

Activities in the Northern Management Area



GFNMS and MBNMS Joint Sanctuary Advisory Council Meeting
August 21, 2013

Interpretive Signs

Along San Mateo Coast and Marin Headlands



Gulf of the Farallones & Monterey Bay
National Marine Sanctuaries

Sea Life In These Waters

Just off the San Mateo coast lies one of the world's most productive ocean wilderness areas. A unique combination of wind, ocean currents, sea floor contours, dissolved nutrients and the sun's energy sparks an explosion of life. Microscopic phytoplankton form the base of the food chain. These in turn provide food for zooplankton and fish, providing a feast for seabirds, seals, whales, sharks and humans. Monterey Bay and Gulf of the Farallones national marine sanctuaries protect this rich marine ecosystem through research, education, conservation and stewardship programs.

Occasionally when strong northwestern spring winds blow, Roosting jellies called "By-the-wind-birds" wash upon beaches in flocks. Their triangular "sail" is angled so that the wind slowly keeps them off shore.

With a National Marine System status, the national and cultural resources of 11 special wilderness areas that 100,000 acres are located along the California Coast.

Adult white sharks patrol these waters in search of seals and sea lions. These top predators help keep these marine mammal populations in balance.

During summer and fall, watch as Brown Pelicans soar gracefully over the waves or plunge seaward to catch fish.

As a sustainable fishery, Dungeness crab provides a source of food and revenue for California.

The range of southern sea otters is slowly expanding northward, offering new wildlife viewing opportunities for Mendocino seal visitors.

Fitzgerald Marine Reserve

- Interpretive Stairway & Trail
- 2 Docent Training Classes



Oceanographic Processes

Fitzgerald Marine Reserve
San Mateo County Department of Parks

What is Coastal Upwelling?
Spring and summer upwelling currents bring up cold water from the ocean's bottom causing coastal waters to produce deep, cold, nutrient-rich surface waters, supporting a variety of marine life.

Coastal Upwelling in the California Current
Coastal upwelling in the California Current was weaker 6,000 years ago than it is today because of the differences in Earth's orbit around the Sun.

What is Coastal Upwelling?
Coastal upwelling is a process where deep, cold, nutrient-rich water rises to the surface. This process is caused by the wind-driven California Current moving north along the coast, which causes water to be pushed away from the shore. This creates a low-pressure area that draws up water from the bottom of the ocean.

Oceans support the greatest diversity of life

Harbor Seals

Fitzgerald Marine Reserve
San Mateo County Department of Parks

A Safe Place for Harbor Seals
The Fitzgerald Marine Reserve provides a safe place year-round for harbor seal pups. They have the good visibility and easy access to their mother's milk. During low tides, they rest and bask on shores in a colony of about 10 large groups of 500. They birth and nurse their pups in shallow bays from February to June. Their fur bleeds with the sand and rocks to help keep them hidden.

Why Do They Need to Haul-Out?
Harbor seals are gregarious (social) and love to be near the water. Even though they have the capability to leave they would be unable to do so.

- give birth, nurse their pups and socialize
- rest and bask
- warm their bodies in the sun after being in the cold ocean
- rest or sleep their fur and skin

CAUTION! Stay 300 feet from harbor seals. Seals are protected under the Marine Mammal Protection Act of 1972.

Pillar Point Harbor Maritime Trail



Pigeon Point Lighthouse

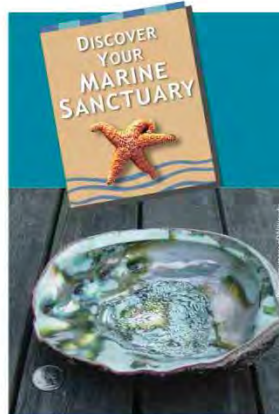


Exploration Series



Abalone Soirée'

at Mavericks Event Center



GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY
AND FARALLONES MARINE SANCTUARY ASSOCIATION PRESENT:

ABALONE SOIRÉE!

Saturday, March 23rd, 7 - 9 PM

ART & SCIENCE RECEPTION & LECTURE

Gastropod meets gastronomy at our "ab-solutely fabulous" Abalone Soiree at the Mavericks Event Center overlooking Pillar Point Harbor, Half Moon Bay.

RECEPTION ACTIVITIES

- Savor a dainty bite of freshly prepared abalone
- Meet abalone farmers, scientists, and enthusiasts
- Enjoy abalone art
- Sample local beers & wines at our no-host bar
- Close the evening on the "Abba only" dance floor

LECTURE: ABALONE'S RISE TO CULINARY FAME

TIM THOMAS, FISHERIES HISTORIAN

Delve into the fascinating history of Monterey's abalone industry. Learn how a German restaurateur, "Pop" Ernest Doelter made the abalone famous and how Japanese immigrants risked their lives diving for this amazing mollusk. Tim Thomas, fourth generation native of the area, is a fisheries historian who has researched and lectured extensively on local fishing communities.

TICKETS REQUIRED:

Cost \$15

Mavericks Event Center, 107 Broadway, Half Moon Bay

Space is limited.

