

Marine Life Protection Act Initiative

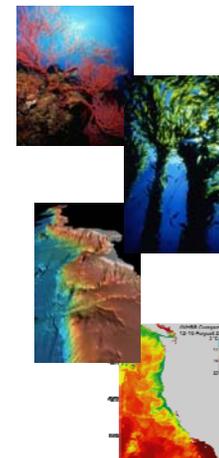


Draft Habitat Evaluations of the Round 1 Draft MPA Arrays/Proposals for the MLPA South Coast Study Region

Presentation to the MLPA Master Plan Science Advisory Team
April 1, 2009 • Los Angeles, CA
Presented by Dr. Mark Carr

MLPA Goals*

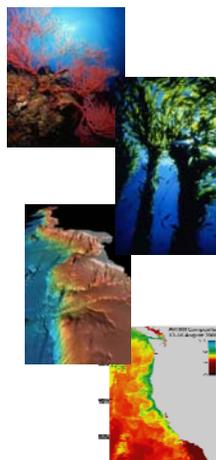
1. To protect the natural diversity and function of **marine ecosystems**.
2. To help sustain and restore **marine life populations**.
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance.
4. To protect representative and unique **marine life habitats**.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



* Note that this language represents a summary of the MLPA goals

MLPA Goals*: Populations

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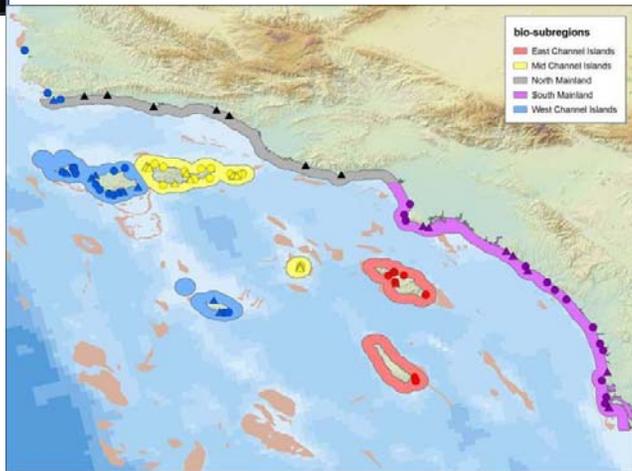
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Evaluation: Habitats

Key Questions for Each Draft Array/Proposal

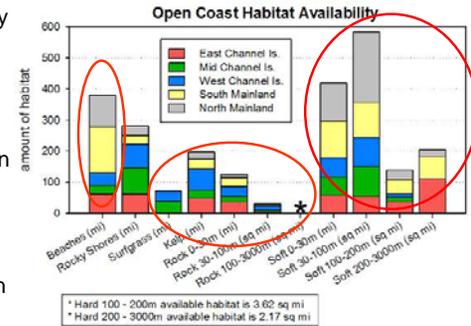
1. How well are key habitat types represented in draft MPA arrays/proposals?
2. What are the proposed levels of protection for these habitat types?
3. How well are habitats and levels of protection distributed across the study region?

South Coast Evaluation Bioregions



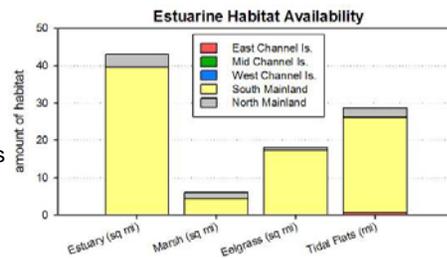
Results: Habitat Availability

- Soft bottom habitats are very abundant across the study region, especially on the mainland
- Rocky habitats are more abundant on the islands than the mainland
- Deep rock (>100 meters) is rare
- Surfgrass is only mapped on the west and mid islands



