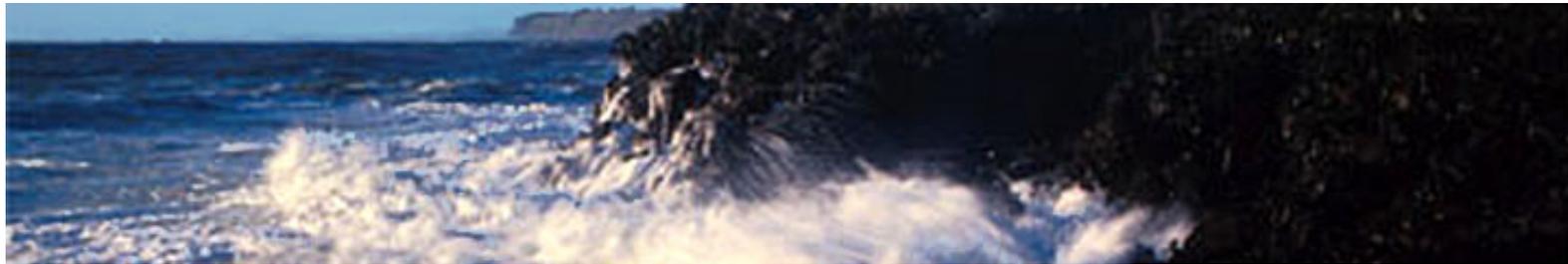


**SEABIRDS AND MARINE MAMMALS OF THE
NORTH/CENTRAL COAST AREA OF
CALIFORNIA**

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San Francisco Bay National Wildlife Refuge**

and

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National Park Service
Point Reyes National Seashore**



Products



Analyses/
Maps



Integration



Data

PROJECT
Team
&
Partners

Credits

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.

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



