

Marine Life Protection Act Initiative



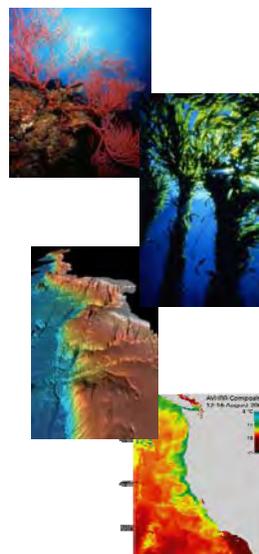
Draft Habitat Representation and Habitat Replication Evaluations of Round 2 MPA Proposals for the South Coast Study Region

Presentation to the MLPA Blue Ribbon Task Force
July 28, 2009 • Santa Monica, CA

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University of California, Santa Cruz

MLPA Goals*

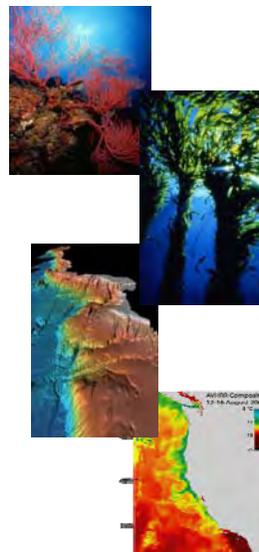
1. To protect the natural diversity and function of **marine ecosystems**
2. To help sustain and restore **marine life populations**
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance
4. To protect representative and unique **marine life habitats**
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 paraphrases the MLPA goals

MLPA Goals*: Habitats

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6. To ensure that MPAs are designed and managed as a **network**



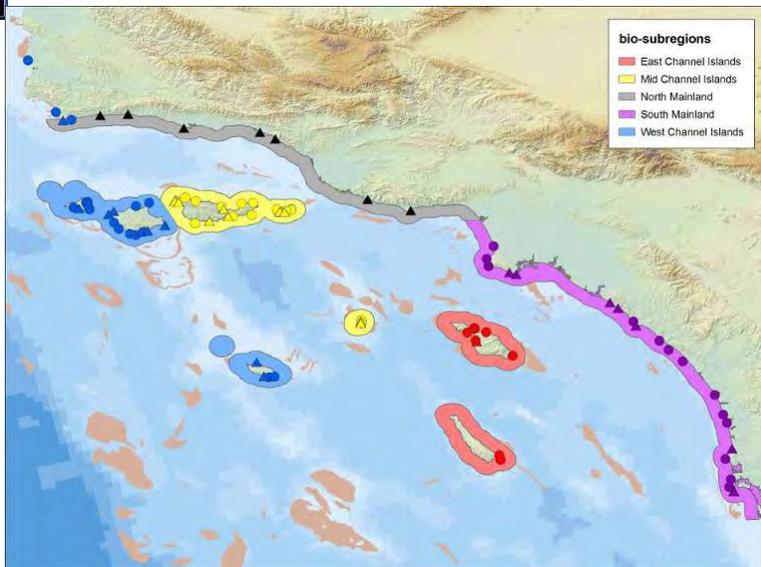
* Note that this language paraphrases the MLPA goals

Evaluation: Habitats

Key Questions for Each Marine Protected Area (MPA) Proposal

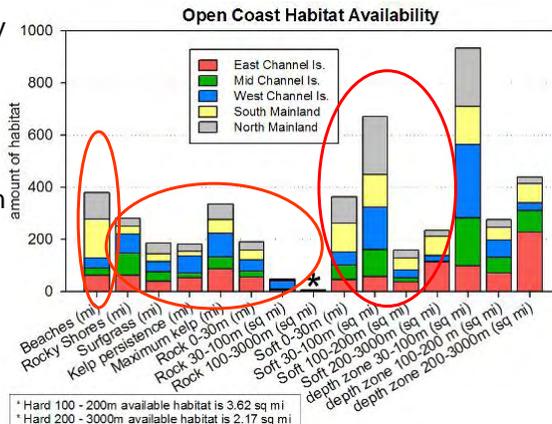
1. How well are key habitat types represented in draft MPA proposals?
2. What are the proposed levels of protection for these habitat types?
3. How well are habitats and levels of protection distributed across the study region?