Results: Habitat Availability

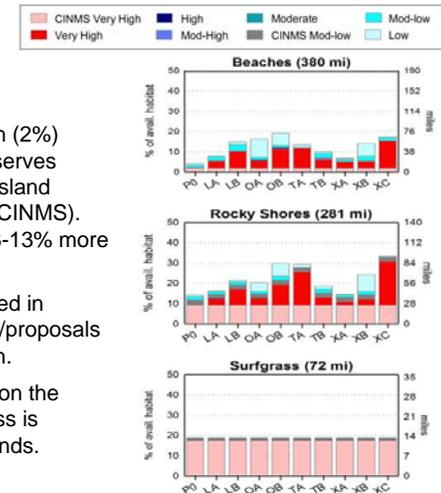
- Estuarine habitats occur almost exclusively on the mainland
- The south mainland bioregion contains the majority of estuarine habitats
- The "estuaries" layer includes harbors
- Eelgrass represented here does not include open-coast eelgrass



Results: Habitat Representation

Shoreline Habitats

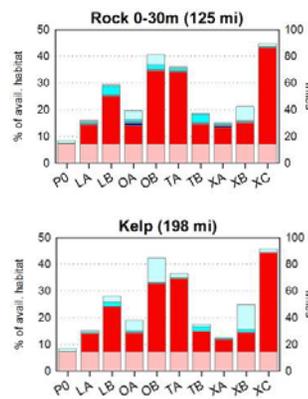
- A small amount sandy beach (2%) protected in state marine reserves (SMRs) within the Channel Island National Marine Sanctuary (CINMS). Draft arrays/proposals add 3-13% more at very high LOP.
- 10% of rocky shores protected in SMRs within CINMS. Arrays/proposals add 2-22% more at very high.
- Surfgrass is poorly mapped on the mainland. All known surfgrass is protected in the channel islands.



Results: Habitat Representation

Nearshore Rock & Kelp

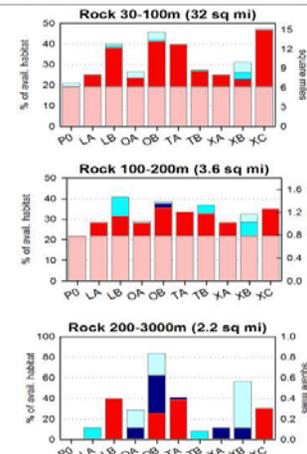
- A high proportion of protected areas are in SMRs
- 7% of shallow 0-30m rock is protected in SMRs within CINMS; draft arrays/proposals add 6-36% more in very high protection
- 7% of kelp is protected in SMRs within CINMS; draft arrays/proposals add 5-37% more in very high protection
- Protection of kelp closely mirrors protection of shallow rock
- Values for 0-30 meter rock may change with new substrate proxy line



Results: Habitat Representation

Deep Rocky Reef

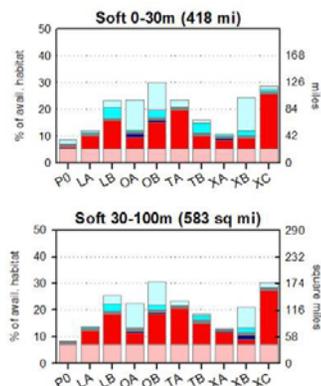
- 19% of 30-100 meter rock is protected in SMRs within CINMS; arrays/proposals add 3-27% more at very high protection
- 22% of 100-200 meter rock is protected in SMRs within CINMS; arrays/proposals add 0-13% more at very high protection
- No 200-3000 meter rock is protected in SMRs within CINMS; arrays/proposals add 0-40% in very high protection
- All of these deeper rock habitats are comparatively rare



Results: Habitat Representation

Shallow Soft Bottom Habitats

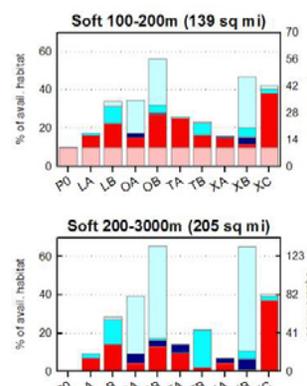
- Shallow soft bottom habitats are very abundant across the study region – small percentages correspond to large areas
- 5% of 0-30 meter soft bottom protected in SMRs within CINMS; draft arrays/proposals add 3-20% more in very high protection
- 7% of 30-100 meter soft bottom protected in SMRs within CINMS; draft arrays/proposals add 2-20% more in very high protection



