

# BOEM California Intergovernmental Renewable Energy Task Force Meeting

Sacramento, California

September 17, 2018

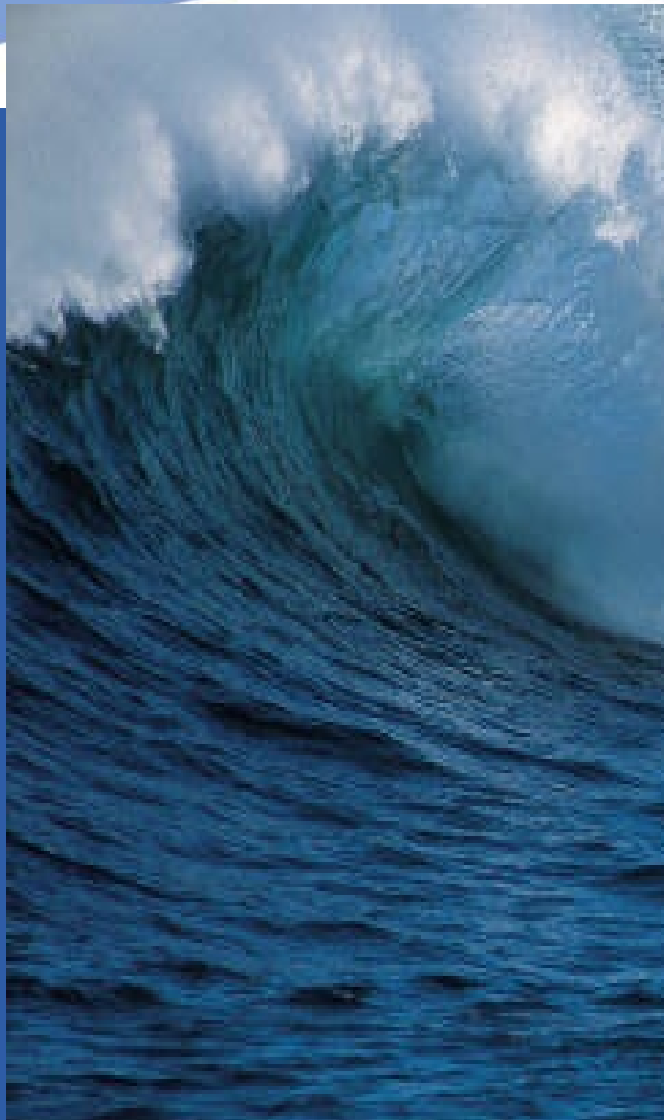
Teleconference Dial-in: 1-719-234-7800; Passcode: 859471

Webinar Link: [http://kearnswest.adobeconnect.com/boem\\_ca/](http://kearnswest.adobeconnect.com/boem_ca/)

# BOEM California Intergovernmental Renewable Energy Task Force

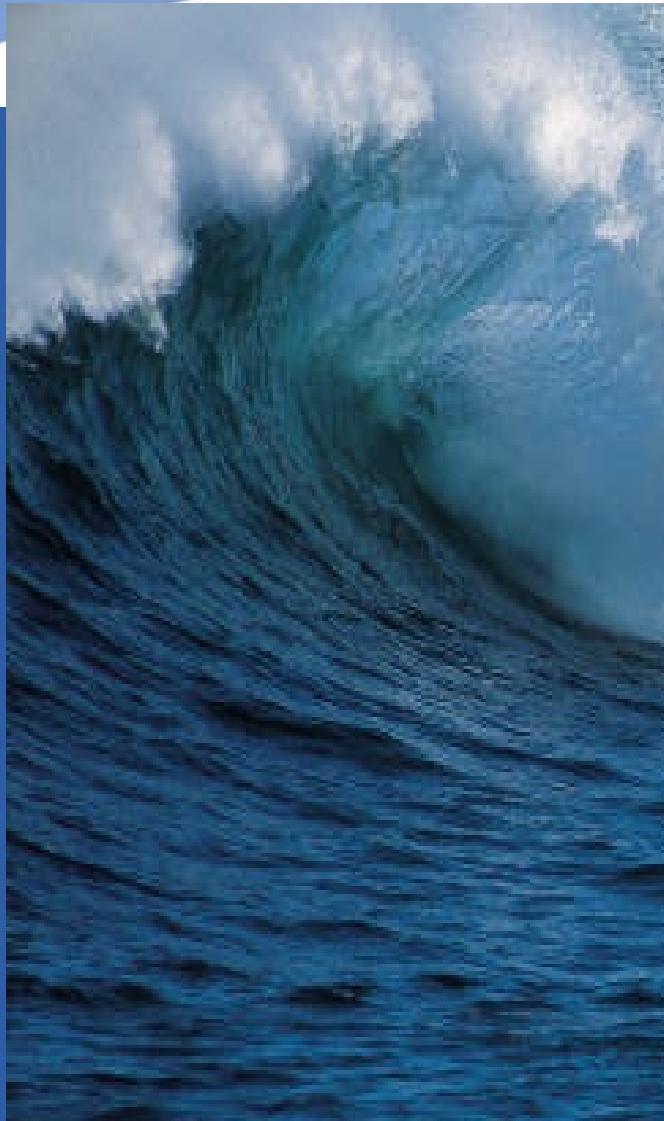
## Proposed Ground Rules

- Cell phones on silent
- Limit side conversations
- Honor the agenda
- Be respectful of others' opinions
- Turn-taking
  - Raise table tent card when interested in joining the queue to speak (Task Force members participating by webinar can “raise their hand” or send a text to the webinar facilitator indicating a desire to speak)
- Microphone protocols
  - Ensure table mics are off except when speaking
  - State your name and organization before speaking
- For remote participation
  - Asking questions and making comments by phone is limited to Task Force members
  - The phone line will be kept on mute unless a participating Task Force member requests to speak
- Bring any concerns/issues to the facilitator during breaks



# Welcome and Introductions

Eric Poncelet, Facilitator, Kearns & West



# Opening Remarks

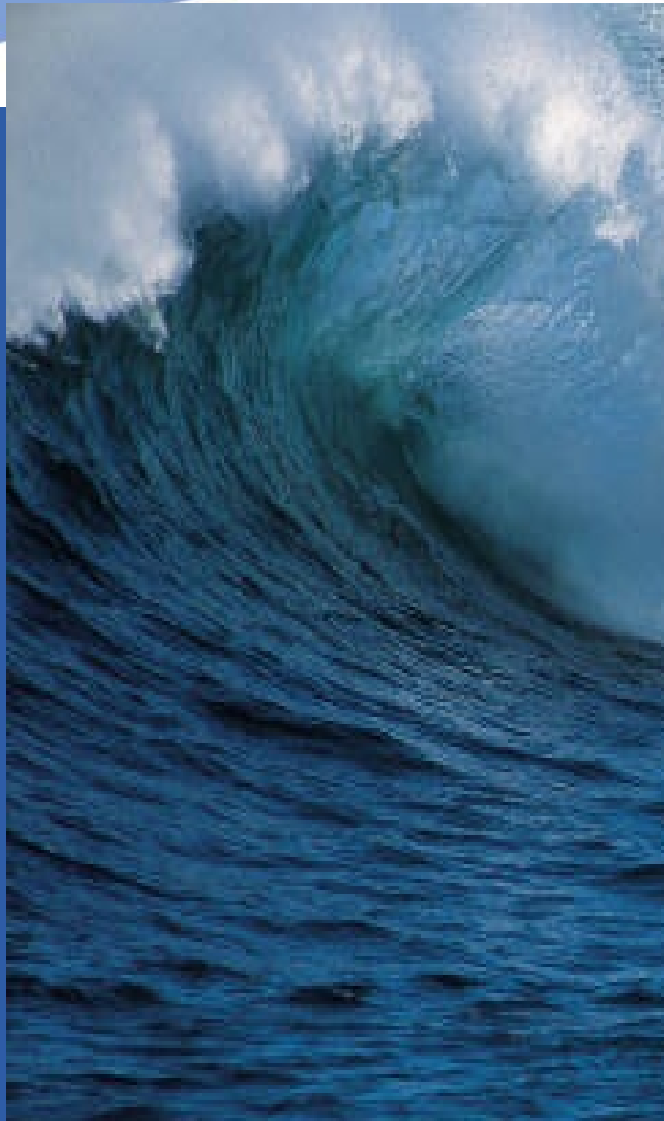
Karen Douglas, CEC

Cliff Rechtschaffen, CPUC

Katharine MacGregor, Department of the Interior

Walter Cruickshank, BOEM





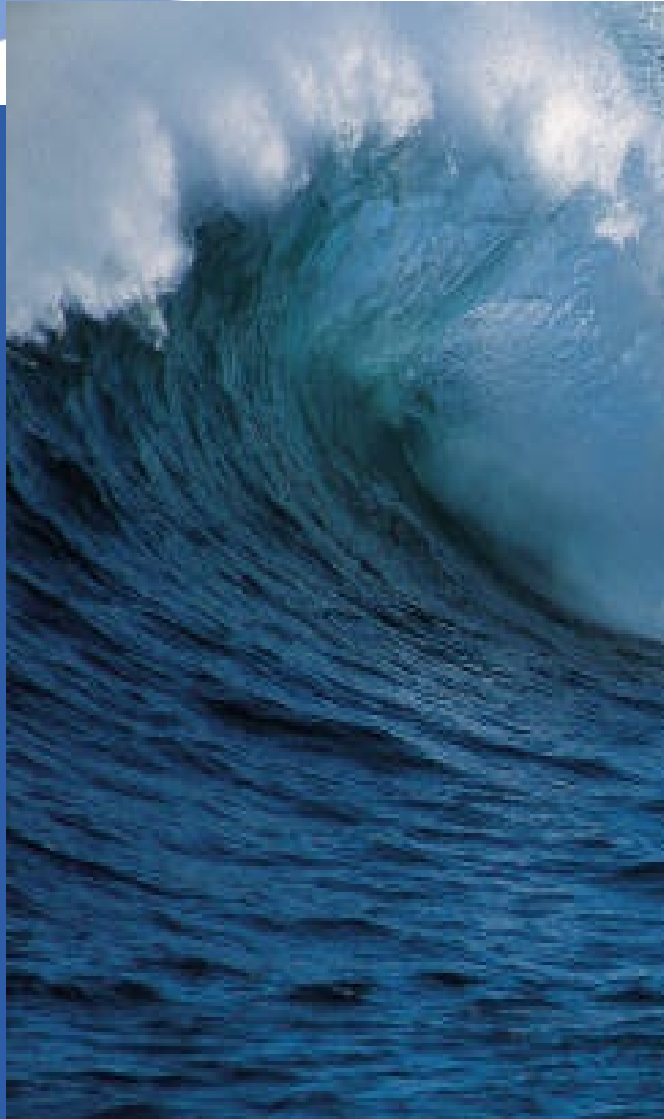
# Agenda Review and Purpose of the Meeting

Jean Thurston, BOEM

# BOEM California Intergovernmental Renewable Energy Task Force

- Serves as a forum to discuss stakeholder concerns, exchange data and information
- An unsolicited lease request submitted in January 2016 and subsequent interest by developers triggered BOEM's competitive leasing process
- Formation requested by Governor Brown in May 2016
- First Task Force meeting held October 2016
- Membership consists of state and federal agencies, local, and tribal governments





# Stakeholder Engagement Activities

Jean Thurston, BOEM

Chris Potter, OPC

# Stakeholder Engagement

## Purpose:

- Inform local communities about goals and activities of the Task Force and the offshore wind planning efforts
- Involve the local community in data gathering to support planning effort
- Solicit feedback about offshore wind energy development
- Use gathered data/information to inform potential areas (“Call Areas”) that appear to be the most suitable for offshore wind

## How we are engaging communities:

- Statewide outreach to spatial data providers
- Coast-wide outreach to fishers, ports, Harbor Safety Committees
- Coastal communities outreach (including NGOs, public, city councils)

# Stakeholder Engagement Activities

- **Stakeholder Outreach Plan** created in collaboration with State of California
- **Offshore Wind Energy Gateway** on Data Basin website – transparent, publicly accessible information
- **Tribal Outreach** to federally and non-federally recognized tribes
- **Large outreach effort** (75+ meetings over 18 months) in partnership with State of California



## Planning & Analysis

- Intergovernmental Task Force
- **Call for Information & Nominations (Call)**
- Area Identification
- Environmental reviews



# Offshore Wind Energy Gateway

## Web-Based Data Gateway

- Create maps using geospatial data
- Converse in working groups with data and maps
- Add spatial datasets

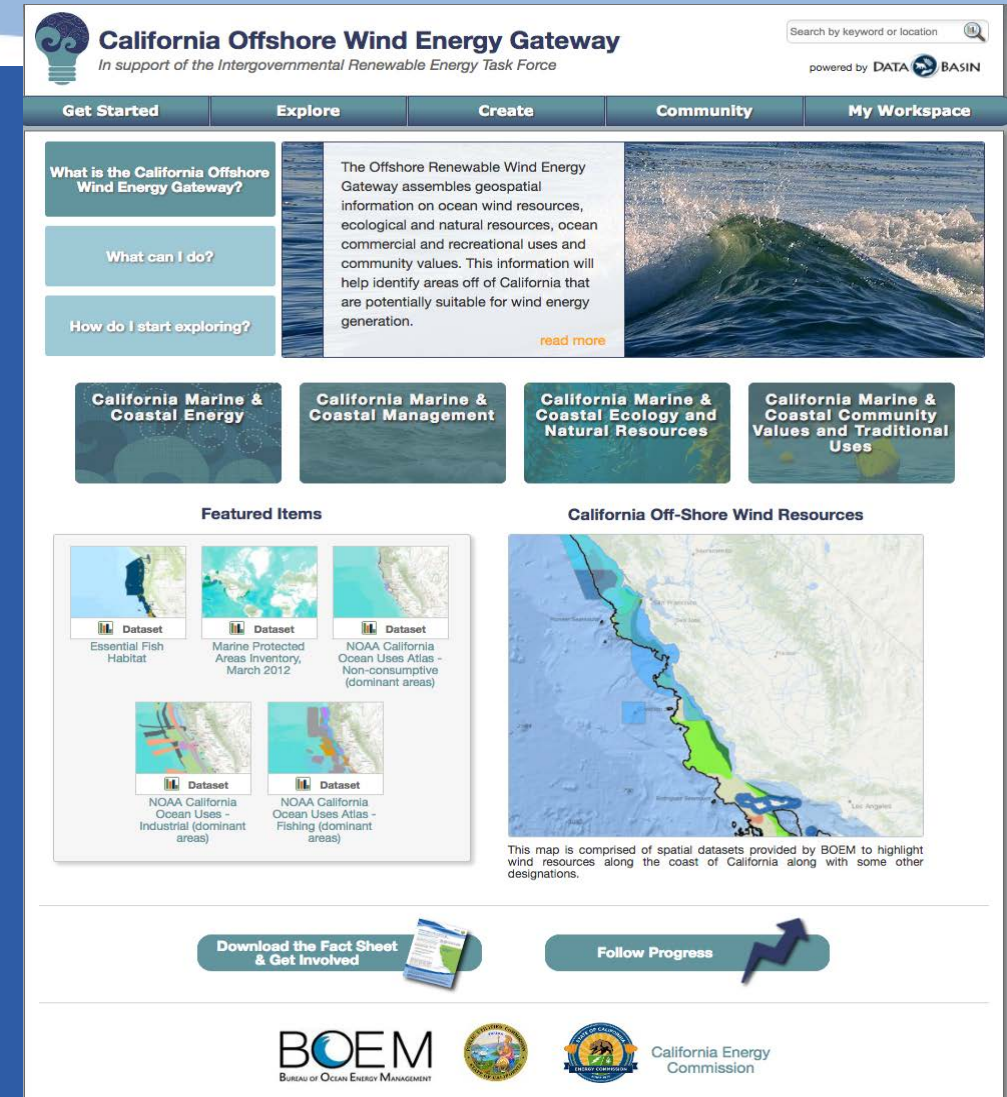
## Assemble geospatial information on:

- Physical setting
- Energy resources
- Marine policy and management
- Ecological and natural resources
- Community and traditional values, such as commercial and recreational uses

## Use data and information to:

- Transparently present relevant data being used by the Task Force

<https://caoffshorewind.databasin.org>



The screenshot shows the homepage of the California Offshore Wind Energy Gateway. At the top, there is a search bar and navigation tabs for 'Get Started', 'Explore', 'Create', 'Community', and 'My Workspace'. A main content area features a large introductory text block about the gateway's purpose, accompanied by a 'read more' link and a photograph of ocean waves. Below this are four thematic tiles: 'California Marine & Coastal Energy', 'California Marine & Coastal Management', 'California Marine & Coastal Ecology and Natural Resources', and 'California Marine & Coastal Community Values and Traditional Uses'. A 'Featured Items' section displays five dataset thumbnails: 'Essential Fish Habitat', 'Marine Protected Areas Inventory, March 2012', 'NOAA California Ocean Uses Atlas - Non-consumptive (dominant areas)', 'NOAA California Ocean Uses Atlas - Industrial (dominant areas)', and 'NOAA California Ocean Uses Atlas - Fishing (dominant areas)'. To the right, a 'California Off-Shore Wind Resources' map shows the California coast with highlighted wind resource areas. Below the map is a caption: 'This map is comprised of spatial datasets provided by BOEM to highlight wind resources along the coast of California along with some other designations.' At the bottom, there are two call-to-action buttons: 'Download the Fact Sheet & Get Involved' and 'Follow Progress' with an upward-pointing arrow icon. The footer includes the BOEM logo, the California Energy Commission logo, and the text 'California Energy Commission'.

# California Planning Activities

2016

- May: Governor Brown requested DOI establish the BOEM California Intergovernmental Renewable Energy Task Force
- October: Initial BOEM California Intergovernmental Renewable Energy Task Force Meeting

2017

- About 60+ Stakeholder Outreach and Informational Meetings (fishers, NGOs, local ports, Harbor Safety Committees, USCG District 11, coastal communities, local elected officials, academia)
- Tribal Outreach and Informational meetings (Federal and non-federally recognized tribes)
- Data Collection and Review (data from USCG, NMFS/NOAA, CDFW, others)
- California Offshore Wind Energy Gateway on Data Basin website
- Publication of Interim Outreach Summary Report
- Department of Navy/Defense Mission Compatibility Assessment

2018

- February 15: DoD Mission Compatibility Discussion
- March 12: Energy Commission Webinar on Potential for Offshore Renewable Energy
- April 17-19: North Coast Outreach Meetings
- July 17-18: Additional North Coast Outreach Meetings and data review
- August 2: North Coast data discussion in Eureka, California
- August 30: DoD Mission Compatibility Follow-Up Discussion
- July-Sept: Webinar updates for Tribes, Federal agencies, state agencies



# Coastal Communities Engagement

## Outreach/engagement activities:

- Local coastal communities
    - **North Coast:** Eureka, Arcata, Crescent City
    - **Central Coast:** San Luis Obispo, Morro Bay, Santa Barbara
  - San Francisco Bay Harbor Safety Committee
  - Port San Luis Harbor District
  - California State Association of Counties
- 
- Presentations to numerous elected officials in north and central coastal districts
  - Discussions with several non-governmental organizations (e.g., Sierra Club, Audubon, NRDC, Northcoast Environmental Center, Ocean Conservancy, Surfrider, etc.)



# Fishing Communities Engagement

## Outreach/engagement activities:

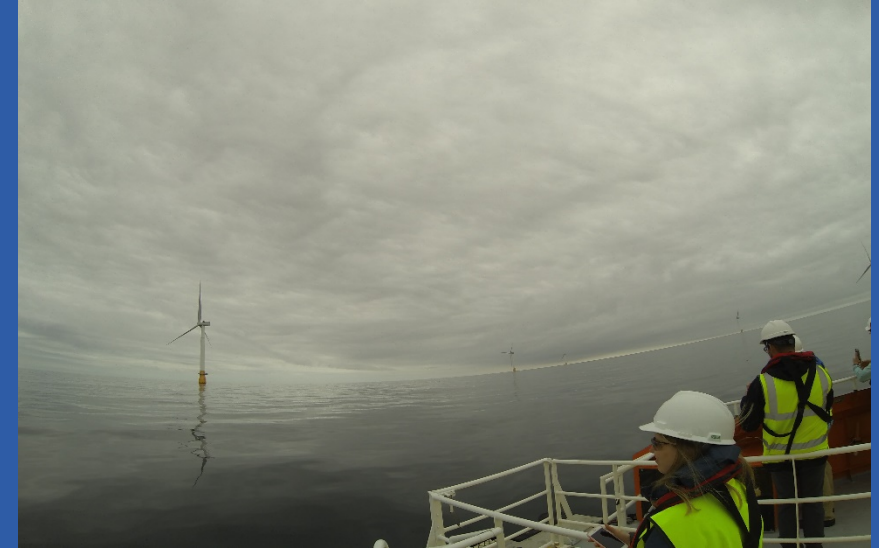
- Local fishing communities
  - Morro Bay Harbor Advisory Board
  - Southern California Trawlers Association
  - Humboldt Fishermen's Marketing Association
  - Port San Luis fishermen
  - Pacific Coast Federation of Fishermen's Associations
- Presentations to state- and coast-wide fishing/fisheries organizations
- USCG, NMFS/NOAA, CDFW et al. providing relevant data (e.g., AIS data, fishing effort)
- Pacific Fisheries Management Council – Habitat and Groundfish Subcommittees



# Data and Science Outreach

## Outreach/engagement activities:

- Data and Scientific Communities
  - University of California (system-wide)
  - California State University (multiple campuses)
  - Monterey Bay Aquarium Research Institute
  - Scripps Institution of Oceanography
  - Moss Landing Marine Lab
- Data collection and coordination with Central and Northern California Ocean Observing System (CeNCOOS)
- Included data layers from Multipurpose Marine Cadastre (NOAA/BOEM portal)



# Stakeholder Outreach Summary Report

- Interim Report published; available online at:  
<https://www.boem.gov/California-Outreach-Summary-Report>
- Currently being updated
- Contents:
  - Executive Summary
  - Coastal Communities
  - Fishing Communities
  - Tribal Outreach and Engagement
  - Data/Science Outreach
  - Next Steps





## Concerns and input included:

- Role of offshore wind in California's energy portfolio
- Potential impacts to commercial fishing activities and communities
- Environmental, visual, and noise concerns
- Concerns with existing maritime activities and vessel routing



## Concerns and input included:

- Concern related to Department of Defense activities
- Potential for positive or negative economic impacts from development
- General unfamiliarity with floating offshore wind technologies



# Federal and State Task Force Contacts

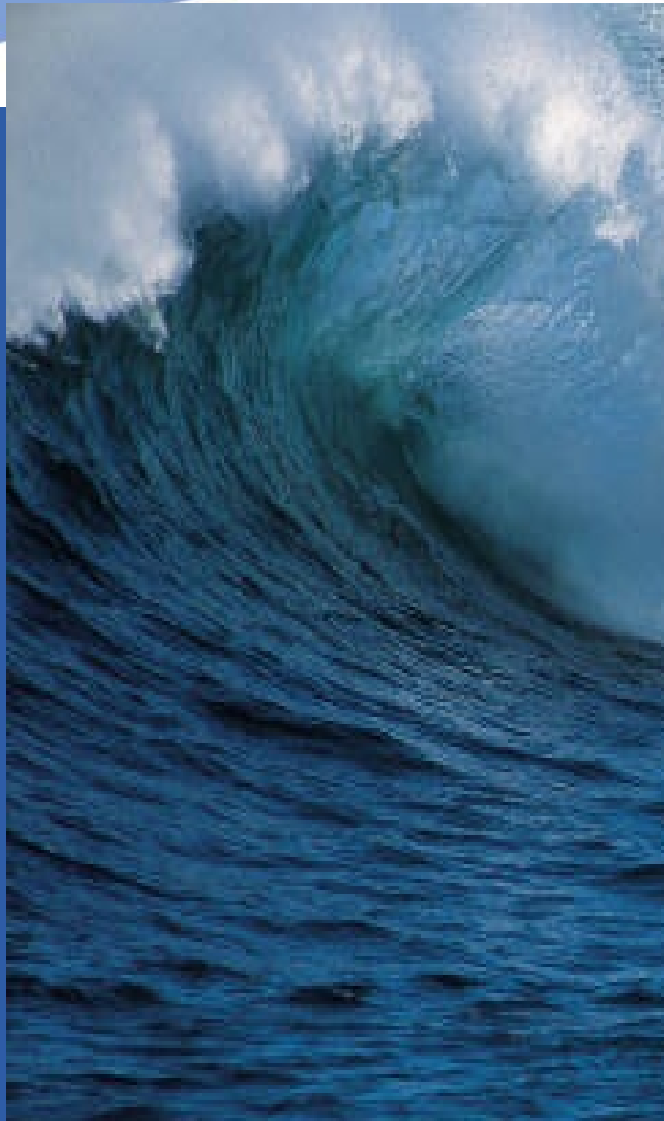
## **Jean Thurston**

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## **Chris Potter**

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Ocean Protection Council  
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Office: 916.654.0536 Chris.Potter@resources.ca.gov





# Tribal Engagement Activities

Thomas Gates, CEC  
Sara Gultinan, BOEM

# Past Tribal Meetings

2016

- November 29 Regional Informational Meeting
  - Trinidad, CA/Hosted by Trinidad Rancheria

2017

- February 7 Government to Government Meeting
  - Santa Ynez, CA/BOEM and Santa Ynez Band of Chumash Indians
- February 13 Regional Informational Meeting
  - Solvang, CA/Hosted by Santa Ynez Band of Chumash Indians
- May 9 Regional Informational Meeting
  - Monterey, CA
- May 16 Regional Informational Meeting
  - Valley Center, CA/Hosted by Rincon Band of Luiseno Indians
- May 18 Regional Informational Meeting
  - Rohnert Park, CA/Hosted by Federated Indians of Graton Rancheria
- June 30 Statewide Informational Meeting via WebEx
- June 30 First State Tribal Offshore Renewable Energy Working Group Meeting via WebEx

2018

- April 19 Regional Informational Meeting
  - Blue Lake, CA/Hosted by Blue Lake Rancheria
- September 5 Second State Tribal Offshore Renewable Energy Working Group Meeting via WebEx

## Appendix 4: Offshore Renewable Energy off California's Coast – Initial Outreach with Tribes

**Tribal input is organized under 4 areas:**

1. Planning and Siting Process
2. Tribal Cultural Resources
3. Environmental Impacts
4. Construction, Operation, and Decommissioning

The full report and appendix can be found at:

<https://www.boem.gov/California-Outreach-Summary-Report/>

# Additional Cultural Resources Information

- **Inventory and Analysis of Coastal and Submerged Archaeological Site Occurrence on the Pacific Outer Continental Shelf** (OCS Study BOEM 2013-0115, <https://www.boem.gov/Study-2013-0115/>)
- **Archaeological and Biological Assessment of Submerged Landforms off the Pacific Coast** (NSL #PC-14-04, <https://www.boem.gov/pc-14-04/>) - *ongoing*
- **Characterizing Tribal Cultural Landscapes** (OCS Study BOEM 2017-001)
  - Volume I: Project Framework (<https://www.boem.gov/BOEM-2017-001-Volume-1/>)
  - Volume II: Case Studies (<https://www.boem.gov/BOEM-2017-001-Volume-2/>)
  - A Guidance Document (<https://www.boem.gov/2015-047/>)

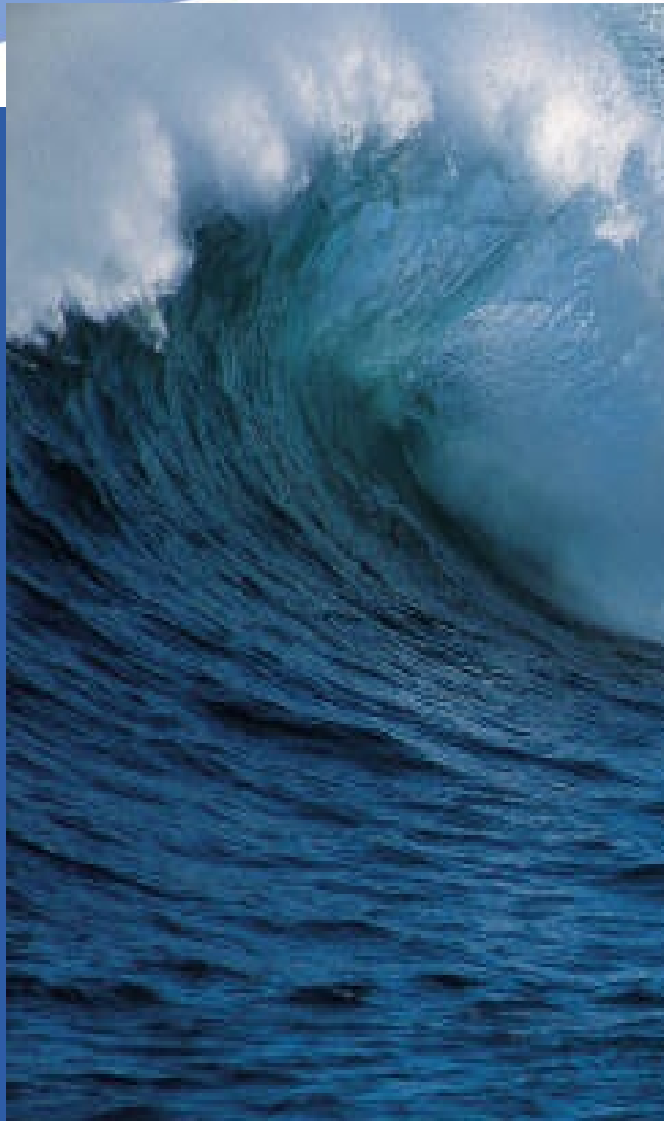
# Federal and State Tribal Liaison Contacts

## **Sara Gultinan**

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Bureau of Ocean Energy Management  
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## **Thomas Gates**

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Sacramento, CA 95814  
Office: 916.654.5008 thomas.gates@energy.ca.gov



# Department of Defense Engagement Activities

Steve Chung, U.S. Navy

# DOD Engagement Activities

## California Outer Continental Shelf (OCS)

### Context:

- A. DOD conducts training, testing and operations in the airspace, sea surface, subsurface and seafloor of California's Outer Continental Shelf (OCS).
- B. Maintaining access to DOD training & testing areas is critical to supporting the National Defense Strategy's focus on warfighting readiness and lethality.

