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Marine Life Protection Act Initiative

Draft Marine Birds and Marine Mammals Evaluations for Round 1 External Proposed MPA Arrays in the MLPA North Coast Study Region

Presentation to the MLPA Master Plan Science Advisory Team
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Craig Strong and Dawn Goley • MLPA Master Plan Science Advisory Team

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MLPA Goals* and SAT Guidelines

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*

SAT Guidelines – No birds and mammals specific guidelines have been developed by the SAT, beyond the broad MLPA goals

Benefits for Marine Birds and Mammals

- **Direct Benefits**
  1. Decreased disturbance at breeding and resting sites
  2. Decreased human interactions at foraging sites
     e.g., displacement, gear entanglement, light attraction
- **Indirect Benefits**
  1. Reduced competition with humans for food resources; prey availability an important factor regulating annual breeding population and reproductive success

NCSR Marine Birds and Mammals

Species Likely to Benefit: Incidental takes, vulnerable to disturbance, feature association, limited adult range and depressed populations

Marine Birds

1. Depressed populations: Black Oystercatcher, Marbled Murrelet, Tufted Puffin
2. Vulnerable to disturbance: Common Murre, Brandt's and Pelagic Cormorants
3. Feature association: Marbled Murrelet, Pigeon Guillemot

Marine Mammals

1. Depressed populations: Steller Sea Lion
2. Vulnerable to disturbance: Steller Sea Lion, Pacific Harbor Seal, California Sea Lion
3. Feature association: Harbor Porpoise, Gray Whale

Federal and state protection: Threatened or endangered: Marbled Murrelet, Western Snowy Plover, Steller Sea Lion

Methods Overview

Analyses quantify MLPA North Coast Study Region (NCSR) populations likely to benefit from MPAs for three use categories:

1. Breeding
2. Resting
3. Foraging

Notes about Round 1 Analyses

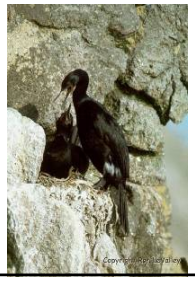
- Marine mammal analyses considered only proposed state marine reserves (SMRs)
- Marine bird analyses included only proposed SMRs
- Effects on benefits to birds and mammals by proposed tribal uses were not evaluated
- Analyses of External MPA Array C (ExC*) include state marine conservation areas (SMCAs) that only include proposed tribal uses since ExC did not use the SMR classification for these MPAs, as did other external arrays

Marine Bird and Mammal Analyses

Analysis 1: Protection at Breeding Sites

Investigated:

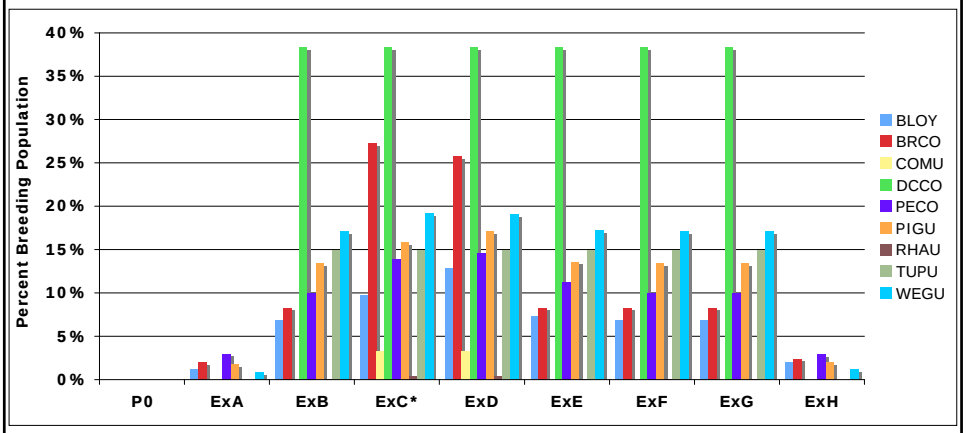
- **percent (%) of bioregion marine bird breeding populations protected**
- **number of pinniped rookery sites protected**
- **protection of important marine bird breeding hot spots**
- **protection of important pinniped hot spots**



