

Beyond the Golden Gate

Analyzing the suitability of the San Francisco-Pacific Exclusion Area for incorporation into the National Marine Sanctuary System

Agenda

- Scope & Approach
- Research Questions
- Preliminary Results
- Project Timeline



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The San Francisco-Pacifica Exclusion Area



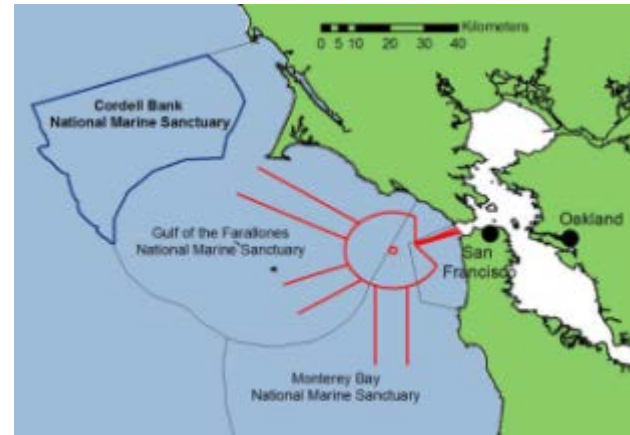
Analysis Part 1:

Do the three factors that resulted in the San Francisco-Pacifica Exclusion Area's omission from the MBNMS currently present a barrier to the proposed sanctuary expansion?