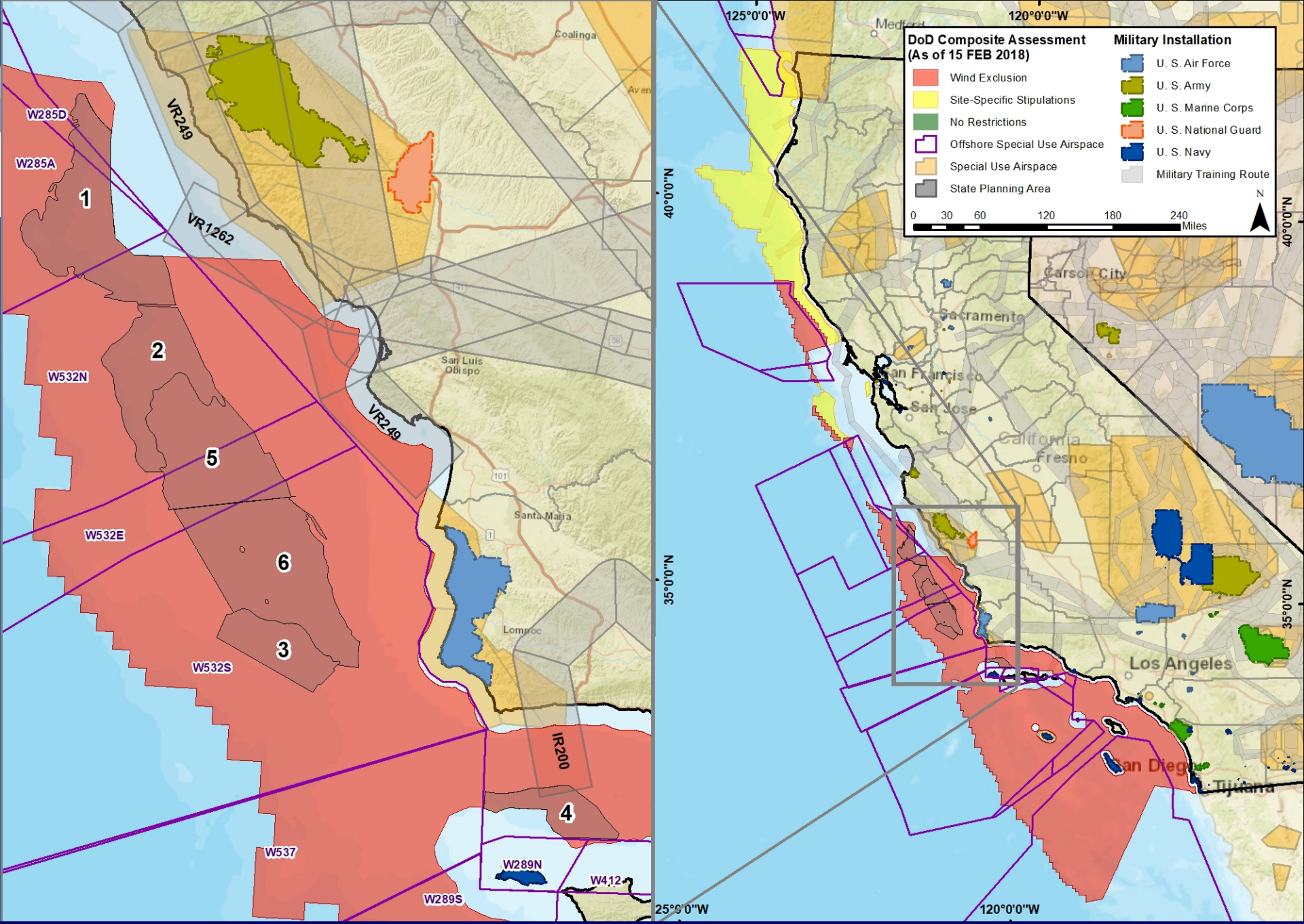
### Agency & Industry Offshore Session of 15 FEB 2018:

- Assembled a diverse group of agency & industry stakeholders with interest in offshore renewable wind
- DOD provided context to complexity of military operations within the central coast region of CA
- Afforded a forum to facilitate candid discussions to express interests & concerns from agency representatives, industry and DOD
- DOD reiterated continued commitment to collaborate with industry and agency partners to conduct discovery consultations for mission compatibility with "new and detailed project level information"

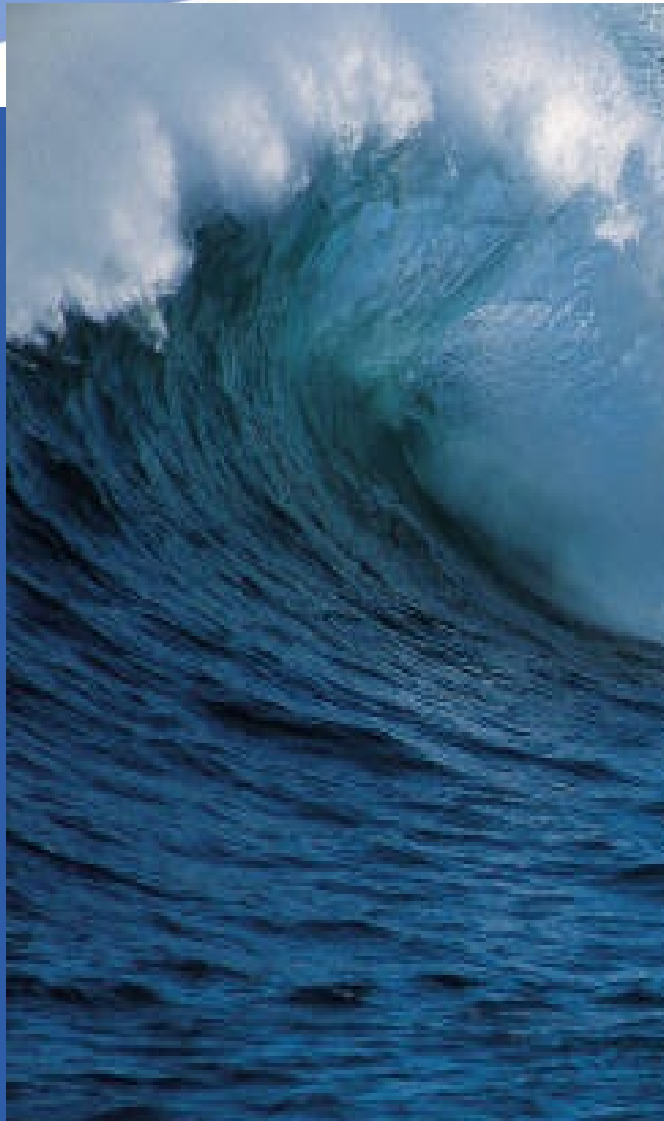
### DOD Discovery Engagements with Industry – Overview Since 15 FEB 2018:

- DOD currently examining 22 proposed sites along CA Central Coast and 1 in NORCAL
- DOD engaged by 13 offshore industry representatives for discovery discussions
- DOD working diligently to collaborate and locate possible areas where offshore wind may be compatible with military operations

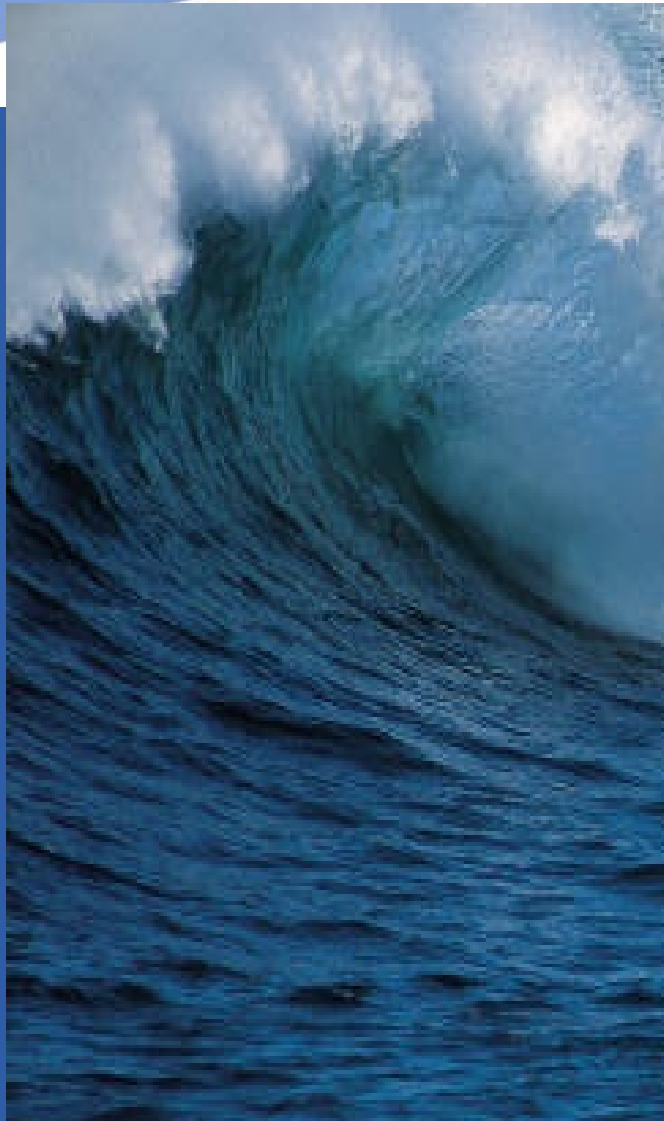




DoD Currently Examining 22 Proposed Sites – CA Central Coast



# Break



# Discussion of Key Data Sets

Scott Flint, CEC

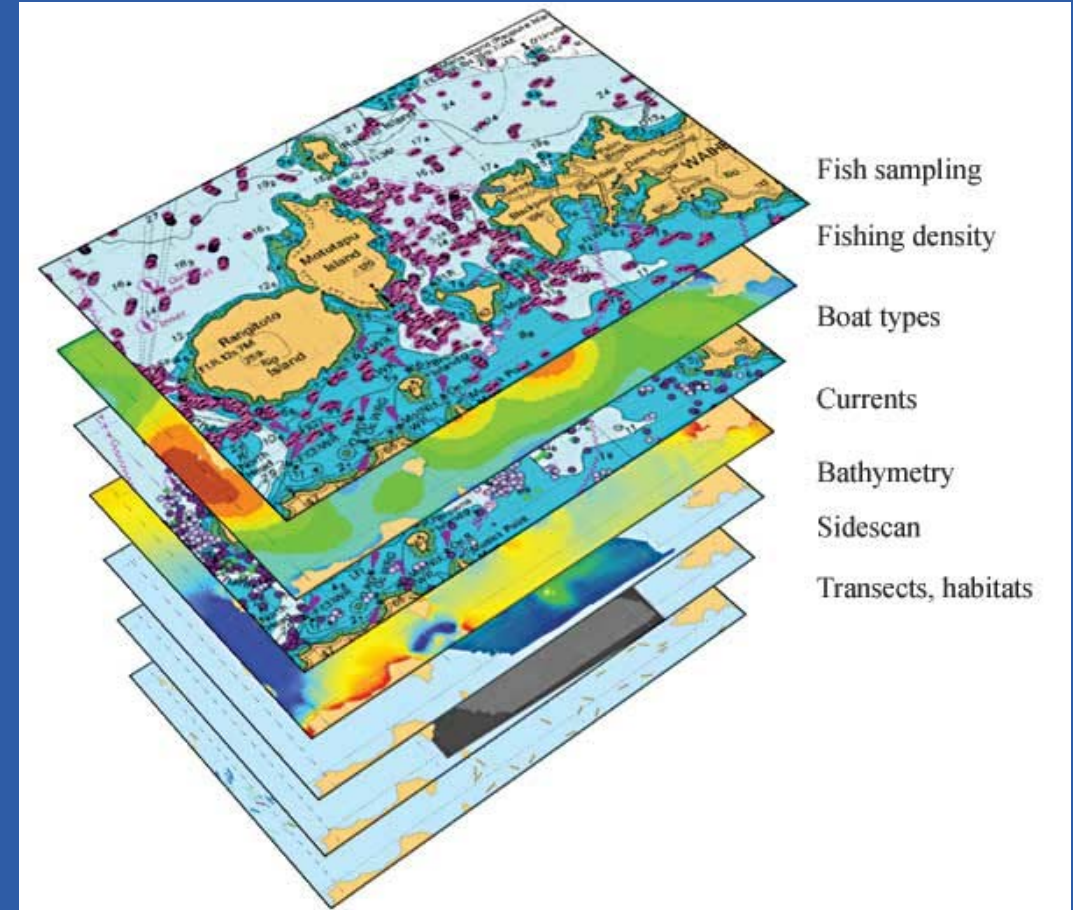
Frank Pendleton, BOEM



# Offshore Wind Data Gathering Efforts

## Assemble information on Marine Environment:

- physical setting
- existing infrastructure
- energy resources
- ecological and natural resources
- commercial and recreational uses
- community values



# Offshore Wind Data Gathering Efforts

## Core and Public Data Groups

- Members provide input on a number of key data topics: datasets will be used by the Agencies to help identify and screen potential wind development areas.
- Agency members are providing relevant data.
- Other members are invited identify relevant datasets and to share their data.

## Stakeholder Outreach

- Local Meetings on South Central Coast and North Coast
- “Hands-on” Review available data in a using Data Basin
- Discuss approaches for screening potential offshore wind areas
- Interactive feedback on data quality and usefulness
- Identify additional datasets to review and post

# California Offshore Wind Energy Gateway

## Data Basin

- <https://caoffshorewind.databasin.org/>
- **Web-Based Data Gateway**
  - Map geospatial data
  - Converse in working groups with data and maps
  - Add your own datasets

**California Offshore Wind Energy Gateway**  
In support of the Intergovernmental Renewable Energy Task Force

Search by keyword or location

powered by DATA BASIN

**Get Started** | **Explore** | **Create** | **Community** | **My Workspace**

**What is the California Offshore Wind Energy Gateway?**

**What can I do?**

**How do I start exploring?**

The Offshore Renewable Wind Energy Gateway assembles geospatial information on ocean wind resources, ecological and natural resources, ocean commercial and recreational uses and community values. This information will help identify areas off of California that are potentially suitable for wind energy generation.

[read more](#)

**California Marine & Coastal Energy** | **California Marine & Coastal Management** | **California Marine & Coastal Ecology and Natural Resources** | **California Marine Fishing and Traditional Uses**

**Featured Items**

- Map: California Commercial Fishing Recent History
- Map: West Coast USA Federal and State Marine Protected Areas
- Map: California Offshore Wind Resources
- Map: Central California Offshore Use Zones
- Map: Central California Offshore Geology and Wind Technology Depth Zones
- Map: Central California Offshore Biological Resources

**California Off-Shore Wind Resources**

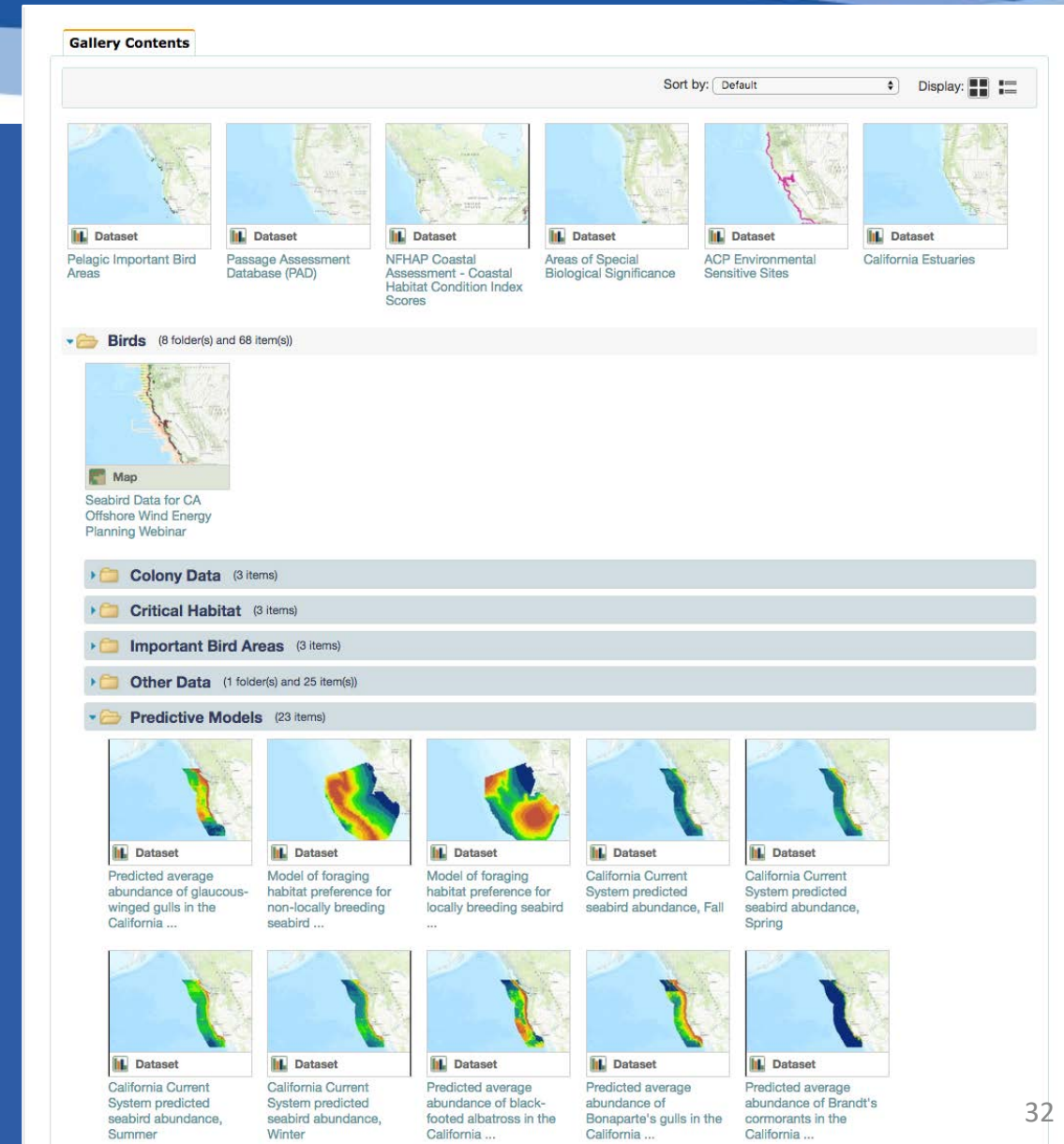
This map is comprised of spatial datasets provided by BOEM to highlight wind resources along the coast of California along with some other designations.



# California Offshore Wind Energy Gateway

## Data Details

- Approximately 650 datasets
- Science, science-based, and stakeholder data
- Organized into galleries and folders
- Pre- built maps available so folks can jump in to use the data



The screenshot displays the 'Gallery Contents' page of the BOEM data portal. At the top, there are controls for 'Sort by: Default' and 'Display: [grid icon] [list icon]'. Below this, a row of six map thumbnails is shown, each labeled 'Dataset'. The titles for these datasets are: 'Pelagic Important Bird Areas', 'Passage Assessment Database (PAD)', 'NFHAP Coastal Assessment - Coastal Habitat Condition Index Scores', 'Areas of Special Biological Significance', 'ACP Environmental Sensitive Sites', and 'California Estuaries'. A folder icon labeled 'Birds (8 folder(s) and 68 item(s))' is expanded, showing a 'Map' icon and the text 'Seabird Data for CA Offshore Wind Energy Planning Webinar'. Below the 'Birds' folder, there are five more folder icons: 'Colony Data (3 items)', 'Critical Habitat (3 items)', 'Important Bird Areas (3 items)', 'Other Data (1 folder(s) and 25 item(s))', and 'Predictive Models (23 items)'. The 'Predictive Models' folder is expanded, showing a grid of ten map thumbnails. Each thumbnail is labeled 'Dataset' and has a descriptive title below it, such as 'Predicted average abundance of glaucous-winged gulls in the California ...', 'Model of foraging habitat preference for non-locally breeding seabird ...', 'Model of foraging habitat preference for locally breeding seabird ...', 'California Current System predicted seabird abundance, Fall ...', 'California Current System predicted seabird abundance, Spring ...', 'California Current System predicted seabird abundance, Summer', 'California Current System predicted seabird abundance, Winter', 'Predicted average abundance of black-footed albatross in the California ...', 'Predicted average abundance of Bonaparte's gulls in the California ...', and 'Predicted average abundance of Brandt's cormorants in the California ...'.



# California Offshore Wind Energy Gateway

## Key Planning Datasets and Information

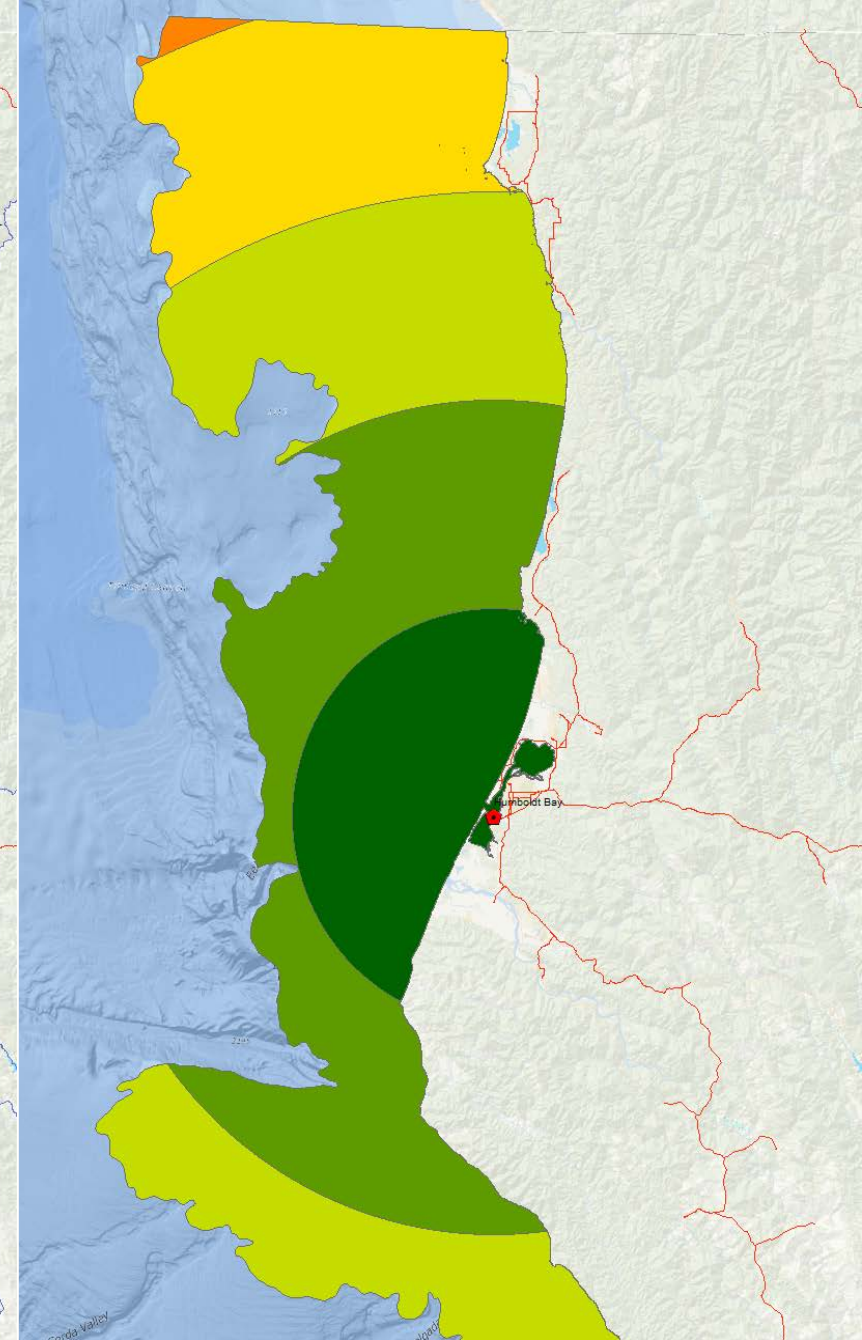
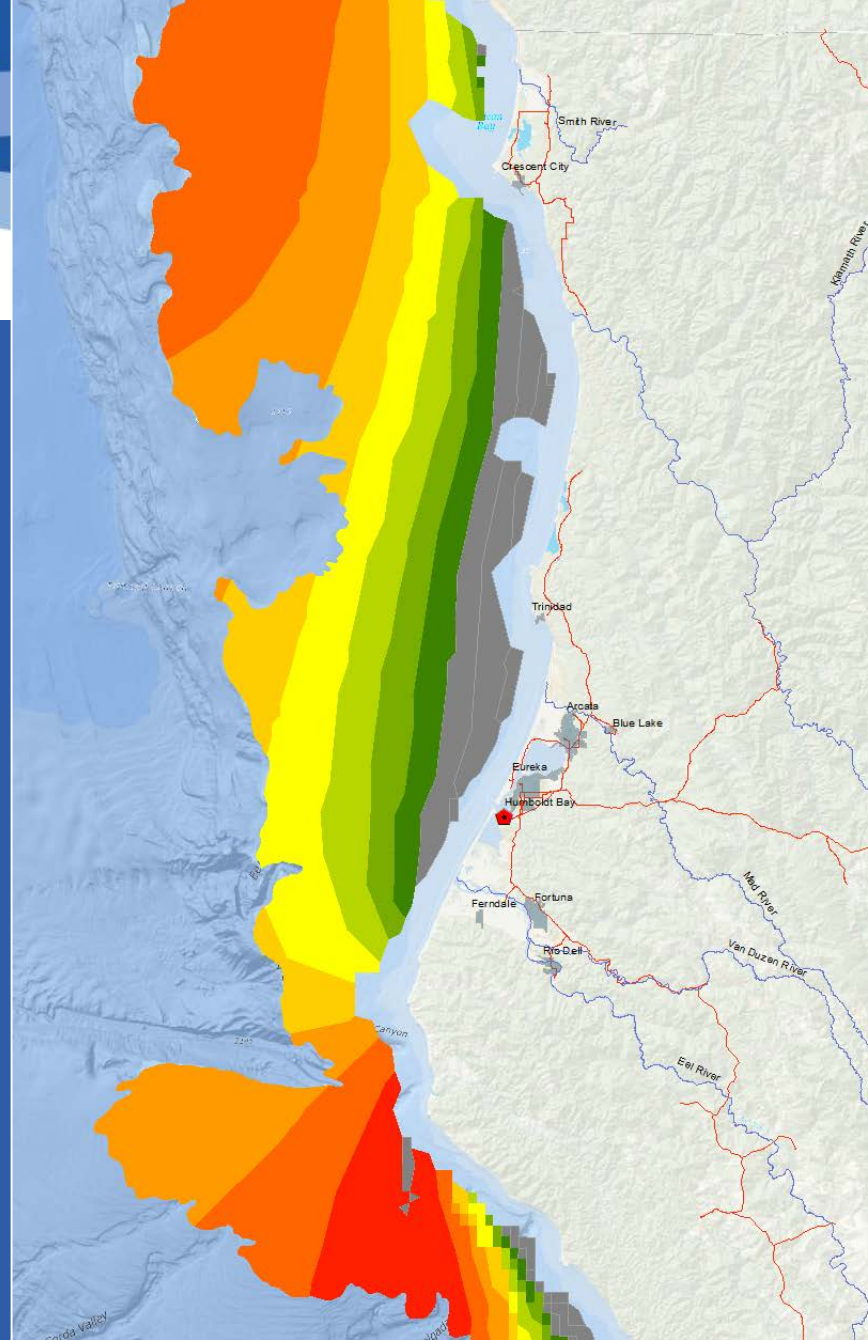
- ✓ Wind Energy
- ✓ Infrastructure
- ✓ Biological and Habitat Data
- ✓ Marine Management and Ocean Use

The screenshot shows the user interface of the California Offshore Wind Energy Gateway. At the top, there is a search bar and navigation tabs for 'Get Started', 'Explore', 'Create', 'Community', and 'My Workspace'. The main content area is titled 'California Offshore Wind Energy - Key Planning Data and Information', created by Scott Flint on Mar 29, 2018. It features a large image of offshore wind turbines and an 'About' section explaining that the gallery provides quick access to key data sets. Below this, there are 'Tags' for 'offshore wind', 'offshore renewable energy', and 'boem ca task force'. A 'Gallery contents' section lists 8 Folders, 36 Datasets, and 6 Maps. At the bottom, a 'Gallery Contents' section displays a grid of map thumbnails with titles such as 'California Commercial Fisheries Data - All Fishing Gear Types; Annual ...', 'CA Offshore Wind Energy: Biological Areas for Marine Bird Species', 'CA Offshore Wind Energy: Biological Areas for Marine Mammals', 'CA Offshore Wind Energy: Biological Habitat Areas', 'CA Offshore Wind Energy: Existing Infrastructure and Industrial Uses', and 'CA Offshore Wind Energy: DOD Use'. Below the maps are four folder icons representing 'Key Biological Data', 'Key Infrastructure Data', 'Key Marine Management and Ocean Use Data', and 'Key Wind Energy Data'.

# North Coast

## Potential Transmission Interconnection

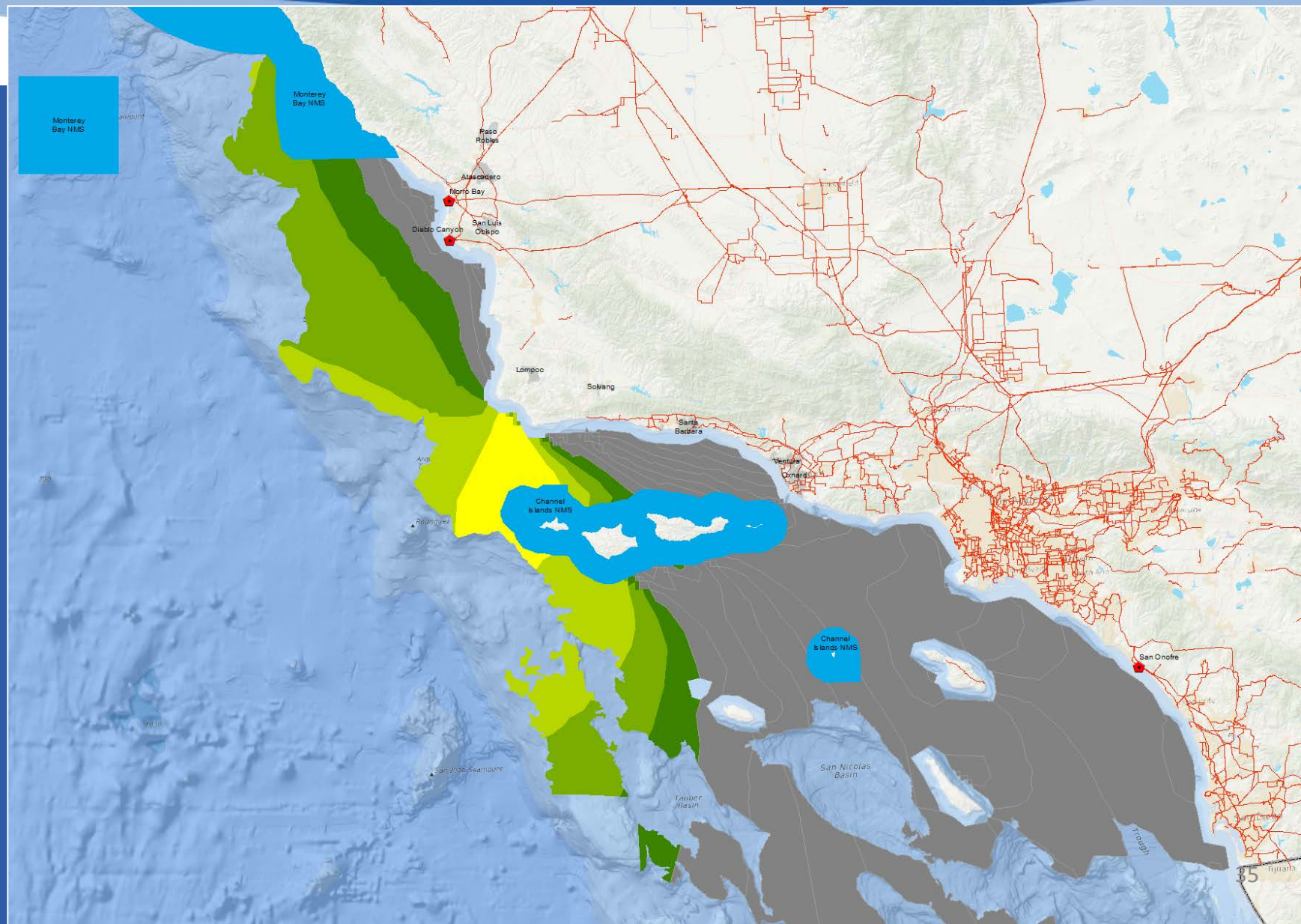
- Humboldt Bay Substation
- Humboldt Bay Powerplant





## Potential Transmission Interconnection

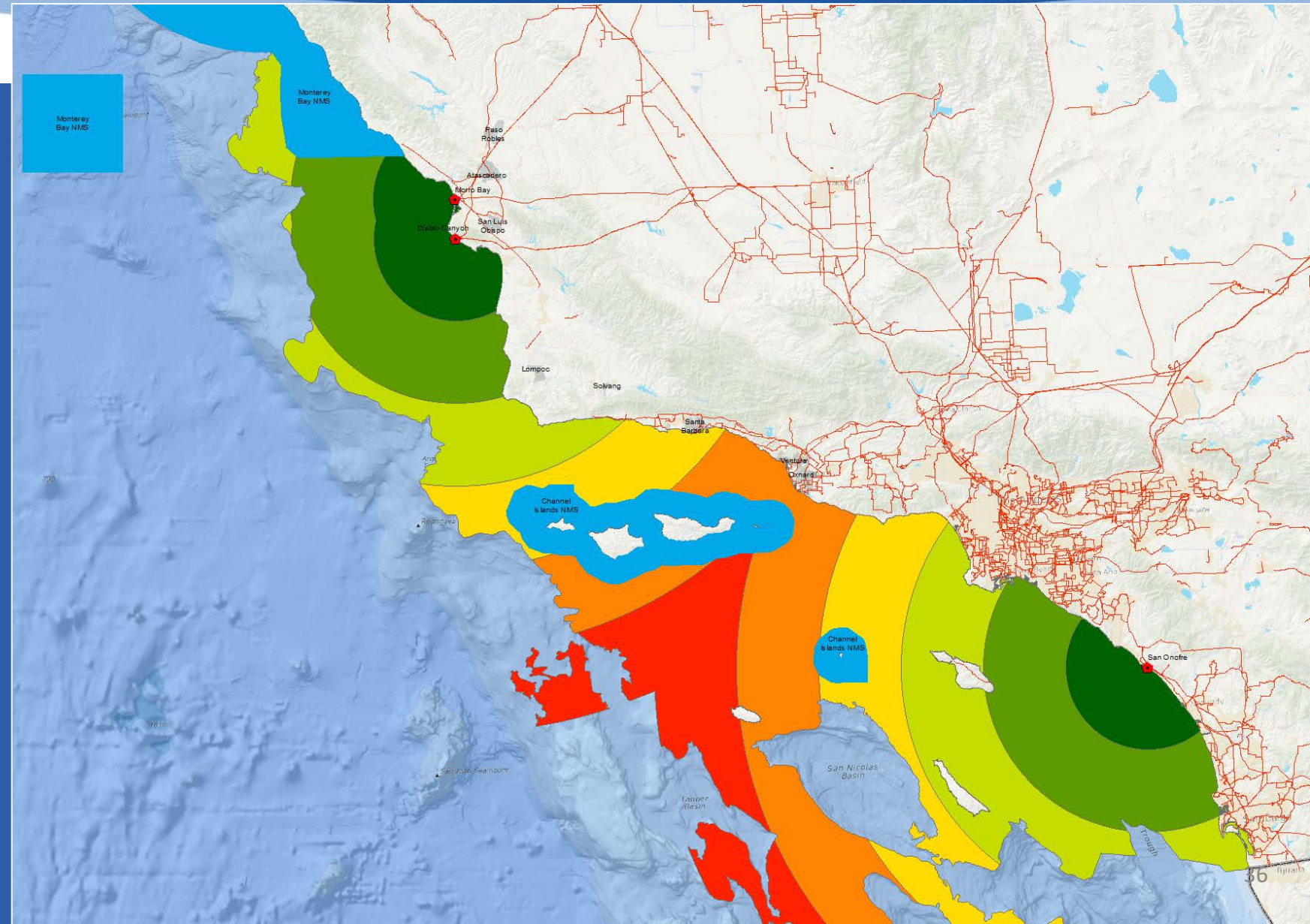
- Morro Bay
- Diablo Canyon
- San Onofre





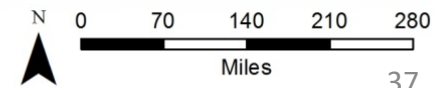
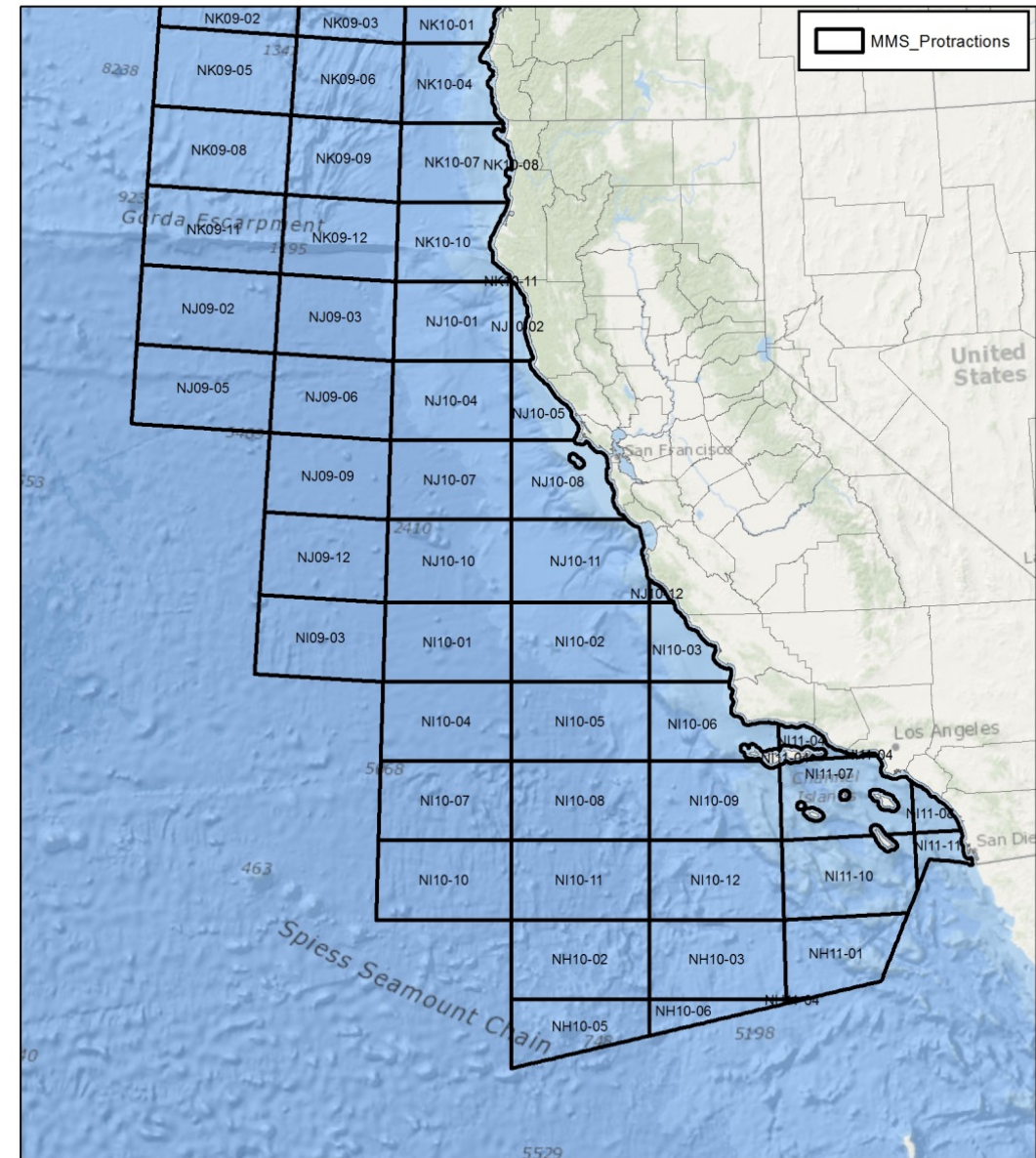
## Potential Transmission Interconnection

