

Analyzing the Proposed Expansion of Monterey Bay National Marine Sanctuary into the San Francisco-Pacifica Exclusion Area

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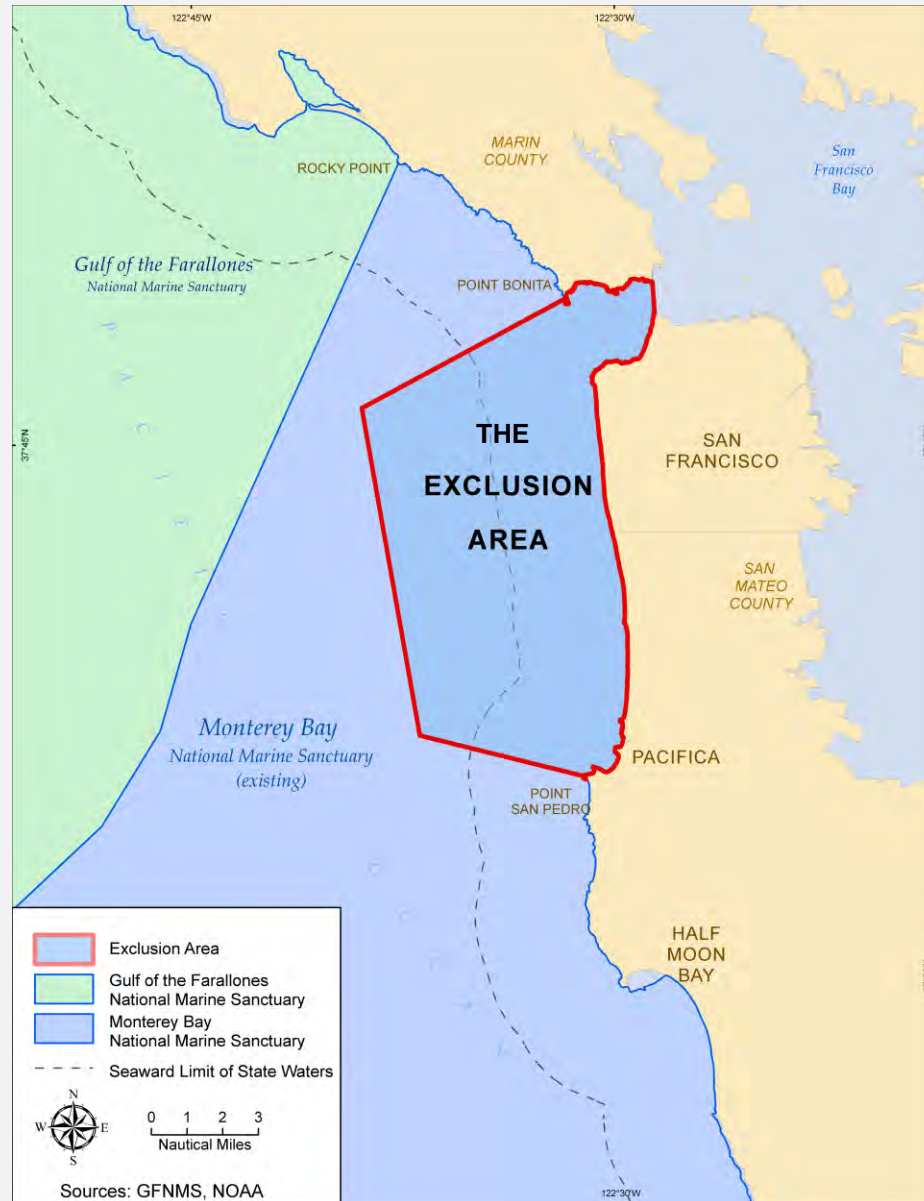
Bren School of Environmental Science and Management
22 May 2013 GFNMS Sanctuary Advisory Council Meeting



Prepared for:



Introducing the Exclusion Area



Objective

- Advise GFNMS as to whether the Exclusion Area should be incorporated into Monterey Bay National Marine Sanctuary.



Questions

1. Do the original reasons cited for omission currently preclude the proposed expansion?
2. Does the Area qualify for Sanctuary status under the National Marine Sanctuaries Act?

Do the original reasons preclude sanctuary expansion?

