



Marine Life Protection Act Initiative



SAT Habitat Evaluations of MPA Proposals for the North Central Coast Study Region

Presentation to the MLPA Master Plan Science Advisory Team

May 30, 2008 • Pacifica, CA

Presented by Dr. Mark Carr



Evaluation: Habitats

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



Strong convergence among 4 proposals in area in very high (SMR) protection



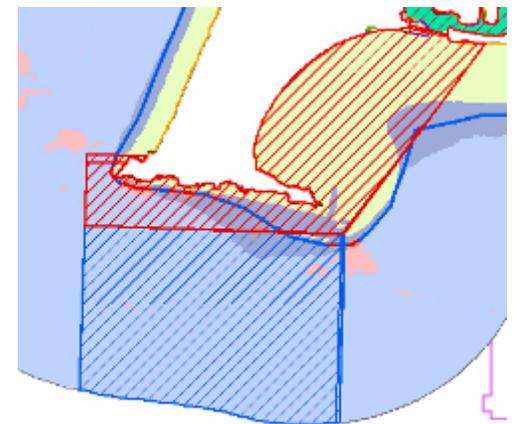
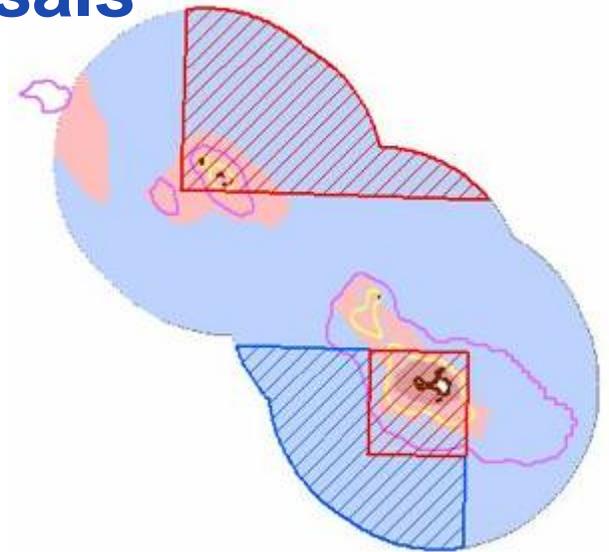
All 4 proposals have extremely similar MPA design at the Farallon Islands, Point Reyes, and Point Arena



All 4 proposals have similar area of rocky shore, sandy beach and surfgrass in very high (SMR) protection



All 4 proposals have similar protection of estuarine habitats





SAT Guidelines: Levels of Protection

	Level of Protection	MPA Types	Activities associated with this protection level
	Very high	SMR	No take
	High	SMCA	In water depth > 50m: pelagic finfish (H&L) salmon by troll only, coastal pelagic finfish (pelagic seine)
	Mod-high	SMCA	Dungeness crab (traps/pots); squid (pelagic seine); In water depth <50m: pelagic finfish (H&L) salmon by troll only, coastal pelagic finfish (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 (existing methods in NCCSR)

SMR = state marine reserve

SMCA = state marine conservation area

SMP = state marine park



Results: Habitat Availability

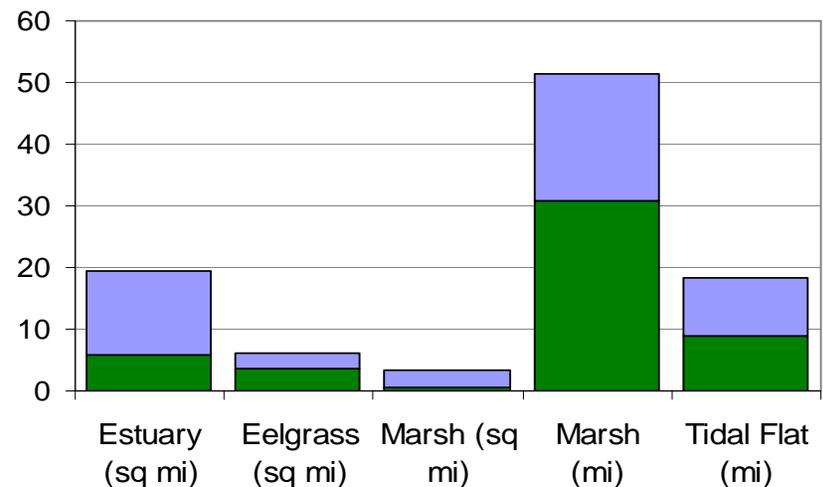
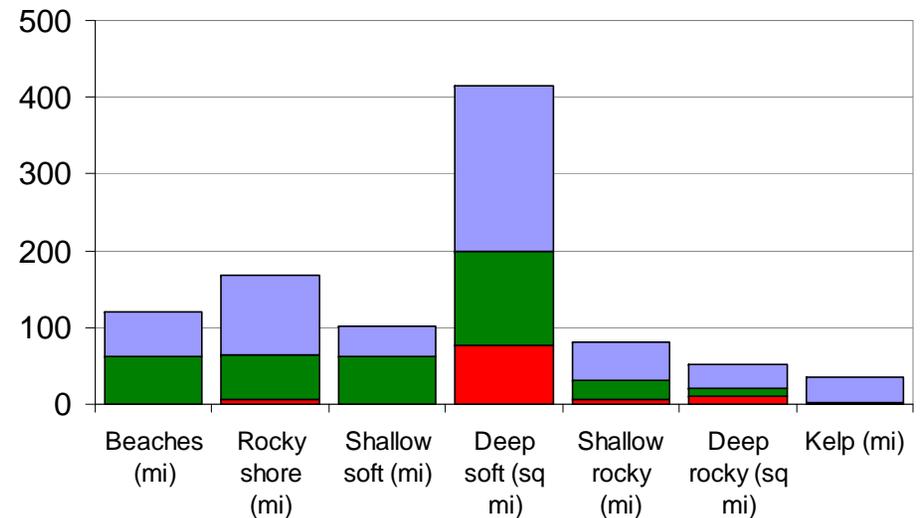
Deep soft bottom is the most abundant habitat in all subregions