- Morro Bay
- Diablo Canyon
- San Onofre



# Aliquots?

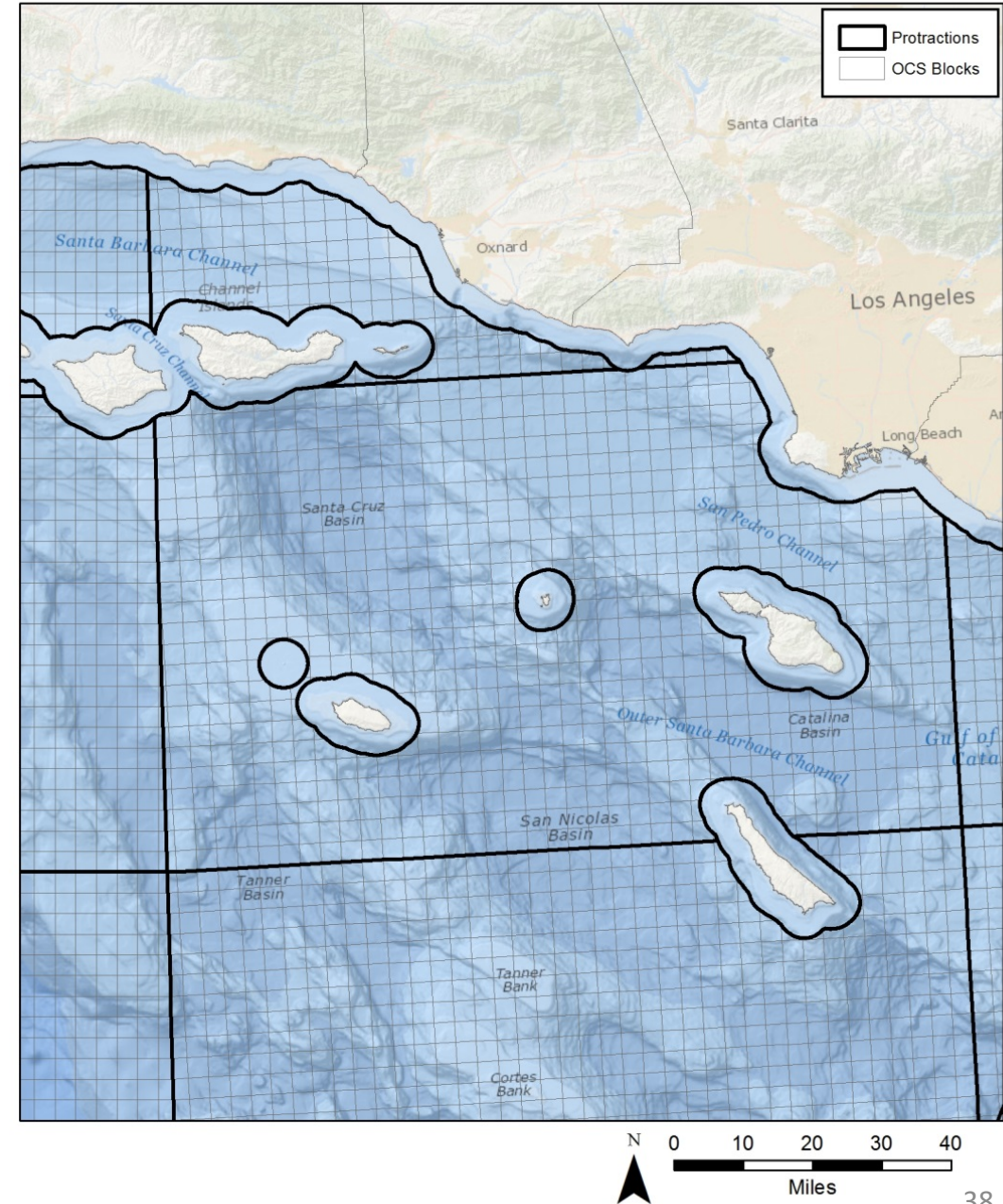
- The ocean is made up of boxes
  - Protractions
    - OCS Blocks
      - Aliquots
- Protractions
  - 1 x 2 degrees
  - Extension of USGS 1:250k maps
  - NJ10-12





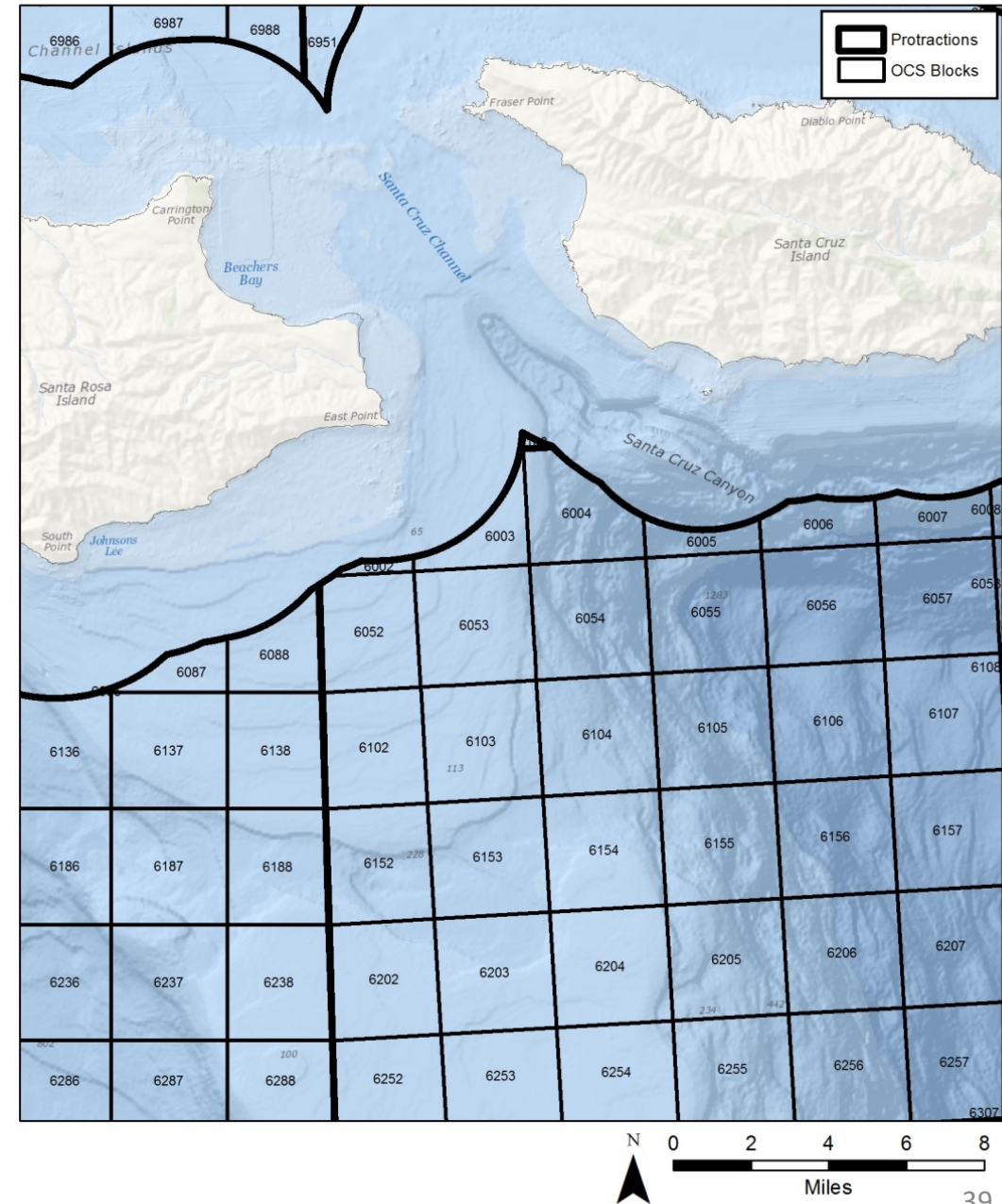
# Aliquots?

- The ocean is made up of boxes
  - Protractions
    - OCS Blocks
      - Aliquots
- OCS Blocks
  - 4800 x 4800 meters
  - 3 x 3 miles



# Aliquots?

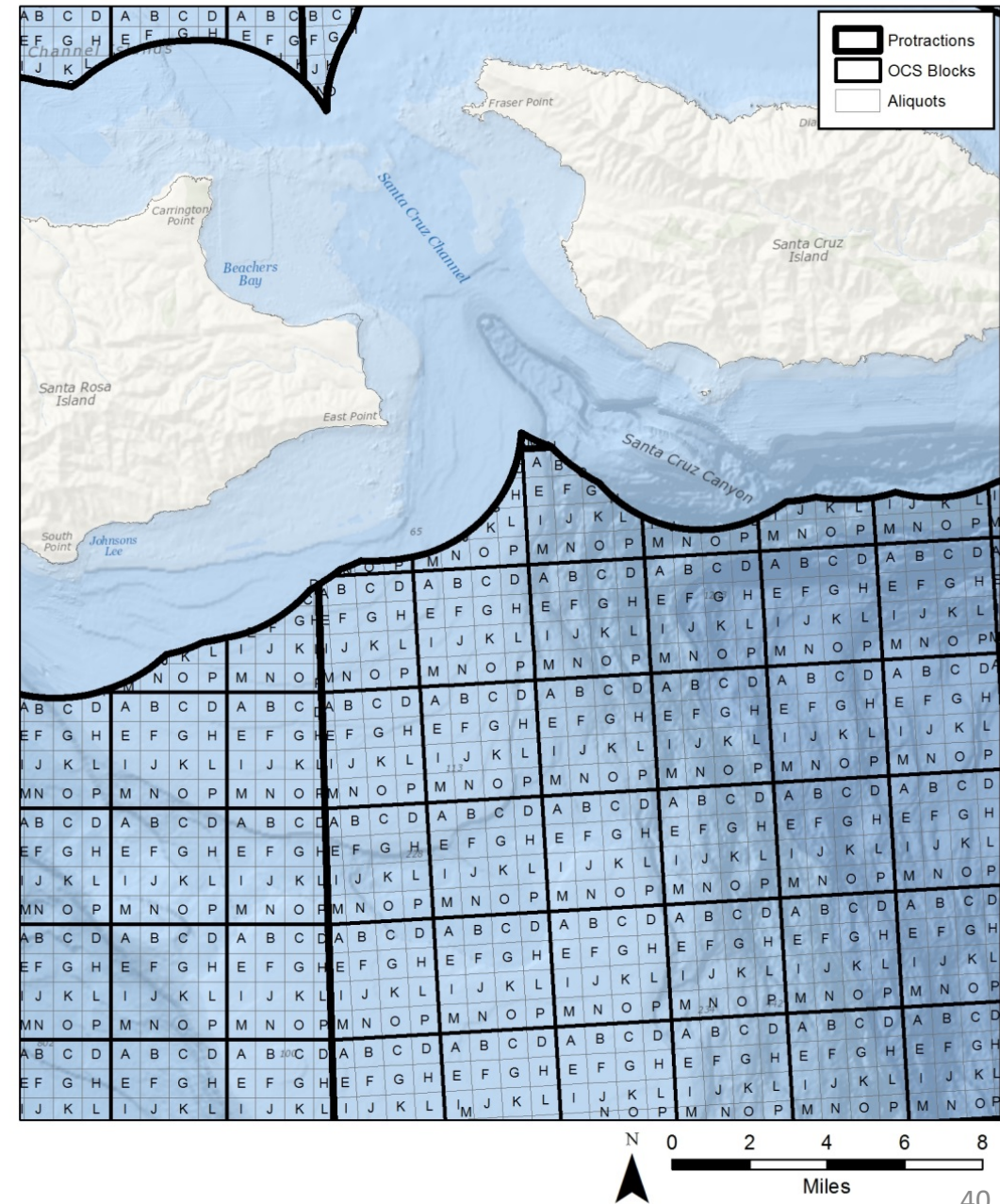
- The ocean is made up of boxes
  - Protractions
    - OCS Blocks
      - Aliquots
- OCS Blocks
  - 4800 x 4800 meters
  - 3 x 3 miles
  - 6001 - 7200





# Aliquots?

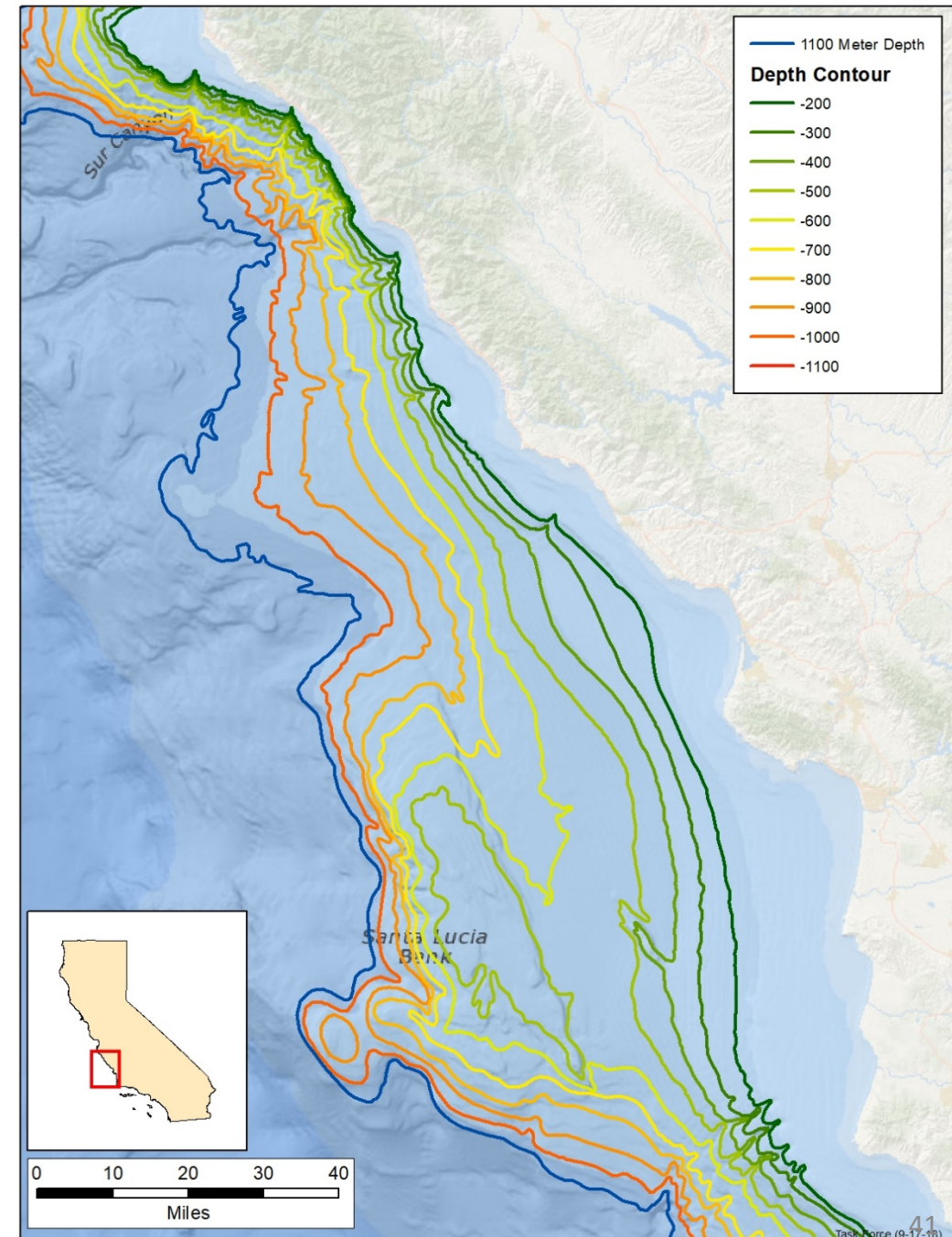
- The ocean is made up of boxes
  - Protractions
    - OCS Blocks
      - Aliquots
- Aliquots
  - 1200 x 1200 meters
  - $\frac{3}{4}$  x  $\frac{3}{4}$  mile
  - NL09-02 6951 E



# Bathymetry

- USGS Data
- Water Depth
- 100 meter contours
- 1100 meter cut off

<https://coastalmap.marine.usgs.gov/GISdata/regional/westcoast/bathymetry/caorvall.htm>





# Bathymetry

- USGS Data
- Water Depth
- 100 meter contours
- 1100 meter cut off

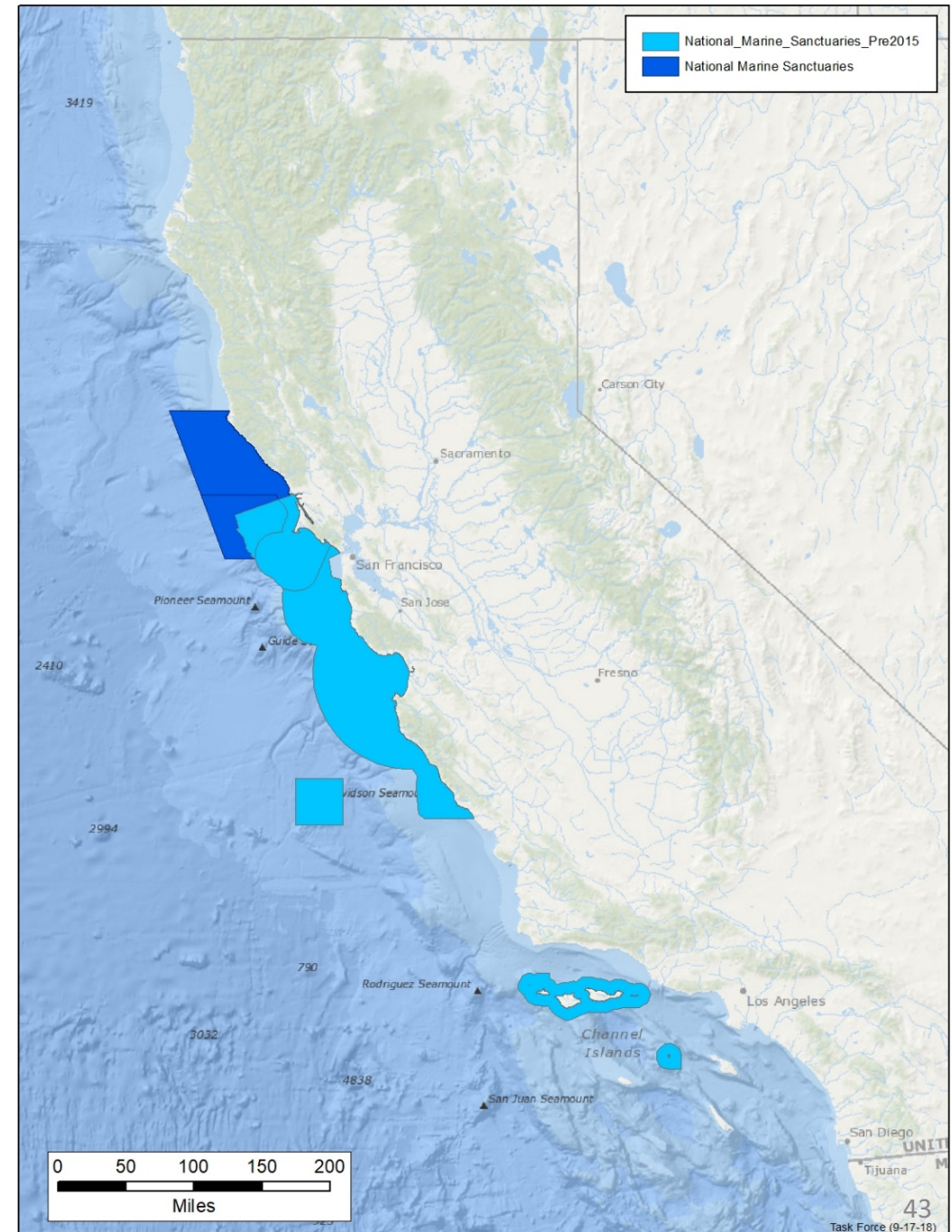
<https://coastalmap.marine.usgs.gov/GISdata/regional/westcoast/bathymetry/caorwall.htm>





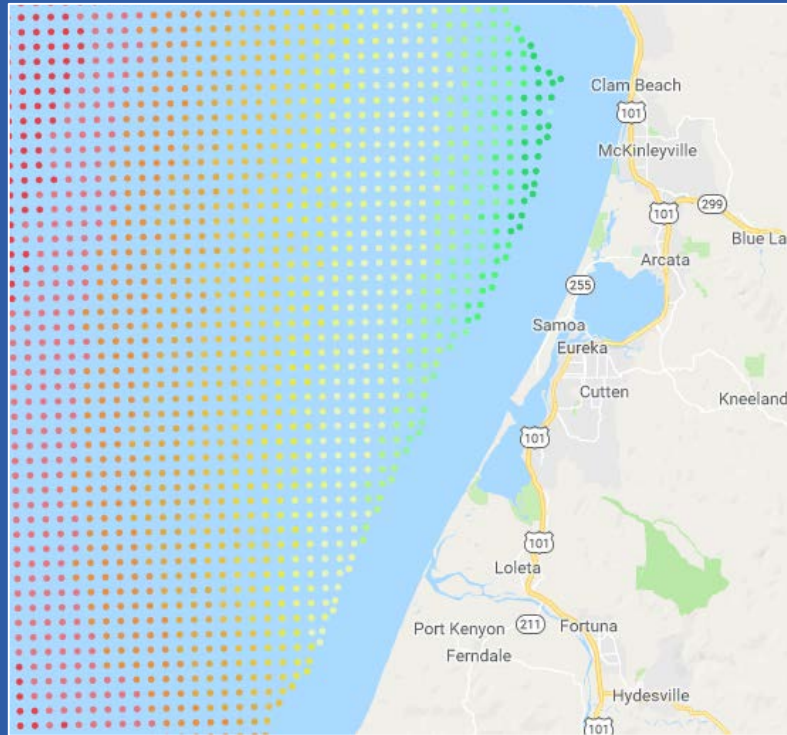
# National Marine Sanctuaries

- Data from NMS
- Expanded in 2015



# Wind Speed Data

- NREL Wind Prospector



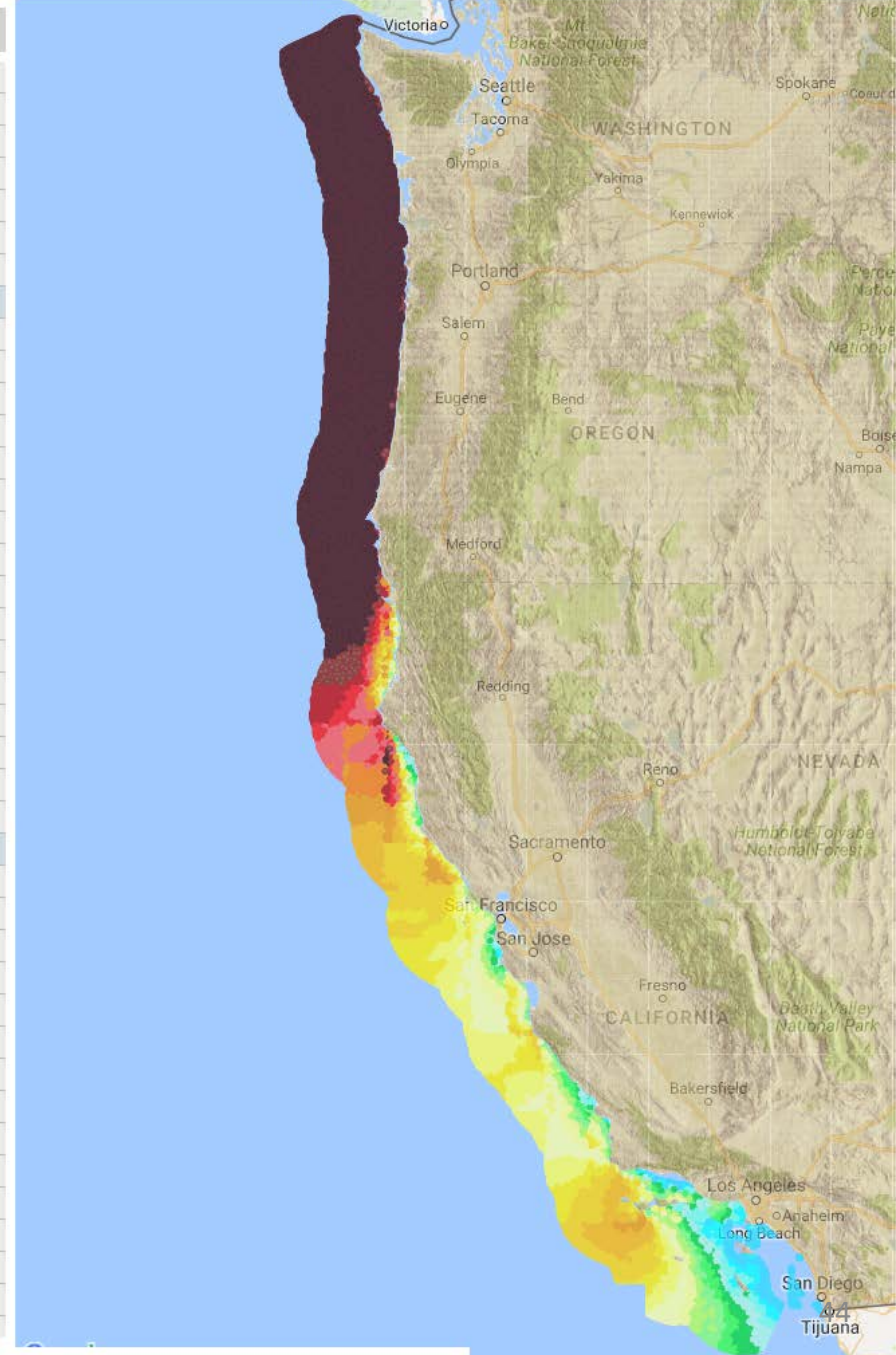
<https://maps.nrel.gov/wind-prospector/#/?al=kMGIR-%255Bv%255D%3D1%26qCw3hR%255Bv%255D%3D1%26qCw3hR%255Bd%255D%3D1&bl=road&ct=0&lr=0&mc=40.21244%2C-91.625976&v1=4>

Select and Query Data Analysis & Downloads



Wind Prospector

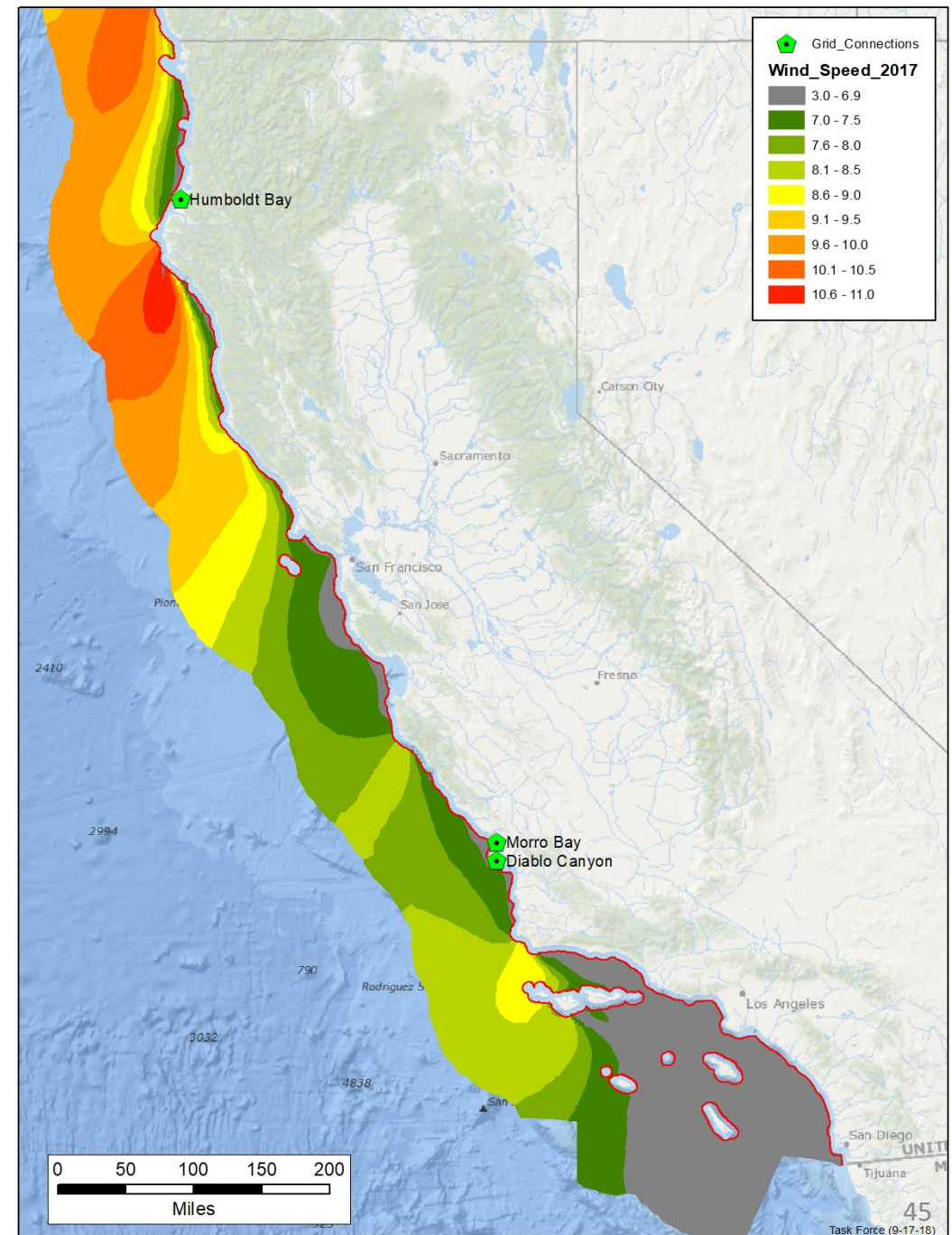
Data Layers	Legend	Query
<input type="checkbox"/> County & State Borders		
<input type="checkbox"/> Environmental Concern		
<input type="checkbox"/> Infrastructure		
<input type="checkbox"/> Land Ownership		
<input type="checkbox"/> Regions & Study Areas		
<input type="checkbox"/> Site Analysis		
<b>Topography</b>		
<input checked="" type="checkbox"/> Hillshade		
<input type="checkbox"/> Land Cover		
<input type="checkbox"/> Slope (< 20%)		
<input type="checkbox"/> Hydrology		
<b>Wind Resource</b>		
<input type="checkbox"/> Land-Based Wind Speed 100m		
<input type="checkbox"/> Land-Based Wind Speed 80m		
<input type="checkbox"/> Offshore Wind Speed 90m		
<input type="checkbox"/> Wind Power Class (Exclusions Applied)		
<input type="checkbox"/> Wind Power Class (No Exclusions)		
<input type="checkbox"/> Wind Toolkit		
<input type="checkbox"/> Eastern Wind Dataset		
<input type="checkbox"/> Western Wind Dataset		
<input type="checkbox"/> NDBC Verification Points		
<input type="checkbox"/> Potential Wind Capacity		
<b>Pacific Monthly Offshore Wind Speed</b>		
<input type="checkbox"/> Wind Speed - Annual		
<input checked="" type="checkbox"/> Wind Speed - January		
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<input type="checkbox"/> Wind Speed - October		
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<input type="checkbox"/> Wind Speed - December		
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<input type="checkbox"/> Hawaii Monthly Offshore Wind Spe...		
<input type="checkbox"/> USVI		
<input type="checkbox"/> Philippines		