Dredging
&
Dredged Material Placement



Discharge
of
Treated Wastewater



Presence & Level
of
Vessel Traffic



Dredging



Approximate Main
Shipping Channel
dredging area

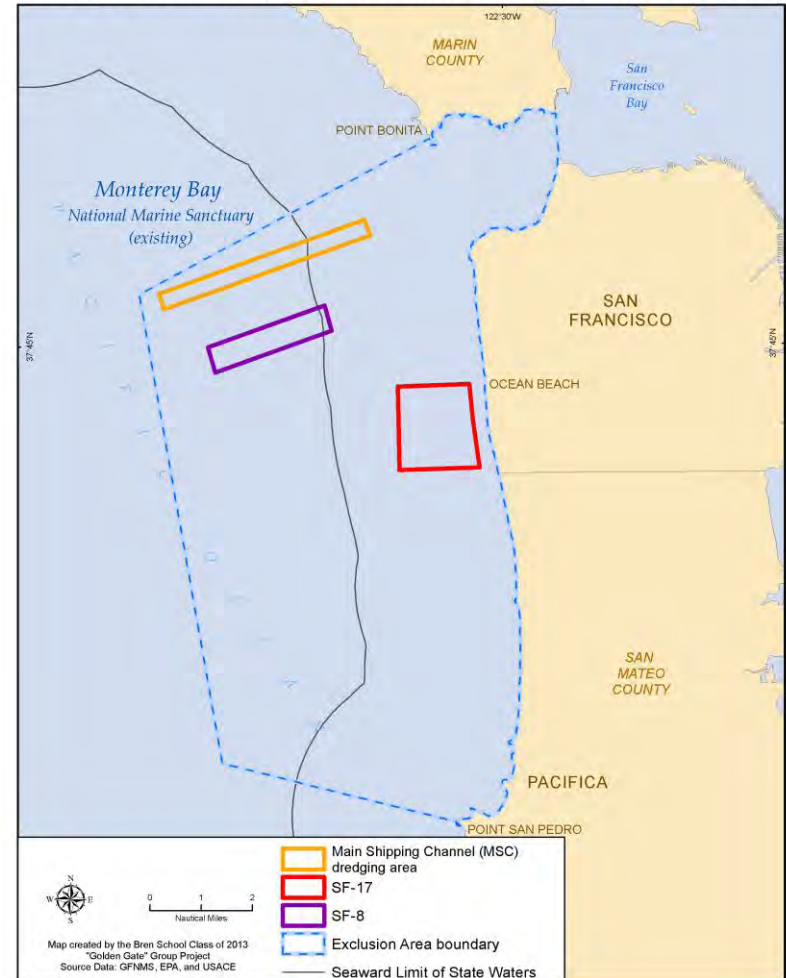


SF-8



SF-17

Dredging Activities in the San Francisco-Pacifica Exclusion Area



Dredging

Changes in Management

San Francisco Bay Long Term Sediment
Management Strategy