South Coast Evaluation Bioregions



Results: Habitat Availability

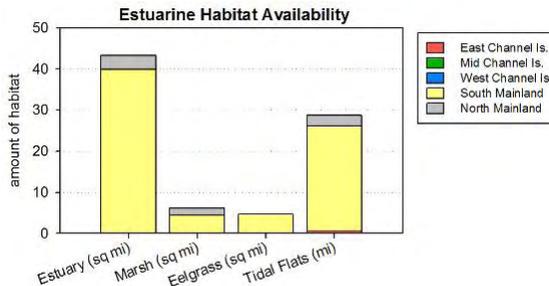
- Soft-bottom habitats are very abundant across the study region, especially on the mainland.
- Rocky habitats are more abundant on the islands than the mainland.
- Deep rock (>100 meters) is rare.
- Surfgrass is now mapped across the study region.





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.



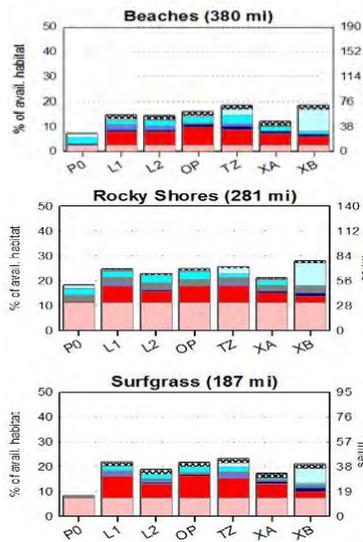
Results: Habitat Representation



Shoreline Habitats

- 6-10% of beaches are in SMRs (3% in CINMS SMRs). 7-11% are at or above mod-high protection. Beaches are disproportionately less protected than rock.
- 14-18% of rocky shores are in SMRs (11% in CINMS SMRs). 15-19% are at or above mod-high protection. Rocky shores are less represented in the Eastern CI across all proposals.
- 10-17% of surfgrass is in SMRs (8% in CINMS SMRs). 12-18% is at or above mod-high protection.

SMR = state marine reserve
 CINMS SMRs = SMRs in state waters within the Channel Islands National Marine Sanctuary



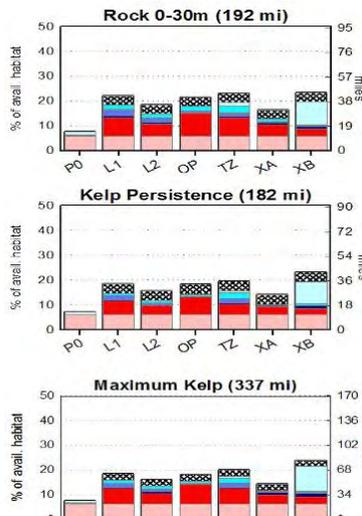


Results: Habitat Representation



Nearshore Rock & Kelp

- 9-15% of shallow 0-30m rock is in SMRs (6% in CINMS SMRs). 0-16% is at or above mod-high protection.
- 9-13% of “persistent” kelp (at least 3 of 7 years) is in SMRs (6% in CINMS SMRs). 0-14% is at or above mod-high protection.
- 9-13% of “maximum” kelp (at least 1 of 7 years) is in SMRs (6% in CINMS SMRs). 1-15% is at or above mod-high protection.

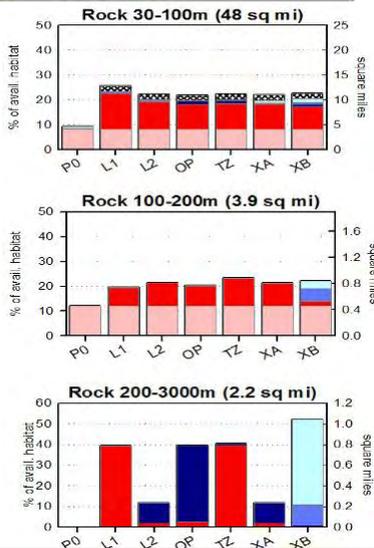


Results: Habitat Representation



Deep Rocky Reef

- 17-23% of 30-100m rock is in SMRs (8% in CINMS SMRs). 19-23% is at or above mod-high protection.
- 14-23% of 100-200m rock is in SMRs (12% in CINMS SMRs). 19-24% is at or above mod-high protection.
- 0-39% of 200-3000m rock is in SMRs (0% in CINMS SMRs). 11-40% is at or above mod-high protection. L1, TZ, OP with MPAs at Point Dume