A large group of seals, likely elephant seals, resting on a rocky beach. The seals are of various colors, including brown, grey, and black, and are scattered across the frame. Some are lying down, while others are partially visible. The background shows a rocky shoreline with some greenery.

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

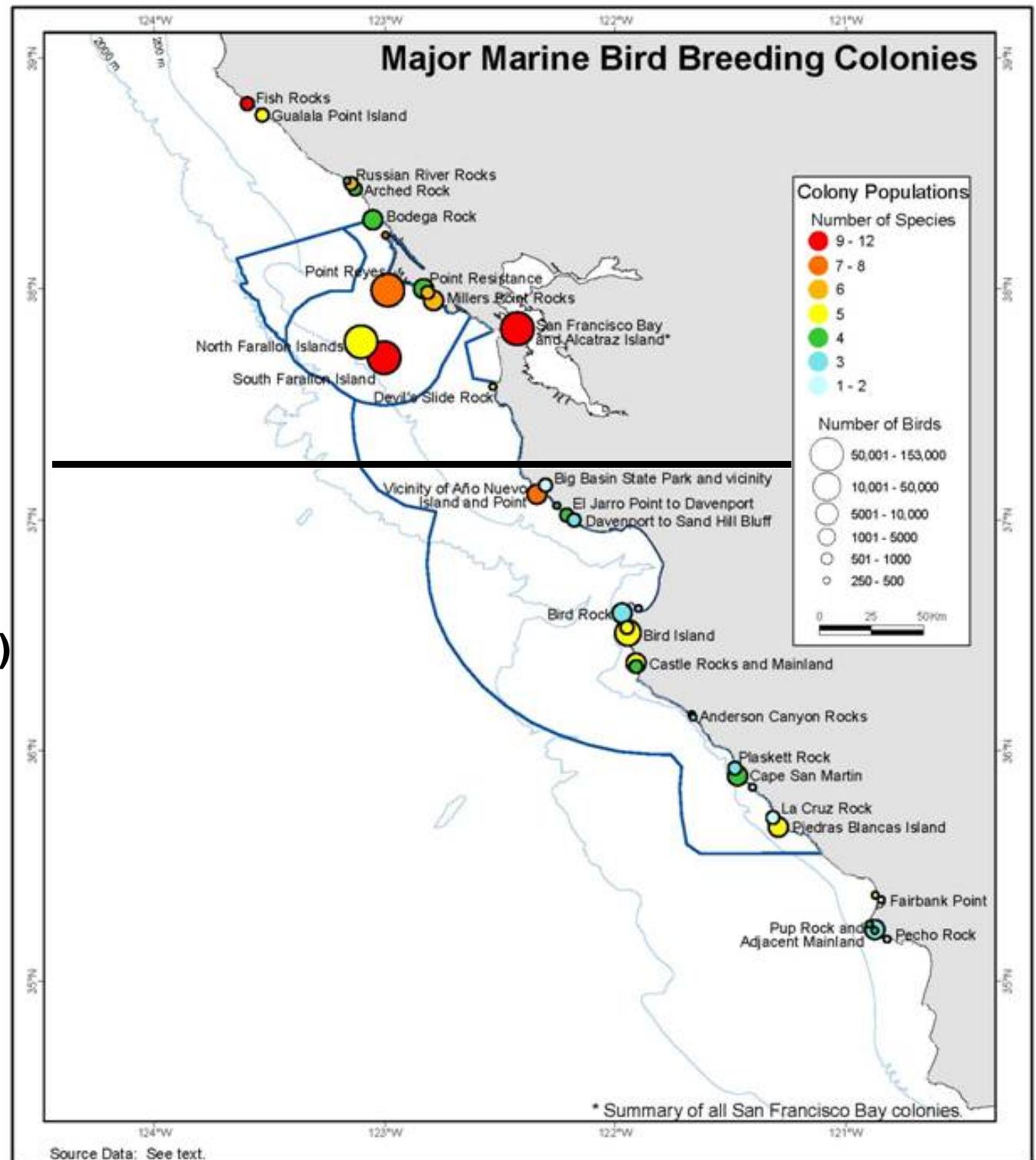
- Northern anchovy
- Rockfish (esp. short-belly and yellowtail)
- Pacific Sardine
- Pacific Herring
- Pacific whiting
- Smelt
- Pacific Tomcod
- Sculpins
- Surfperch
- Market squid
- Krill

