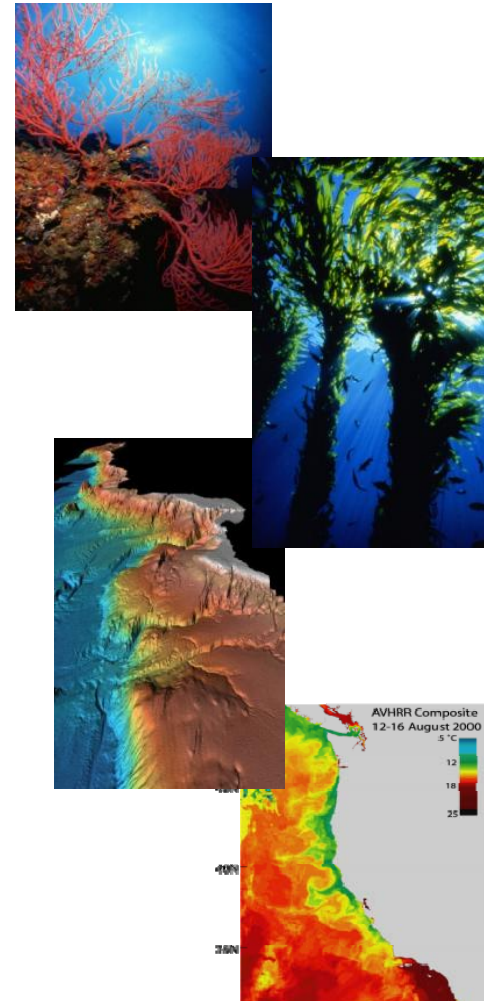






# MLPA Goals\*

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**.