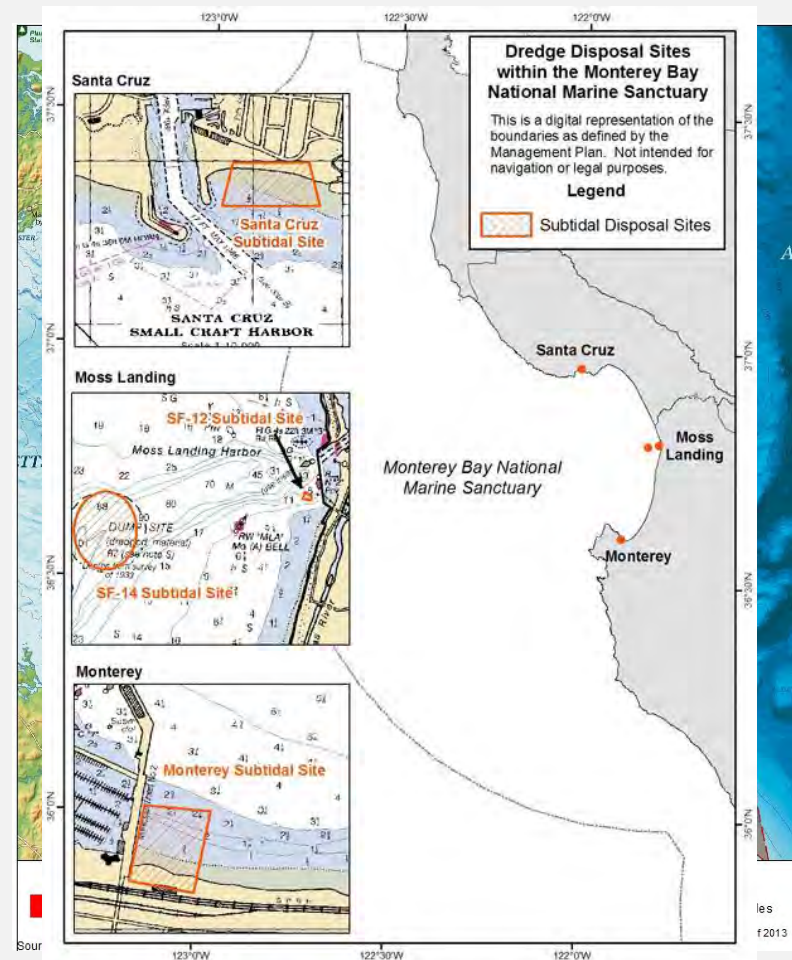
Dredged Material Management Office

Dredging

Occurs in other Sanctuaries

Stellwagen Bank

Monterey Bay



Dredging

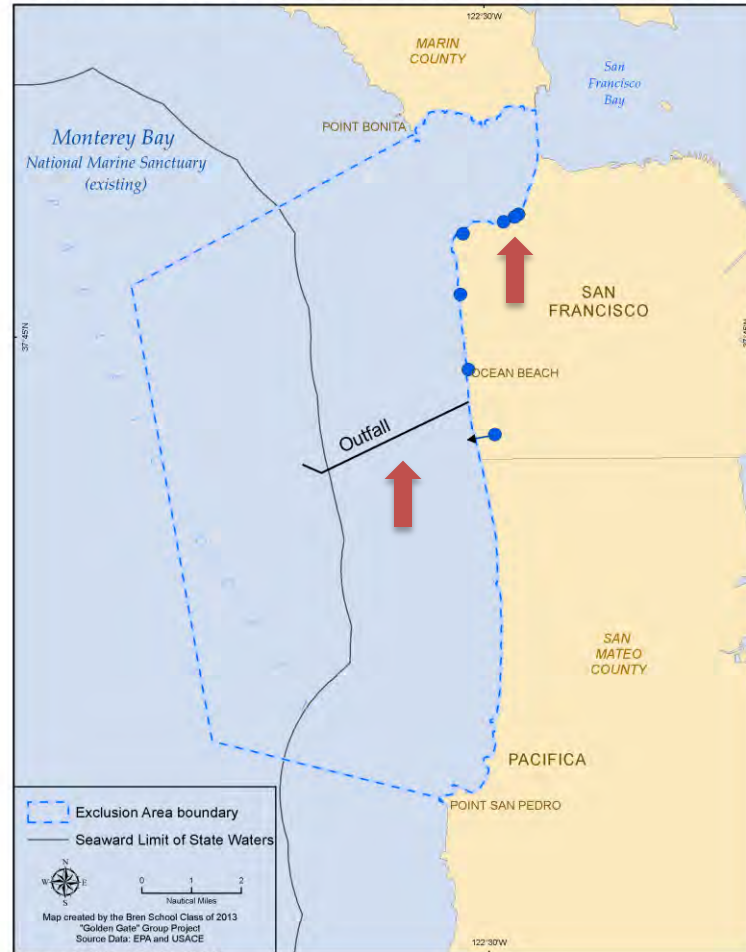
Material unlikely to hold pollutants

Material is 98% sand

Total Organic Carbon Content is < 1%

Wastewater Discharge

SFPUC Discharge Points in San Francisco-Pacifica Exclusion Area



Alex L. Fradkin
(of California Pres)