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**

Major Seabird Breeding Colonies:

- Farallon Islands
- Devil's Slide
- Point Reyes
- "Drakes Bay" area
- Bird Rock (Tomales Pt.)
- Bodega Rock
- Russian River area
- Gualala Point
- Fish Rocks



Major Pinniped Rookeries & Haul-out Sites

- Farallon Islands
- Point Reyes
- Bolinas Lagoon
- Drakes Bay sites
- Bird Rock (Tomales Pt.)
- Tomales Bay
- Bodega Rock
- Russian River area
- Fish Rocks



Legend

- Northern Fur Seal Colonies
- Northern Elephant Seal Colonies
- Steller Sea Lion Colonies
- Harbor Seal Colonies

California Sea Lion



FARALLON ISLANDS

An aerial photograph of the Farallon Islands, showing several rocky islands in the ocean. The islands are rugged and brownish, with some green vegetation. The water is dark blue, and there are white waves crashing against the rocks. The sky is a pale blue.

- Largest seabird colony in lower 48 states
- 12 nesting species
- ~300,000 breeding birds
- Largest colony in world for 3 species
- Major pinniped haul-out, breeding site
- 5 species
- Only breeding site in Northern California for Northern fur seal
- Threatened Steller Sea Lion

Point Reyes and Drakes Bay Area

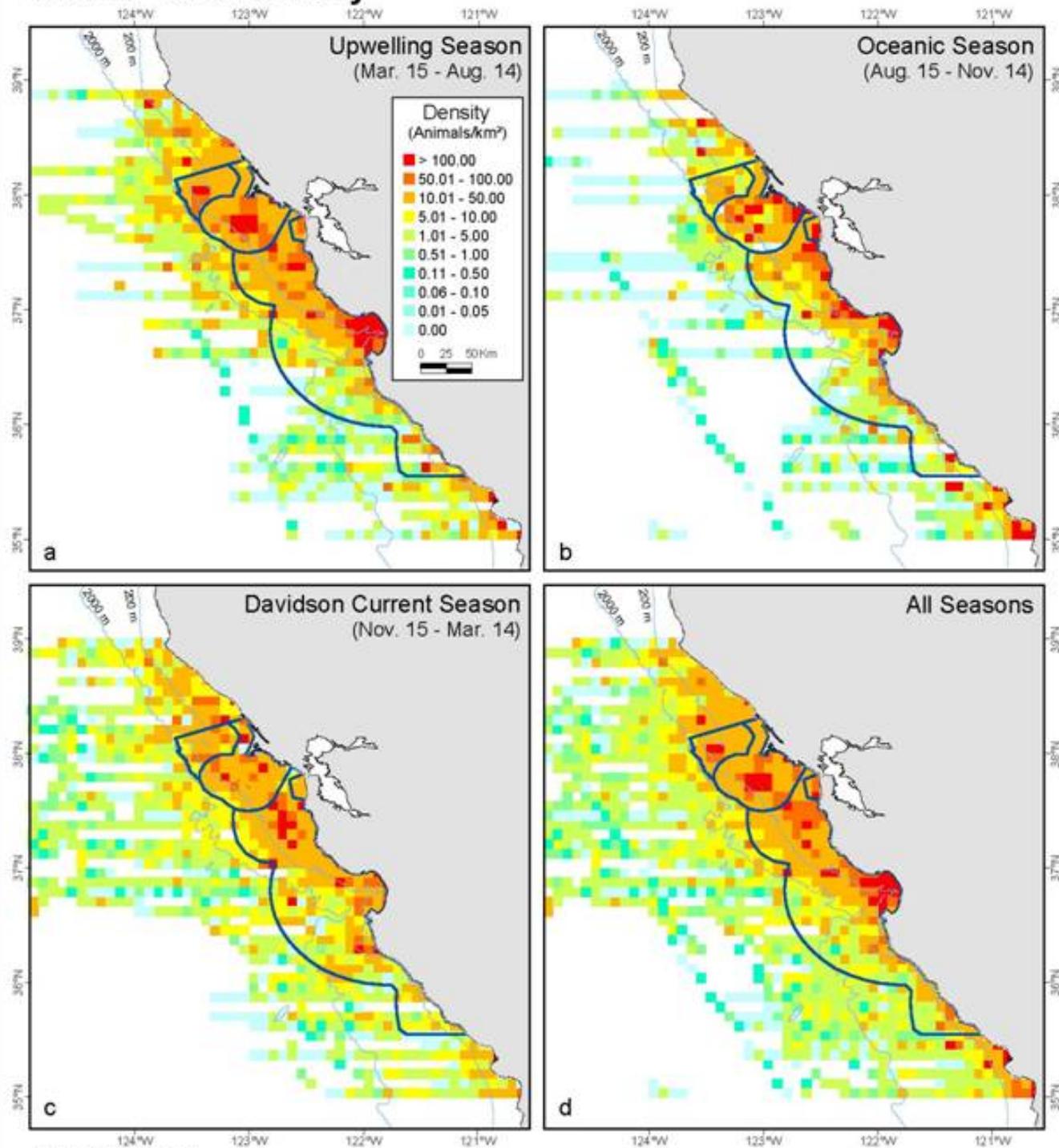
Seabirds:

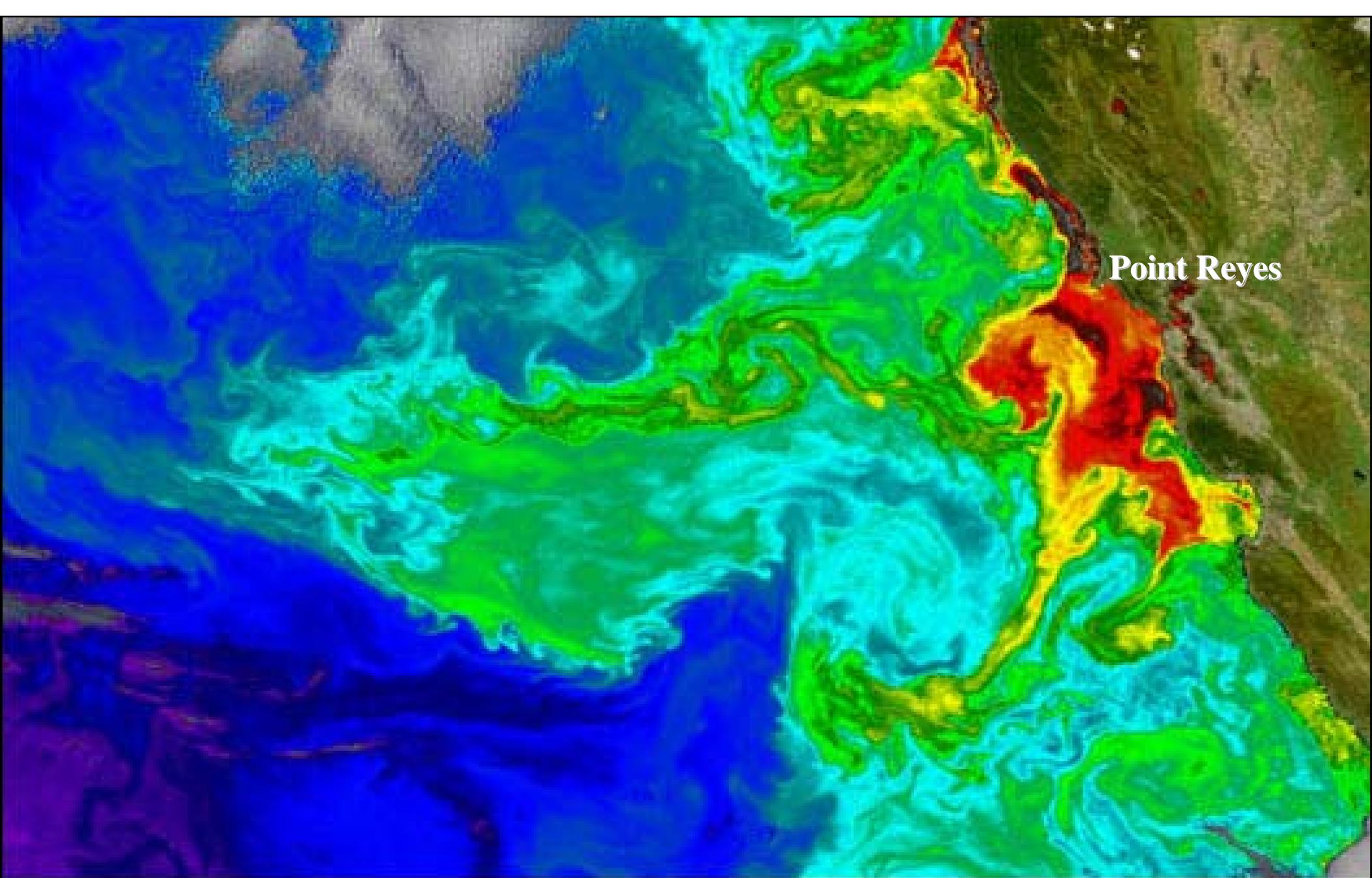
- 9 nesting species
- ~70,000 breeding birds

Marine mammals:

- Major pinniped haul-outs, breeding sites
- 4 species pinnipeds
- Threatened Steller Sea Lion haul-out
- Major point along gray whale route

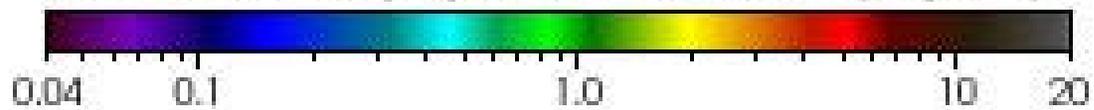
Marine Bird Density





Chlorophyll Concentrations

Ocean Chlorophyll Concentration (mg/m^3)



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)

• Need undisturbed foraging and roosting areas

“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
- 
- A black shorebird, likely a Black Oystercatcher, is shown in profile, facing right. It has a long, straight, reddish-brown beak and a bright orange eye. The bird is perched on a dark, textured rock. The background is a soft, out-of-focus blue sky.

