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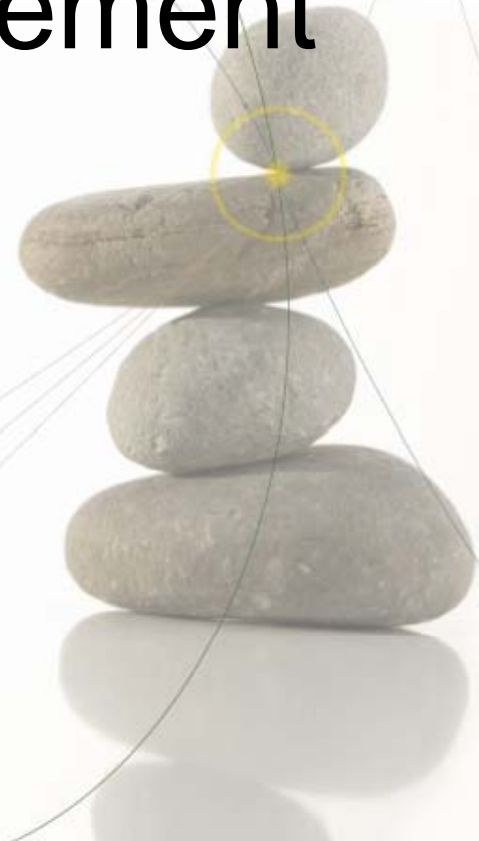
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Adaptive Management



Purpose of Adaptive Management

- Minimize uncertainty from gaps
 - Scientific data
 - Biological requirements
 - An integrated method for addressing uncertainty
 - Used to examine alternative strategies for meeting biological goals and objectives
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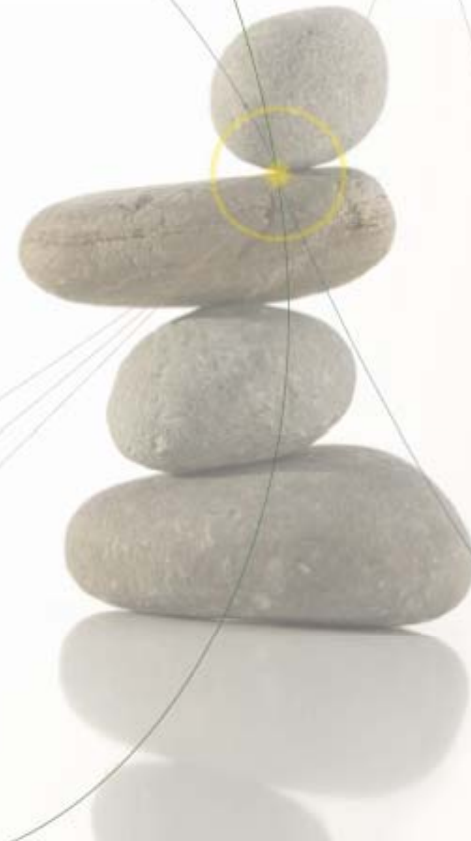
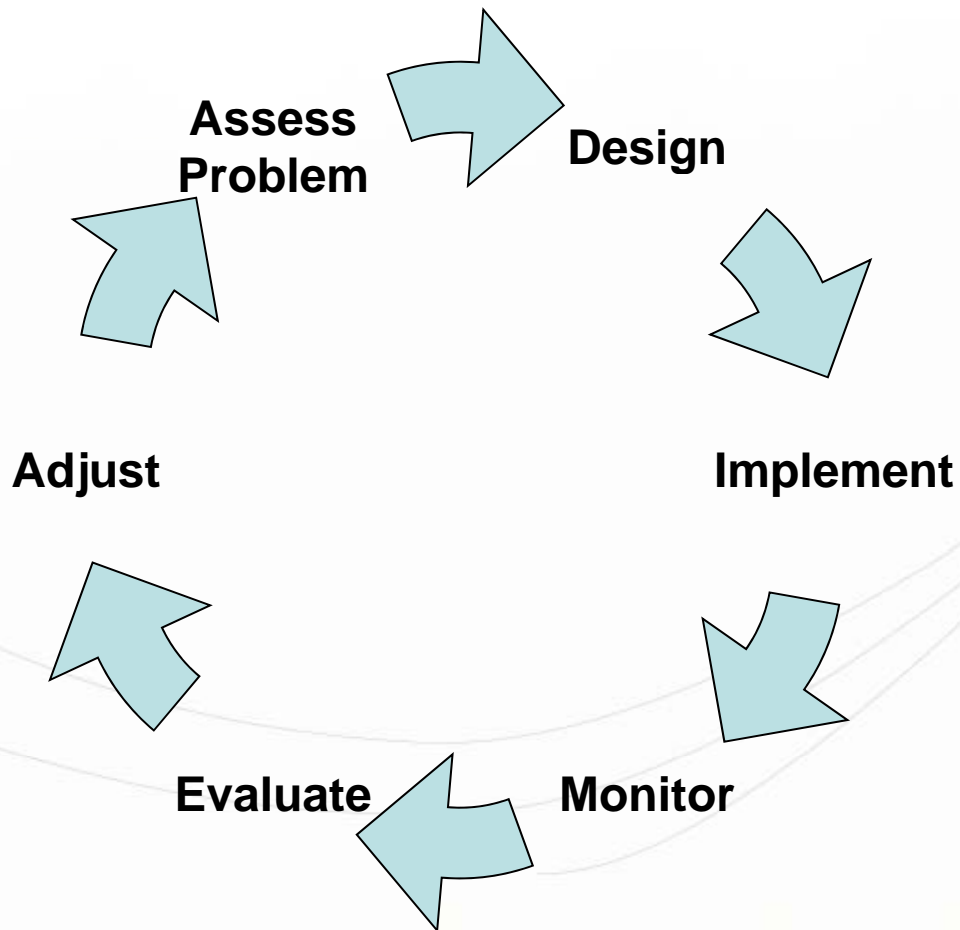
ESA: Section 10(a)

