Lessons Learned from “How Is Your MPA Doing?”

Considerations for evaluating networks of MPAs

John Parks, The Nature Conservancy

Wednesday, 22 April 2009

Marine Protected Areas Federal Advisory Committee Meeting

Annapolis, MD
Presentation Outline

- Overview of the Guidebook
- Lessons to Consider
- Recommendations
Presentation Outline

- Overview of the Guidebook
Overview of the Guidebook:
Management Effectiveness

The degree to which management actions are achieving the goals and objectives of a marine protected area

(Consensus Definition of Stewardship and Effectiveness Subcommittee 09/23/04)
Overview of the Guidebook: Management Effectiveness

The degree to which management actions are achieving the goals and objectives of a (network of) marine protected area(s)
Overview of the Guidebook: Management Effectiveness

Why evaluate it?

- Promotes adaptive management
- Improves project planning
- Enhances priority setting
- Promotes internal & external accountability
- Demonstrates public value
Guidebook Aim

To help marine managers and conservation practitioners to evaluate & adaptively improve the effectiveness of their MPA efforts through time.
Corresponding indicators:

3 categories (n=42)

Biophysical indicators (n=10)
Socioeconomic indicators (n=16)
Governance indicators (n=16)
Overview of the Guidebook:
Design highlights (2001-2004)

- 2 rounds of expert consultation
- 3 rounds of peer review (100+ professionals and academics)
- Volunteer field testing by 20 MPAs
- Community-based MPA accessible
Overview of the Guidebook:
Application highlights (2004 - present)

- Wide-spread, global adoption
- Endorsement by foreign governments
- Translation into 9 languages
- Regional/country-specific adaptation
Presentation Outline

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- Lessons to Consider
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- Overview of the Guidebook
- Lessons to Consider

3 sources of lessons
Lessons to Consider:
1. Pilot sites (field testing)
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1. Pilot sites (field testing)

- 20 MPAs volunteered to test draft version of guidebook over 2 years (2002-2003)
- 4 MPAs volunteered to test final version over 1 year (2005)
1) Achang Reef Flat Marine Preserve (Guam)
2) Alto Golfo de California y Delta del Rio Colorado Biosphere Reserve (Mexico)
3) Bahía de Loreto National Park (Mexico)
4) Banc D'Arguin National Park (Mauritania)
5) Banco Chinchorro Biosphere Reserve (Mexico)
6) Bird Island Sanctuary Marine Conservation Area (Commonwealth of the Northern Mariana Islands)
7) Bunaken National Park (Indonesia)
8) Channel Islands National Marine Sanctuary (United States)
9) Far Eastern Nature Reserve (Russia)
10) Galápagos Marine Reserve (Ecuador)
11) Glover's Reef Marine Reserve (Belize)
12) Hinatuan Bay Marine Sanctuary (Philippines)
13) Hol Chan Marine Reserve (Belize)
14) Kepulauan Padaido Recreation Park (Indonesia)
15) Lenger Island Marine Protected Area (Federated States of Micronesia)
16) Mafia Island Marine Park (Tanzania)
17) Miramare – Golfo di Trieste Natural Marine Reserve (Italy)
18) Piti Bomb Holes Marine Preserve (Guam)
19) Saguenay-Saint-Laurent National Marine Conservation Area (Canada)
20) Sapodilla Cayes Marine Reserve (Belize)
21) Sian Ka’an Biosphere Reserve (Mexico)
22) Trao Reef Marine Reserve (Vietnam)
23) Tubbataha Reefs National Marine Park (Philippines)
24) Tumon Bay Marine Preserve (Guam)
Lessons to Consider:
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   - Community-based to central government-led
   - Small (<2 km²) to large (100,000+ km²) areas
Lessons to Consider:

2. NOAA Coral Program Intnl Grants

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- Total investment made (2002-2006) = $780K
- HIYMPAD evaluations funded at 69 coral reef MPAs across 14 countries (2002-2006)
- 64% of total investment (2002-2006) went to MPAs in Southeast Asia & the Pacific Islands
NOAA Coral Grants Made for MPA MEEs in Southeast Asia and the Pacific Islands, 2002-2006 (all figures in US$)

- Vanuatu: $16,000
- Vietnam: $23,250
- Palau: $23,250
- Malaysia: $26,667
- Fiji Islands: $69,000
- FSM: $70,000
- Philippines: $122,417
- Indonesia: $144,417
Lessons to Consider:
3. SE Asia and Pacific Island Review
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- US Pacific (Guam and Hawaii) evaluations
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- US Pacific (Guam and Hawaii) evaluations
- 31 respondents (managers) working at 40 MPAs in Southeast Asia and Pacific Islands
MPAs (n=40) where MEEs have been completed by respondents in Southeast Asia and the Pacific Islands, 2002-2006

Key:
- MPA
- Coral Reef
Lessons to Consider:
Site Findings (n = 93 MPAs)