Common Murre, *Uria aalge*

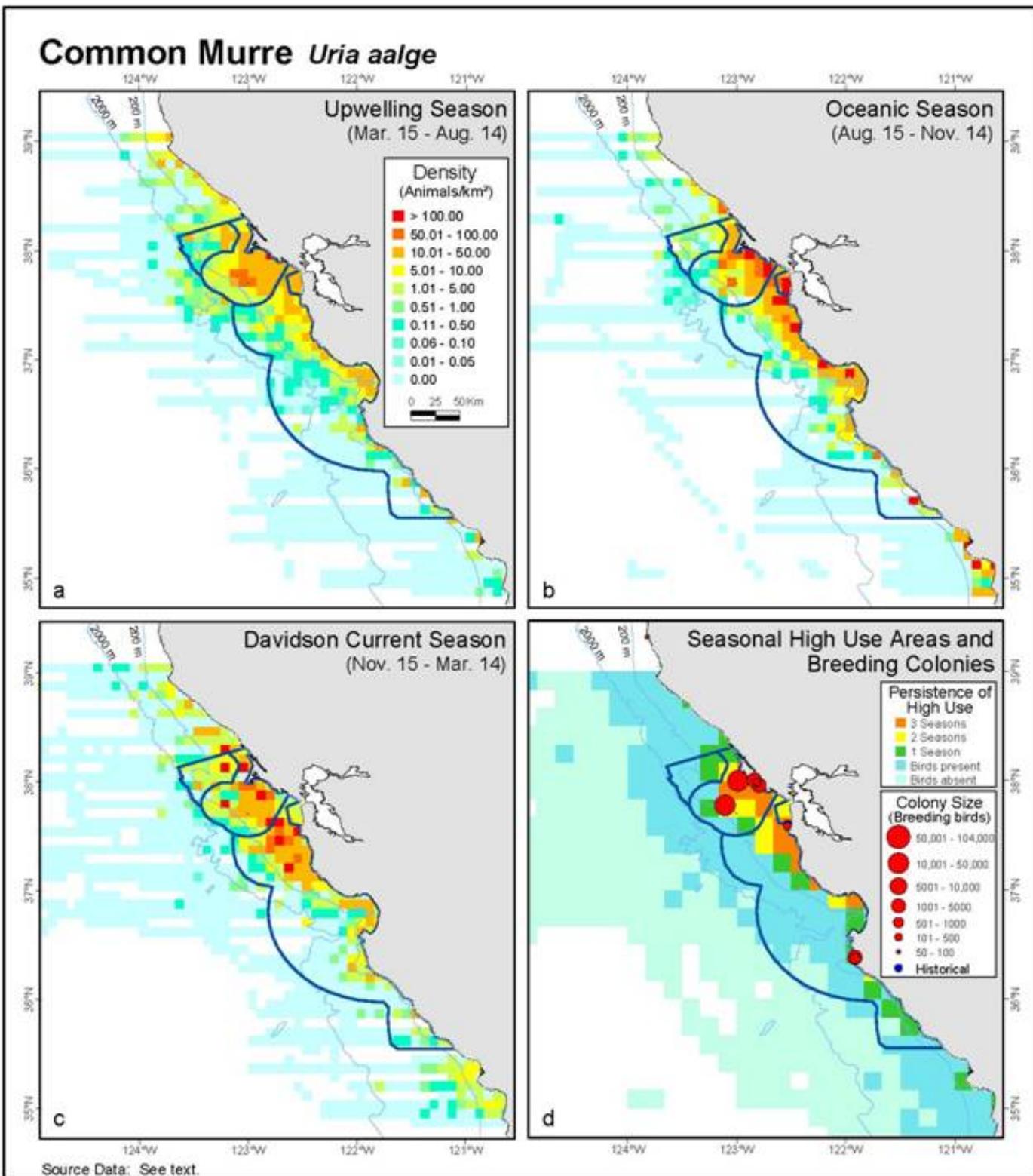
- Most abundant breeding species (ca. 300,000 breeding birds)
- Breed at small number of colonies.
- Forage widely over shelf and shelf break
- Feed primarily on small schooling fish and invertebrates:
 - Rockfish, *Sebastes* spp., esp. *S. jordani* and *S. flavidus*
 - Northern anchovy, *Engraulis mordax*
 - 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*





Important colonies:

- Farallon Islands
- Pt. Reyes
- Devil's Slide
- Drakes Bay area





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.

Pelagic Cormorant

- Rockfish, *Sebastes* spp.
- Sculpins, Cottidae
- Mysid shrimp, *Spirontocaris* sp.