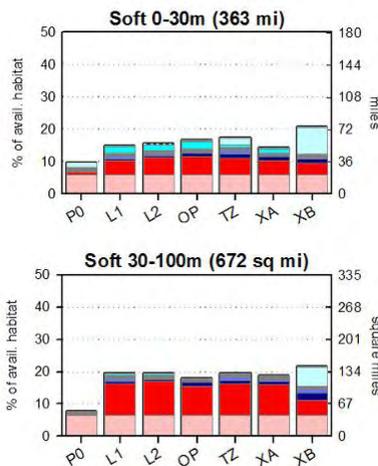


Results: Habitat Representation



Shallow Soft-bottom Habitats

- Shallow soft-bottom habitats are very abundant across the study region – small percentages correspond to large areas.
- 10-11% of 0-30m soft bottom is in SMRs (6% in CINMS SMRs). 11-13% is at or above mod-high protection.
- 11-17% of 30-100m soft bottom is in SMRs (7% in CINMS SMRs). 15-18% is at or above mod-high protection.

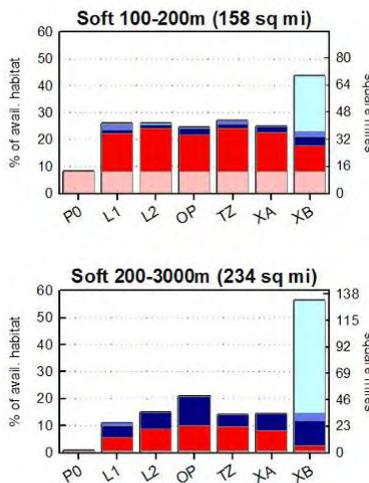


Results: Habitat Representation



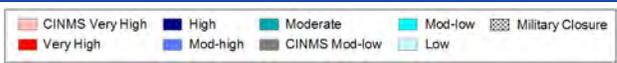
Deep Soft-bottom Habitats

- Deep soft-bottom habitats are abundant across the study region – small percentages correspond to large areas.
- 18-24% of 100-200m soft bottom is in SMRs (8% in CINMS SMRs). 23-27% is at or above mod-high protection. On average, soft bottom is less represented in the ECI.
- 3-10% of 200-3000m soft bottom is in SMRs (1% in CINMS SMRs). 11-21% is at or above mod-high protection. On average, soft bottom is less represented in the ECI.
- Soft bottom deeper than 200 meter is associated with canyons on mainland; otherwise at East Channel Islands.



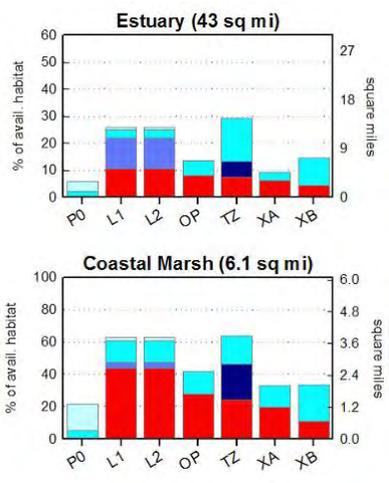


Results: Habitat Representation

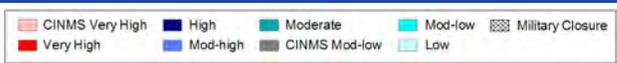


Estuarine Habitats

- Estuarine habitats exist almost exclusively on the mainland and concentrated in the south mainland.
- Estuary = any enclosed water body, including breakwaters.
- 4-10% of estuary is in SMRs. 4-22% is at or above mod-high protection
- 11-44% of coastal marsh is in SMRs. 11-48% is at or above mod-high protection.