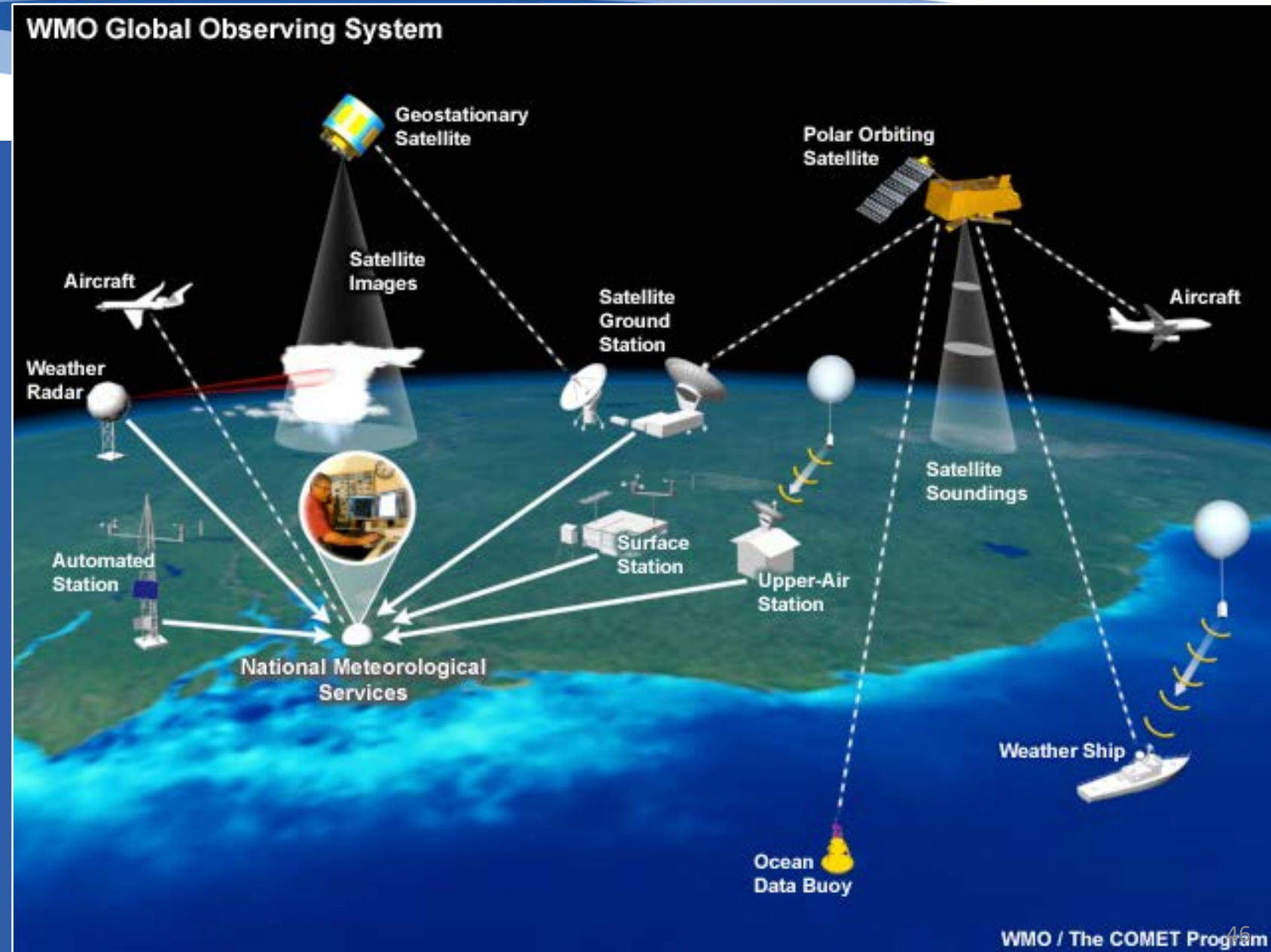
# Wind Speed Data

- National Renewable Energy Lab (NREL)
- Subset of NREL Wind ToolKit
- Available at NREL Wind Prospector



# Wind Speed

- Many Data Sources
- Modeled to Provide consistent dataset for USA
- WIND Toolkit





# Wind Speed Data

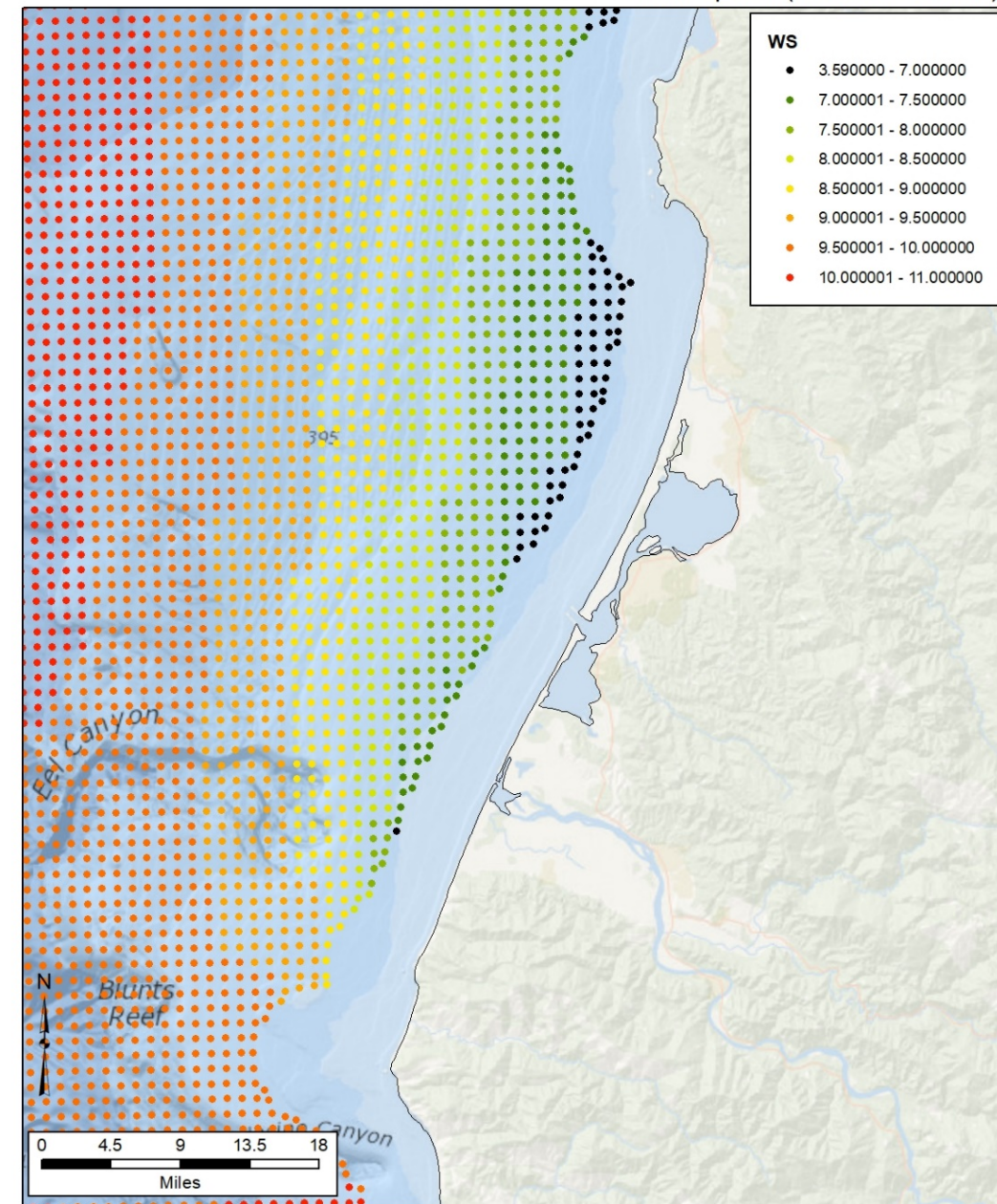
- Aliquot Grid
- Hourly Wind Speed
- By Month (Jan)

jan\_pacific

	Aliquot	JAN_WS	JAN_H00_WS	JAN_H01_WS	JAN_H02_WS
▶	NL09-05-6001A	9.17	8.97	9.15	9.15
	NL09-08-6001A	8.95	8.67	8.77	8.78
	NL10-05-6001A	9.17	8.97	9.15	9.15
	NL10-08-6001A	8.95	8.67	8.77	8.78
	NL10-11-6001A	8.47	8.32	8.35	8.49
	NI10-11-6001A	4.06	3.78	3.81	3.74
	NI09-03-6001A	7.3	7.55	7.32	7.18
	NI10-06-6001A	7.31	7.56	7.48	7.32
	NJ09-02-6001A	5.94	5.72	5.71	5.8
	NJ09-05-6001A	7.84	7.86	7.86	7.87



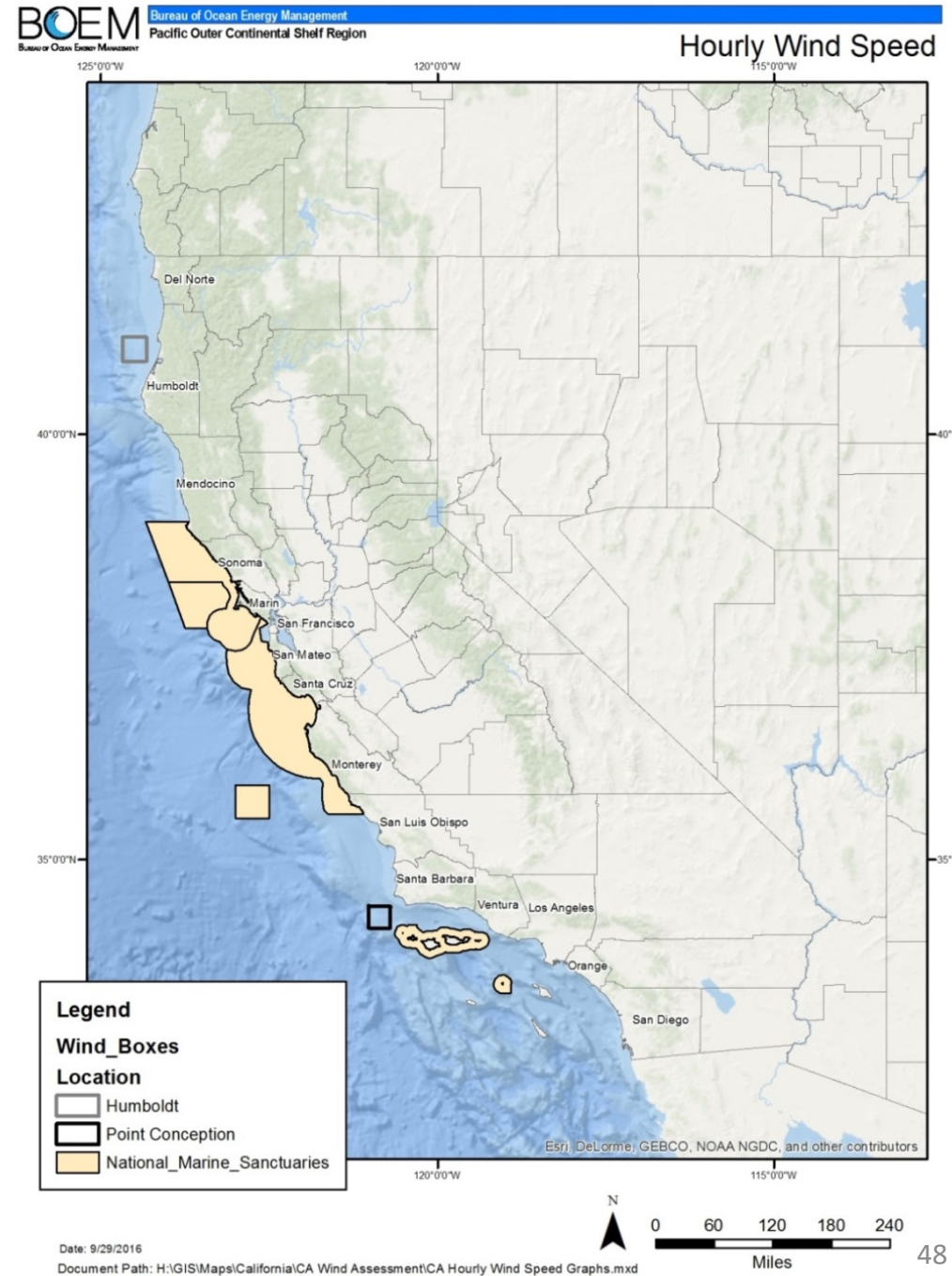
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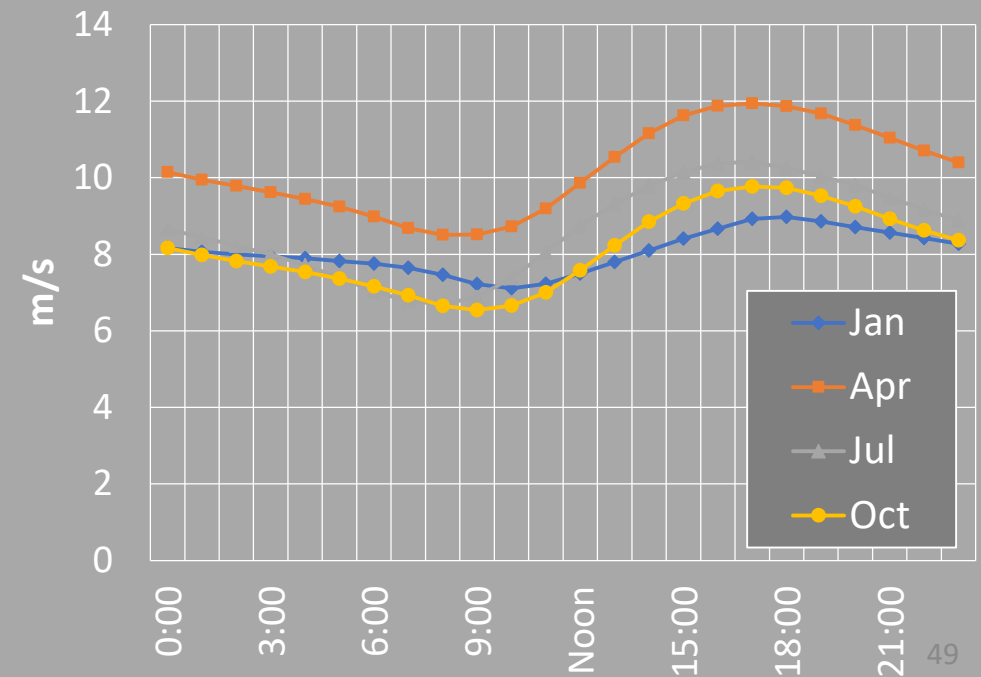
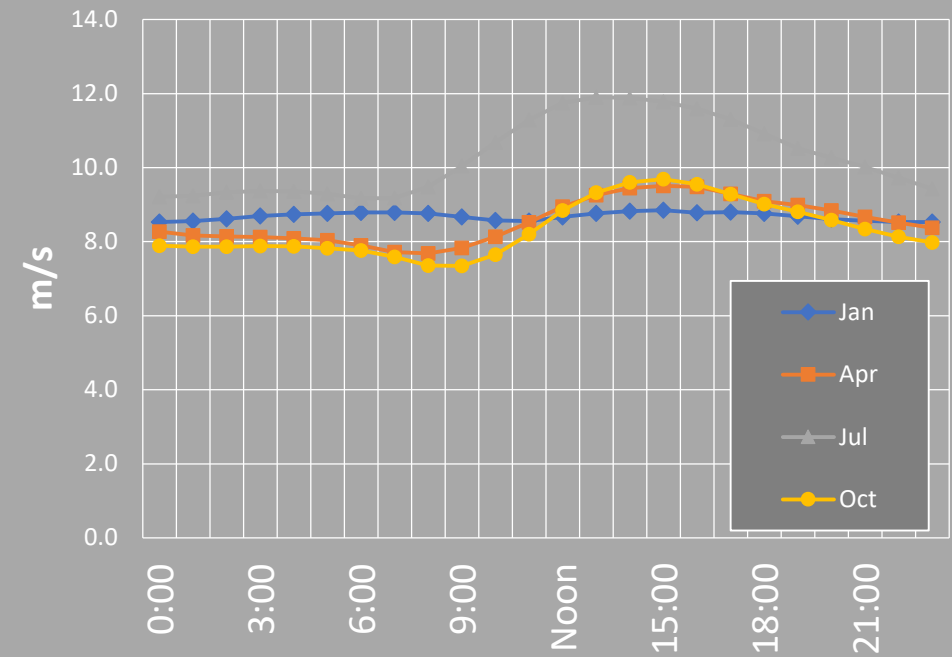
# Hourly Wind Speed

- Hourly Wind Data by Month
- “What’s the average wind speed at 2:00 in October?”

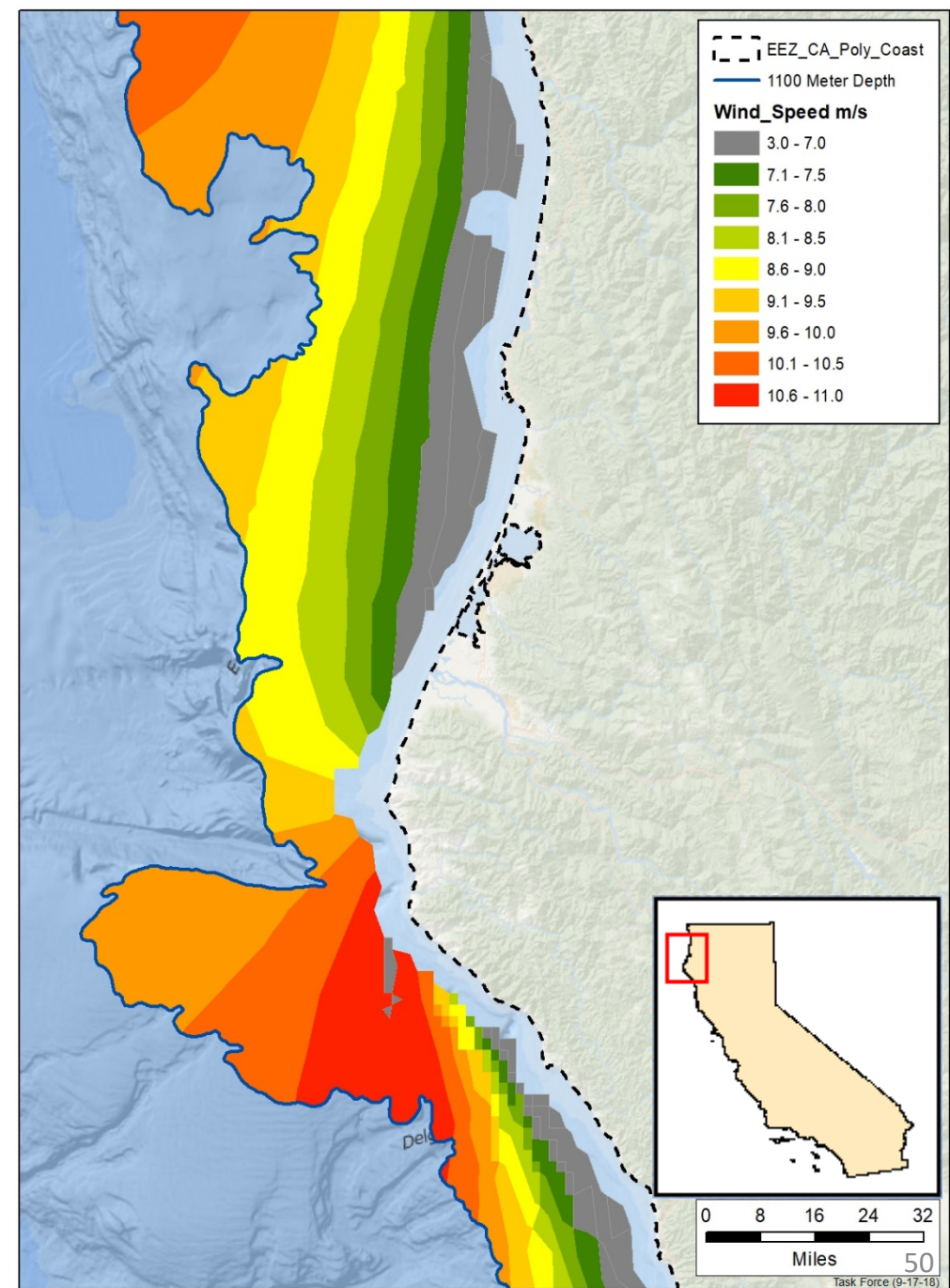
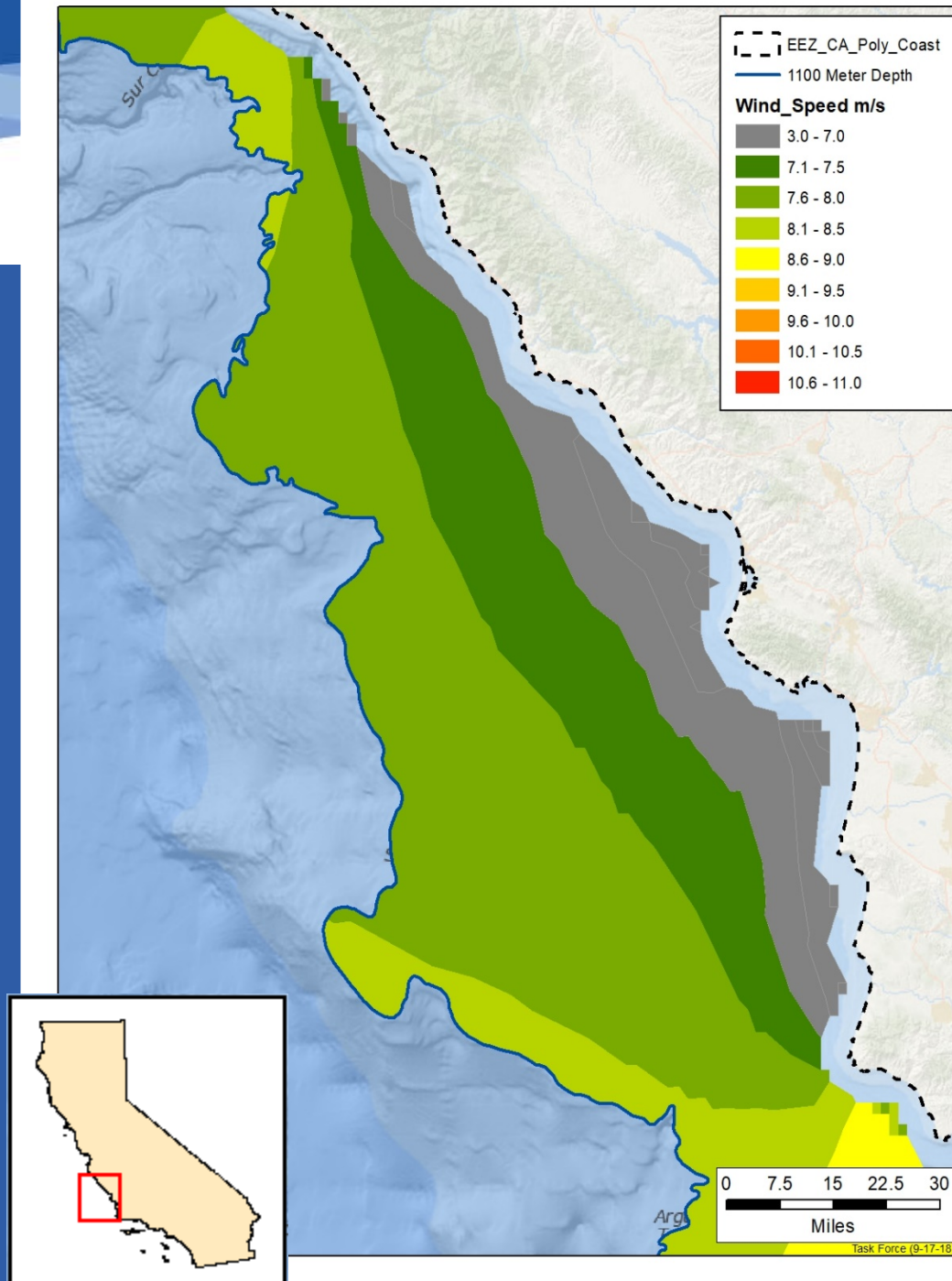


# Hourly Wind Speed

- Hourly Wind Data by Month
- “What’s the average wind speed at 2:00 in October?”

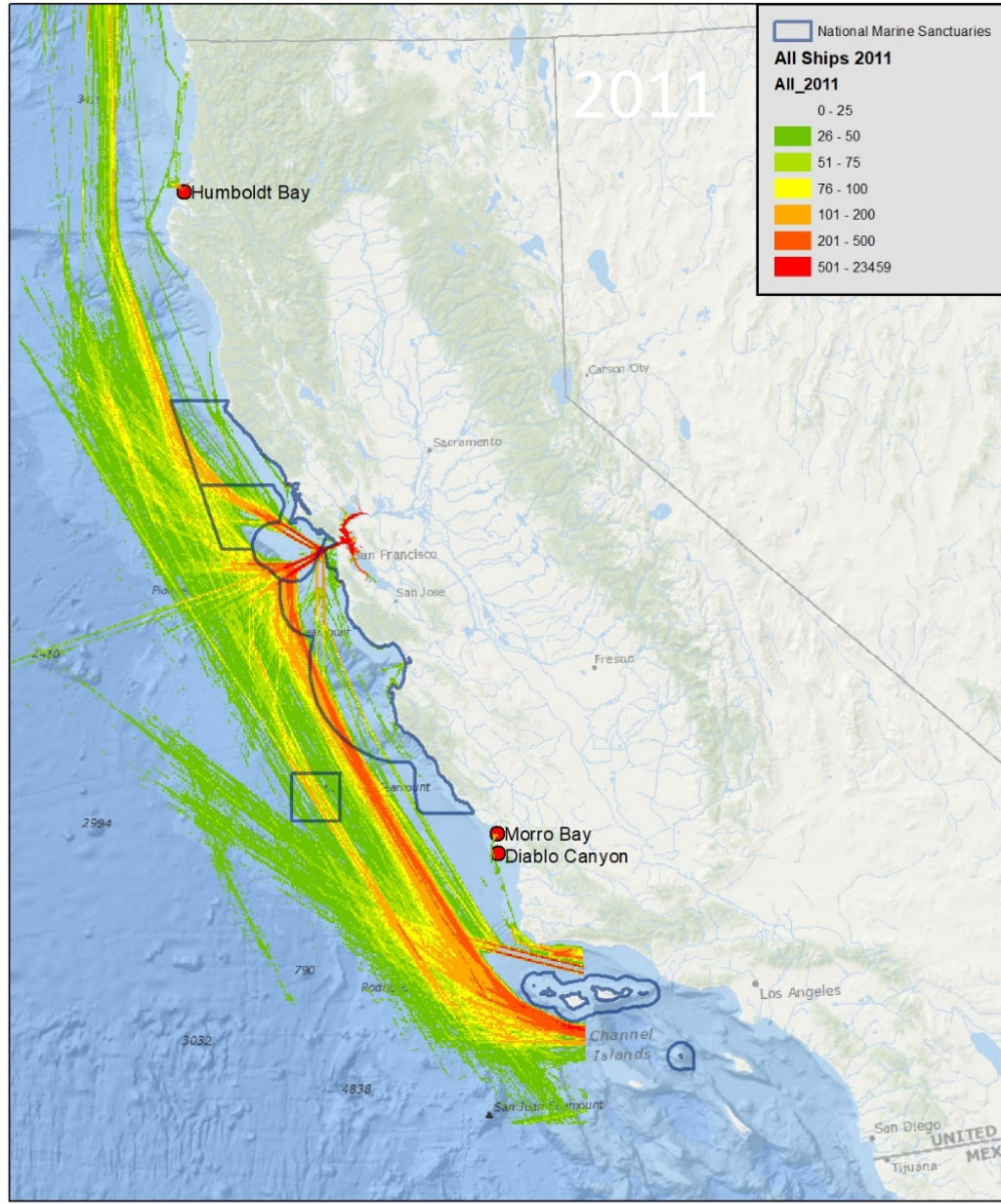


# Annual Average Wind Speed

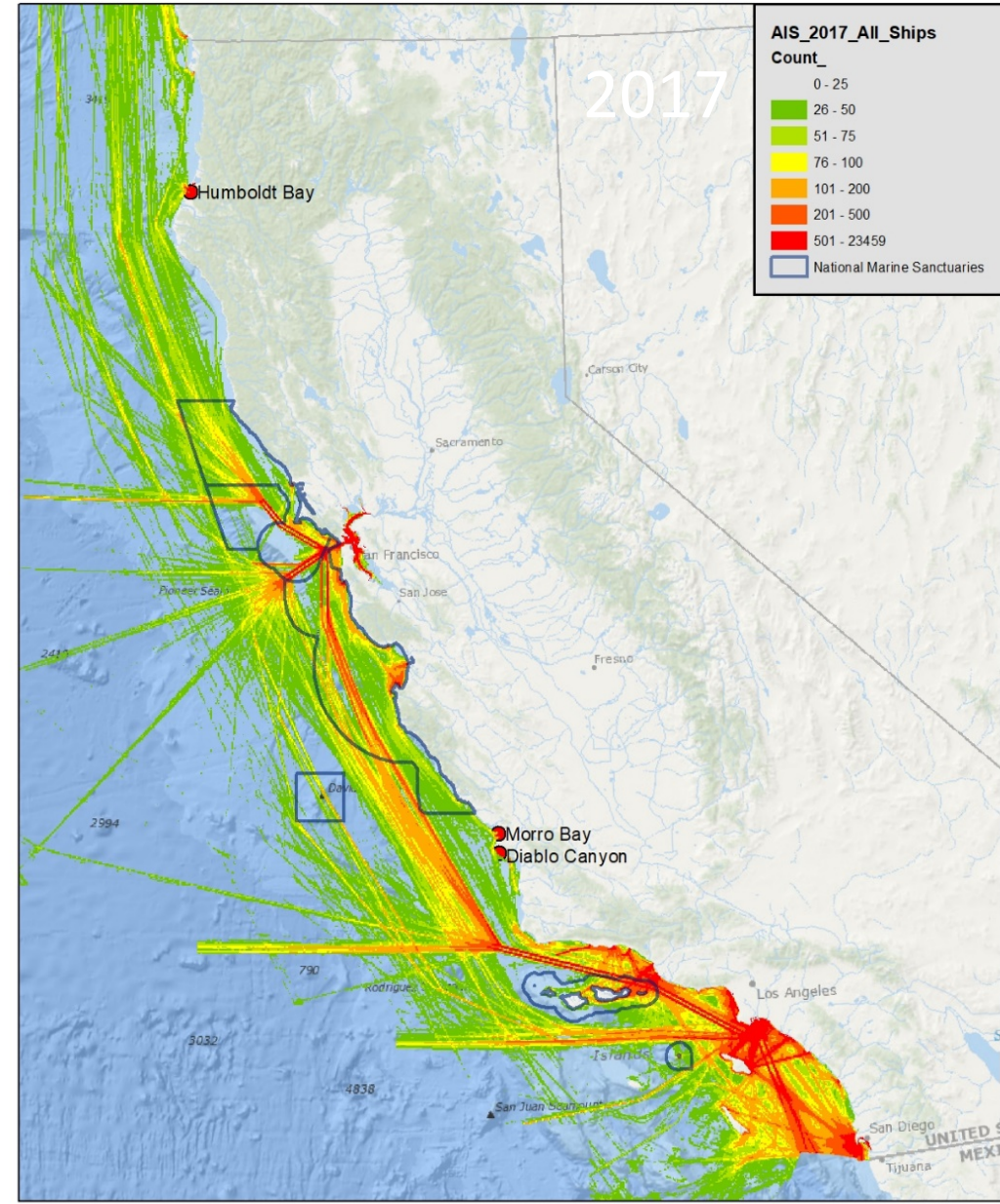
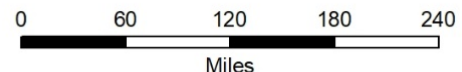




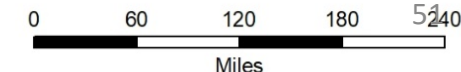
# AIS Vessel Traffic



D:\Data\California\CALL AREA July 2018\CA Wind Call Area (7-24-18).mxd



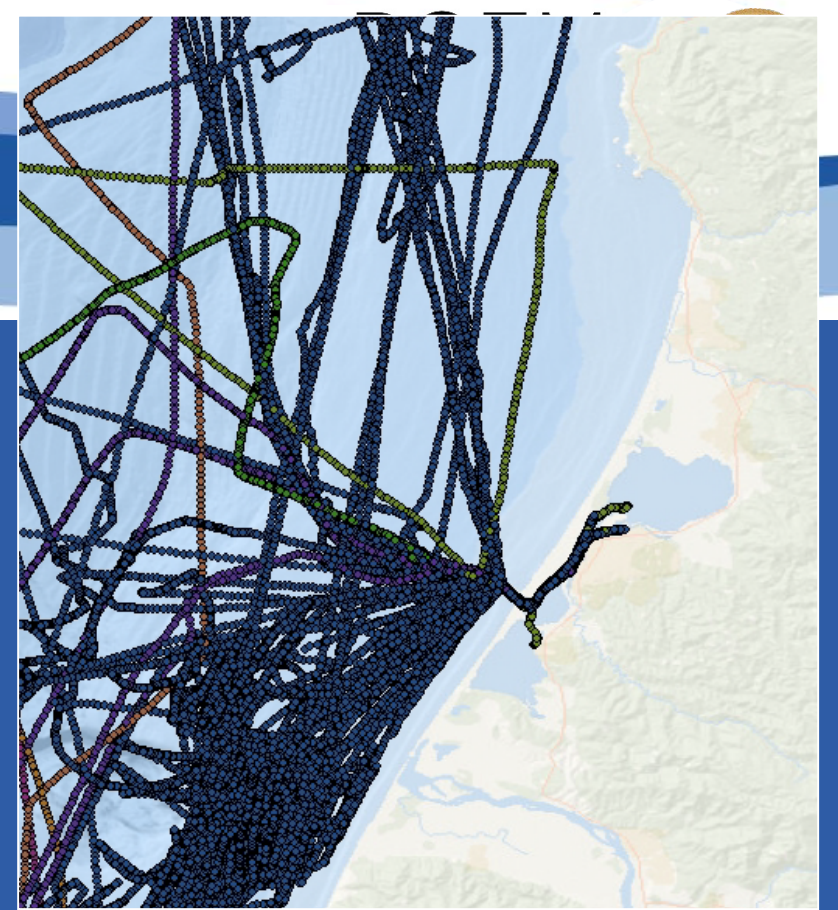
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# AIS Vessel Traffic

