

Marine Life Protection Act Initiative



Draft Regional Profile of the North Central Coast Study Region - Part 1

Presentation to the MLPA North Central Coast Regional Stakeholder Group

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North Central Coast Regional Profile

Purpose:

- Provide contextual information on the ecological and socioeconomic setting of the study region
- Reflect local knowledge of stakeholders / public, scientists, MLPA and Department staff
- Support evaluation of existing state MPAs and development of alternative MPA proposals

Draft Regional Profile


- Regional profile is a work product of the stakeholder group process
- Draft profile assembled by MLPA/DFG staff
- Profile finalized over time with input from stakeholders
- There will be opportunities to:
 - provide comments on document
 - provide and share additional information and local knowledge

Draft Regional Profile Content

- Regional overview
- Ecological setting
- Land-sea interface
- Socioeconomic setting
- Research / monitoring
- Jurisdiction / management
- Existing MPAs and marine managed areas
- Subregional summaries
- Maps of some spatial data layers
- Web link to marine spatial database (www.marinemap.org/mlpa)
- Web links to more information and other resources

Study Region

- North Central Coast Study Region
 - Alder Creek / Point Arena to Pigeon Point
 - Farallon Islands
 - not including SF Bay
- Area: 763 sq. miles
- North-south extent: 146 miles
- Existing state MPAs: 13



Subregions for Display and Evaluation

1. Point Arena to Horseshoe Point
2. Horseshoe Point to Bodega Head
3. Bodega Head to Double Point
4. Double Point to Point San Pedro
5. Point San Pedro to Pigeon Point
6. Farallon Islands

Regional Overview

- Highly productive upwelling region
- Broad, flat continental shelf; relatively shallow depths in state waters
- Farallon islands – 28 miles offshore
- Point Reyes – major headland
- Outlet of largest estuary on West Coast

Regional Overview

- Upwelling system: Point Arena and Point Reyes upwelling centers
- Seasonal upwelling throughout northern half of region
- Fuels highly productive coastal and pelagic ecosystems

NOAA, 9km grid, monthly average, upwelling seasons 1996-1999

Regional Overview

- Large numbers of top predators (seabirds, marine mammals, sharks)
- Farallon Islands – largest # of nesting seabirds (12 spp.) in continental U.S.
- Highly productive fisheries – Dungeness crab, salmon



Ecological Setting: Habitats

Habitats that must be represented under the MLPA:

"...rocky reefs, intertidal zones, sandy or soft ocean bottoms, underwater pinnacles, seamounts, kelp forests, submarine canyons, and seagrass beds." [Fish and Game Code, Section 2856(a)(2)(A)]

Recommendation of SAT for additional habitats that should be represented:

- Five depth zones: intertidal, intertidal to 30 meters, 30 to 100 meters, 100-200 meters, and deeper than 200 meters
- Centers of upwelling typically associated with major points and headlands
- Plumes associated with streams and rivers
- Retention features characterized by restricted ocean currents such as gyres, eddies, or regions in the lee of headlands



Intertidal (Shoreline) Habitats

Overall (NOAA-ESI data):

- Sandy beaches 51%
- Rocky shores 46%
- Coastal marsh 14%
- Tidal flats 16%
- Total >100% as more than one type at many locations
- More rocky coast in northern half, more sandy beaches in southern half





Shoreline Habitats

Sandy Beaches

Gravel	7.9%
Mixed sand/gravel	13.2%
Coarse sand	6.5%
Fine sand	23.5%

Rocky Shores

Exposed rocky cliffs	12.2%
Wave-cut platforms	29.0%
Sheltered rocky shores	4.8%



Shoreline Habitats

Coastal Marshes

Salt and Brackish Marshes 14.3%

Tidal Flats

Exposed 2.5%

Sheltered 14.0%

Near-Shore habitats

Kelp

- Dominated by Bull Kelp (*Nereocystis lutkeana*)
- 6 years of DFG survey data
- Kelp more abundant in northern half
- Ranges from 3.4 mi² of kelp in 1989 to 0.9 mi² in 2005; 1.8 mi² average over six years
- No commercial kelp harvest in study region

