

NATIONAL MARINE PROTECTED AREAS CENTER

[www.mpa.gov](http://www.mpa.gov)

# Science and Analysis at NOAA's National MPA Center

Update for MPAFAC  
Charleston, SC  
April 20, 2010

Dr. Charlie Wahle  
MPAC Senior Scientist

U.S. Department of Commerce, National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of Ocean and Coastal Resource Management



# Overview

1. MPA Inventories
2. Ocean Uses Atlas
3. Gap Analysis
4. Coastal and Marine Spatial Planning

# 1. MPA Inventory

*The Marine Protected Areas Inventory (MPA Inventory) is a comprehensive geospatial database designed to catalog and classify marine protected areas within US waters. The MPA Inventory was developed with extensive input from state and federal MPA programs, and drawn from other publically available data.*

- Spatial Catalog of < 1,600 Sites
- GIS Boundaries from Authoritative Sources
- Classification Attributes
  - Conservation Focus
  - Level of Protection
  - Fishing Restrictions
  - Management
  - Legal Authority
  - Etc.
- Metadata



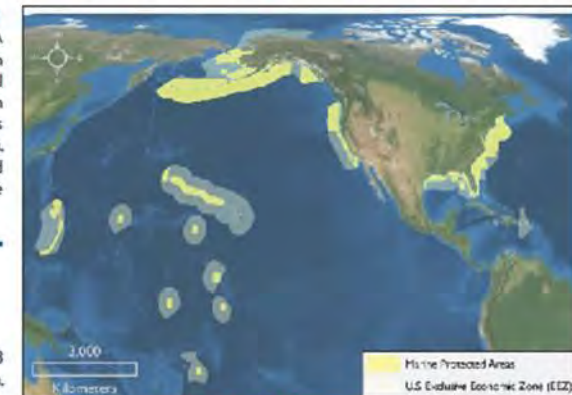
The information provided here is current as of January 2010, and is from the Marine Protected Areas Inventory (MPA Inventory) – a comprehensive geospatial database designed to catalog and classify marine protected areas within U.S. waters. The MPA Inventory was developed from information provided by state, territorial, tribal and federal MPA programs, and other publicly available data.

#### WHAT IS A MARINE PROTECTED AREA?

Executive order 13158 (see below) defines an MPA as “any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” Key terms within the definition – area, marine, reserved, lasting, and protection – are defined in the Framework for the National System of Marine Protected Areas of the United States of America.

#### PRESIDENTIAL EXECUTIVE ORDER ON MPAS

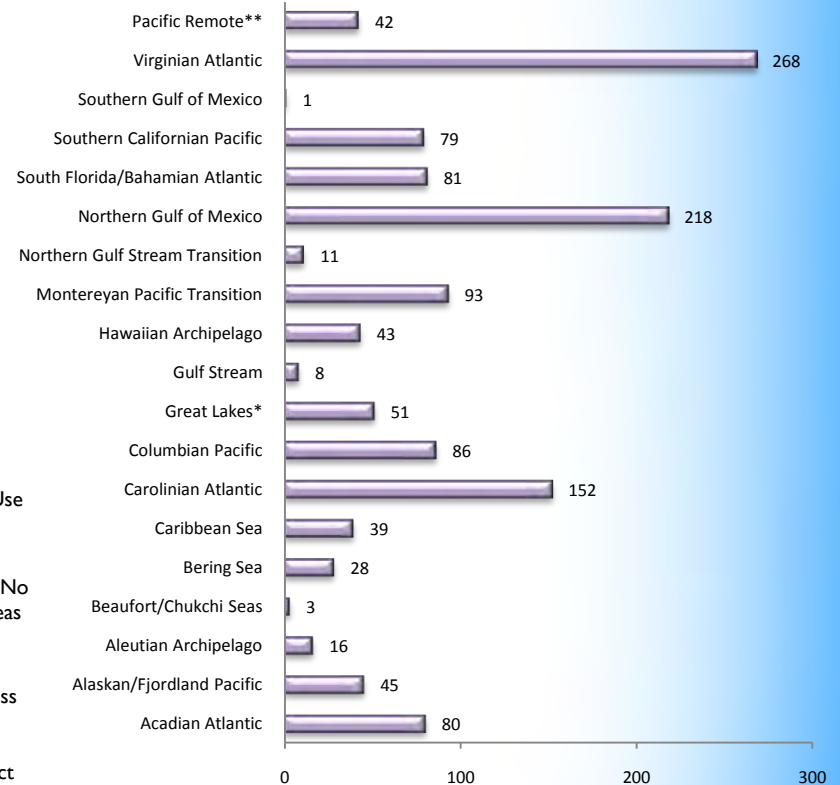
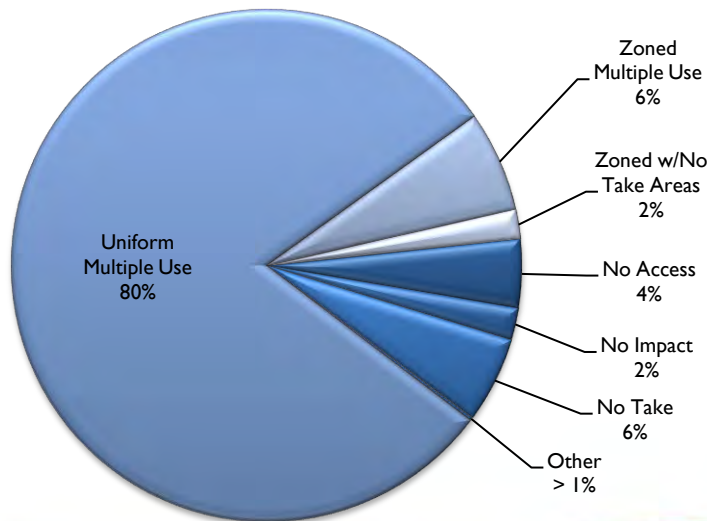
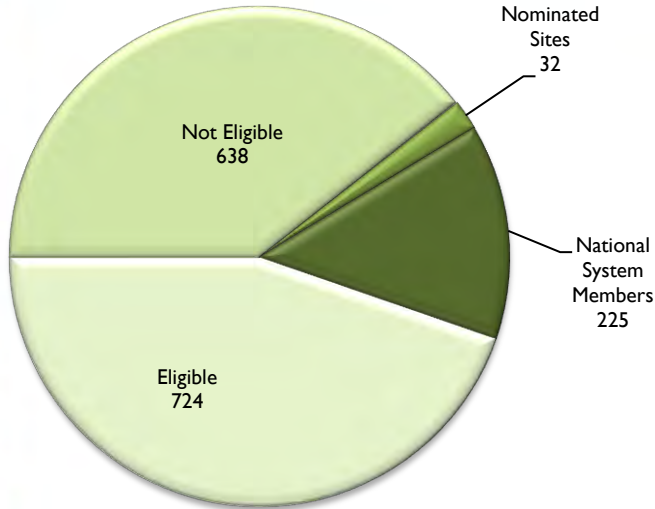
In May 2000, Presidential Executive Order 13158 was signed to enhance the management, protection, and conservation of U.S. marine resources through more effective and collaborative uses of MPAs as an ecosystem management tool. It directs the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior to work with



