Program) initiated on January 1, 2007 and is a joint effort between the states of Colorado, Wyoming, and Nebraska, the Department of Interior, waters users, and conservation groups. The Program is intended to address issues related to endangered species and loss of habitat in the river in central Nebraska by managing certain land and water resources following the principles of adaptive management. Central to the Program is its Adaptive Management Plan (AMP), which provides a systematic process to test priority hypotheses and apply the information learned to improve management on the ground. The AMP is centered on conceptual ecological models and priority hypotheses developed jointly by Program partners that reflect different interpretations of how river processes work and the best approach to meeting Program goals. The cooperative nature of these multiple hypotheses reveals a shared attempt on the part of Program cooperators and partners to use the best available science to implement experiments, learn, and revise management actions accordingly. The presentation will focus on the status of AMP implementation, the use of decision analysis tools to help set objectives and guide decisions, and experimental and habitat design issues.
KEYWORDS: adaptive, management, experiments

ROOM: Plaza3
TIME: Monday 4:20 PM
TITLE: Weak inference and management decisions: What is a manager to do?
AUTHOR(S):
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ABSTRACT: Ecology is an inherently complex science with highly correlated variables making it difficult to draw strong inferences. Wildlife managers, policy makers, and stake holders rely on ecologists to provide time sensitive management recommendations. However, the time necessary to tease out the complexities of the interactions within an ecosystem is often not conducive to the speed at which management decisions must be made. Therefore, many ecologists make management recommendations based on short-term field studies without providing ways to deal with the uncertainty inherent in weak inference. We reviewed papers in the Journal of Wildlife Management and Conservation Biology where management recommendations were drawn from field studies, quantified the prevalence of weak inferences, and how authors suggested that managers deal with the uncertainty. We discuss adaptive management as an alternative in which managers can begin implementing management recommendations given uncertainty, while continuing to improve ecological knowledge to meet long term goals.
KEYWORDS: management, inference, ecology

ROOM: Plaza3
TIME: Monday 4:40 PM
TITLE: Demystifying the many faces of uncertainty
AUTHOR(S):
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ABSTRACT: Uncertainty about the future outcomes of management is a driving force behind the development of Adaptive Management. But what does the word mean, and does it mean the same thing to everyone? I review the taxonomy of uncertainty, and relate it to the policy science concepts of risk and ignorance. My hypothesis is that the disconnect between the scientific and policy uses of the word "uncertainty" contribute to a lack of uptake of science, including adaptive management. I propose a massive experiment where most ecologists form a control group continue using the word inappropriately and a small treatment group use the policy science terminology to test the hypothesis.
KEYWORDS: risk, probability, policy