

A Framework for Determining Levels of Protection Designations as Used in the MLPA North Central Coast Study Region

**Presentation to the MLPA Master Plan Science Advisory Team
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Dr. Mark Carr, on behalf of the SAT Levels of Protection Work Group**

Three Kinds of Marine Protected Areas (MPAs)



State Marine Reserve (SMR)

- no extraction, including any living marine species



State Marine Conservation Area (SMCA)

- allows for restricted commercial and/or recreational extraction



State Marine Park (SMP)




- restricted recreational extraction

Considering Protection in MPAs




The Question:

“How much will an ecosystem differ from an unfished ecosystem if one or more proposed activities are allowed?”

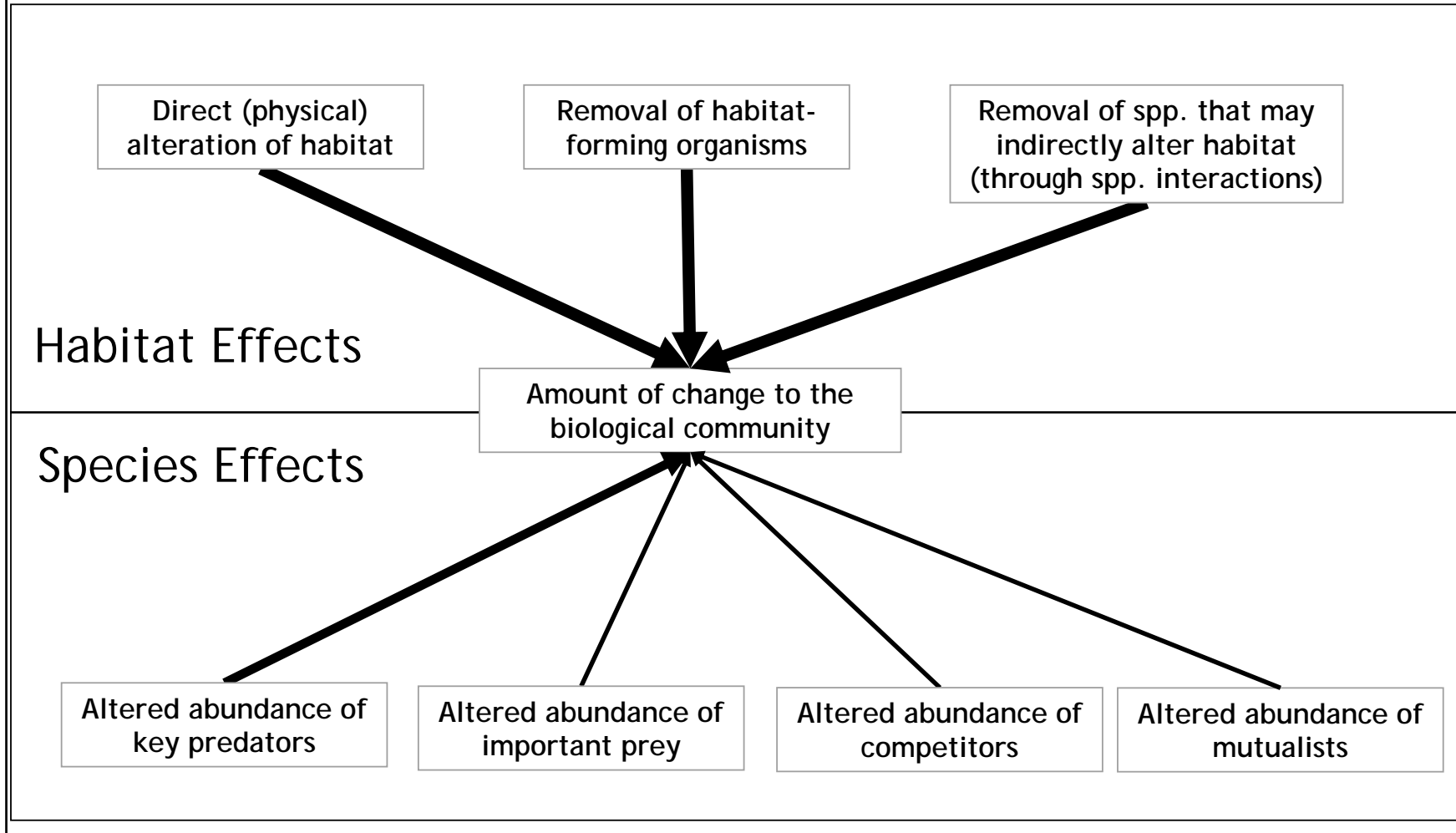
A great deal if:

-  habitat is damaged
-  many species are removed
-  removed species play an important role in the resident ecosystem (predator, prey, competitor etc.)