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



Farallones South North

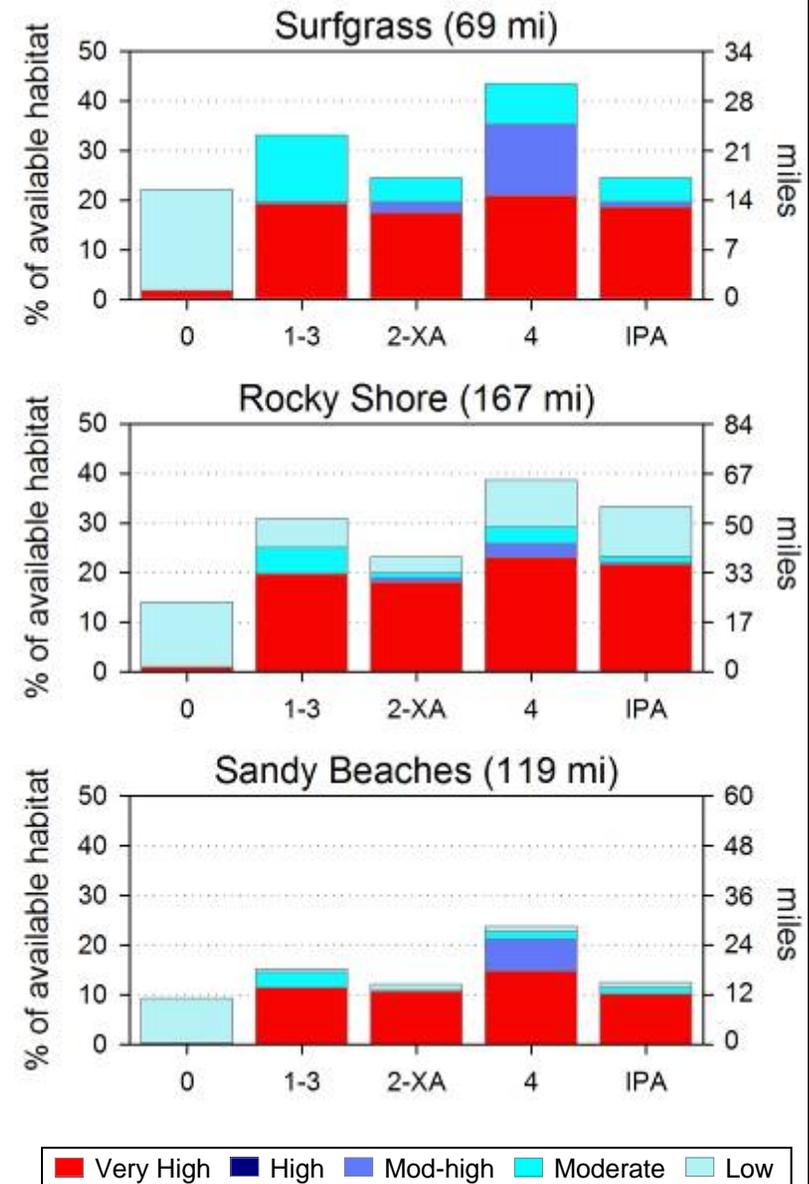


Results: Habitat Representation

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 across all proposals





Results: Habitat Representation

Rock Habitats

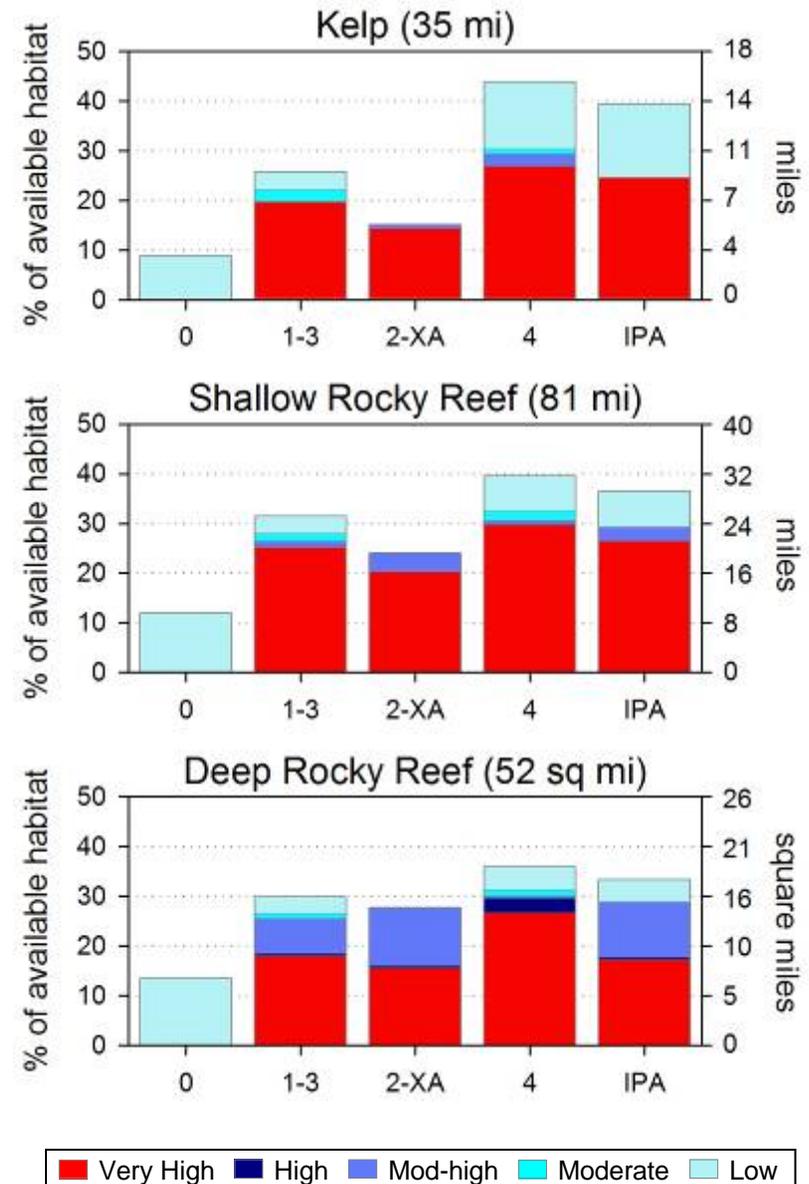
A high proportion of protected areas are in SMRs ■