Wastewater Discharge

SWOO

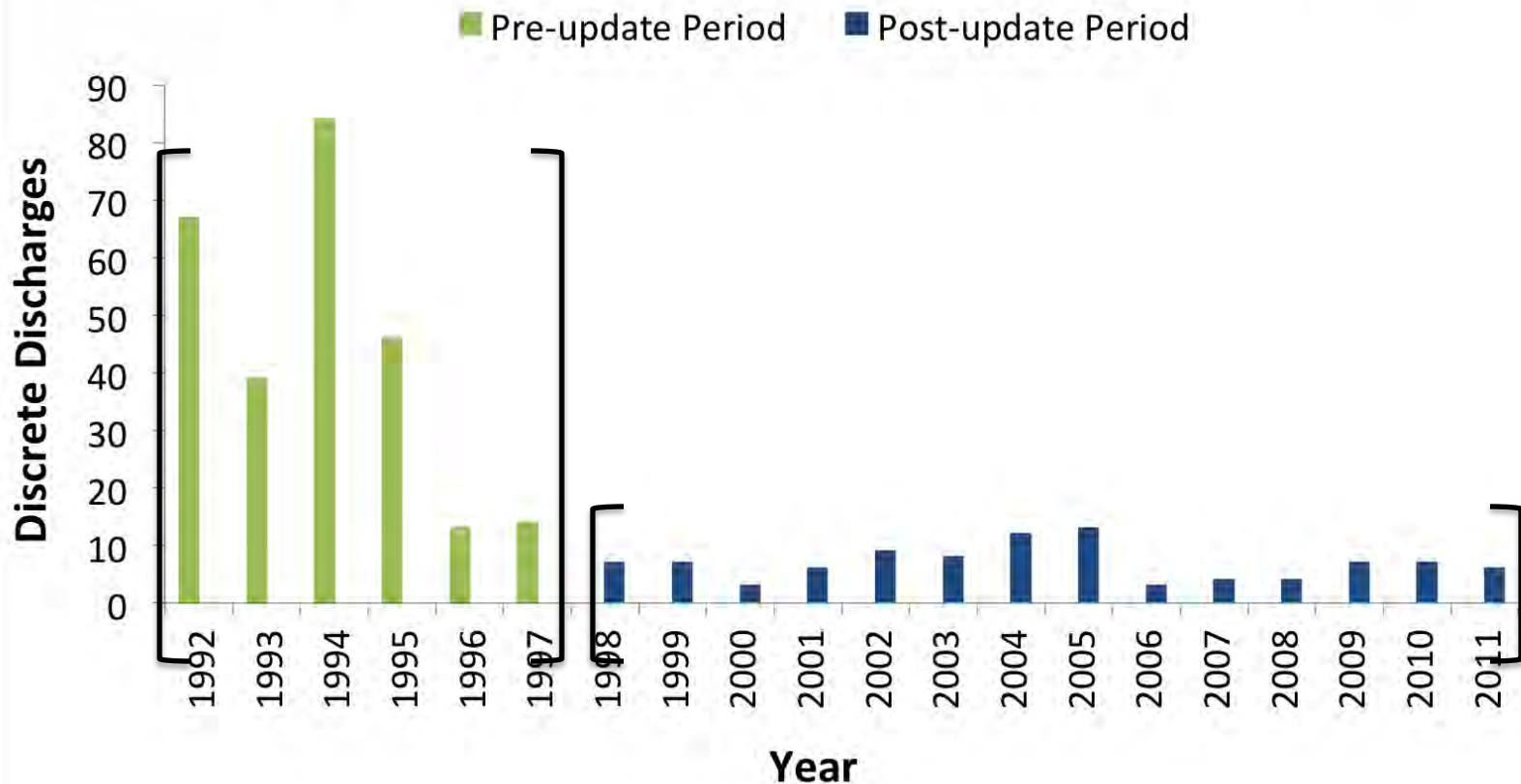
Primary → **Secondary treatment**

Coastal outfalls

Untreated → **Primary treatment**

Wastewater Discharge

Wet Weather Discharge Events into the Exclusion Area



Wastewater Discharge

| Indicator | Difference (Post - Pre) | Increase / Decrease | Statistically Significant | Confidence Level |
|---------------------|-------------------------|---------------------|---------------------------|------------------|
| Total Coliform | -0.012 | Decrease | Yes | > 99% |
| <i>E.coli</i> | -0.010 | Decrease | Yes | 99% |
| <i>Enterococcus</i> | 0.016 | Increase | Yes | 95% |

Wastewater Discharge

Offshore impact analysis:

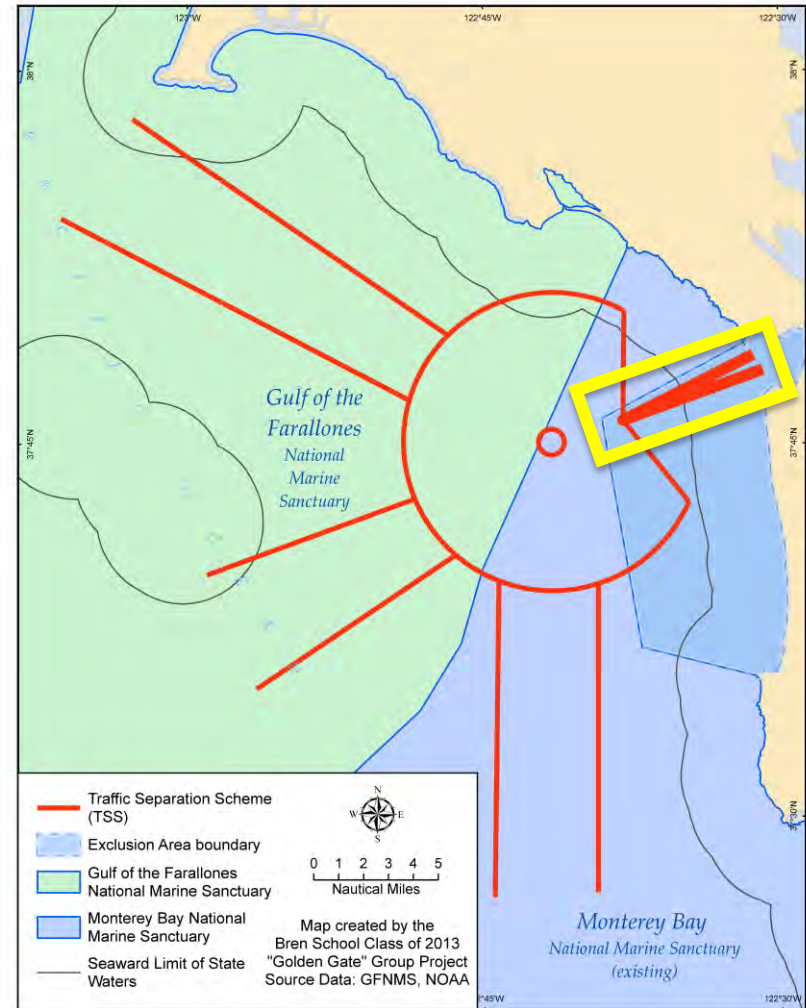
- Sediment Quality
- Benthic Infauna Community Structure
- Epibenthic & Demersal Fish Community Structure
- Bioaccumulation of Contaminants & Physical Anomalies