#### UNITED STATES MPAS AT A GLANCE:

- The U.S. currently has nearly 1,620 MPAs
- About 40% of all U.S. waters are in some form of MPA

# How We Use It



**U.S. MARINE PROTECTED AREAS**

Home All National System

Eligible

Members

- ACE Basin National Wildlife Refuge
- Admiralty Head Marine Preserve
- Adirondack National Area Reserve
- Alaska Maritime National Wildlife Refuge
- Alligator River National Wildlife Refuge
- Anaoluani National Wildlife Refuge
- ... And Seven ASOS State Water Quality

**About**

Project Information Help FAQ Contact Us

### U.S. Marine Protected Areas Online Data Viewer

Welcome to the U.S. Marine Protected Areas (MPAs) mapping tool. This interactive, online application was designed to help users visualize MPA boundaries and provide access to the MPA Inventory data in an interactive web-based mapping environment. This mapping tool serves data on nearly 1,300 MPAs nationwide, offering easy access to spatial boundaries, conservation based classification data, and site management information. This dataset (updated January 2010) offers a detailed, contemporary picture of the type, abundance, and distribution of marine protected areas throughout the U.S and was designed to provide managers, scientists, and the public with an increased understanding and technical capacity for ocean resource protection, management and stewardship.

Please note that the MPA boundaries presented in this mapping tool have been generalized to improve the performance of the mapping interface. For original boundary GIS data, metadata and related MPA Inventory products, please visit the [MPA Inventory](#) webpage. For more information on the National System of Marine Protected Areas, [click here](#).

*Note: The performance of this application will vary depending on the capabilities of your computer and internet connection.*

[http://mpa.gov/helpful\\_resources/inventory.html](http://mpa.gov/helpful_resources/inventory.html)

View all sites in the Inventory

**U.S. MARINE PROTECTED AREAS**

Show All    Government Level

Federal

- Acadia National Park
- ACE Basin National Wildlife Refuge
- Alaska Maritime National Wildlife Refuge
- Alaska Seamount Habitat Protected Area
- Alderdice Bank
- Aleutian Islands Coral Habitat Protected Area
- Aleutian Islands Habitat Conservation Area

All Regions    Search by site name...

Streets    Topo    Imagery

Previous View

Search by region

**U.S. MARINE PROTECTED AREAS**

Alaska

Show All National System

Eligible

Member

- Alaska Maritime National Wildlife Refuge
- Yukon Delta National Wildlife Refuge**

Site Name	Yukon Delta National Wildlife Refuge
Gov. Level	Federal
N.S. Status	Member
Prot. Level	Uniform Multiple Use
Mgmt. Plan	Non-MPA Programmatic Habitat Management
Mgmt. Agency	U.S. Fish and Wildlife Service
Fishing Restr.	Restrictions: Unknown
Cons. Focus	Natural Heritage
Prot. Focus	Ecosystem
Permanence	Permanent
Constancy	Year-round
Established	1980
<b>Website</b>	<a href="http://yukondelta.fws.gov/">http://yukondelta.fws.gov/</a>
Sq. Km	106,327.84

Streets Topo Imagery

Previous View

Boundaries include marine and terrestrial area

↓ Search by site name

**U.S. MARINE PROTECTED AREAS**

Zoom To: lew

Lewis and Clark National Wildlife Refuge

Streets Topo Imagery

Level of Protection: Uniform Multiple Use

- Lewis and Clark National Wildlife Refuge
  - Seaward of the 700 fm to 1094 fm
- Essential Fish Habitat Conservation Area (1280m to 3500 m depth contour)
- Willapa National Wildlife Refuge

Site Name	Lewis and Clark National Wildlife Refuge
Gov. Level	Federal
N.S. Status	Member
Prot. Level	Uniform Multiple Use
Mgmt. Plan	Site-Specific Management Plan
Mgmt. Agency	U.S. Fish and Wildlife Service
Fishing Restr.	No Site Restrictions
Cons. Focus	Sustainable Production
Prot. Focus	Ecosystem
Permanence	Permanent
Constancy	Year-round
Established	1972
<u>Website</u>	<a href="http://www.fws.gov/lc/">http://www.fws.gov/lc/</a>
Sq. Km	135.73

Previous View

Select from satellite, topographic map and street map base layers



Select from various classification filters

**U.S. MARINE PROTECTED AREAS**

MPAViewer.swf (application/x-shockwave-flash Object) Mid-Atlantic Search by site name...