Sewer overflow



Vessel traffic

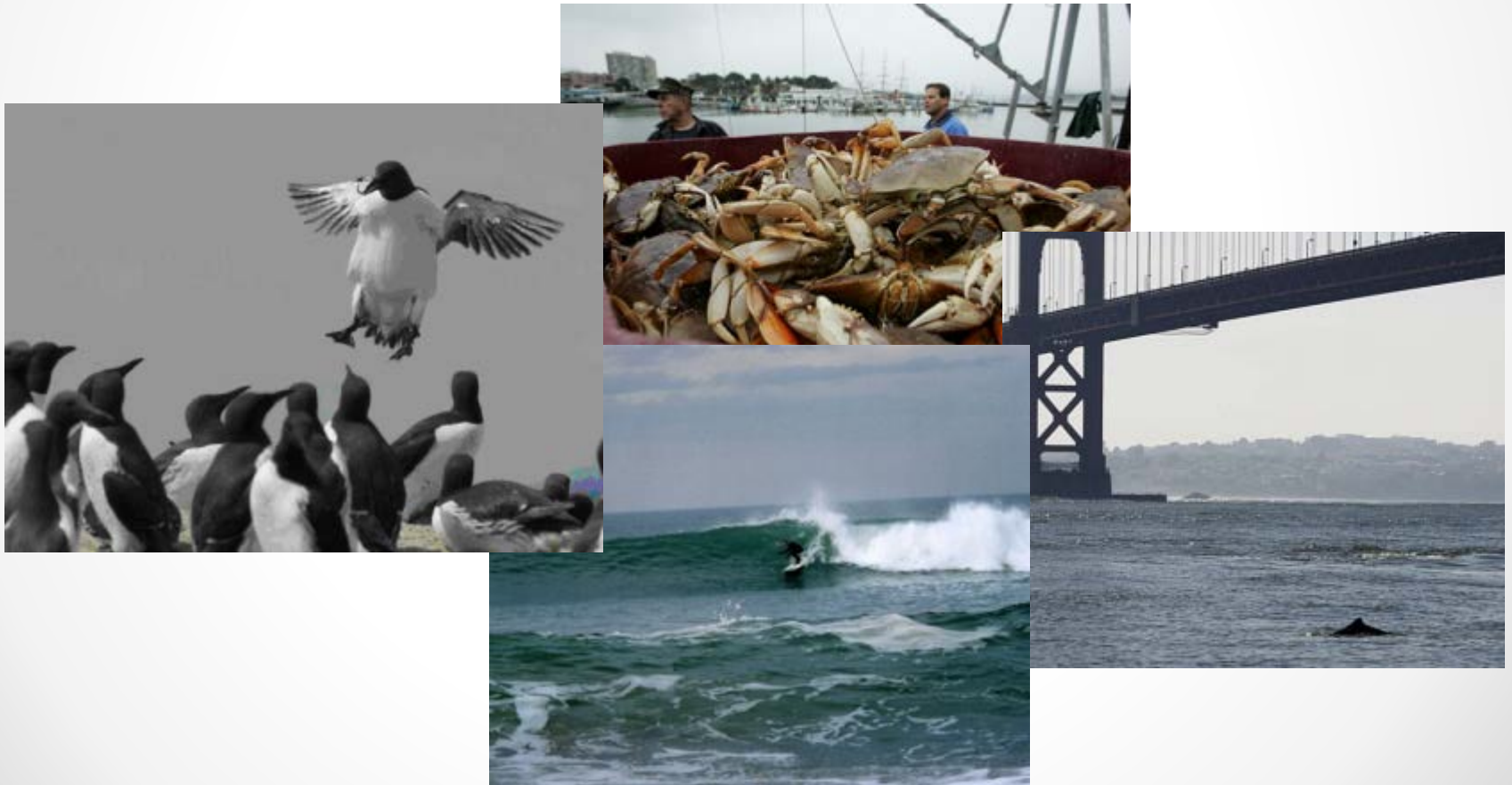


Dredging and
Dredged material
disposal



Analysis Part 2

Does the San Francisco-Pacifica Exclusion Area fulfill the sanctuary designation criteria in the National Marine Sanctuaries Act?



NMSA language

Standards for determining if Sanctuary designation is appropriate:

“the area is of special national significance due to its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities; the communities of living marine resources it harbors; or its resource or human-use values”

“existing State or Federal authorities are inadequate or should be supplemented to ensure ... [and] the area is of a size and nature that will permit ... comprehensive and coordinated management”



Approach

Evaluate the qualities of the Exclusion Area based on each of the categories identified by the NMSA:

- Conservation
- Ecological
- Recreational
- Esthetic qualities
- Scientific
- Historical
- Cultural
- Archaeological
- Educational
- Living marine resources
- Resource or human-use values

Approach

Organize categories into broader related topic areas:

- Conservation]
- Ecological]
- Living marine resources]
- Recreational]
- Esthetic qualities]
- Resource or human-use values]
- Cultural]
- Archaeological]
- Historical]
- Educational]
- Scientific]

Approach

- Conservation
 - Ecological
 - Living marine resources
 - Recreational
 - Esthetic qualities
 - Resource or human-use values
 - Cultural
 - Archaeological
 - Historical
 - Educational
 - Scientific
- Endangered species, key life history events, biodiversity, abundance, unique abiotic characteristics, etc.*
- Recreational and commercial fishing, tourism, boating, whale watching, surfing, etc.*
- Shipwrecks; Native American, colonial, and modern maritime history*
- Current and potential educational uses*
- Current and potential research uses*

Defining “Special National Significance”

	Commonality #1	Commonality #2	Commonality #3	Commonality #4...
Cordell Bank	X	X	X	
Channel Islands		X	X	X
Gulf of the Farallones	X	X	X	X
Exclusion zone	?	?	?	?

Preliminary Results: Research Question 1

Do the three factors that resulted in the San Francisco-Pacific Exclusion Area's omission from the MBNMS currently present a barrier to the proposed sanctuary expansion?

Deposition of Dredging Materials

- Does **the deposition of dredging material** present a barrier to the proposed sanctuary expansion?
- Initial Findings:
 - Material is ~98% sand and therefore unlikely to hold pollutants
 - Dredging, and placement of dredged material occurs in other Sanctuaries (including MBNMS)
 - New placement site SF-17 (in process of permitting) is beneficial reuse
- Potential Issues:
 - SF-17 and future sediment management activities may not be supported under current MBNMS regulations
 - Solution: Sanctuary may need to make exemptions and/or develop zonal regulations

Combined Sewer Discharge

- Is the current nature and level of San Francisco's **combined sewer discharge** for the city's west-side incompatible with sanctuary management?
- Initial Findings:
 - Since the completion of 1997 infrastructure updates:
 - Decrease in the number of combined sewer discharges for the city's west-side
 - Downward trend in the number of times California water contact recreation standards were exceeded*
 - No indication of significant impacts from the discharge of wastewater effluent into receiving waters of the Exclusion Area*
 - Numerous National Marine Sanctuaries with wastewater outflows within their boundaries.

