



Marine Life Protection Act Initiative



Draft Habitat Evaluations of NCCRSO MPA Proposals North Central Coast Study Region

Presentation to the MLPA Master Plan Science Advisory Team
April 3, 2008 • Pacifica, CA
Presented by Dr. Mark Carr







Evaluation: Habitats

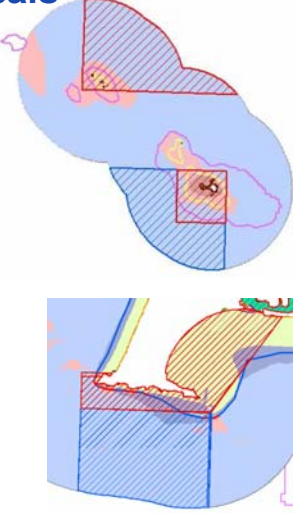
Key Questions for Each MPA Proposal

1. How well are key habitat types represented in MPA 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?

Results: Habitat Representation

Similarities between proposals

-  Strong convergence among 3 remaining proposals in area in very high (SMR) protection
-  All 3 proposals have extremely similar MPA design at the Farallon Islands, Pt. Reyes, and Pt. Arena
-  All 3 proposals have similar area of rocky shore, sandy beach and surfgrass in very high (SMR) protection
-  All 3 proposals have similar protection of estuarine habitats



Science Guidelines: Levels of Protection

	Level of Protection	MPA Types	Activities associated with this protection level
	Very high	SMR	No take
	High	SMCA	pelagic finfish (H&L in water >50m depth) salmon by troll only ; coastal pelagic finfish (pelagic seine in water >50m depth)
	Mod-high	SMCA	pelagic finfish (H&L in water <50m depth) salmon by troll only ; coastal pelagic finfish (pelagic seine in water <50m depth); Dungeness crab (traps/pots); squid (pelagic seine)
	Moderate	SMCA SMP	salmon (non-troll H&L); abalone (diving); halibut, white seabass, striped bass, shore-based finfish, croaker, and flatfishes (H&L); smelt (H&L and hand/dip nets); clams (hand harvest); giant kelp (hand harvest)
	Mod-low	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); mariculture (any method)



Results: Habitat Availability

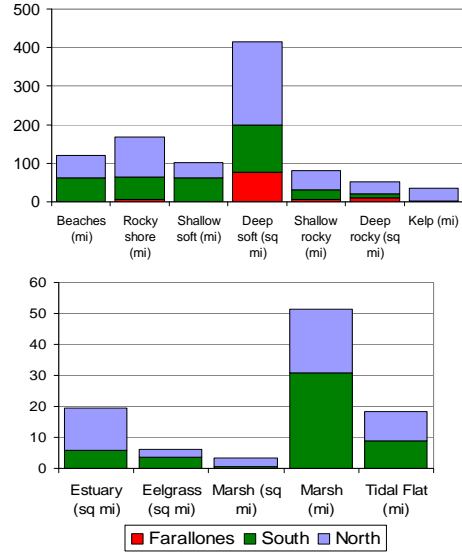
Deep soft bottom is the most abundant habitat in all subregions

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

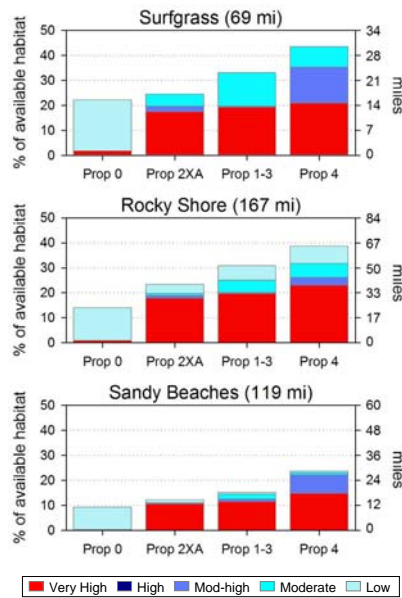


Results: Habitat Representation

Shoreline Habitats

All proposals have roughly 20% of surfgrass and rocky shore at very high protection. Additional areas allow some salmon and crab, shorefishing, abalone, halibut and urchin take.