Streets Topo Imagery

**Fishing Restrictions**

- National System
- Level of Protection
- Government Level
- Fishing Restrictions**
- Management Agency

Commercial Fishing Restricted

- Black Buoy Reserve
- Blackwater National Wildlife Refuge**
- Blunts Reserve
- Bolingbroke Sand Reserve

Site Name	Blackwater National Wildlife Refuge
Gov. Level	Federal
N.S. Status	Member
Prot. Level	Uniform Multiple Use
Mgmt. Plan	Site-Specific Management Plan
Mgmt. Agency	U. S. Fish and Wildlife Service
Fishing Restr.	Commercial Fishing Restricted
Cons. Focus	Natural Heritage
Prot. Focus	Ecosystem
Permanence	Permanent
Constancy	Year-round
Established	1933
<b>Website</b>	<a href="http://www.fws.gov/blackwater/">http://www.fws.gov/blackwater/</a>
Sq. Km	306.47

Previous View

View only certain sites (e.g. NPS sites)

**U.S. MARINE PROTECTED AREAS**

Mid-Atlantic Search by site name...

Show All Management Agency

- Delaware Department of Natural Resources and Environmental Control
- Maryland Department of Natural Resources
- Maryland Department of Natural Resources & National Oceanic and Atmospheric Administration
- National Marine Fisheries Service
- National Park Service**
- Assateague Island National Seashore
- New Jersey Department of Environmental

Site Name	Assateague Island National Seashore
Gov. Level	Federal
N.S. Status	Member
Prot. Level	Zoned Multiple Use
Mgmt. Plan	Site-Specific Management Plan
Mgmt. Agency	National Park Service
Fishing Restr.	Commercial and Recreational Fishing Restrict
Cons. Focus	Natural Heritage
Prot. Focus	Ecosystem
Permanence	Permanent
Constancy	Year-round
Established	1965
<b>Website</b>	<a href="http://www.nps.gov/asis/">http://www.nps.gov/asis/</a>
Sq. Km	197.54

Streets Topo Imagery

Previous View

Explore overlapping sites

The screenshot displays the U.S. Marine Protected Areas web application. The interface includes a navigation sidebar on the left with a 'Level of Protection' dropdown menu. The main map area shows the Southeastern United States coastline with various marine protected areas overlaid. A specific area, the 'Charleston Bump Closed Area', is highlighted with a red border and a yellow callout box. A blue arrow points from the text 'Explore overlapping sites' to the intersection of several overlapping site boundaries on the map. The top right of the interface features a search bar and map style controls for 'Streets', 'Topo', and 'Imagery'. A 'Previous View' button is located at the bottom left of the map area.

U.S. MARINE PROTECTED AREAS

SE Coast

Search by site name...

Show All

Level of Protection

- No Access
- No Take
  - Bald Head Island State Natural Area
  - St. Joseph Bay State Buffer Preserve
  - St. Sebastian River Preserve State Park
  - Theodore Roosevelt State Natural Area
- Uniform Multiple Use
  - ACE Basin National Wildlife Refuge
  - Albemarle Sound Herring Management

