



Marine Life Protection Act Initiative



Draft Proposal Evaluations North Central Coast Study Region

Presentation to the MLPA Science Advisory Team

January 23, 2008 • Pacifica, CA

Presented by Dr. Mark Carr



Master Plan Science Advisory Team



MLPA goals



Habitat representation

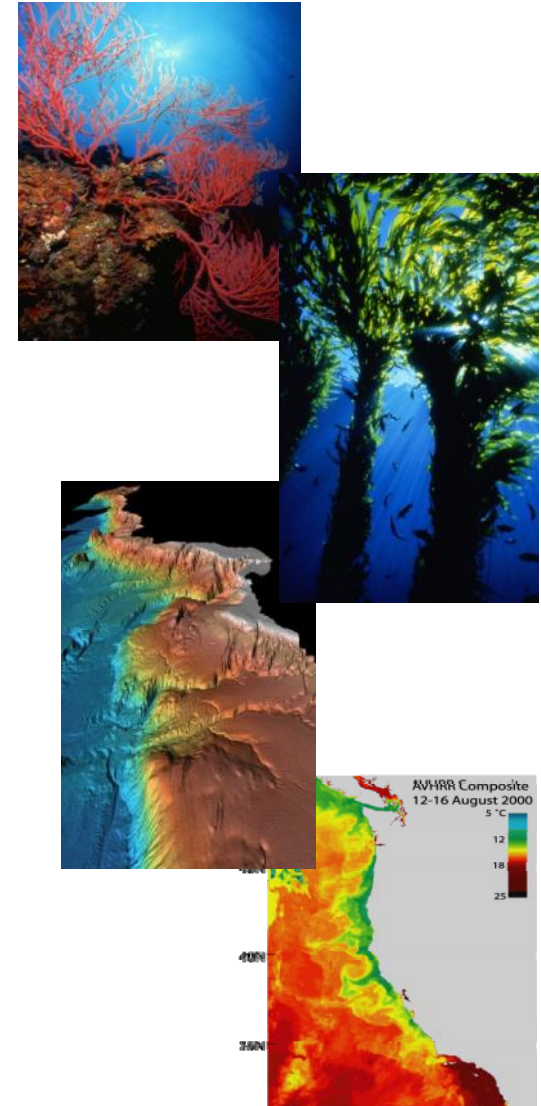


Habitat replication



MLPA Goals - Habitats

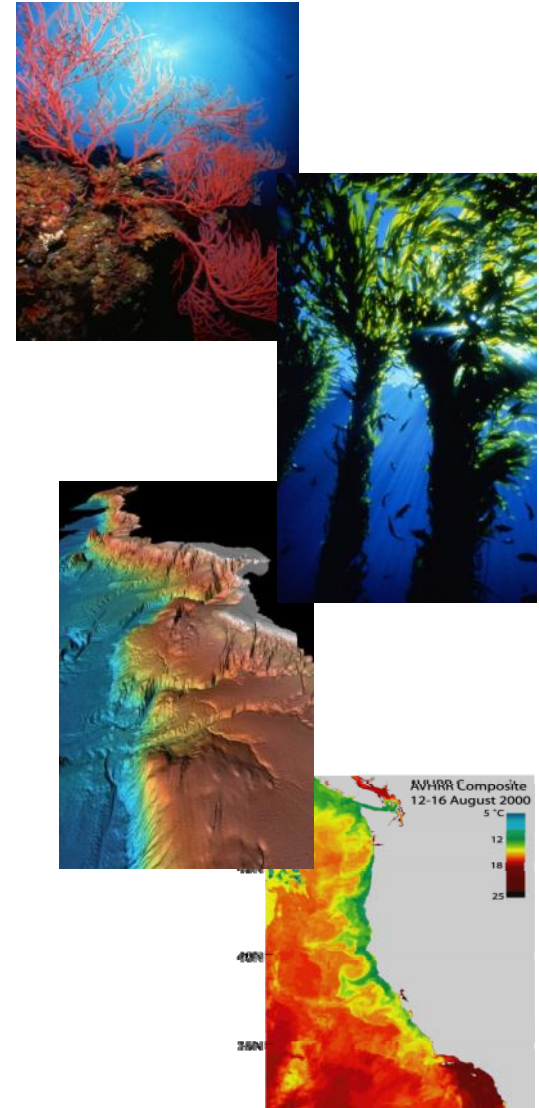
1. To protect the natural diversity and function of **marine ecosystems**.
2. To help sustain and restore **marine life populations**.
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance.
4. To protect representative and unique **marine life habitats**.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





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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?