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

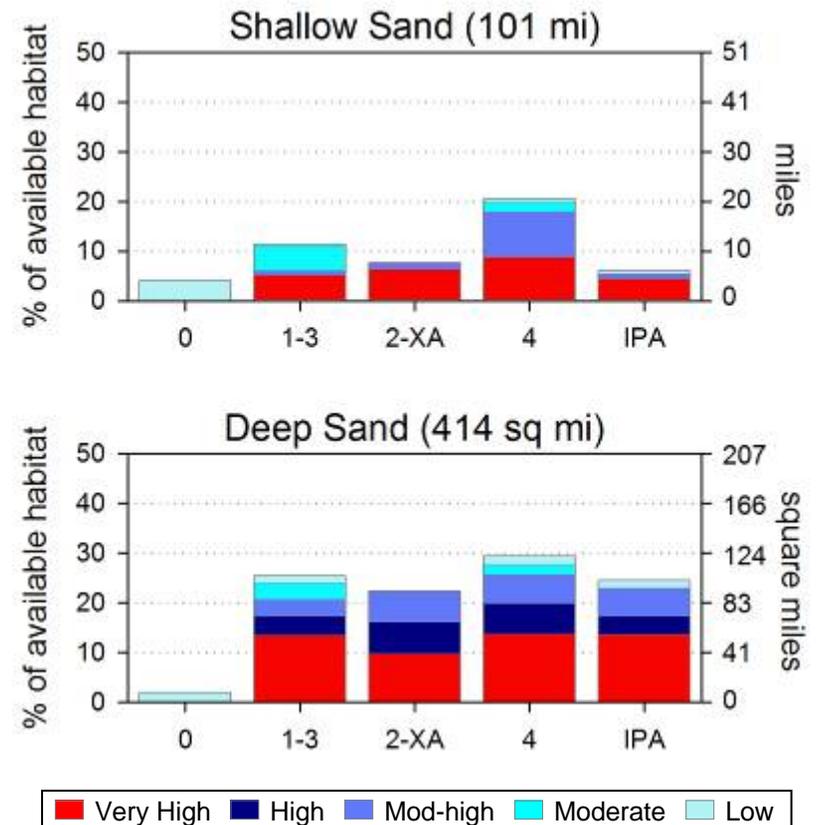
Soft Bottom Habitats

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 all 4 proposals

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





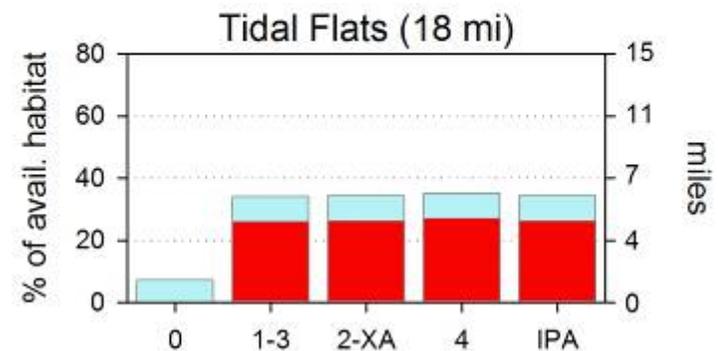
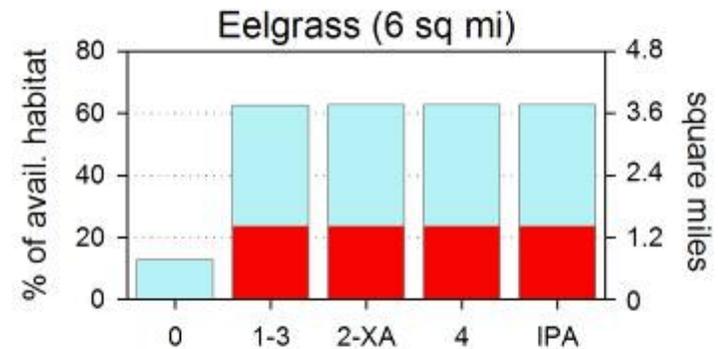
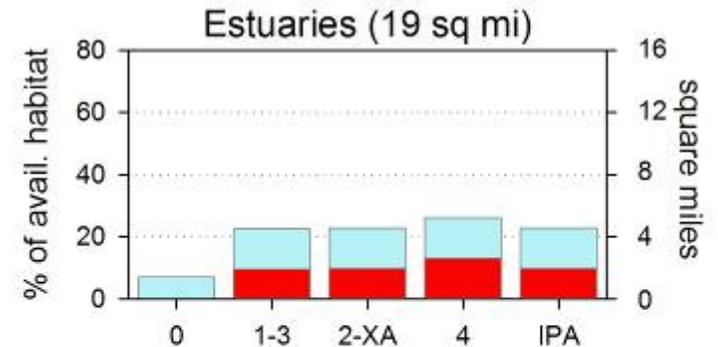
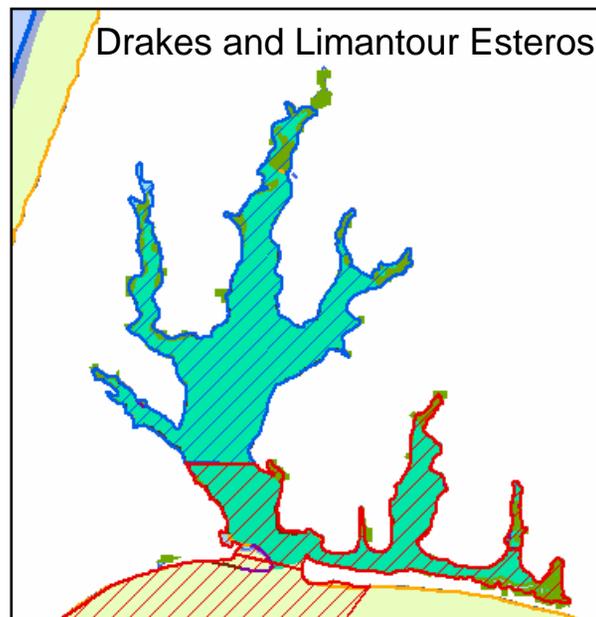
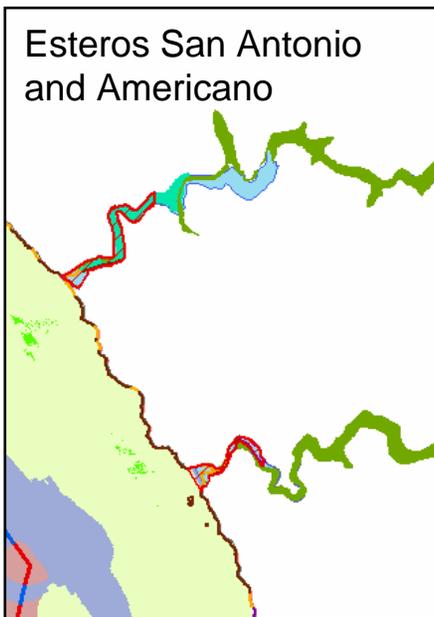
Results: Habitat Representation

