

**SEABIRDS AND MARINE MAMMALS OF THE
NORTH/CENTRAL COAST AREA OF
CALIFORNIA**

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**A Biogeographic Assessment off
North/Central California**

To Support the Joint Management Plan Review for Cordell Bank, Gulf of Farallones, and Monterey Bay National Marine Sanctuaries by providing a suite of analytical products (maps, reports, tables) that identifies, characterizes and prioritizes the biological resources of the study area off central California. These products were developed primarily for sanctuary and resource management staff and councils, but can also be used for research, education and outreach.

http://www.ccma.nos.noaa.gov/products/biogeography/canms_cd/welcome.html

SEABIRDS

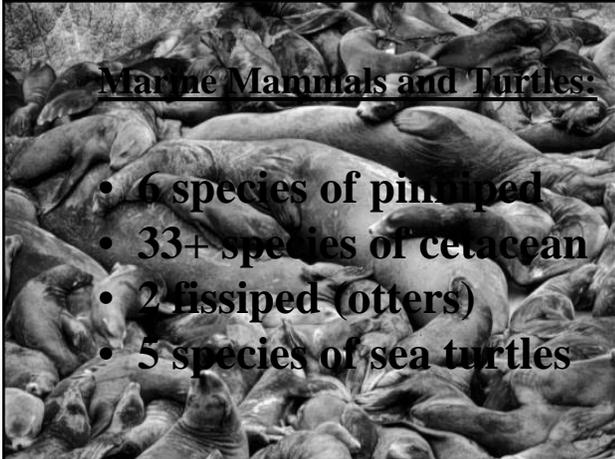
- 13 breeding species
- ~ 340,000 breeding birds

- Ashy Storm-Petrel
- Leach's Storm-Petrel
- Double-crested Cormorant
- Brandt's Cormorant
- Pelagic Cormorant
- Black Oystercatcher
- Western Gull
- Common Murre
- Pigeon Guillemot
- Marbled Murrelet
- Cassin's Auklet
- Rhinoceros Auklet
- Tufted Puffin



- ~ 50 migrant / wintering species

- Loons
- Grebes
- Albatrosses, shearwaters, storm-petrels
- Brant, Scoters
- Phalaropes
- Gulls, terns
- Alcids



Marine Mammals and Turtles:

- 6 species of pinniped
- 33+ species of cetacean
- 2 fissiped (otters)
- 5 species of sea turtles

Dominant Mammals and Sea Turtles

Cetacean

	<u>Status</u>	<u>Foraging</u>
Gray whale	FD	Inshore
Humpback	FE	Off/inshore
Blue	FE	Offshore
Harbor porpoise		Inshore
Dall's porpoise		Offshore
Pacific white-sided dolphin		Offshore

Sea turtles

Leatherback	FE	Off/inshore
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FE – Federally endangered; FD – Federally delisted

Dominant Mammals (cont'd.)

Pinnipeds

	<u>Status</u>	<u>Foraging</u>
Steller sea lion	FT	Offshore
California sea lion		Off/inshore
Northern fur seal	Depleted	Offshore
Northern elephant seal		Offshore
Harbor seal		Inshore

Fissiped

Southern sea otter	FE	Inshore
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FT – Federally threatened; FE – Federally endangered

Seabirds and Marine Mammals

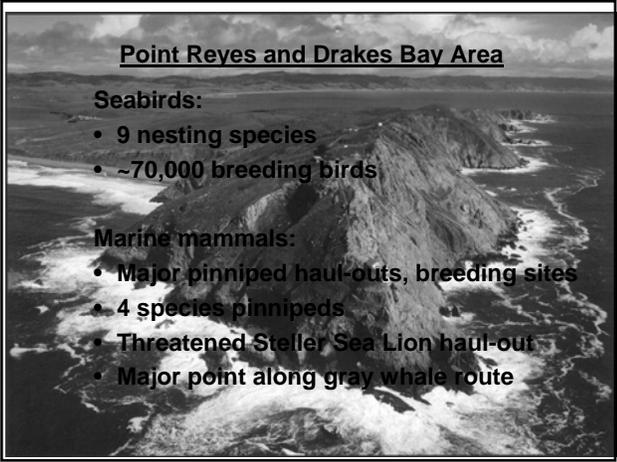
- Upper trophic level predators
- Feed on fish, squid, krill
 - **Key in on abundant prey**
- Major feeding, breeding areas similar
- Need undisturbed coastal habitats for breeding, resting, feeding