Combined Sewer Discharge

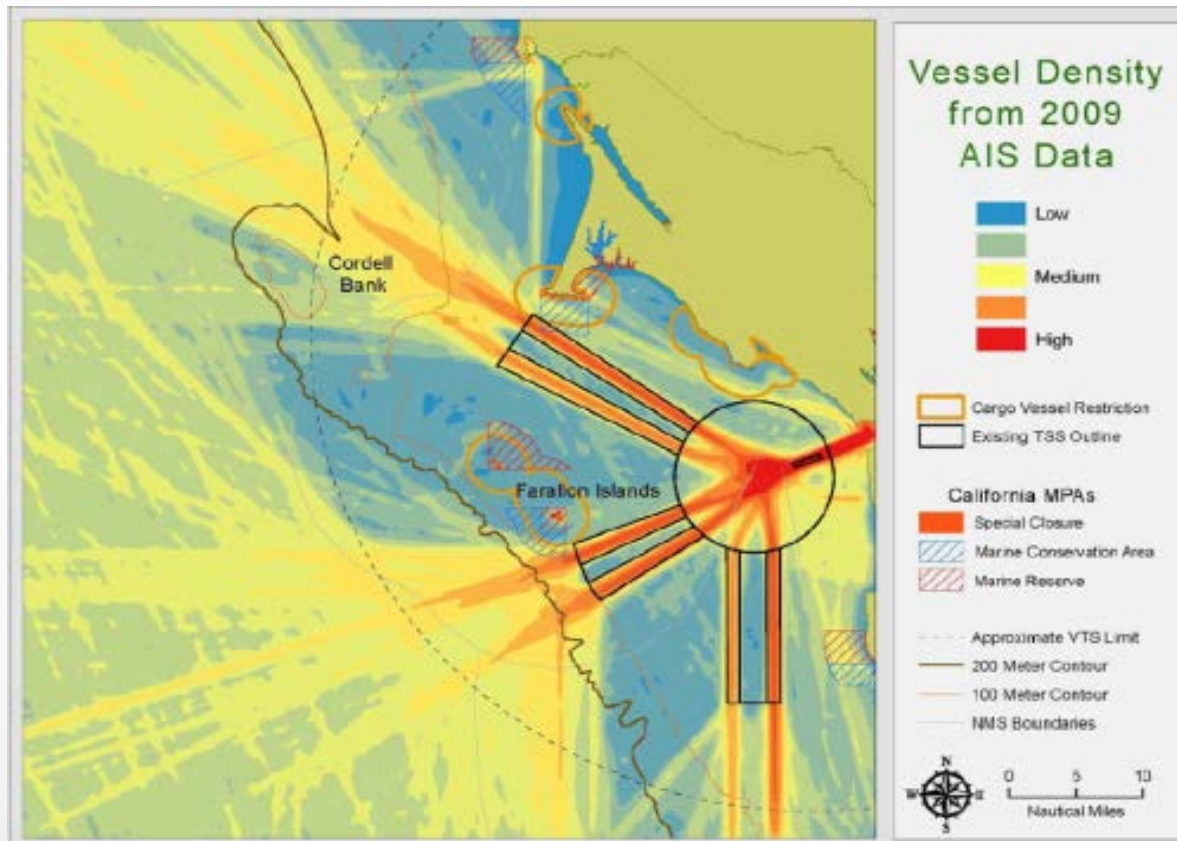
- Potential Issues:
 - Mostly centered around future management and maintenance of infrastructure:
 - Ocean Beach erosion is a threat to wastewater storage & transport infrastructure
 - Offshore maintenance and eventual replacement of SWOO infrastructure along the sea floor
 - Population growth
 - Climate change sea-level rise adaptation
 - Solution:
 - Collaborative creation of regulations and management approaches in the near and distant future.

