Comanagement of U.S. Marine Protected Areas: Current efforts and their potential implications for seagrass management at Fishers Island, New York

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ACKNOWLEDGEMENTS

• The people of Fishers Island, Hāʻena, Catalina Island, and Naples/Marco Island
• The Henry L. Ferguson Museum
• The McCance Family & Foundation

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**Seagrass Benefits**

- **Shelter and nursery habitat** for fish, lobster, shrimp, bay scallops...
- **Food source** for birds, sea turtles...
- Blades **dampen wave action** and currents, trapping sediments
- Roots and rhizomes **stabilize sediments/reduce erosion**
- Extract nitrogen, generate oxygen, **improve water quality**
- **Sequester carbon**, help mitigate climate change impacts
90% LOSS of seagrass in Long Island Sound is detrimental to the ecosystem and to people.
Study Background

- 2006 NY Seagrass Task Force
  - Goal: maintain current seagrass acreage and increase 10% by 2020
  - #1 Recommendation: create special management areas

- 2012 NY Seagrass Protection Act
  Requires NY Department of Environmental Conservation (DEC) to:
  - designate Seagrass Management Areas (SMA),
  - develop SMA Management Plans, and,
  - consult with local stakeholders so as to effectively manage, protect and restore seagrass.

Source: [http://www.dec.ny.gov](http://www.dec.ny.gov)
Fishers Island

- 98% of seagrass habitat in NY waters of Long Island Sound
- Community committed to conservation and natural resource stewardship
- Capacity to self-organize and address local problems

NYS Department of Environmental Conservation (DEC)

- Required to consult with local stakeholders to manage, protect and restore seagrass
- SMAs place an additional burden on limited state resources
- Remote from Fishers Island - no local presence or direct access

Comanagement is recommended for protected area management.
(Lane 2001; Berkes 2009; Ayers and Kittinger 2014)
Definitions

“The *sharing* of power and responsibility …” (Berkes et al. 1991)

“A *partnership* in which... government and stakeholders negotiate... authority and responsibility for the management of a specific area or set of resources” (IUCN 1996)

“A *process* of collaborative, iterative, problem-solving” (Carlsson and Berkes 2005)
Origins in 19th century Norwegian and Japanese fisheries management (Berkes 2009; Pinkerton 1989)

Today, it provides an alternative to top-down, centralized management of coral reefs, mangroves, wetlands and protected areas - in addition to fisheries (Armitage et al. 2007).

- recognizes indigenous rights, local knowledge
- encourages best practices specific to place-based circumstances
- increases local buy-in and compliance
- decreases conflicts and mistrust
- increases learning/creative solutions
**UNDERSTANDING COMANAGEMENT**

### Types of Comanagement:

- **Consultative**
  - Government interacts with stakeholders
  - Government makes all decisions

- **Collaborative**
  - Government and stakeholders work together and make joint decisions

- **Delegated**
  - Government delegates decision-making authority to an organized group

### Phases of Comanagement:

- **Pre-Implementation**
  - Recognize need for change
  - Meet and discuss change
  - Develop new management

- **Implementation**
  - Try new management
  - Teach new way
  - Adjust as needed based on what works best

- **Post-Implementation**
  - Maintain best arrangement
  - Resolve conflicts and enforce
  - Accept new standard of practice

*Adapted from ICLARM and IFM 1998; Pomeroy et al. 1998*
3 case studies:

1. What **conditions enabled** or **challenged** the emergence of comanagement?

2. How have local community norms, values and knowledge contributed to **marine resource problem-solving**?

3. Can these experiences inform **options** for a **collaborative approach** to seagrass management at Fishers Island?
Methods

Mixed-method, qualitative, case-study approach
1. Document analysis
2. Key informant interviews (n=25)

Preconditions for Comanagement
(Plummer and Fitzgibbon, 2004)
1. Real or perceived crisis
2. Willingness of local users to contribute
3. Opportunity for negotiation
4. Legal mandate or brokered incentive
5. Leadership energy
6. Common vision or existing networks

Problem-Solving Function
(Carlsson and Berkes, 2005)
1. Define social-ecological system
2. Map problems to be solved and management tasks to be performed
3. Clarify management participants
4. Analyze linkages (i.e. practices, levels of decision-making)
5. Evaluate capacity-building needs
6. Prescribe remedies
Rookery Bay, Florida: Citizen Support Organization (CSO)