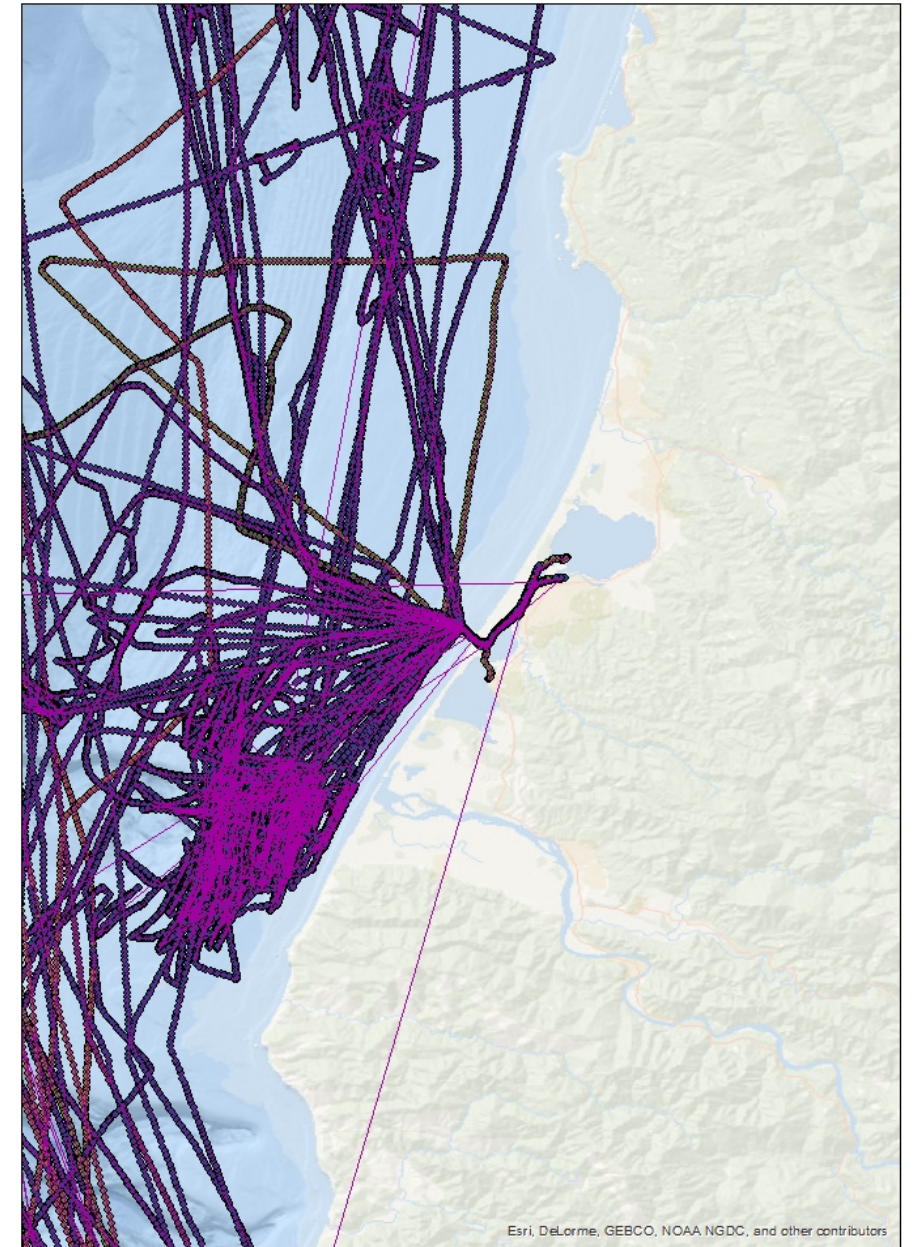
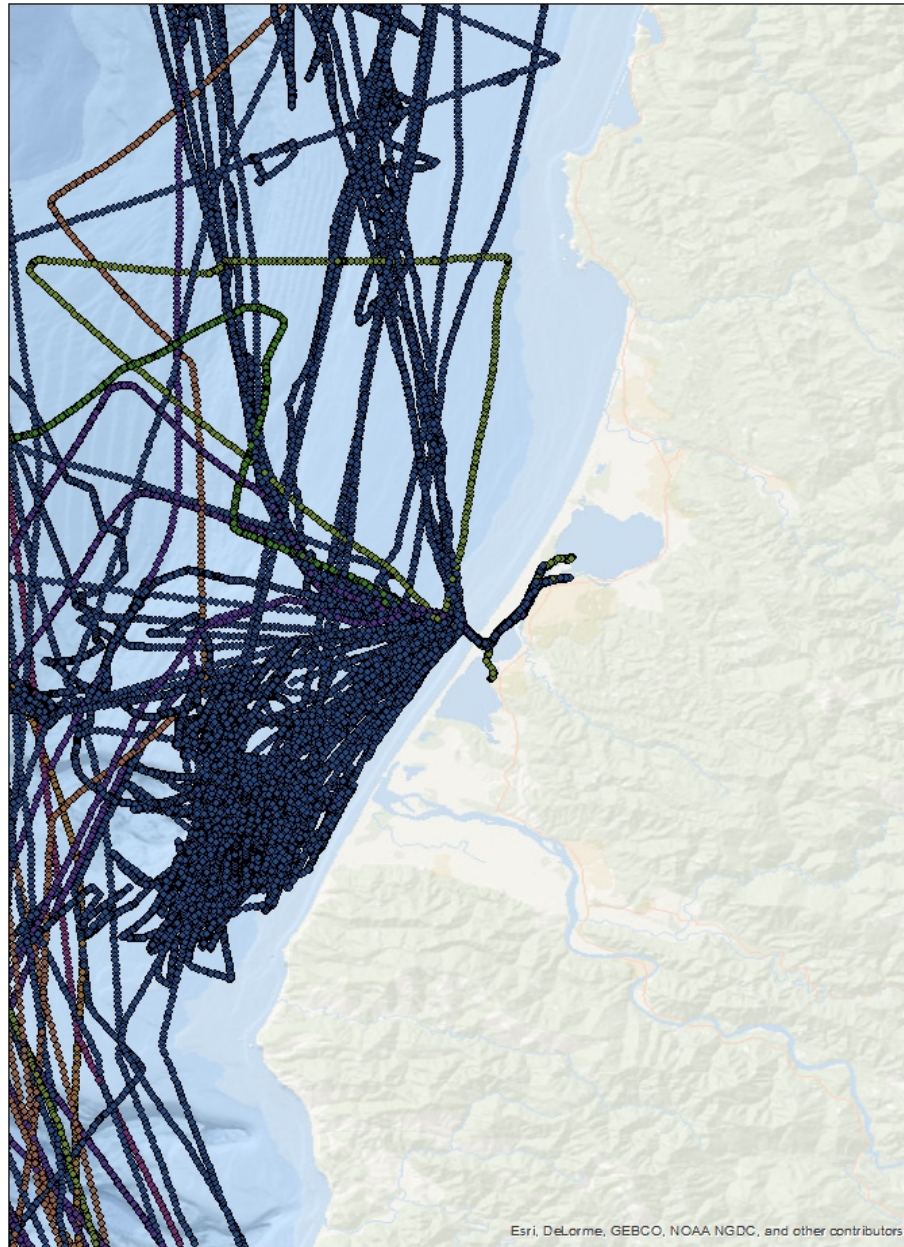
- Automatic Identification System
  - Air Traffic Control for Ships
- Vessel ID, Date, Type, Size, Status...
- 20,000,000 points / UTM zone / month



MMSI *	BaseDateTime	VesselType	Length	Width	DimensionComponents	Status
303406020	1/31/2014 11:59:57 PM	Fishing	100	0	50,50,0,0	Under way using
366420467	1/31/2014 11:59:57 PM	Cargo ships	50	9	36,14,6,3	Under way using
319620030	2/1/2014	Pleasure craft	88	14	32,56,5,9	Moored
368000925	2/1/2014	Tanker(s)	182	32	151,31,16,16	Under way using
310000556	2/1/2014 12:00:02 AM	Passenger ship	271	40	26,245,20,20	Moored
366939041	2/1/2014 12:00:02 AM	Engaged in dred	0	0	0,0,0,0	Under way using
368009303	2/1/2014 12:00:03 AM	Fishing	17	7	8,9,3,4	Under way using
367800690	2/1/2014 12:00:03 AM	Towing and len	38	12	11,27,6,6	Under way using
367506509	2/1/2014 12:00:03 AM	Towing	0	0	0,0,0,0	Under way using

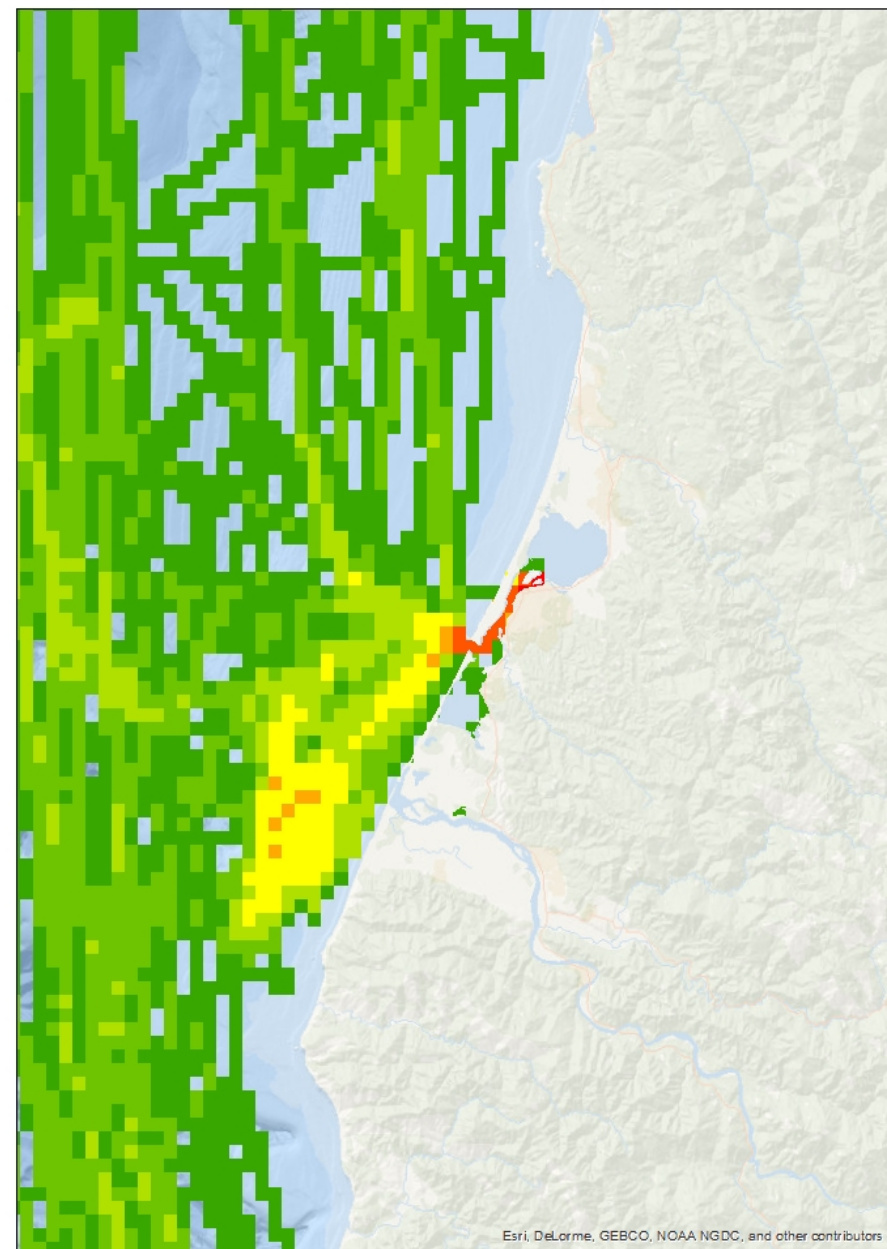
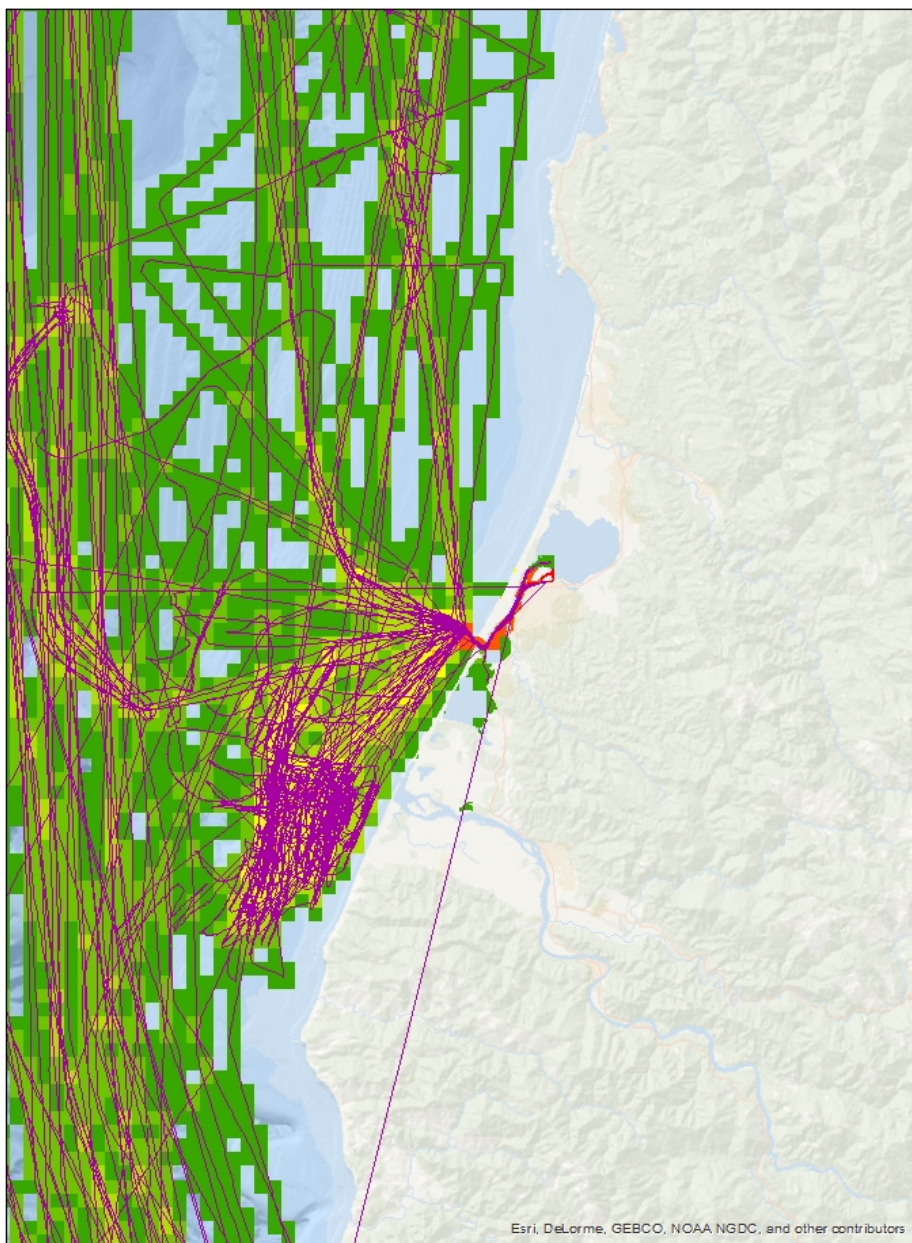


# AIS Vessel Traffic

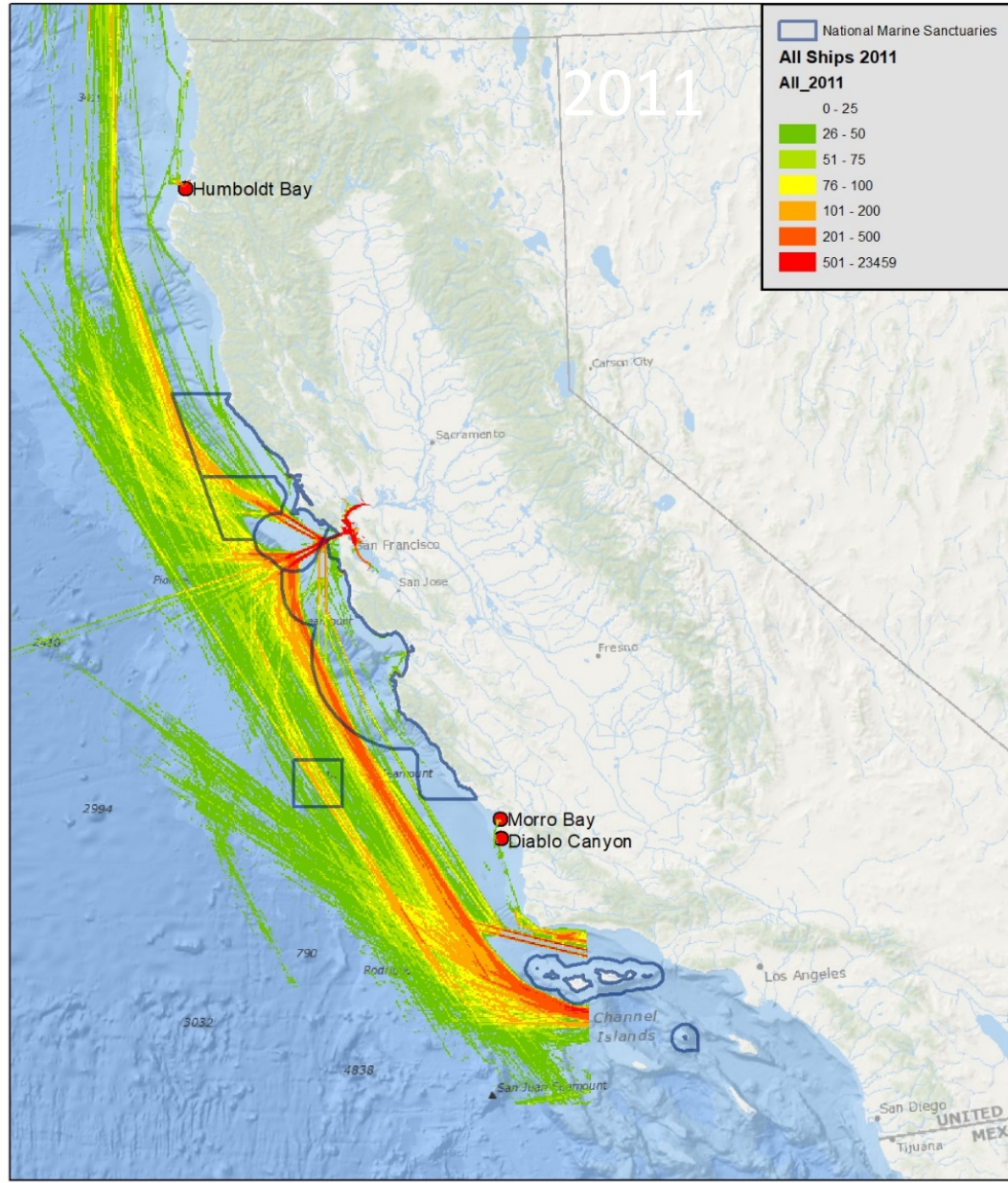




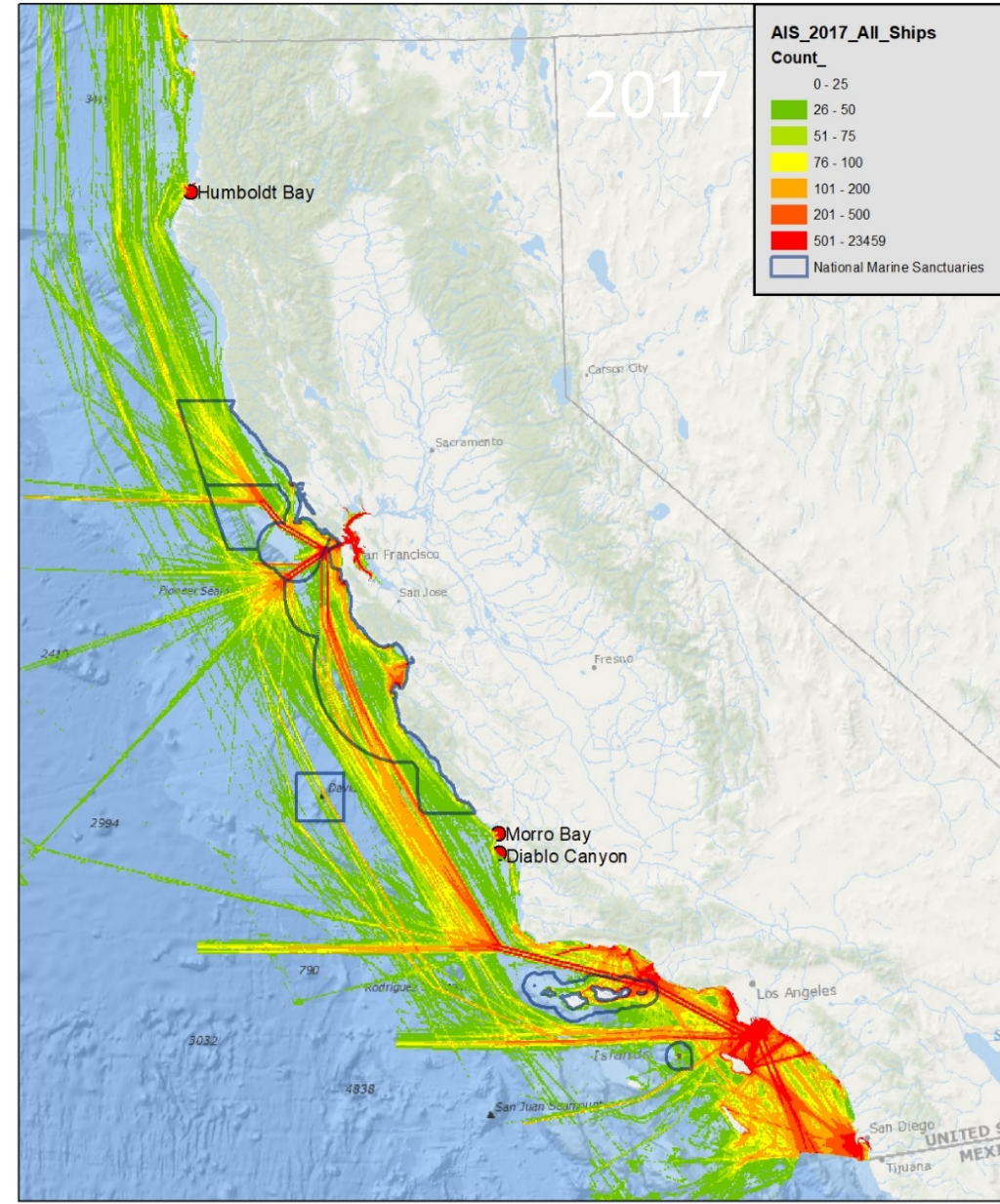
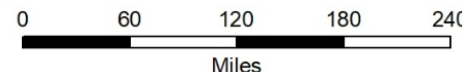
# AIS Vessel Traffic



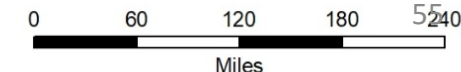




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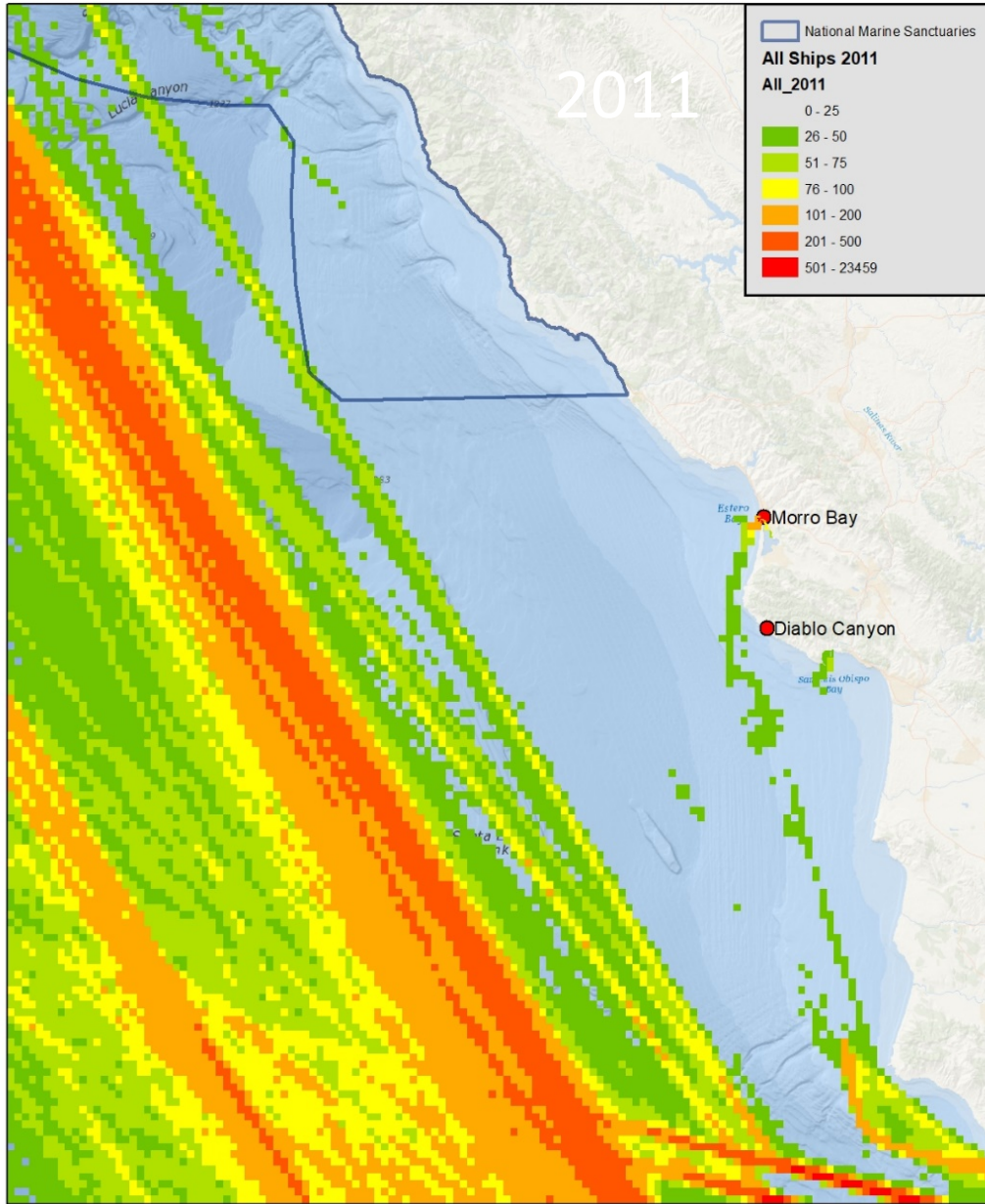


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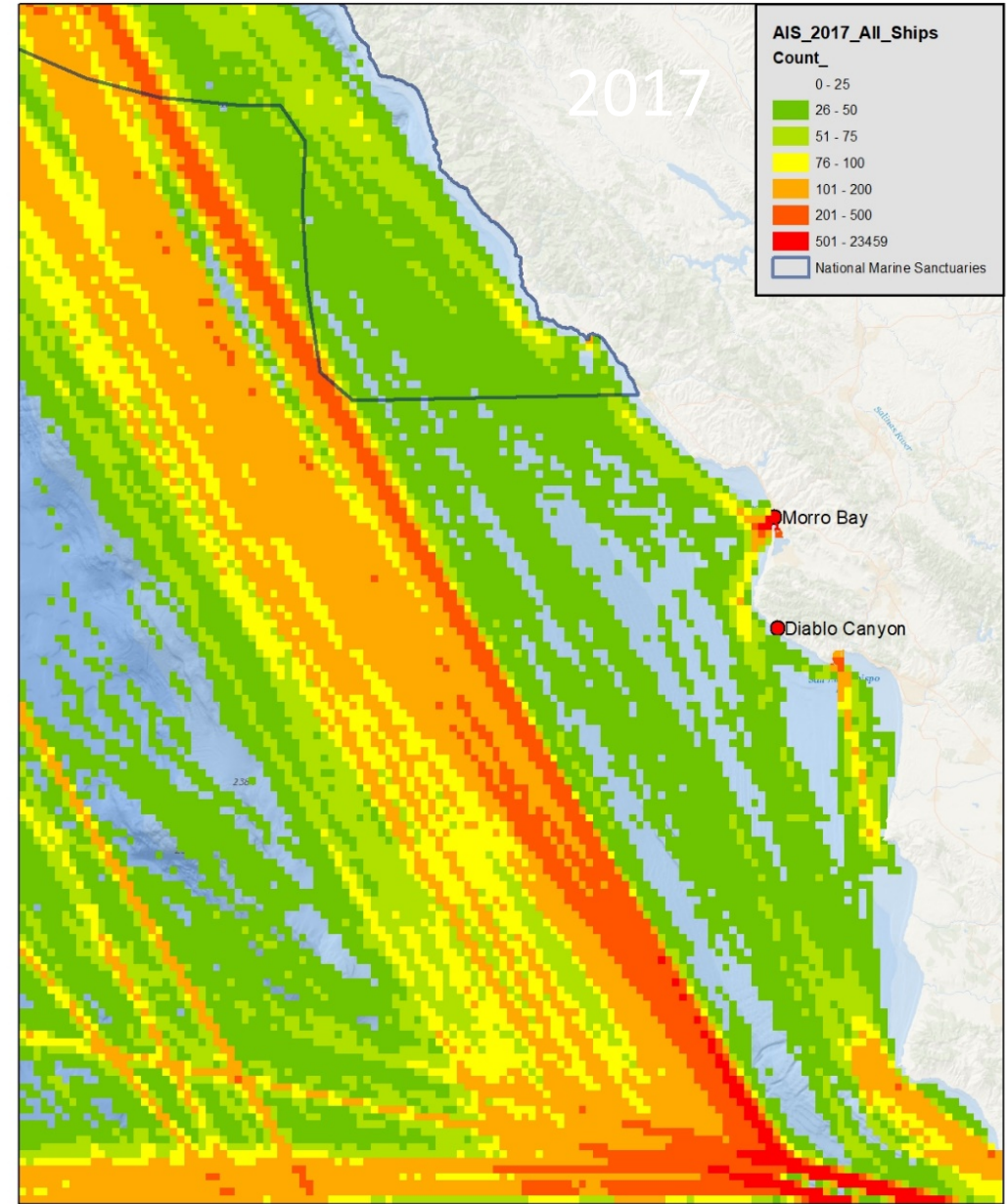
# All Ships





D:\Data\California\CALL AREA July 2018\CA Wind Call Area (7-24-18).mxd

0 10 20 30 40  
 Miles



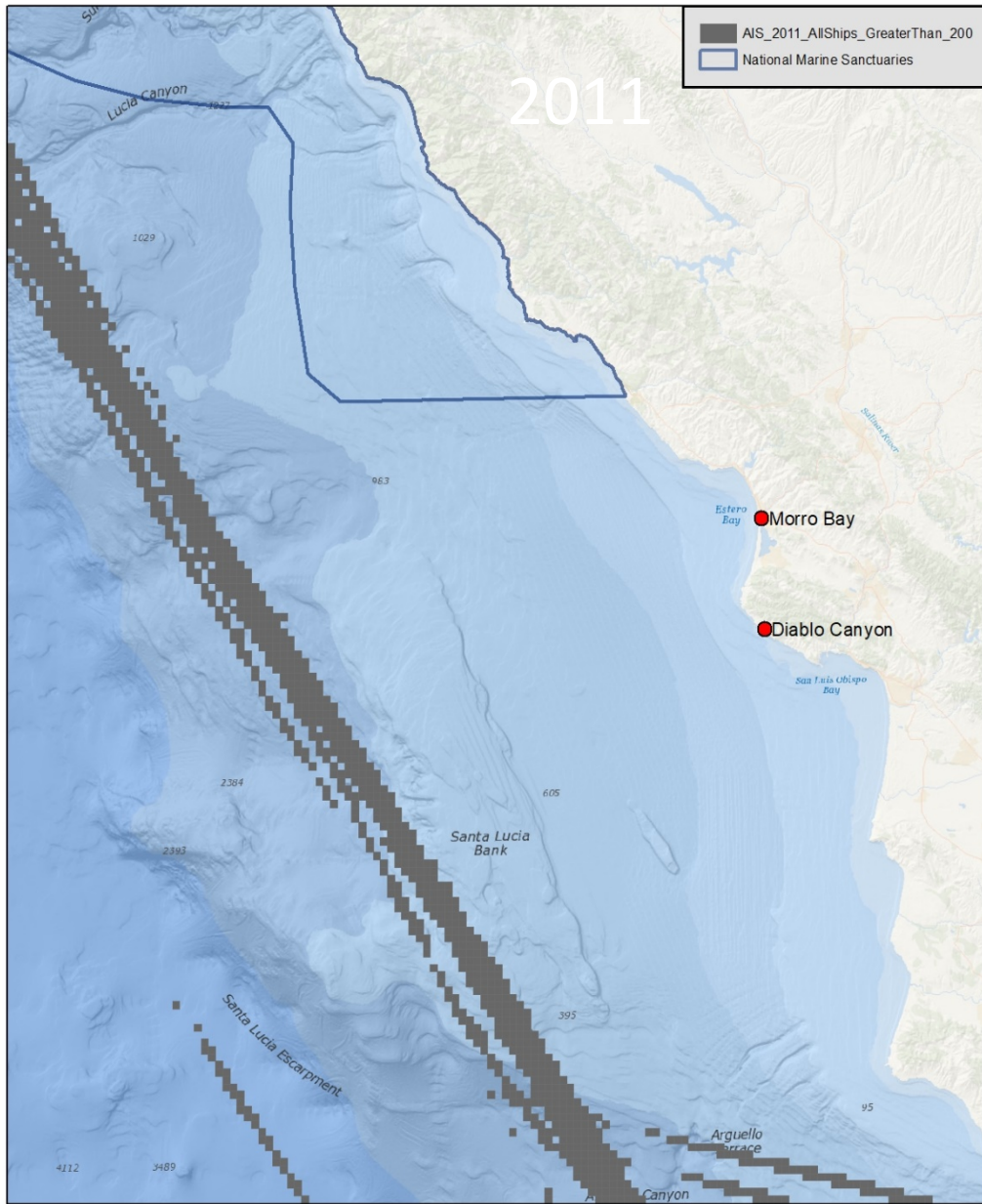
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0 10 20 30 50 40  
 Miles