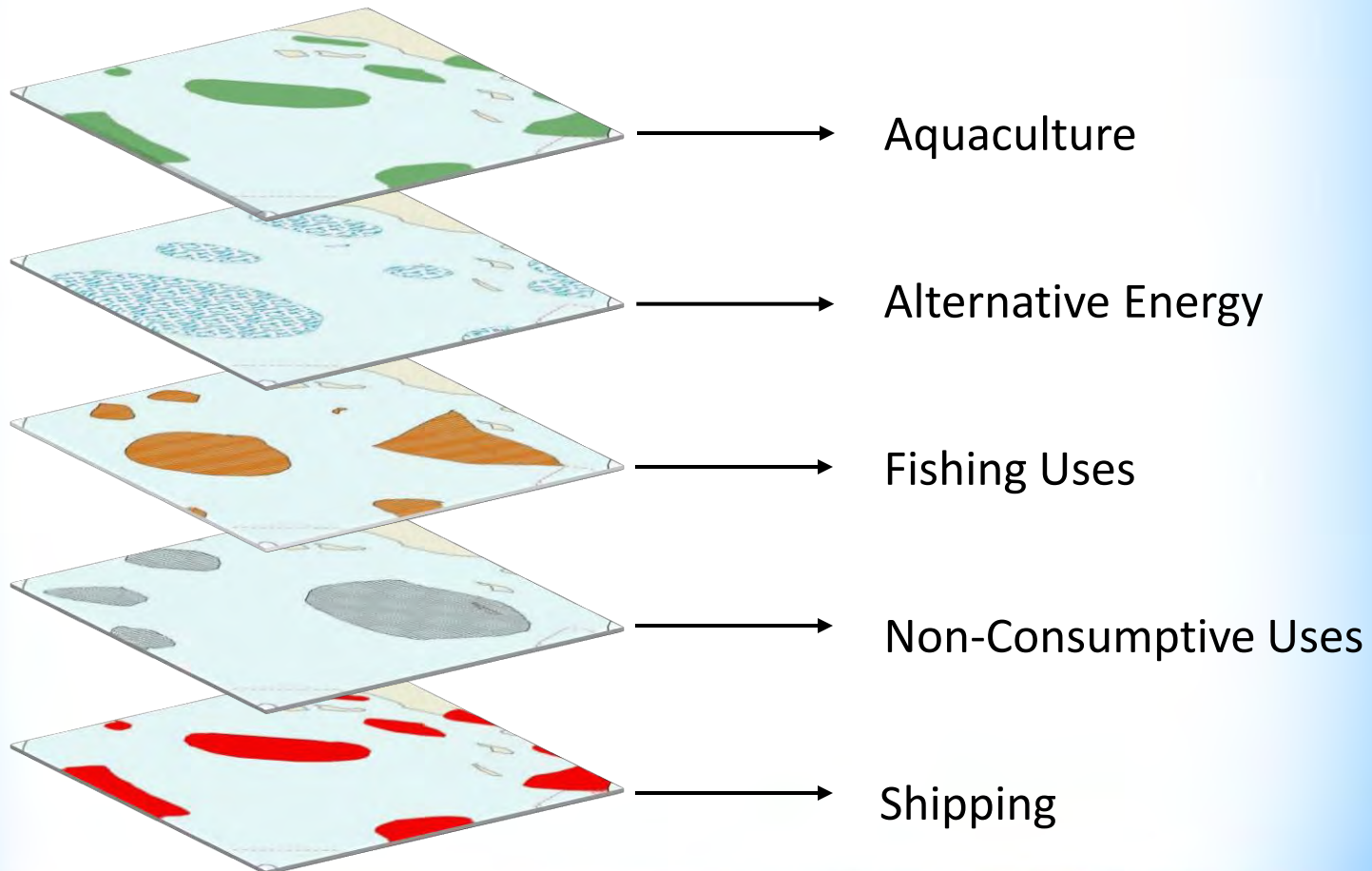
Streets Topo Imagery

Charleston Bump Closed Area

Previous View

## 2. Ocean Uses Atlas - The Missing Puzzle Piece:

Comprehensive, Continuous, and Consistent Spatial Data on Current and Planned Ocean Uses



# Filling the Knowledge Gap: The California Ocean Uses Atlas Project

- **Purpose** - to enhance California's ocean management by filling key data gap on the full range of human uses
- **Approach** – participatory GIS mapping of 30 ocean uses in 3 sectors by regional ocean experts
- **Partners** –
  - NOAA Marine Protected Areas Center
  - Marine Conservation Biology Institute
  - *Gordon and Betty Moore Foundation*
  - *Resources Legacy Fund Foundation*
- **Status** – All regions mapped; data being packaged for distribution
- **Timeline** – Jan 2008 – Nov 2009



# Human Uses of California's Ocean: Non-Consumptive Sector

- Beach Use
- Motorized boating
- Paddling
- Sailing
- SCUBA/Snorkeling
- Surface water sports
- Swimming
- Tidepooling
- Wildlife viewing at sea



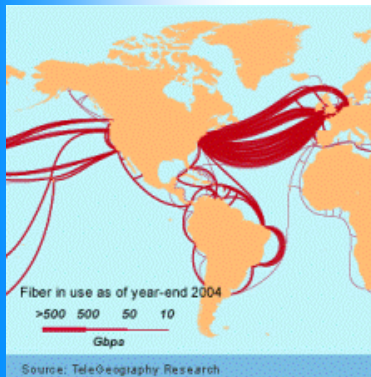
# Human Uses of California's Ocean: Fishing Sector

- Commercial dive fishing
- Commercial fishing with benthic fixed gear
- Commercial fishing with benthic mobile gear
- Commercial kelp and algae harvest
- Commercial pelagic fishing
- Hunting for marine animals other than fish or invertebrates
- Kayak fishing
- Recreational and commercial fishing from shore
- Recreational dive fishing
- Recreational fishing from boats
- Shore-based recreational harvest