Contact Justin Holl at:
(415) 561-6622 x308 or
justin.holl@noaa.gov



www.farallones.org

At Your School Programs

735 students served in 2013
on San Mateo Coast



- K-3 Crab Cab
- 3-5 Seabird Shuttle
- 4-6 Sharkmobile
- 5-7 Fishermen in the Classroom
- 7-12 Ocean Acidification
- Assembly Program



LiMPETS

Long-term Monitoring Program and
Experiential Training for Students

Student Scientists on our Sanctuary Shores



Key Aspects of LiMPETS

LiMPETS is well established

- Spans 600 miles of coastline
- 26 rocky intertidal sites and 37 sandy beach sites

LiMPETS is successful

- Engage 5,000 students in collecting data

LiMPETS is a model citizen science program

- Data informing MLPA baseline



Rocky Shore Partnership

A Citizen Naturalist & Scientist Program with California Academy of Sciences

San Mateo County

- Volunteers monitor invertebrates and seaweed in the intertidal areas at Pillar Point
- Volunteers talk with and educate visitors on intertidal life and tidepool etiquette



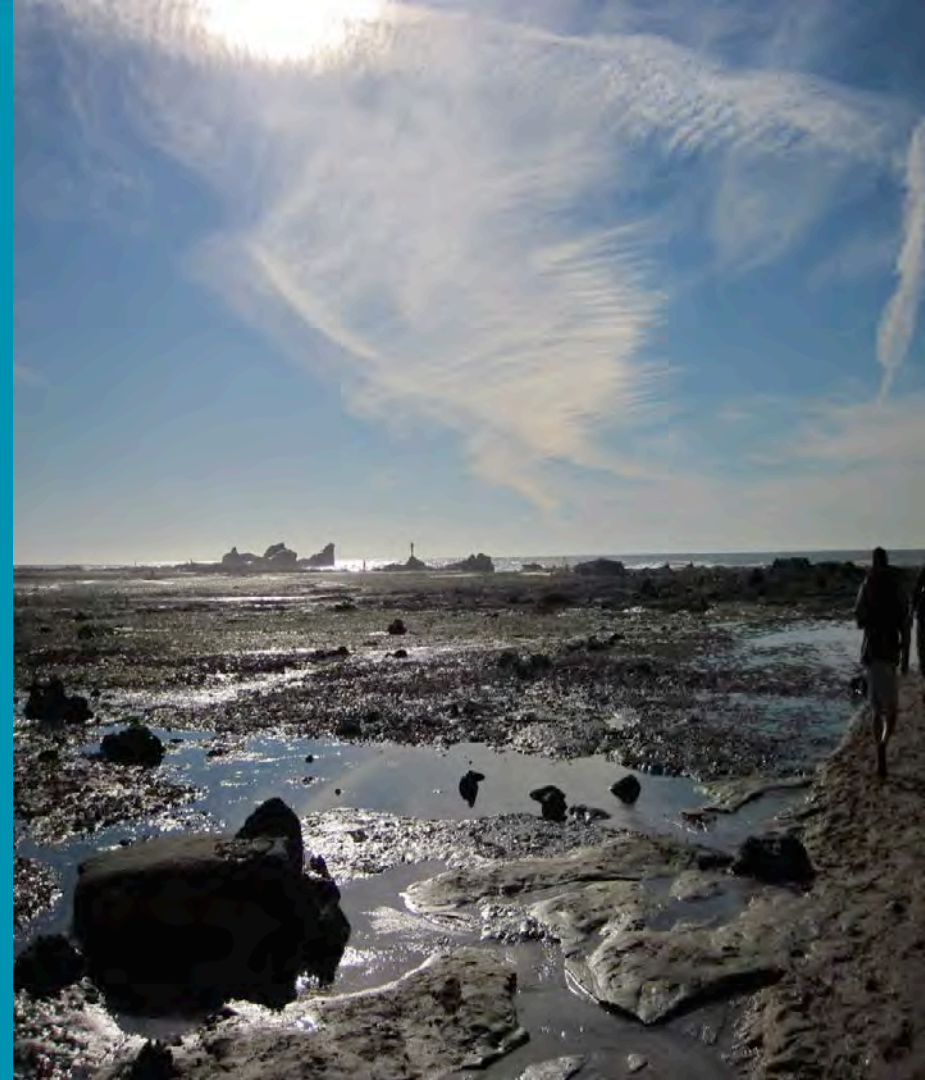
Rocky Shore Partnership

A Citizen Naturalist & Scientist Program with California Academy of Sciences

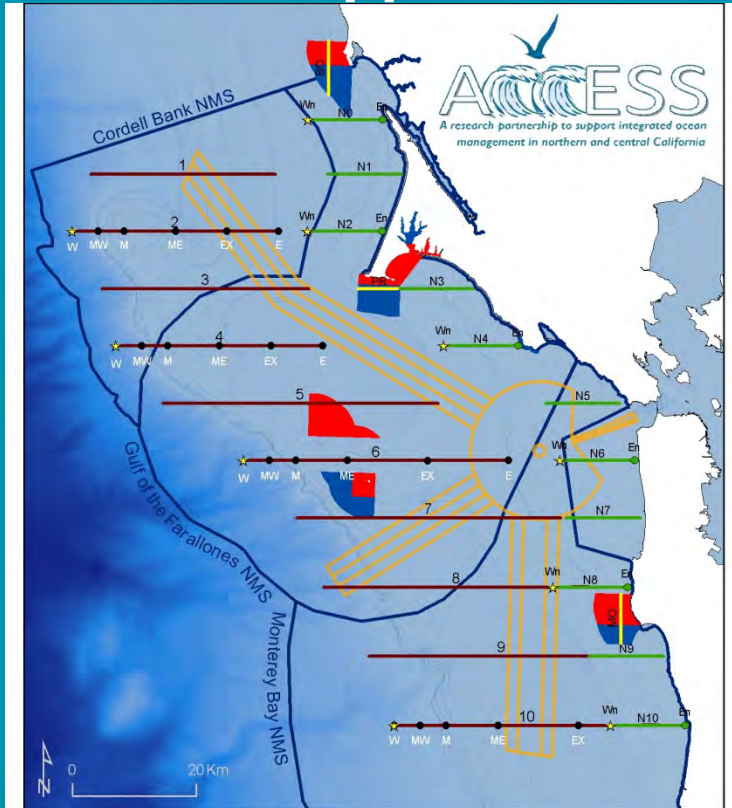
San Mateo County

Future plans

- Implement MPA Watch in partnership the Ocean Science Trust and San Mateo MPA Collaborative
- Expand surveys to Fitzgerald Marine Reserve
- Expand work with LiMPETS



