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Marine Life Protection Act Initiative




Overview of Science Guidance from the Marine Life Protection Act, Master Plan for MPAs, and MLPA Master Plan Science Advisory Team

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Science Guidance

- **Marine Life Protection Act (MLPA)**
 - Provides some specific and mandated requirements (e.g. goals)
 - Requires guidance be developed in other formats (e.g. master plan)
- **Master Plan for Marine Protected Areas (MPAs)**
 - Mandated by the MLPA
 - Provides guidance on size and spacing
 - Habitat representation and replication
- **MLPA Master Plan Science Advisory Team (SAT)**



Summary of 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 habitats
5. Clear objectives, effective management, adequate enforcement, and sound science
6. To ensure that MPAs are designed and managed as a network



Scientific Guidance in the Master Plan

- From the *California Marine Life Protection Act Master Plan for Marine Protected Areas*, Chapter 3, pages 31-49
 - Flexibility
 - Biogeographical regions (Goals 1, 2, and 4)
 - Species likely to benefit (Goals 1 and 2)
 - Levels of protection (Goals 1, 2, 4 and 6)
 - Habitat representation (Goals 1 and 4)
 - Habitat replication (Goals 1, 2, 3, 4 and 6)
 - MPA size (Goals 2 and 6)
 - MPA spacing (Goals 2 and 6)
 - Monitoring (Goals 3 and 5)



Flexibility in MPA Design

*The diversity of species and habitats to be protected, and the diversity of human uses of marine environments, **prevents a single optimum network design** in all environments.



Photo: Gretchen Hofmann

**Science guidance from the master plan for MPAs*



Science Guidance for the MLPA Process

- **The SAT provides science guidance to the MPA planning process:**
 - Applies science guidance in the master plan;
 - Assembles and reviews relevant data for MPA planning and evaluation;
 - Determines levels of protection (LOPs) achieved by allowing take of particular species with specific gear types in proposed MPAs;
 - Answers science related questions from the MLPA Blue Ribbon Task Force (BRTF), MLPA North Coast Regional Stakeholder Group (NCRSG), and general public, including external proponents; and
 - Evaluates potential ecological and economic impacts of alternative MPA proposals



How to Convey Science Questions

- MLPA staff will be present at all MLPA meetings, workshops and office hours and will record questions
 - If needed, questioners may work with staff to ensure recorded questions capture intent
- MLPA staff will review public comments submitted to MLPAComments@resources.ca.gov and will compile and send science questions to staff and SAT



Purpose of SAT Evaluations

- Provide evaluation of MPA proposals generated by the public and MLPA North Coast Regional Stakeholder Group (NCRSG) in an iterative process of design, evaluation and refinement
- How well do MPA proposals meet the scientific goals of the Marine Life Protection Act?



SAT Evaluation Steps

- SAT members developed and approved evaluation methods based on guidance in the MLPA and master plan for MPAs
- MLPA staff and SAT work groups generate statistics, figures, etc., for MPA arrays and proposals
- SAT members present results to the SAT, NCRSG and BRTF



Evaluation Methods Document

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Appendix A. Bioeconomic Modeling

Appendix B. Impact Assessment Methods

Appendix C. Levels of Protection for Potential Allowed Uses



Species Likely to Benefit

- The master plan identifies “select species or groups of **species likely to benefit** from MPAs.”
- Species likely to benefit include those:
 - directly **targeted** by fisheries
 - caught incidentally (**bycatch**)
 - **indirectly** affected through ecological changes within MPAs
- Species that **move long distances** likely will not significantly benefit from MPAs



NCSR Species Likely to Benefit

- The SAT approved the criteria and list of **species likely to benefit from MPAs in the NCSR**

Total Score	Species Likely to Benefit	Scoring Criteria					Extra Information				
		1: Removal & Discards	2: Disturbance	3: Feature Association	4: Limited Adult Home Range	5: Depressed Population	6: Habitat Degradation	7: Limited Larval Dispersal	8: Other Life History Traits	9: Limited Distribution	10: Ecological Importance