Seabird Breeding Colonies

Species	Number of Animals in the Study Region
Black Oystercatcher (BLOY)	248
Brandt's Cormorant (BRCO)	13105
Cassin's Auklet (CAAU)	4833
Common Murre (COMU)	258010
Double-crested Cormorant (DCCO)	2873
Fork-tailed Storm-Petrel (FTSP)	419
Leach's Storm-Petrel (LESP)	9414
Pelagic Cormorant (PECO)	5675
Pigeon Guillemot (PIGU)	3148
Rhinoceros Auklet (RHAU)	1063
Tufted Puffin (TUPU)	181
Western Gull (WEGU)	4046
Study Region Total	303014

Percent of Breeding Population in SMRs



Marine Bird Breeding Hot Spots

Breeding Hot Spots	ExC	ExD	ExE
Castle Rock			
False Klamath Rock	False Klamath Cove SMCA	False Klamath SMCA	False Klamath SMCA
Green Rock			
Flatiron Rock			
False Cape Rocks			False Cape SMCA
Steamboat Rock			
Rockport Rocks	Vizcaino SMCA	Usal SMR	Vizcaino SMCA
Cape Viscaino	Vizcaino SMCA	Usal SMR	Vizcaino SMCA

- **P0, ExA, ExB, ExF, ExG and ExH did not capture any marine bird breeding hot spots**
- **No external MPA arrays captured marine bird breeding hot spots within SMRs**

Marine Mammal Hot Spots

	Population Hot Spots					
	SW Seal Rock*	Sugarloaf Island*	Vicinity of Castle Rock, Crescent City	South Bay, Humboldt Bay	Arcata Bay, Humboldt Bay	Mouth of Eel River
P0						
ExA				Humboldt Bay SMRMA		
ExB				Humboldt Bay SMRMA		
ExC				Humboldt Bay SMRMA		
ExD				South Humboldt Bay SMCA		
ExE				South Humboldt Bay SMRMA		
ExF				Humboldt Bay SMRMA		
ExG				Humboldt Bay SMRMA		
ExH				Humboldt Bay SMRMA		

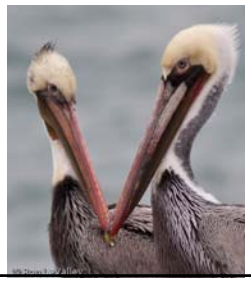
* Each location contains one of the two Steller sea lion rookeries in the study region

Marine Bird and Mammal Analyses

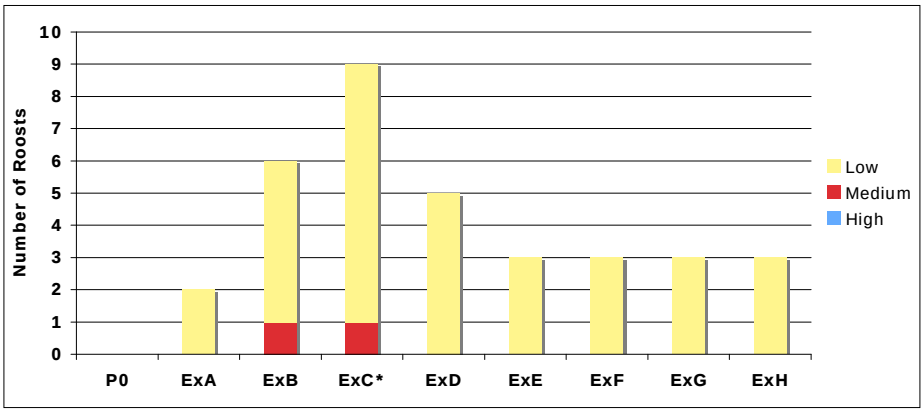
Analysis 2: Protection at Roosting and Haulout Sites

Investigated:

- **percent (%) of study region populations protected for pinnipeds**
- **number and size of Brown Pelican roosts**



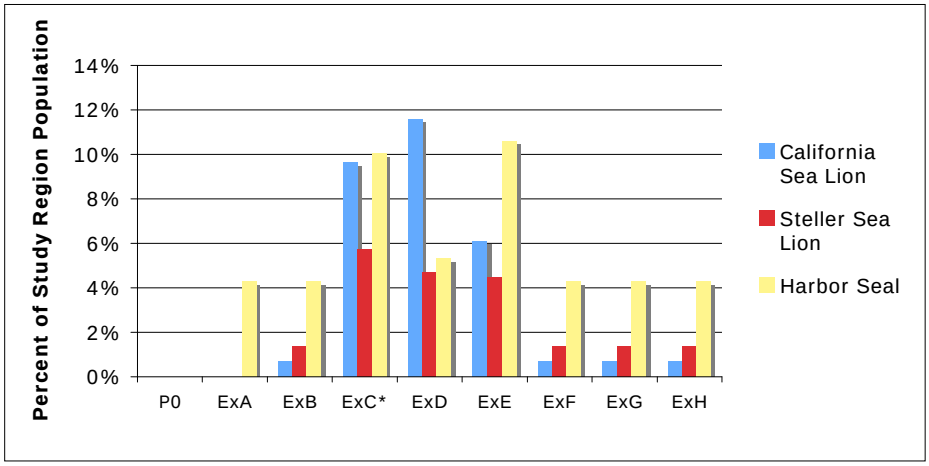
Brown Pelican Roosts in SMRs



Pinniped Haulouts

	No. of Species	California Sea Lion	Steller Sea Lion	Harbor Seal	Total Number of Animals	Percent of Study Region Population
P0	0	0	0	0	0	0.00%
ExA	1	0	0	380	380	1.29%
ExB	3	93	94	383	570	1.94%
ExC*	3	1311	396	893	2600	8.84%
ExD	3	1577	326	472	2375	8.07%
ExE	3	829	307	944	2080	7.07%
ExF	3	93	94	383	570	1.94%
ExG	3	93	94	383	570	1.94%
ExH	3	93	94	383	570	1.94%
Study Region Total	3	13608	6905	8902	29415	100%