ACCESS: Applied California Current Ecosystem Surveys



Offshore and Nearshore Transect Lines and Sampling Stations

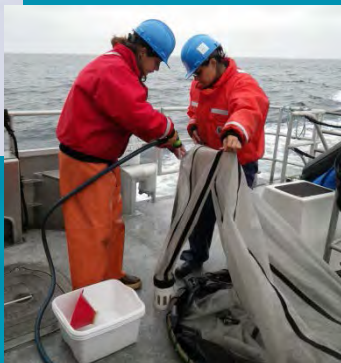
- Offshore Transects
- Nearshore Transects
- Limited Survey Transects
- Shipping Lanes
- * / • CTD/Phyto/Zoop Station
- CA MPA - SMCA
- CA MPA - SMR
- NMS Boundaries

Applied California Current Ecosystem Studies (ACCESS)

For more information please visit www.accessoceans.org or contact Jaime Jahncke at jjahncke@prbo.org

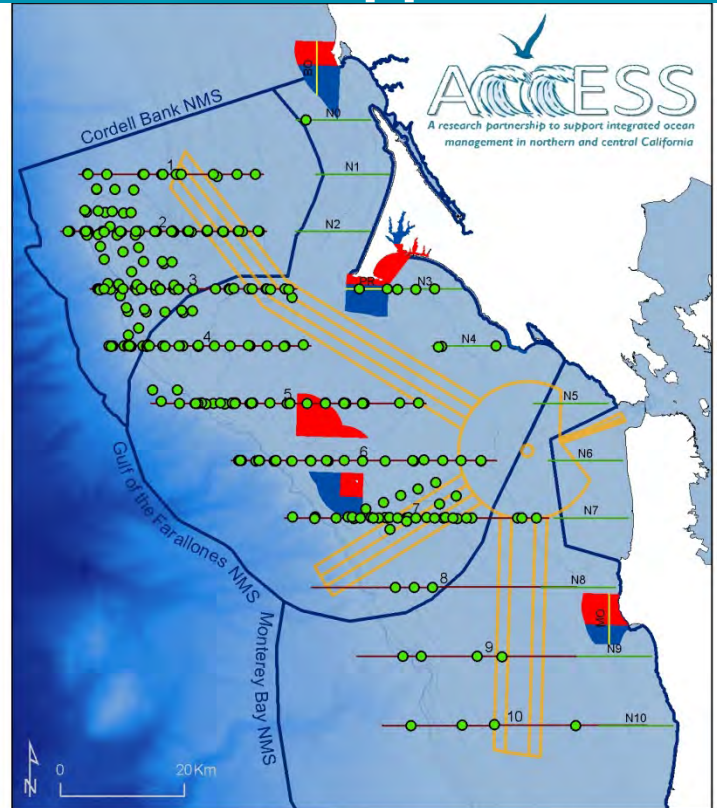
- Partnership between Point Blue, CBNMS, GFNMS, FMSA, University of Hawaii, SFSU, BML
- Collects integrated data to model biological hotspots and resources at risk
- Transect lines 5-10 are within MBNMS
- Project associated with Whale Aware to gather near “real time” data on whales at risk in MBNMS, GFNMS, CBNMS, CINMS

ACCESS: Applied California Current Ecosystem Surveys



- Oceanographic conditions determine strength and influences of upwelling
- Zooplankton to model hotspots
- Chemical properties of water column to determine ocean acidification
- Seabird and marine mammal abundance, distribution and behavior to model persistent foraging areas
- Vessel activities to model resources at risk
- Miscellaneous: debris, drift algae, etc.

ACCESS: Applied California Current Ecosystem Surveys



Offshore and Nearshore Transect Lines and Sampling Stations

- Offshore Transects
- Nearshore Transects
- Limited Survey Transects
- Shipping Lanes
- HUWH Sighting Location
- CA MPA - SMCA
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Applied California Current Ecosystem Studies (ACCESS)