Invertebrates			Filter 1	Filter 2									
mussels, native	<i>Mytilus californianus</i>	4	Y	1	1	0	1	1	N	N	N	N	Y
shrimp, ghost	<i>Gallinessa californiensis</i>	3	Y	1	1	0	1	0	Y	N	N	N	Y
scallop, rock	<i>Crassidoma giganteum</i>	3	Y	1	0	0	1	1	N	N	N	N	Y
abalone, red	<i>Haliotis rufescens</i>	3	Y	1	0	0	1	1	Y	Y	Y	N	N
clam, littleneck (tomales bay cockle)	<i>Leukoma staminea</i>	3	Y	1	0	0	1	1	Y	N	N	N	N
oyster, native	<i>Ostrea conchaphila (lurida)</i>	3	Y	0	1	0	1	1	Y	N		Y	Y
shrimp, spot prawn	<i>Pandalus platyceros</i>	3	Y	1	0	0	1	1	N	N	N	N	Y
sea cucumbers	<i>Parastichopus californicus</i>	3	Y	1	0	0	1	1	N	N	N	N	N
worms, phragmatopoma	<i>Phragmatopoma spp</i>	3	Y	1	1	0	1	0	N	N	N	N	N
sea stars	<i>Pisaster ochraceous, Pycnopodia helianthoides</i>	3	Y	1	1	0	1	0	N	N	Y	N	Y
urchin, red	<i>Strongylocentrotus franciscanus</i>	3	Y	1	0	0	1	1	N	N	Y	N	Y
clam, gaper	<i>Tresus nuttalli, Tresus capax</i>	3	Y	1	0	0	1	1	Y	N		N	Y



Levels of Protection

- **Levels of protection (LOPs) distinguish between MPAs that are “no-take” and those that allow different types of uses**
 - **State marine reserves (SMRs)** are no-take areas that have a very high level of protection
 - **State marine conservation areas (SMCAs)** allow some kinds of commercial and/or recreational fishing
 - **State marine parks (SMPs)** allow some kinds of recreational fishing



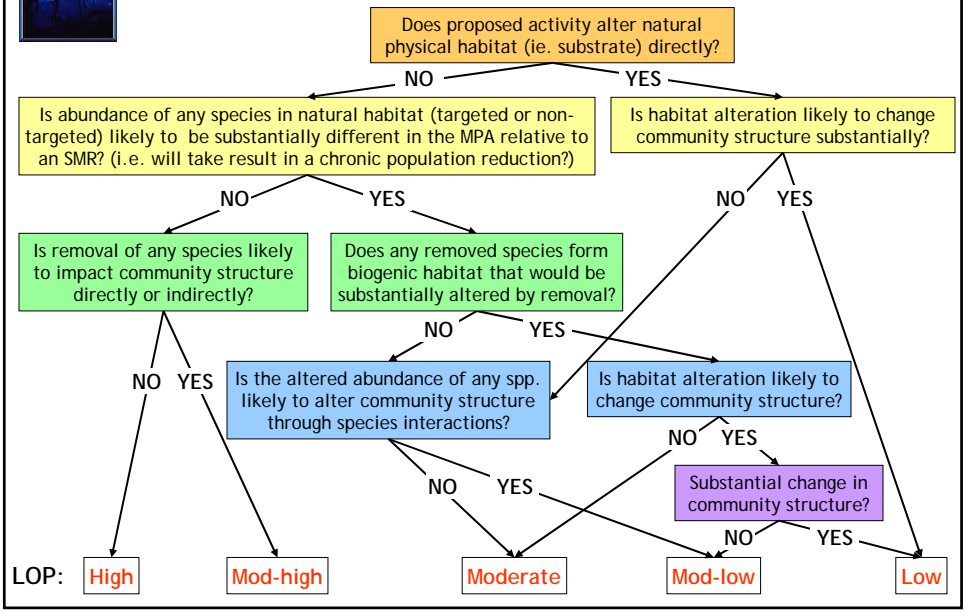
Evaluation of Levels of Protection

- BRTF directed the SAT to present evaluations of MPAs at the three highest levels of protection:
 - **Very High** (SMRs)
 - **High** (SMCAs and SMPs)
 - **Moderate-high** (SMCAs and SMPs)
- Bioeconomic models, evaluations of potential economic impacts, and water quality consider all proposed MPAs and associated regulations

