Adaptive Marine Management: Fish or Fowl?

Cliff McCreedy
Ocean and Coastal Resources Branch
Aquatic Professionals Meeting
February 13, 2008




Overview

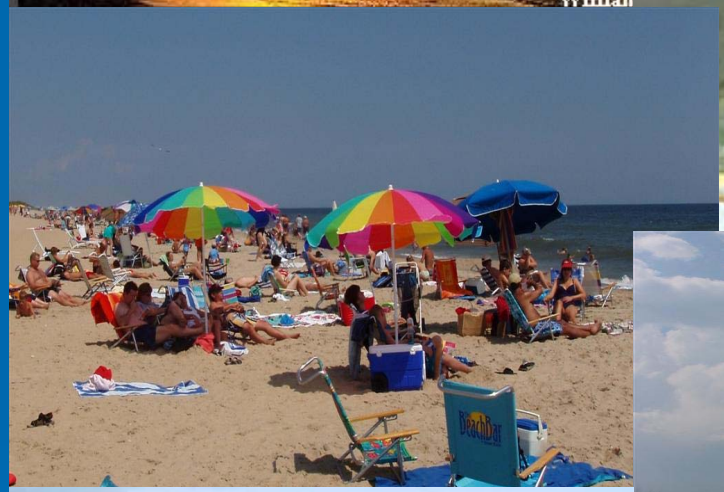
- Ocean resources in the National Park System: ecological impacts of fishing
- Need for adaptive ecosystem management
- Scientific and organizational challenges to adaptive management

Ocean National Parks

Acadia
American Samoa
Biscayne
Channel Islands
Dry Tortugas
Everglades
Glacier Bay
Olympic
Redwood
Virgin Islands

National Seashores

- Assateague Island
- Canaveral
- Cape Cod
- Cape Hatteras
- Cape Lookout
- Cumberland Island
- Gulf Islands
- Fire Island
- Padre Island
- Point Reyes



Coastal Recreational Areas

Boston Harbor Islands

Gateway

Golden Gate

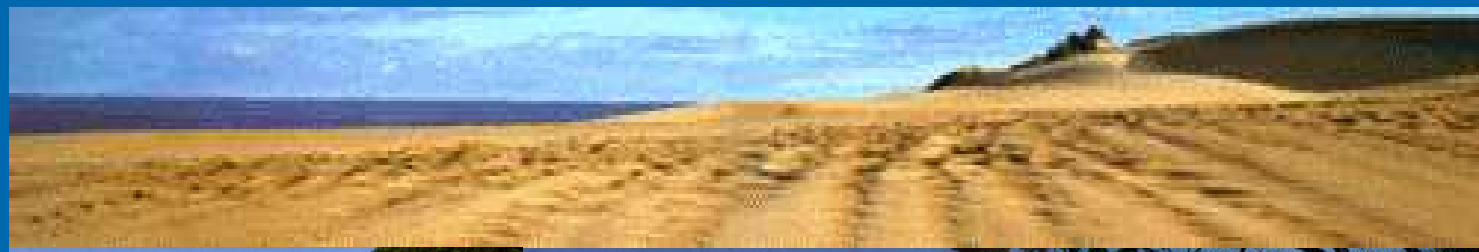
Santa Monica Mountains

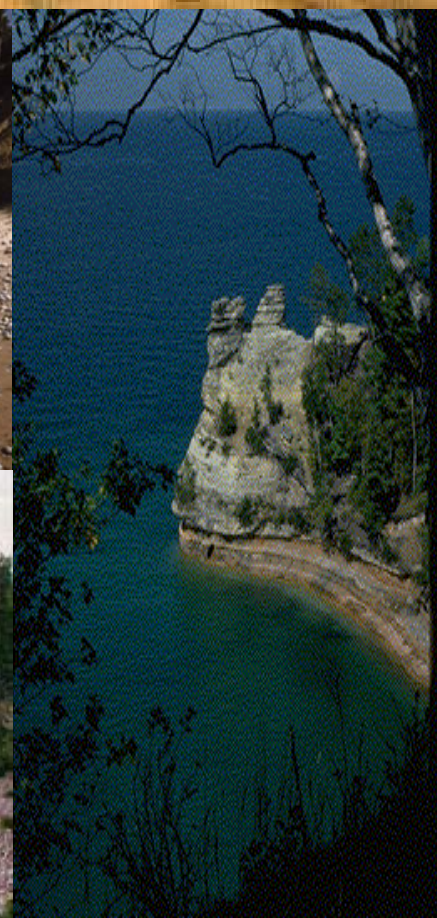
Coastal Parks

- Aniakchak
- Bering Land Bridge
- Cape Kruesenstern
- Haleakala
- Hawaii Volcanoes
- Katmai
- Kenai Fjords
- Lake Clark
- Timucuan
- Wrangell-St. Elias