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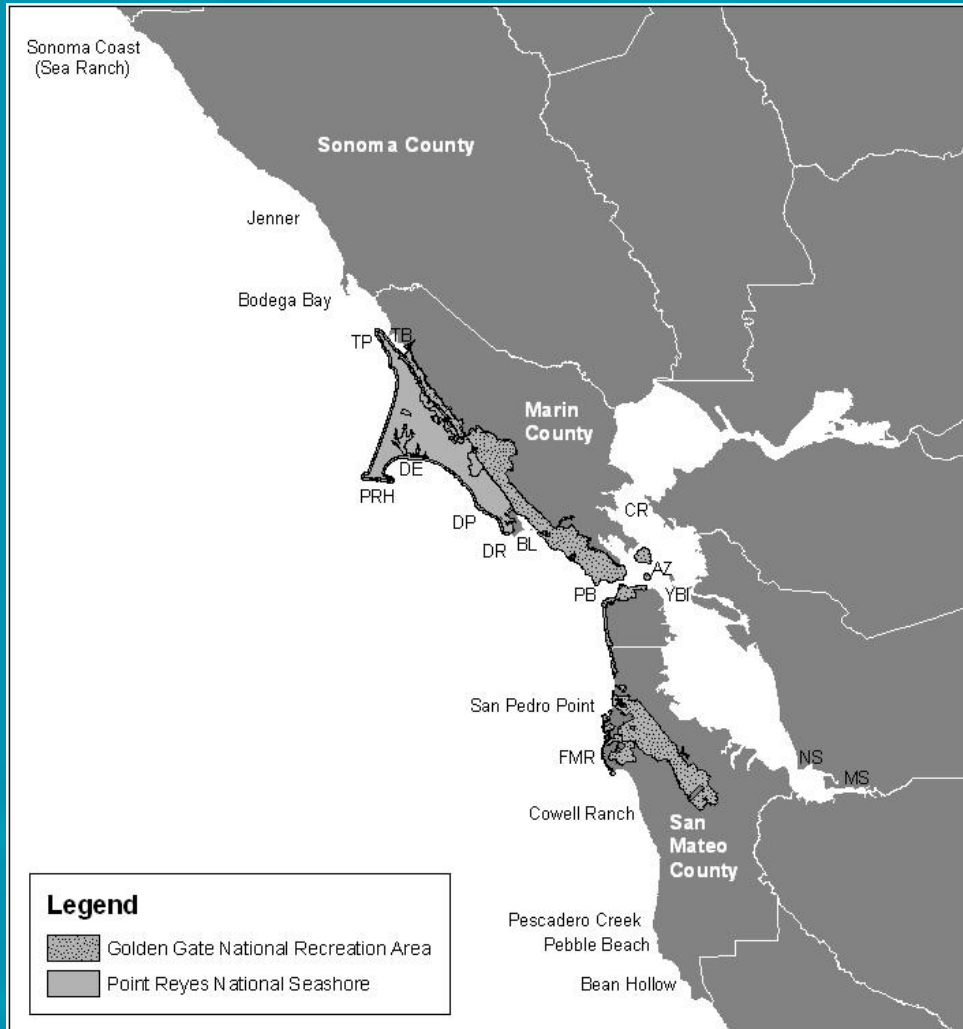
- Example of resources at risk from ship strikes
- ACCESS surveys provide overview of forging areas and identify concentrations of whales
- May, July and September surveys produce sightings maps to justify listing in Local Notice to Mariners
- Advisories to announce beginning of blue and humpback whale season and request to slow to 10 kts to lessen lethality from ship strikes

Central & Northern CA Harbor Seal Census



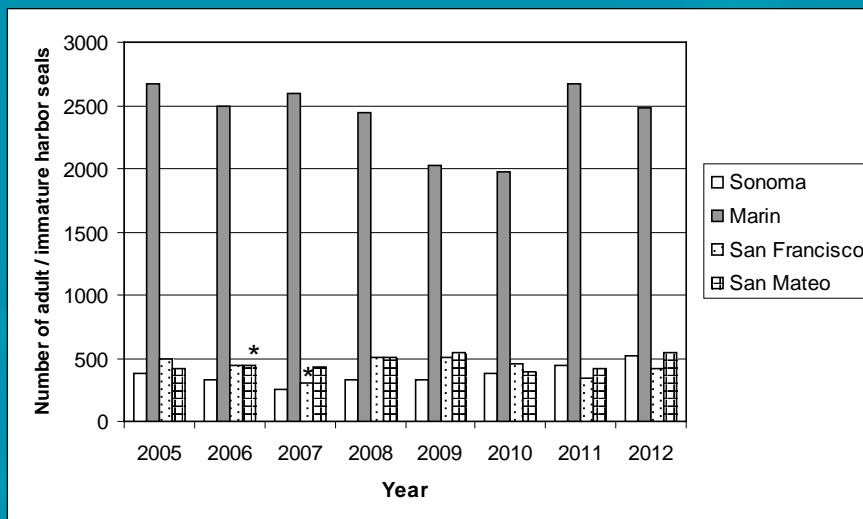
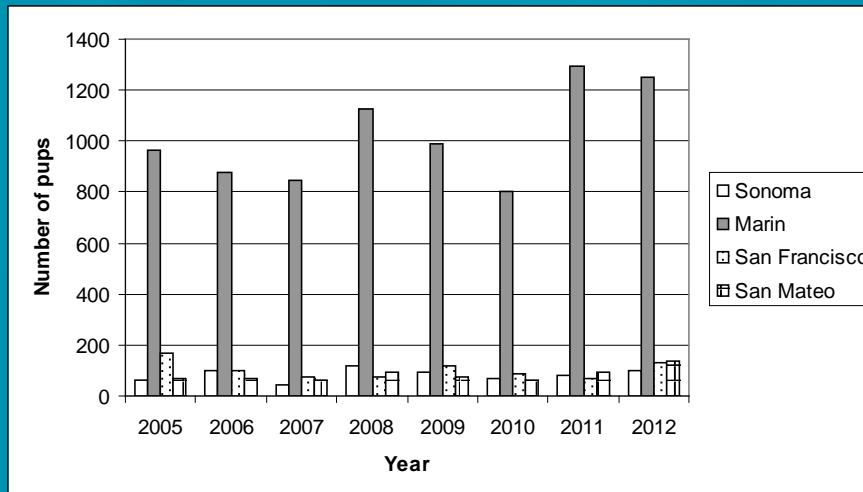
- Census occurs throughout the pupping, breeding and molting seasons, March – July, Sea Ranch south through San Mateo Co.
- Census is performed in partnership with 9 other organizations
- Sampling design enables the data to be integrated with other regional surveys for a regional census

Central & Northern CA Harbor Seal Census



- GFNMS and FMSA staff and volunteers perform counts at San Mateo Co breeding and haul-outs
- Regional census provides data on population, location of haul-outs and breeding areas, on-set of breeding and seasonality of pupping

Central & Northern CA Harbor Seal Census



- Regional census provides guidance to sanctuary management, resource protection and permitting actions when and where certain activities can safely take place with minimal or no disturbance

From: Codde et al. 2012. Pacific Harbor Seal (*Phoca vitulina richardsi*) Monitoring at Point Reyes National Seashore and Golden Gate National Recreation Area, 2012 Annual Report