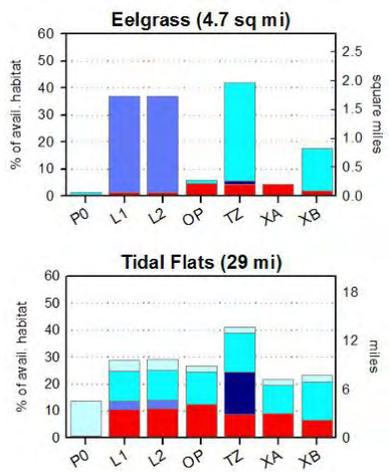


Results: Habitat Representation



Estuarine Habitats

- Patchy distribution of eelgrass among estuaries leads to high variability across proposals.
- 1-5% of eelgrass is in SMRs. 2-37% is at or above mod-high protection.
- Tidal flats are not well mapped.
- 7-13% of tidal flats are in SMRs. 7-25% are at or above mod-high protection.



Results: Habitat Representation

Rare and Unique Habitats

Table summarizes the number of MPAs at or above mod-high protection that are known to contain rare and unique habitats.

Proposal	Open coast eelgrass	Elk kelp	Oil seeps	Sulfide vents	Canyons	() indicates military closures
CINMS	4	0	1	0	1	
Proposal 0	2	1	0	0	1	
Lapis 1	9(1)	2(1)	3	0	3	
Lapis 2	9(1)	1(1)	3	0	1	
Opal	10(1)	2(1)	3	0	2	
Topaz	9(1)	2(1)	3	0	3	
External A	9(1)	1(1)	3	0	1	
External B	7(1)	1(1)	1	0	2	

Only one sulfide vent location is currently mapped in the south coast study region (at Palos Verdes).

Results: Habitat Representation

Summary

-  There is some convergence of proposals in round 2 – internal proposals perform similarly.
-  Ranking of proposals for protection across all habitats is:
 - Very High:** OP > TZ > L1 & L2 > XA > XB
 - Mod-high:** TZ > L1 > L2 > OP > XA > XB
-  All internal proposals include at least 10% of most habitat at very high protection. Exceptions include beaches, rock and soft bottom 200-3000m, and estuarine habitats.



Methods: Habitat Replication

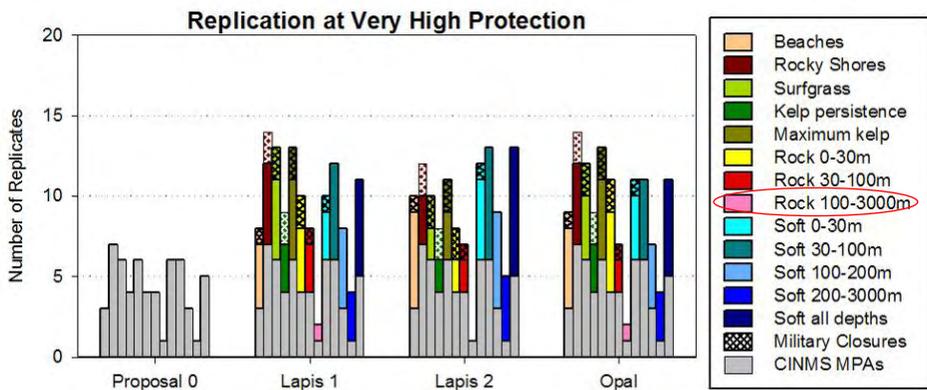
Guidelines for Replication

-  3-5 replicates of habitat are required per biogeographic region (i.e., the study region).
-  Each 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.