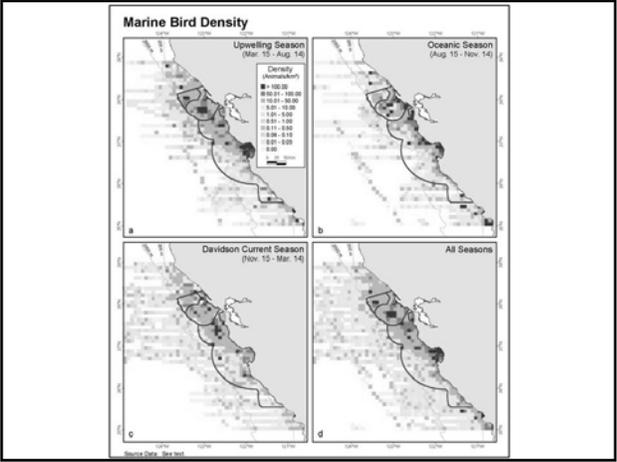
Primary Prey

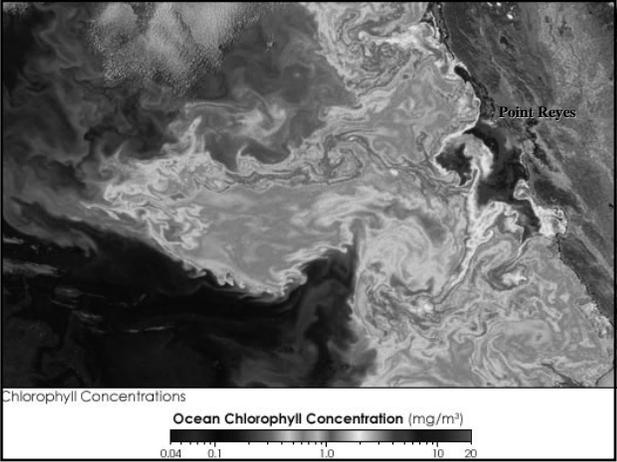
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- Northern anchovy
 - Rockfish (esp. short-belly and yellowtail)
 - Pacific Sardine
 - Pacific Herring
 - Pacific whiting
 - Smelt
 - Pacific Tomcod
 - Sculpins
 - Surfperch
 - Market squid
 - Krill

THREATS

- **Human disturbance (esp. breeding, resting sites):**
 - Boats
 - Shoreline recreation / harvest
 - Short-term (loss of young) and long-term effects (abandonment of site)
- Fisheries bycatch (e.g., gill-nets, long-lines, live-fish)
- Prey reductions / changes (human & non-human)
 - e.g., loss of young rockfish







WATERFOWL

- ~ 25 species
- Coastal estuaries important wintering habitats.
- 20,000 – 30,000 birds:
- Bolinas Lagoon to Bodega Bay
- Food: Mollusks, worms, other inverts, small fish
- Brant – Eelgrass Specialists (Tomales, Drakes, Bodega Bays)

“MUDDY” SHOREBIRDS

- ~ 20 species
- Coastal estuaries important migration / wintering habitats.
- Bolinas Lagoon to Bodega Bay
- Food: Bivalves, polychaete, worms, insect larvae, ghost shrimp, other inverts.
- Feed at low tide, rest at high tide
- Need undisturbed foraging and roosting areas