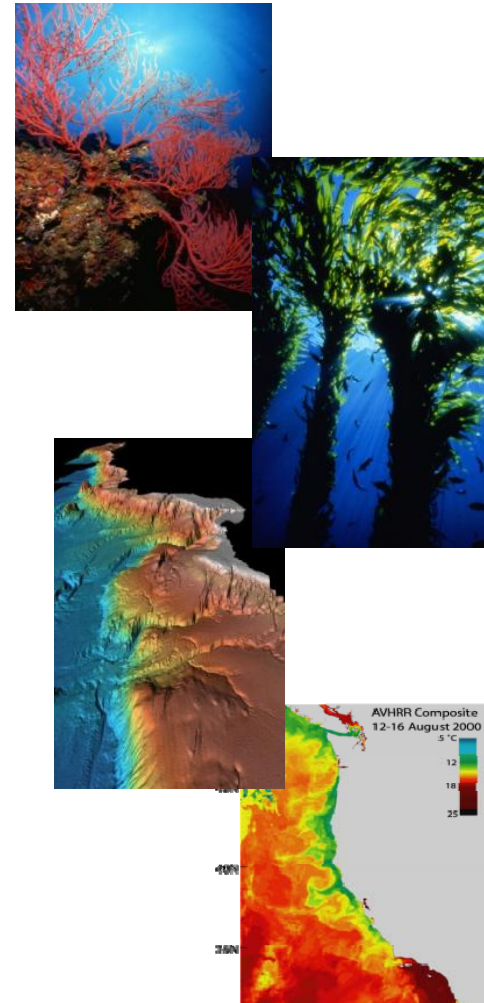


\* Note that this language represents a summary of the MLPA goals



# MLPA Goals\*: Populations

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*



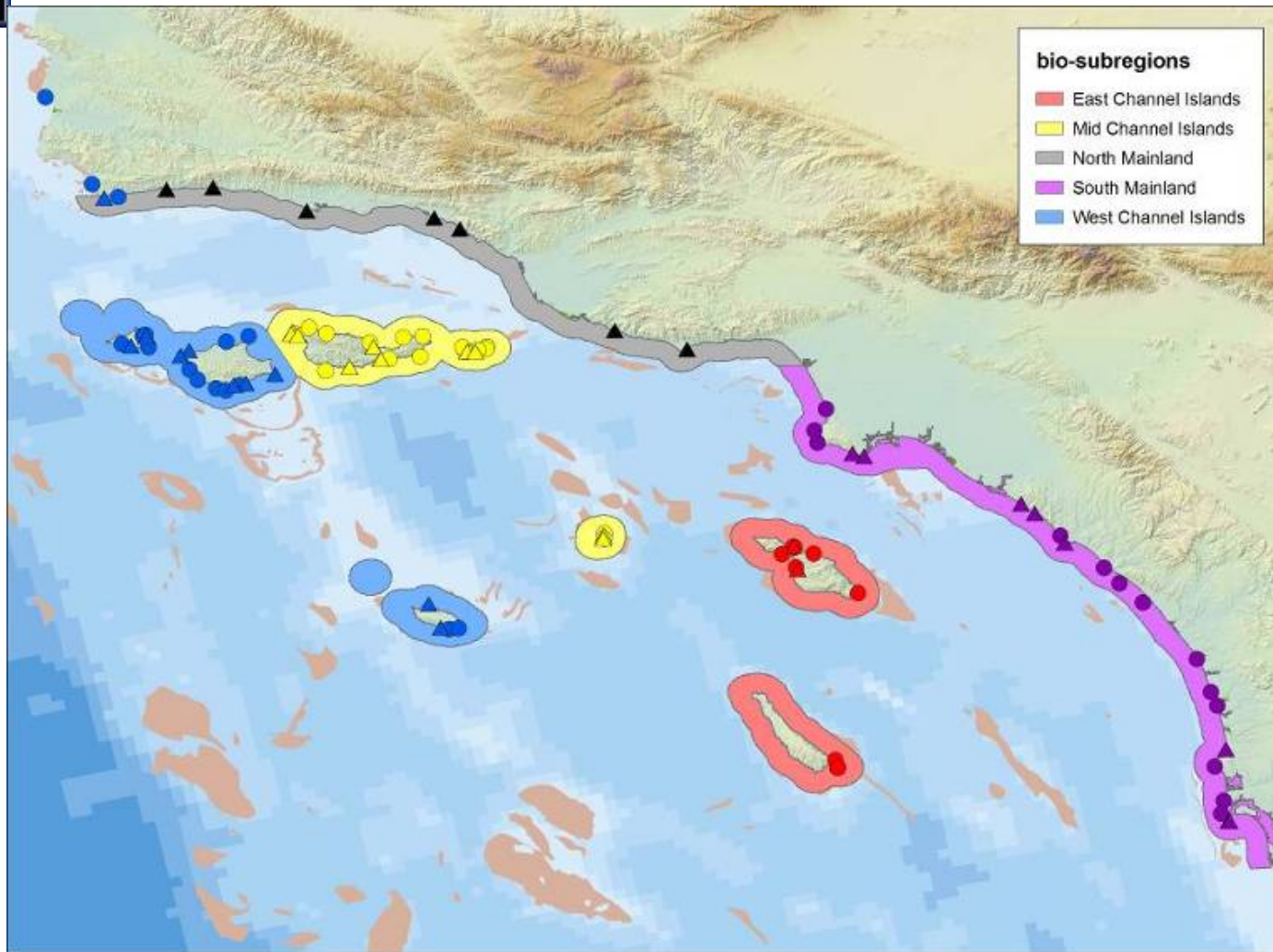
# Evaluation: Habitats

## 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?



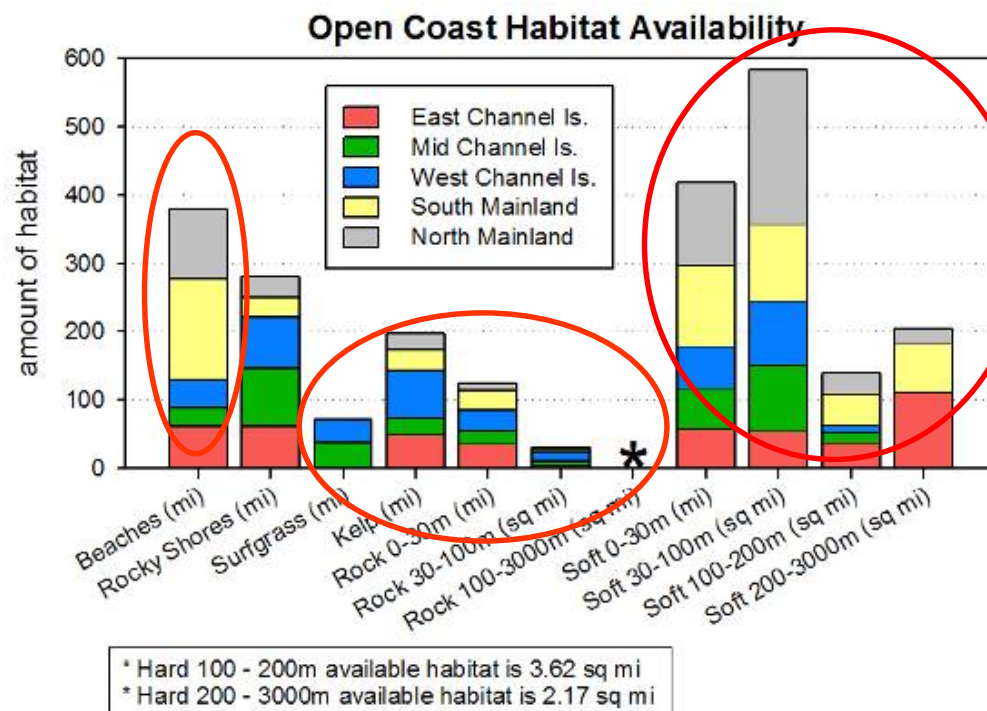
# South Coast Evaluation Bioregions





# Results: Habitat Availability

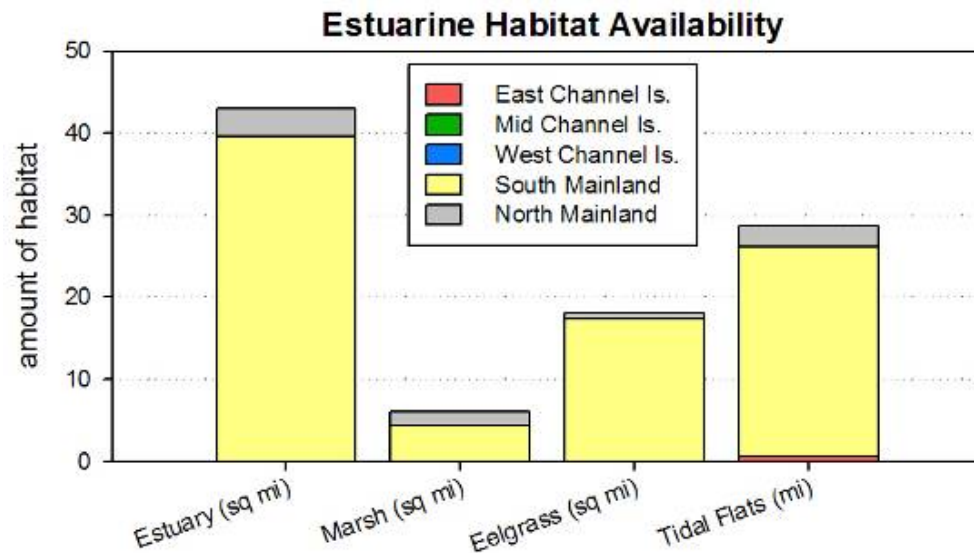
- Soft bottom habitats are very abundant across the study region, especially on the mainland
- Rocky habitats are more abundant on the islands than the mainland
- Deep rock (>100 meters) is rare
- Surfgrass is only mapped on the west and mid islands





## 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



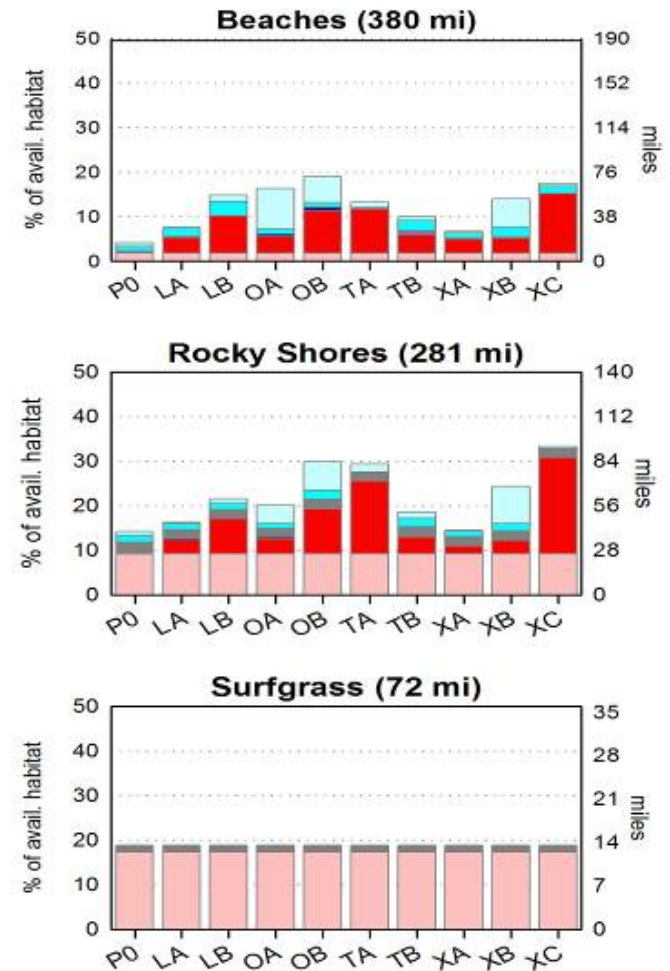


# Results: Habitat Representation



## Shoreline Habitats

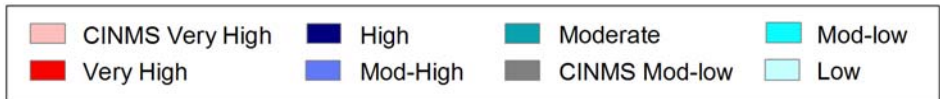
- A small amount sandy beach (2%) protected in state marine reserves (SMRs) within the Channel Island National Marine Sanctuary (CINMS). Draft arrays/proposals add 3-13% more at very high LOP.
- 10% of rocky shores protected in SMRs within CINMS. Arrays/proposals add 2-22% more at very high.
- Surfgrass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





