Adaptive Management

The scientific approach to flexible natural resource management

Introduction

Ron Huntsinger - National Science Coordinator

Peg Sorensen – NEPA analyst, Division of Planning

What are we going to tell the participants??

History

The concept was first developed by the ecologists C. S. Holling and Carl J. Walters at the University of British Colombia, Canada in the 1970s. The approach was further developed at the International Institute for Applied Systems Analysis (IIASA) in Vienna, Austria, while C.S. Holling was director of the Institute.

Adaptive management was initially applied in fishery management, has probably been most frequently applied in Australia and North America, but has received broader application since the 1990s. One of the most successful applications of adaptive management has been in the area of waterfowl harvest management in North America, most notably for the mallard.

Resources and Guidance

- CEQ
  - NEPA Task Force Report(Sept. 2003)
    - Provides guidance on adaptive management and incorporation into the NEPA process
    - Discusses moving from a traditional ”predict, mitigate, implement” process to “predict, mitigate, implement, monitor, adapt”.
- DOI
  - Secretary’s Order (No. 3270 – March 9, 2007)
    - Establishes policy to develop internal bureau guidance for adaptive management using the DOI technical guide
  - Adaptive Management Work Group
    - DOI Manual Section (522 DM 1, Feb. 1, 2008)
      - Re-interates Secretary’s policy on adaptive management :
      - Requires:
        - 1. Use of AM in compliance with applicable laws
        - 2. Monitoring
        - 3. Incorporation of AM into management programs

Resources and Guidance (con't)

- DOI Technical Guide
  - Comprehensive discussion of AM concept
- OEPC
  - Environmental Statement Memorandum (draft)
    - Provides guidance on use of AM and incorporation into NEPA

- BLM
  - Draft Manual
    - Rough outline of manual section that addresses policy, responsibility, guidance, training needs
  - Draft Field Guide
    - Farther along than draft manual
    - Practical guidance on use of AM
    - Addresses AM principles, considerations for use, process for application, and evaluation of success.

Policy

- **Secretary's Order – The Technical Guide serves as the technical basis for decision making in AM. Bureaus should incorporate the operational components identified in the guide . . . . into pertinent internal programmatic guidance to assure the appropriate application of AM . . . .**

- **DOI Manual - The Department's policy is to encourage the use of adaptive management as appropriate as a tool in managing lands and resources.**

Definition

- Adaptive Management is a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals; increases scientific knowledge; and reduces tensions among stakeholders

Simple Definition

- Adaptive management is a tool designed after the scientific research process which requires a measureable objective, monitoring to determine the effectiveness of the management practices in achieving the objective, evaluation to determine if the objective is being reached, and adaptation based on the results.
- DOI process also emphasizes stakeholder participation.

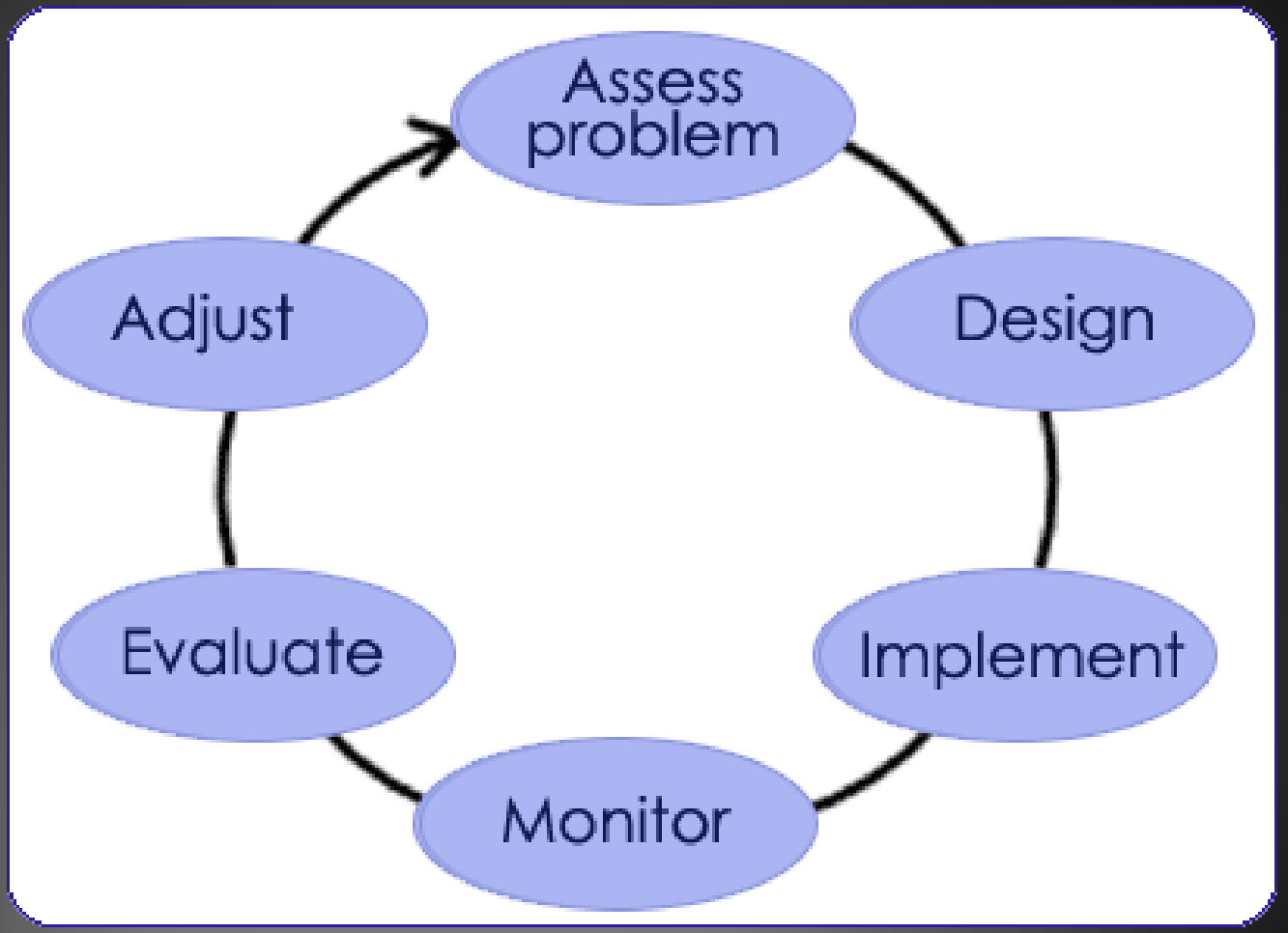
What is Adaptive Management?