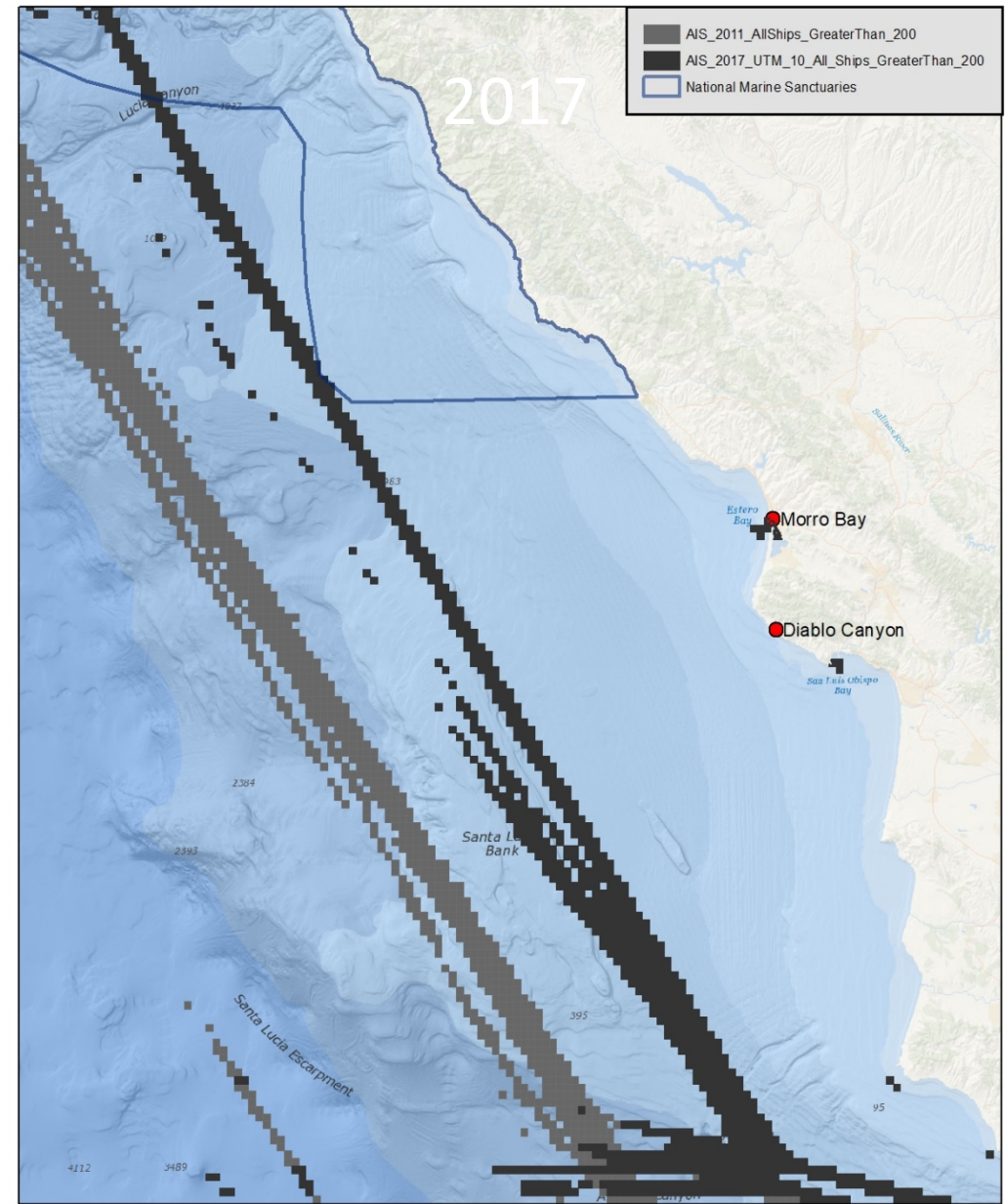
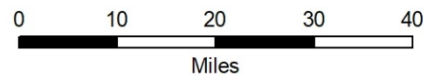
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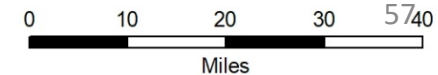




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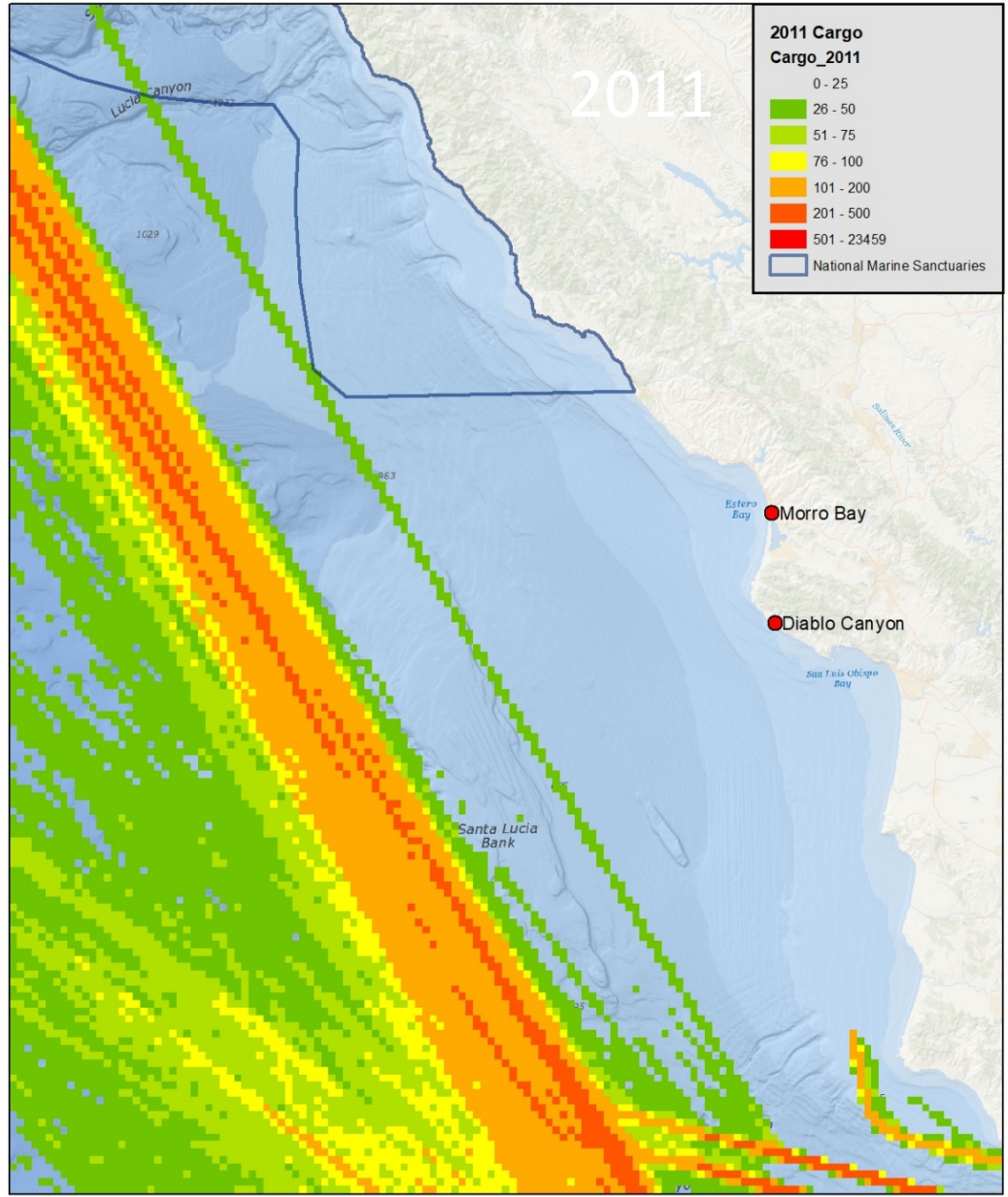


All  
Ships  
> 200

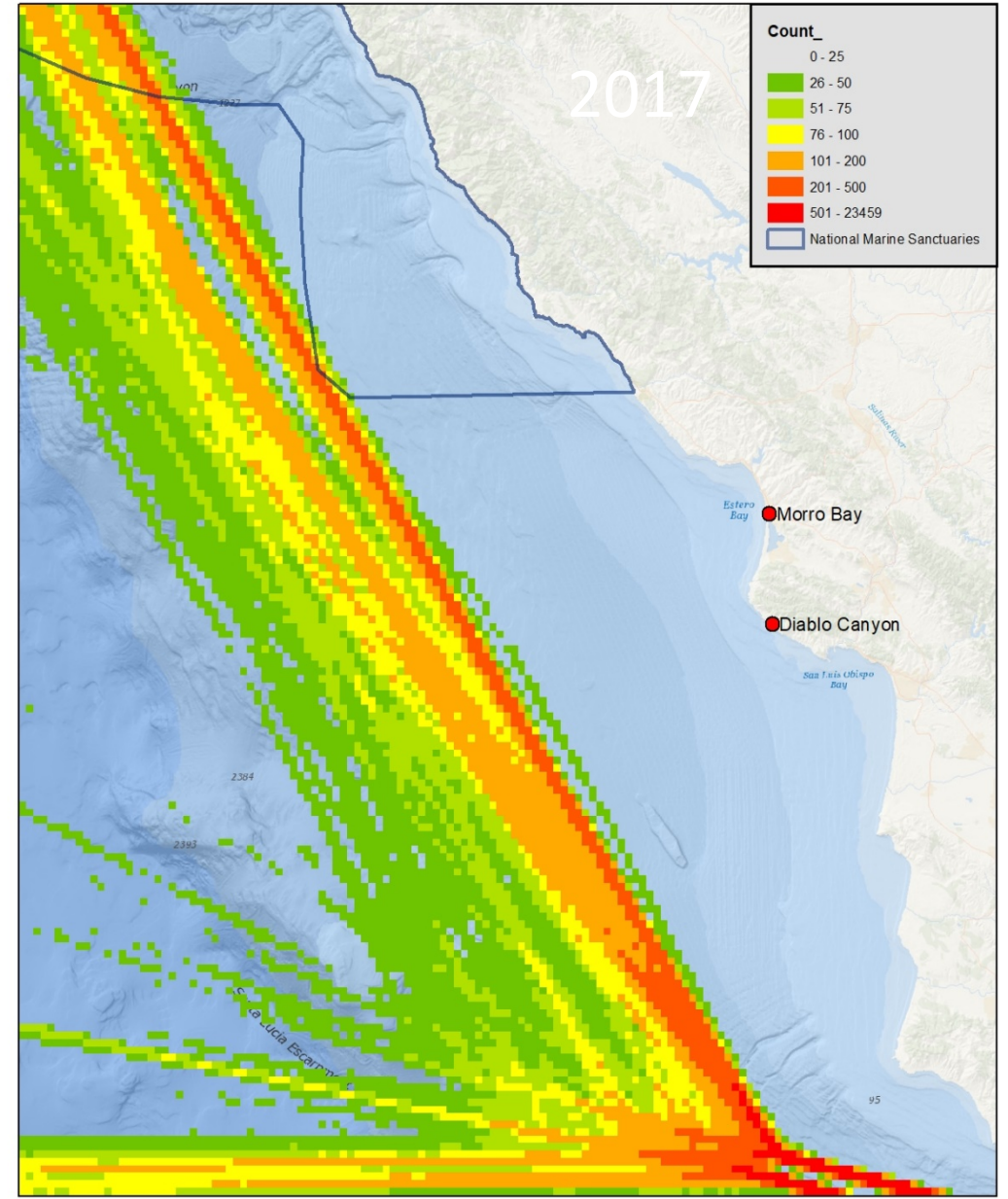




# Cargo

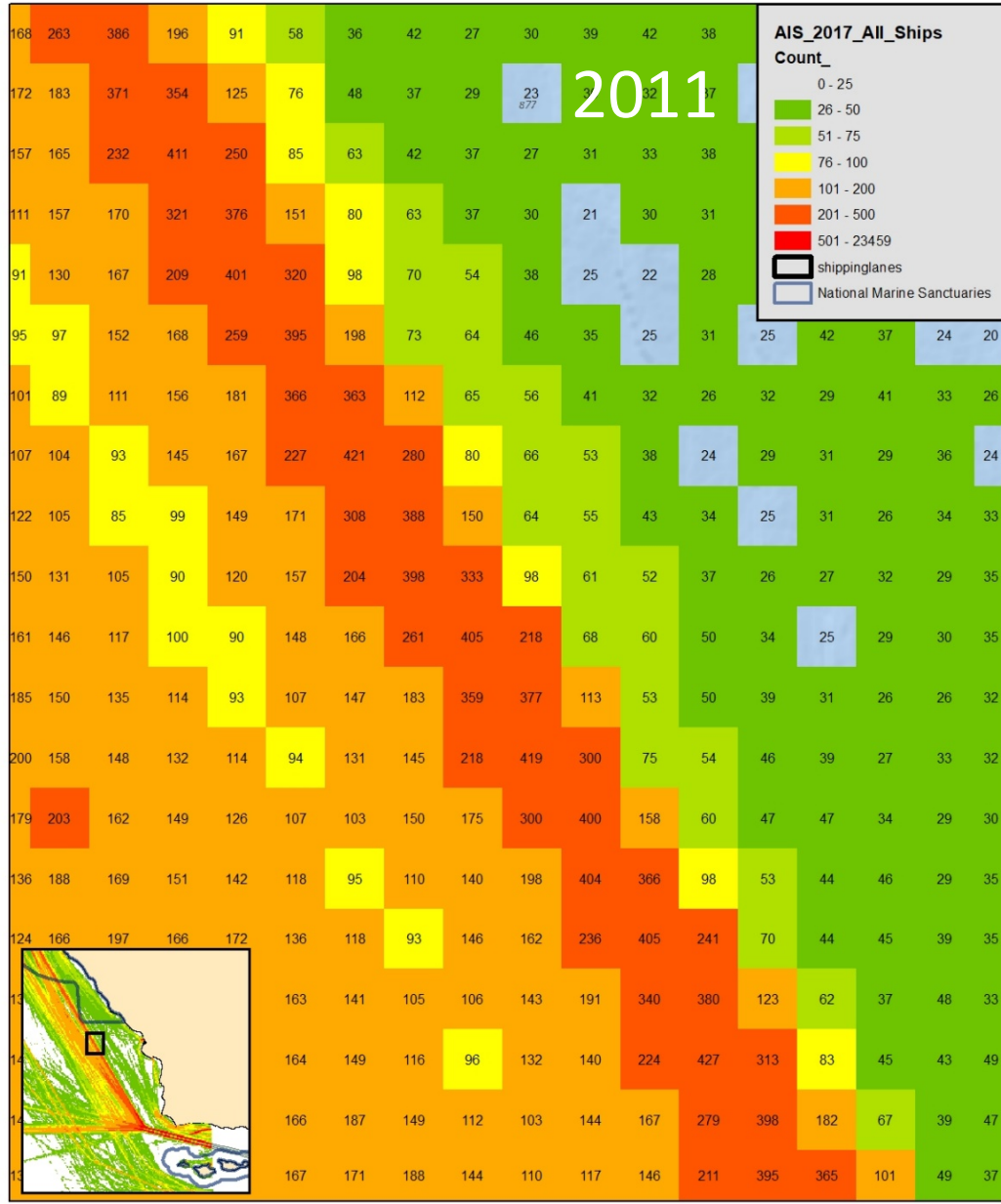


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 0 10 20 30 40  
 Miles

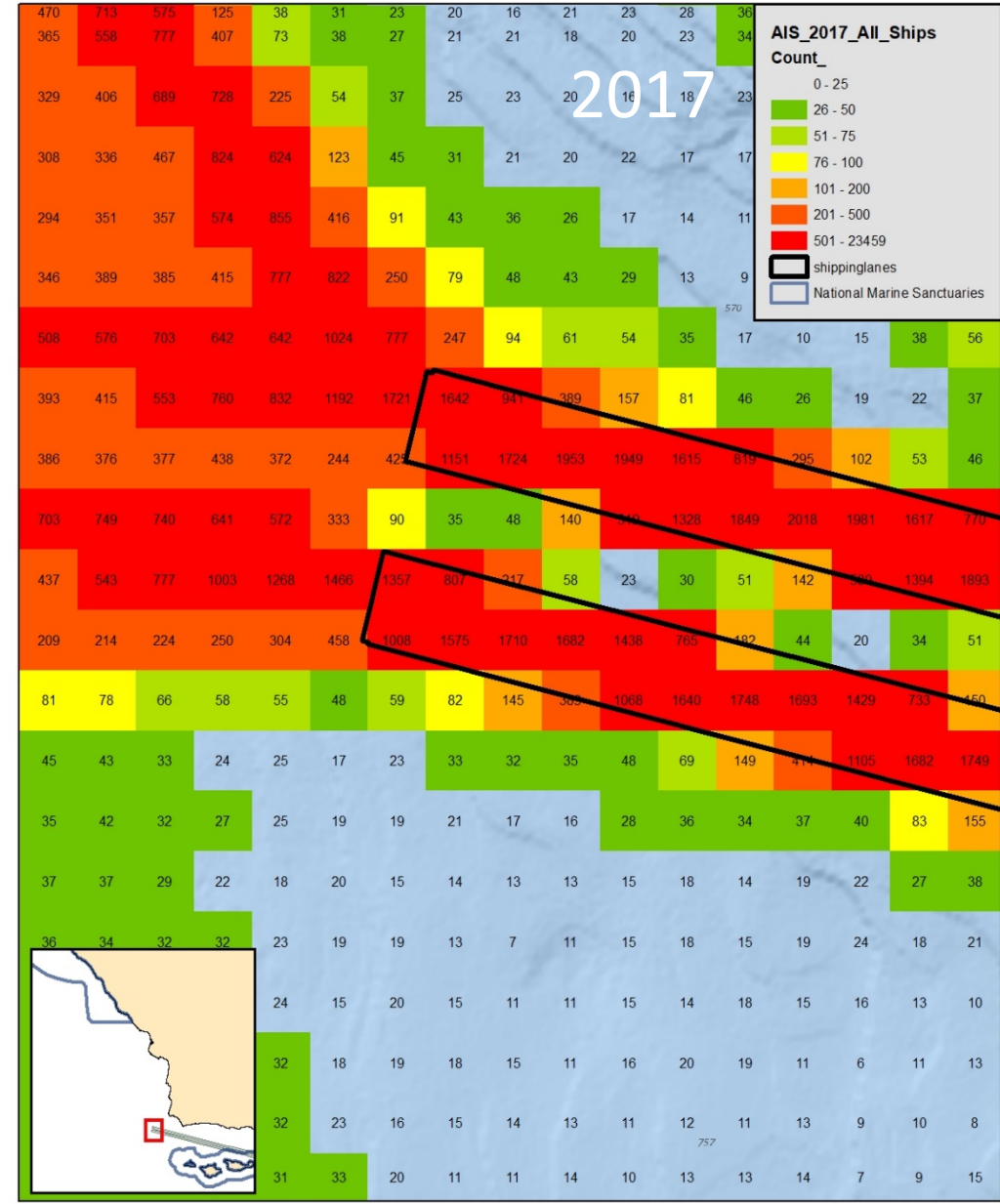
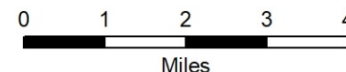


D:\Data\California\CALL AREA July 2018\CA Wind Call Area (7-24-18).mxd  
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 Miles

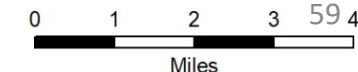




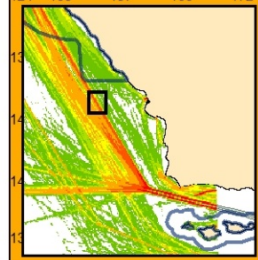
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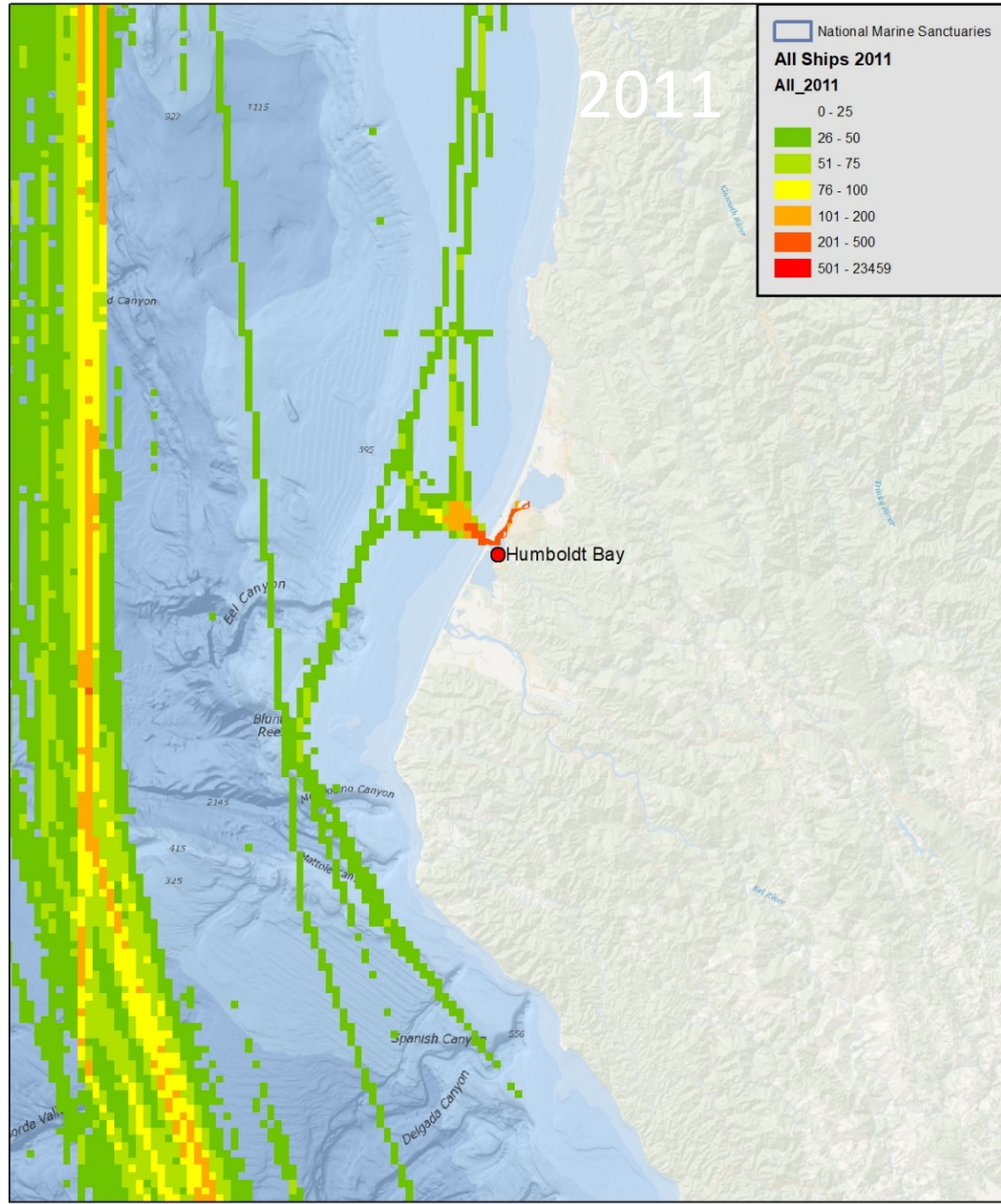


TSS

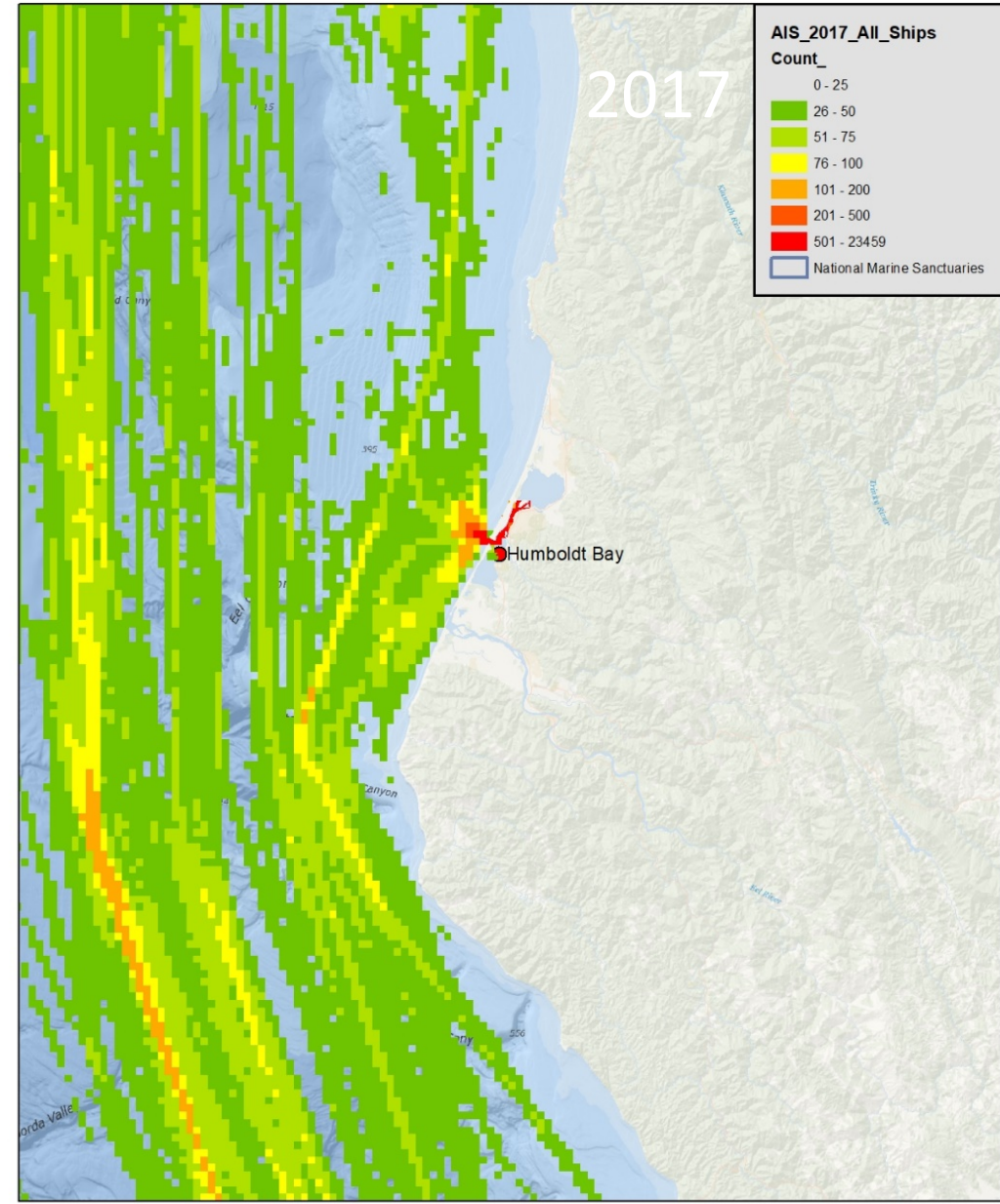
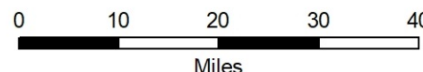




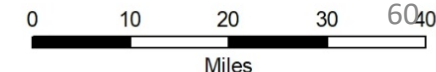
# All Ships



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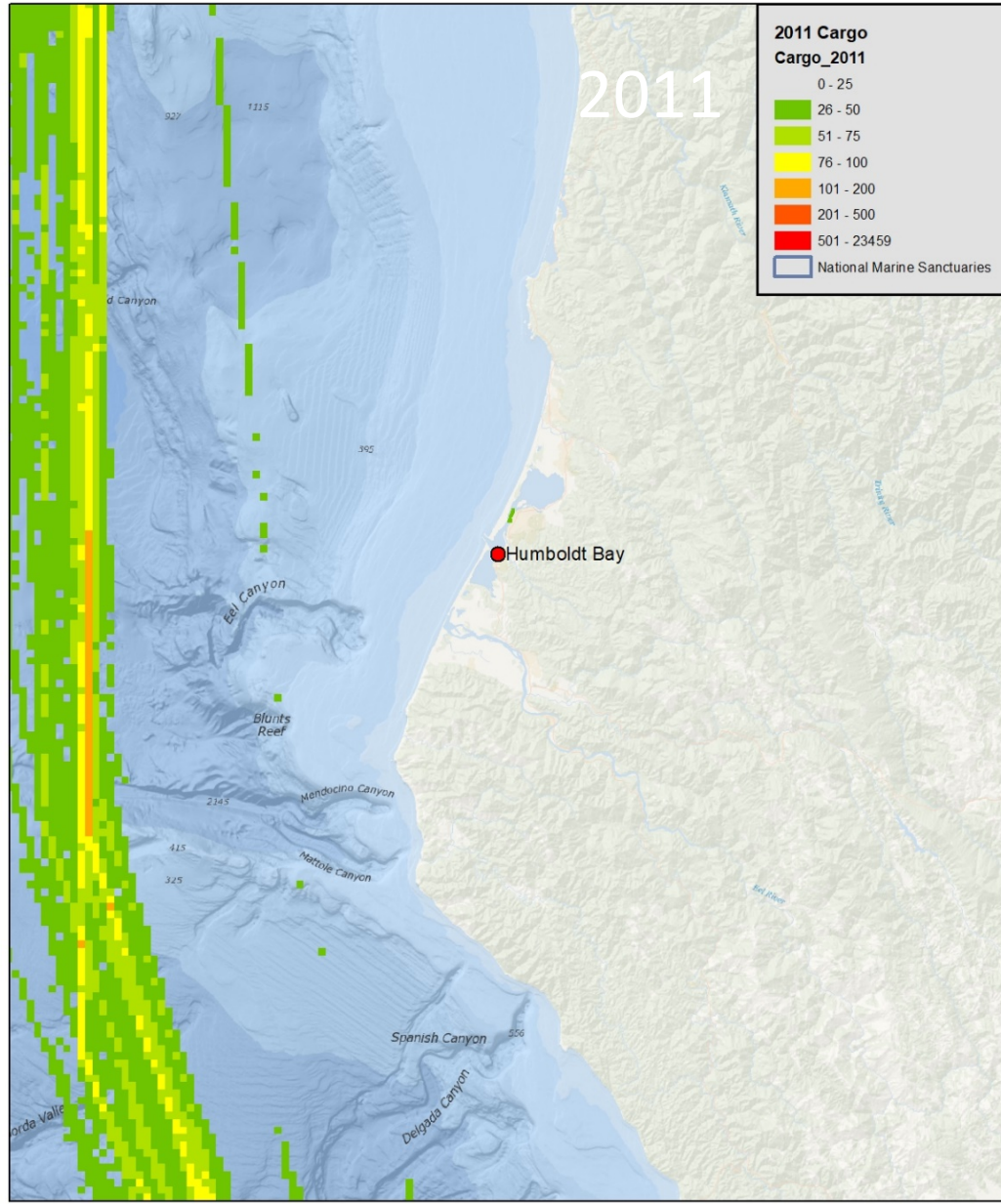


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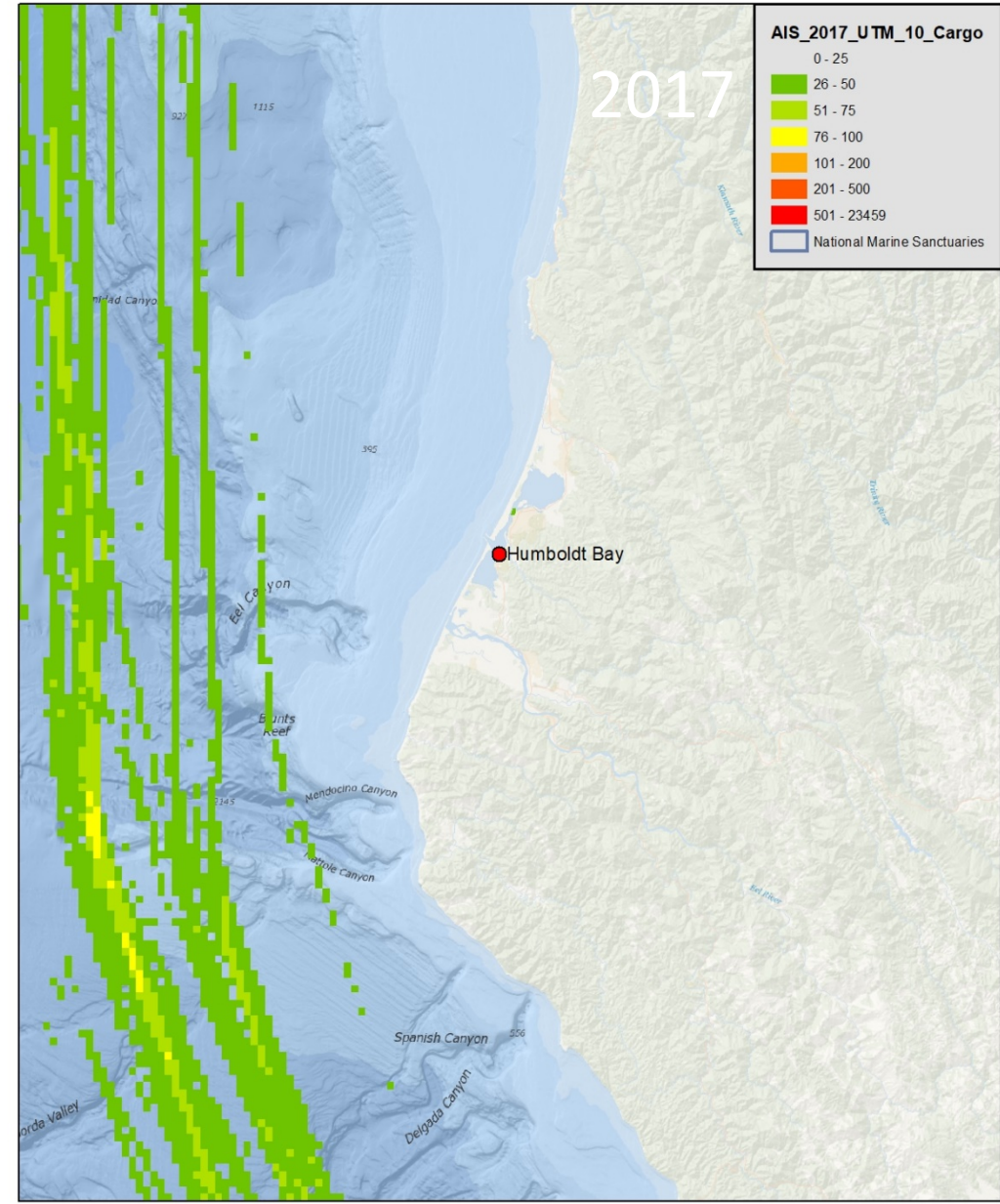
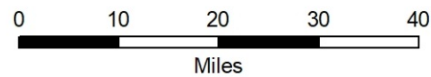