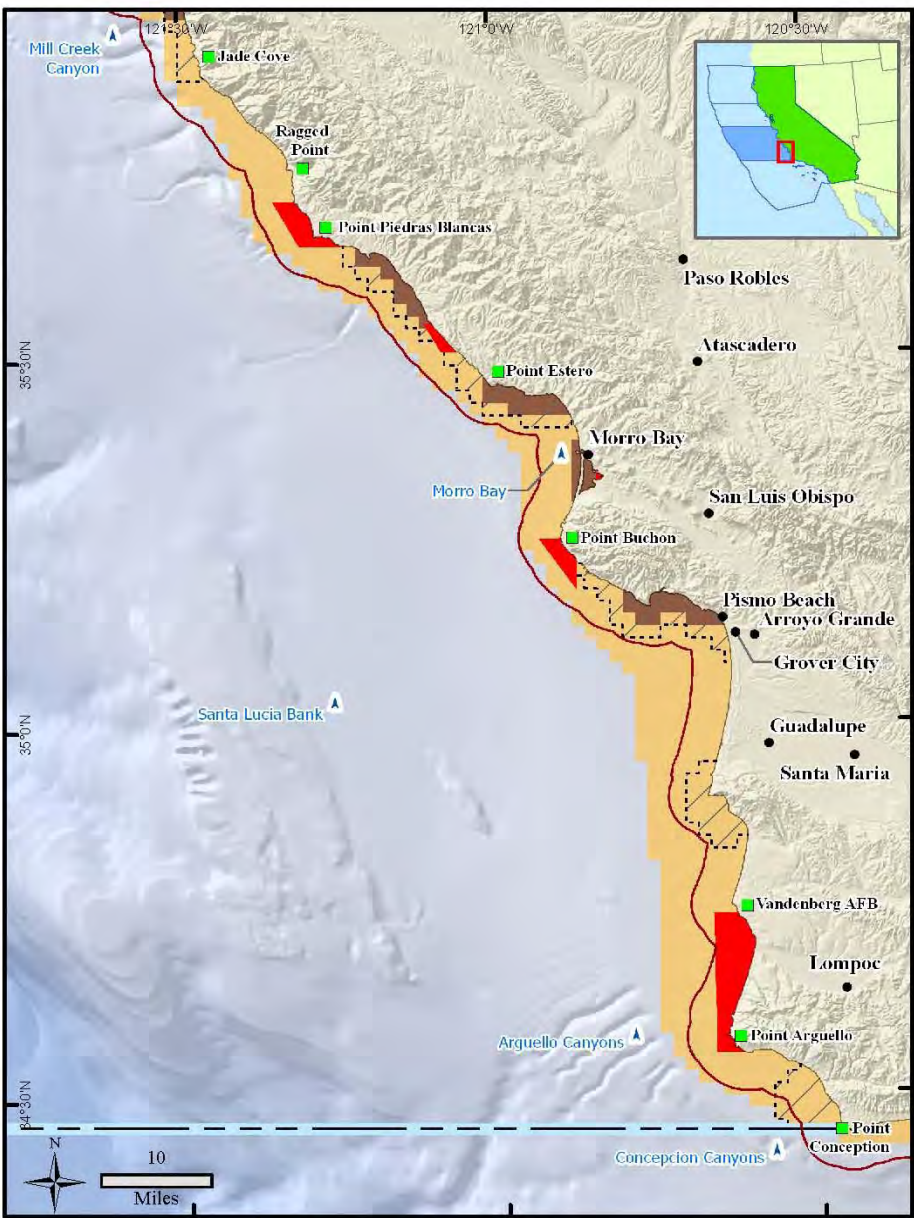
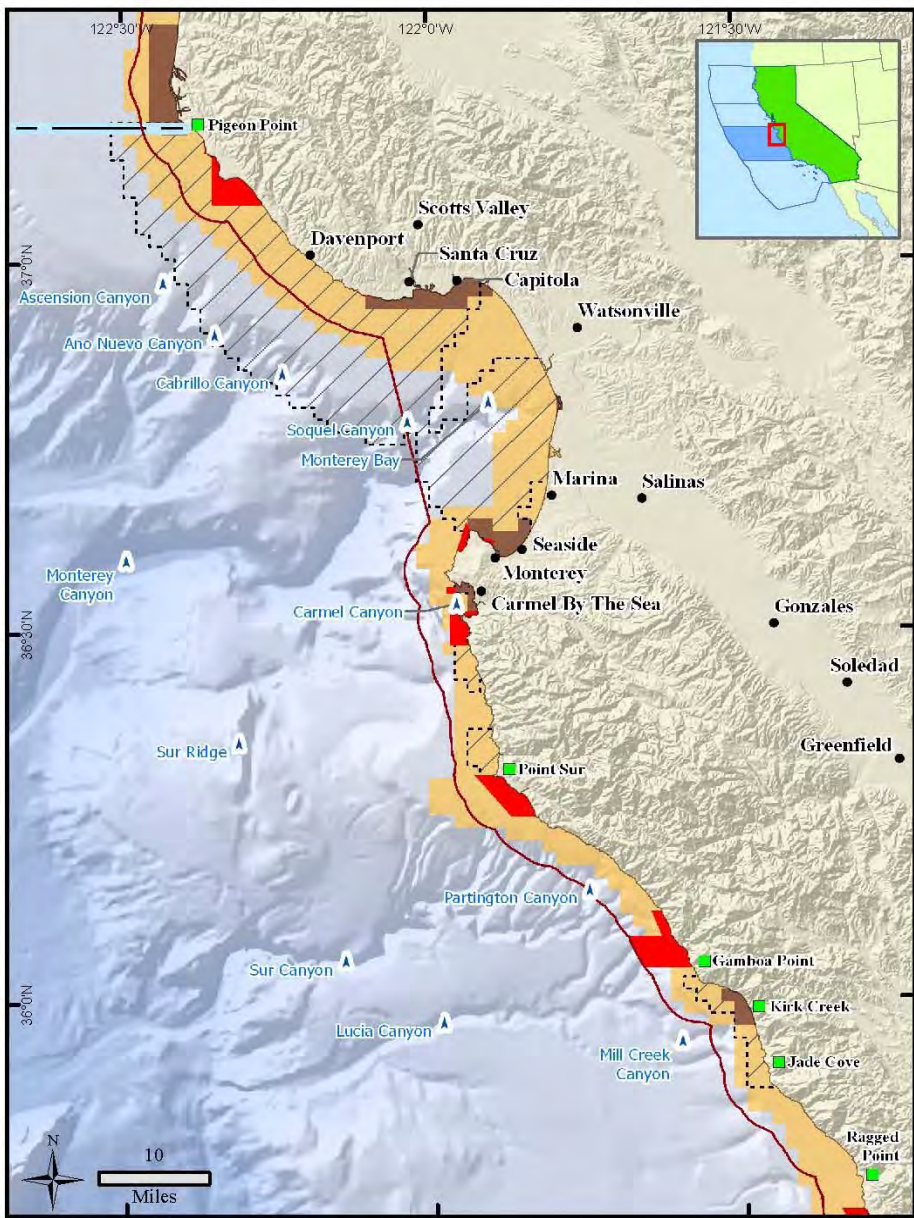


# Human Uses of California's Ocean: Industrial and Military Sector

- Aquaculture
- Cruise ships
- Military operations
- Mining and mineral extraction
- Offshore alternative energy
- Offshore oil and gas
- Shipping
- Underwater cables