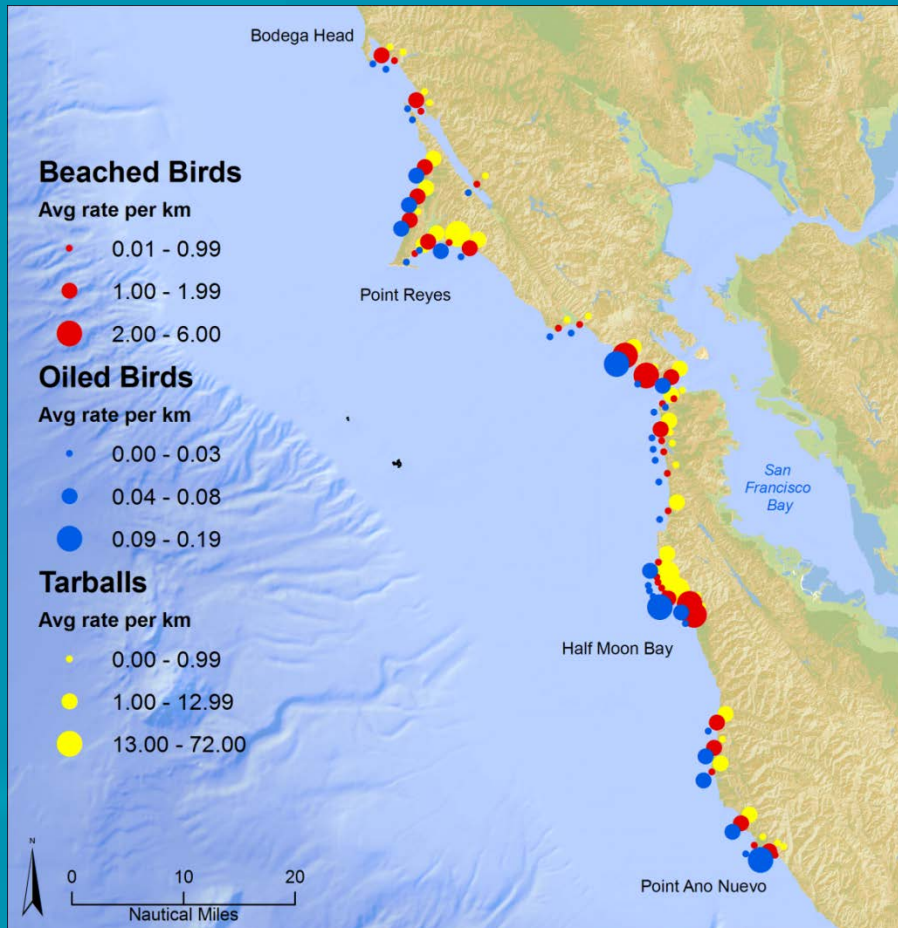


Beach Watch

- Citizen-science monitoring
- Dead bird and mammal data provide annual, seasonal, and geographic trends in mortality rates including trends in age, sex, and cause of death, indicating the health of the shoreline habitat
- Live bird and mammal data provide baseline rates on seasonal, annual, and geographic trends and indices and resources at risk from coastal human activities such as oil spills, vessel groundings, and disturbance

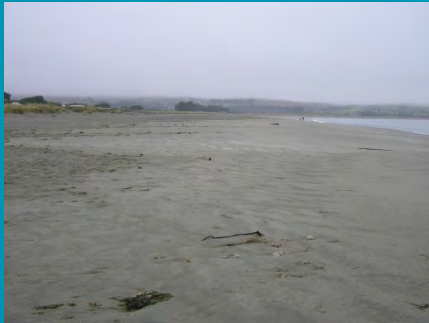


Beach Watch



- Oil and tarball data provide information on the location, amount, source and trends of oil pollution
- Beached birds, oiled birds and tarballs are deposited at different locations due to bottom topography, prevailing surface currents, locations of vessel traffic lanes and nearby colonies
- This information is used for planning restoration, over \$52M resulted from BW NRDA

Beach Watch



- Data are available by season, region, management unit, and each beach
- Abundance and distribution of beach wrack provide location and seasonal trends of this important shoreline, biogenic (living structural) habitat
- Beach profiles provide information on the seasonal and tidal range of the openings of lagoons and streams and long-term trends in beach erosion and deposition patterns



Highest rates of dead bird deposition on Gazos Creek:

A. Common Murre, *Uria aalge*
0.303 individuals/km

B. Western Gull, *Larus occidentalis*
0.093 individuals/km

C. Northern Fulmar, *Fulmarus glacialis*
0.068 individuals/km

Photo credit: GFNMS/FMSA

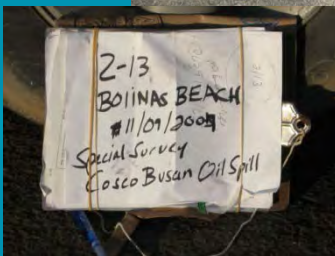
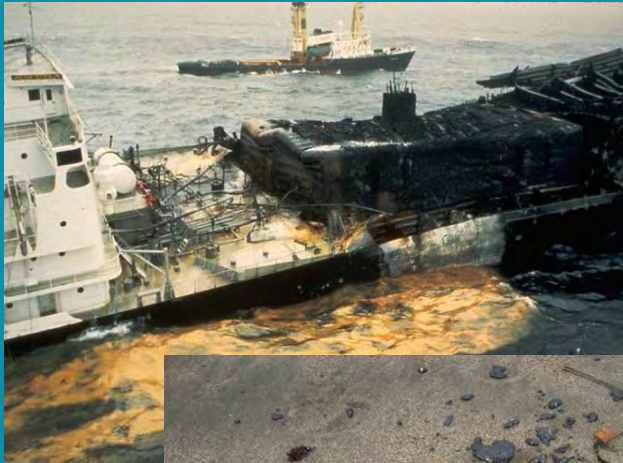