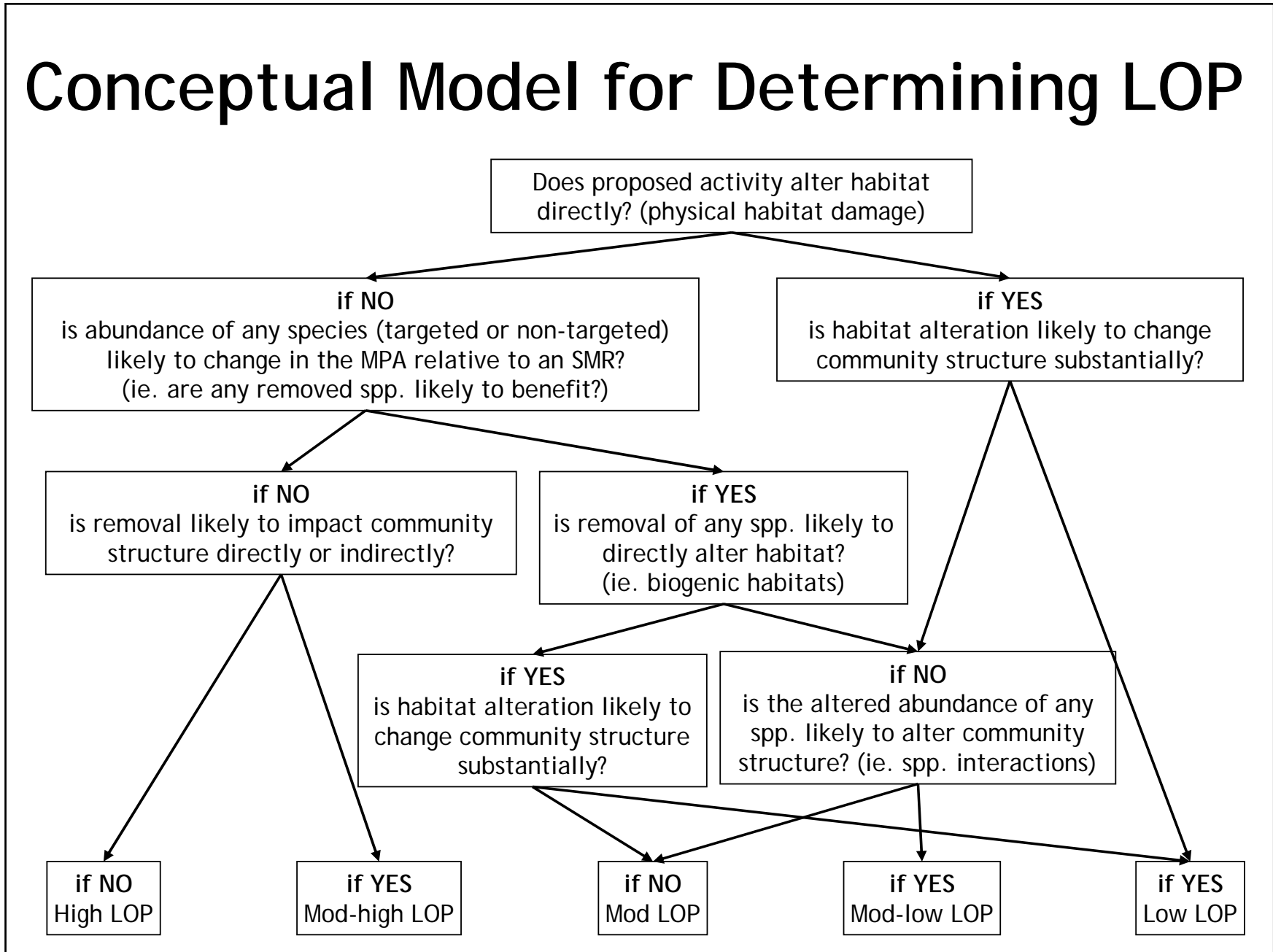
Very little if:

-  no habitat damage
-  little associated catch
-  species removed are highly mobile so MPAs won't change local abundance