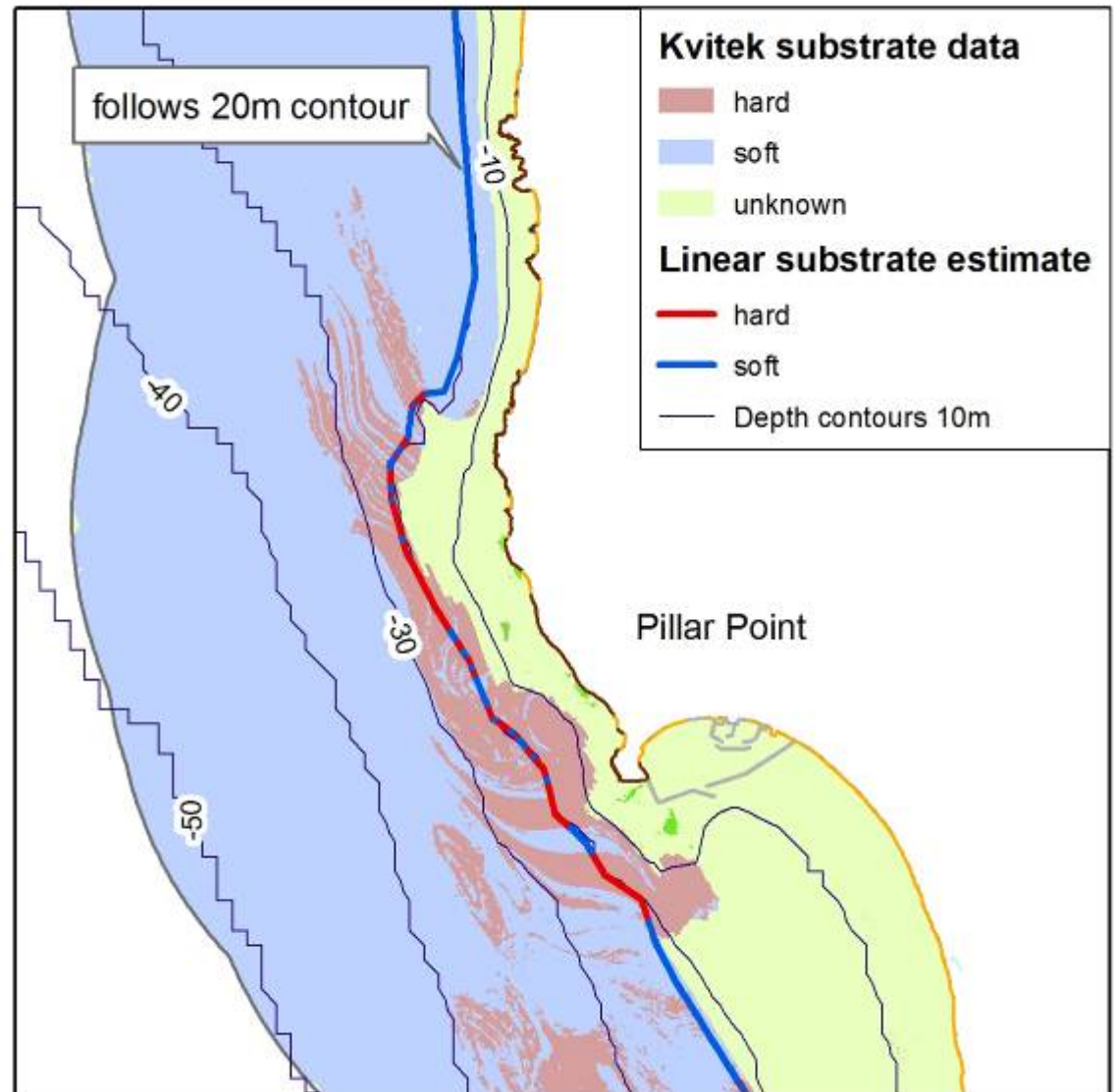


SAT Guidelines - Goals 1 and 4

Linear estimate for shallow rock and sand habitats -- eliminates biases caused by unknown nearshore habitat

MPAs must extend out to 30m depth, not just to encompass the line

allows credit for mixed habitats (i.e. both rock and sand in same MPA)





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)



Assigning protection levels to MPAs

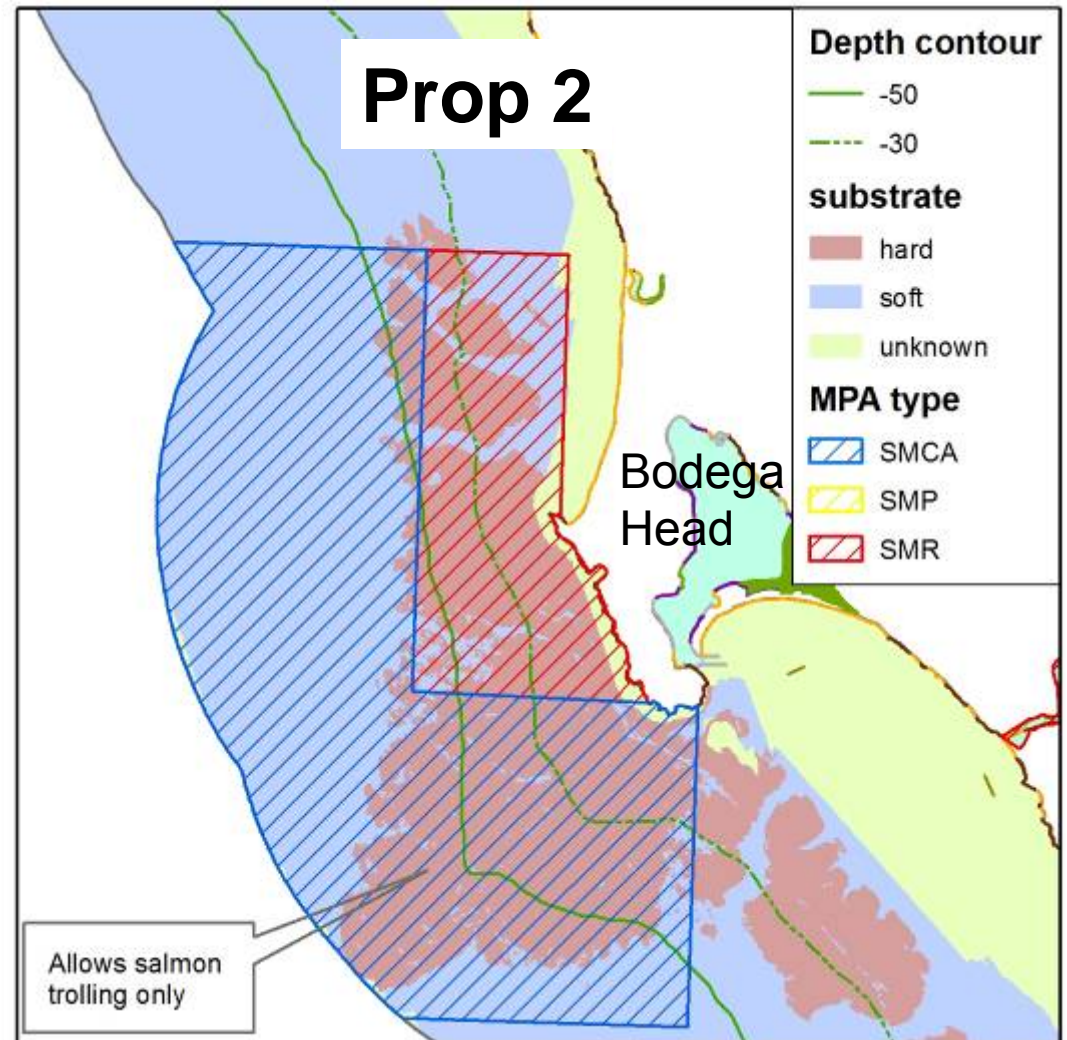
Consider:

Allowed uses

Relationship between habitat and MPA boundaries

Prop. 4 has only a small area of <50m habitat open to salmon trolling → High Protection





Prop 2 has a large contiguous area of shallow rocky reef open to trolling → Mod-high Protection