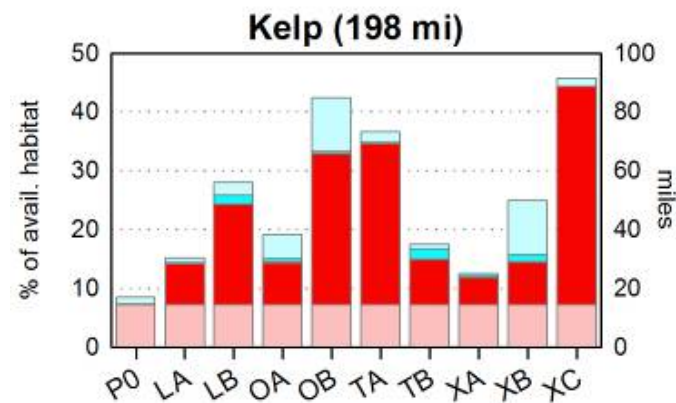
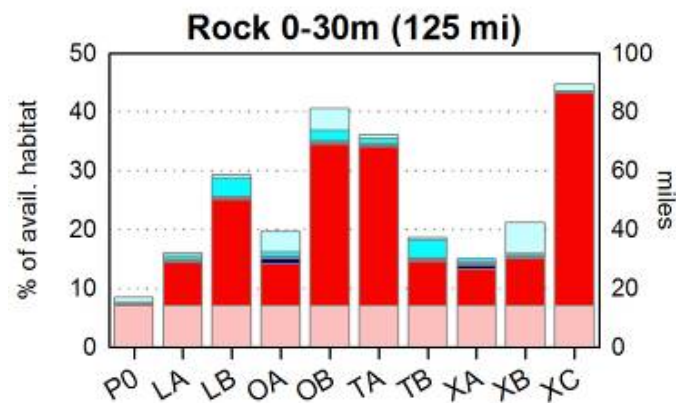


# Results: Habitat Representation



## 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



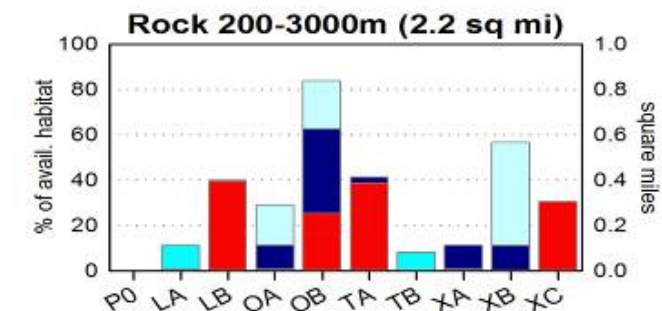
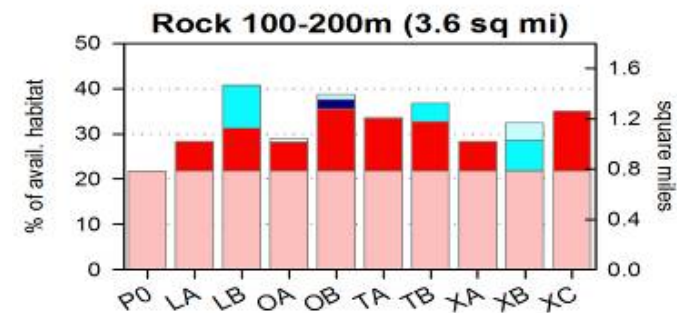
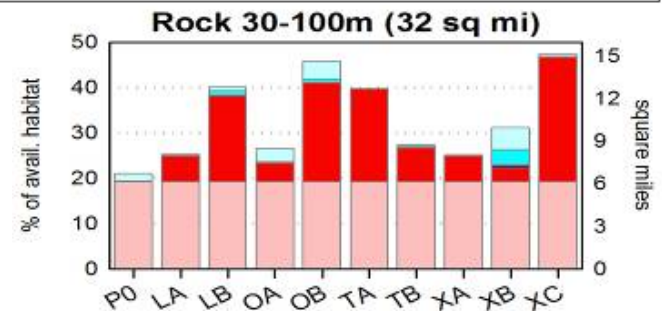