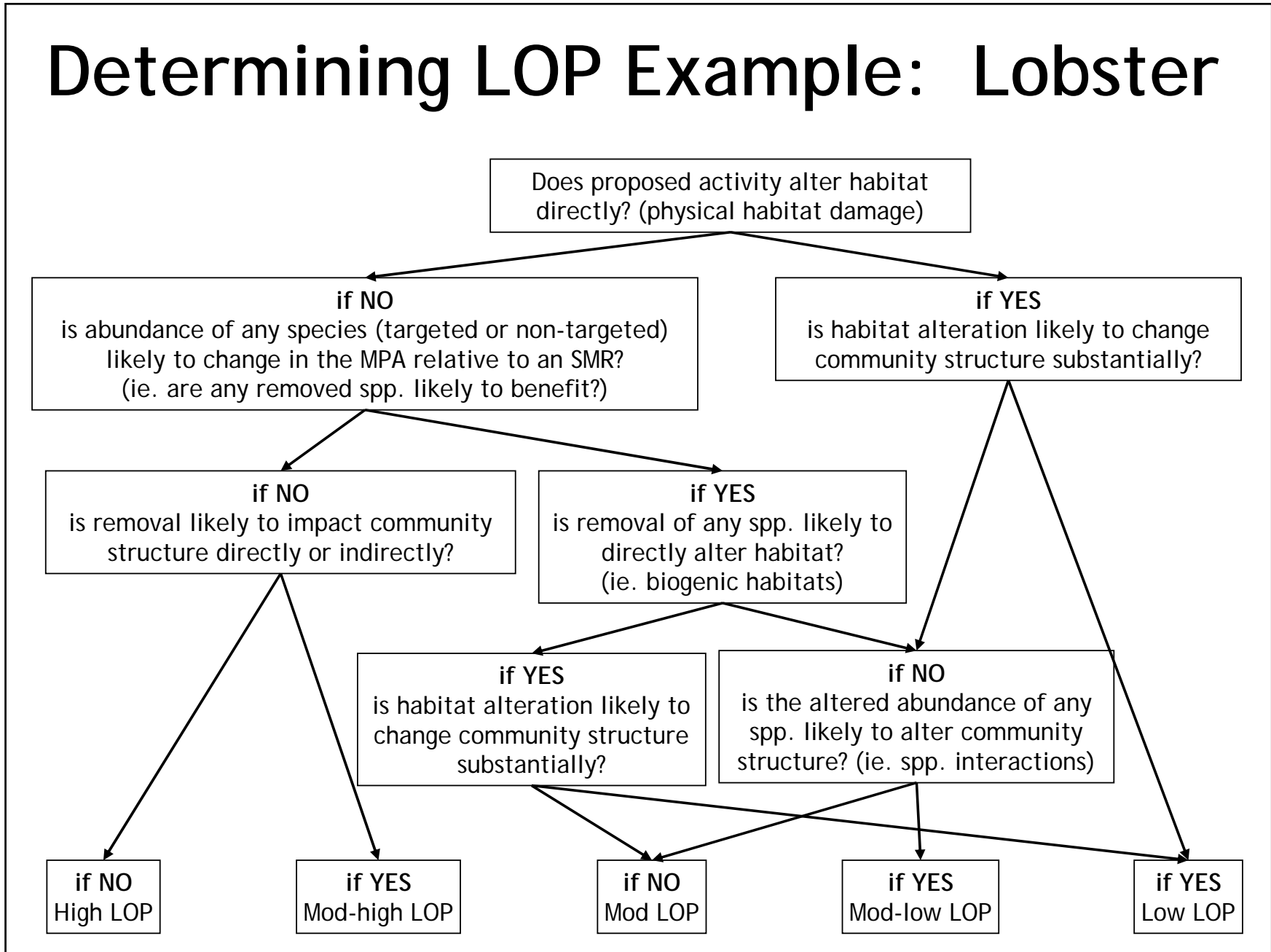
Conceptual Model for Determining Level of Protection (LOP)