Estuarine Habitats

All four proposals have almost identical protection of estuarine habitats.

Low ■ protection due to mariculture

Identical MPA shapes across all proposals



Very High High Mod-high Moderate Low



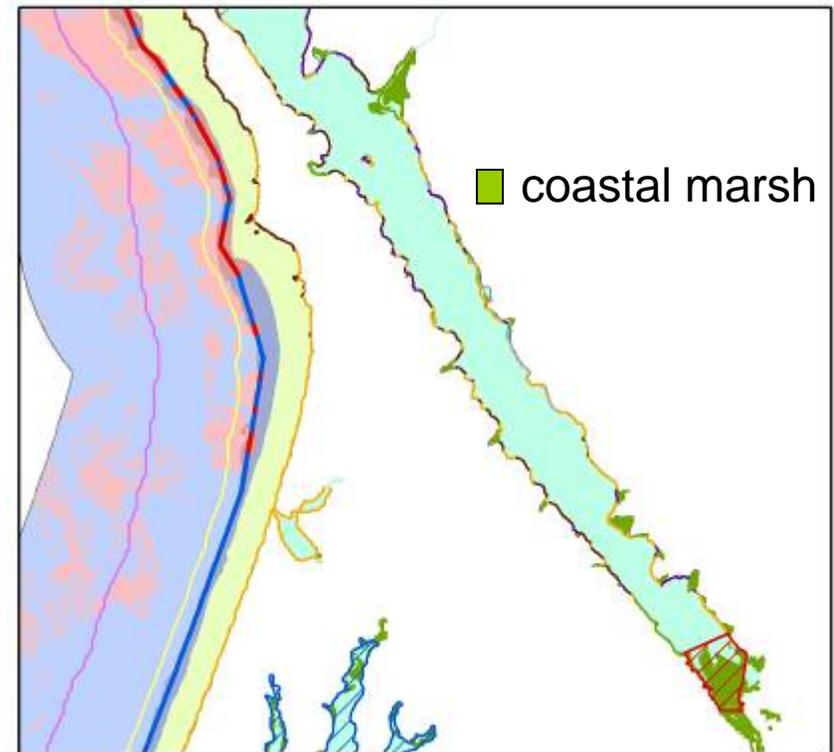
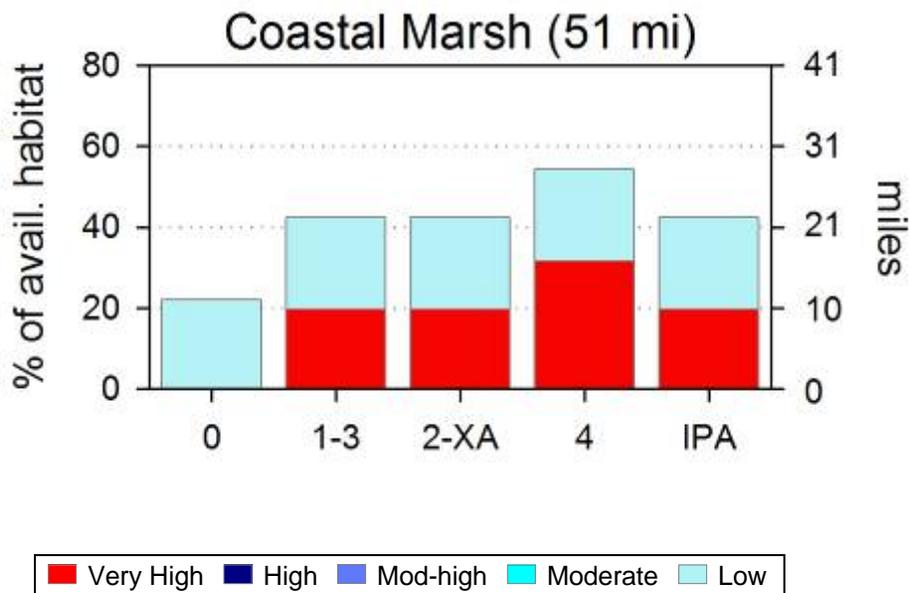
Results: Habitat Representation

Estuarine Habitats

Only Proposal 4 has an MPA in Tomales Bay

Effects coastal marsh representation

Low  protection due to aquaculture





Results: Habitat Representation

Summary

-  All habitats except shallow sand have at least 10% representation at very high protection in all 4 proposals
-  Consistent ranking of stakeholder proposals in percent of habitat protected (4 > 1-3 > 2XA), with exception of shallow sand at very high and high protection
-  For most habitats, proposal IPA protects more area than 2-XA but less than 4 at very high protection.