# Results: Habitat Representation



## 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



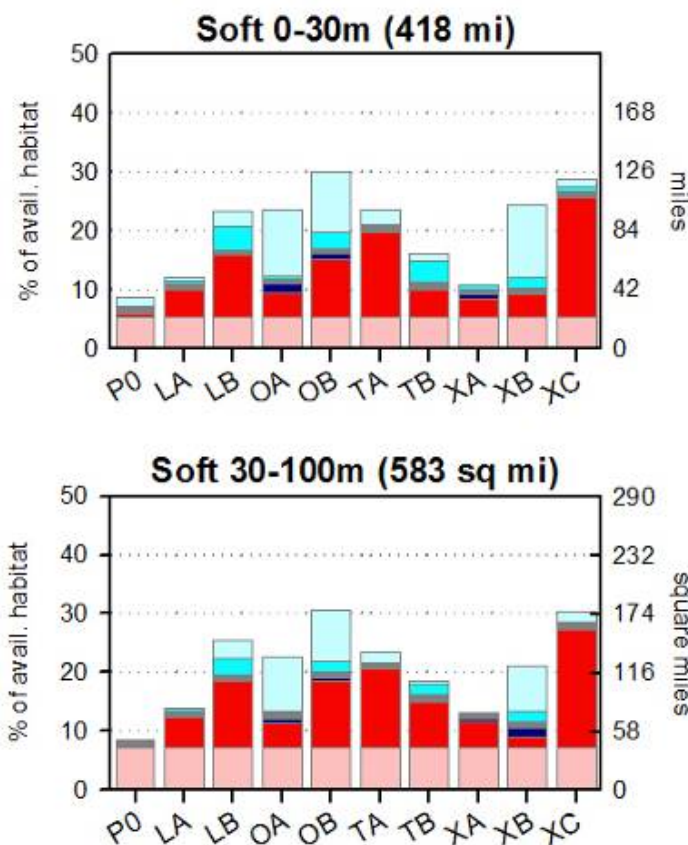


# Results: Habitat Representation



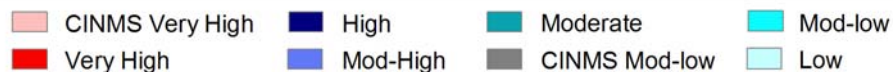
## Shallow Soft Bottom Habitats

- 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



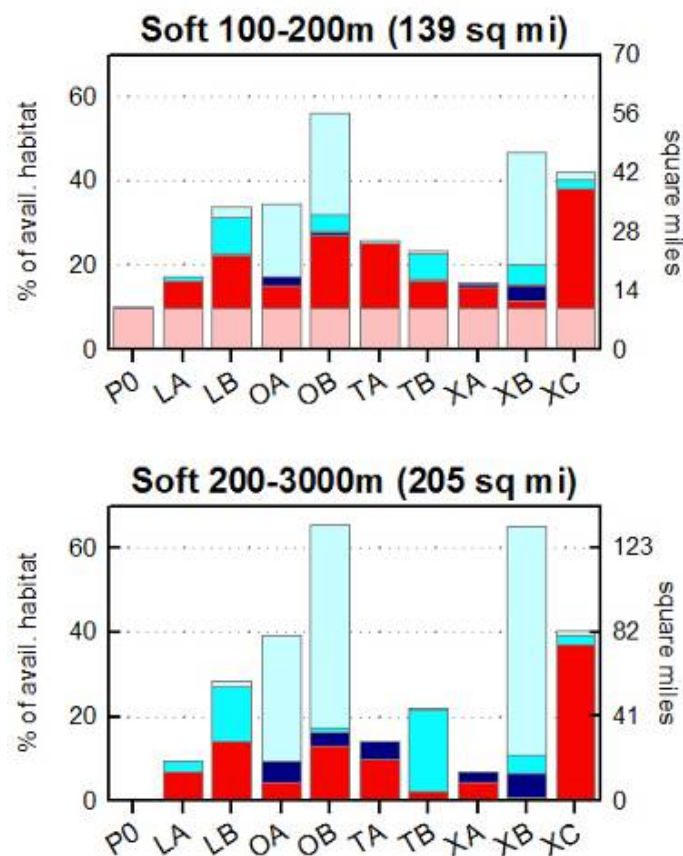


# Results: Habitat Representation



## 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





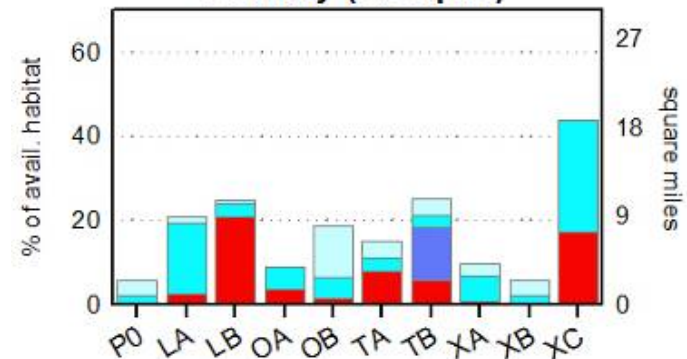
# Results: Habitat Representation



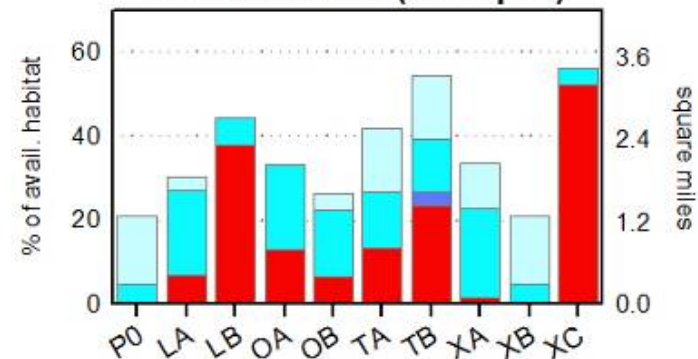
## Estuarine Habitats

- 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

Estuary (43 sq mi)



Coastal Marsh (6.1 sq mi)