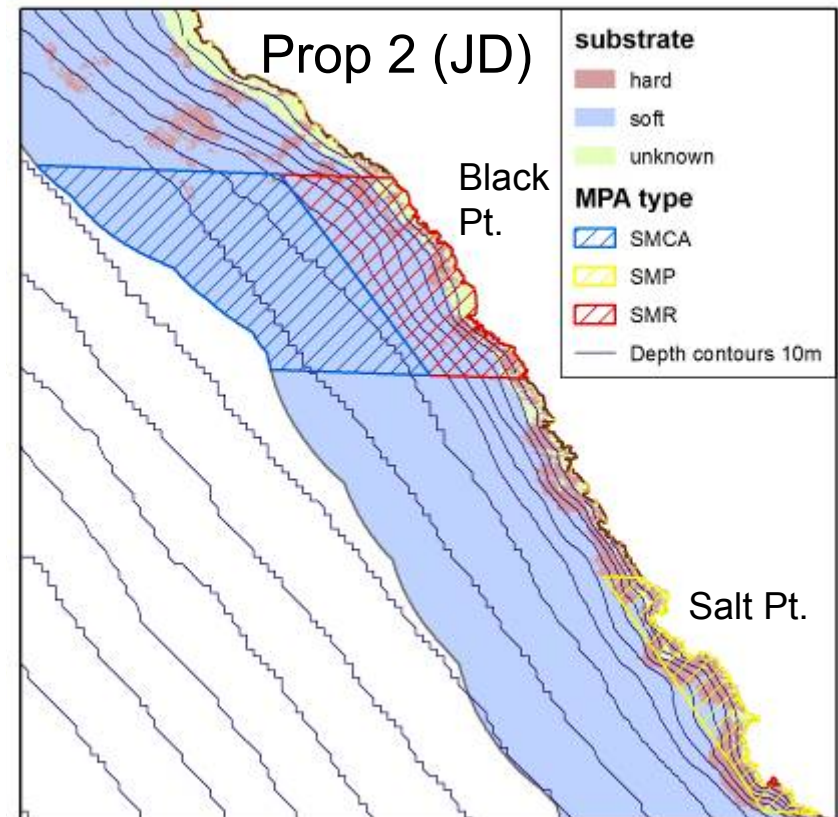




Results: Habitat Representation

Similarities between proposals

-  similarities in number and location of MPAs as well as the habitats they include
-  size of MPAs varies
-  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







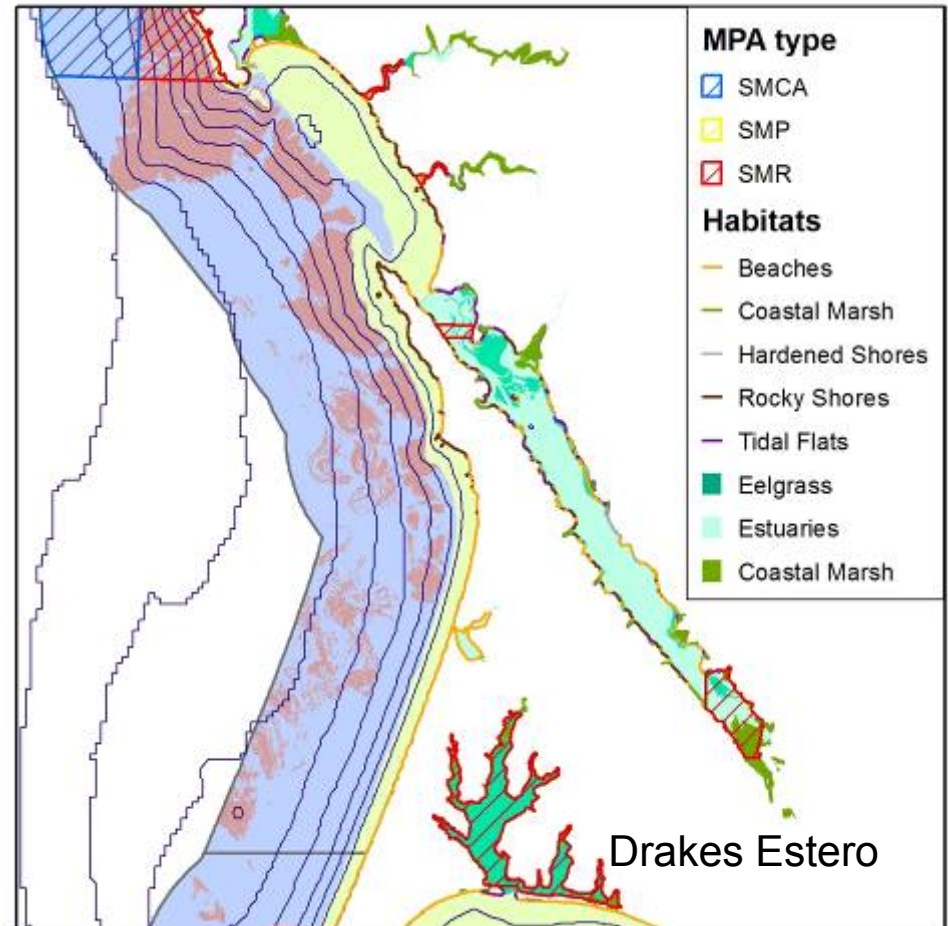
Results: Habitat Representation

Similarities between proposals

 estuarine habitats are generally well represented in very high protection MPAs

 most proposals still protect a greater portion of these habitats in the south subregion (Drakes Estero)

 In contrast to the last round, most proposals target small estuaries in both north and south





Habitat Availability

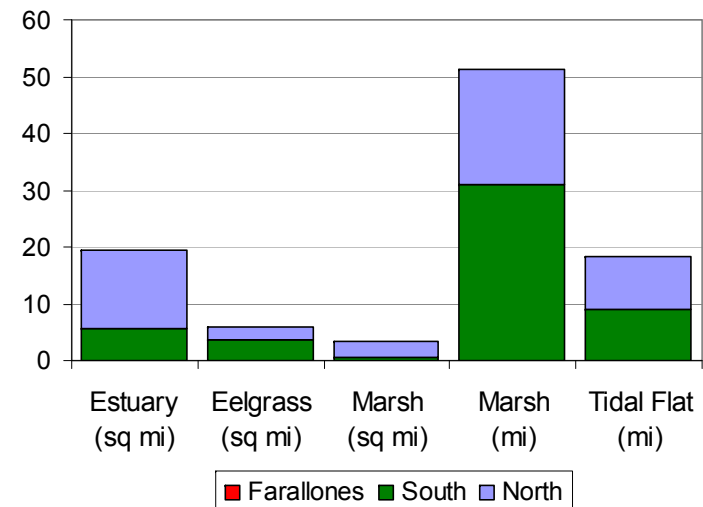
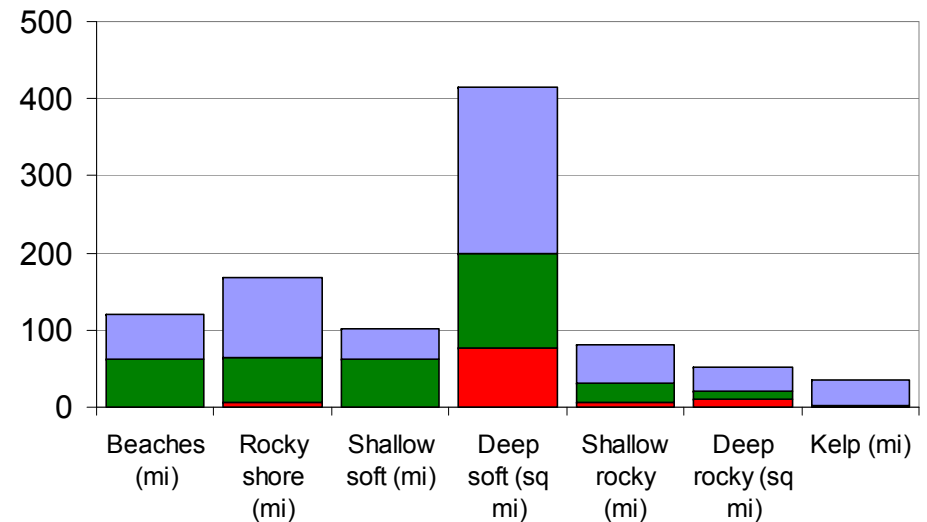
Deep soft bottom is the most abundant habitat in all subregions