IPA falls between 1-3 and 4 in area of **rocky shore**, **shallow rock**, **kelp**, and **deep sand** protected at very high protection

IPA falls between 2-XA and 1-3 in area of **surfgrass** and **deep rock** protected at very high protection

Exceptions – IPA protects less area of **sandy beach** and **shallow sand** than any stakeholder proposal.



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



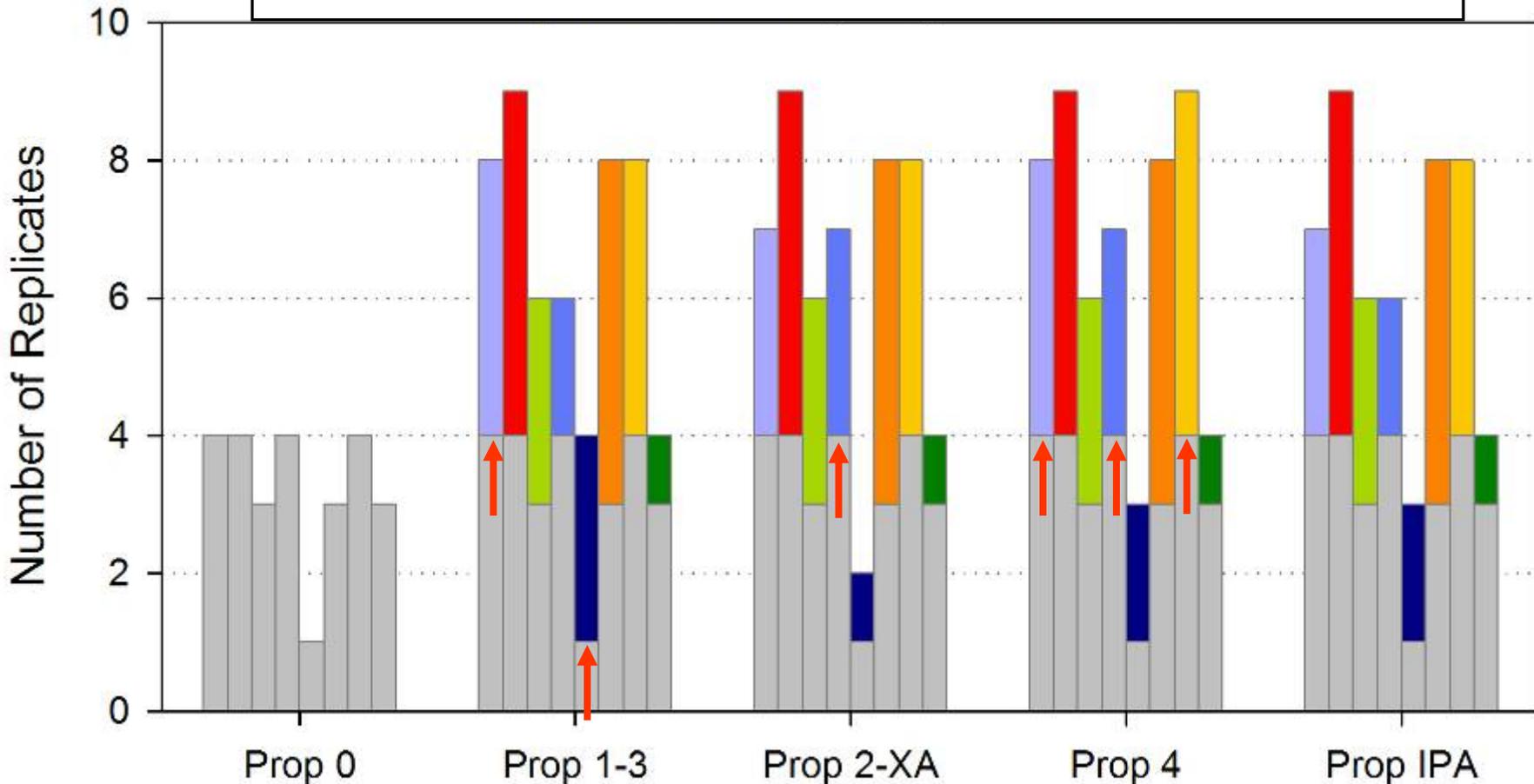
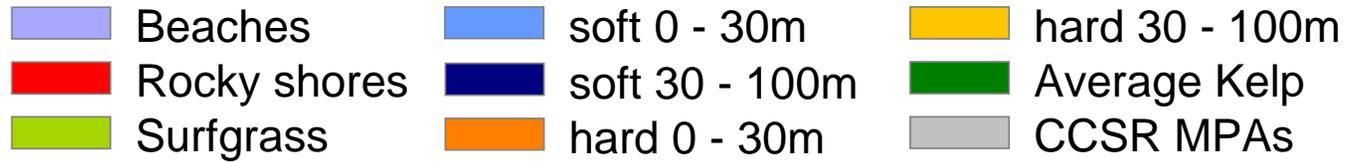
Estuarine MPAs do not have to meet size guidelines but must
contain at least 0.12 mi² of estuarine habitat



