Making the Right Connections: Integrating Marine Science and Management at Local Scales

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Program Scope is on the Central Coast of California
Ecosystem Services
- Energy (cooling)
- Oyster production
- Harbor
  - Commercial fleet
  - Recreational boaters
- Storm protection
- Nutrient processing
  - Sewer/Septic
  - Agriculture
- Recreation
  - Fishing
  - Kayaking
  - Wildlife watching
  - Hunting
- Education

Jurisdictions
- All levels of government
- Multiple agencies
  - DFG, NOAA, RWQCB, CDHS, State Parks, USFWS
SLOSEA Integrates Sectors, Jurisdictions and Communities
SLOSEA Process for Marine EBM

**SLOSEA**

**Ecosystem-Based Approach to Management**

- **Integrated, Cross Jurisdictional Planning Processes**
  - Define Conservation Targets
  - Define Ecosystem Objectives
  - Develop Strategies
  - Establish Indicators

- **Research and Policy Activities**
  - Evaluate Existing Science and Policy
  - Implement User Driven Research
  - Discuss Tradeoffs
  - Consider Resiliency and Cumulative Impacts

- **Evaluation Effectiveness and Alter Actions**
  - Track Policy and Conservation Indicators
  - Log Conservation Results
  - Adaptively Manage through Iterative Cycles

- **Management, Research, and Policy Actions**
  - Seek Integrated Change to Regulations and Policy
  - Conduct Monitoring and Additional User Driven Research

- **Management Action Memos**
  - Integrated Governance and Policy Solutions
  - Recommend Management Changes
  - Educate/Activate Public

- **Red Text Fundamental to EBM**
SLOSEA Recognized by the Joint Ocean Commission Initiative

We appreciate your continued work and commitment to advance the recommendations of the CBOC: Commissioners on Ocean Policy and the Joint Ocean Commission Initiative. A report from you could help us ensure that the oceans within our state, counties and larger coastal communities are healthy ocean resources for generations to come.

Sincerely,

[Signatures]

We recommend the following leaders for their outstanding contributions to the health of our oceans:

[Signatures]

One Coast, One Future
Securing the Health of West Coast Ecosystems and Economies

Recommendations to Local and State Leaders from the Joint Ocean Commission Initiative
• Address Key Pollutant Sources and Impacts
• Build Data and Framework for Regional Fisheries Management
• Characterize Climate Change Effects and Prioritize Local Actions
• Guide Appropriate Levels of Human Access
• Identify, Detect, and Control Marine Invasive
Build Data and Framework for Regional Fisheries Management

Courtesy of Don Maruska
California’s Landmark Legislation Requires Significant Amounts Data to be Fully Implemented

**Marine Life Management Act (MLMA)**
- Highlights need for regional management
  - heterogeneity of stocks
  - uneven distribution of fishing
- Requires fisheries management plans
- Marine protected areas should be incorporated into fisheries management

**Marine Life Protection Act (MLPA)**
- Requires monitoring
- Adaptively managed
Goal: State-wide protocols for stock assessment and MPA monitoring utilizing fishermen knowledge and fishing expertise

- Synchronous monitoring program over a broad geographic scale
- Standardized protocols across the entire geographic scale
- Long term sampling for many years to develop data sets useful to regional fisheries management
MLPA provides the framework to accomplish our program goals.

Mandated monitoring of MPAs can simultaneously be used to
1) evaluate impact of MPAs
2) more fully implement MLMA
Multiple workshops on the central coast included fishermen, fisheries scientists, NGO’s, city officials, resource managers.

- NOAA Fisheries, CDFG
- Met with approximately 60 fishermen, both recreational and commercial
Each Partner Contributes Their Expertise

Scientists’ Contribution:
• Statistical model
• Data to be collected
• Sampling frequency
• Modeling

Fishermen’s Contribution:
• Stratified sampling area
• Developed custom fixed gear
• Developed baiting and tackle protocols
• Contributing fishing expertise
Sampling Summary of 2007-2010

• Captured, identified, measured, tagged and released over 30,000 fish representing 42 species

• Utilized the fishing expertise of over 500 separate volunteer anglers for >3,500 angler-hours of fishing

• 10 different skippers and their crews on commercial passenger fishing vessels

• Six commercial trap fishermen

• Four different fishing communities (Half Moon Bay, Monterey Bay, Morro Bay, Port San Luis)
Understanding of Changes in Ocean Resources

Average Size of Blue Rockfish Inside and Outside Central Coast MPAs

Blue Rockfish

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<tr>
<th>Año Nuevo</th>
<th>Point Lobos</th>
<th>Piedras Blancas</th>
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Graph showing the average size of Blue Rockfish from 2007 to 2010 inside and outside Central Coast MPAs.
Understanding of Changes in Ocean Resources

Combined Catch Rates for Nearshore inside and outside Central Coast MPAs
Our Approach Expanded and Includes Deeper Partnerships

Moving Forward…Integrating MLPA and MLMA

1) Continued implementation of protocols for ongoing data collection

2) Evaluation traditional stock assessment as compared to data-limited approaches for setting catch levels
   1) MPA based
   2) Length based
   3) Simple stock synthesis
   4) FLEP

3) Management Strategy Evaluation to examine performance over time including Bio-economic modeling

Rick Starr, MLML
Management Success and Challenges

Successes
✓ Significant involvement by stakeholders in management and policy
✓ Enabling state implement EBM aspects of existing legislation
✓ Collaboration across societal sectors and academic disciplines
✓ Use of local ecological knowledge

Challenges
✓ Difficult to manage using EBM approach even though existing legislation calls for EBM approaches
✓ Outside entities have to become part of the agency processes
✓ Collaboration
Coastal Communities Need Boundary Organizations

SLOSEA Strives To:

• integrate activities of scientists, managers, stakeholders, and public officials;

• Where possible examine tradeoffs and cumulative impacts by linking knowledge to action;

• focus on management needs that are tractable and substantial;

• cause participants to question their understanding and knowledge;

• develop shared understanding of resources through value learning
• California and Coastal Marine Initiative of the Resources Legacy Fund Foundation
• California Coastal Conservancy/Ocean Protection Council
• California Polytechnic State University
• California Sea Grant
• Campbell Foundation
• David and Lucile Packard Foundation
• The Morro Bay National Estuary Program
• NOAA Fisheries