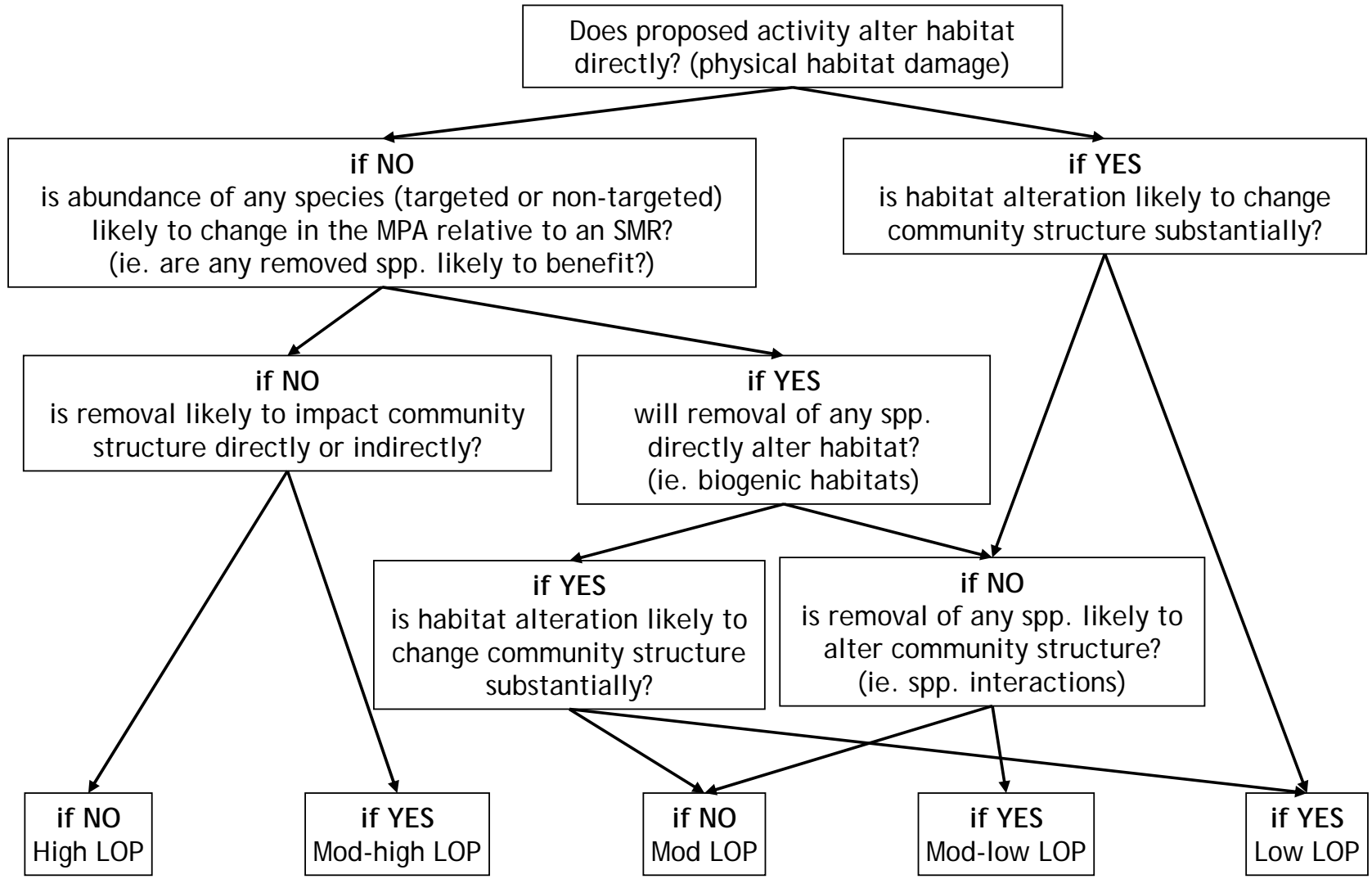
Conceptual Model for Determining LOP



Determining LOP Example: Lobster



Determining LOP Example: Kelp Bass



Collecting Information for Species in the MLPA South Coast Study Region

Fishery information

- Methods of take/gear types used
- Habitat alteration due to gear or activity
- Associated catch for each gear type (composition and quantity)

Biological information

- Adult movement/ home range
- Larval dispersal (PLD) - for modeling effort
- Ecological role (ie. predator, prey, competitor, mutualist)
- Species creates biogenic habitat?
- Any other life history characteristics that may influence the abundance or ecological role of this spp.
(ie. breeding aggregations)

Collecting Information for Species in the MLPA South Coast Study Region

New species/ fisheries identified as top priority:

kelp bass (H&L or spear)	spot prawn (trap)
lobster (trap, hoop net, scuba)	spotted sand bass (H&L)
barred sand bass (H&L or spear)	bonito (H&L, seine)
grunion (hand take)	rock scallop (scuba)
sea cucumber (trawl, scuba)	sheephead (H&L, spear, trap)

Species to revisit in the context of the south coast:

croaker (H&L, spear)	coastal pelagic finfish (H&L, seine)
halibut (H&L, spear, trawl)	anchovy, jack mackerel, Pacific mackerel, sardine
rock crab (trap, hoop net)	pelagic finfish (H&L, seine, diving)
rockfish (H&L, spear, trap)	barracuda, dorado, mackerel,
squid (H&L, seine)	mako shark, marlin, salmon,
surfperch (H&L, spear)	swordfish, thresher shark, tuna,
urchin (scuba)	yellowtail
white sea bass (H&L, spear)	

H&L = hook and line

Levels of Protection Assigned in the MLPA North Central Coast Study Region

	Level of Protection	MPA Types	Activities Associated with this Level of Protection
	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)