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

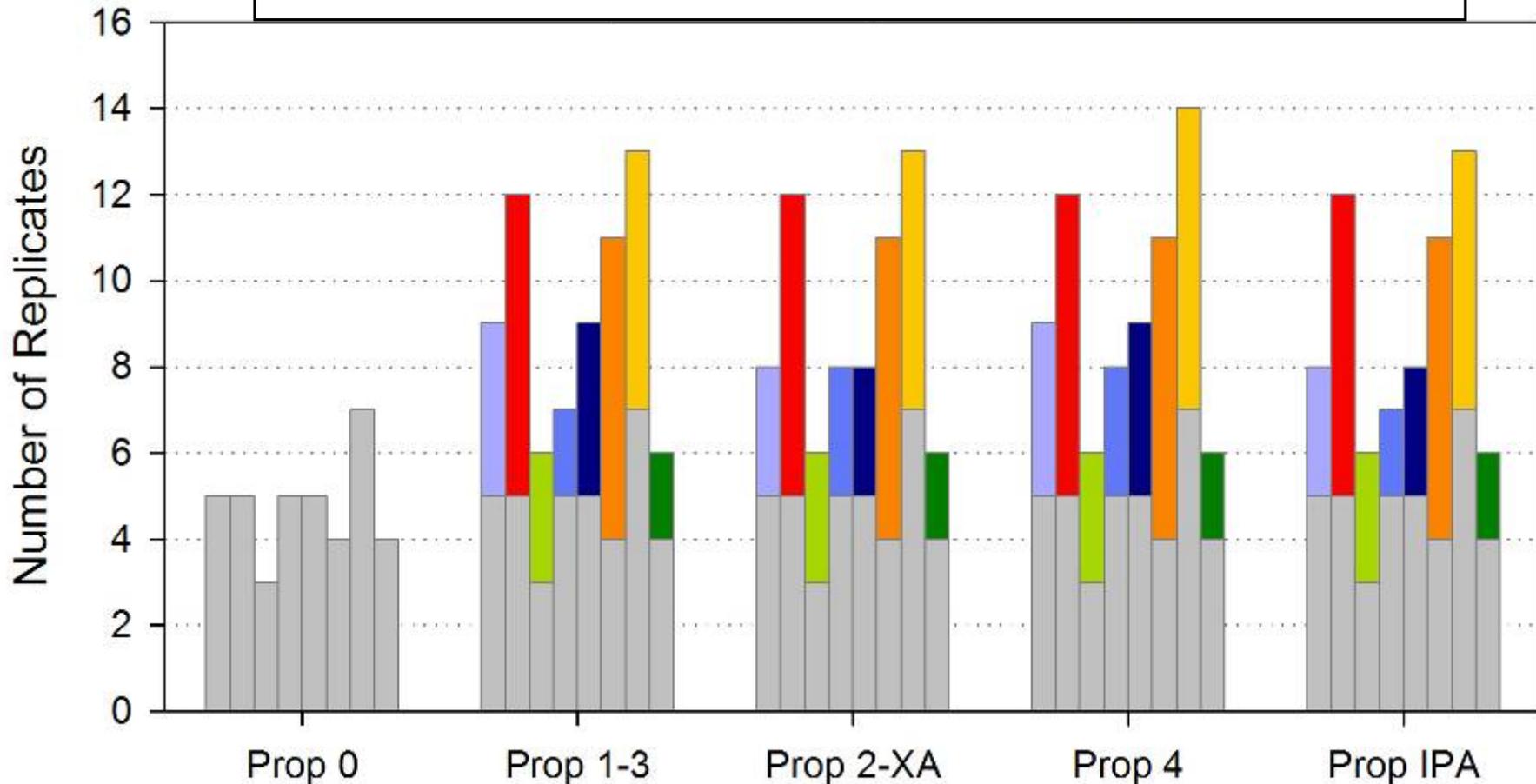
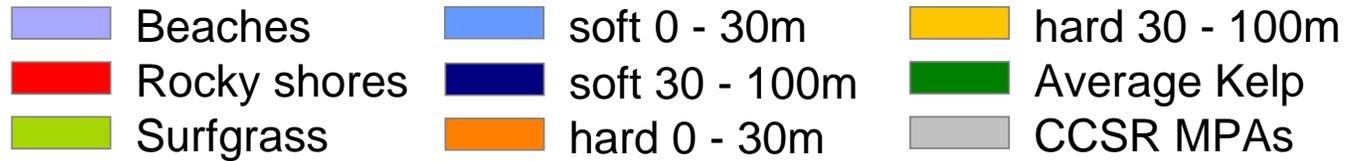