- Adaptive management focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable ecosystems.
- Adaptive management helps resource managers maintain **FLEXIBILTY** in their decisions, knowing that uncertainties exist.
- Adaptive management provides managers the latitude to change direction .
- Adaptive management will improve **UNDERSTANDING** of ecological systems to achieve management objectives
- Adaptive management is about taking **ACTION** to improve progress towards desired outcomes.

What Adaptive Management is not

- Trial and error
- A way to short cut the NEPA or planning process
- More economical in time, effort, or finances
- Appropriate for single-time decisions or where the BLM does not have flexibility in changing or making decisions.

Process



Examples

- Las Cienegas NCA- Arizona (BLM)
  - Habitat restoration and grazing management
  - Range Resource Team – subcommittee of RAC comprised of BLM and other agency, academic, and non-government interests
  - Initiated monitoring and analysis to determine changes to grazing plan in 2004.

- Glen Canyon Dam (BOR)
  - Operate GCD to protect and mitigate impacts to Grand Canyon National Park and Recreation Area
  - Adaptive Management Work Group chartered under FACA in 1997
  - Provide for long-term research and monitoring of impact to downstream resources from flow regulation
  - AMWG assures combination of the best science and management practices and participation of the interested public in operation of the dam.

Examples (con't)

- Trout Creek Mountains Restoration (BLM)
  - Assure compatibility between livestock grazing and critical habitat for listed Lahontan cutthroat trout within the Trout Creek and Oregon Canyon Mountains
  - Trout Creek Mountain Working Group created in 1988
  - Monitoring data collected is presented to TCMWG and incorporated into annual Biological Opinion report
  - Changes to grazing systems are based on monitoring results

Court Cases

- US Western District of Washington
  - Mountaineeners vs U.S. Forest Service
  - Construction of a bridge and helispot, off road vehicle use and expansion of a campground.
  - Completed two Biological Assessments of impacts to sensitive species
  - Developed an adaptive management plan with an analytical model to study cumulative impacts after the project was complete
  - Court found the Forest Service FONSI was arbitrary and capricious – “build first – study later”.

Court Cases (con't)

- US Ninth Circuit Court of Appeals
  - Klamath-Siskiyou Wildlands Center vs. Boody
  - After completing an annual species review BLM down listed and eventually removed the Survey and Manage classification entirely for a sensitive species without pre-disturbance surveys.
  - BLM subsequently proceeded with two timber sales
  - BLM justified the changes as part of an adaptive management plan
  - On appeal, the court found BLM out of compliance with environmental requirements and required a plan amendment

Court Cases (con't)

- IBLA
  - Biodiversity Conservation Alliance
  - BLM issued a FONSI for coal bed methane development
  - BCA challenged the FONSI based on failure to adequately assess cumulative impacts
  - BLM issued a revised EA and FONSI based on additional analysis
  - BCA appealed but the Board held that the analysis was sufficient, and that monitoring cumulative effects is an important step in an AM process and encouraged use and training in AM application

Determine Potential for Project

- Questions
  - Management decisions to be made?
  - Stakeholders are engaged and committed?
  - There is an opportunity to apply learning.
  - Management objectives can be identified.
  - Information value is high.
  - Uncertainty can be expressed as testable models.
  - A monitoring system can be established to reduce uncertainty

Integrating Adaptive Management into the NEPA process

Operational Steps

- Set up phase
- Iterative Phase

Set up Phase

- Stakeholder involvement
- Objectives
- Management actions
- Models
- Monitoring Plans

Iterative Phase

- Decision making
- Follow up monitoring
- Assessment
- Iteration

Implementing Adaptive Management

- Ensure stakeholder commitment to AM for duration of enterprise
- Identify clear, measurable, and agreed-upon objectives
- Identify management actions for decision making
- Design and implement a monitoring plan , protocol
- Evaluate management effectiveness over time
- Conduct assessment of effectiveness – monitor to track resource status
- Revise management practices/objectives

Questions Discussion

- Summary, what did we tell participants? Wrap up session.

Thank You

BLM Logo here.

Contact information?