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





Results: Habitat Representation

Rock Habitats

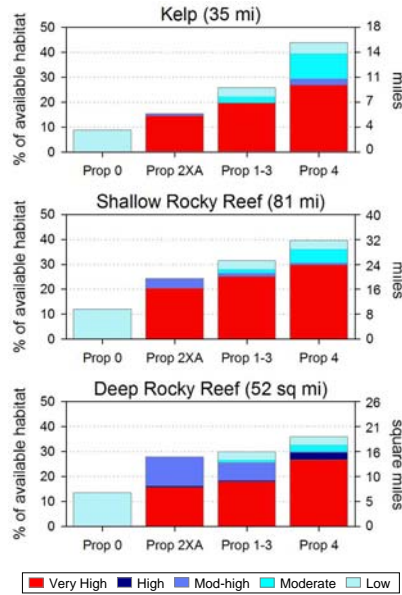
A high proportion of protected areas are in SMRs ■

Protection of kelp closely mirrors protection of shallow rock

Prop 4 protects the greatest proportion of all three rocky habitats at very high ■ protection

Large areas of deep rock in mod-high ■ protection due to salmon and crabbing

Some shallow rock and kelp areas in moderate ■ due to shorefishing and abalone and low ■ due to urchin harvest



Results: Habitat Representation

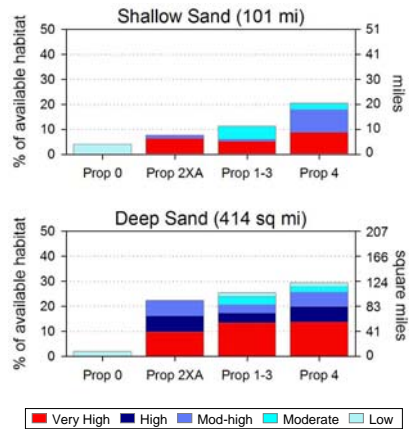
Soft Bottom Habitats

Lower representation of soft bottom habitats relative to rocky habitats

Area of shallow sand in very high protection similar across proposals

Area of deep sand in very high, high and moderate-high protection similar across proposals

Large areas of deep sand in high ■ protection due to deep water salmon trolling and mod-high ■ protection due to crabbing



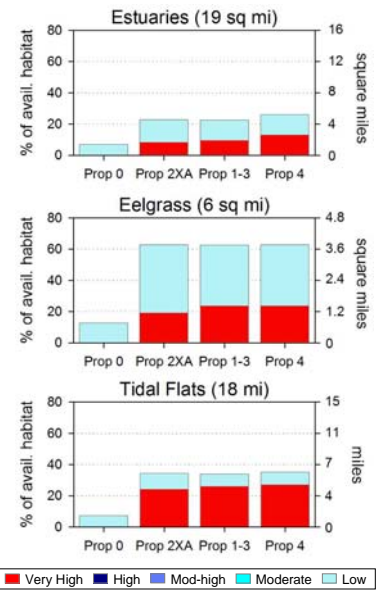
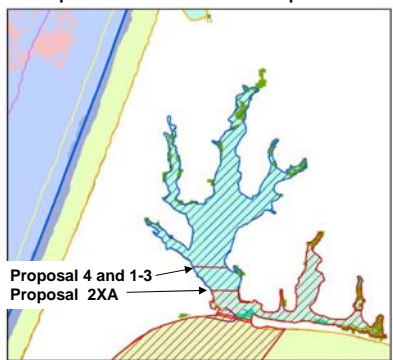


Results: Habitat Representation

Estuarine Habitats

Lower proportions of estuarine habitats in very high SMRs compared to previous version because forecasted mariculture not counted toward very high protection

Low protection due to aquaculture



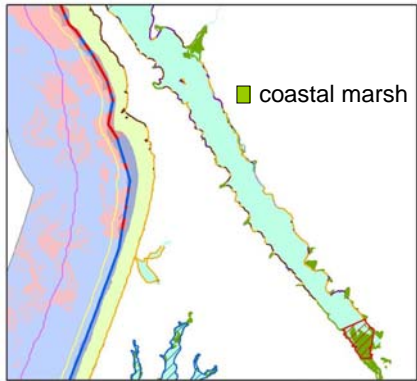
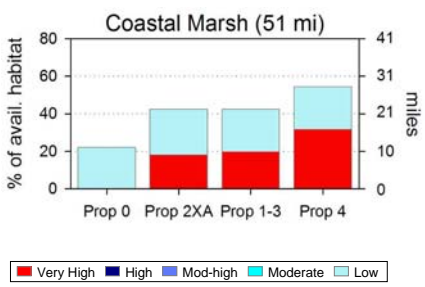
Results: Habitat Representation