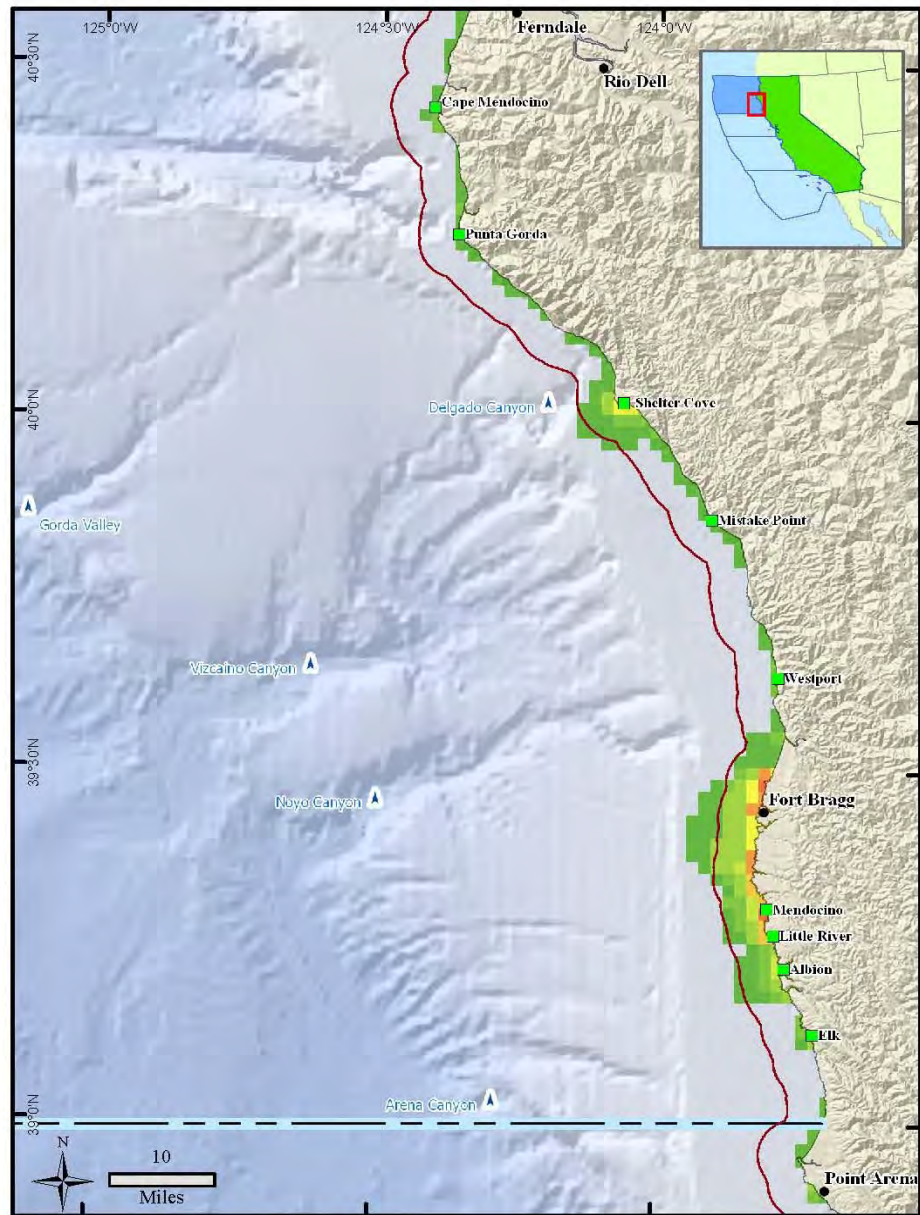
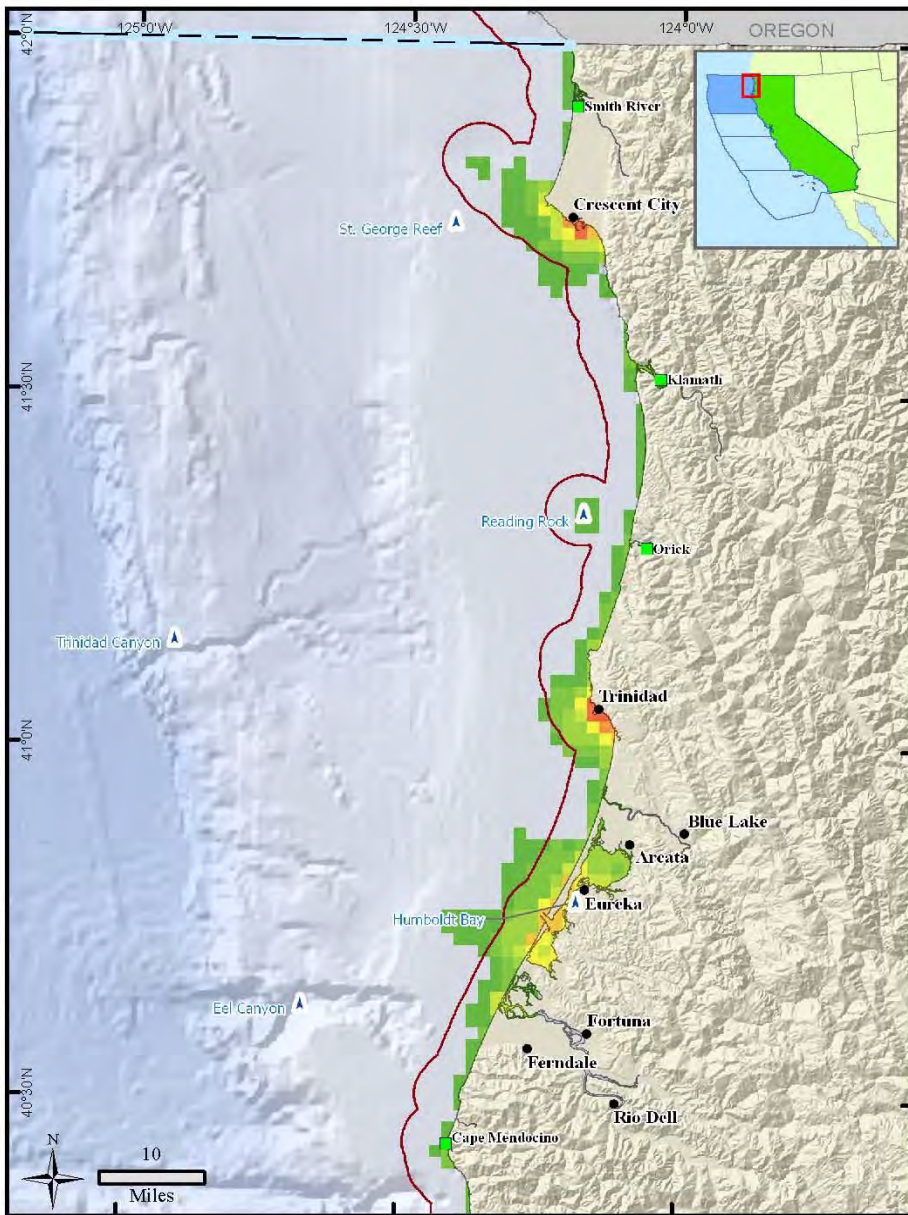