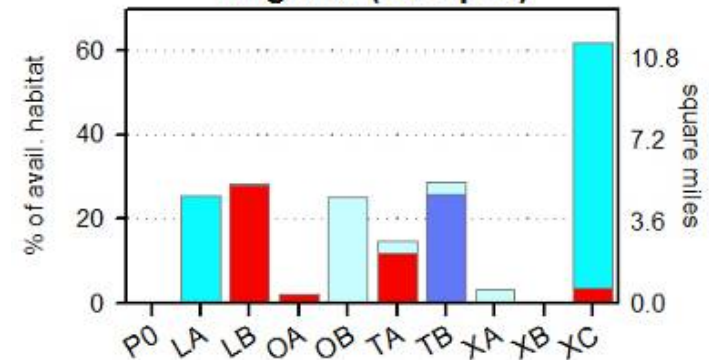
# Results: Habitat Representation



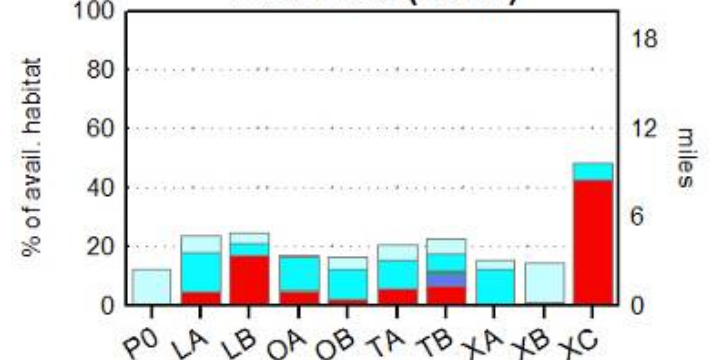
## Estuarine Habitats

- 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

**Eelgrass (18 sq mi)**






**Tidal Flats (29 mi)**





# 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



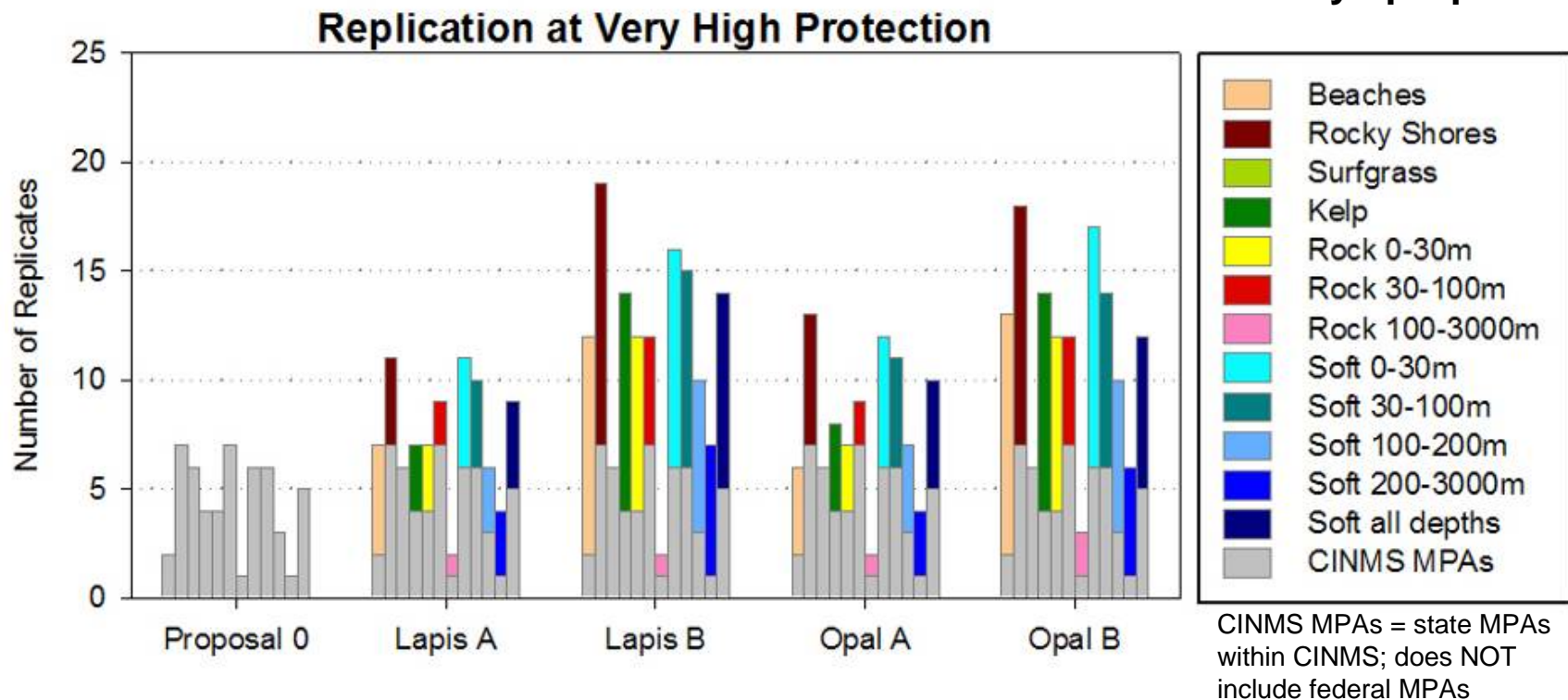
Estuarine MPAs do not have to meet size guidelines but must contain at least 0.12 square miles of estuarine habitat





# Replication: Very High Protection

First 4 of 9 arrays/proposals

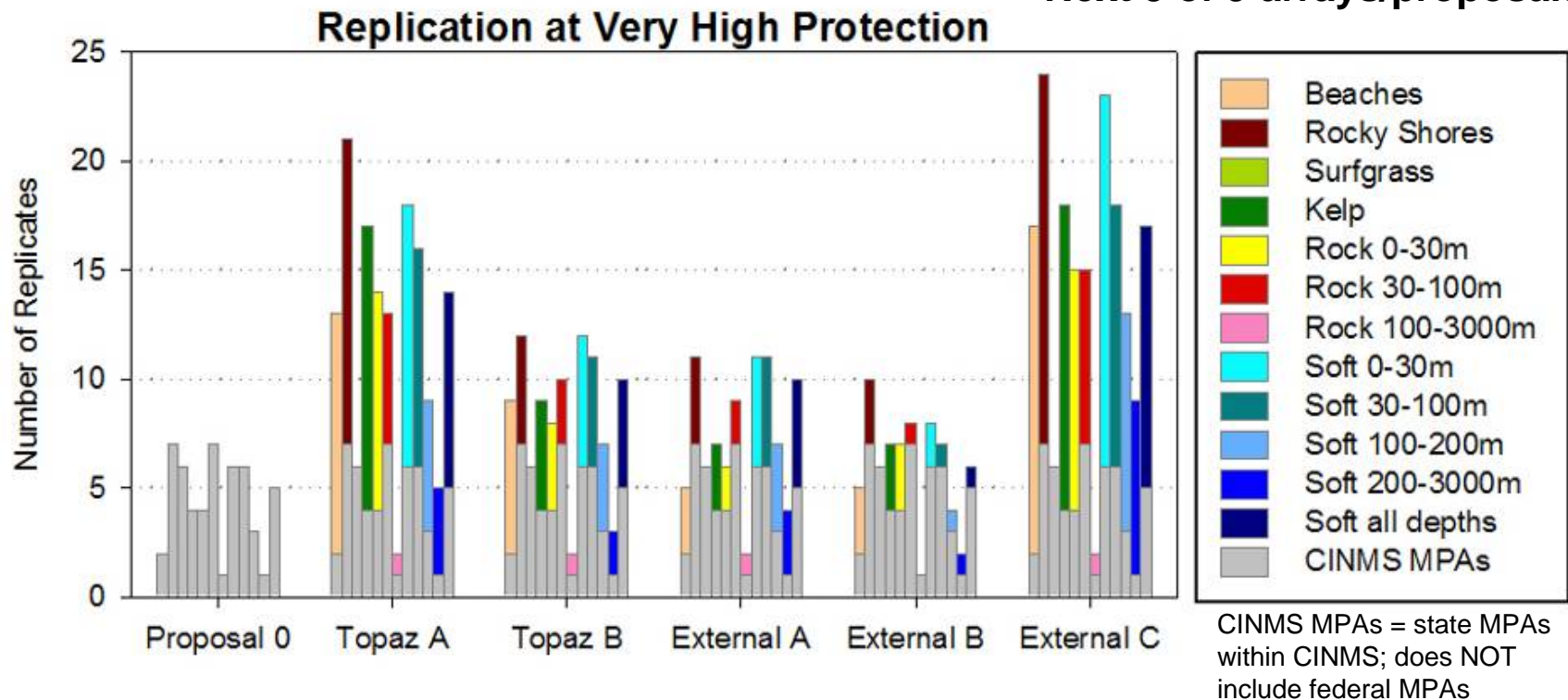


- No surfgrass replication because poorly mapped
- Deep rock (100-3000 meters) is very sparse and hard to achieve minimum area
- Deep soft (200-3000 meters) is restricted to southern mainland canyons and ECI
- Otherwise, most habitats meet replication guidelines