Percent of Haulout Population

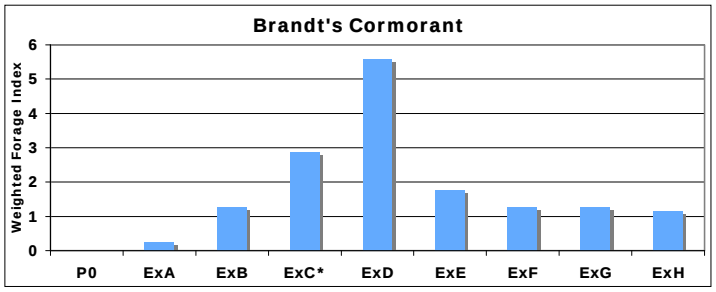


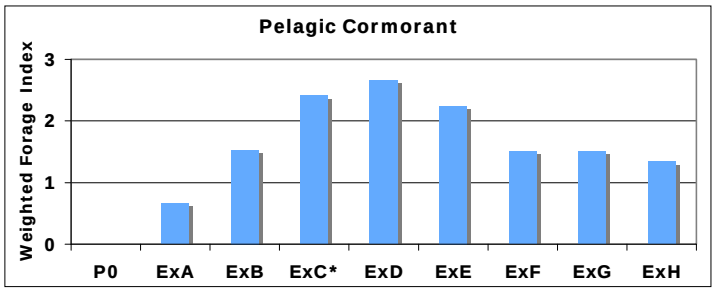
Marine Bird and Mammal Analyses

Analysis 3: Protection at Near-colony Foraging Sites

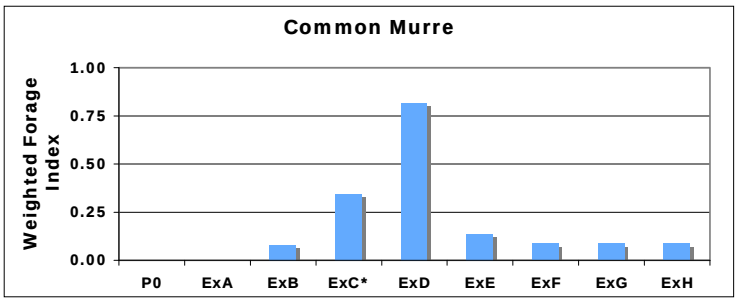
Investigated amount of foraging area protected

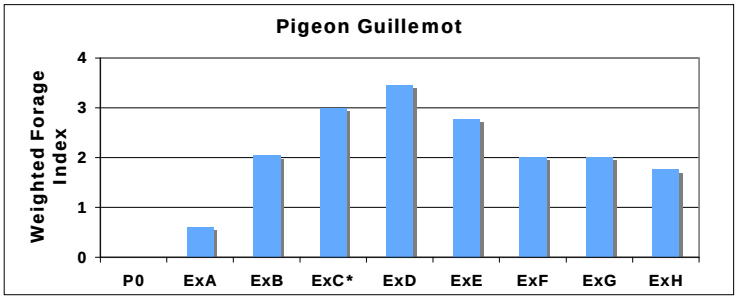
Near-colony Foraging Areas



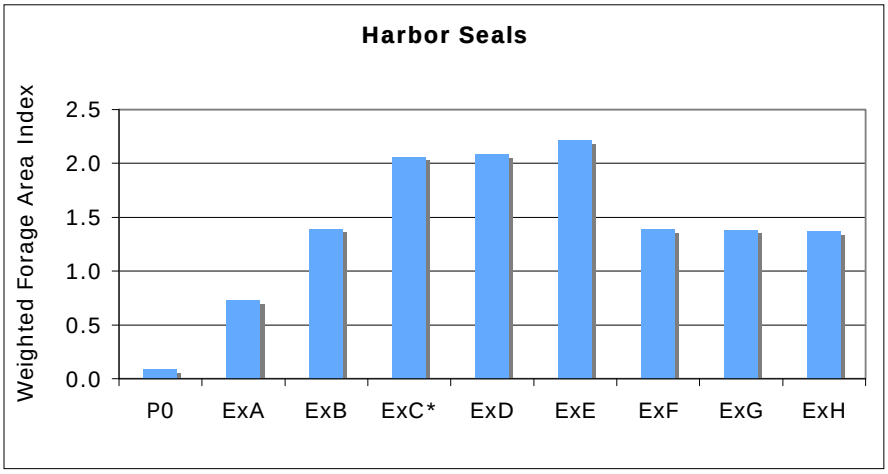


Near-colony Foraging Areas





Near-colony Foraging Areas



Neritic Foraging Area Analysis

Gray Whale Foraging Index Within Proposed MPAs

MPA Proposal	MPA Name	Whales Weighted Forage Index	Sum of weighted index in SMRs
P0	None	0.00	0
ExA	Crescent City Mobile SMCA	1.01	
	Crescent City Mobile SMCA	4.87	
	Trinidad Mobile SMCA	5.22	0
ExB	None	0.00	0
ExC	False Klamath Cove SMCA	2.87	0
ExD	False Klamath SMCA	4.45	
	Patrick's Point SMCA	4.16	0
ExE	False Klamath SMCA	5.70	0
ExF	None	0.00	0
ExG	None	0.00	0
ExH	None	0.00	0