Results – no environmentally significant impacts

Main Shipping Channel



Main
Shipping
Channel



Main Shipping Channel

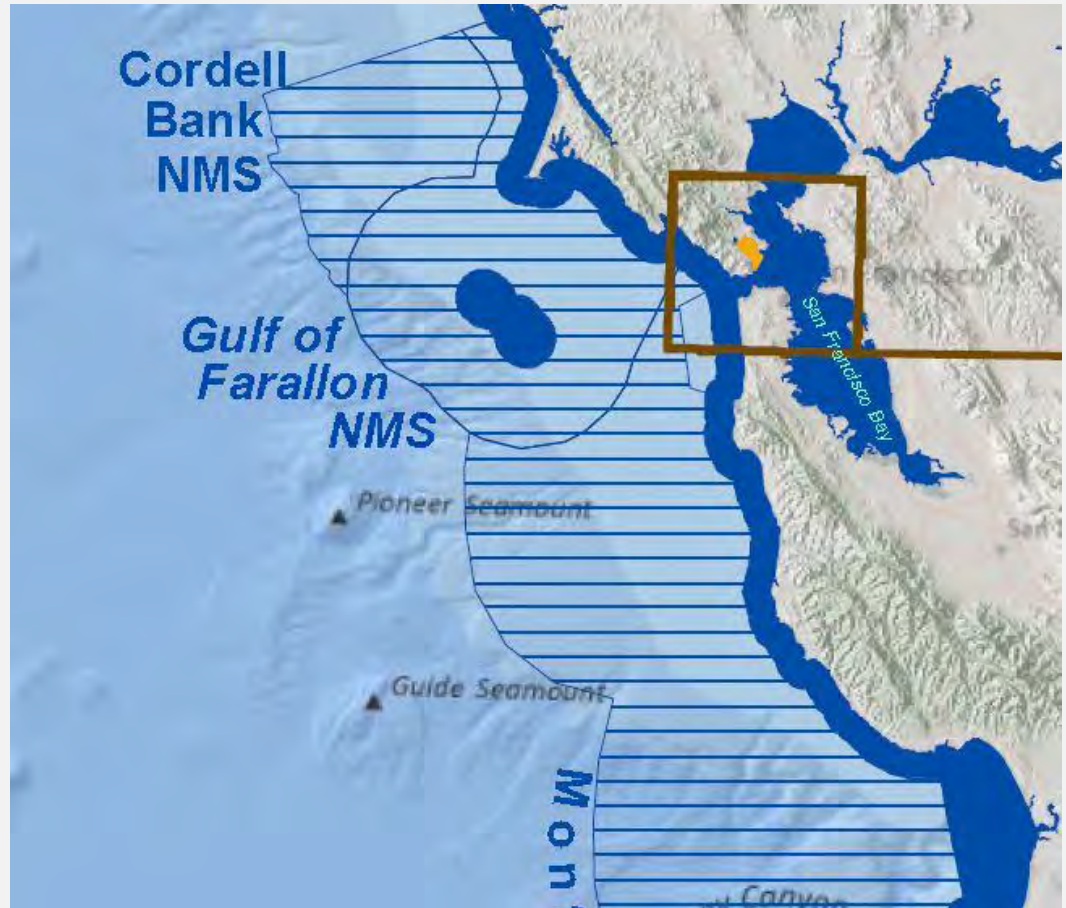
Does not currently
present a barrier to
Sanctuary
designation



Carl Nolte

Main Shipping Channel

California No
Discharge Zone



Source: EPA

Do the original reasons preclude sanctuary expansion?

Question 1 Summary



Not barriers to expansion

Research Question 2

Does the Exclusion Area fulfill the Sanctuary designation criteria in the National Marine Sanctuaries Act?

Is there sufficient justification for an expansion?

The National Marine Sanctuaries Act requires that a marine area be 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...”

and if *“...existing State or Federal authorities are inadequate...”*

Approach

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

Approach

- Conservation]
- Ecological]
- Living marine resources]
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- Cultural]
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- 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.*
- Tourism, boating, whale watching, private recreational fishing, surfing, etc.*
- Commercial and charter fishing*
- Shipwrecks; Native American, colonial, and maritime history*
- Current and potential educational uses*
- Current and potential research uses*

Approach

- Conservation
 - Ecological
 - Living marine resources
 - Recreational
 - Esthetic qualities
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 - Cultural
 - Archaeological
 - Historical
 - Educational
 - Scientific
- Ecological**
- Recreational**
- Human-Use**
- Historical**
- Educational**
- Scientific**

Research Question 2

Is the Exclusion Area of
special national significance?

Research Question 2

What does

special national significance
mean?

Is there sufficient justification for
an expansion?

Emergent Sanctuary Designation Criteria

Approach

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

Is there sufficient justification for an expansion?