# Replication: Very High Protection

Next 5 of 9 arrays/proposals

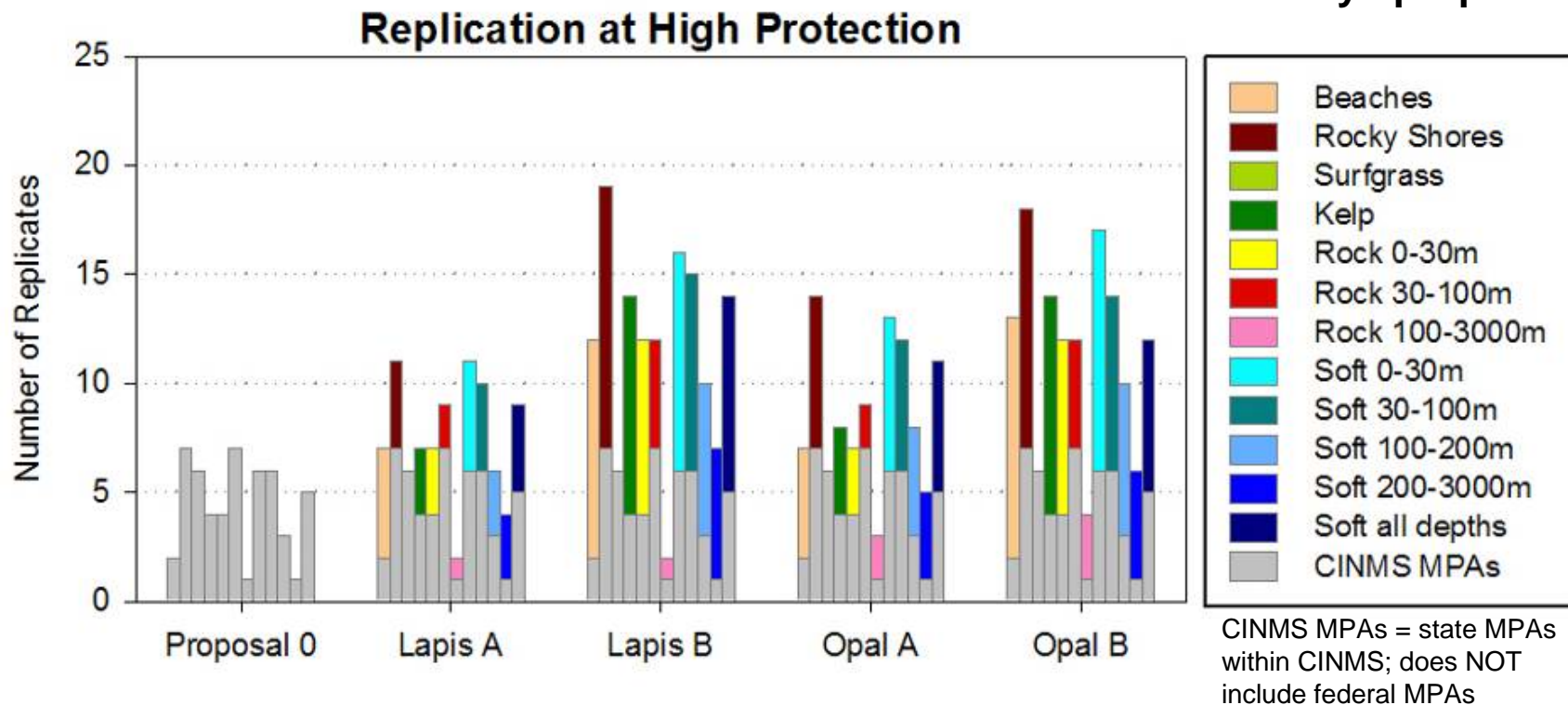


- No surfgrass replication because poorly mapped
- Deep rock (100-3000 meters) is very sparse and hard to achieve minimum area
- Deep soft (200-3000 meters) is restricted to southern mainland canyons and ECI
- Otherwise, most habitats meet replication guidelines



# Replication: High Protection

First 4 of 9 arrays/proposals

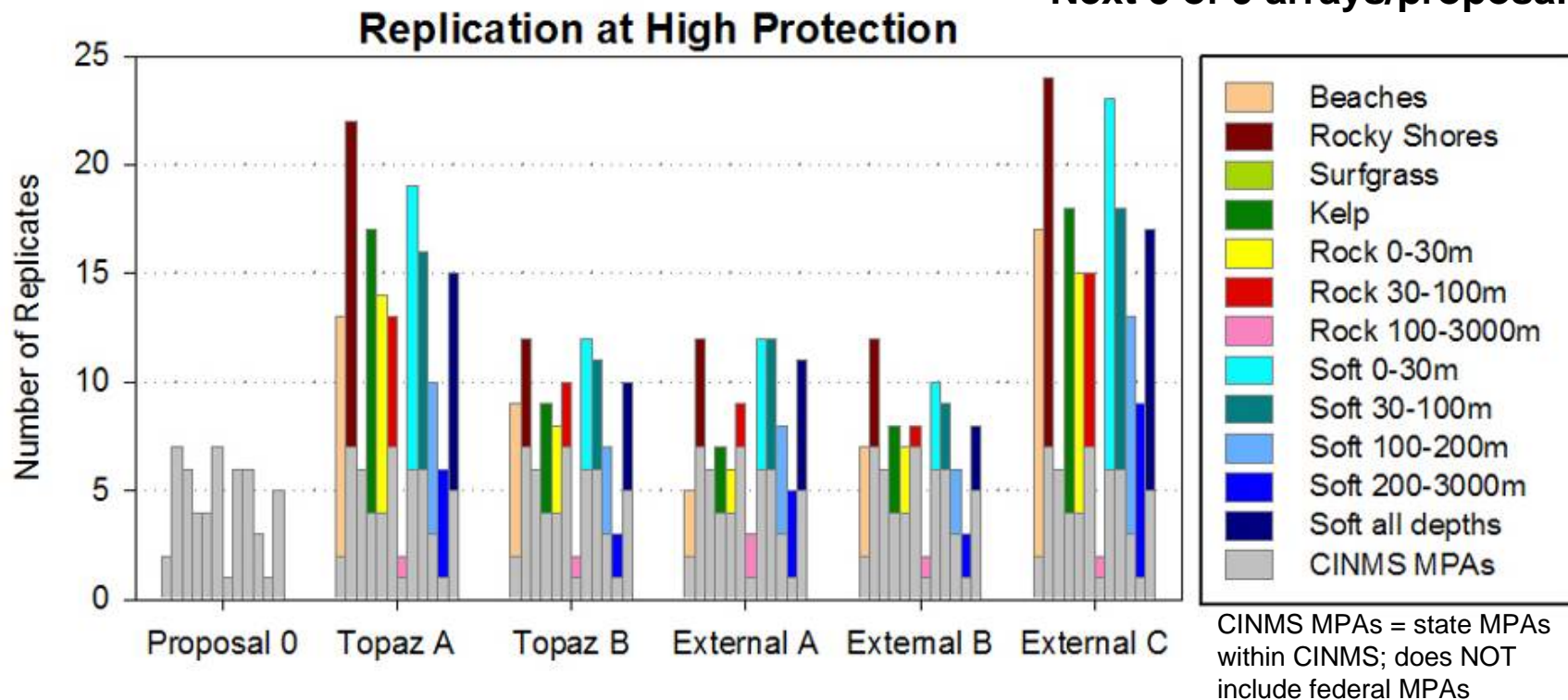


- No change in levels of replication of some (Lapis) and added to others (Opal)