Beach Watch – Management Uses

- Wildlife Protection Area Designations
- Bird and mammal mortality events
- Natural resource damage assessment
- Effects of mariculture industry
- Wildlife entanglement
- Waste management practices
- Listed species monitoring



Beach Watch – Response, NRDA & Restoration



- Beach Watch provides historic baseline deposition rates
- Early detection and reporting
- Network of experienced wildlife reconnaissance surveyors who can respond quickly in oil events
- Documentation of impacts on outer beaches, wildlife and human use
- Collection of tarballs and oiled feather samples as evidence

Emergency Response

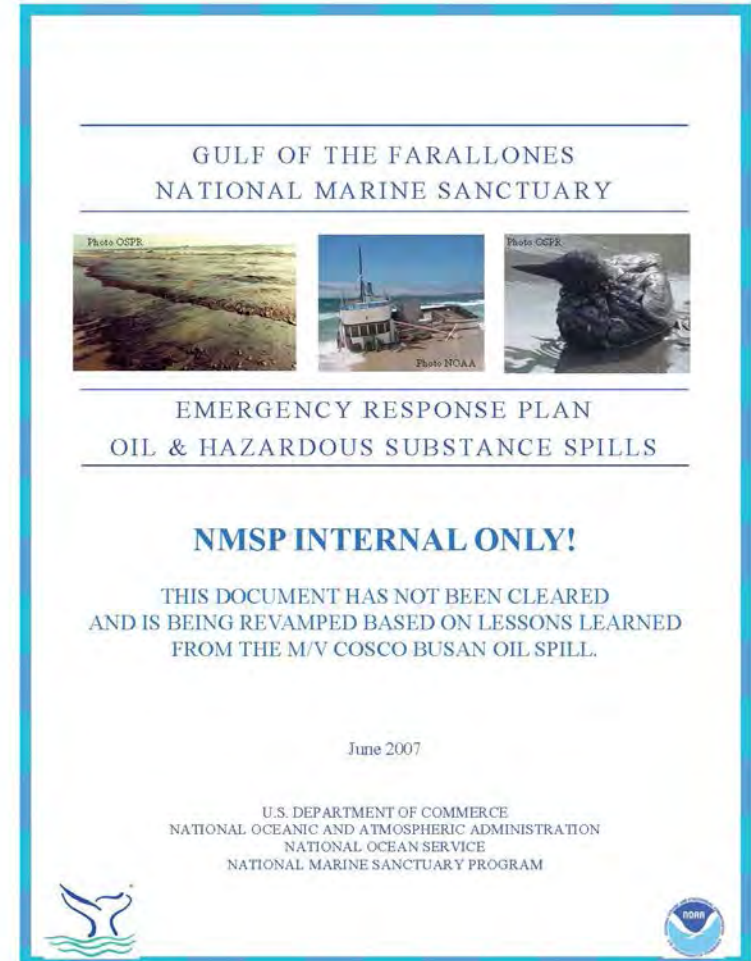


GFNMS Emergency Response Plan and online Portfolio

- Includes Northern Mgmt Area
- Specifies protocols / response actions for spills within NMA in coordination with MBNMS staff

Regular participation in ACP Mtgs and drills

Regular participation in Abandoned Vessels Workgroup Meetings



Vessel Groundings



Respond regularly to vessel groundings within NMA

- In CY 2012, 3 out of 8 groundings within NMA
- In CY 2013 (thus far) 3 out of 3 groundings within NMA

Incidents within NMA often require significant staff time given high interest from the community

Working with Pillar Point Harbor District, USCG, SLC, and state legislature on addressing boat groundings





VESSEL STRIKES AND ACOUSTIC IMPACTS



GULF OF THE FARALLONES AND CORDELL BANK
NATIONAL MARINE SANCTUARIES

*Report of a Joint Working Group of the Gulf of the Farallones and Cordell Bank
National Marine Sanctuaries Advisory Councils*