Social-Ecological System
- Urban-suburban communities
- 300,000 people; 3000+ visitors/day
- Sub-tropical mangrove-estuarine system (salt marsh, seagrasses, oyster bar habitats)

Marine Protected Areas
- 1969-75 Aquatic Preserve Resolution-Act
- 1969-78 Rookery Bay APs (2), NERR designated

Comanagement: consultative, implementation phase
Partners: Department of Environmental Protection/Friends of Rookery Bay CSO formed in 1987
Hāʻena, Hawaiʻi: Community-Based Subsistence Fishing Area (CBSFA)

Social-Ecological System
- Rural, coastal community on Kauaʻi
- ~430 people (98 Hawaiians); 2000 visitors/day
- Until 1960, ahupuaʻa customary mgmt.
- Tropical coral reef & lagoonal-estuarine system (*limu, Halophila hawaiiana*)

Marine Protected Areas
- 1994 original CBSFA legislation
- 2006 Hāʻena CBSFA designated (new legislation)
- 2014-15 Hāʻena CBSFA rules approved

Comanagement: collaborative, transitioning to implementation

Partners: *Hui Maka ʻāinana o Makana*, Department of Land & Natural Resources
Catalina Island, California: MPA Collaborative

Social-Ecological System
- Small town and remote village communities
- ~4000 year-round residents, 10,000+ summer and weekends
- Temperate rocky reef, intertidal, kelp forest, seamount systems

Marine Protected Areas
- 1999 Marine Life Protection Act
- 2012 Catalina MPAs designated (9 incl. 3 ASBS des. 1974)

Comanagement: consultative, elements of collaboration; pre-implementation
Partners: Dept. of Fish & Wildlife/Catalina Collaborative formed 2014
Fishers Island, New York

Social-Ecological System
- Small, island hamlet community
- ~240 people year-round residents, 3000+ seasonal residents/visitors
- Temperate, rocky-sandy shore & salt marsh-seagrass estuarine systems

Marine Designations (No MPAs)
- 1987 Significant State Coastal Fish and Wildlife Habitat
- 2005 Long Island Sound Stewardship Site
# Problem Solving Functions of Comanagement