- Conservation plan must specify:
 - Steps the applicant will take to minimize and mitigate ... and the funding that will be available...
 - Such other measures...necessary or appropriate for purposes of the plan
 - The applicant will...minimize and mitigate the impacts of...taking

USFWS Policy Guidance for Adaptive Management

- Endangered Species: Habitat Conservation Planning Handbook (November 1996)
- Addendum to the HCP Handbook (May 2000) “the 5-point policy”
- Adaptive Management: The U.S. Department of the Interior Technical Guide (2007)

Adaptive Management Process



Conservation Strategy

- Define biological objectives or goals
- Model ecological system
 - Components
 - Interactions
 - Natural fluctuations
- Allow changes in management
- Ensure likelihood of survival and recovery in the wild

Role of Research

- Fill gaps in initial information
- Test effectiveness of management
- Provide means for assessing minimization and mitigation
- Produce better ecological knowledge
- Develop appropriate modifications

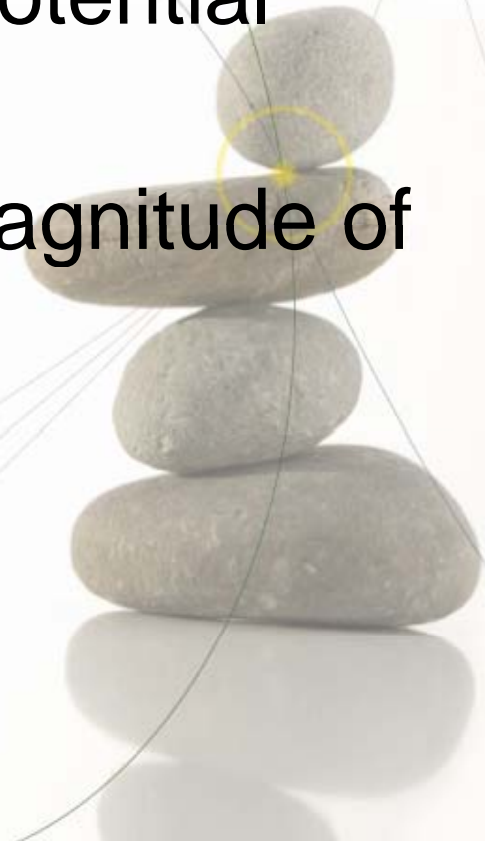
Role of Monitoring

- Ensure proper data collection, analysis, and use
- Establish testable hypotheses linking
 - Conservation strategies
 - Biological objectives
- Define “thresholds”
 - Linked to key criteria
 - Measurable



Initial Assumptions

- Agreement as to range of potential adjustments
- Mechanism to determine magnitude of adjustments
- Based on monitoring
- Developed in advance

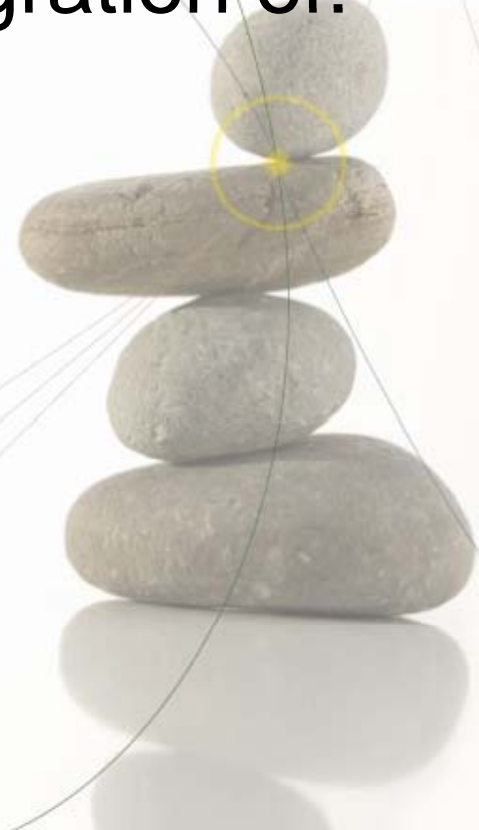


Corrective Actions

- Based on significant “non-achievement” of mitigation
- USFWS will work with applicant to compensate for external factors
 - Develop strategy
 - Voluntary increases in base mitigation

The 5-point Policy

- Focuses on expansion/integration of:
 - Biological goals
 - Adaptive management
 - Monitoring
 - Permit duration
 - Public participation



Biological Goals and Objectives

- Commensurate with the scope of action
- Broad guiding principles for plan
- Rationale behind minimization and mitigation strategies
- Objectives are measurable targets for achieving goals
- Integrated into operating HCP

Monitoring

- Provide assurances
 - compliance
 - gauge the effect and effectiveness of the HCP
- Inform choices under adaptive management provisions
- Assist in redefining biological goals
- Provides data for range-wide assessment

Monitoring Program Characteristics

- Flexible
- Comparable spatially and temporally
- Respond to outstanding questions
- Reflect biological objectives' measurable units
- Based on sound science and standard survey protocols

Permit Duration

- In part, duration depends upon:
 - Extent of scientific data underlying HCP
 - Length of time necessary to implement and achieve benefits
 - Extent to which HCP incorporates adaptive management

Precedents

- Reflect the evolution of HCPs
- Embodied in the handbook and 5-point policies
- Limited by uniqueness of each plan context
 - Biological
 - Political
 - Economic



Implementation Issues

- Funding
- No Surprises Rule
- Coordination with Other Programs



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Questions/Comments