More rocky shore and shallow rocky reef in the north subregion

More shallow soft bottom in the south subregion

Kelp is only mapped in the north subregion

More estuarine area in the north, but more eelgrass in the south





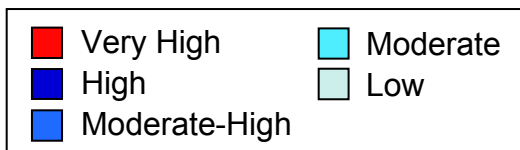
Results: Habitat Representation

Shoreline Habitats

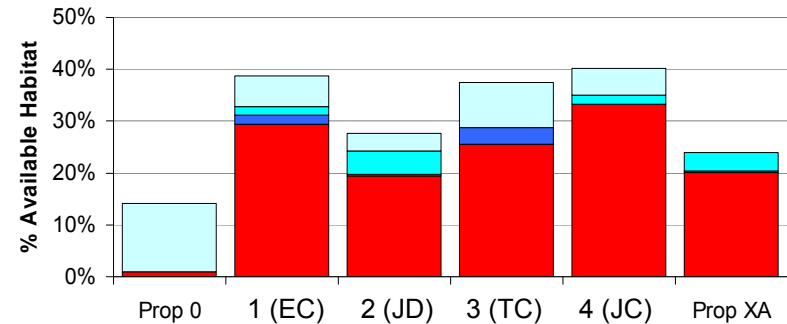
Most proposals have at least 20% of rocky shore and surfgrass at very high protection, while allowing some shorefishing, abalone and urchin harvest.

Protection of sandy beach is generally lower than protection of rocky shoreline

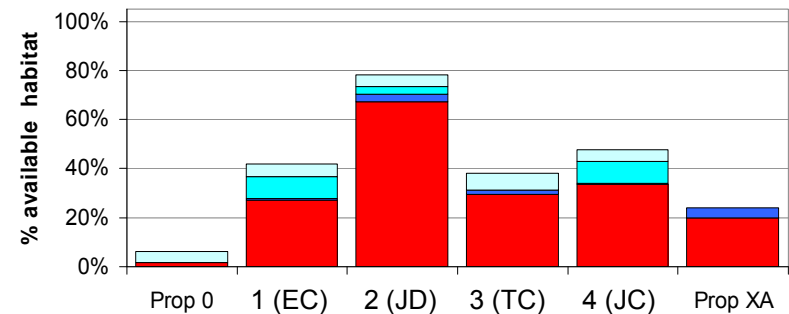
Inclusion of **mod-high** protection affects sandy beach representation in 3 proposals (allow crabbing)



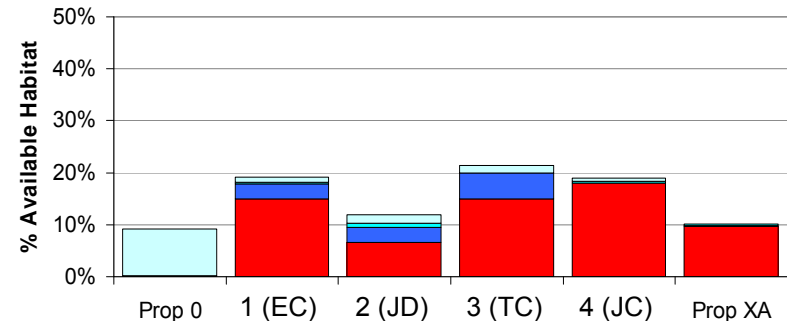
Rocky Shore Habitat (167 mi)



Surfgrass (69 mi)



Sandy Beach Habitat (119 mi)





Results: Habitat Representation

Shallow rocky reef

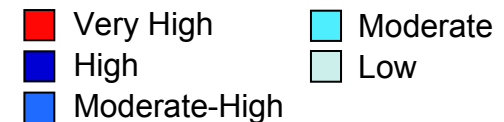
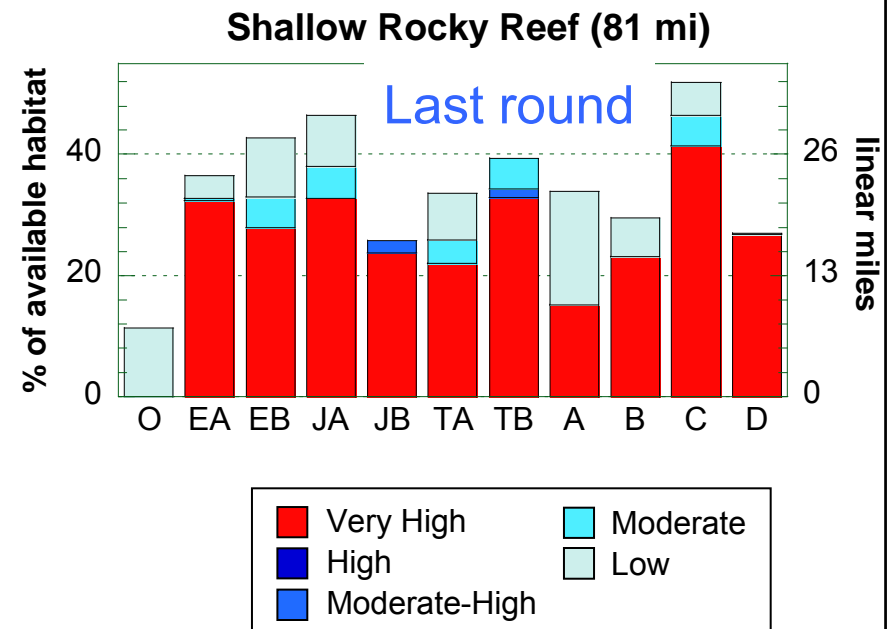
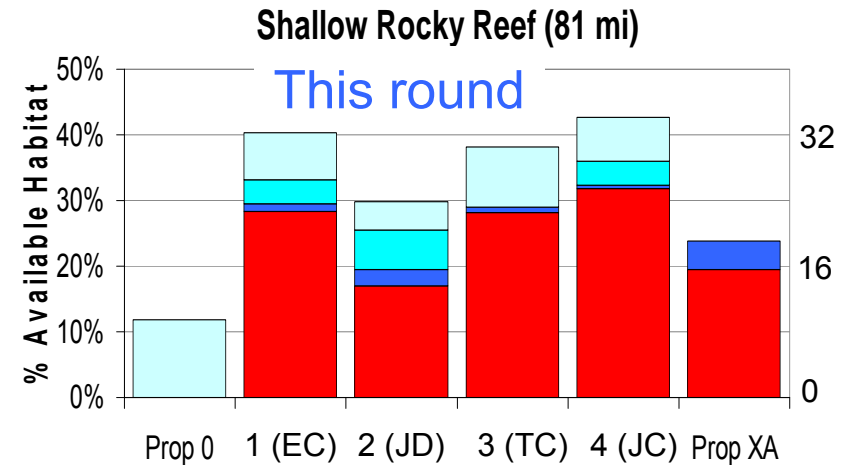
A high proportion of protected areas are in SMRs

