



Marine Life Protection Act Initiative



Preliminary Proposal Evaluations Related to MLPA Goals 1 & 4 – North Central Coast Study Region

**Presentation to the MLPA Blue Ribbon Task Force
November 19, 2007 • San Rafael, CA
Prepared by Dr. Mark Carr**



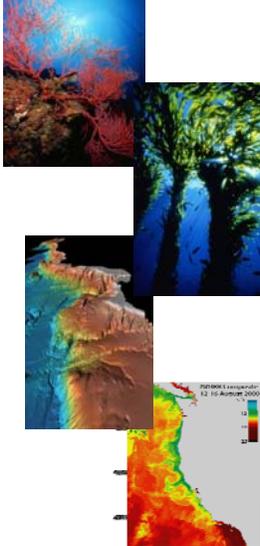
Master Plan Science Advisory Team

-  MLPA goals
-  Science guidelines for MPA design
-  Evaluation of preliminary proposals

MLPA Goals - Habitats



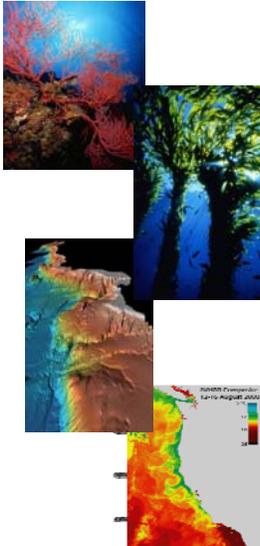
1. To protect the natural diversity and function of **marine ecosystems**.
2. To help sustain and restore **marine life populations**.
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance.
4. To protect representative and unique **marine life habitats**.
5. Clear objectives, effective management, adequate enforcement, sound science.
6. To ensure that MPAs are designed and managed as a **network**.



MLPA Goals - Habitats



1. To protect the natural diversity and function of **marine ecosystems**.
2. To help sustain and restore **marine life populations**.
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance.
4. To protect representative and unique **marine life habitats**.
5. Clear objectives, effective management, adequate enforcement, sound science.
6. To ensure that MPAs are designed and managed as a **network**.





SAT Guidelines - Goals 1 and 4

MLPA Goals:

- 1) *Protect natural diversity and function of marine ecosystems*
- 4) *Protect representative and unique marine life habitats*

SAT Approach

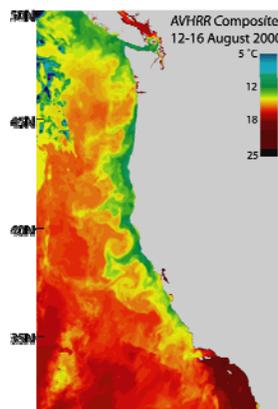
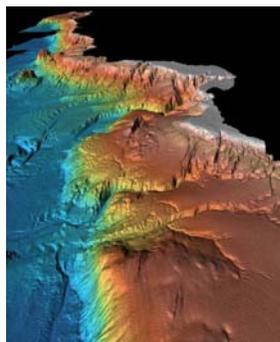
-  Refined key habitats for north central coast
-  Defined biogeographic subregions
-  Refined and described level of protection designations
-  Evaluated habitat representation in MPAs



SAT Guidelines - Goals 1 and 4

Identified Key Habitats Using:

- Bottom Type and Depth Categories
- Biogenic Habitats
- Oceanographic Features



SAT Guidelines - Goals 1 and 4

Key Marine Habitats

Seafloor Habitats

- Rocky reefs
- Intertidal zones
- Sandy or soft ocean bottoms
- Underwater pinnacles
- Submarine canyons

Depth Zones

- Intertidal
- Intertidal to 30 meters
- 30 to 100 meters
- 100 to 200 meters
- 200 meters and deeper

Biogenic Habitats

- Kelp forests
- Seagrass beds

Oceanographic Habitats

- Upwelling areas
- Freshwater plumes
- Retention zones

SAT Guidelines - Goals 1 and 4

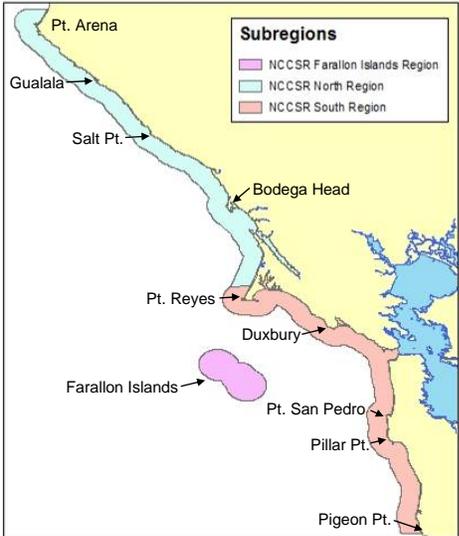
Used GIS to Locate Habitats

Identified geographic distribution

Estimated area of each habitat type for study area and subregions

Estimated area or linear extent of habitat in each MPA

SAT Guidelines - Goals 1 and 4



Three subregions

- North (Point Reyes – Point Arena)
- South (Pigeon Point to Point Reyes)
- Farallon Islands

Based upon

- Species and community distributions
- Geomorphology
- Oceanography

SAT Guidelines – Levels of Protection

Designated levels of protection based on potential impacts of proposed activities

-  **direct impacts**
 - habitat damage
 - incidental removal or mortality of non-target species
-  **indirect impacts**
 - potential ecosystem effects caused by removing target or associated catch species



SAT Guidelines – Levels of Protection

The Question:

“Would there be a difference between ecosystems within an MPA that prohibits take of this species versus an area outside of the MPA where take is allowed?”