Vessel Traffic

- Does the **main shipping channel's (MSC) presence** in the Exclusion Area present a strong and valid reason against designation?
- Initial Findings:
 - 7,390 commercial transits of the MSC annually
 - Compared to 5,725 commercial transits through CINMS*
 - The MSC's fan out point is already located within MBNMS
 - Consequently, receives all San Francisco Bay vessel traffic
 - Numerous National Marine Sanctuaries designated with IMO Traffic Separation Schemes within their boundaries, including:
 - Stellwagen Bank, Gulf of the Farallones, Cordell Bank, and Monterey Bay

Vessel Traffic

- Potential Issues:
 - Dredging related maintenance of the main shipping channel
 - Current channel depth of 55 feet (MMLW) must be maintained to ensure safe vessel passage



Preliminary Results: Research Question 2

Does the San Francisco-Pacific Exclusion Area fulfill the sanctuary designation criteria in the National Marine Sanctuaries Act?

Ecological Value and Living Marine Resources

- Are the Exclusion Area's **oceanographic, ecological, and biological qualities** "of special national significance"?
- Initial Findings:
 - SF Bay nutrient plume travels offshore through Exclusion Area; important link between the Bay and the existing Sanctuaries
 - important and unique upwelling zone of high primary productivity
 - entrance to SF Bay is an important migratory corridor for many species; travel in and out of the Bay through the Exclusion Area
 - significant or sensitive species found in the Area include great white shark, sevengill shark, harbor porpoise, marbled murrelet, Western snowy plover, brown pelican, humpback whale
 - high concentration and diversity of seabirds in the Exclusion Area

Natural Resources

- Are the Exclusion Area's **natural resources** "of special national significance"?
- Commercial and CPFV Fisheries
 - Fished by San Francisco, Monterey Bay, and Bodega Bay Port Complexes
 - Salmon, Dungeness crab, some groundfish species – possibly squid
 - Numerous CPFV companies based out of SF
 - Many Federal and State protected species

Recreational Uses

- Can the Exclusion Area's **recreational uses** be considered of "special national significance?"
- Medium to high density of multiple uses, including consumptive and non-consumptive Recreational Uses
- Important to regional economy
- Fishing
 - All kinds
- Coastal Access
 - Numerous GGNRA public access points with views of the Exclusion Area
- Wildlife Viewing
 - Some whale watching – tours see other species on the way to the Farallones
- Other
 - Aviation
 - Tourism
 - Surfing

Historical Value

- Can the Exclusion Area's **historical/cultural/archaeological resources** be considered of "special national significance?"
- PRELIMINARY FINDINGS:
- Over 60 known shipwrecks exist in the Exclusion Area
 - Will enhance NOAA's Maritime Heritage Program
 - Shipwrecks are important historical and education sites
- No known cultural resources in Exclusion Area
 - Cultural resources = artifacts from Paleo-Indian, Native American, Europeans
 - Historical use of the area and seafaring nature of these groups suggests artifacts likely exist but have not been discovered yet

Educational Value

- Can the Exclusion Area's **educational qualities** be considered of "special national significance?"
- PRELIMINARY FINDINGS:
 - Sanctuary Expansion into the Exclusion Area will:
 1. Enhance public awareness of the area
 2. Allow for expansion of both K-12 and public education programs and volunteer stewardship programs
 3. Deepen the connection between nearby residents and the coastal environment

Scientific Value

- Does the Exclusion Area have scientific or research value that could be considered “of national significance”?
- Initial Findings:
 - Research studies currently conducted within the Exclusion Area by scientists at various institutions (SF State University, Stanford, and CA Academy of Sciences)
 - Need for further research on migratory patterns / presence of many species
 - Unique and dynamic area presents an opportunity for groundbreaking research into oceanographic/ecological questions, including climate change impacts

Project Timeline

- January – finish characterization of Exclusion Area
- February – analyze results and answer research q's.
- February 22 – draft report complete
- March 1 – thesis defense
- **March 22 – final report and poster complete**
- April 12 – public presentation in Santa Barbara, CA
- **May 22 – presentation at SAC meeting**

Questions?