Convergence from previous round

Only a small proportion of protected area in **mod-high** protection (mostly due to crabbing)

Some areas in **moderate** protection due to shorefishing and abalone

Many **low** protection areas allow urchin harvest





Results: Habitat Representation

Shallow soft bottom

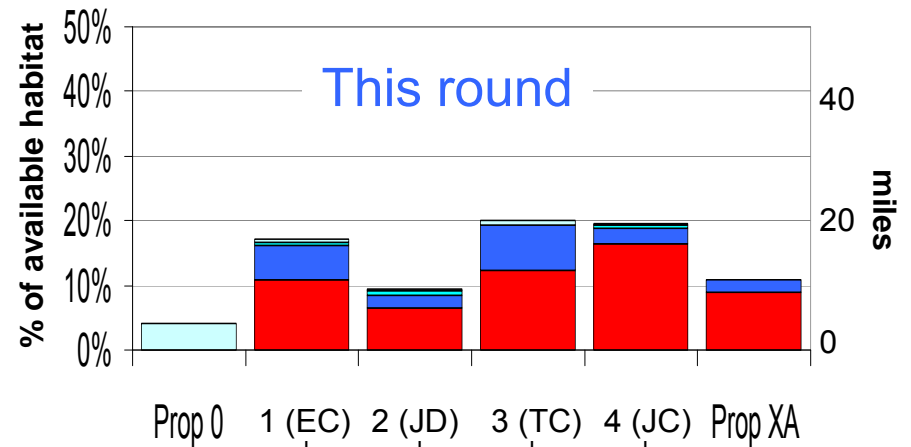
New linear habitat measure more accurately reflects availability

Lower representation compared to shallow rock

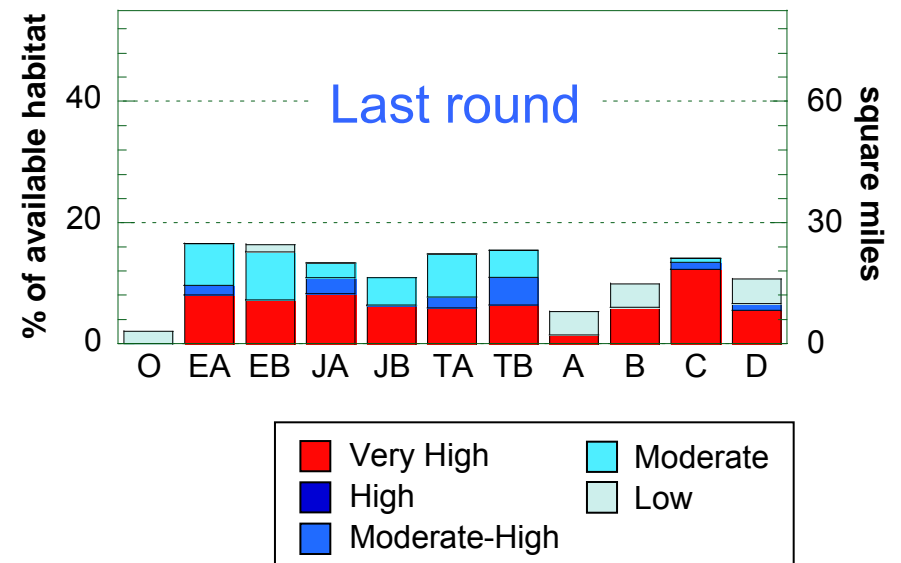
High proportion of MPA area is in SMRs, **mod-high** attributed to crabbing and shallow salmon trolling

Little of the MPA area in **moderate** or **low** protection

Shallow Soft Bottom (101 mi)



Shallow Soft Bottom (149 mi²)





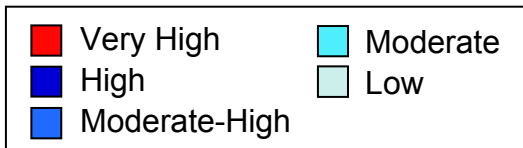
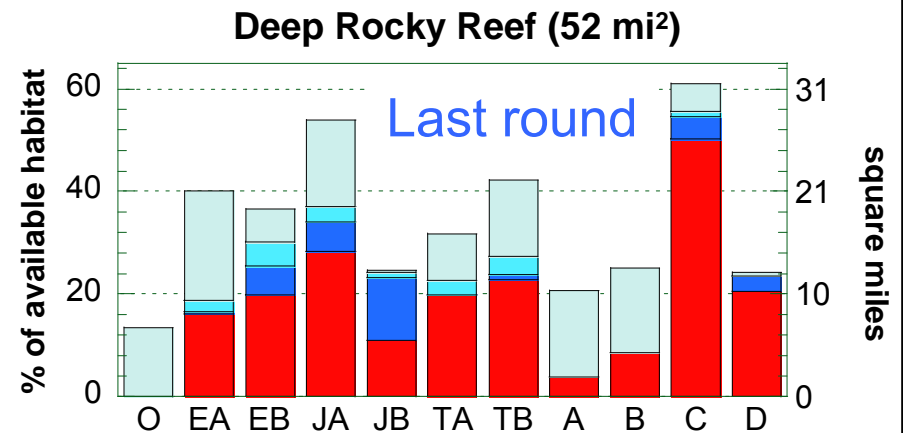
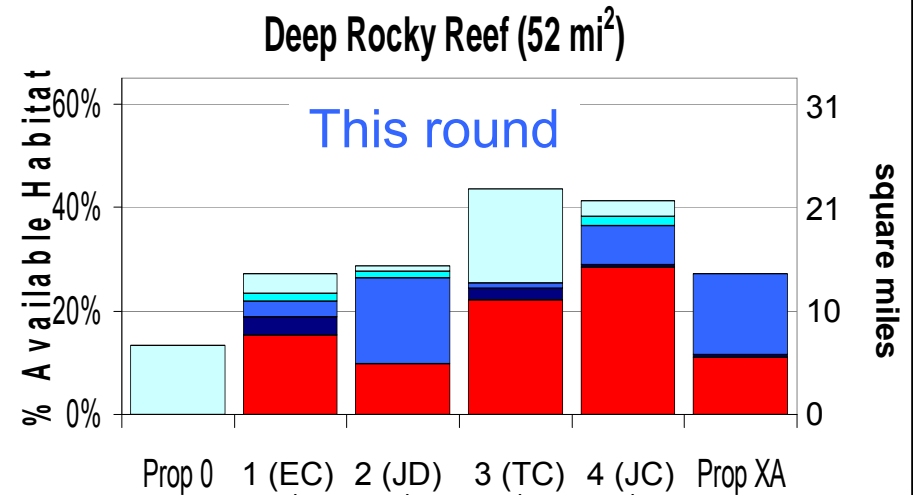
Results: Habitat Representation