<table>
<thead>
<tr>
<th>Case Study/Problems &amp; Sources</th>
<th>Rookery Bay, Florida (n=2)</th>
<th>Hā'ena, Hawai‘i (n=3)</th>
<th>Catalina Island, California (n=5)</th>
<th>Fishers Island, New York (n=15)</th>
<th>Case Study/Management Solutions &amp; Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Quality</strong></td>
<td>Wastewater</td>
<td>Fertilizer</td>
<td>Beach nourishment</td>
<td>Water Quality monitoring</td>
<td>1. Identify pollution sources &amp; alternatives needed</td>
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<td>Fresh water flows</td>
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<td>2. Promote alternatives (e.g. wastewater treatment, fertilizer use)</td>
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<td>Dredged material disposal</td>
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<td>3. Education and outreach to issue-based audiences (e.g. tour operators, boaters, developers)</td>
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<td>Marine debris</td>
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<td>4. Water quality monitoring</td>
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<td>1,2,3,4,5,6</td>
<td>1,4</td>
<td>4</td>
<td>4,6,7</td>
<td>5. Local government planning</td>
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<tr>
<td><strong>Recreational Misuse/Overuse</strong></td>
<td>Motorized vessels</td>
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<td>Concentrated tourism</td>
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<td>6. Advocacy</td>
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<td>Reef walking</td>
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<td>7. Cleanup events</td>
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<td>Windsurfing</td>
<td>3</td>
<td>8. Damage assessment/habitat restoration</td>
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<td>3,7,8,9</td>
<td>Fish feeding</td>
<td>9</td>
<td>9. On-the-water education/enforcement (e.g. Team Ocean, Harbor Patrol)</td>
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<tr>
<td><strong>Consumptive Misuse/Overuse</strong></td>
<td>Overharvesting</td>
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<td>Poaching</td>
<td>10</td>
<td>10. Clarify and develop consistent regional rules/regulations</td>
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<td>Ambiguous boundaries</td>
<td>11</td>
<td>11. Human use monitoring (e.g. Makai Watch, MPA Watch)</td>
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<td>3,11,15,16,18</td>
<td>3,11,12,15,16</td>
<td>3,10,11,15,16,18</td>
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<td>12. Signage/brochures</td>
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<td><strong>Encroaching Development</strong></td>
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<td>13. Review/amend permitting (e.g. moorings, docks)</td>
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<td>14</td>
<td>14. Access planning/management</td>
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<td>15</td>
<td>15. Enable local management to build buy-in/compliance</td>
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<td><strong>Protected Species Issues</strong></td>
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<td>16</td>
<td>16. Enforcement</td>
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<td>People/pets on beach</td>
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<td>17</td>
<td>17. Physical boundary markers</td>
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<td>People harassing wildlife in the water</td>
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<td>18</td>
<td>18. Designate special management areas (e.g. opīhi, lobster)</td>
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<td>3,8,20,21,12</td>
<td>3,12,16</td>
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<td>19</td>
<td>19. Land acquisition</td>
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<tr>
<td><strong>Invasive Species</strong></td>
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<td>20</td>
<td>20. Physical protection (e.g. nest cages with signage)</td>
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<td></td>
<td>Boating</td>
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<td>21</td>
<td>21. Wildlife monitoring</td>
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<td><strong>Climate Change</strong></td>
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<td>22</td>
<td>22. Amend laws/adaptive management (e.g. MLPA to allow take of invasive species, citations in lieu of misdemeanors)</td>
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<td>Bigger storms/seawall construction</td>
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<td>23</td>
<td>23. Coastal habitat protection (e.g. salt marsh, seagrass)</td>
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<td><strong>Governance</strong></td>
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<td>24</td>
<td>24. Leadership development/direction</td>
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<td>Centralized gov’t decisions</td>
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<td>25</td>
<td>25. Training (e.g. communication, conflict resolution)</td>
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<td>Changing administrations</td>
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<td>26</td>
<td>26. External facilitation/support (e.g. NGOs)</td>
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<td>State agency division silos</td>
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<td>27</td>
<td>27. Community-based strategic planning, fundraising, membership, staffing</td>
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<td></td>
<td>Inadequate state capacity (funds, travel, local staff)</td>
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<td>28</td>
<td>28. Develop innovative partnerships/funding</td>
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<td></td>
<td>Conflicting state laws</td>
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<td>29</td>
<td>29. Decentralize management/increase local decision input</td>
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<td></td>
<td>Apathy, delays, mistrust, conflicts</td>
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<td>30</td>
<td>30. Clarify partnership roles, responsibilities, expectations</td>
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<td>Limited community capacity/volunteer reliance</td>
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<td>31</td>
<td>31. Anonymous violation reporting (e.g. CALTIP)</td>
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<td>Misaligned expectations</td>
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<td>32. Disregard for regulations</td>
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<td>33. Inadequate state capacity (funds, travel, local staff)</td>
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<td>3,6,24,25,26,27,28</td>
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<td>34. Changing administrations</td>
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<td>35. State agency division silos</td>
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<td>36. Inadequate state capacity (funds, travel, local staff)</td>
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<td>37. Conflicting state laws</td>
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<td>38. Apathy, delays, mistrust, conflicts</td>
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<td>40. Misaligned expectations</td>
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<td>41. Disregard for regulations</td>
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</tbody>
</table>