Great Lakes Parks

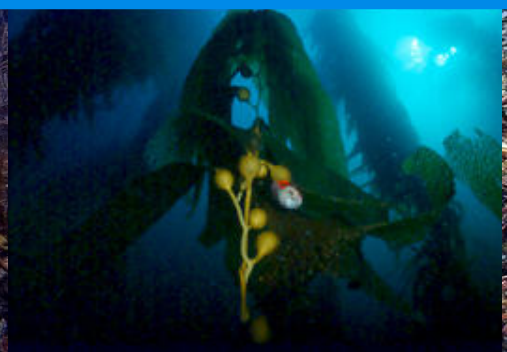
- Apostle Islands
- Grand Portage
- Indiana Dunes
- Isle Royale
- Pictured Rocks
- Sleeping Bear Dunes





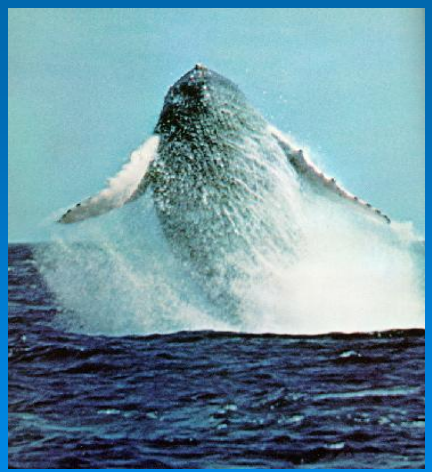
National System of Ocean Parks

- 26 States & Territories
- 5,100 mi shoreline
- 3.2 million ac ocean & Great Lakes waters
- Diverse ecosystems—Watersheds, wetlands, estuaries & open ocean
- Arctic to tropical

Beauty and Value

- 74 parks, 75 million visitors
- Bastions of marine biodiversity
- Revenues generated for local communities: $2.5 Billion
- Number of jobs created for local communities: 57,500



Ocean Park Paradox

- ✓ Public expects protection
- ✓ Fishing allowed consistent with state regulations
- ✓ 60 percent of US population in coastal counties
- ✓ Wetlands loss, watershed degradation
- ✓ Beauty, ecological integrity and capacity for self-renewal

Overfishing

- 29 percent of world fish stocks overfished
- NCEAS: Global collapse of marine fisheries by 2050
- Economic & biodiversity losses
- Ecological resilience lost
- 1%< global ocean closed to fishing

Ecosystem-based Marine Management

- Single species management failed
- Consider entire ecosystem, including humans
- Goal: Healthy, productive and resilient condition
- Ecosystem services and economic benefits
- Recognizes ecological function, structure and processes
- Marine Reserves: DRTO, CHIS, GLBA, VICR & BUIS

Uncertain: Uncomfortable… Uncontrollable?

How do we know reserves work?

Ecology: Applied science is very young

Effects predictable?