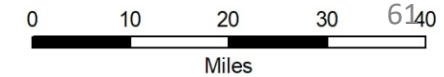
# Cargo



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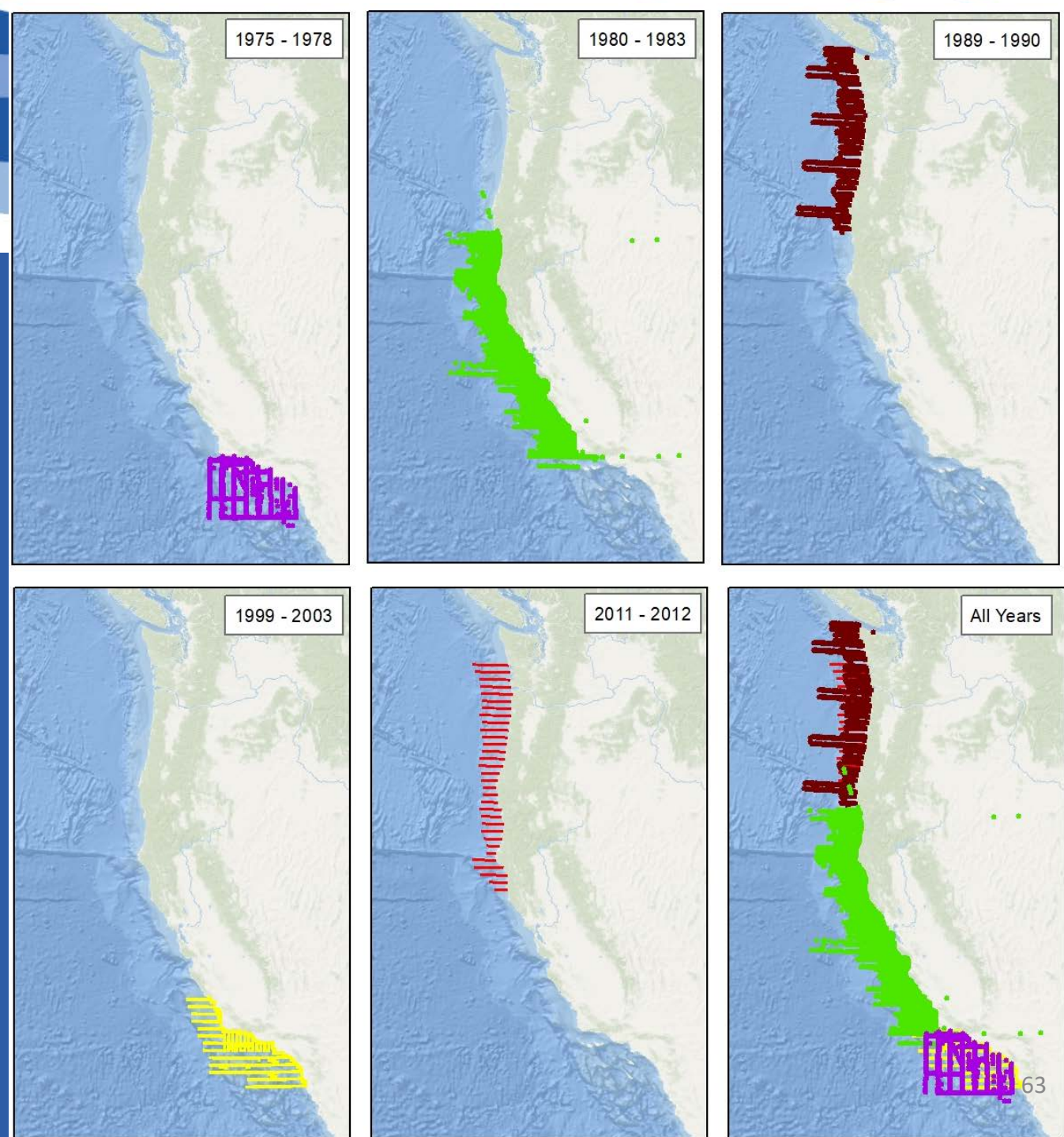
# Bird Data

- Survey Type
  - Observers (Ships)
  - Observers (Aerial)
  - Aerial Photos
- Models
- Vulnerability



# Aerial Bird Surveys (1975 – 2012)

- Several Aerial Surveys
- Different Areas
- Different Years

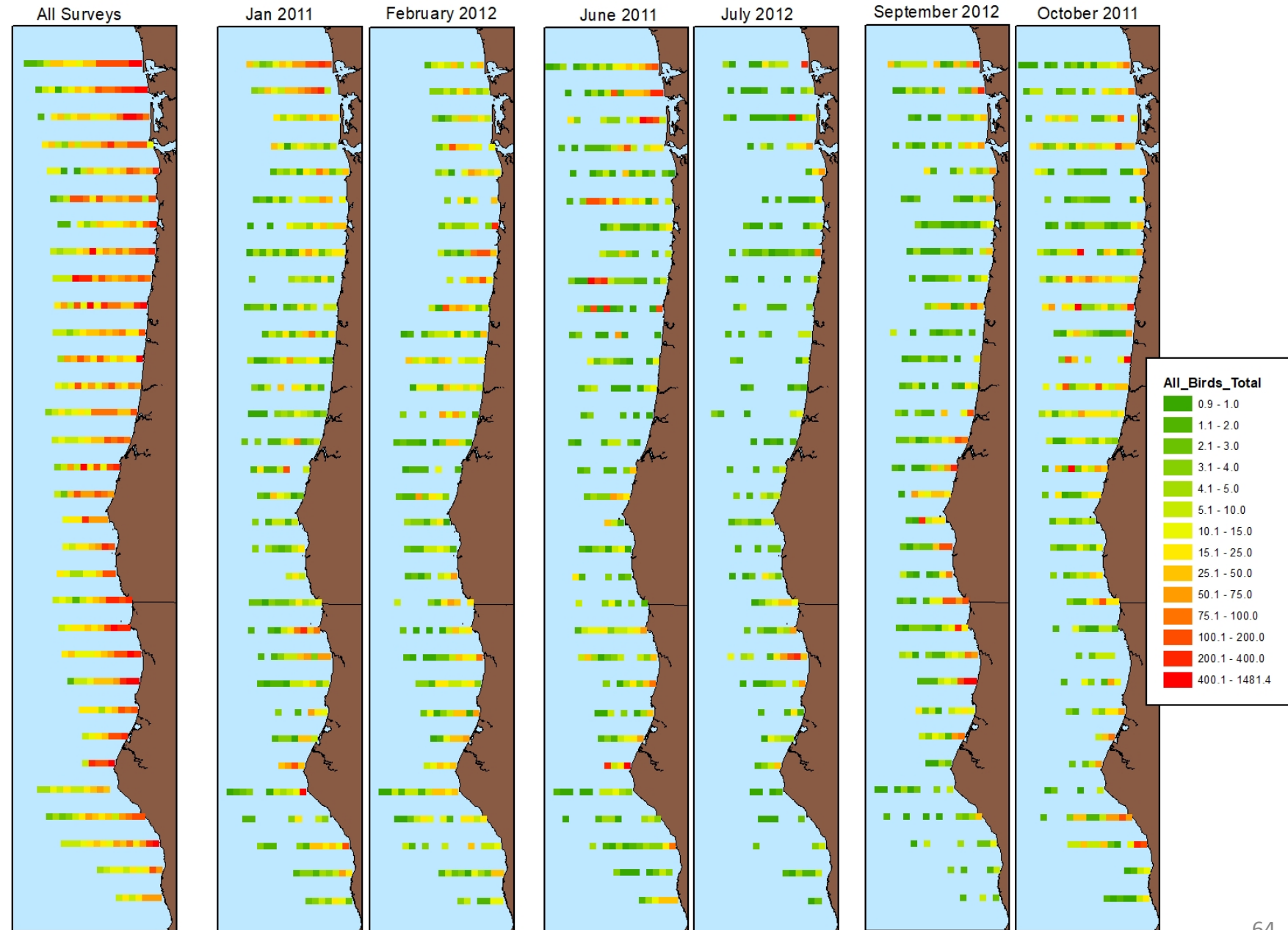




# Bird Data

## PaCSEA Bird Survey Summary Data

- PACSea
  - Aerial Surveys
  - 2011 and 2012
  - 6 Surveys



H:\GIS\Data\USGS\_PaCSEA\_GeoDatabase\Seabirds to Marine Marine Cadastre (8-08-16).mxd

# Aerial Photo Surveys

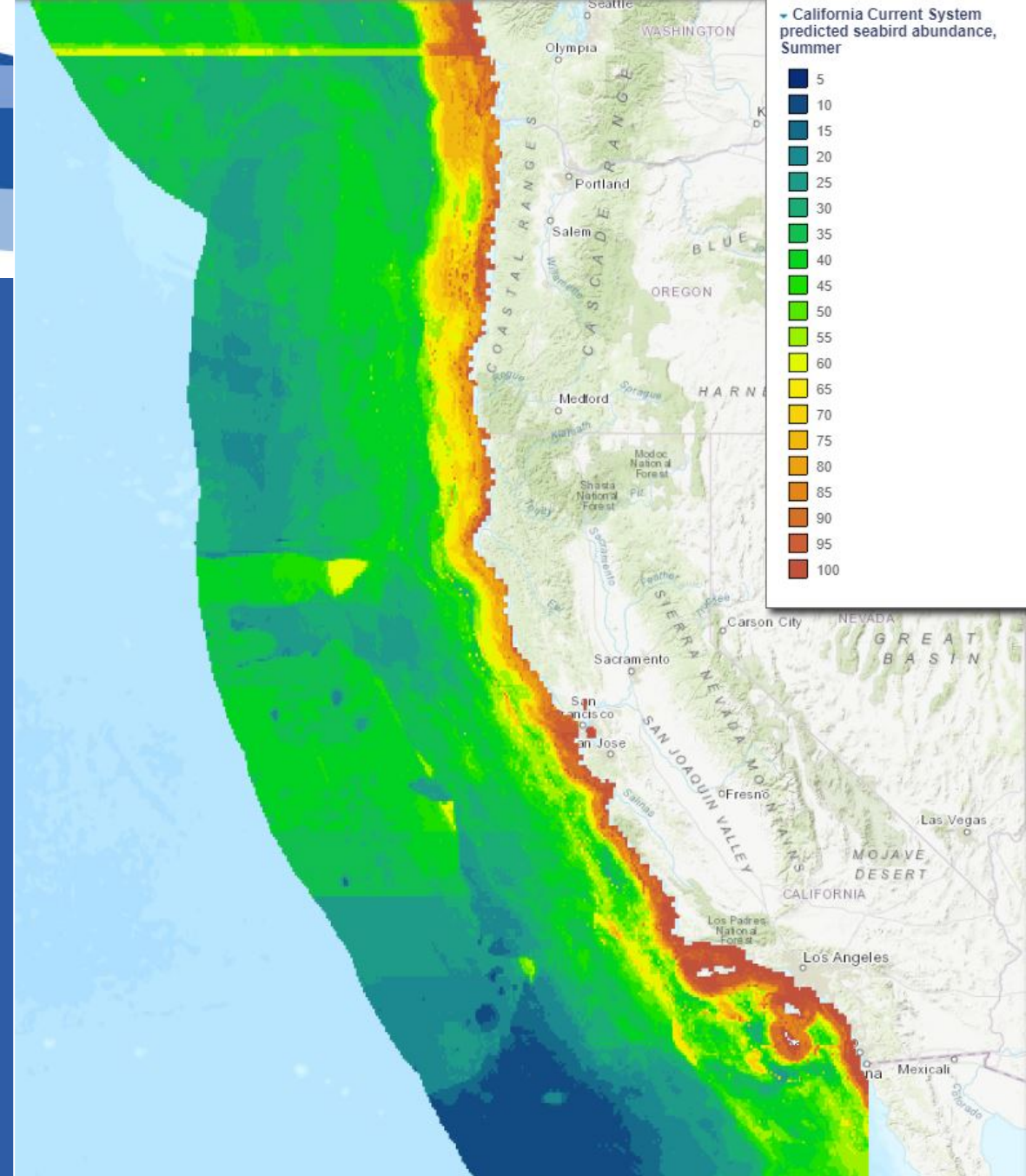
- Central California
- Photo / Artificial Intelligence
  - Permanent Record
  - Fly High = Cover More Area





# Point Blue Data

- Species Density Maps
  - Habitat-Association Models
- 16 species
- 1997-2008 Ship Surveys

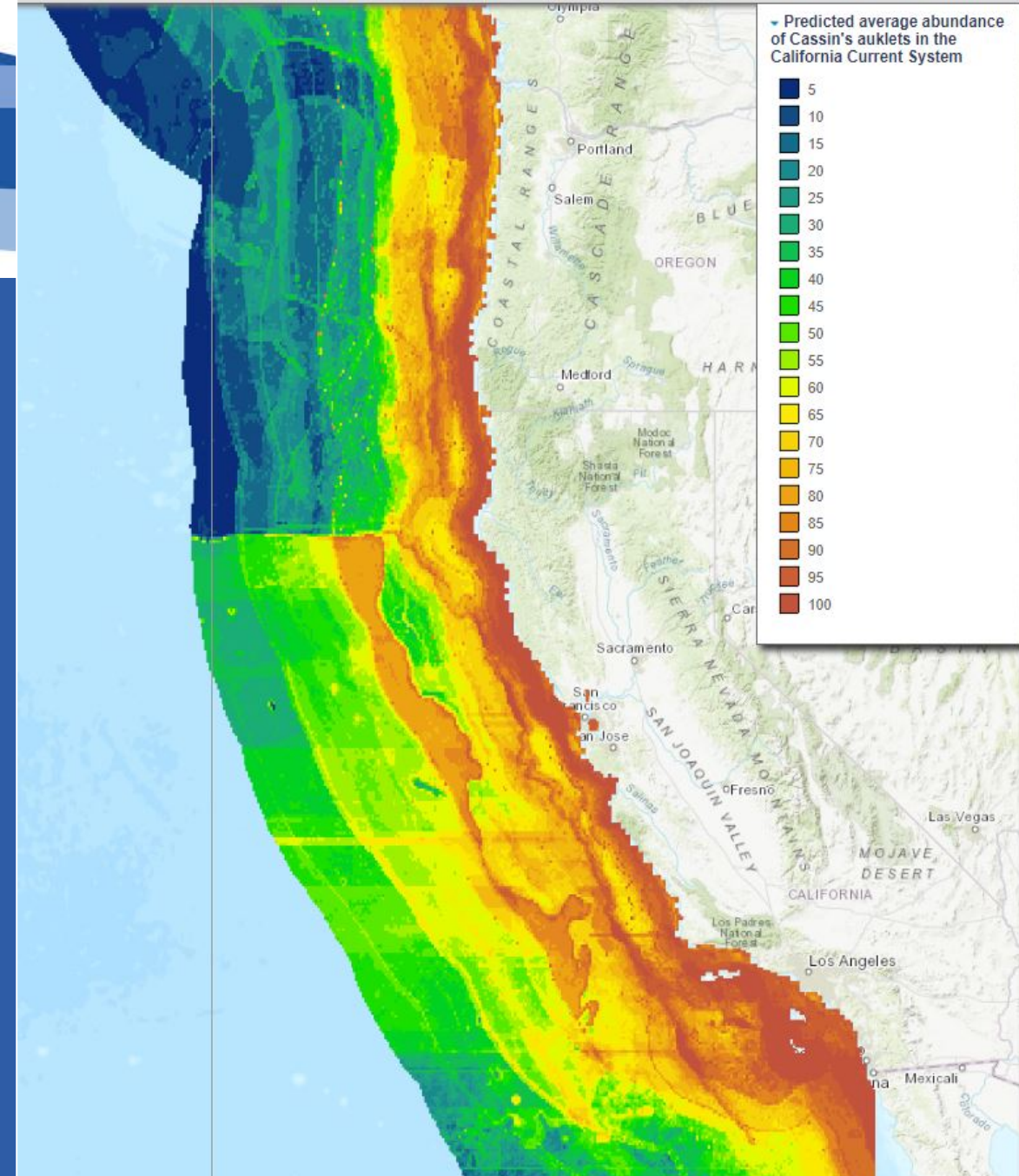


Predicted Seabird Abundance, Fall

# Point Blue Data

- Variables for Predictive Models

- Time of year
- Latitude
- Depth / Slope / Dist to Shore
- Currents
- Temperature / Salinity
- Chlorophyll
- Etc, etc, etc





# Point Blue Data

- Surveys
- Pixels

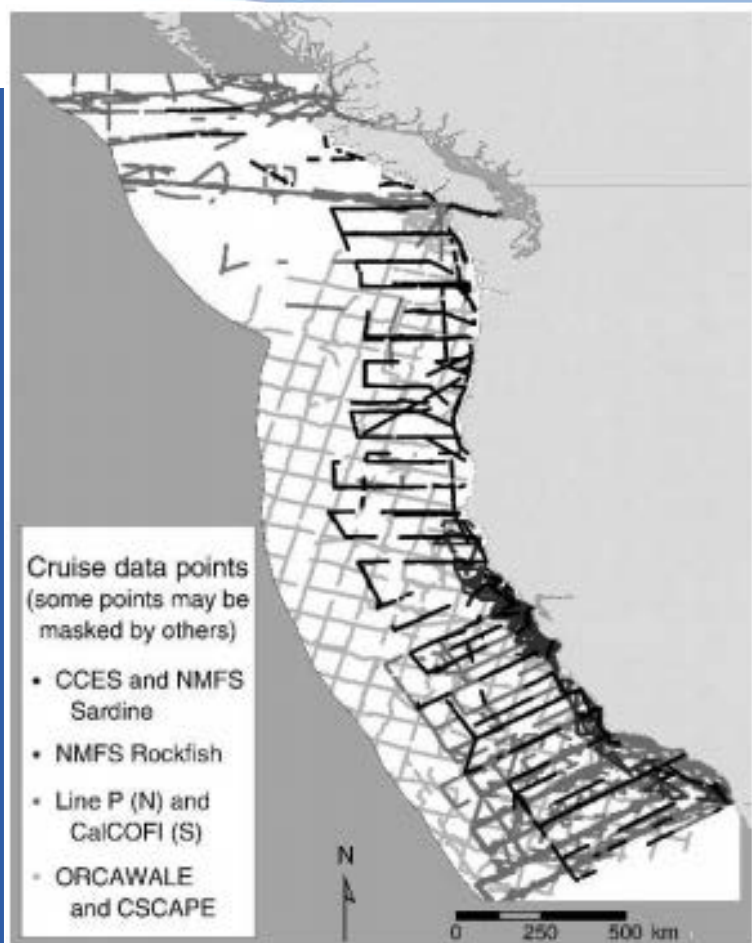
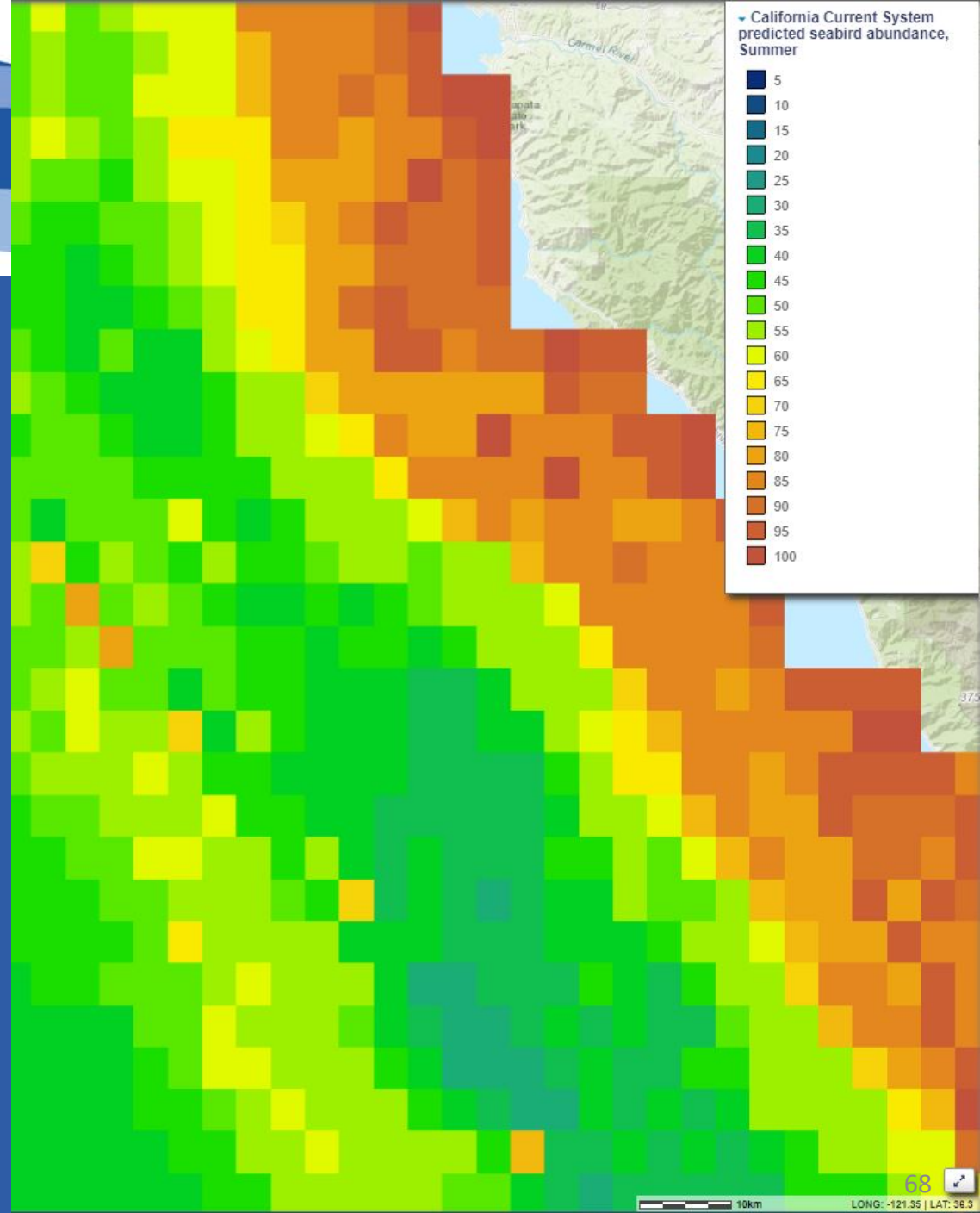


FIG. 2. Map of surveys used in this study of seabird hotspots. Individual data points are shown classified by cruise project or program. See Appendix A for information on cruises.



**Collision and Displacement Vulnerability among  
Marine Birds of the California Current System  
Associated with Offshore Wind Energy Infrastructure**



Open-File Report 2016-1154

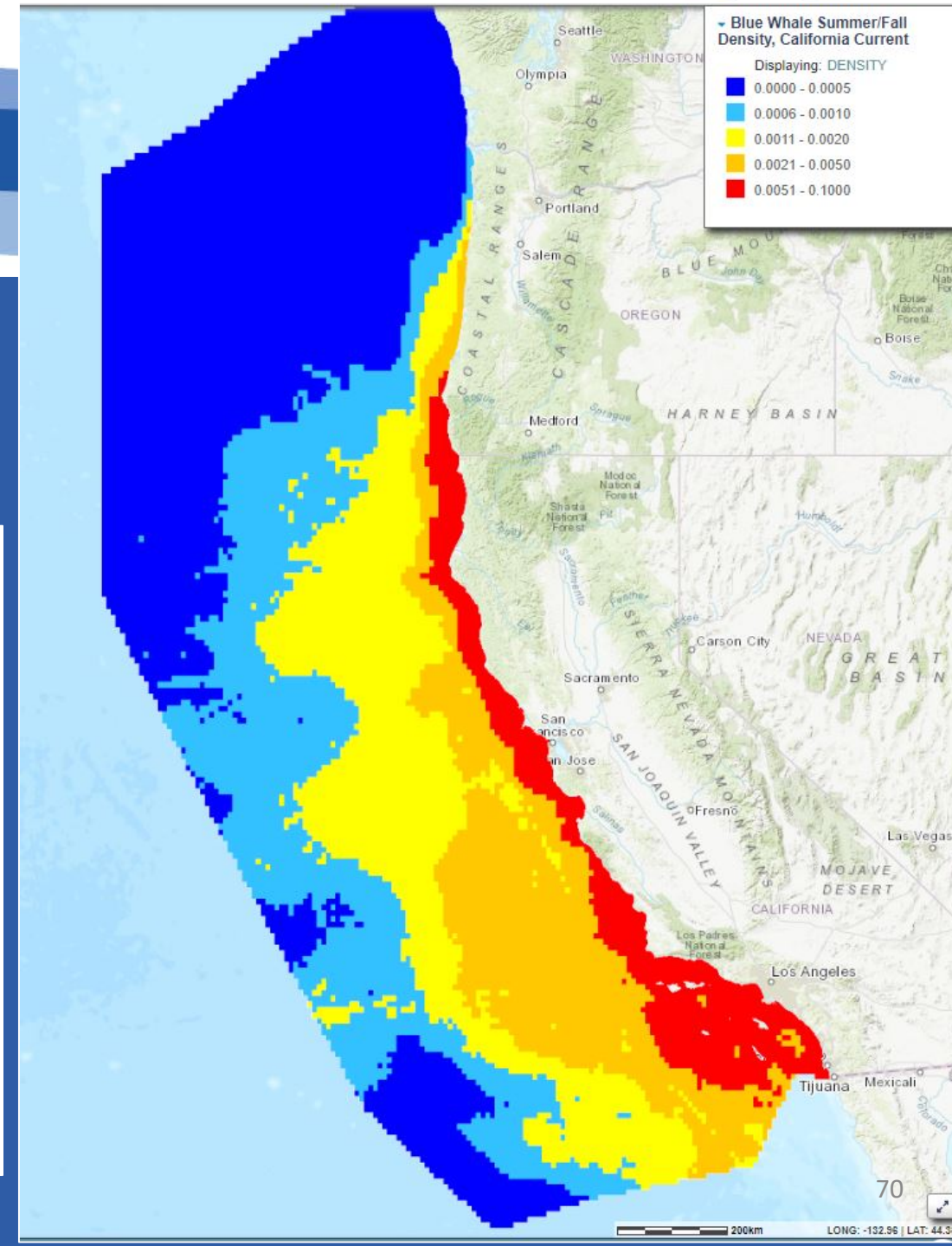
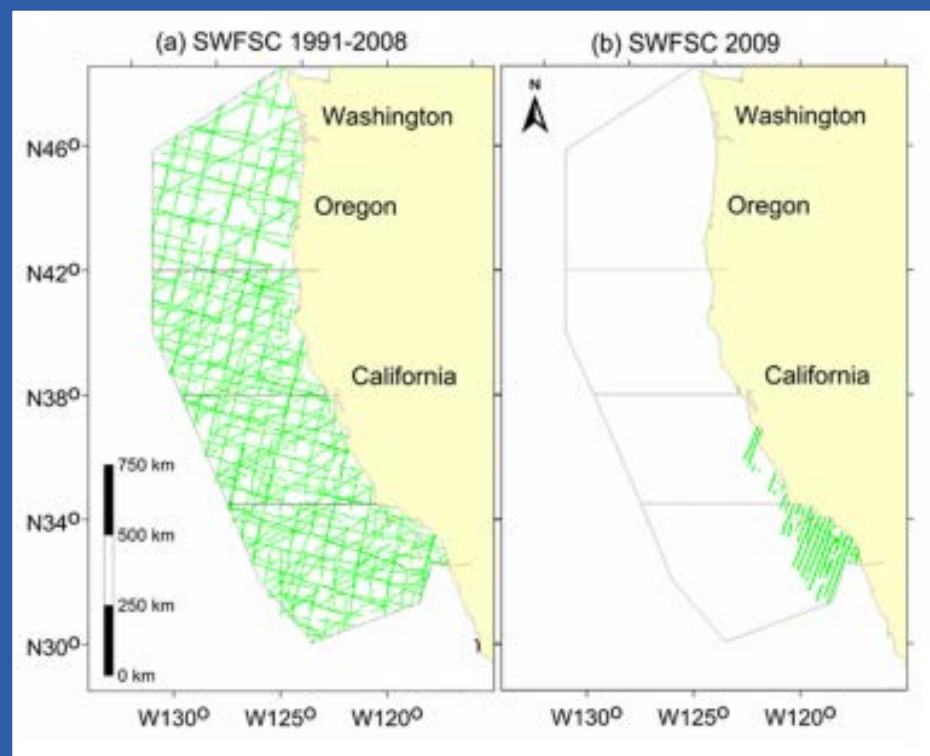
# New and Up coming Seabird Resources

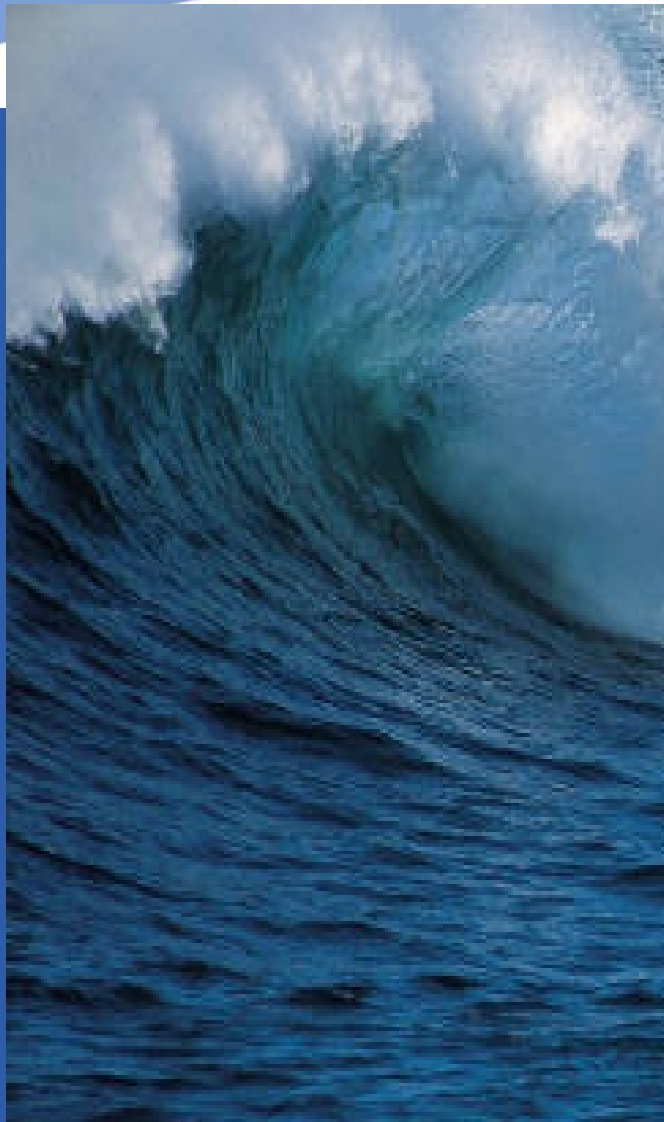
- Data Synthesis
  - USGS / BOEM
  - Updated Species Distribution Models
  - 40 Species
- Vulnerability Index
  - USGS / BOEM report available
  - J. of Environmental Management
  - Conservation Status, Behavior, Flight Height...