Replication: Very High Protection



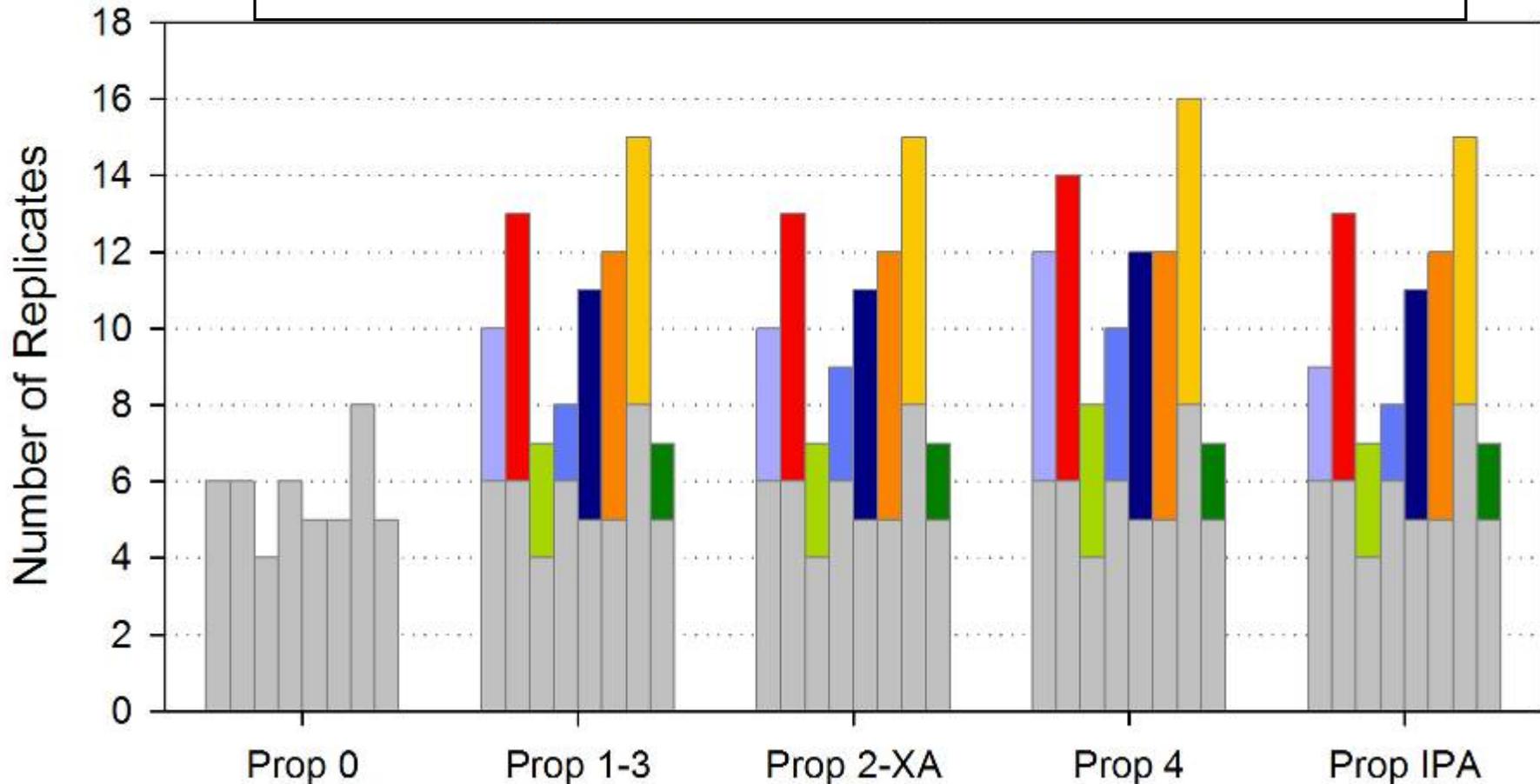
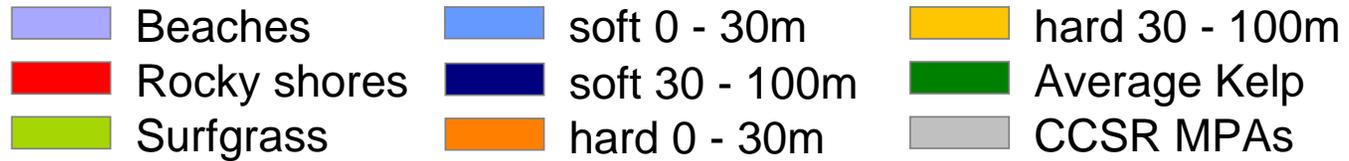