Deep rocky reef

Convergence among proposals

Large area in **mod-high** protection -- due primarily to crabbing (only 4 proposed MPAs allow only salmon trolling in shallow water)

Very little area under **moderate** or **low** LOP (except prop 3 due to a Farallons SMCA that allows take of various species other than forage species)





Results: Habitat Representation

Deep soft bottom

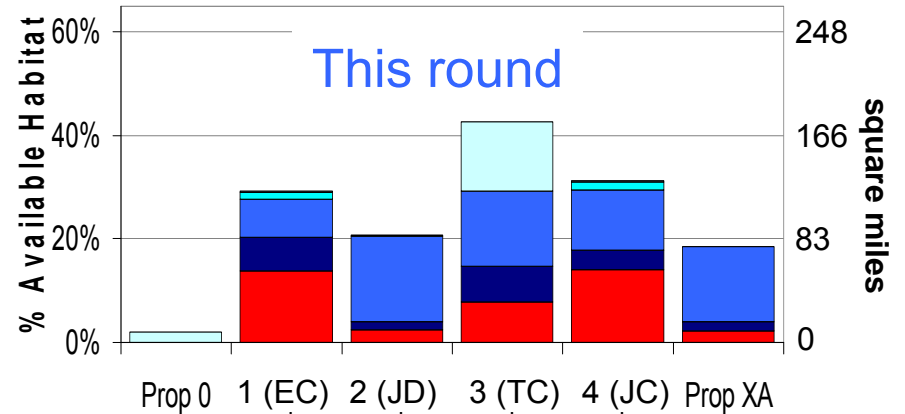
More area protected at or above the **mod-high** LOP relative to first round

Large area in **mod-high** protection -- due primarily to crabbing

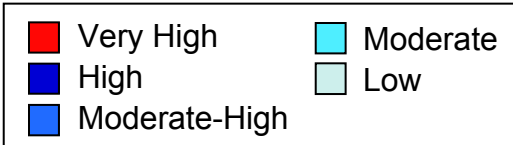
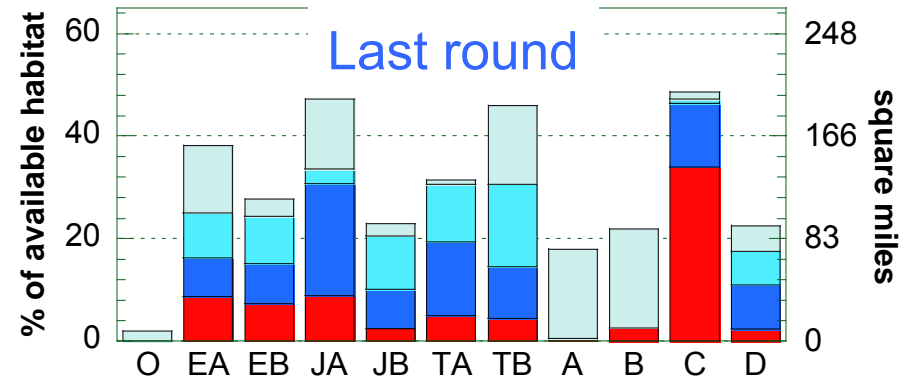
Strong differences in LOP among proposals persist

Low percentages but large areas under protection

Deep Soft Bottom (414 mi²)



Deep Soft Bottom (414 mi²)





Results: Habitat Representation

Summary



Overall convergence among proposals in second round



Many habitats are well represented in high levels of protection.



Habitats varied markedly in allowed uses and the relative representation of levels of protection.



Shallow sand habitat still not as well represented as shallow rock



Methods: Habitat Replication

Guidelines for replication:



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 mi² of estuarine habitat

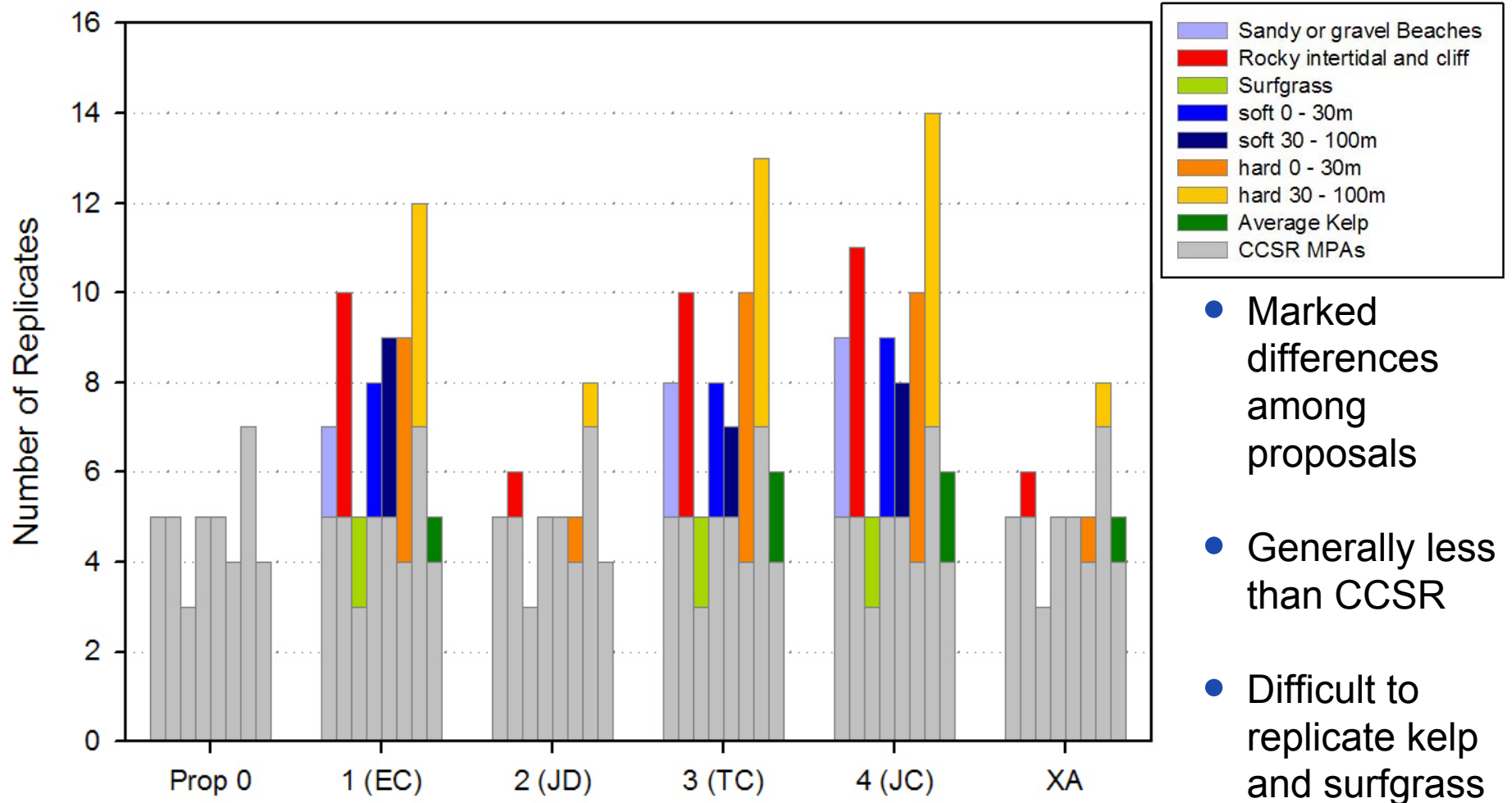


Some small estuaries (Gualala and Garcia rivers, Pescadero Creek) contain less than the minimum 0.12 mi², but protection of these habitats still has conservation value



Results: Habitat Replication

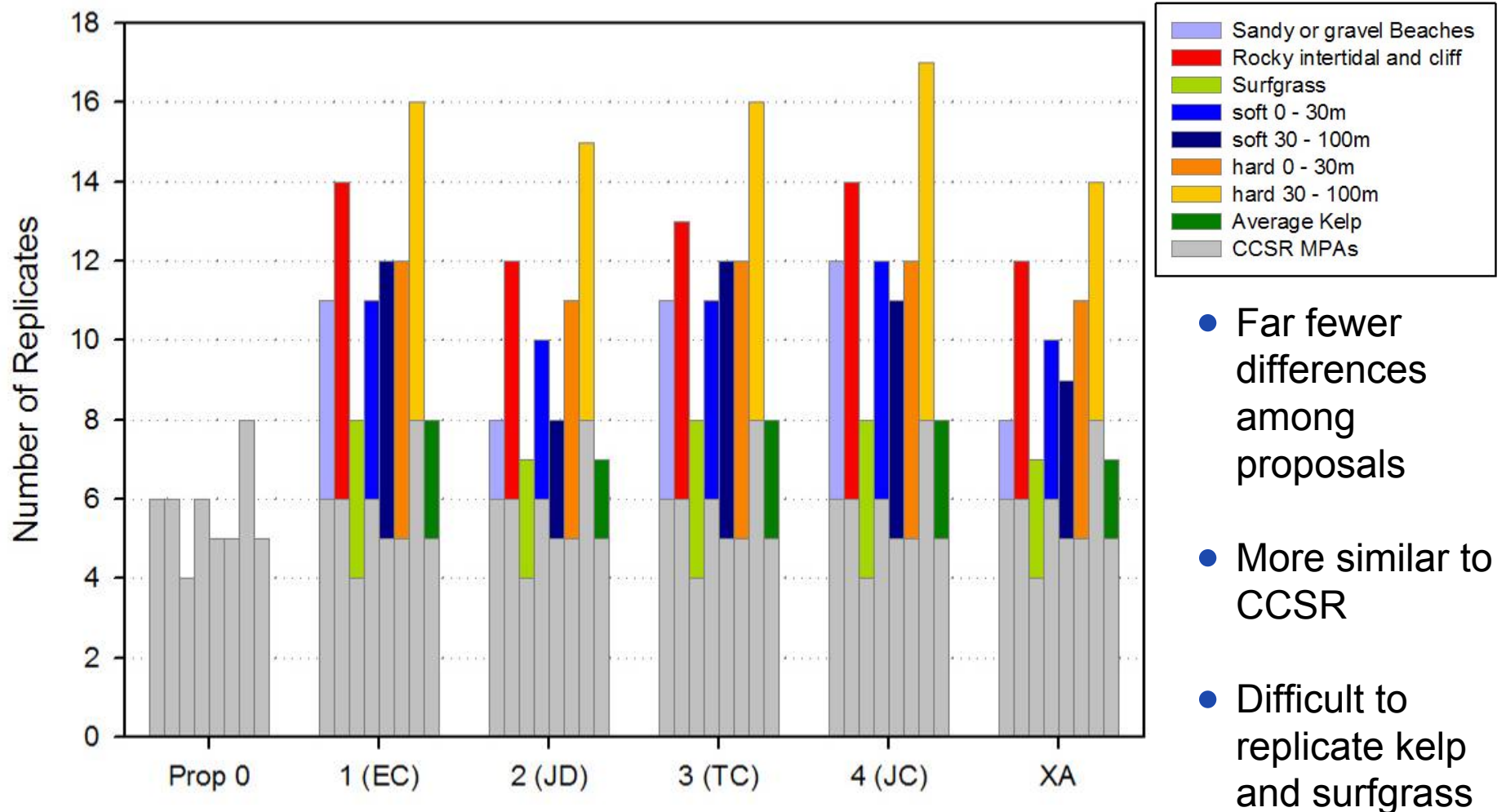
Open Coast Habitats - Protection at High and Above