- Evaluations average 10 - 11 mo. to complete
- Average evaluation cost $49K
- Average measurement of 3 biophysical, 4 socioeconomic, and 6 governance indicators
- Lack of socioeconomic indicator skills (77%)
- Empirical metrics are worth the cost
- Nearly all (94%) found HIYMPAD methodology “very useful” or “useful”
- Frequent (81%) suggestion to create regional management effectiveness efforts
Lessons to Consider:
Network Findings (n = 9 networks)

- HIYMPAD used as a tool to facilitate national system planning
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- HIYMPAD used as a tool to facilitate national system planning
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- Request for standardization of ‘core’ set of biological and social indicators
Commonly recommended ‘core’ set of standardized indicators

<table>
<thead>
<tr>
<th>Biophysical</th>
<th>Social</th>
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<tbody>
<tr>
<td>Focal species abundance</td>
<td>Local resource use patterns</td>
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<tr>
<td>Habitat distribution and complexity</td>
<td>Market conditions</td>
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<tr>
<td>Community composition</td>
<td>Level of resource conflict</td>
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<tr>
<td>Type and level of fishing effort</td>
<td>Level of public participation in management process</td>
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<td></td>
<td>Level of compliance</td>
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</tbody>
</table>
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Network Findings (n = 9 networks)

- HIYMPAD used as a tool to facilitate national system planning
- Evolution toward comparative analysis
- Request for standardization of ‘core’ set of biological and social indicators
- Interest & demand for network-level measures
Lessons to Consider:
Network Findings (n = 9 networks)

- HIYMPAD used as a tool to facilitate national system planning
- Evolution toward comparative analysis
- Request for standardization of ‘core’ set of biological and social indicators
- Interest & demand for network-level measures
- Easy-to-interpret, public-friendly presentation of multi-site/network results
### Management effectiveness and adaptive management for the system of Italian MPAs

<table>
<thead>
<tr>
<th>The biophysical indicators</th>
<th>Torre Guaceto</th>
<th>Sinis</th>
<th>Ciclopi</th>
<th>Secche di T. P.</th>
<th>Miramare</th>
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</thead>
<tbody>
<tr>
<td>Focal species abundance</td>
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<tr>
<td>Focal species population structure</td>
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<tr>
<td>Habitat distribution and complexity</td>
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<tr>
<td>Composition and structure of the community</td>
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<td>Recruitment success within the community</td>
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<td>Food web integrity</td>
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<tr>
<td>Type, level and return on fishing effort</td>
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<tr>
<td>Water quality</td>
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<tr>
<td>Area under no or reduced human impact</td>
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Presentation Outline

- Overview of the Guidebook
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- Recommendations
Recommendations

- Measure both system-wide and system-level
**Aggregated**

- System-wide (site-by-site) measures:
  1. Biophysical
  2. Socioeconomic
  3. Cultural
  4. Governance

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**Functional**

- System-level measures:
  1. Representativeness
  2. Resilience
  3. Redundancy
  4. Connectivity
  5. Permanence
  6. Viability

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*How Is Your MPA Doing (2004)*

*How Is Your Network Doing (2010?)*
Recommendations

- Measure both system-wide and system-level
- Use both **comparative** and **synthesis** analysis
Recommendations

Evaluations to date:

- Static evaluation at single site
- Time series comparative at single site
- Cross-site comparative (non-standardized)
Recommendations

- Current exploration:
  - Cross-site comparative (standardized)
  - Multi-site (synthesis) performance
  - System-wide (synthesis; aggregate) performance
Recommendations

Future:

- System-level (functional) performance
- Cross-regional comparative
- Cross-national comparative
Recommendations

- Measure both system-wide and system-level
- Use both comparative and synthesis analysis
- Identify and **standardize a limited, minimum set** of indicators; offer incentives to measure
Aggregated

System-wide (site-by-site) measures:
1. Biophysical
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Functional

System-level measures:
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Standardized 'core' set of national measures
Recommendations

- Measure both system-wide and system-level
- Use both comparative and synthesis analysis
- Identify and standardize a limited, minimum set of indicators; offer incentives to measure
- Develop simple, easy-to-interpret ‘status’ scale and index score
Status

- Outstanding
- Satisfactory
- Unsatisfactory

Index

0.92 = A-
0.78 = C+
0.53 = F
Recommendations

- Measure both system-wide and system-level
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- Identify and standardize a limited, minimum set of indicators; offer incentives to measure
- Develop simple, easy-to-interpret ‘status’ scale and index score
- Establish & support regional evaluation teams
Recommendations

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- Use both comparative and synthesis analysis
- Identify and standardize a limited, minimum set of indicators; offer incentives to measure
- Develop simple, easy-to-interpret ‘status’ scale and index score
- Establish & support regional evaluation teams
- Plan to meet needs for increased site-based socioeconomic measurement capacity
Thank you.

Mahalo nui loa.