# Replication: High Protection

Next 5 of 9 arrays/proposals



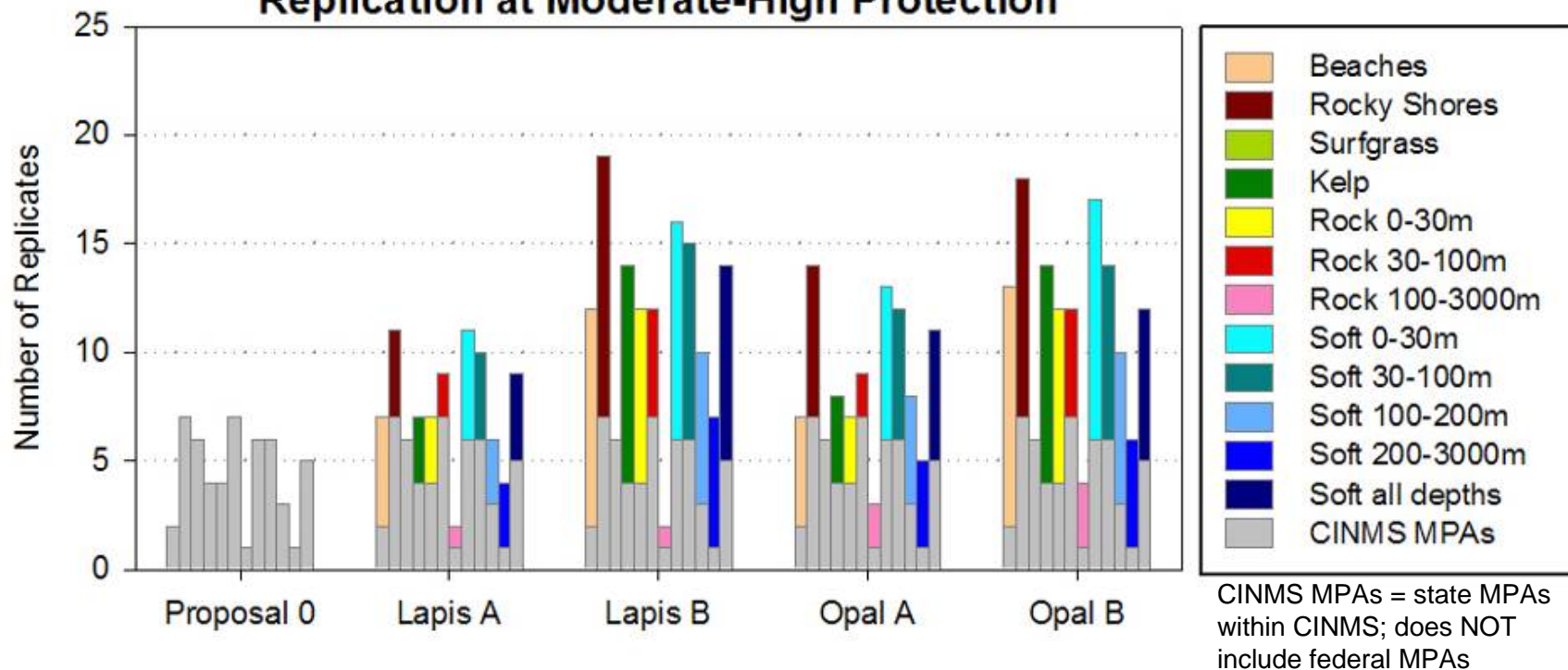
- No change in levels of replication of some (Topaz A, External C) and added to others (Topaz B, External A and External B)