Pigeon Guillemot

- Rockfish, *Sebastes* spp.
- Sculpins, Cottidae
- Octopus, *Octopus rufescens*
- Sanddab, *Citharichthys* sp.
- Gunnels, Pholidae
- Cuskeel

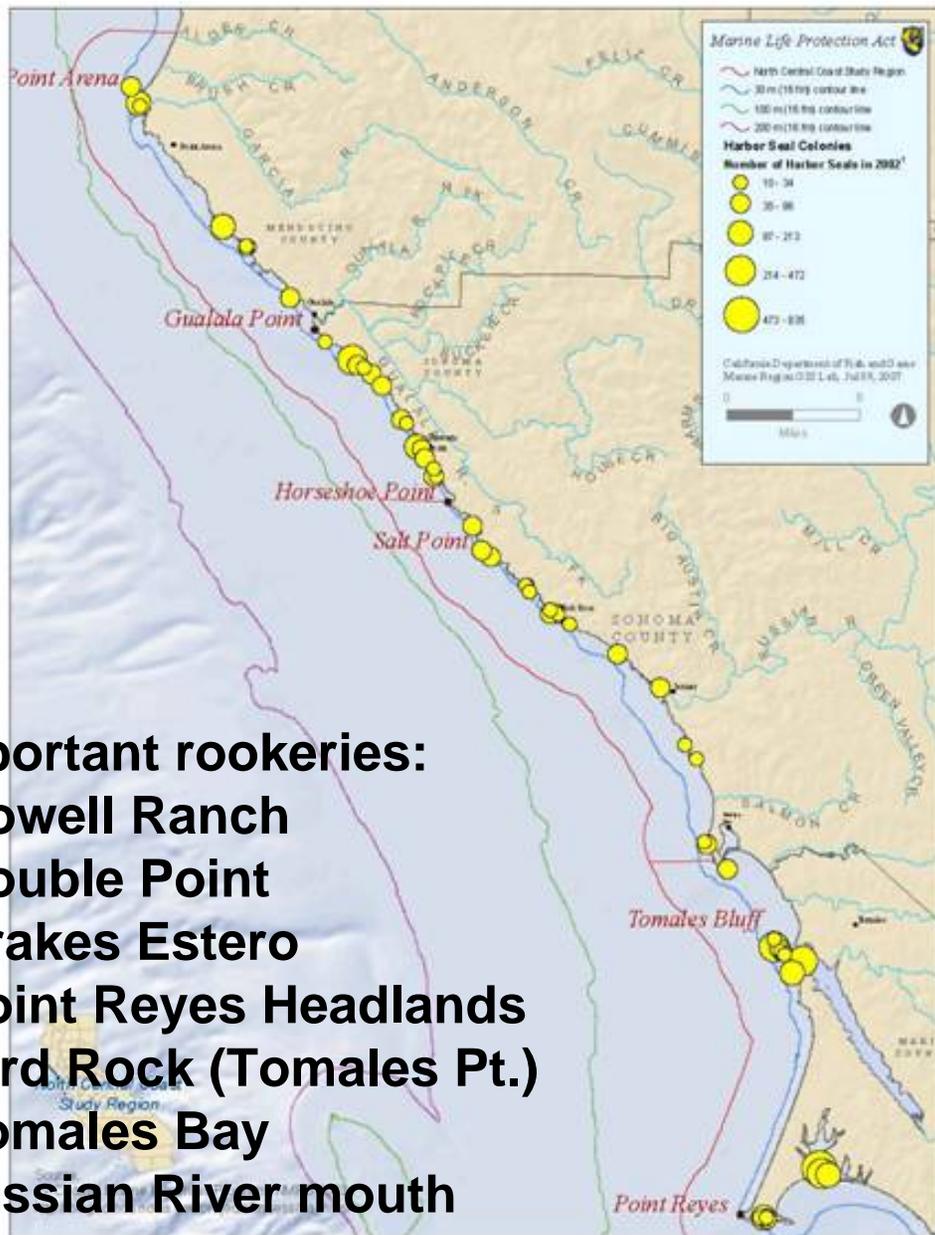
- “Boom and bust” breeders:
 - When preferred prey abundant, productivity high
 - When preferred prey absent, productivity very low
- Indications that populations have declined over last two decades, probably because of poor rockfish productivity.