Estuarine Habitats

Only Proposal 4 has an MPA in Tomales Bay

Effects coastal marsh representation





Low protection due to aquaculture





Results: Habitat Representation






Summary

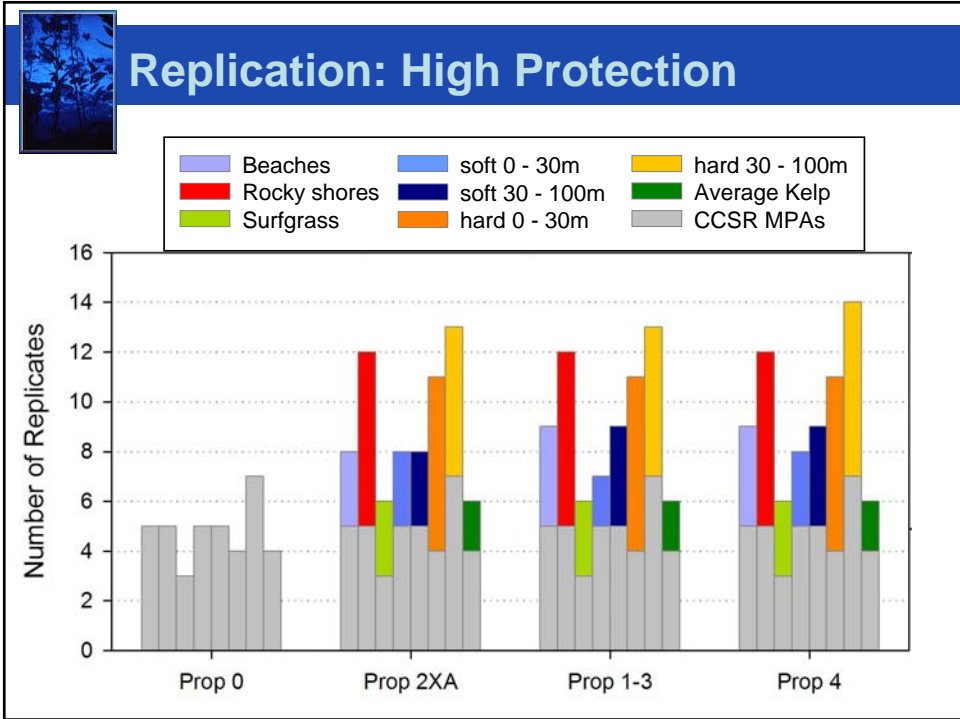
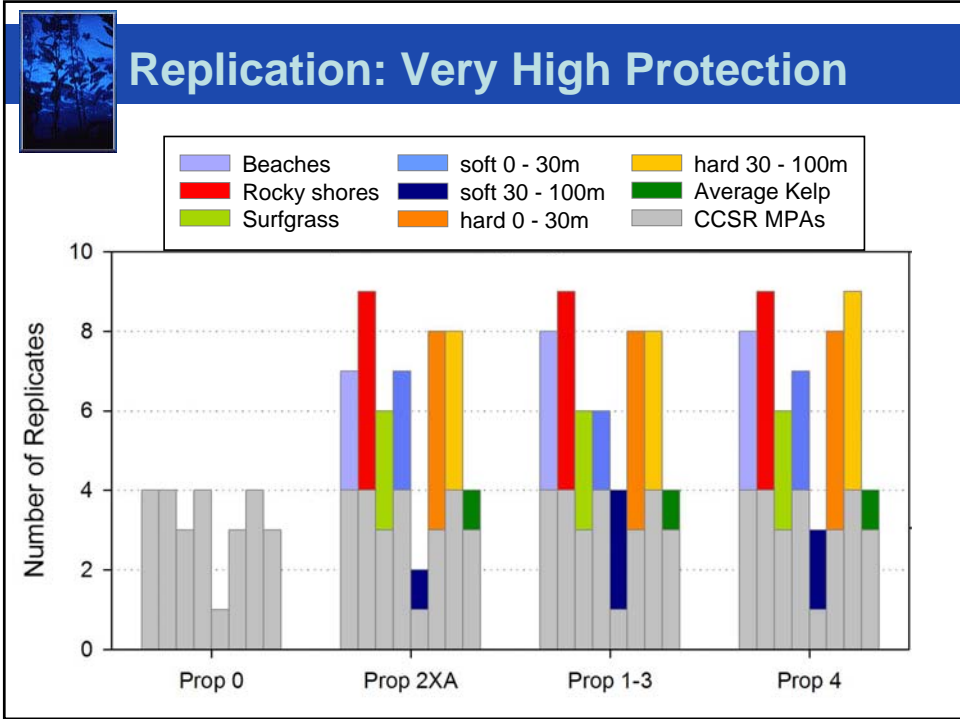
-  Strong convergence among 3 remaining proposals as compared to previous round
-  All habitats except shallow sand have at least 10% representation in all three proposals at very high, high, and mod-high protection
-  Consistent ranking in percent of habitat protected (4 > 1-3 > 2XA), with exception of shallow sand at very high and high protection
-  Range of variation in representation:
 - At very high protection, representation varied by 3.5% (surfgrass) to 12% (kelp) across proposals
 - At high protection, representation varied by 3.5% (surfgrass) to 13% (deep rock) across proposals
 - At mod-high protection, representation varied by 4.5% (deep rock) to 16% (surfgrass)