# Replication: Mod-high Protection

First 4 of 9 arrays/proposals

## Replication at Moderate-High Protection

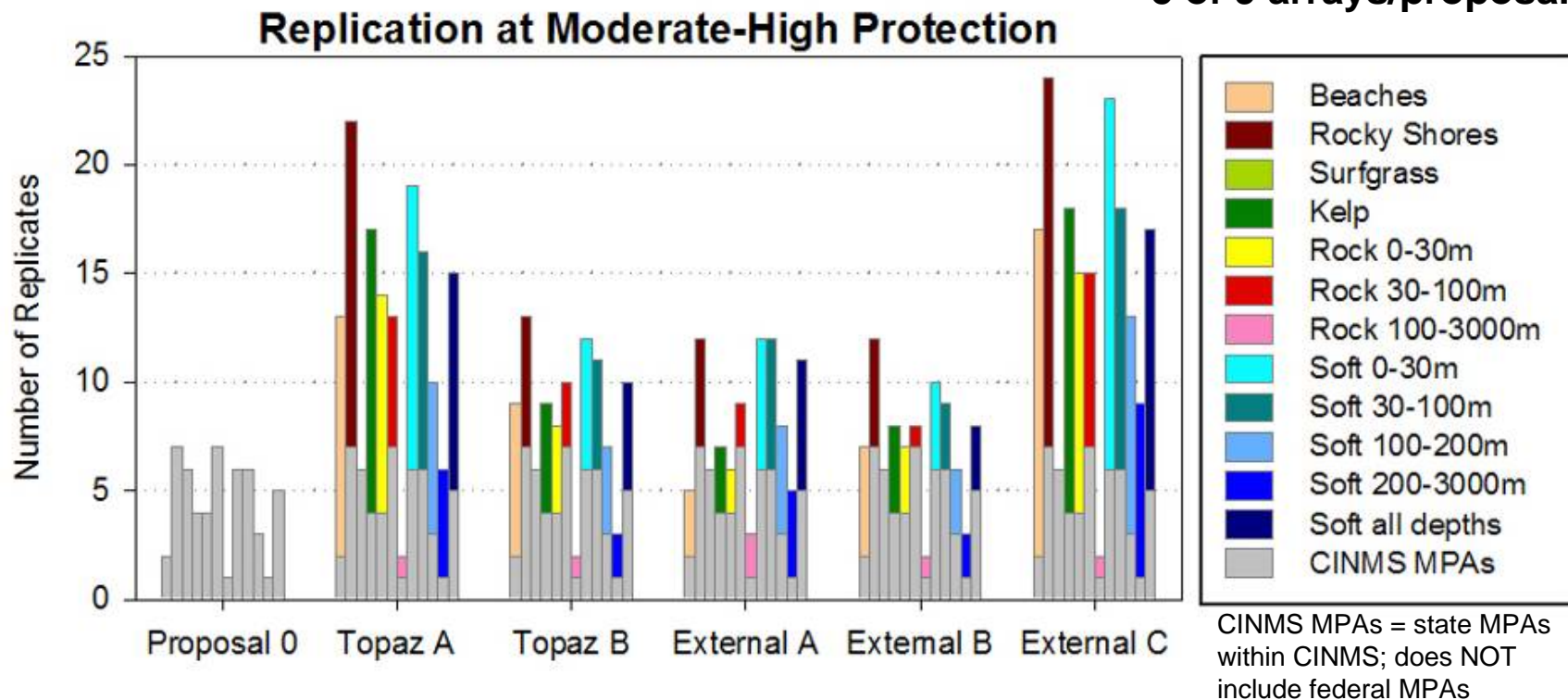


- No change in replication levels from high to mod-high



# Replication: Mod-high Protection

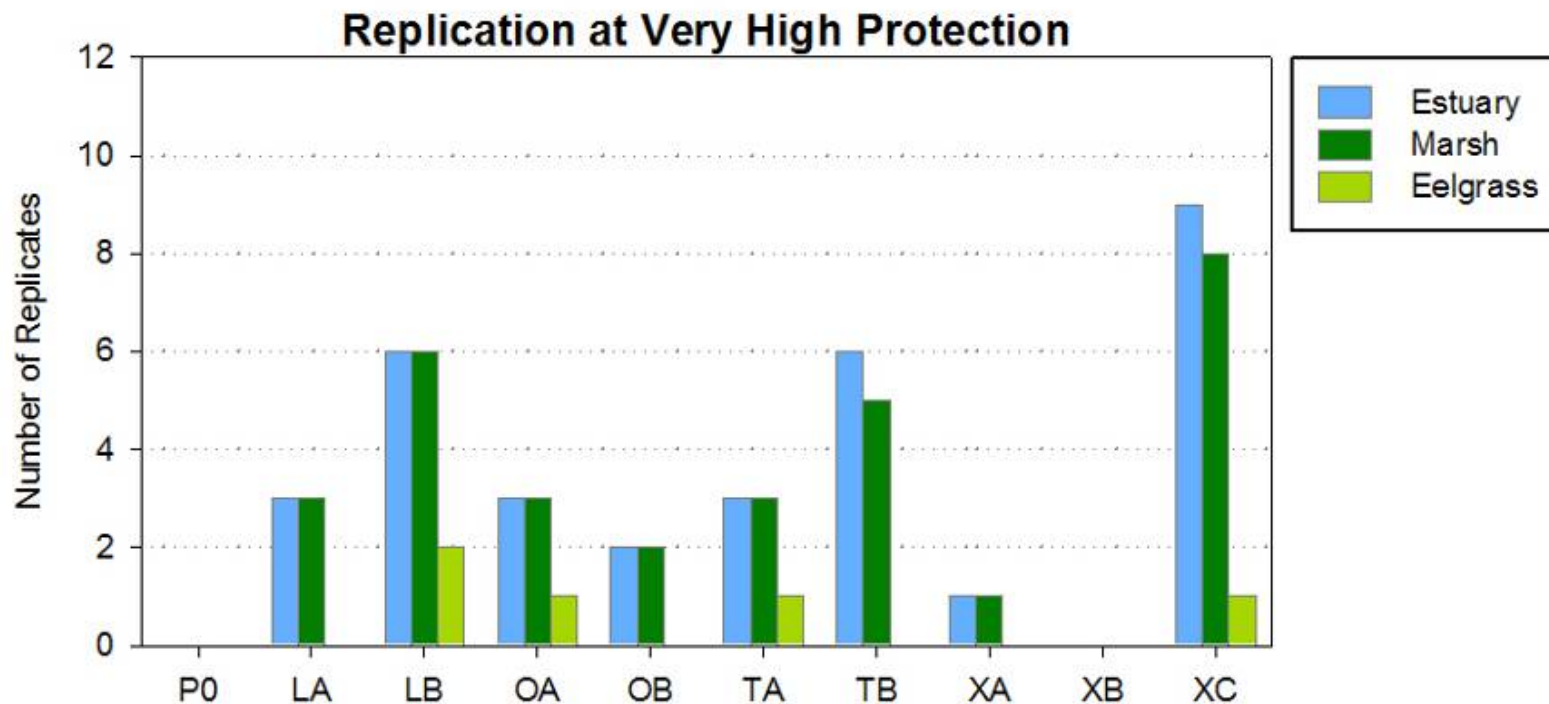
5 of 9 arrays/proposals



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



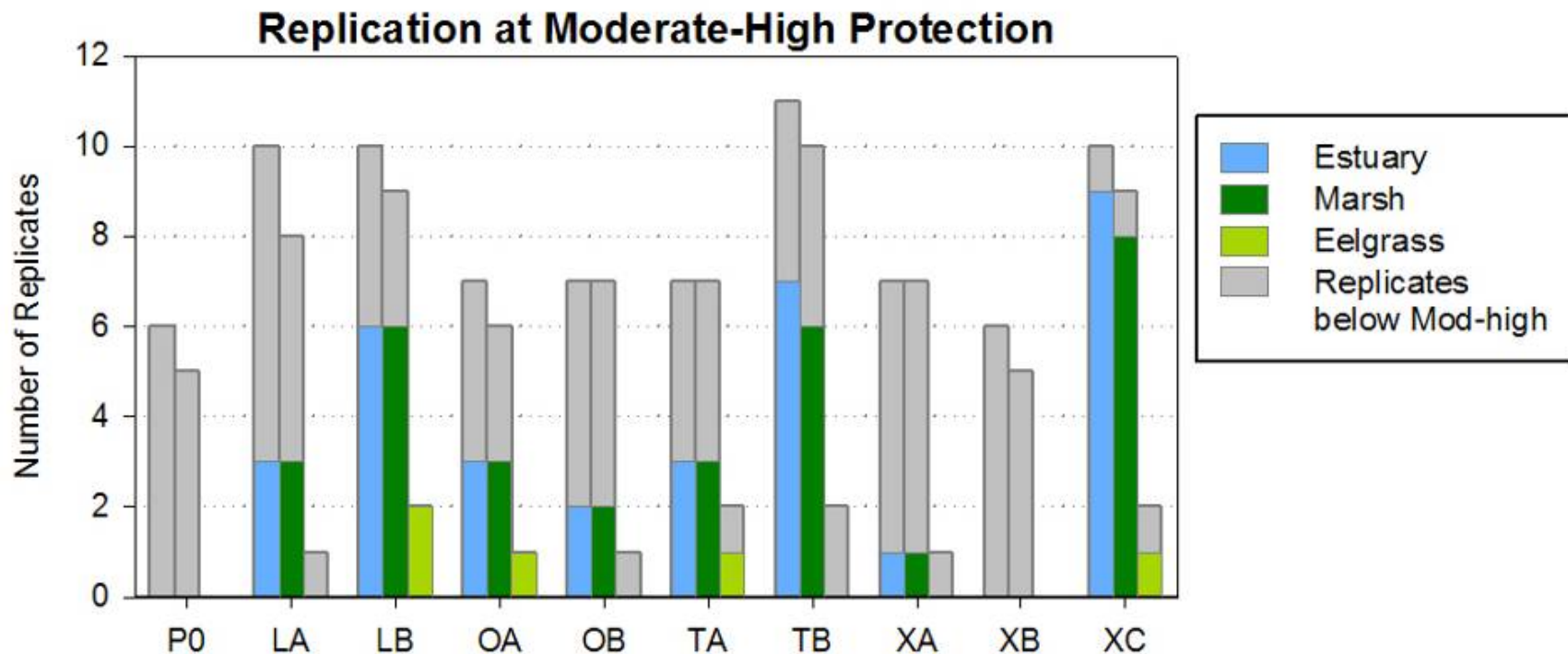
# Replication: Estuarine Habitats



- 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






- 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