**PROBLEM PRESENT**

**PROBLEM UNSPECIFIED**
### Preconditions for Comanagement

<table>
<thead>
<tr>
<th>Case Study/Precondition</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Crisis</td>
<td>Driver was capacity need</td>
<td>Declining fisheries</td>
<td>Driver was capacity need</td>
<td>Seagrass crisis not perceived locally</td>
</tr>
<tr>
<td>2. Willingness to Contribute</td>
<td>• Connection to place</td>
<td>• Connection to place</td>
<td>• Uniqueness of place</td>
<td>• Connection to place</td>
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<td></td>
<td>• Experience self-organizing</td>
<td>• Cultural values</td>
<td>• Access to resources</td>
<td>• Experience self-organizing</td>
</tr>
<tr>
<td>3. Opportunity for Negotiation</td>
<td>CSO-State agreement required by law</td>
<td>HI law required, DLNR did not act</td>
<td>MPA Partnership Plan</td>
<td>NY law requires consultation</td>
</tr>
<tr>
<td>4. Legal Mandate or Brokered Incentive</td>
<td>Brokered Incentive (enabled by FL law)</td>
<td>Legal Mandate (to collaborate)</td>
<td>Brokered Incentive (to build capacity)</td>
<td>Legal Mandate (to consult)</td>
</tr>
<tr>
<td>5. Leadership Energy</td>
<td>State employee &amp; teachers</td>
<td>Hawaiian families &amp; other locals</td>
<td>Linked to related job objectives/external network</td>
<td>General conservation, not specific to SMA</td>
</tr>
<tr>
<td>6. Common Vision or Existing Networks</td>
<td>• Local State &amp; CSO share MPA vision</td>
<td>• Moving toward shared MPA vision</td>
<td>• Moving toward shared MPA vision</td>
<td>• Common vision to preserve resources</td>
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<td></td>
<td>• Networks exist</td>
<td>• Networks exist</td>
<td>• Networks exist</td>
<td>• Networks exist</td>
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</tbody>
</table>
Conditions for MPA Comanagement
- Connection to place
- Capacity “crisis”
- Government willingness to partner
- Clear and just process

Recommendations to Strengthen MPA Comanagement
- Community-based human use monitoring
- Create practitioner networks
- Liaison support for partners
- Flexibility for adaptive comanagement
- Promote a local knowledge ‘paradigm shift’
Fishers Island Community: Seagrass Associations
Fishers Island Community: Hopes for SMA
FISHERS ISLAND COMMUNITY: CONCERNS ABOUT SMA

- DEC take over
- management from the top
- limited manpower
- changes my world
- reactionary
- crushes economic prospects
- Long Island doesn’t know us
- businesses crushed in process
- rules and regulations don’t relate here
- lose local stewardship
- government telling us how to manage our backyard
- no transparency
- government unable to service new regulations
- wide sweeping mandates
- impact local businesses
- island discriminated against
- no local venue
- outsiders decide
- how will it work
- lack of enforcement
- no state budget
## Collaborative Management Options: 3 Possibilities

<table>
<thead>
<tr>
<th>Consultative</th>
<th>Collaborative</th>
<th>Delegated</th>
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</thead>
<tbody>
<tr>
<td><strong>NY DEC:</strong></td>
<td><strong>NY DEC and Fishers Island community jointly develop ecological or social information needed to inform the SMA process</strong></td>
<td><strong>Fishers Island group or its designee:</strong></td>
</tr>
<tr>
<td>• develops SMA process</td>
<td></td>
<td>• develops SMA process</td>
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<tr>
<td>• provides information</td>
<td></td>
<td>• gathers information with input from NY DEC</td>
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<tr>
<td>• seeks input from Fishers Island community</td>
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<tr>
<td><strong>NY DEC is responsible for:</strong></td>
<td><strong>NY DEC and Fishers Island community work together to:</strong></td>
<td><strong>Fishers Island group or its designee is responsible for:</strong></td>
</tr>
<tr>
<td>• identifying SMA locations</td>
<td>• identify SMA locations</td>
<td>• identifying SMA locations</td>
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<tr>
<td>• developing management plan</td>
<td>• develop management plan</td>
<td>• developing management plan</td>
</tr>
<tr>
<td>• management tasks</td>
<td>• share management tasks</td>
<td>• management tasks</td>
</tr>
<tr>
<td><strong>NY DEC makes all mgmt. decisions</strong></td>
<td><strong>Decision-making is shared by NY DEC/Fishers Island community</strong></td>
<td><strong>NY DEC devolves authority to an organized group of Island stakeholders that accepts decision-making responsibility</strong></td>
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</table>
“We ultimately have to rely on public and private sector partnerships and these coastal communities because they are the users of these resources. They are the folks that are making decisions that have influence within the Reserve.”

- State manager, Florida

“At the end of it all, there are a thousand reasons why we need to take care of our marine resources. These are people of the place. I think that's what it’s all about.”

- Community member, Hawai‘i

Questions?

Contact Chantal Collier at ccollier@tnc.org

Complete study available at:
http://hdl.handle.net/10161/11884