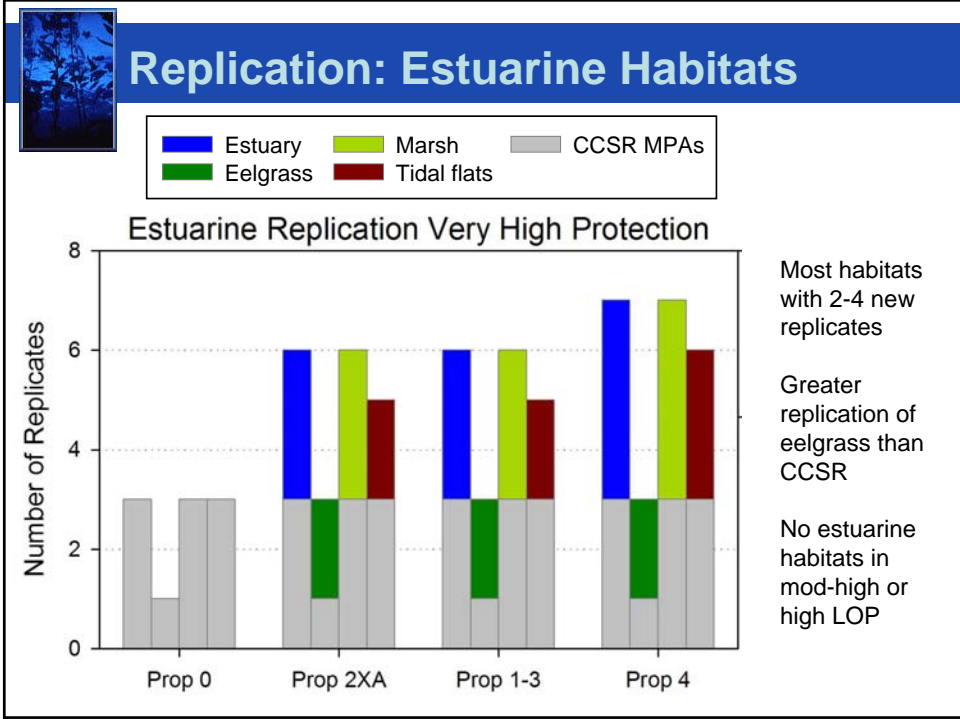
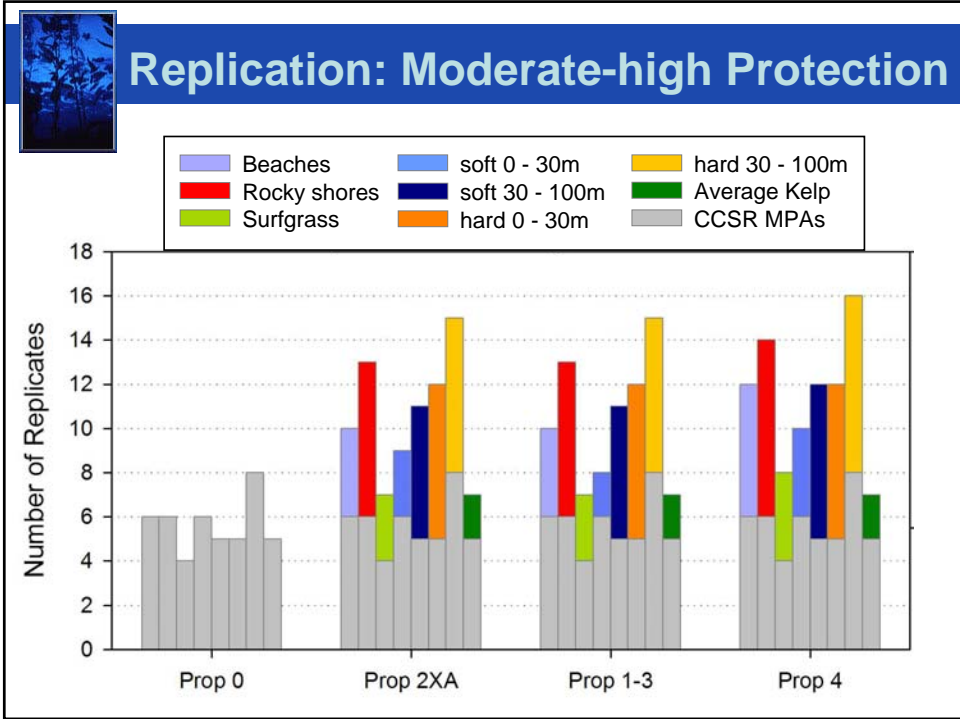