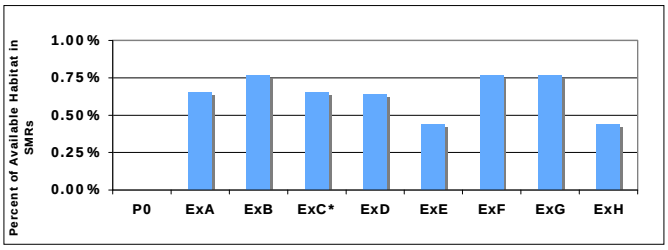
Marine Bird and Mammal Analyses

Analysis 4: Protection in Estuarine and Coastal Habitats

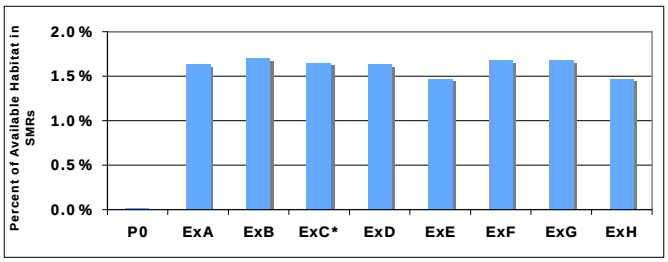
Investigated percent of available estuary, tidal flat, coastal marsh, Humboldt Bay eelgrass and beach habitat protected

Estuarine and Coastal Habitat

Estuaries

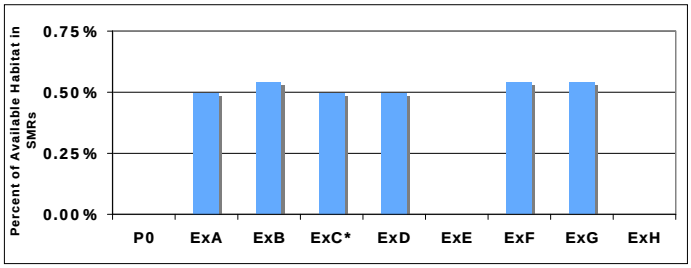


Coastal Marshes

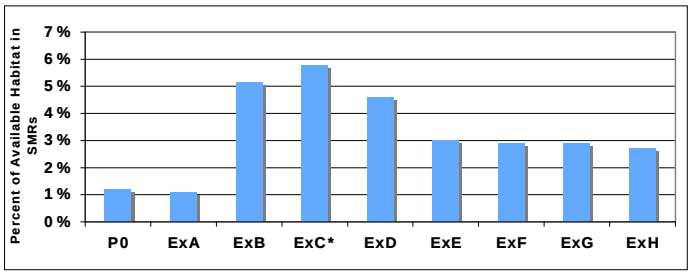


Estuarine and Coastal Habitat

Tidal Flats



Beaches



Summary of Round 1 Analyses

- Overall, ExC and ExD provide the most benefits to marine birds and mammals, including only SMRs
- Considering SMCAs, the nature of allowed activities and additional hotspot colonies included, ExE performs best in protecting nesting colonies and neritic foraging sites
- ExC, ExD, and ExE also afford the most protection of marine mammal haulouts; marine mammal analyses considered only proposed SMRs
- No marine mammal hot spots or gray whale foraging areas were captured in SMRs

Summary of Round 1 Analyses

Analysis	P0	ExA	ExB	ExC	ExD	ExE	ExF	ExG	ExH
Seabird Breeding Colonies	-	-		+	+				-
Sea Lion Breeding Rookeries	-	-	-	-	-	-	-	-	-
Seabird Roost Sites				+					
Seabird Breeding Hot Spots				+	+				
Pinniped Hot Spots				+	+	+			
Brandt's Cormorant Foraging					+				
Common Murre Foraging					+				
Pigeon Guillemot Foraging				+	+	+			
Pelagic Cormorant Foraging				+	+	+			
Gray Whale Foraging	-	-	-	-	-	-	-	-	-
Harbor Seal Foraging				+	+	+			
Estuarine and Coastal Habitats	=	=	=	=	=		=	=	

Analyses in Progress

- Pinniped Rookery Analysis
  - California sea lion: No rookeries
  - Steller sea lion: One rookery at SW Seal Rock and one rookery at Sugarloaf Island
  - Harbor seal: Analyzing and evaluating data
- Neritic Foraging Analysis
  - Gray whale analysis: Running
  - Marine bird analysis: In progress