Marine Protected Area Monitoring and Management
Draft Syllabus

Location: Beaufort, Duke Marine Lab,
Time: 9am-12pm

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Dates
Spring 2018, Block C Mar 18– Apr 10

Synopsis
An interdisciplinary course that addresses concepts, issues, and approaches relevant to marine protected areas (MPAs) and their impacts on marine ecosystems and coastal people. MPAs are socioecological systems, comprising of actors, governance systems, resources, and resource systems (Ostrom 2009 Science). Thus, any assessment of MPA management and performance will require an understanding of both the social and ecological processes that shape and are shaped by MPA outcomes.

While not exhaustive, the course revolves around three key themes: 1) the emergence, design, and management of MPAs; 2) monitoring and measuring MPA socioecological impacts, and; 3) contextual factors that shape MPA implementation and impacts. With a focus on sensitive marine ecosystems (e.g. coral reefs, mangroves) and resource dependent communities (e.g. fishing and tourism), the course will cover concepts such as impact evaluation, ecological responses to protection, social equity, and socioecological fit. They will also be introduced to methodological approaches such as causal inference, quasi-experimental design and natural experiments.

Course Structure
The students will primarily engage with the course material through: group discussions, problem sets (e.g. “How can I tell my MPA working?”; “What should I consider when establishing a new MPA?”), as well as through lecture materials.

Learning Outcomes
By the end of this course, you should be able to:
• explain and discuss current concepts, issues, and approaches used to design, manage, and monitor marine protected areas including ecological responses to protection, equity, and socioecological fit
• use the concepts of causal inference to critically evaluate evidence on MPA outcomes as reported in primary or secondary literature
• collaborate with other students from different disciplinary backgrounds to apply concepts and approaches learned in the course to real-world scenarios

Course Assignments and Grading
Daily participation and group discussion: 25%
Individual short paper & presentation: 20%
Group problem-set assignments:
• Assignment 1: 15%
• Assignment 2: 20%
• Assignment 3: 20%

Course Outline
1. History and growth of MPAs
2. MPA typologies:
   o What is an MPA?
   o Classifying/sorting MPAs
   o Specific types of MPAs
     o LMPAs, ABNJs (Dunn, Campbell, Acton?)
3. MPA design and implementation
   o Step One: design
   o Step Two: Who, what, where, when, how, why
   o Step-Zero: Motivation for establishment
4. MPA management
   o Management and governance
   o Management performance (preview with MPA manager?)
5. MPA outcomes (Mascia et al 2017)
   o Social
   o Ecological (genetic, population, community)
   o Distribution: Synergies, tradeoffs, equity
   o Cascading effects
   o Intended and unintended consequences
6. MPA Monitoring and evaluation
   o Types of M&E
   o Status vs trends vs impacts
   o MPA impact evaluation
     ▪ Casual inference
   o Other impact assessments
     ▪ Social impact assessment (Murray?)
7. MPA fit- Right tool?
   o Local context: SES
     ▪ Social and cultural
Course Materials
The majority of the course material will be from scientific articles, providing students an opportunity to review and evaluate primary literature. Examples of other readings include:


Skill development
- Application of concepts and knowledge to real world scenarios
- Critical thinking & Problem solving
  o Causal inference
- Collaboration across skillsets, disciplines
- Sustained inquiry/synthesis