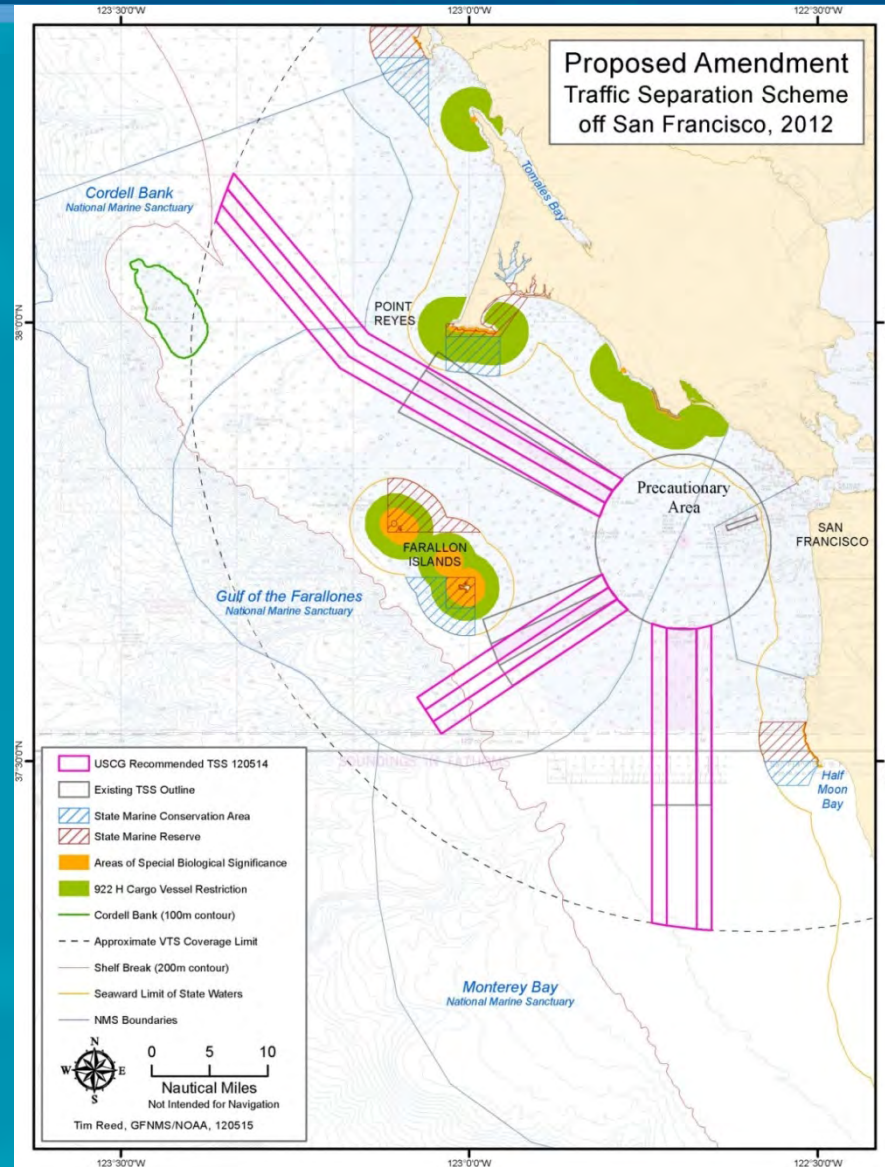
June 2012





Recommendations Apply to Northern Management Area

- TSS changes
- Whale Sighting Network
- Commercial Mariner Outreach



Permitting



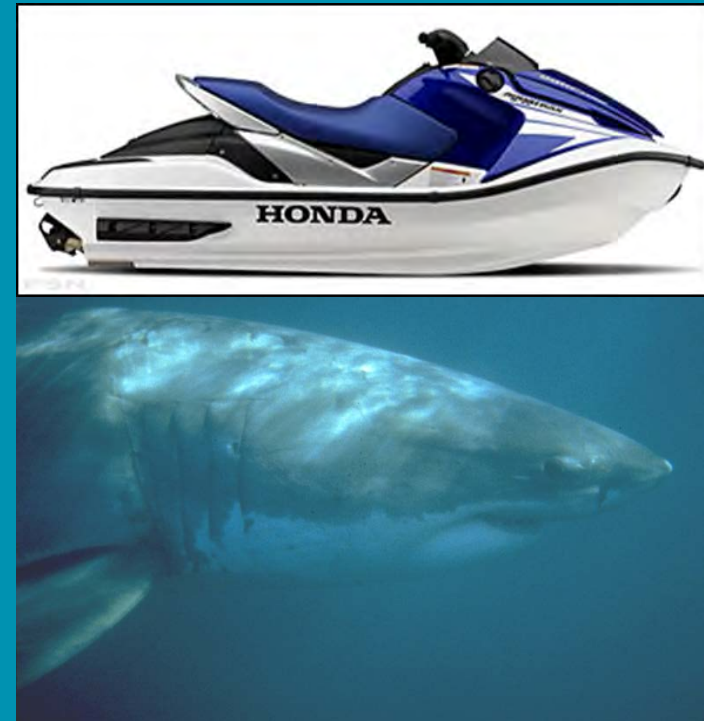
Mavericks Surf Contest

- Annual permitting
- Enforcement coordination with OLE, CDFW and USCG
- GFNMS staff participation during event (wildlife disturbances, MPWC usage)

White Shark Research

- TOPP Program White Shark Research (Ano Nuevo)
- Programmatic Environmental Assessment

Ongoing permitted research at Fitzgerald Marine Reserve



Ocean Climate Initiative

Goal

Address local climate change impacts through fostering awareness, advocating solutions, and promoting action to build ecosystem resilience and sustainability.



Objectives

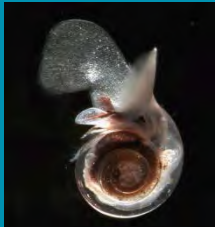
- Coordinate across GFNMS program areas to integrate climate into the work we do.
- Coordinate partnerships to address climate change impacts to sanctuary resources.
- Work within and outside of NOAA to form an alliance to share resources and knowledge in the Bay Area.

OCI: Climate Smart Conservation



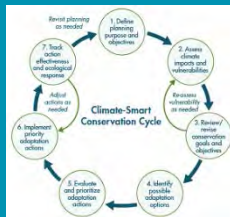
✓ Green Operations: Reducing Our Carbon Footprint

WG developed over 130 strategies, annual emissions audits:
<http://farallones.noaa.gov/about/facilities.html>



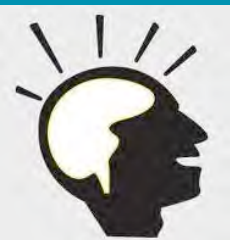
Research and Monitoring

WG developing Ocean Climate Indicators Monitoring Inventory and Plan by Fall 2013:
<http://farallones.noaa.gov/manage/climate/indicators.html>



Climate Smart Adaptation

Currently developing 2 year project plan. Targeting kick off with focal resources workshop in Winter 2013.



Communication

Initiating Fall/Winter 2013 with GFNMS education team.

Our Coast—Our Future

- Online decision support tools for SLR and storms with 40 different scenario combinations in mapping tool.
- Currently available from Half Moon Bay to Bodega Head, will also cover SF Bay by Aug 2014.