Near-Shore Habitats


Seagrass

- Surfgrass – 18.9% of study region (by length), on exposed coast
- Eelgrass – 0.8% of study region (by area); in most estuaries

Near-Shore Habitats

Estuaries and Lagoons

- ~20 sq. miles or 2.5% of area of study region
- More and larger estuaries in northern portion of study region



Near-Shore Habitats


- Coastal estuaries and lagoons: Garcia, Gualala, Russian, Tomales, Estero Americano, Estero San Antonio, Drakes Estero, Bolinas, Rodeo Lagoon, Pescadero






Seafloor Habitats and Depth Zones

- Study region is generally shallow
 - 39% at 0-30m depth
 - 60% at 30-100m depth
 - < 1% 100-200m depth
- Seafloor habitats not present in region:
 - deep water habitats > 200m
 - submarine canyons
 - seamounts



Seafloor Habitats and Depth Zones

- High resolution seafloor mapping underway; current analysis based on existing coarse-scale data
- Soft bottom more abundant than hard bottom: 15.4% hard / 84.6% soft overall
- 0-30 meters: 21.2% hard / 78.8% soft
- 30-100 meters: 11.8% hard / 88.2% soft
- 100-200 meters: 100% soft
- Note that coarse-scale seafloor data tend to under-represent hard bottom habitats



Species-Level Information

- Seabird and marine mammal colonies
- Areas of high seabird and fish diversity and density (NOAA biogeographic assessment)
- Salmonid streams



Species Likely to Benefit from MPAs

Species Likely to Benefit from MPAs – Appendix II

- Developed by central coast SAT
- Will be reviewed by north central coast SAT

California Marine Life Protection Act Initiative
Draft North Central Coast Regional Profile Appendix II: Table 4
May 7, 2007

Appendix II: Table (a). List of Fishes Likely to Benefit from the Establishment of Marine Protected Areas (developed for Central Coast Study Region)

Species	Primary depth range in feet in 6,100+ meters	Primary geographic range within state using floral regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration (total larval dispersal)	Potential for adult dispersal
Bullheads (Pacific)	0-300	All	coastal pelagic	coastal pelagic	is schooling species	planktonic	unknown	moderate
Cabezon	0-200	All regions, including islands	rocky reefs, breakwaters, kelp beds, tide pools, open ocean	rocky reefs, kelp beds	eggs adhesive, attach to substrate, often macroalgae	planktonic	3-4 months	low
Croaker, white	0-400	All, most common Point Reyes to Mexico border	near bottom in shallow soft habitat	soft bottom, jennyfish nearshore and estuaries	schooling, multiple spawning, each year, adults epibenthic in deeper water than juveniles	planktonic or near shore	short	low
Eel, wolf	nearshore to 100	N, NHC, SC	pelagic	rocky reefs, kelp beds	not a true eel, spawn Oct-February	planktonic?	1-2 months	moderate
Flounder, starry	shallow-300	N, NHC, SC	estuaries and bays, nearshore soft bottom	soft bottom: estuaries and bays to upper slope	spawn near river mouths and estuaries and bay slope	planktonic	25-75 days	moderate

Depleted or Over-Fished Species

- Abalone
- Groundfish
 - Bocaccio
 - Canary rockfish
 - Cowcod
 - Darkblotched rockfish
 - Widow rockfish
 - Yelloweye rockfish

Special Status Species

- Anadromous fish – coho & chinook salmon, steelhead, sturgeon
- White sharks
- Seabirds
- Sea otters
- Pinnipeds
- Cetaceans