## California Ocean Uses Atlas: Central California Region

### Kayak fishing



December  
2009



<span style="color: green;">■</span> Other Landmark	<span style="color: blue;">—</span> Atlas Northern California Region
<span style="color: black;">●</span> City	Overlapping Dominant Uses
<span style="color: blue;">▲</span> Submerged Feature	<span style="color: green;">▬</span> <span style="color: yellow;">▬</span> <span style="color: orange;">▬</span> <span style="color: red;">▬</span>
<span style="color: red;">—</span> State Waters	1 2 3 4 5 6 7 8 9

## California Ocean Uses Atlas: Northern California Region

### Non-Consumptive Sector

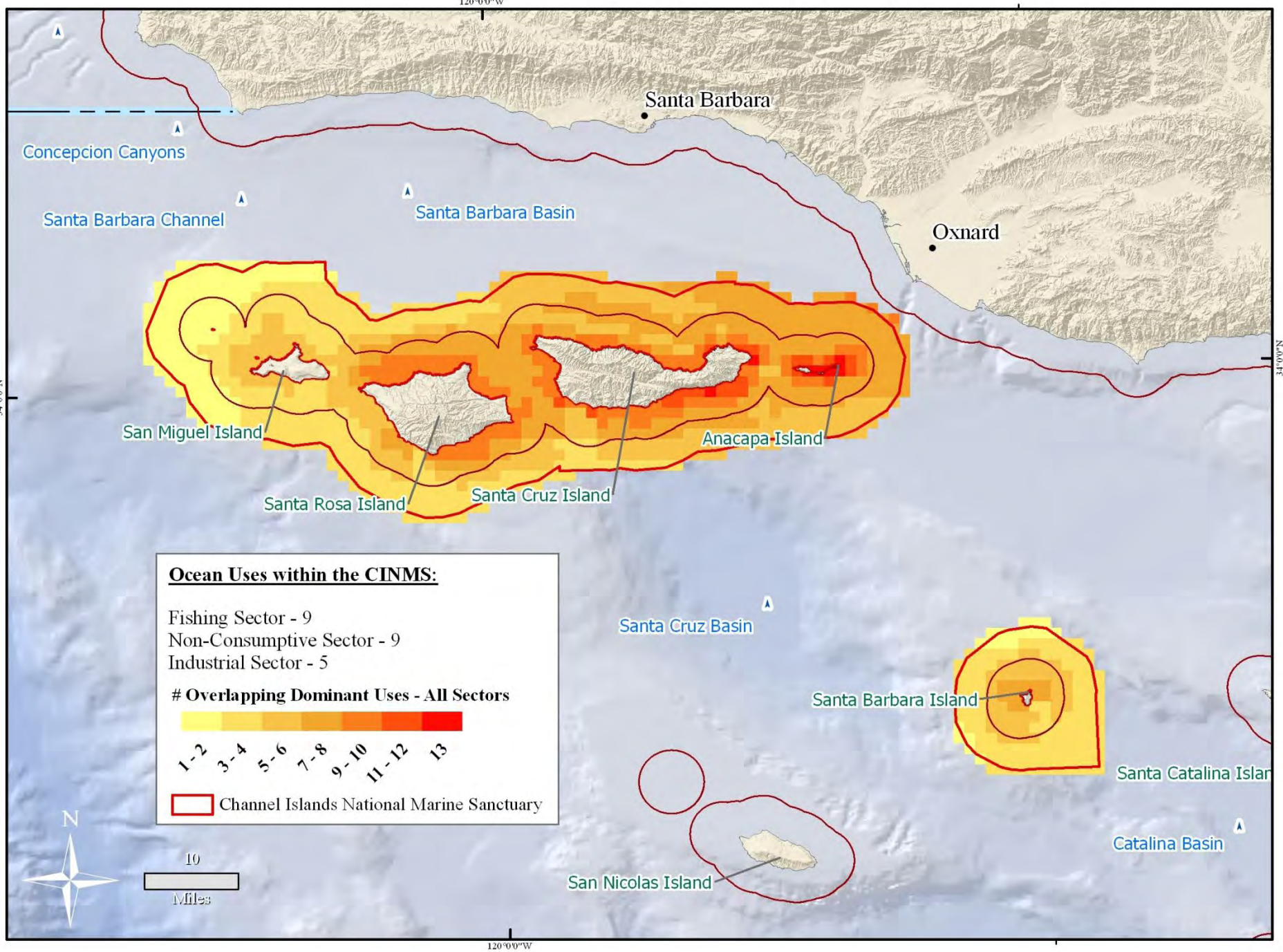


NATIONAL  
MARINE PROTECTED AREAS  
CENTER



MCBI  
MARINE CONSERVATION  
BIOLOGY INSTITUTE

December  
2009



### Ocean Management Issues: Alternative Energy

This map illustrates how patterns of ocean use can inform decisions on siting offshore renewable energy facilities. This example depicts two predicted high wind energy areas off Southern California (see citation below). The text box on the left describes the degree to which each of these two potential wind farm areas overlaps, and potentially conflicts, with other co-occurring ocean uses mapped by the CA Ocean Uses Atlas project. Of the two, Area B clearly presents the fewest potential conflicts with other ocean uses.

Dvorak, M.J., Archer, C.L., Jacobson, M.Z., California Offshore Wind Energy Potential. Submitted to Renewable Energy, 2009.