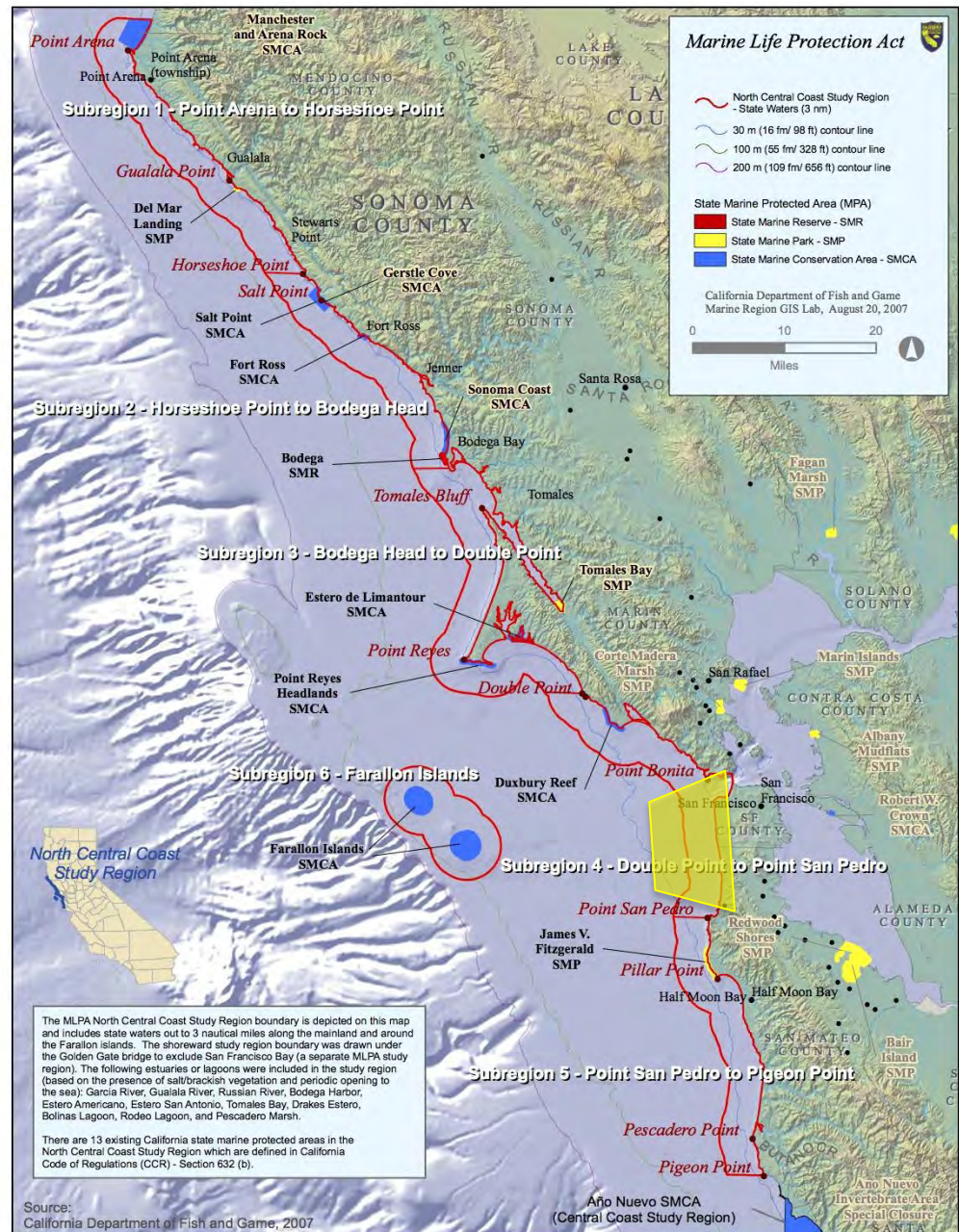
Ecological

Data sources

- Agency reports
- Scientific papers
- Interviews with scientists

Ecological – Data Sources

1. Regional Profile, California Marine Life Protection Act Initiative, 2007
2. Environmental Sensitivity Index for Central California, NOAA, 2006
3. Biogeographic Assessment of North/Central California in Support of the Cordell Bank, Gulf of the Farallones and Monterey Bay National Marine Sanctuaries, NOAA, 2007



Map 1

North Central Coast Study Region and Existing State Marine Protected Areas

Source: Regional Profile, California Marine Life Protection Act Initiative

Is there sufficient justification for an expansion?

Ecological



Is there sufficient justification for an expansion?

Ecological

Meets emergent sanctuary designation criteria

- Upwelling and high productivity
- Significant habitat
- Important species present

Is there sufficient justification for an expansion?

Recreational

Data Sources:

- MLPA Initiative 2007 Regional Profile
- NOAA's California Ocean Uses Atlas
- Agency reports, databases, and websites
- Use studies

Is there sufficient justification for an expansion?

Recreational



Markus Spiering



Maddie Joyce

McNequens glaze

Is there sufficient justification for an expansion?

Recreational

Meets emergent sanctuary designation criteria

- Accessibility
- Increasing intensity of use
- Multiple uses across numerous sites

Is there sufficient justification for an expansion?