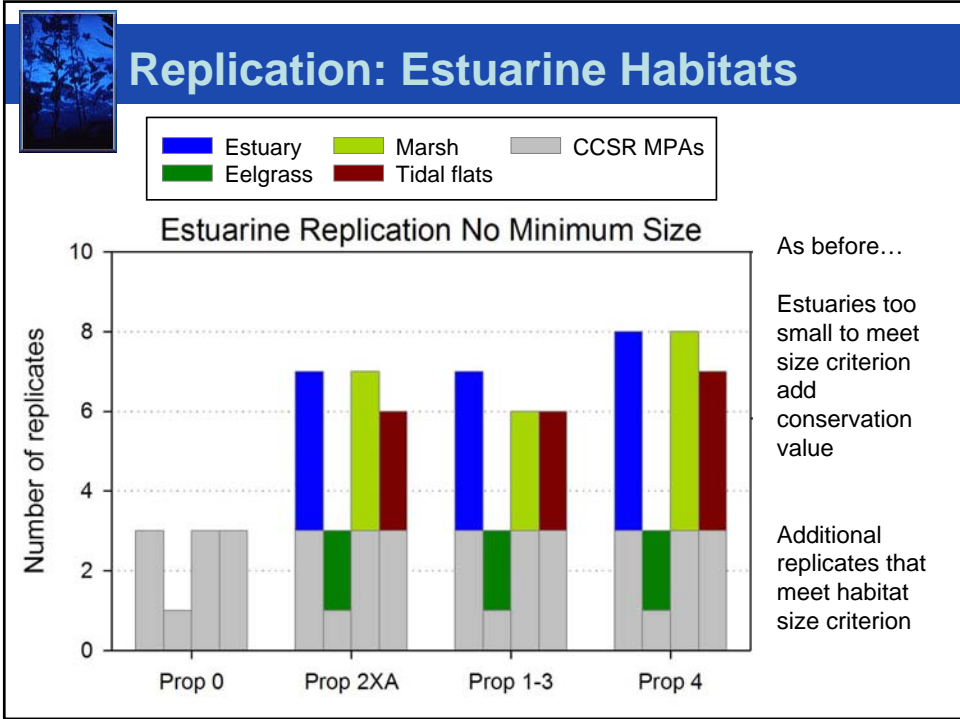
Methods: Habitat Replication

Guidelines for replication:

-  3-5 replicates of habitat per biogeographic 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 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

Summary

- No longer marked differences among proposals
- Levels of replication similar to central coast study region for most habitats at highest and moderate-high levels of protection