Santa Barbara

Potential Wind Energy Area A

Potential Wind Energy Area B

#### **Potential Wind Energy Area A**

Minimum # of Uses affected: 1

Maximum # of Uses affected: **11**

#### **Potential Dominant Uses affected:**

Commercial dive fishing  
Commercial fishing with benthic fixed gear  
Commercial pelagic fishing  
Motorized boating  
Military operations  
Offshore oil and gas  
Recreation fishing from boats  
Recreation dive fishing  
Sailing  
SCUBA/snorkeling  
Wildlife viewing at sea

#### **Potential Wind Energy Area B**

Minimum # of Uses affected: 2

Maximum # of Uses affected: **3**

#### **Potential Dominant Uses affected:**

Military  
Shipping  
Recreational fishing from boats





# NATIONAL MARINE PROTECTED AREAS CENTER

[www.mpa.gov](http://www.mpa.gov)



## Data & Analysis

[MPA Inventory](#)

[Ocean Uses Atlas](#)

[De Facto MPAs](#)

[Analysis of U.S. MPAs](#)

[Maps](#)

## The California Ocean Uses Atlas Maps

[Home](#) > [Data & Analysis](#) > [Ocean Uses Atlas Maps](#)



Select statewide data or an individual region to view

# Atlas Project Status

## California

- Project completed January 2010. GIS data, project information, and maps available at <http://mpa.gov/dataanalysis/atlas/>
- Working with NOAA's Special Projects Office to build interactive mapping device, possibly with simple spatial analysis or decision-making functionality
- Exportable Methodology – portable, flexible, and scalable (but need to remain comparable between projects)

## New Hampshire / Southern Maine

- January 2010 workshop to support oil spill response drill (SONS) and to expand coverage of human ocean use data in region
- Completed March 2010, used in ERMA during drill

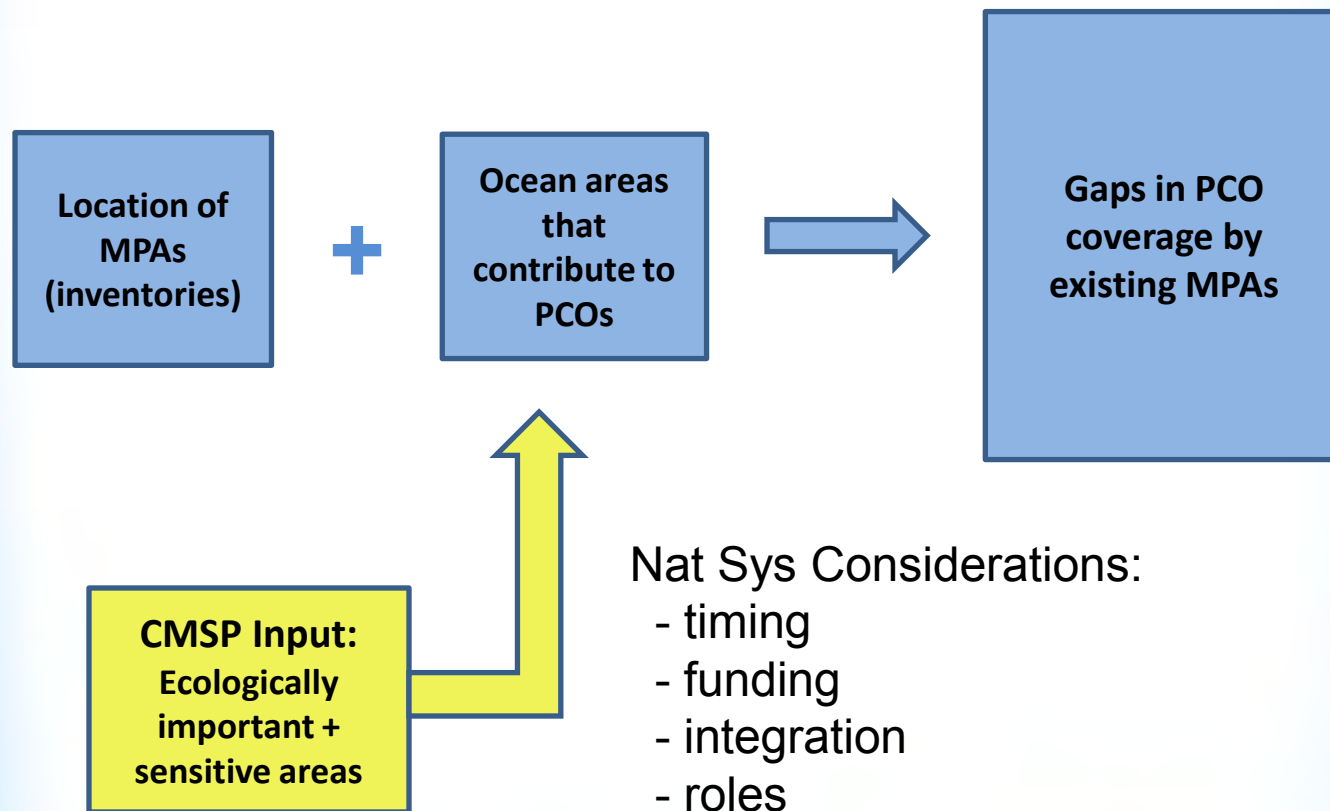
## Hawaii

- Engaged in workshop planning to support the community of Puako's Conservation Action Planning process

# 3. Gap Analysis

- **Purpose:** to inform the development of the National System of MPAs by identifying gaps in spatial protection of important areas.
- **Status:**
  - data synthesis continues of West Coast
  - Briefings for NMFS, PFMC, etc.
  - Rethinking timeline and some input steps in light of opportunities posed by CMSP

# Guiding the National System Development: Identifying Gaps in Spatial Management of Important Areas





# 4. CMSP and the Natl. System

- **Status** – national Framework for Effective CMSP due out this Spring
- **Linkages to Natl. System of MPAs** –
  - Both are science-based, multi-sectoral, stakeholder informed, regional spatial planning efforts
  - May provide funds for ocean uses and gap analysis
  - Question for FAC: Conservation role of Natl. System in CMSP? (tbd)
- **MPAC Engagement to date:**
  - Involved in OPTF writing teams
  - Leading NOAA planning for Framework implementation