Human Use Value



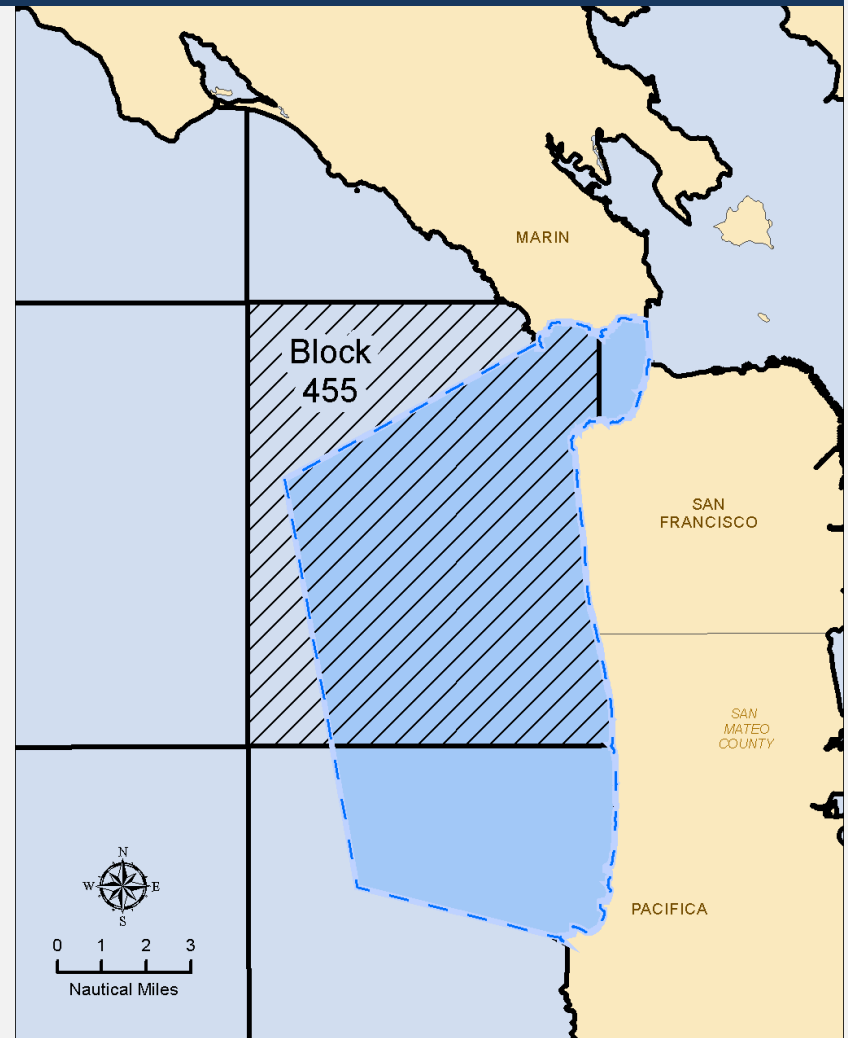
J.G. (Fotopedia)

Is there sufficient justification for an expansion?

Human Use Value

Data Sources:

- CA Department of Fish and Wildlife
- National Marine Fisheries Service
 - Commercial landings
 - Charter fishing landings



(Source of CDFW Blocks: CDFW, Paulo Serpa)

Is there sufficient justification for an expansion?

Human Use Value

Less than

0.03%

of national & regional landings

Is there sufficient justification for an expansion?

Human Use Value

Does not conclusively meet the emergent sanctuary designation criteria

Is there sufficient justification for an expansion?