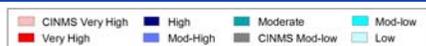
Results: Habitat Representation

Deep Soft Bottom Habitats

- Deep soft bottom habitats are abundant across the study region – small percentages correspond to large areas
- 10% of 100-200 meter soft bottom protected in SMRs within CINMS; arrays/proposals add 2-28% more in very high protection
- 1% of 200-3000 meter soft bottom protected in SMRs within CINMS; arrays/proposals add 0-36% more in very high protection
- Soft bottom deeper than 200 meter is associated with canyons on mainland; otherwise at East Channel Islands

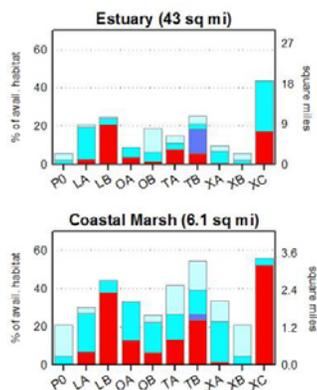


Results: Habitat Representation



Estuarine Habitats

- Estuarine habitats almost exclusively on the mainland
- Estuary = any enclosed water body, including breakwaters
- 0-21% of estuarine habitat at very high protection
- 0-52% of coastal marsh at very high protection

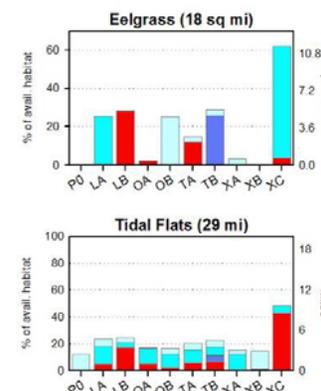


Results: Habitat Representation



Estuarine Habitats

- Eelgrass is mapped in only a handful of estuaries, most area in San Diego Bay
- Patchy distribution of eelgrass among estuaries leads to high variability across draft arrays/proposals
- 0-28% of eelgrass at very high protection
- Tidal flats are not well mapped
- 0-43% of tidal flats at very high protection



Results: Habitat Representation

Summary

- Highly variable representation of all habitats across proposals in this first round
- Some of this variation was intentional on the part of stakeholders – each work group explored a range of options to receive feedback from the science team
- Pending changes in habitat analyses (substrate layers) may change levels of habitat representation

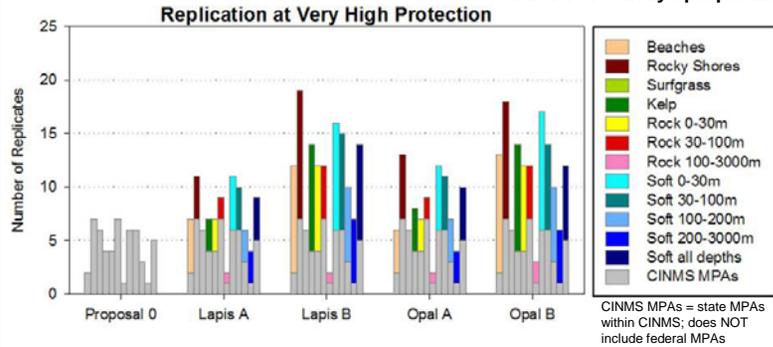
Methods: Habitat Replication

Guidelines for replication:

- 3-5 replicates of habitat per biogeographic region (i.e., the study region)
- MPA or cluster must meet the minimum size guidelines (9 square miles)
- Habitat must meet the threshold identified to encompass 90% of biodiversity in that habitat type
- Estuarine MPAs do not have to meet size guidelines but must contain at least 0.12 square miles of estuarine habitat