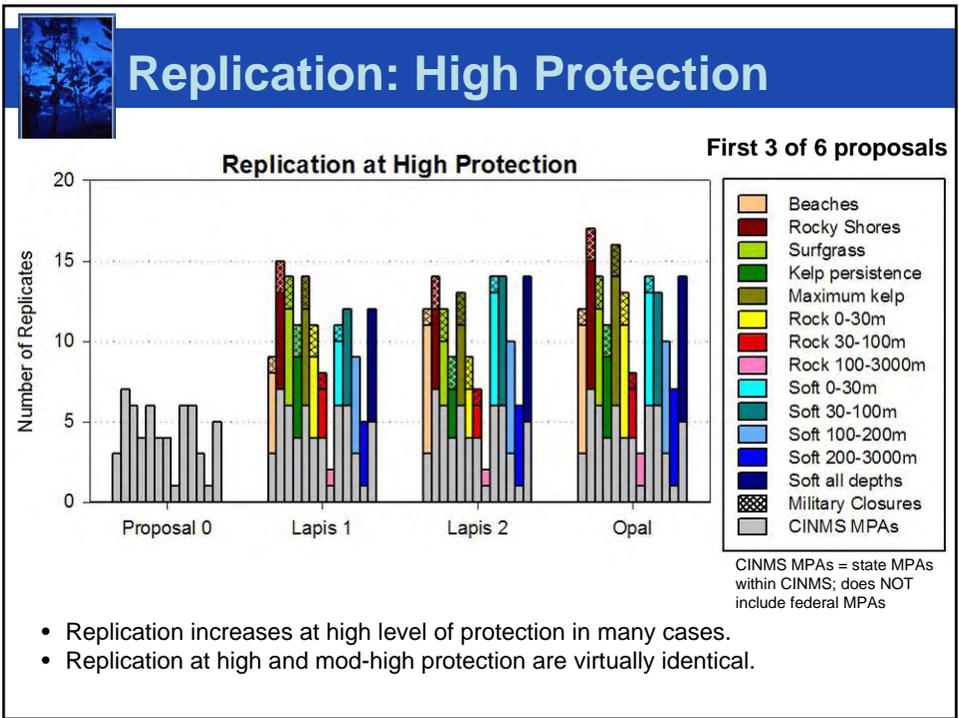
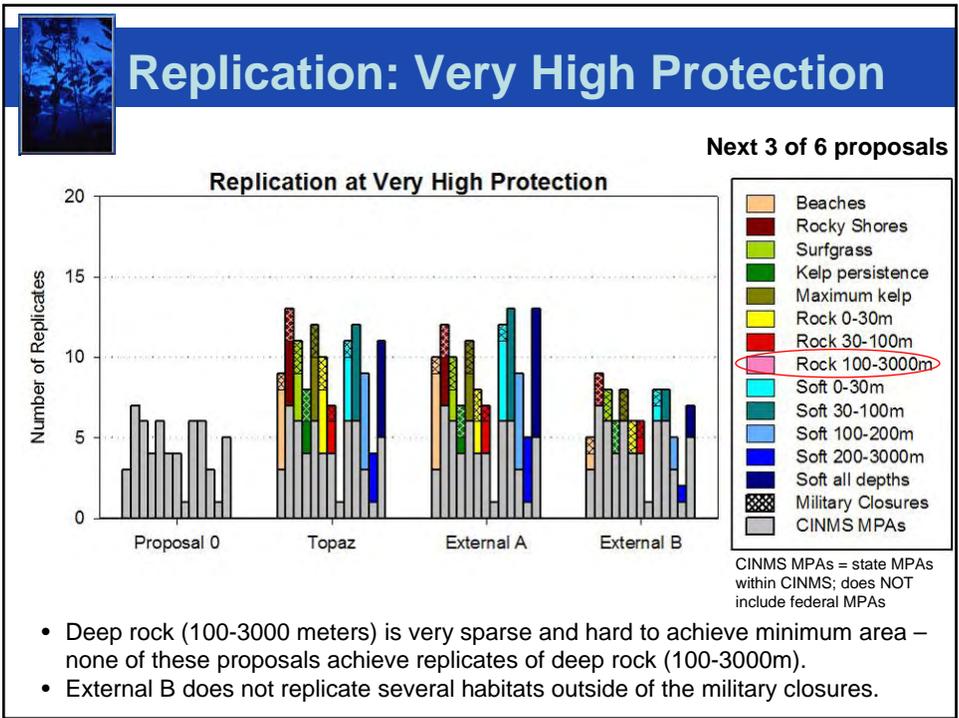
Replication: Very High Protection