Results: Habitat Replication

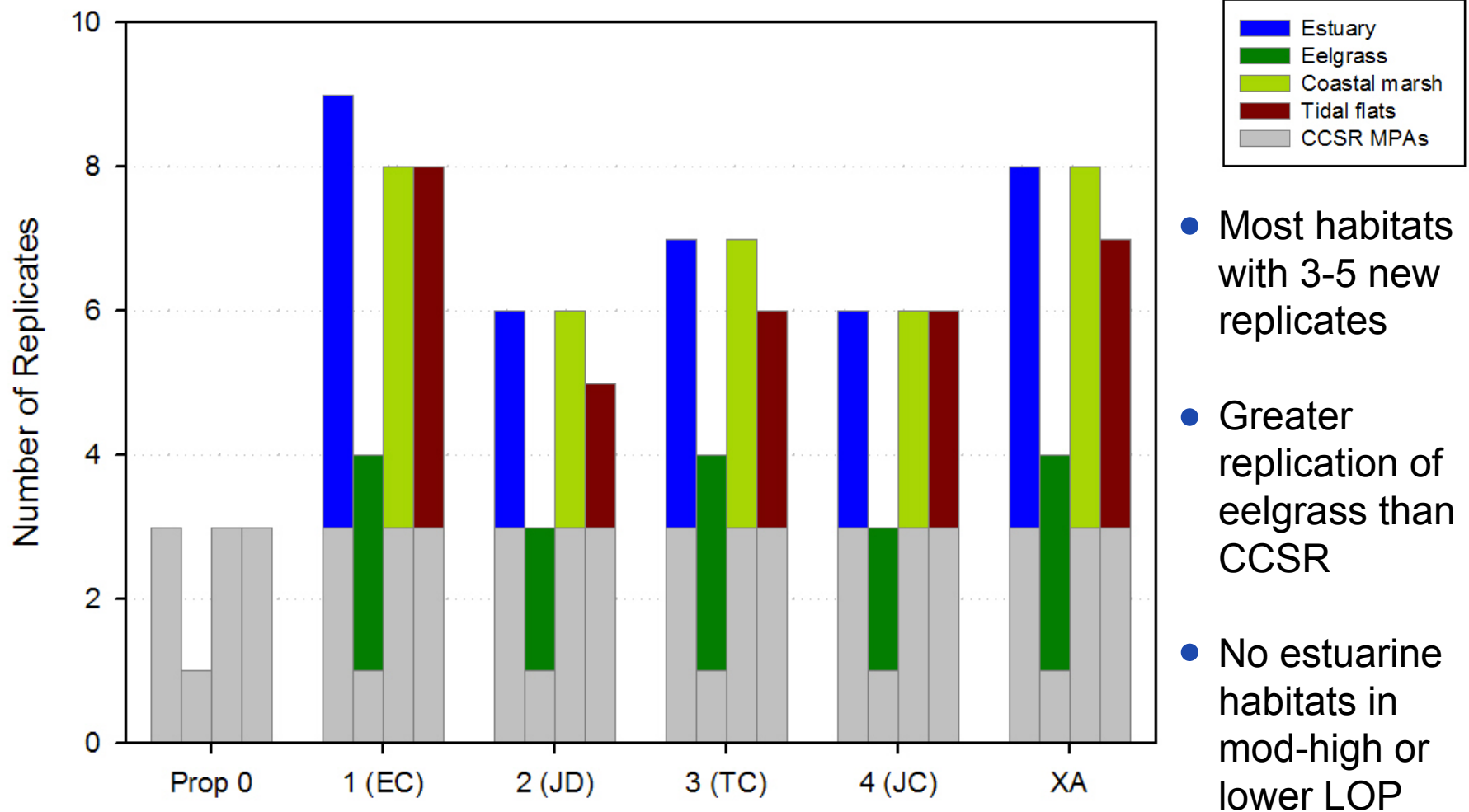
Open Coast Habitats - Protection at Mod-high and Above





Results: Habitat Replication

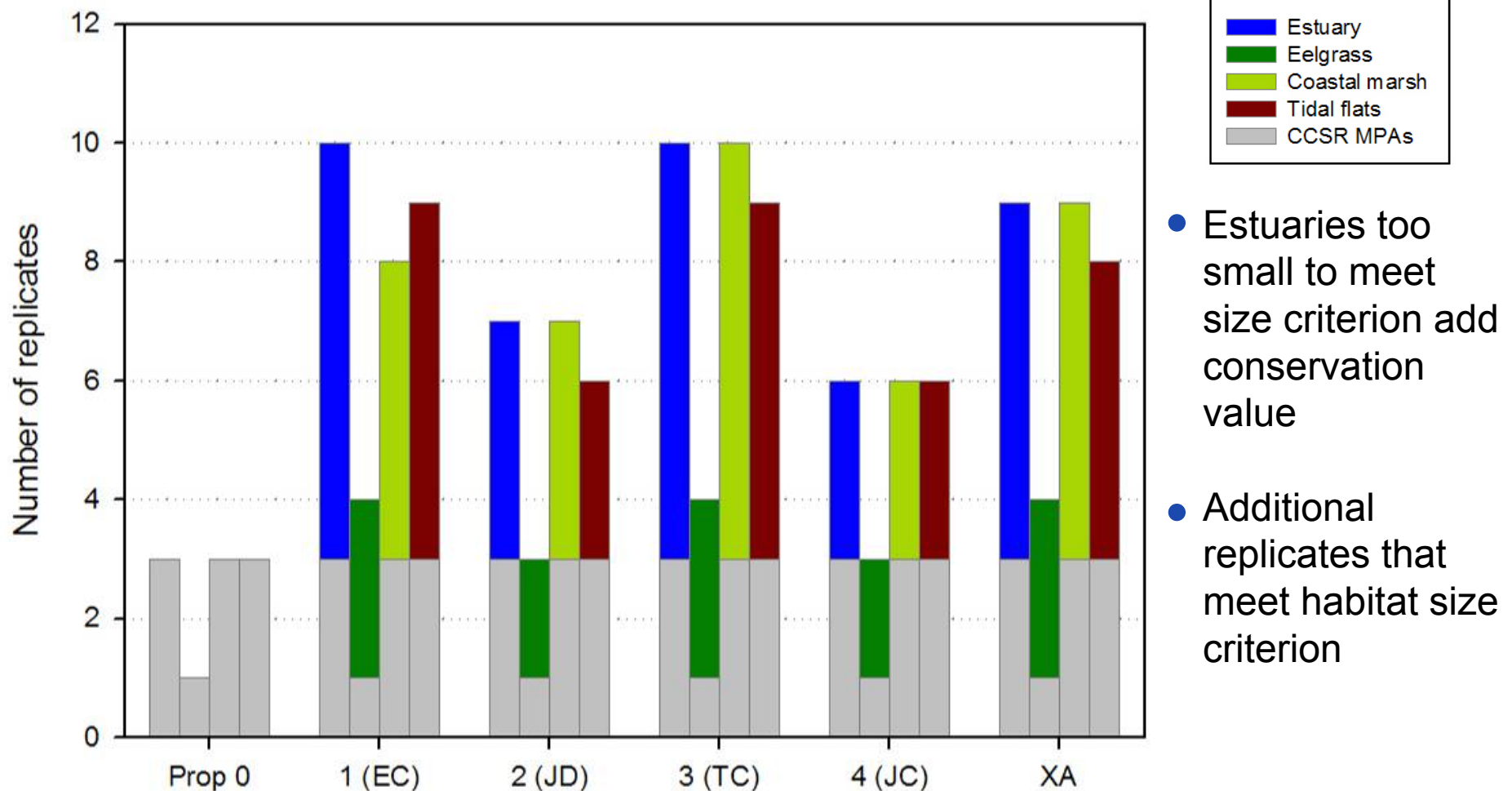
Estuarine Habitats – Very High Protection





Results: Habitat Replication

Additional “Replicates” - Do Not Meet Minimum Estuary Size Criterion





Results: Habitat Replication

Summary



Marked differences among proposals



Generally less replication than CCSR at highest levels of protection



Fewer differences among proposals and more similar to CCSR at moderate-high levels of protection



Estuarine habitats well replicated.



SAT Preliminary Evaluations



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