Replication: Very High Protection

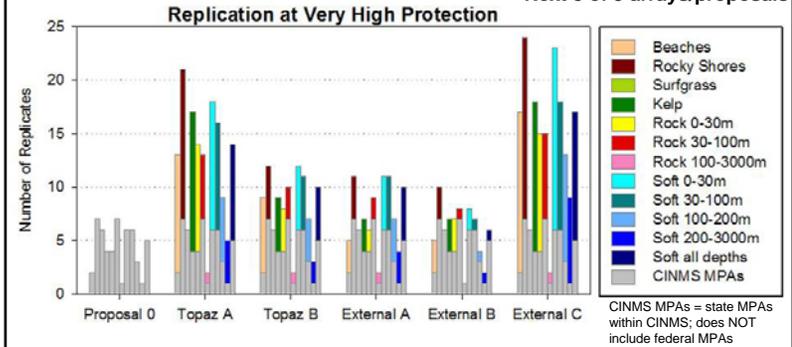
First 4 of 9 arrays/proposals



- No surfgrass replication because poorly mapped
- Deep rock (100-3000 meters) is very sparse and hard to achieve minimum area
- Deep soft (200-3000 meters) is restricted to southern mainland canyons and ECI
- Otherwise, most habitats meet replication guidelines

Replication: Very High Protection

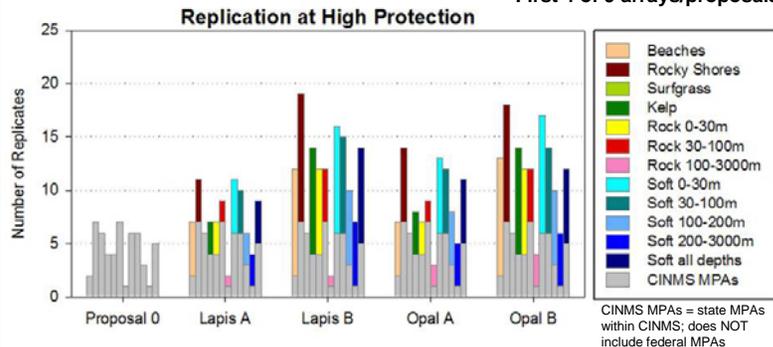
Next 5 of 9 arrays/proposals



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Replication: High Protection

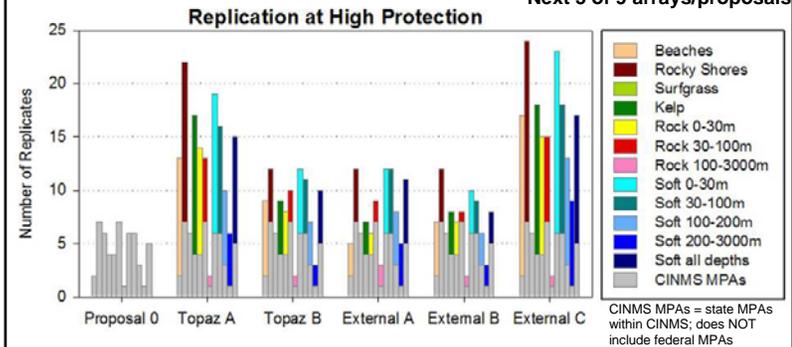
First 4 of 9 arrays/proposals



- No change in levels of replication of some (Lapis) and added to others (Opal)

Replication: High Protection

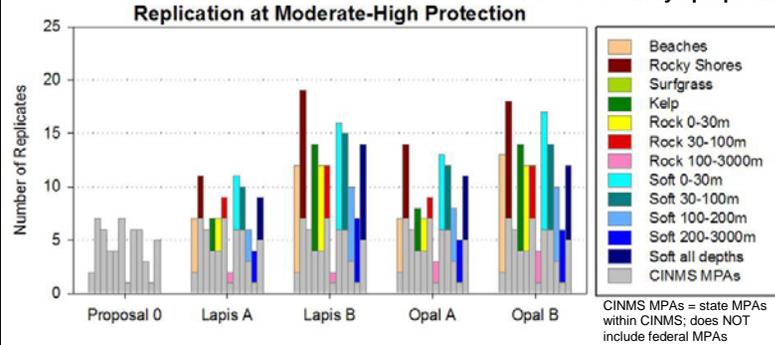
Next 5 of 9 arrays/proposals



- No change in levels of replication of some (Topaz A, External C) and added to others (Topaz B, External A and External B)

