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## Marine Life Protection Act Initiative



### Key and Unique Habitats for the MLPA North Coast Study Region

Presentation to the MLPA Master Plan Science Advisory Team  
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## Marine Life Protection Act 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**.

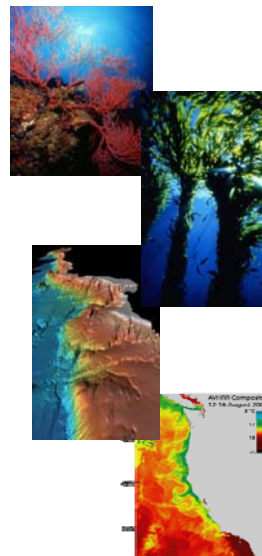


\* Note that this language paraphrases the MLPA goals



## MLPA Goals\*: Habitats




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## Habitat Protection Guidelines

-  **Every 'key' marine habitat should be represented in the MPA network** to protect the diversity of species that live in different habitats and those that move among different habitats over their lifetime.
-  **'Key' marine habitats should be replicated in multiple MPAs across large environmental and geographic gradients** to protect the greater diversity of species and communities that occur across such gradients, and to protect species from local year-to-year fluctuations in larval production and recruitment.
-  **At least three to five replicate MPAs should be designed for each habitat type** within a **biogeographical region** to provide analytical power for management comparisons and to buffer against catastrophic loss of an MPA.



# Key Habitats in the North Coast

## Shoreline

- rocky shores
- sandy beaches
- surfgrass

## Estuarine

- coastal marsh
- tidal flats
- estuarine waters
- eelgrass

## Rocky reef

- rocky reef 0-30m
- rocky reef 30-100m
- rocky reef 100-200m
- rocky reef >200m
- kelp forests
- pinnacles

## Soft bottom

- soft bottom 0-30m
- soft bottom 30-100m
- soft bottom 100-200m
- soft bottom >200m
- submarine canyons

## Pelagic habitats

- upwelling centers
- retention zones
- river plumes
- oceanographic fronts

m = meter



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Note: blue habitats have special data considerations or limitations

m = meter



# Availability of Key Habitats

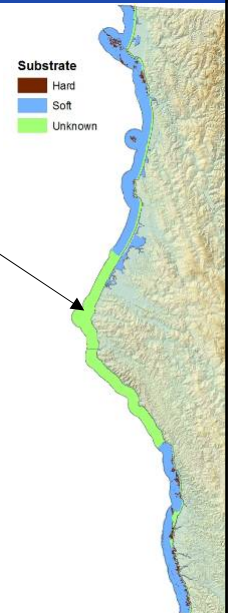
Shoreline		Estuarine	
rocky shores	160 mi	estuaries	43 sq mi
sandy beaches	180 mi	coastal marsh	~3.5 sq mi
surfgrass	no digital maps	tidal flats	65 mi
		eelgrass	>6.1 sq mi
Rocky Reef		Soft Bottom	
rock 0-30m	>23 sq mi*	soft 0-30m	>210 sq mi*
rock30-100m	>18 sq mi	soft 30-100m	>320 sq mi
rock100-200m	> 0.2 sq mi	soft 100-200m	> 38 sq mi
rock>200m	0 sq mi mapped	soft >200m	0 sq mi mapped
kelp forest	~52 mi	canyons	4 (~7.5 sq mi)
pinnacles	unmapped		

\* starred habitats will be measured in linear miles for evaluation purposes



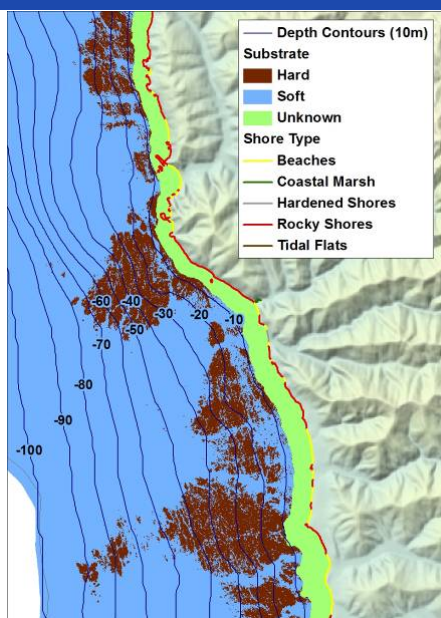
# Status of Substrate Mapping

- Currently have coarse-scale substrate mapping data for the entire study region and approximately 60% in fine-scale data
- Remaining fine-scale data is expected in late Jan. or early Feb., and includes cape Mendocino (where the majority of deep-water and canyon habitat is located)
- Narrow band of unknown habitat in the nearshore – most areas mapped outside 10m depth
- Habitat distribution:
  - 93% of mapped area is soft-bottom
  - 7% of mapped area is rocky reef



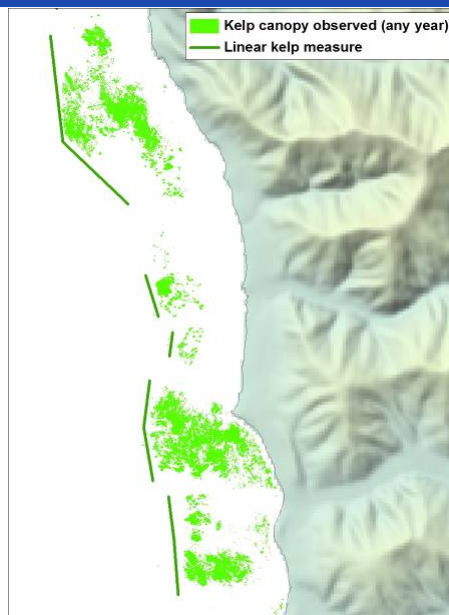
## Measuring Nearshore Substrate

- Detailed substrate mapping in most areas 10m and deeper
- Apparent correlation shoreline type and substrate just offshore
- These two information sources will inform a linear proxy of substrate in the 0-30m depth zone



## Measuring Kelp in the NCSR

- Kelp maps show patchy canopy with small total areas in any given year
- A composite map overlaying all available kelp data indicates areas where kelp frequently occurs
- A line delineating the outer edge of kelp beds allows measurement of the alongshore extent of kelp





## Measuring Estuarine Habitats

- The “estuaries” layer encompasses all enclosed waterbodies and includes intertidal areas of coastal marsh and tidal flats
- Coastal marsh is well mapped from remote sensing data and measurable as area.
- Tidal flats measured with a linear shoreline feature that does not always match the current shoreline well
- Eelgrass is well mapped in Humboldt Bay. Additionally, eelgrass is known to occur in:
  - Eel River
  - Ten Mile River
  - Noyo River
  - Big River
  - Albion River



## Unique Habitats in the North Coast

- **“Sunken” rivers of Mendocino County**
  - Noyo R.
  - Big R.
  - Albion R.
  - Navarro R.
- **Dynamic river mouths**
  - Smith R.
  - Little R.
  - Mad R.
  - Bear R.
  - Mattole R.
  - Ten Mile R.
- **Seastacks, offshore rocks and small islands**
  - Not rare within or unique to the NCSR
  - 10,000+ seastacks in California