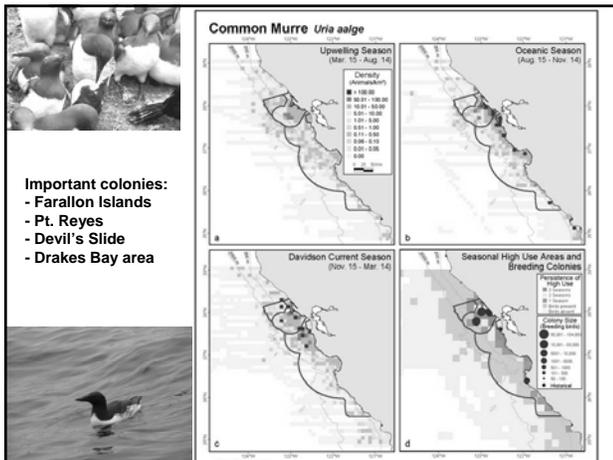
“ROCKY” SHOREBIRDS

- 5 species
 - Black Oystercatcher
 - Black Turnstone
 - Wandering Tattler
 - Surfbird
 - Ruddy Turnstone
- Feed on mollusks
- Feed at low tide, rest at high tide
- Important areas: intertidal reefs (e.g., Fitzgerald, Duxbury)
- Need undisturbed areas to feed, roost

Common Murre, *Uria aalge*

- Most abundant breeding species (ca. 300,000 breeding birds)
- Breed at small number of colonies.
- Forage widely over shelf and shelf break
- Feed primarily on small schooling fish and invertebrates:
 - Rockfish, *Sebastes* spp., esp. *S. jordani* and *S. flavidus*
 - Northern anchovy, *Engraulis mordax*
 - Pacific sanddab, *Citharichthys sordidas*
 - Nightsmelt, *Sprinchus starksi*
 - Pacific herring, *Clupea harengus*
 - Lingcod, *Ophiodon elongatus*
 - Shiner surfperch, *Cymatogaster aggregata*
 - Salmonids
 - Pacific whiting, *Merluccius productus*
 - Pacific sardine, *Sardinops sagax*
 - Market Squid, *Loligo opalescens*
 - Krill, *Thysanoessa spinifera*





Pelagic Cormorant & Pigeon Guillemot

- Widespread breeders in small colonies (~ 4,000 breeding birds)
- Forage in coastal waters: rocky reefs.
- Feed on small fish, some inverts.

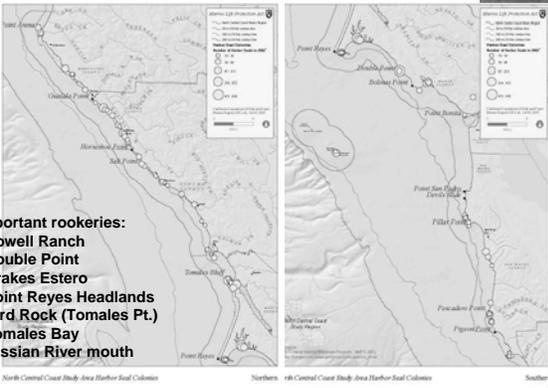
<p><u>Pelagic Cormorant</u></p> <ul style="list-style-type: none"> - Rockfish, <i>Sebastes</i> spp. - Sculpins, Cottidae - Mysid shrimp, <i>Spirontocaris</i> sp. 	<p><u>Pigeon Guillemot</u></p> <ul style="list-style-type: none"> - Rockfish, <i>Sebastes</i> spp. - Sculpins, Cottidae - Octopus, <i>Octopus rufescens</i> - Sanddab, <i>Citharichthys</i> sp. - Gunnels, Pholidae - Cuskeel
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- “Boom and bust” breeders:
 - When preferred prey abundant, productivity high
 - When preferred prey absent, productivity very low
- Indications that populations have declined over last two decades, probably because of poor rockfish productivity.

Harbor Seal, *Phoca vitulina*

- Mainly occur in nearshore habitats
- Breed at several colonies: Marin Co. has most in state (20%).
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 - Market Squid, *Loligo opalescens*
 - Halibut
 - Flounder



Harbor Seal rookeries



- Important rookeries:
 - Cowell Ranch
 - Double Point
 - Drakes Estero
 - Point Reyes Headlands
 - Bird Rock (Tomales Pt.)
 - Tomales Bay
 - Russian River mouth



Conclusions

Regionally (globally) important breeding/foraging area

Gulf of the Farallones is one of the largest concentration/diversity of marine birds/mammals in California.

Farallon Islands is the largest seabird breeding colony in the lower 48 states and breeding area for 5 pinniped species.

Point Reyes, Drakes Bay colonies, and Russian River area: most significant mainland sites

Estuaries host large numbers of shorebirds/waterfowl