The screenshot shows the OCOF website homepage. At the top left is the OCOF logo with the tagline "OUR COAST OUR FUTURE". To the right is the URL "www.prbo.org/ocof". Below the logo is a navigation menu with links for HOME, OUR PROJECT, INTERACTIVE TOOLS, NEWS, EVENTS, ABOUT US, and HELP. The main content area features a large image of a coastline with a "WELCOME" section. The text describes OCOF as a collaborative, user-driven project focused on providing San Francisco Bay Area coastal resource and land use managers and planners locally-relevant, online maps and tools to help understand, visualize, and anticipate vulnerabilities to sea level rise and storms within the bay and on the outer coast from Half Moon Bay to Bodega Bay. A "Beta Version" notice states that the website is now ready for use and welcomes user feedback. Below this are three small images with captions: "Ocean Beach: Learn more about our project. >>", "Embarcadero: Explore the potential for flooding. >>", and "Palo Alto: Participate in OCOF events. >>". At the bottom, there is a "What's New?" section with the text "The Beta version of the Our Coast Our Future (OCOF) website is now available." and a row of logos for partner organizations including USGS, San Francisco Bay National Estuarine Research Reserve, prbo, NOAA, and others.

The screenshot displays the OCOF interactive mapping tool interface. The top navigation bar includes links for HOME, OUR PROJECT, INTERACTIVE TOOLS, NEWS, EVENTS, ABOUT US, and HELP. The main interface is divided into a left sidebar and a central map area. The sidebar contains several sections: "1) Choose a topic" with buttons for "Flooding" and "Waves"; "2) Choose a Sea Level Rise (cm) level" with a dropdown menu showing options like 0, 25, 50, 75, 100, 125, 150, 175, 200, and 500; "3) Choose a storm scenario frequency" with buttons for "None", "Annual", "25 year", and "100 year"; and "4) Choose other layers to view with topic data" with a list of checkboxes for various features like "Place names", "Land Use", "Protected Areas", "Rivers & Streams", "Cliff and Shoreline Retreat", "Shorelands", "Coastal Armoring", "Roads and Transportation", "Trails", "Buildings", and "Utilities & Services". Below these is an "Opacity" slider and a "Metadata" section. The central map area shows a satellite view of a coastal area with a blue overlay representing flood depth. The map includes a toolbar with "Pan", "Zoom", "Draw", "Report", "GIS File", and "Data" options. On the right side, there is a legend titled "Max Wave Runup during Flood 000cm SLR + Wave 000" and "Flood-prone Low-lying Areas 000cm SLR + Wave 000". The legend includes a color scale for "Flood Depth 000cm SLR + Wave 000" ranging from 0 cm to 750 cm, and a list of "Marine Protected Areas" such as "California Protected Areas", "State Land Commission", "National Park Service", "Department of Defense", "US Forest Service", "US Fish and Wildlife Service", "US Bureau of Reclamation", "Bureau of Land Management", "CA Dept. of Forestry", "CA Dept. of Fish and Game", "CA State Parks", "CA (other)", "University of California", "Non-Governmental Organization", and "City or Local Parks".

Seabird Protection Network



Funding

- Command & Luckenbach
- NOAA Restoration Center

Established 2005

3 Project Components

- Monitoring
- Enforcement & Management Actions
- Outreach

Bodega Head to Point Sur





Bodega Head – Pt. Sur est. 2005

Funded by Luckenbach oil spill mitigation



Seabird Protection Network

Cities Adjacent to the Northern Management Area Where SPN Conducts Business

- Capitola
- Daly City
- Fremont
- Half Moon Bay
- Hayward
- Hollister
- Marina
- Millbrae
- Monterey
- Moss Beach
- Moss Landing
- Pacific Grove
- Palo Alto
- San Carlos
- San Jose
- San Martin
- San Mateo
- Santa Cruz
- Seaside
- Sunnyvale
- Watsonville

Seabird Protection Network

Annual mailings: 407 – pilots;
720 boaters

MPA Collaborative
Implementation Project

- Pillar Point Harbor signage

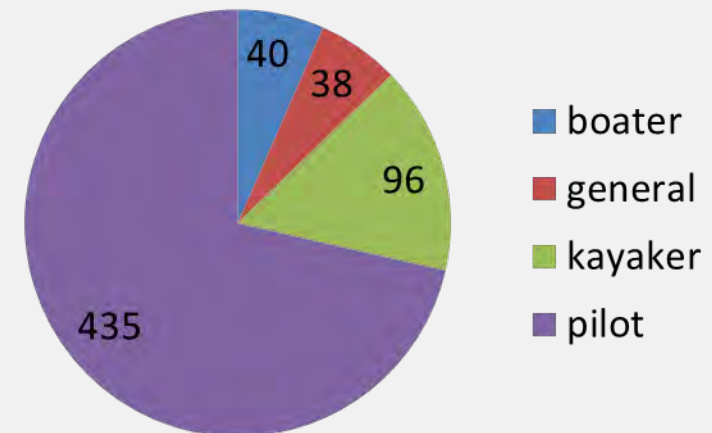
Aerial Patrol Surveys – USCG
Air Auxiliary

Water bird Disturbance
Symposium

- Pilot & kayak businesses
from NMA



Number of Individuals Reached through
Presentations Conducted in Northern
Management Area, 2007 – 2013



Seabird Protection Network

SAN MATEO COUNTY
AIRPORTS

Half Moon Bay Airport - HAF





Thank You!

Adam Contreras
Abby Nickels
Amy Dean
Benet Ducan
Brad Damitz
Brian Johnson
Carolyn Gibson
Carol Preston
Dru Devlin
Erica Warren
Jan Roletto

Justin Holl
Karen Carlson
Karen Reyna
Kelley Higgason
Kirsten Lindquist
Leslie Abramson
Mai Maheigan
MaryJane Schramm
Max Delaney
Peter Winch
Rebecca Johnson

Rietta Homan
Sage Tezak
Taylor Nairn
Tim Reed
Tinya Hoang