	Level of Protection	MPA Type
	Very high	SMR
	High	SMCA SMP
	Moderate-high	SMCA SMP
	Moderate	SMCA SMP
	Moderate-low	SMCA SMP
	Low	SMCA SMP



Conceptual Model for Determining LOP



Assumptions Used in LOP Designations

- In applying the LOP conceptual model, the SAT makes three important assumptions:
 - Any extractive activity can occur locally to maximum extent allowable under current state and federal regulations
 - For purpose of comparison, an un-harvested system is a marine reserve that is successful in eliminating fishing and other extractive uses within the MPA
 - The proposed activity is occurring in isolation from other activities, without cumulative effects of multiple allowed activities; assumption is based upon limitations in the SAT's ability to assess cumulative impacts of multiple activities, not a belief that cumulative impacts do not occur

North Coast Levels of Protection

Level of Protection	MPA Types	Activities Associated with this Protection Level
Very high	SMR	No take
High	SMCA SMP	Salmon (H&L or troll in waters >50m depth); coastal pelagic finfish ¹ (H&L, round-haul net, dip net);
Mod-high	SMCA SMP	Dungeness crab (trap, hoop-net, diving); salmon (troll in water <50m depth); surf and night smelts (dip net, a-frame net, cast net)
Moderate	SMCA SMP	Redtail surfperch (H&L from shore); surfperch (H&L from shore) California halibut (H&L); coonstripe shrimp and spot prawn (trap); clams (intertidal hand harvest); turf-forming and foliose algae ² (intertidal hand harvest); salmon (H&L in waters <50m depth)
Mod-low	SMCA SMP	Pacific halibut (H&L); lingcod, cabezon, and rockfishes, and greenlings (H&L, spearfishing, trap); red abalone (free-diving); urchin (diving), surfperch (H&L)
Low	SMCA SMP	Rock scallop (diving); mussels (hand harvest); bull kelp (hand harvest); ghost shrimp (hand harvest); sea palm (intertidal hand harvest); canopy-forming algae ³ (intertidal hand harvest)

1 The grouping "coastal pelagic finfish" includes: Northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), jack mackerel (*Trachurus symmetricus*), Pacific mackerel (*Scomber japonicus*), and Pacific sardine (*Sardinops sagax*).

2 The grouping "turf-forming and foliose algae" includes the following harvested groups: *Porphyra* spp. (Nori, Laver), *Ulva* spp. (Sea Lettuce), *Chondrocanthus/Gigartina exasperata* (Turkish Towel), and *Mastocarpus* spp. (Mendocino Grapestone).

3 The grouping "canopy-forming algae" includes the following harvested groups: *Alaria* spp. (Wakame), *Lessoniopsis littoralis* (Ocean Ribbons), *Laminaria* spp. (Kombu), *Saccharina/Hedophyllum sessile* ("Sweet Kombu), *Egregia menziesii* (Feather Boa), and *Fucus* spp. (Bladder wrack or Rockweed).

New Proposed Uses

- NCRSG members may propose allowed uses not currently included in LOP table
- If new proposed use is included with an MPA proposal for Round 2, SAT LOP work group will evaluate the proposed use and assign an LOP



For More Information

- California Marine Life Protection Act Master Plan for Marine Protected Areas
<http://www.dfg.ca.gov/mlpa/masterplan.asp>
- Draft Methods Used to Evaluate Marine Protected Area Proposals in the MLPA North Coast Study Region ([Document J.1](#))