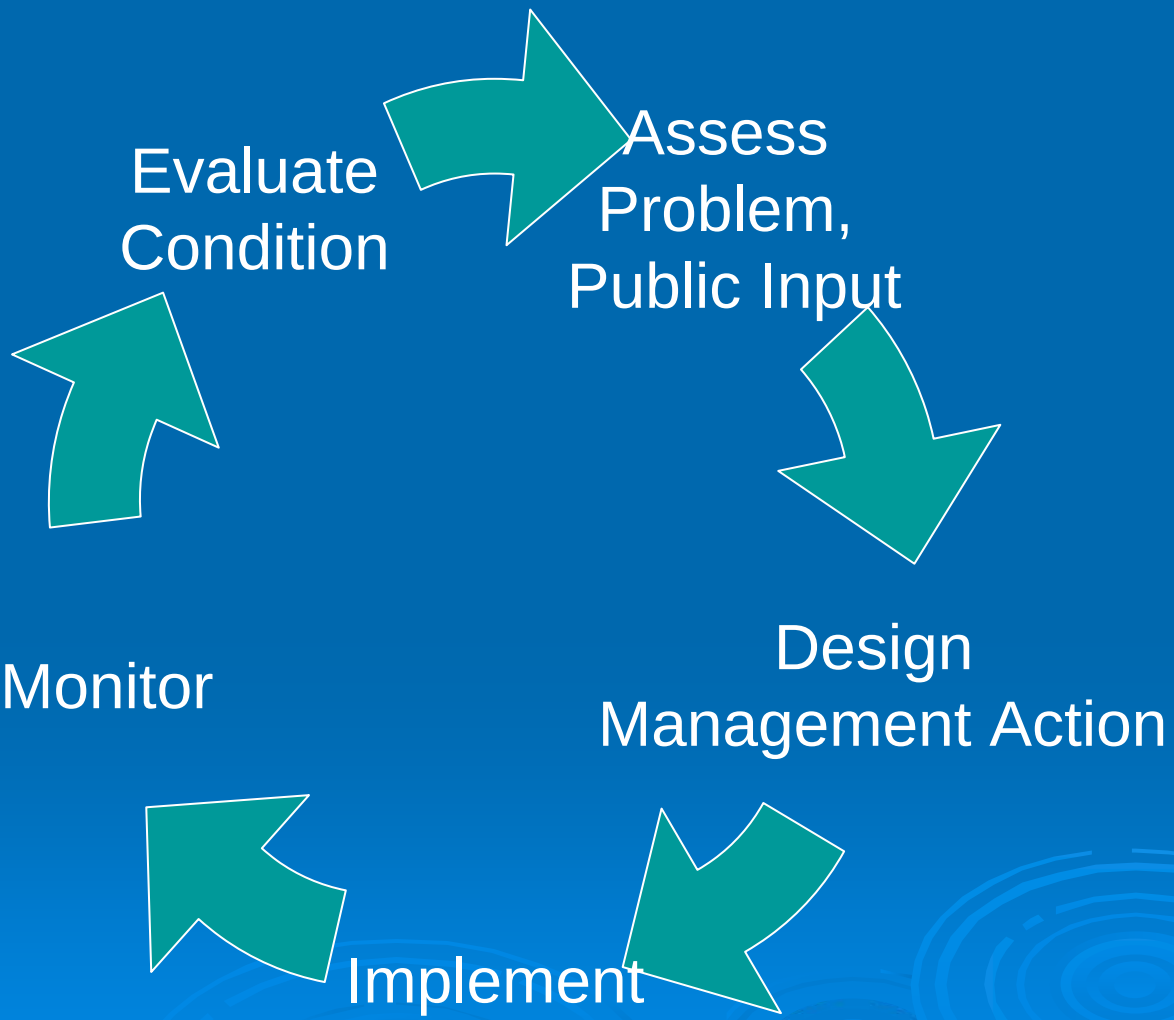
Black box

Dry Tortugas: Lobster Love

Adaptive Management

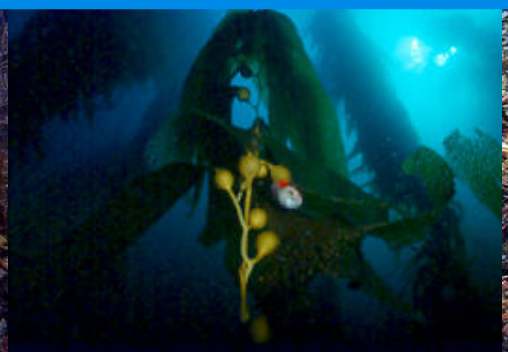
- Learning in face of uncertainty
- Requires explicit management goals
- Evaluate management impacts through monitoring
- Accountable: Reevaluate decisions as scientific understanding improves
- Heavy emphasis on upfront, ongoing stakeholder input
- DOI Technical Guide
- DOI Regulations

Adaptive Management Process



Marine Reserves

- Tortugas 2000
- 25-member working group
- Stakeholder input into design
- Dry Tortugas NP Research Natural Area - 2001 DRTO GMP
- Adopts Marine Zoning & Ecosystem-Based Management
- OOPS – Lawyers intervene

National Monuments (Antiquities Act)

- Buck Island Reef & Virgin Islands Coral Reef
- Right policy goals – science left hanging, boundaries wrong
- Planning by executive fiat – alienated stakeholders
- Park monitoring, planning and outreach working to fix science and gain public understanding