Replication: High Protection





Replication: Mod-high Protection

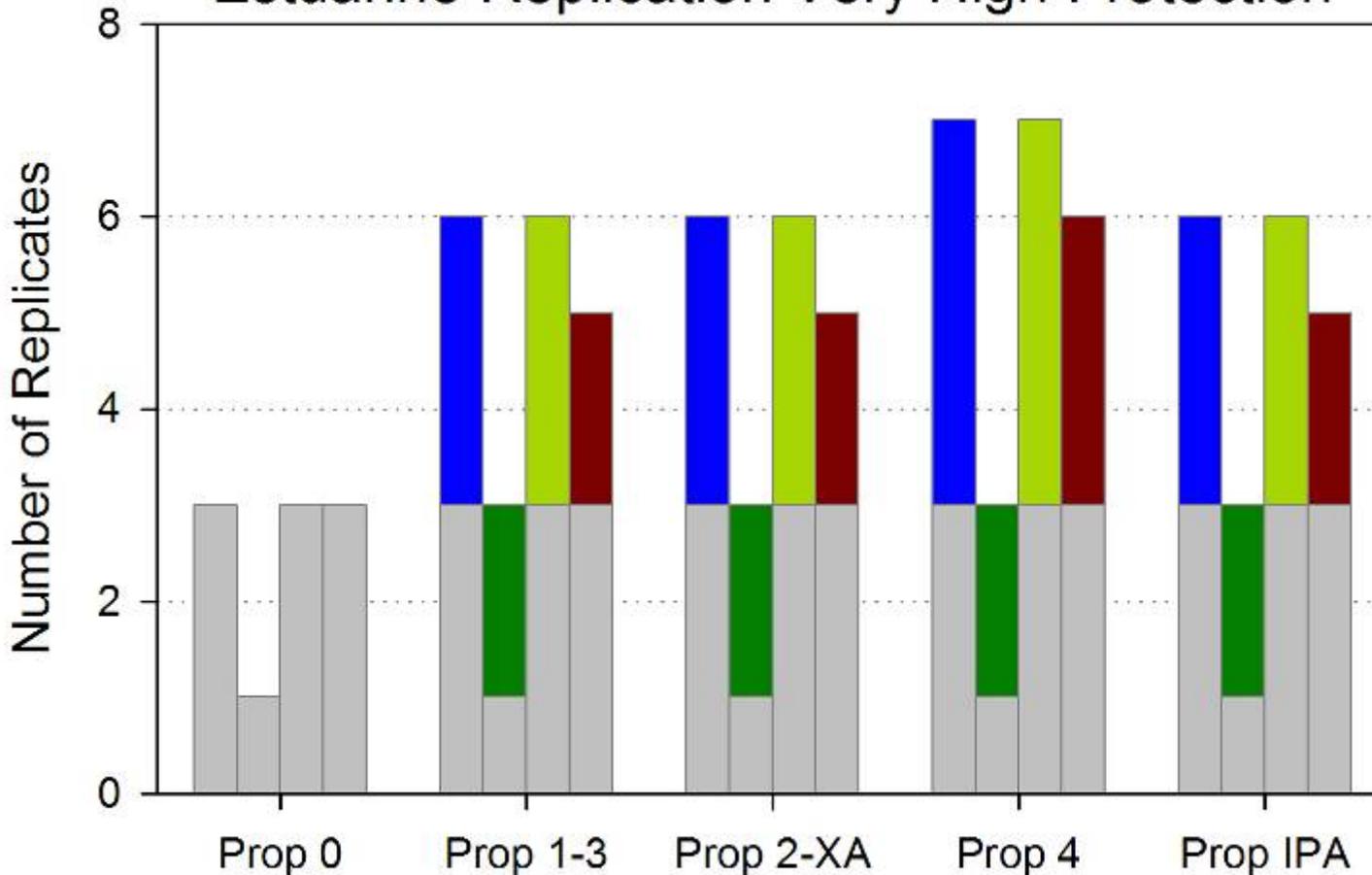




Replication: Estuarine Habitats



Estuarine Replication Very High Protection



Most habitats with 2-4 new replicates

Greater replication of eelgrass than CCSR

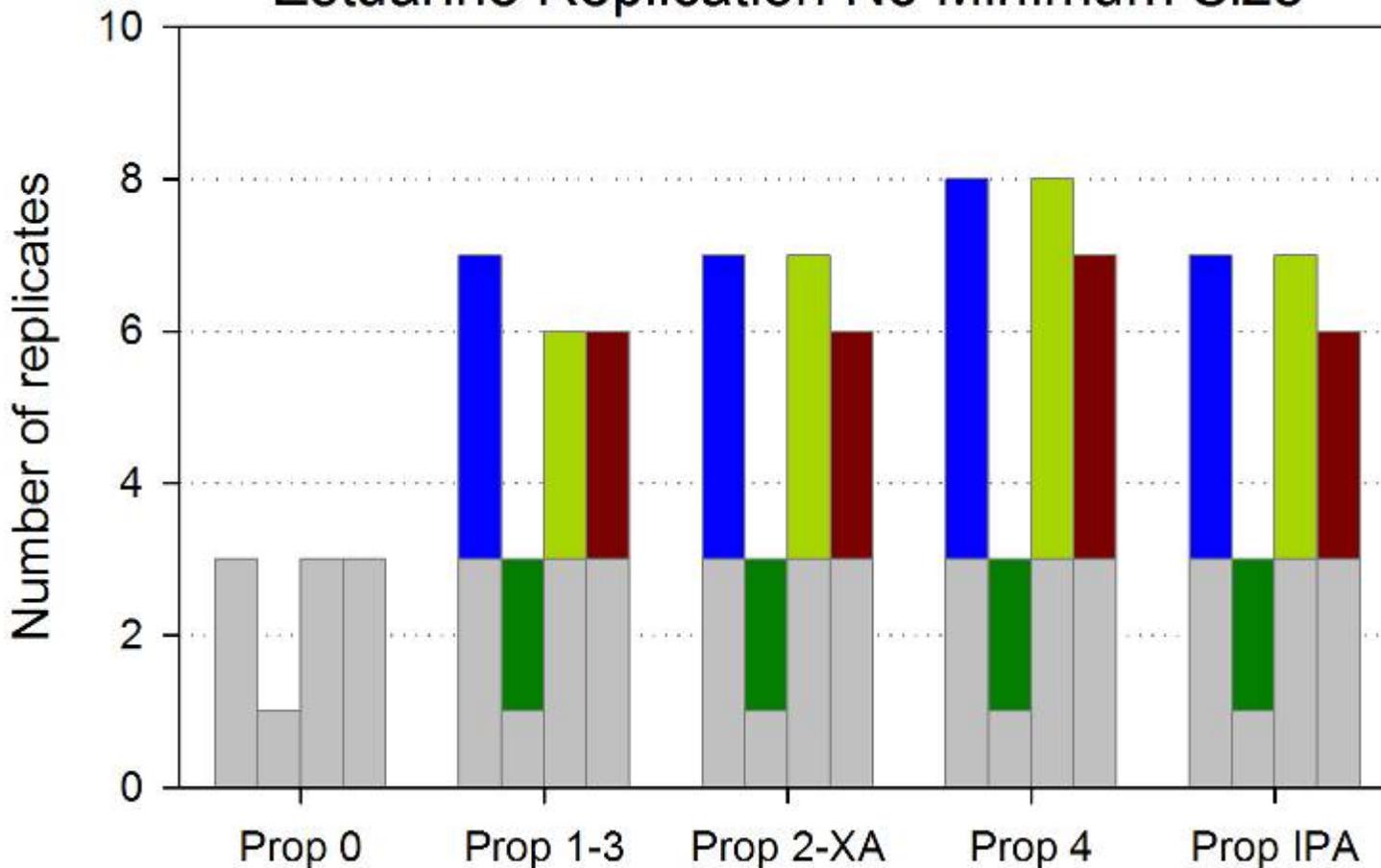
No estuarine habitats in mod-high or high LOP



Replication: Estuarine Habitats



Estuarine Replication No Minimum Size



As before...

Estuaries too small to meet size criterion add conservation value

Additional replicates that meet habitat size criterion



Results: Habitat Replication

Summary



No marked differences among proposals



Levels of replication similar to CCSR for most habitats at highest and moderate-high levels of protection



SAT Habitat Evaluations



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