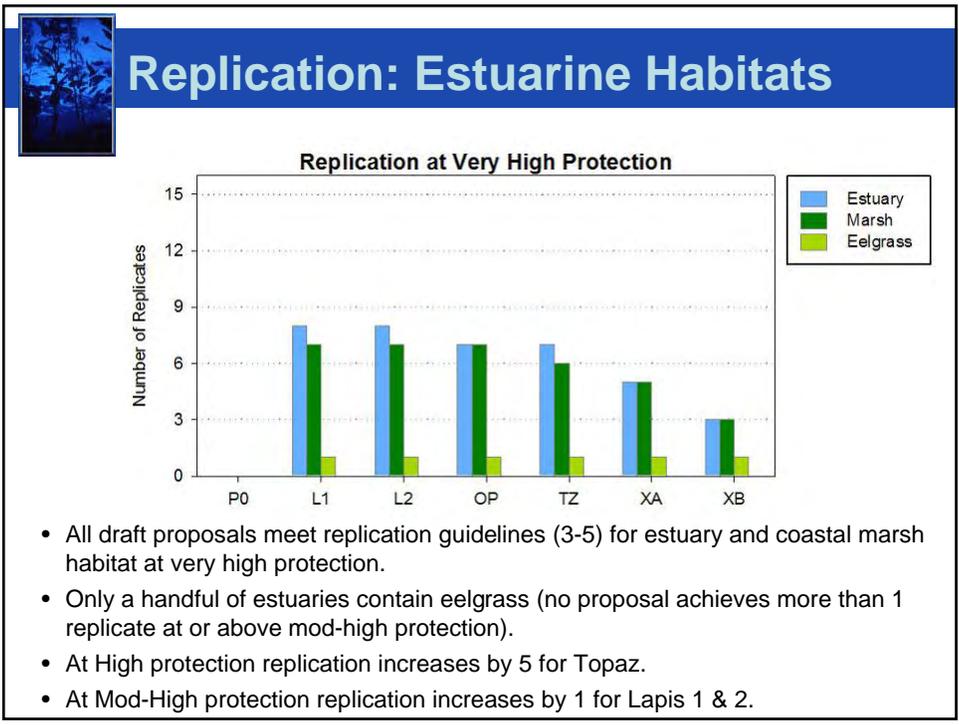
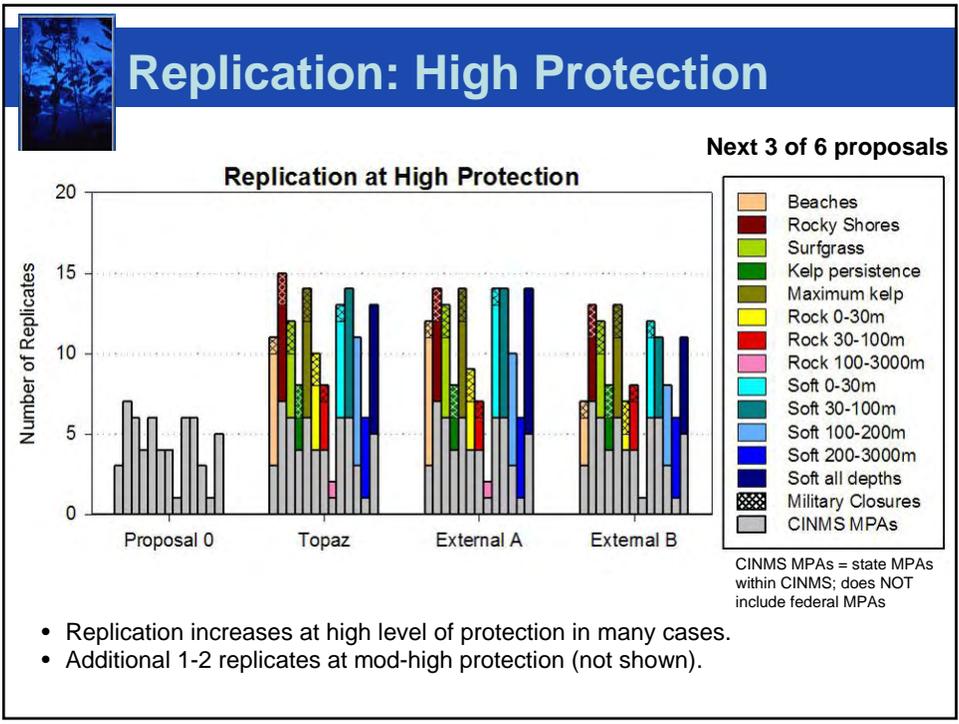
First 3 of 6 proposals