Historical

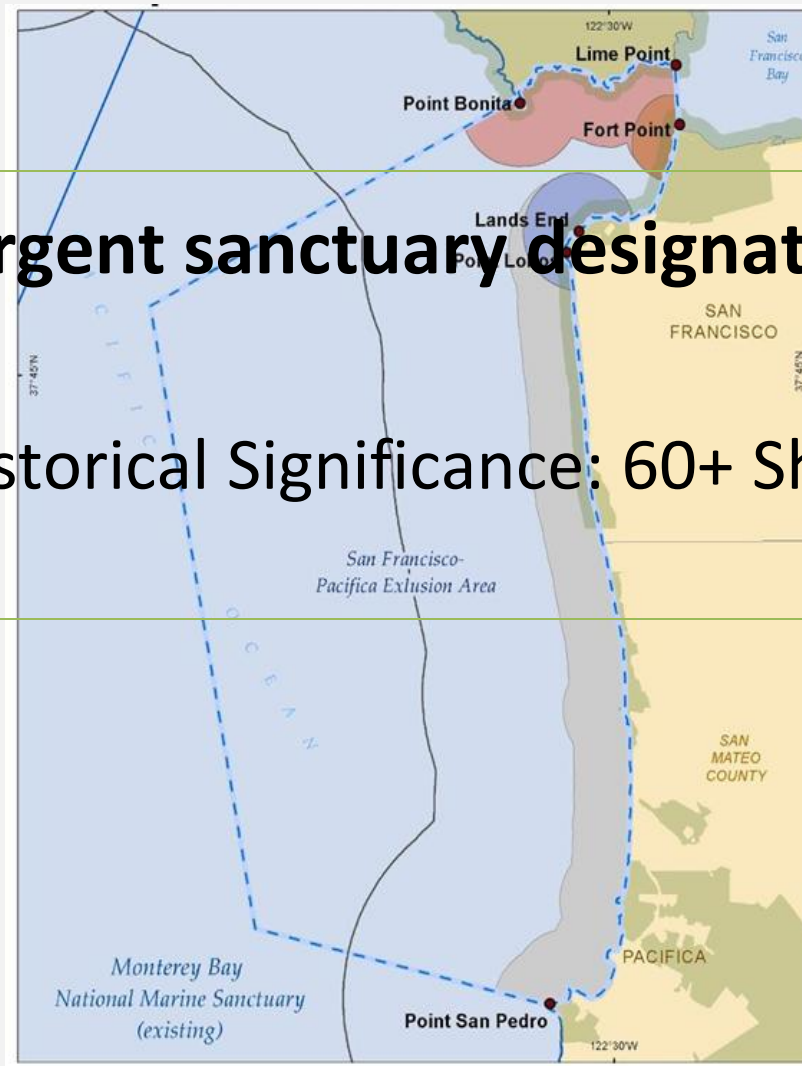


Is there sufficient justification for an expansion?

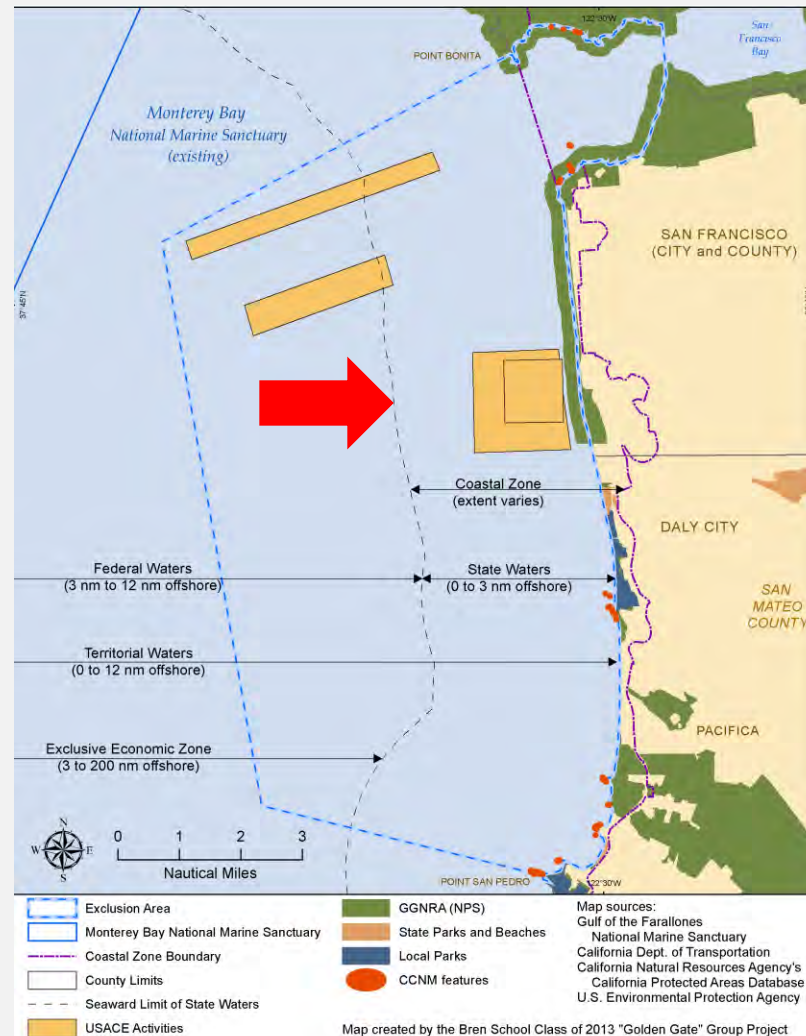
Historical

Meets emergent sanctuary designation criteria

- High Historical Significance: 60+ Shipwrecks



Is Further Management Required?



Is there sufficient justification for an expansion?

Question 2 Summary

Nationally significant qualities:

- Ecological
- Recreational
- Historical
- Educational
- Scientific

Past Sanctuary Expansions

| Justification for Expansion | Exclusion Area Characteristics |
|--|---|
| Area is Unique | Rare and special species |
| | Seabird foraging area |
| | Cultural and historical resources |
| Protection Against Increasing Threats | Up to 14 million visitors each year at local recreation area |
| | Number of recreational charter fishing anglers is increasing |
| Facilitate Comprehensive and Coordinated Management | Complete existing network of northern CA sanctuaries |
| | Opportunity to coordinate with other agencies |
| Increase Opportunities for Education, Outreach, and Research | Education and research programs have the potential to be expanded |
| | Opportunity to increase knowledge of Sanctuaries in a large metropolitan area |

Recommendation

The San Francisco-Pacific Exclusion Area should be incorporated into Monterey Bay National Marine Sanctuary.

Implications

Collaborative management of critical human activities is needed.

Critical Collaborators

- U.S. Army Corps of Engineers
- San Francisco Public Utilities Commission
- U.S. Environmental Protection Agency

Environmental Impact Statement

- Specific potential impacts from SF-17
- Effect on other agencies
- Interaction with No Discharge Zone

Contributions

Framework can guide future sanctuary designations and expansions

Acknowledgements

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Questions?



Jonathon Coombes