<p>Yes if:</p> <ul style="list-style-type: none">  habitat is damaged  many species are removed  removed species play an important role in the resident ecosystem (predator, prey, competitor etc.) 	<p>No if:</p> <ul style="list-style-type: none">  no habitat damage  little associated catch  species removed are highly mobile so MPAs won't change local abundance
--	---



SAT Guidelines - Goals 1 and 4

Level of Protection	MPA Types	Activities associated with this protection level
Very high	SMR	No take
High	SMCA	salmon (troll H&L in water greater than 50m depth), sardine, anchovy, and herring (pelagic seine)
Mod-high	SMCA	salmon (troll H&L in water less than 50m depth), Dungeness crab (traps/pots), squid (pelagic seine)
Moderate	SMCA SMP	salmon (non-troll H&L), abalone (diving), halibut, white seabass, shore-based finfish and flatfishes (H&L), clams (hand harvest), giant kelp (hand harvest)
Low-mod	SMCA SMP	Urchin (diving), lingcod, cabezon, greenling, rockfish, and other reef fish (H&L), surfperches (H&L)
Low	SMCA SMP	bull kelp and mussels (any method), all trawling, giant kelp (mechanical harvest)

SMCA = state marine conservation area SMP = state marine park SMR = state marine reserve



Evaluation – Goals 1 and 4

Key Questions for Each Proposed Package

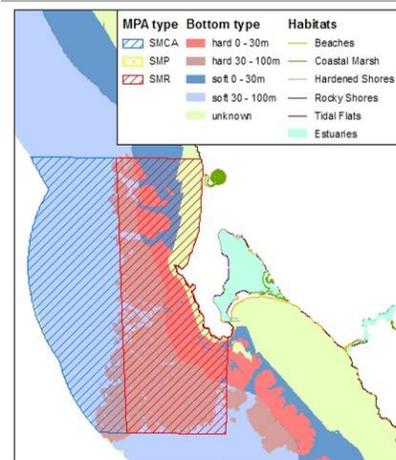
1. How Well are Key Habitat Types Represented in Proposed MPA Packages?
2. What are the Proposed Levels of Protection for these Habitat Types?
3. How Well are Habitats and Levels of Protection Distributed Across the Study Region?



Results: Habitat Representation

Similarities between proposals

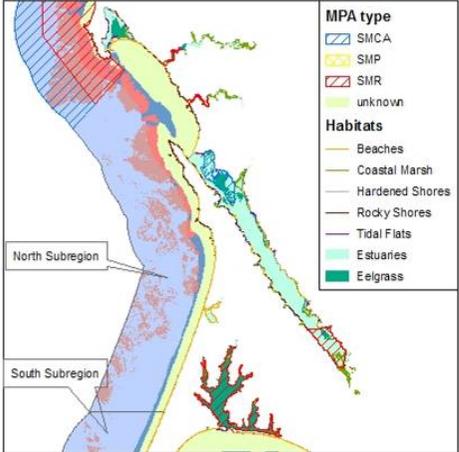
-  similarities in number, size and location of MPAs as well as the habitats they include
-  clusters of MPAs with an inshore SMR and offshore SMCA that allows various fishing activities
-  shoreline and shallow habitats are generally well represented in very high protection MPAs
-  many MPAs located in rocky reef habitat



Results: Habitat Representation

Similarities between proposals

-  estuarine habitats are generally well represented in very high protection MPAs
-  most proposals protected more of these habitats in the south subregion (Drakes Estero)
-  only two proposals specifically targeted large proportions of estuarine habitats in the north subregion (EA & EB)



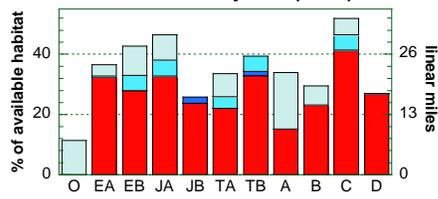
Results: Habitat Representation

Shallow Bottom Habitats

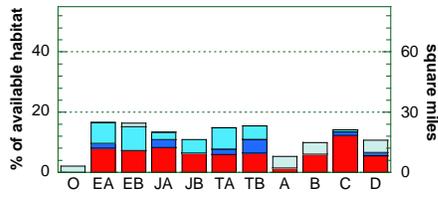
Proposals target shallow rocky reef, especially in north subregion