Land-Sea Interface: Coastal Watersheds

% Agriculture

% Urban

Road density

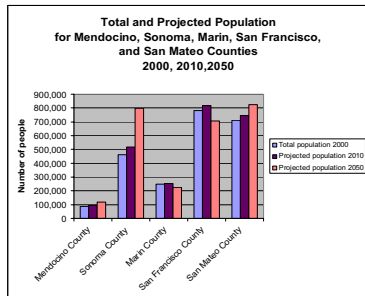
Land-Sea Interface – Water Quality

- Impaired water bodies – sediment, temperature, nutrients, pathogens, chemicals
 - SF Bay
 - Coastal streams
 - Tomales Bay
- Point discharges
- Beach closures
- Areas of special biological significance (water quality protection areas)



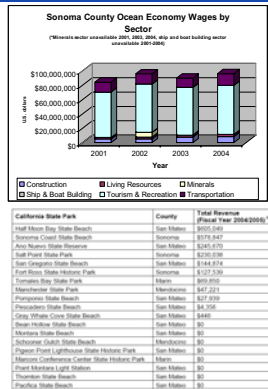
Socioeconomic Setting – Counties, Ports

- Five counties: Mendocino, Sonoma, Marin, San Francisco, San Mateo
- County-level info: population, ocean-based economies
- Port profiles – Bodega, SF, Half Moon Bay/Pillar Point



Socioeconomic Setting – Economic Data

- Ocean economy wages for each county
- Beach/coastal park visitation statistics
- Travel spending for each county
- Employment statistics for coastal communities



County	Total Revenue (Fiscal Year 2004-2005)
California State Park	\$61,000
Half Moon Bay State Beach	\$771,047
Sonoma Coast State Beach	\$771,047
Alta Vista State Reserve	\$341,070
Half Moon Bay State Park	\$250,000
San Geronimo State Beach	\$144,074
Point Reyes State Historic Park	\$127,000
Thomson Bay State Park	\$60,000
Mendocino State Park	\$42,223
Punguon State Beach	\$27,000
Point Reyes State Beach	\$4,100
Clara M. Harris State Beach	\$455
Point Reyes State Beach	\$0
Alameda State Beach	\$0
Schwarz Point State Beach	\$0
Clifford Park Light House State Historic Park	\$0
Alvarado Conference Center State Historic Park	\$0
Point Morona Light Station	\$0
Thomson State Beach	\$0
Point Reyes State Beach	\$0

Socioeconomic Setting - Leases

State submerged land leases

- Kelp: all administrative kelp beds closed to leasing
- Existing oyster/mariculture leases (14 leases; Tomales Bay and Drakes Estero)

Socioeconomic Setting – Ocean Uses

- Public access areas (coastal access, piers, harbors, ports, etc.)
- Non-consumptive uses (diving, kayaking, whalewatching, tidepooling, coastal viewing, surfing, etc.)
- Consumptive uses (recreational and commercial fishing)

Socioeconomic Setting – Access

Coastal access points

- From California coastal access guide and other sources
- Beach access, piers, launch sites, boat ramps, etc.
- Important for consumptive and non-consumptive activities

Non-Consumptive User Groups

User Group	Spatial Data Available	Other Data Available
Scuba Diving (nonconsumptive)	Coastal access points	Dive guides to Northern California; Beach Watch surveys
UW Photography	No spatial data	Dive guides to Northern California
Tidepooling	Rocky shoreline and coastal access points	
Kayaking	Coastal access points	Kayak Fishing Assoc. of So. CA report; Beach Watch surveys
Whale Watching	No spatial data	
Bird Watching	Coastal access points	
Other Wildlife Viewing	Coastal access points and location of seabird and marine mammal colonies	
Boating	Port, harbor, and boat launch locations	Boat registration by county; boat ramp data (Sonoma)
Surfing	No spatial data	Surf guides to northern California; Surfrider preparing spatial data; Beach Watch surveys
Coastal Viewing	Coastal access points	
Beachgoing	Location of beaches, state parks, national seashores, etc.	Visitation rates from ten state beaches, nine parks, GGNRA, PRNS; coastal access points; beaches mapped; Beach Watch surveys



*Also, Gulf of the Farallones National Marine Sanctuary / Environmental Defense survey information applies to many categories