Harbor Seal, *Phoca vitulina*

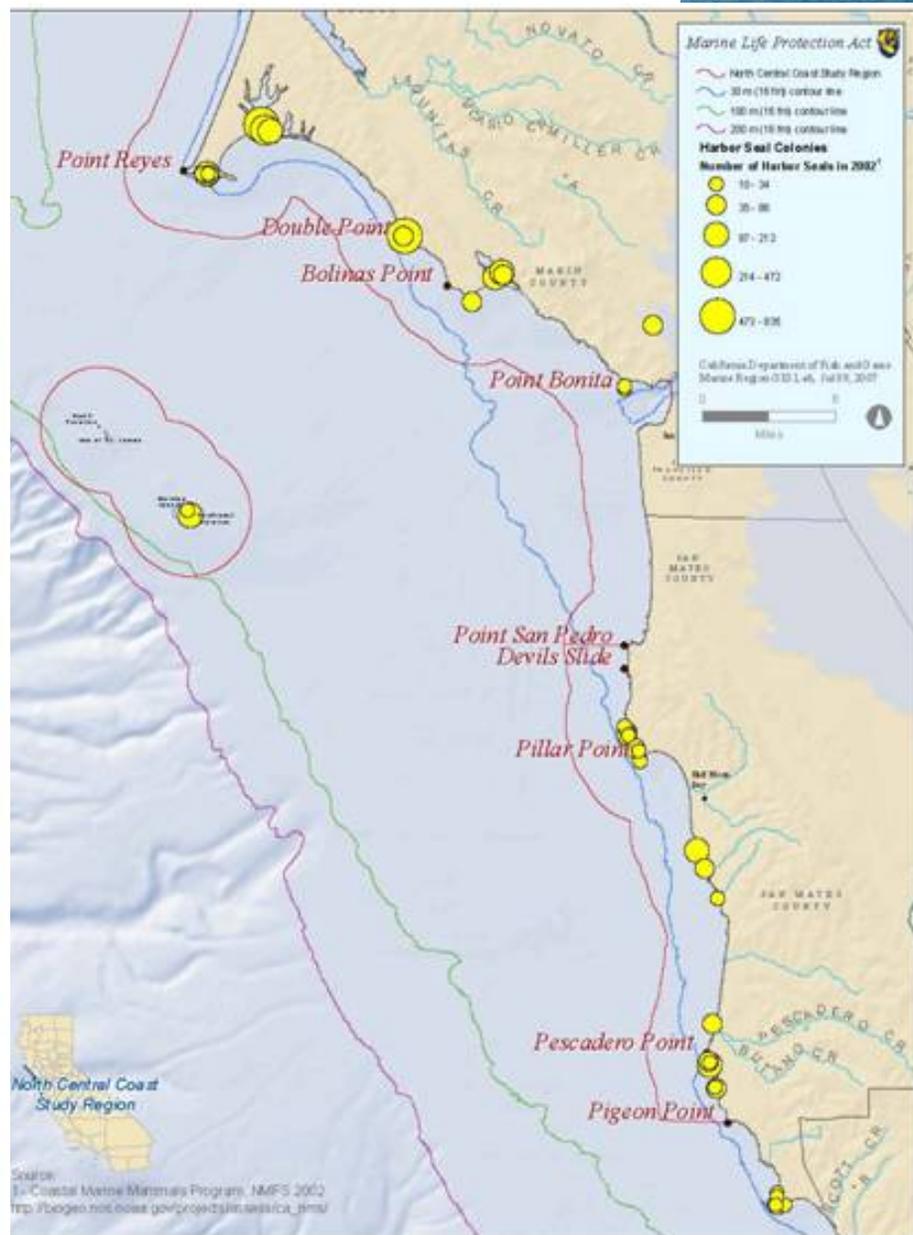
- Mainly occur in nearshore habitats
- Breed at several colonies: Marin Co. has most in state (20%).
- Mainly occur in nearshore habitats
- Feed primarily on schooling fish and invertebrates:
 - Rockfish, *Sebastes* spp., esp. *S. jordani* and *S. flavidus*
 - Northern anchovy, *Engraulis mordax*
 - Pacific sanddab, *Citharichthys sordidas*
 - Nightsmelt, *Sprinchus starksi*
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 - Shiner surfperch, *Cymatogaster aggregata*
 - Salmonids
 - Pacific whiting, *Merluccius productus*
 - Pacific sardine, *Sardinops sagax*
 - Market Squid, *Loligo opalescens*
 - Halibut
 - Flounder



Harbor Seal rookeries



North Central Coast Study Area Harbor Seal Colonies



Northern North Central Coast Study Area Harbor Seal Colonies

Southern

- 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