Organizational Challenges

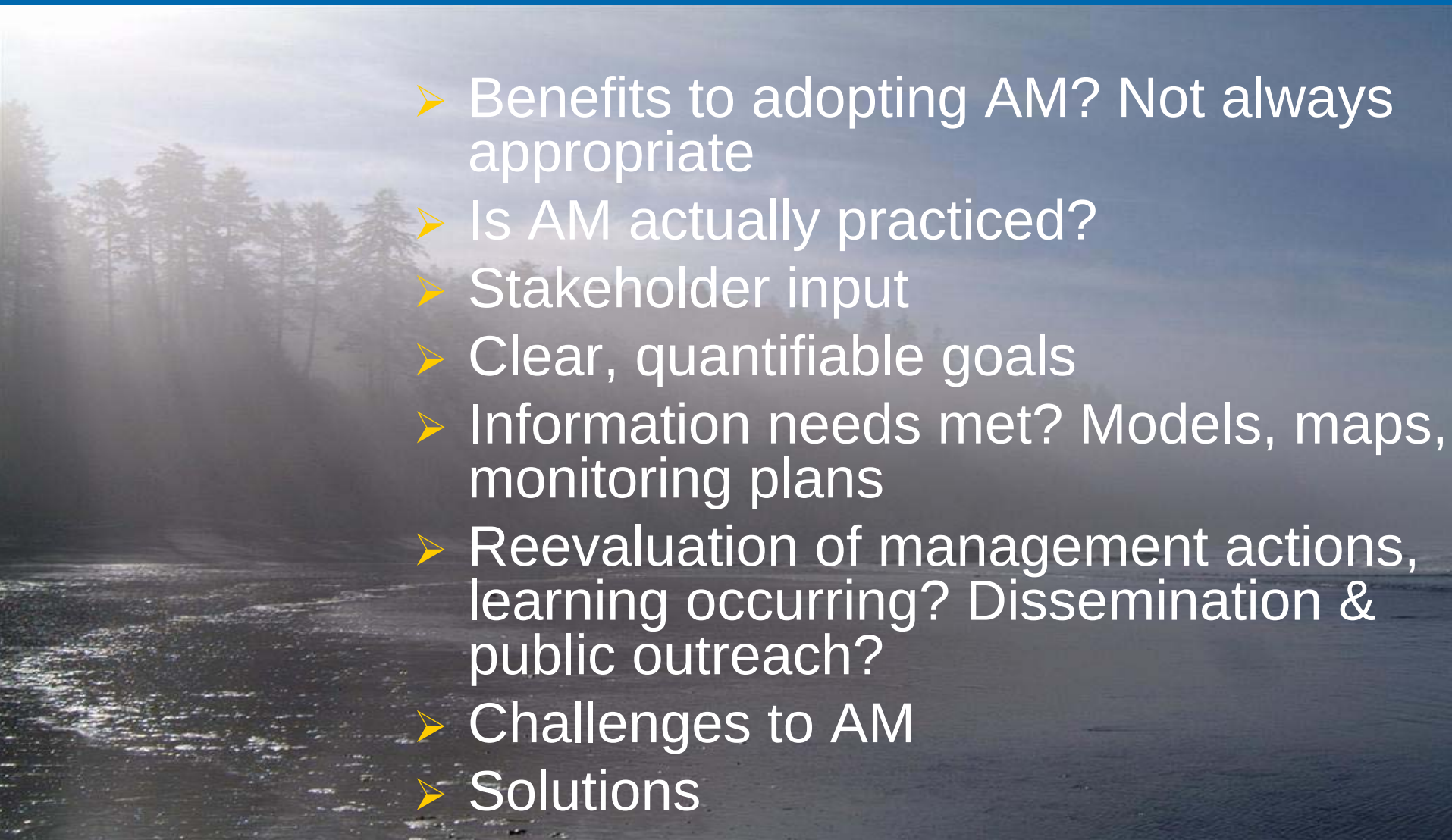
- Great in theory
- Vague management goals
- Information gaps
- Habitat maps missing
- Marine inventories postponed
- Commitment to long-term monitoring – funding
- Unrealistic timelines

Scientific Partnerships

- USGS-NPS Marine Reserves Workshop
- $2.1 mil research
- SFCN I&M Network, NRPP, Geologic Div
- NOAA Biogeographic Assessments
- Servicewide benthic habitat mapping strategy
- NER strategy

USGS
science for a changing world

Is AM our MO?



- Benefits to adopting AM? Not always appropriate
- Is AM actually practiced?
- Stakeholder input
- Clear, quantifiable goals
- Information needs met? Models, maps, monitoring plans
- Reevaluation of management actions, learning occurring? Dissemination & public outreach?
- Challenges to AM
- Solutions