Replication: Mod-high Protection

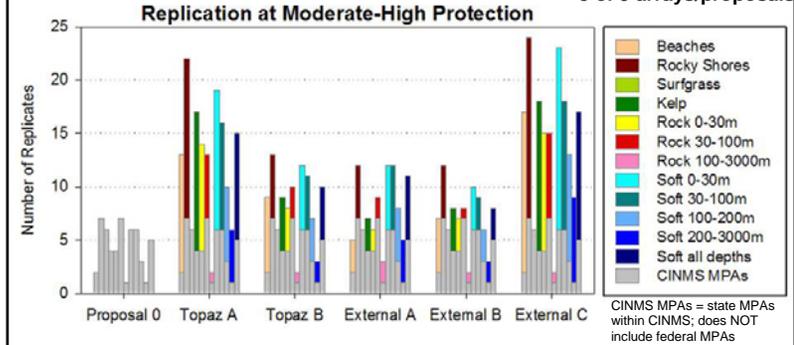
First 4 of 9 arrays/proposals



- No change in replication levels from high to mod-high

Replication: Mod-high Protection

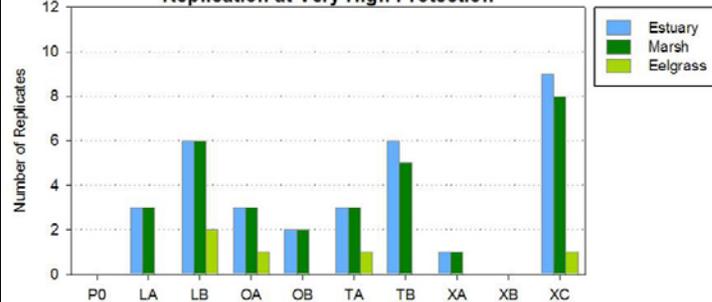
5 of 9 arrays/proposals



- Only one habitat in one proposal increased replication from high to mod-high protection

Replication: Estuarine Habitats

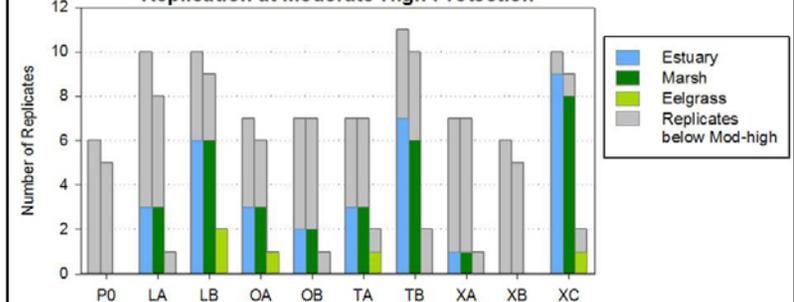
Replication at Very High Protection



- Some draft arrays/proposals do not meet replication guidelines (3-5)
- Only a handful of estuaries with eelgrass
- No estuarine MPAs at high protection in any array/proposal – no change from very high to high protection

Replication: Estuarine Habitats

Replication at Moderate-High Protection



- Only Topaz B increased replication at mod-high
- Plenty of estuarine MPAs to meet replication guidelines, but many below mod-high protection



Results: Habitat Replication

Summary

-  State marine protected areas within CINMS contribute significantly to replication for all open coast habitats but not estuarine habitats
-  All draft arrays/proposals added replication for most habitats, but number of additional replicates varies markedly among draft arrays/proposals
-  Some habitats were difficult to replicate because of patchy distribution and rarity