The lower proportion of shallow soft bottom included in MPAs reflects, in part, the large available area of this habitat

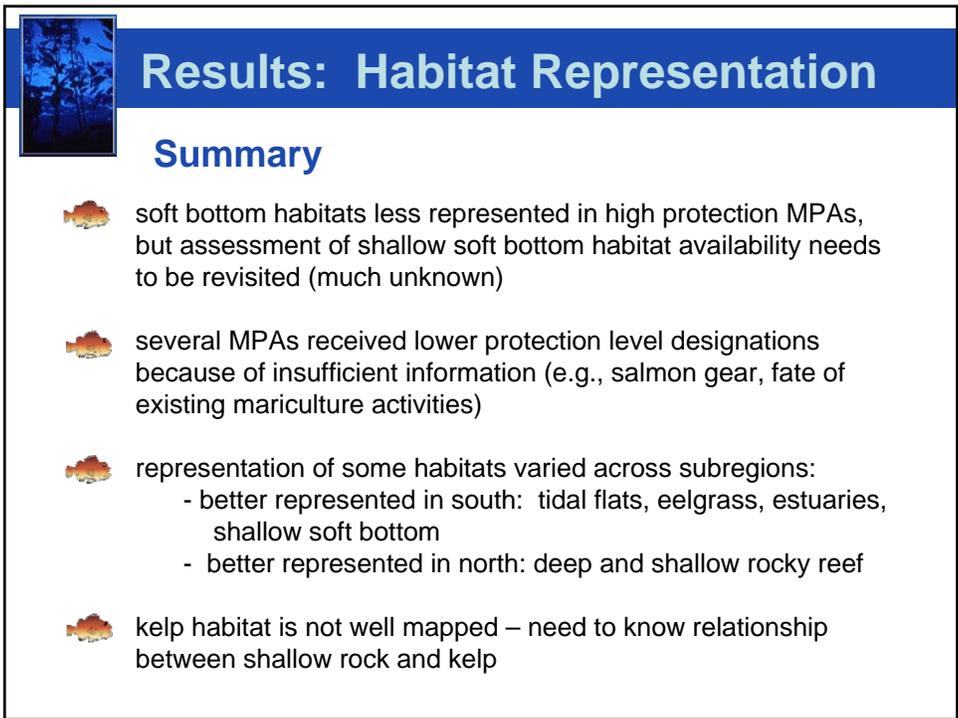
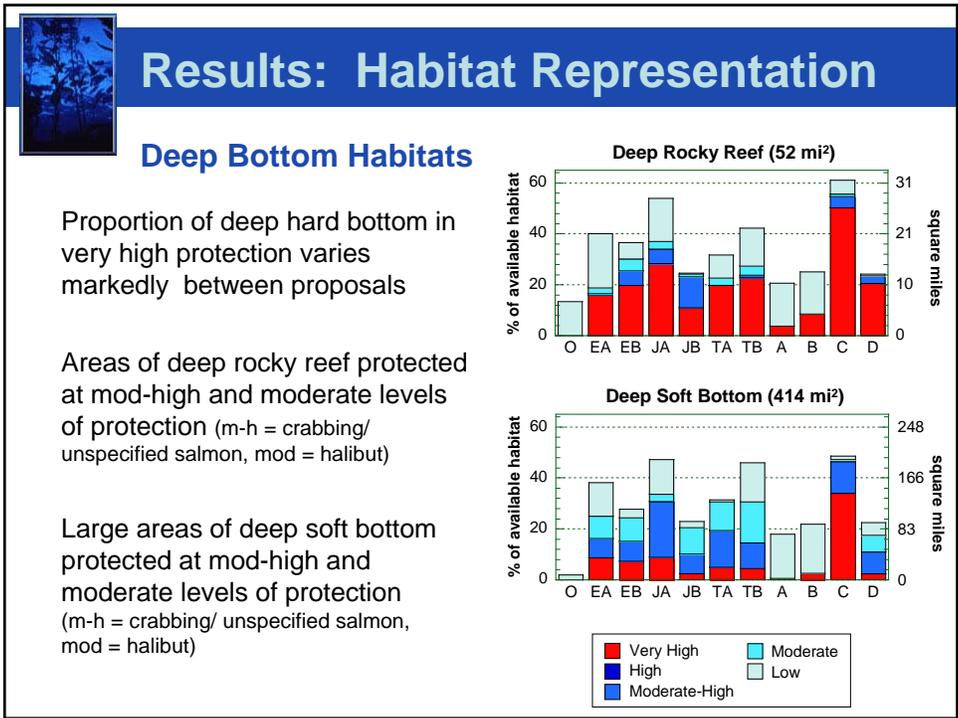
Shallow Rocky Reef (67 mi)



Shallow Soft Bottom (149 mi²)



■	Very High	■	Moderate
■	High	■	Moderate-High
■	Low		





SAT Evaluation Process

Based on MLPA Goals and Master Plan Guidelines