CINMS MPAs = state MPAs within CINMS; does NOT include federal MPAs

- Deep rock (100-3000 meters) is very sparse and hard to achieve minimum area.
- Otherwise, most habitats meet replication guidelines.







Habitat Replication by Bioregion

Rocky Habitats

Number of bioregions with at least 1 habitat replicate

	Rocky Shores (5)			Surfgrass (5)			Kelp persist. (5)			Maximum kelp (5)			Rock 0-30m (5)			Rock 30-100m (5)			Rock 100-3000m (3)		
	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH
Proposal 0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
Lapis 1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2	2	2
Lapis 2	5	5	5	4	5	5	4	4	4	5	5	5	4	5	5	4	4	4	1	2	2
Opal	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	2	3	3
Topaz	5	5	5	5	5	5	4	4	5	5	5	5	5	5	5	4	4	5	1	2	2
External A	5	5	5	4	5	5	4	4	5	5	5	5	4	5	5	4	4	5	1	2	2
External B	3	5	5	3	4	5	3	4	5	3	5	5	3	4	5	3	3	4	1	1	1

- Lapis 1 and Opal replicate nearshore rocky habitats across all bioregions.
- Most proposals miss replicates of >30m rock and persistent kelp in one bioregion.
- External B misses very high replicates across all bioregions for all habitats.



Habitat Replication by Bioregion

Soft-bottom Habitats

Number of bioregions with at least 1 habitat replicate

	Beaches (5)			Soft 0-30m (5)			Soft 30-100m (5)			Soft 100-200m (5)			Soft 200-3000m (4)			Soft all depths (5)		
	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH
Proposal 0	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2
Lapis 1	5	5	5	5	5	5	4	4	4	4	4	4	3	4	4	4	5	5
Lapis 2	5	5	5	5	5	5	4	4	4	4	4	4	3	4	4	4	5	5
Opal	5	5	5	5	5	5	4	5	5	4	5	5	2	4	4	4	5	5
Topaz	5	5	5	5	5	5	4	5	5	4	5	5	2	4	4	4	5	5
External A	5	5	5	5	5	5	4	4	4	4	4	4	3	4	4	4	5	5
External B	4	5	5	4	5	5	3	5	5	3	5	5	2	4	4	3	5	5

- All proposals except External B have replication of nearshore soft habitats in all bioregions at very high.
- Replicates of offshore soft bottom habitats are missed in one or more bioregion at very high protection.



Habitat Replication by Bioregion

Estuarine Habitats

Number of bioregions with at least 1 habitat replicate

	Estuary (2)			Marsh (2)			Eelgrass (1)			Tidal Flats (0)		
	VH	H	MH	VH	H	MH	VH	H	MH	VH	H	MH
Proposal 0	0	0	0	0	0	0	0	0	0	0	0	0
Lapis 1	2	2	2	2	2	2	1	1	1	0	0	0
Lapis 2	2	2	2	2	2	2	1	1	1	0	0	0
Opal	2	2	2	2	2	2	1	1	1	0	0	0
Topaz	2	2	2	2	2	2	1	1	1	0	0	0
External A	2	2	2	2	2	2	1	1	1	0	0	0
External B	2	2	2	2	2	2	1	1	1	0	0	0

- Replication is achieved in all bioregions that have estuarine habitat across all proposals.



Results: Habitat Replication

Summary

-  All proposals meet replication guidelines for all but the sparse habitats (rock > 100m, and eelgrass).
-  There is convergence on replication across proposals at very high protection with exception of External B.
-  Military closures at San Clemente contribute to replication of nearshore rocky habitats.
-  Persistent kelp, deeper rock, and deeper soft bottom are not replicated across all bioregions at very high by most proposals.