# Marine Mammals

- Whales and Dolphins
  - Surveys July – Dec
    - 1991, 1993, 1996, 2001, 2005, 2008





# Draft Call Areas for: Call for Information & Nominations

Jean Thurston, BOEM



# Offshore Renewable Energy Leasing Process

## Planning & Analysis

- **Intergovernmental Task Force**
- **Call for Information & Nominations (Call)**
- Area Identification
- Environmental reviews

## Leasing

- Publish leasing notices
  - Proposed
  - Final
- Issue lease(s)

## Site Assessment

- Site Characterization
- Site Assessment Plan (SAP) developed by Lessee

## Construction & Operations


- Construction and Operations Plan (COP) reviewed under NEPA
- Facility Design Report & Fabrication and Installation Report
- Decommissioning

*Public input opportunities throughout the process including public meetings and Federal Register notices providing for public comment periods and opportunity for tribal consultation throughout*

**Multi Year Process**

# What is the Call?

- Notice published in the *Federal Register* for formal public comment
- Requests information on focused areas for BOEM to consider in the planning, analysis and decision making process
- Requests nominations of interest for leasing from project developers
- Not a decision to lease



## Planning & Analysis

- Intergovernmental Task Force
- **Call for Information & Nominations (Call)**
- Area Identification
- Environmental reviews



# What is the next step after a Call?

- BOEM considers comments received during the Call and any nominations of interest
- BOEM may identify Wind Energy Area(s) (WEA) for environmental review: Area Identification (Area ID) Phase
- May include all or portions of the Call Areas
- WEAs would be analyzed under NEPA in an environmental analysis document

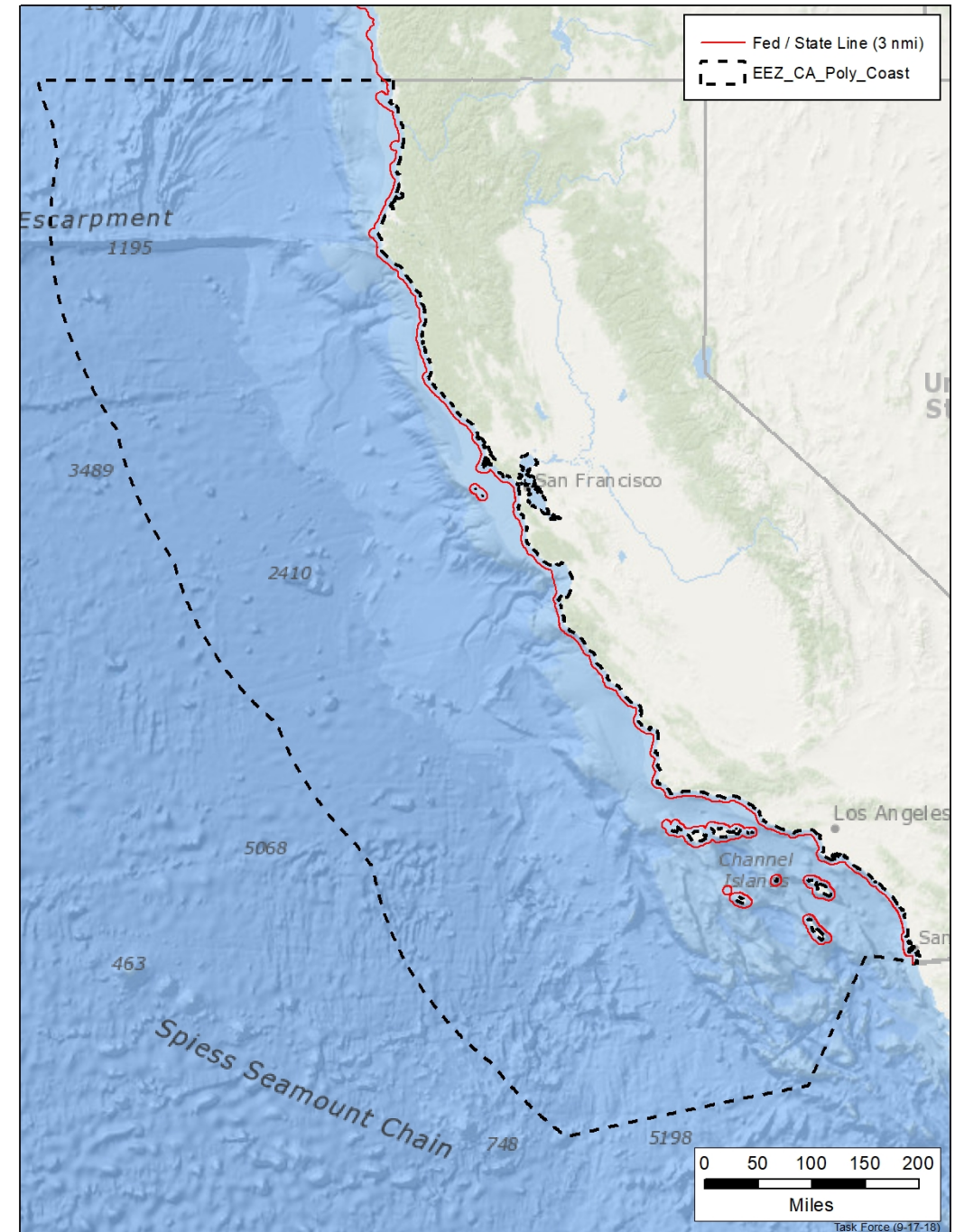


## Planning & Analysis

- Intergovernmental Task Force
- Call for Information & Nominations (Call)
- **Area Identification**
- Environmental reviews

# California Offshore Wind

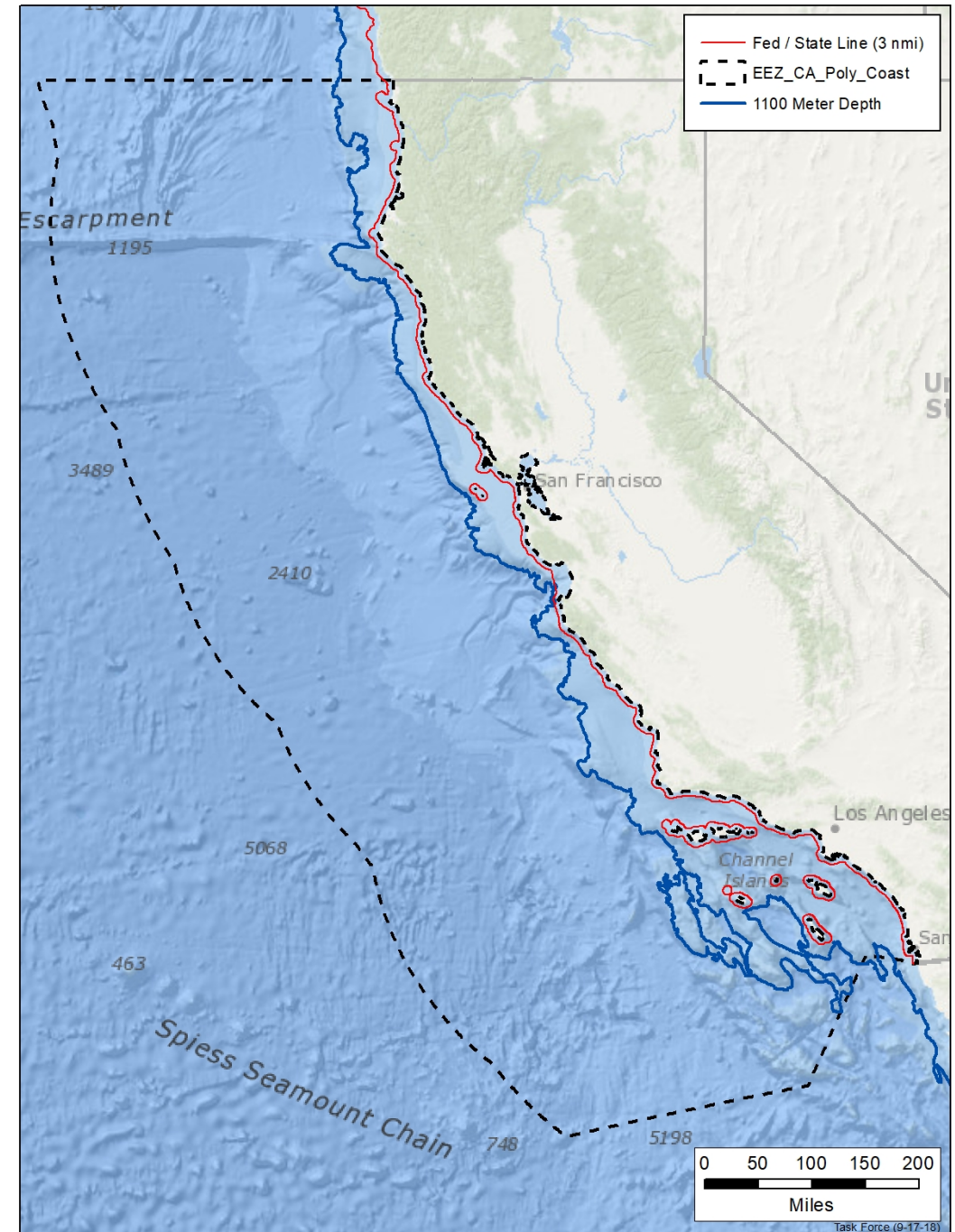
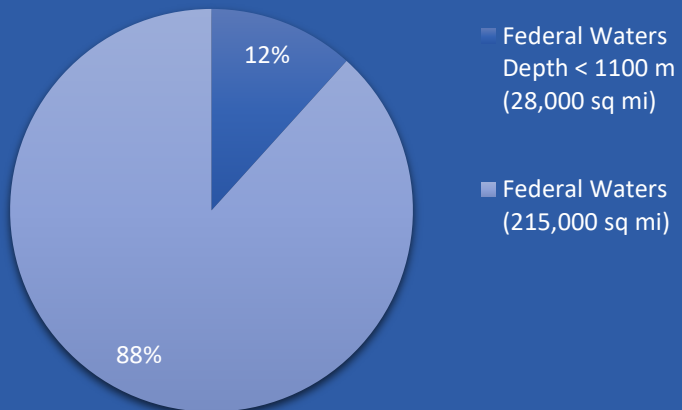
- BOEM Jurisdiction
- Federal Waters  
3 nmi – 200 nmi
- Offshore California  
= 215,000 sq miles



# California Offshore Wind

- Depth Limit
  - Less than 1100 m
  - 28,000 sq miles

Percent of Federal Waters

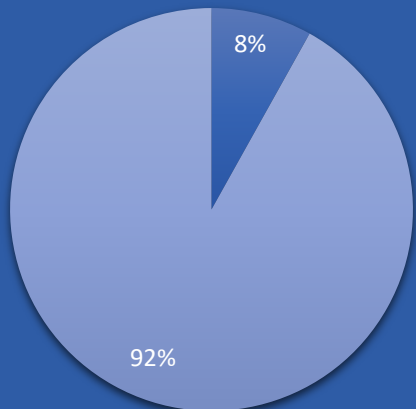




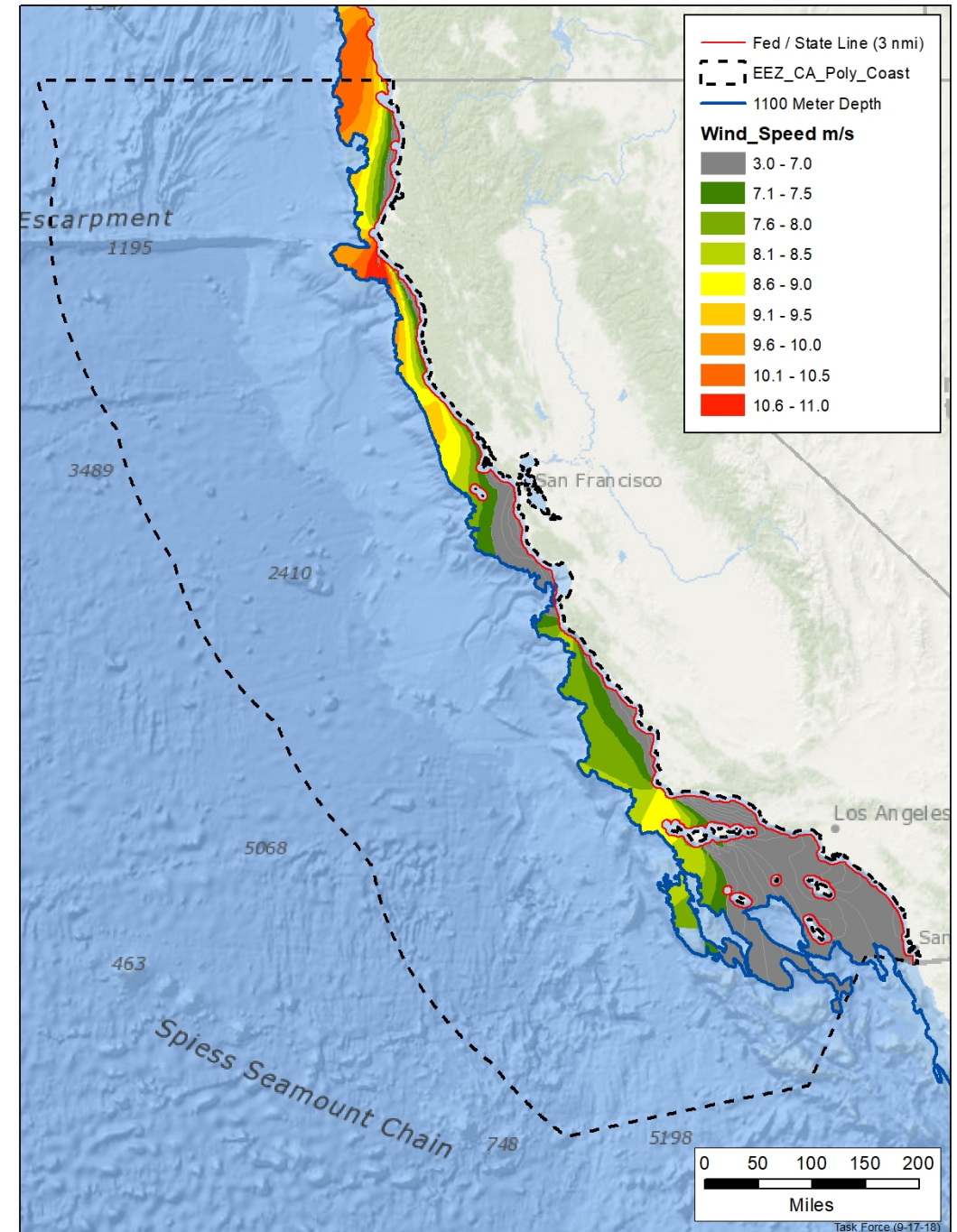
# California Offshore Wind

- Wind Speed
  - Greater than 7 m/s
  - 19,000 sq miles

Percent of Federal Waters



- Federal Waters Depth < 1100 m Winds > 7 m/s (19,000 sq mi)
- Federal Waters (215,000 sq mi)

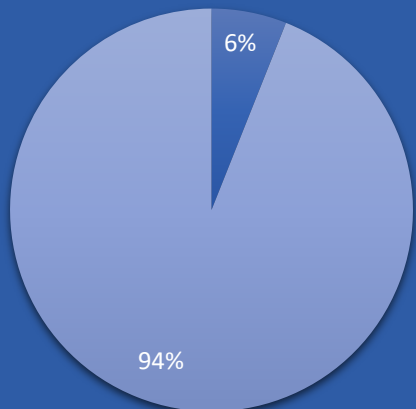


# California Offshore Wind

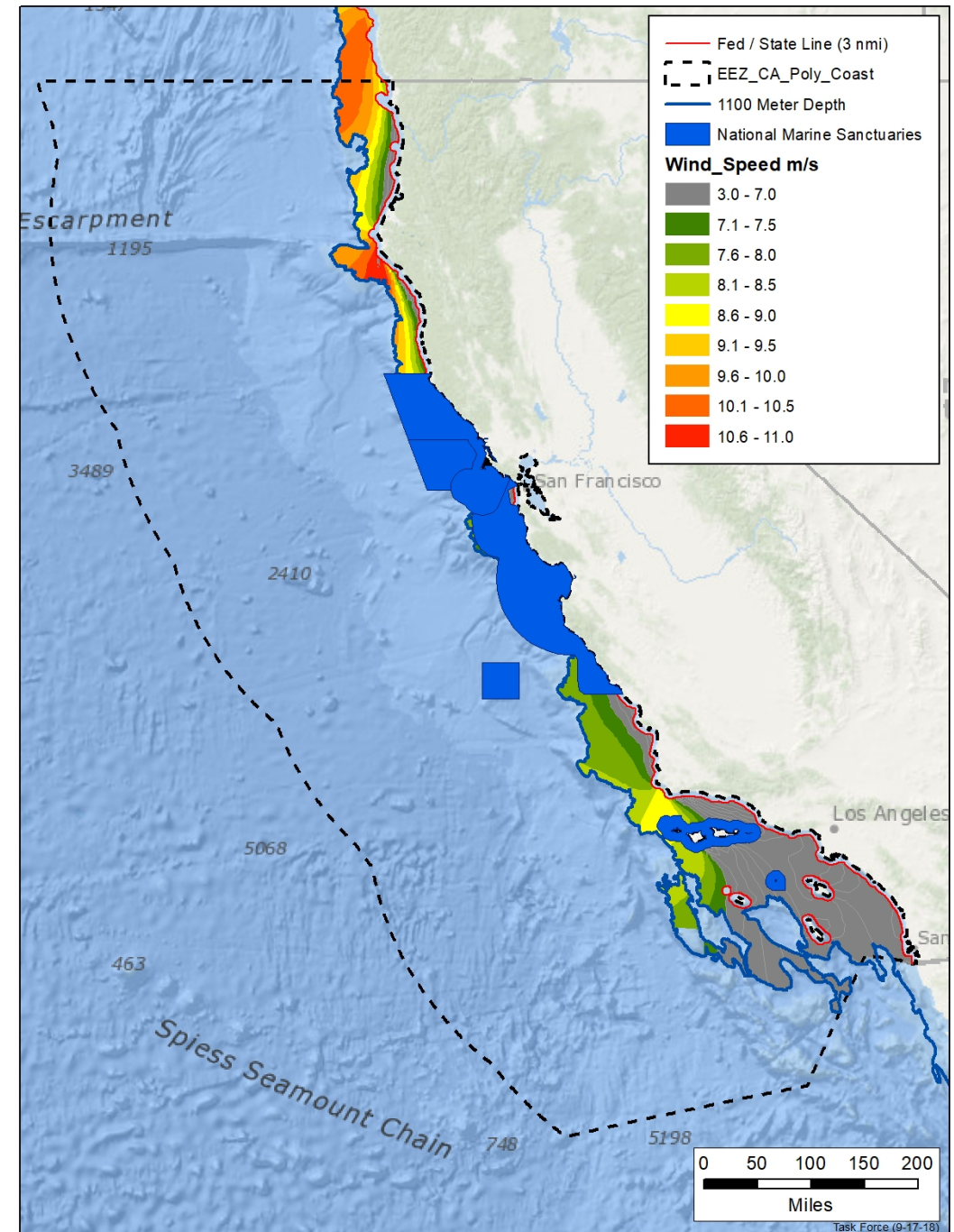
- National Marine Sanctuaries

- 14,000 sq miles

## Percent of Federal Waters



- Federal Waters  
Depth < 1100 m  
Winds > 7 m/s  
No Sanctuaries  
(14,000 sq mi)
- Federal Waters  
(215,000 sq mi)



# Central Coast Draft Call Areas

Morro Bay North

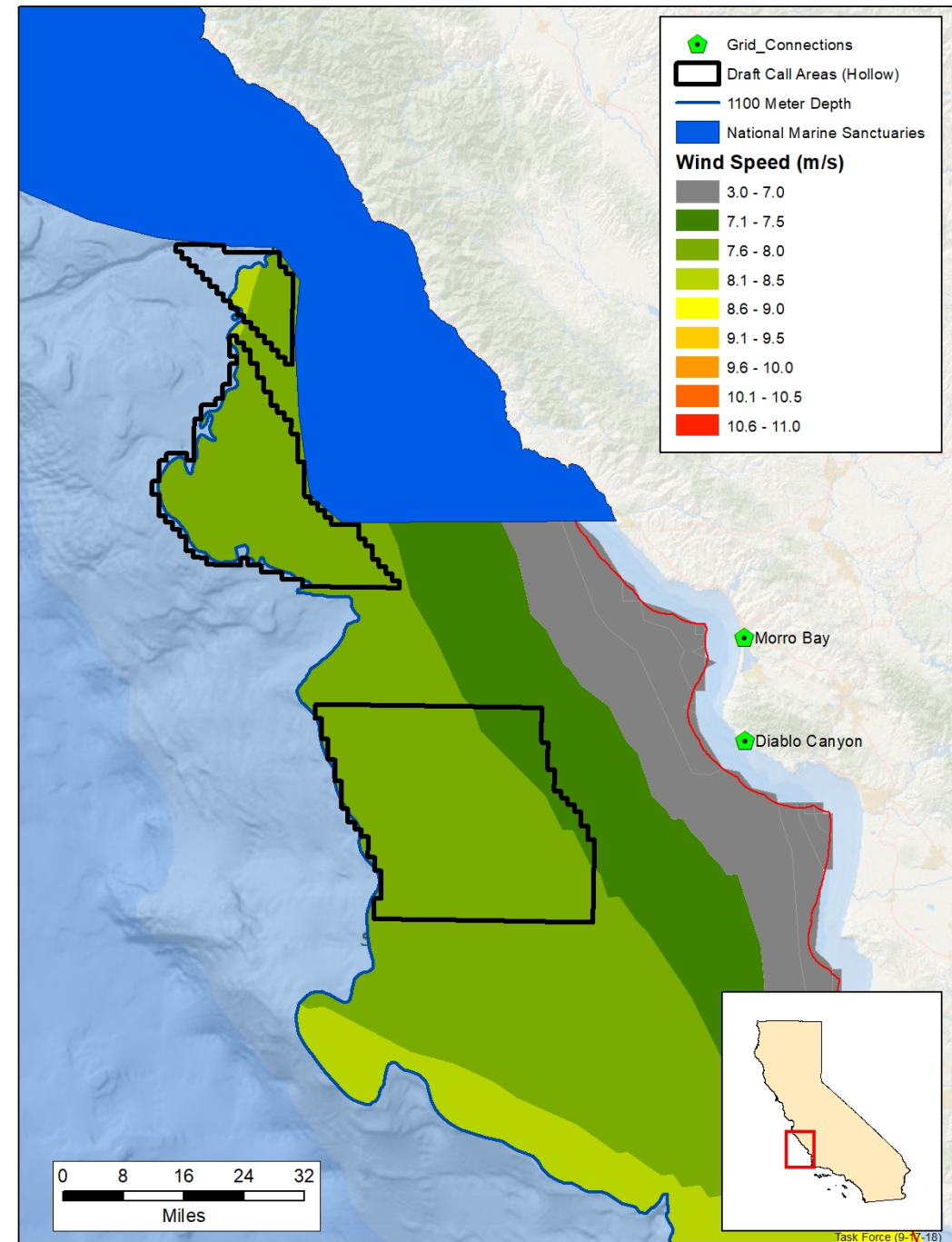
Morro Bay

Diablo Canyon



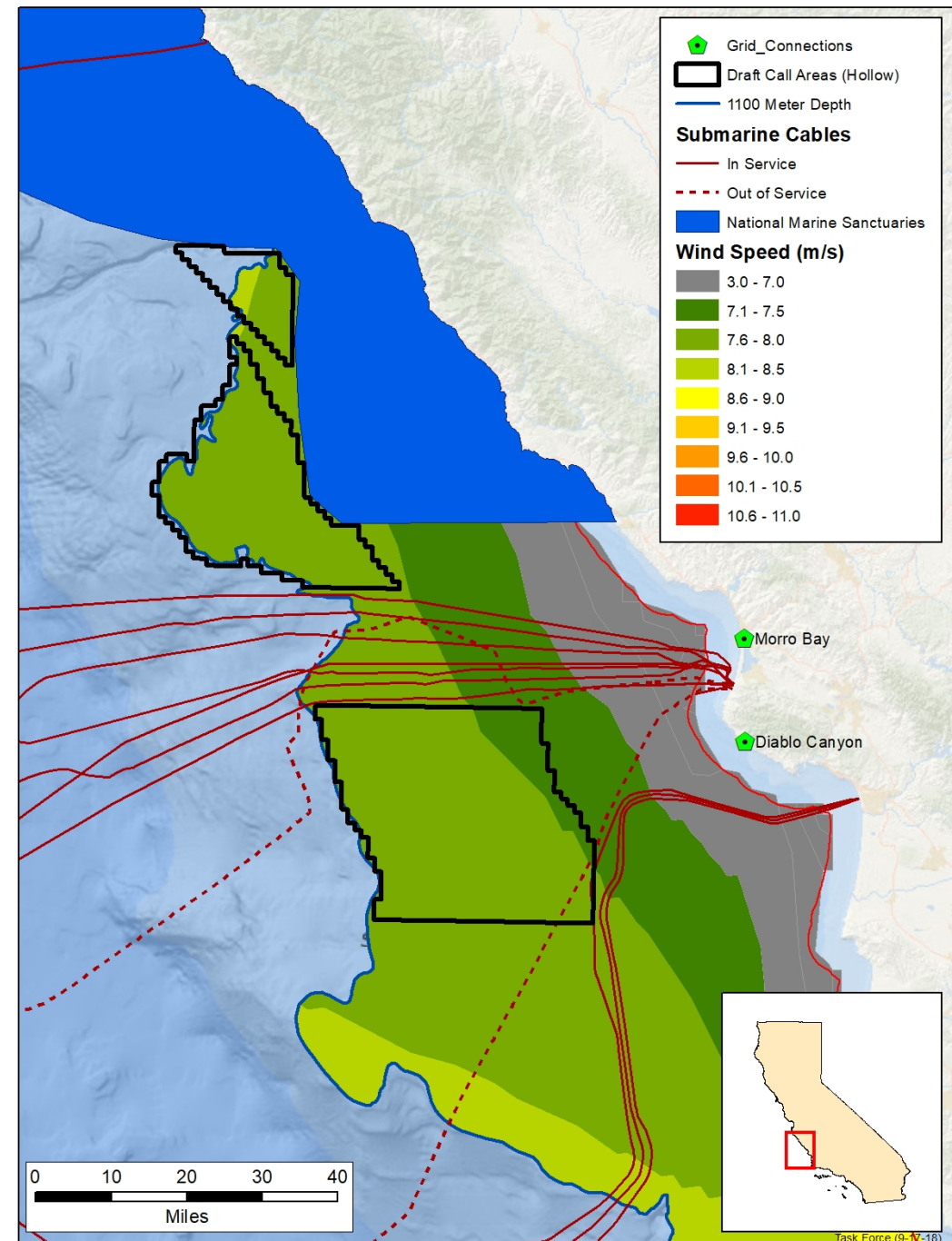
# California Offshore Wind

- Central Coast Draft Call Areas
  - Morro Bay North
  - Morro Bay
  - Diablo Canyon
- Grid connections
  - Morro Bay
  - Diablo Canyon



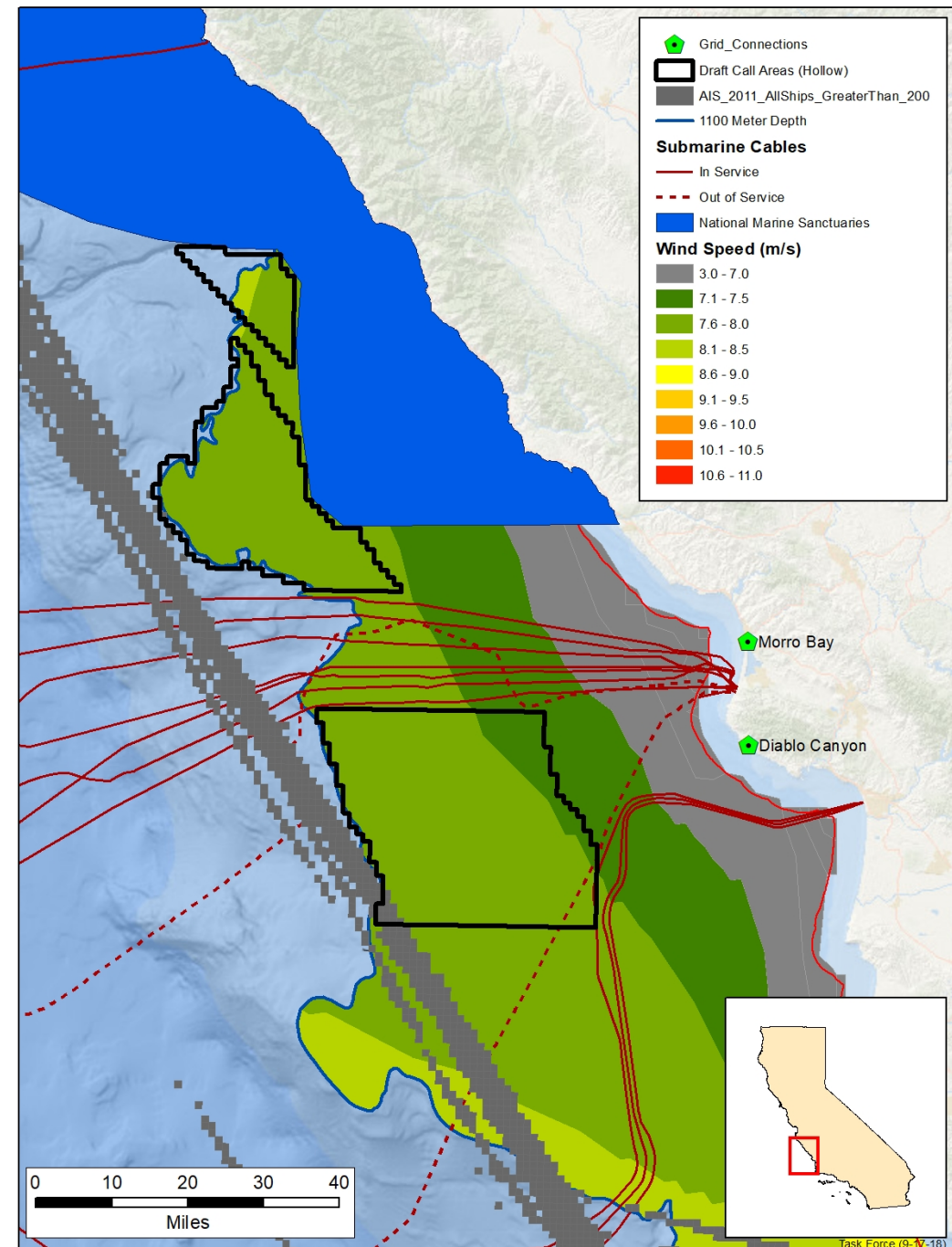
# California Offshore Wind

- Central Coast Draft Call Areas
  - Morro Bay North
  - Morro Bay
  - Diablo Canyon
- Grid connections
  - Morro Bay
  - Diablo Canyon
- Undersea Cables



# California Offshore Wind

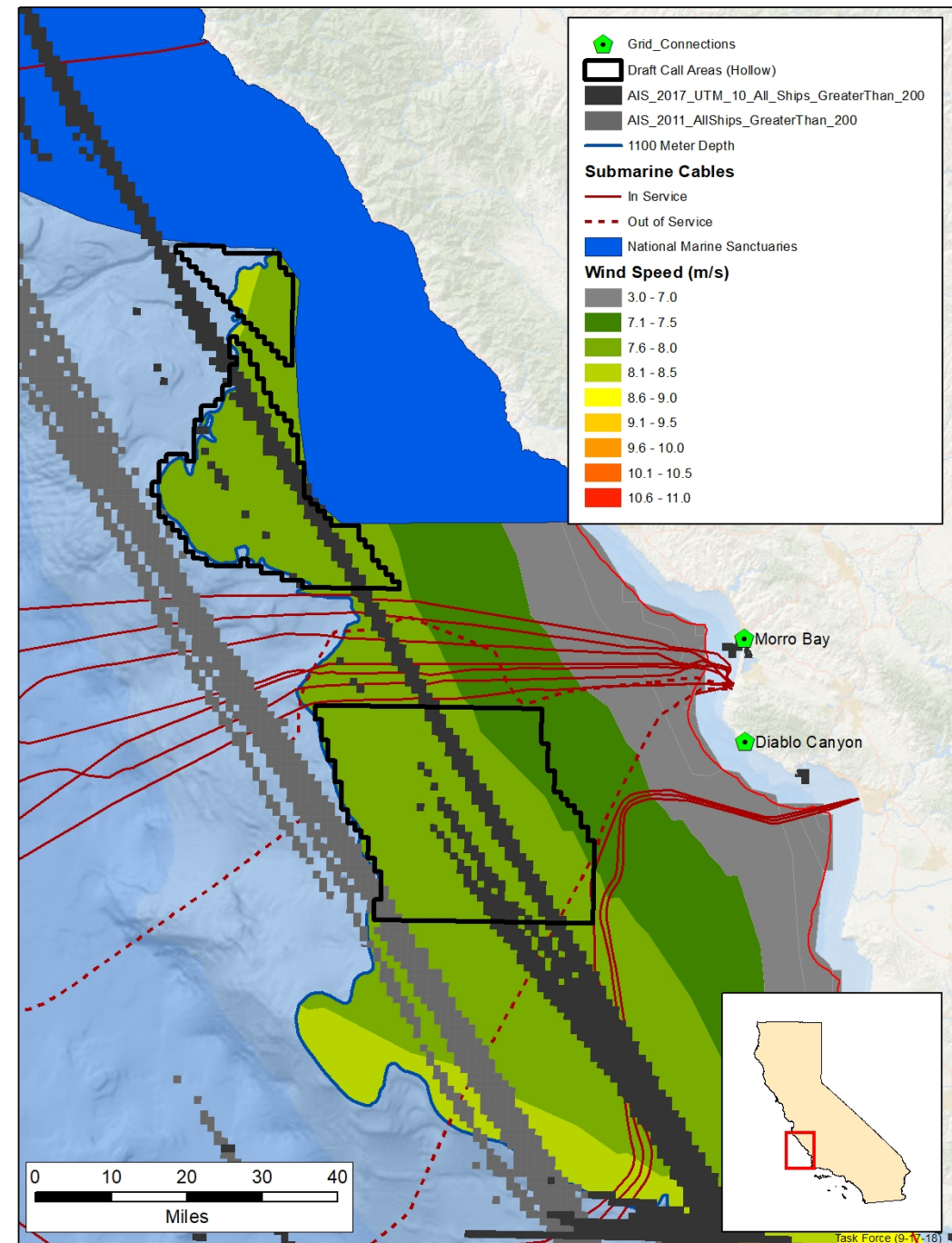
- Central Coast Draft Call Areas
  - Morro Bay North
  - Morro Bay
  - Diablo Canyon
- Grid connections
  - Morro Bay
  - Diablo Canyon
- Undersea Cables
- 2011 AIS Data





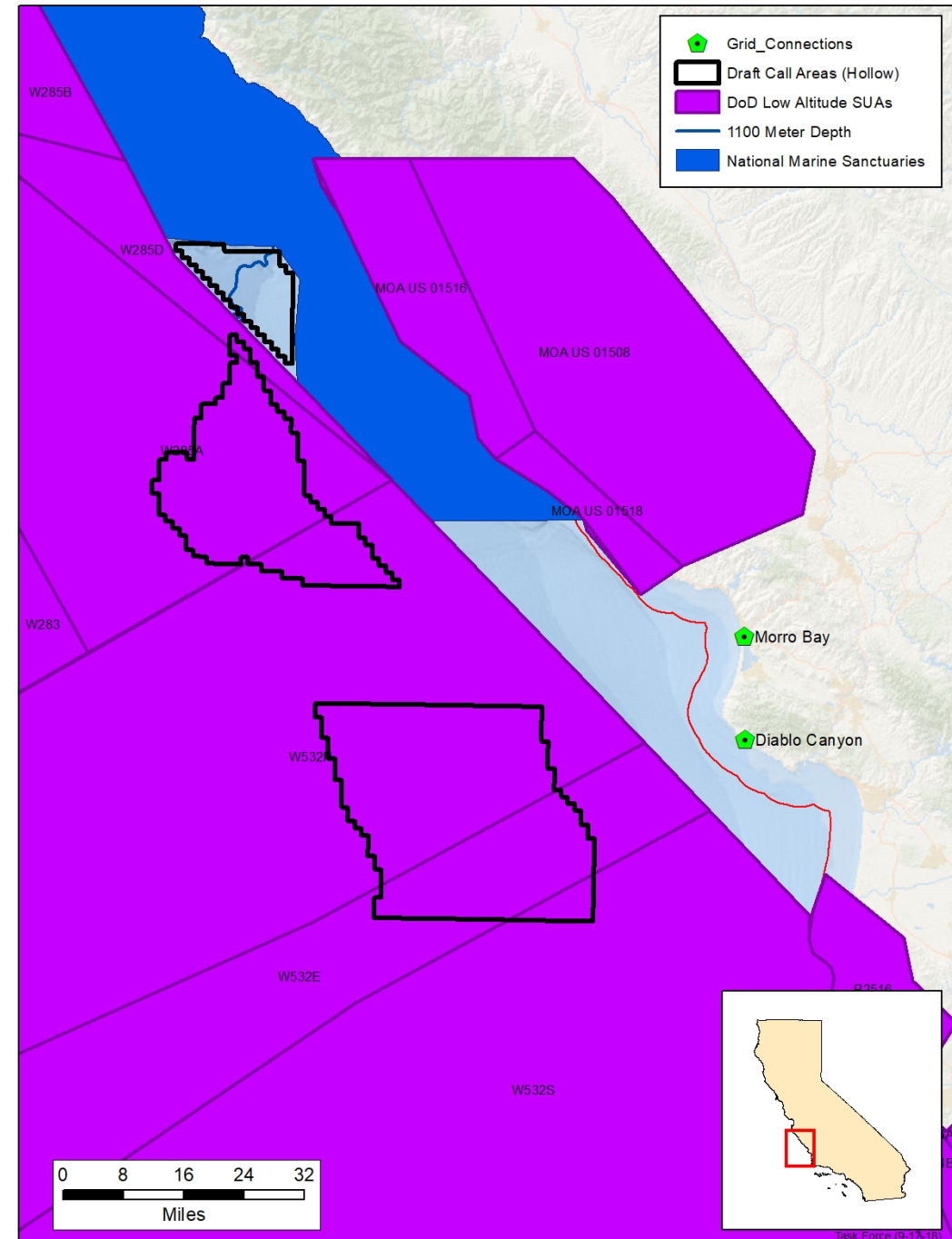
# California Offshore Wind

- Central Coast Draft Call Areas
  - Morro Bay North
  - Morro Bay
  - Diablo Canyon
- Grid connections
  - Morro Bay
  - Diablo Canyon
- Undersea Cables
- 2011 AIS Data
- 2017 AIS Data



# California Offshore Wind

- Department of Defense Warning Areas



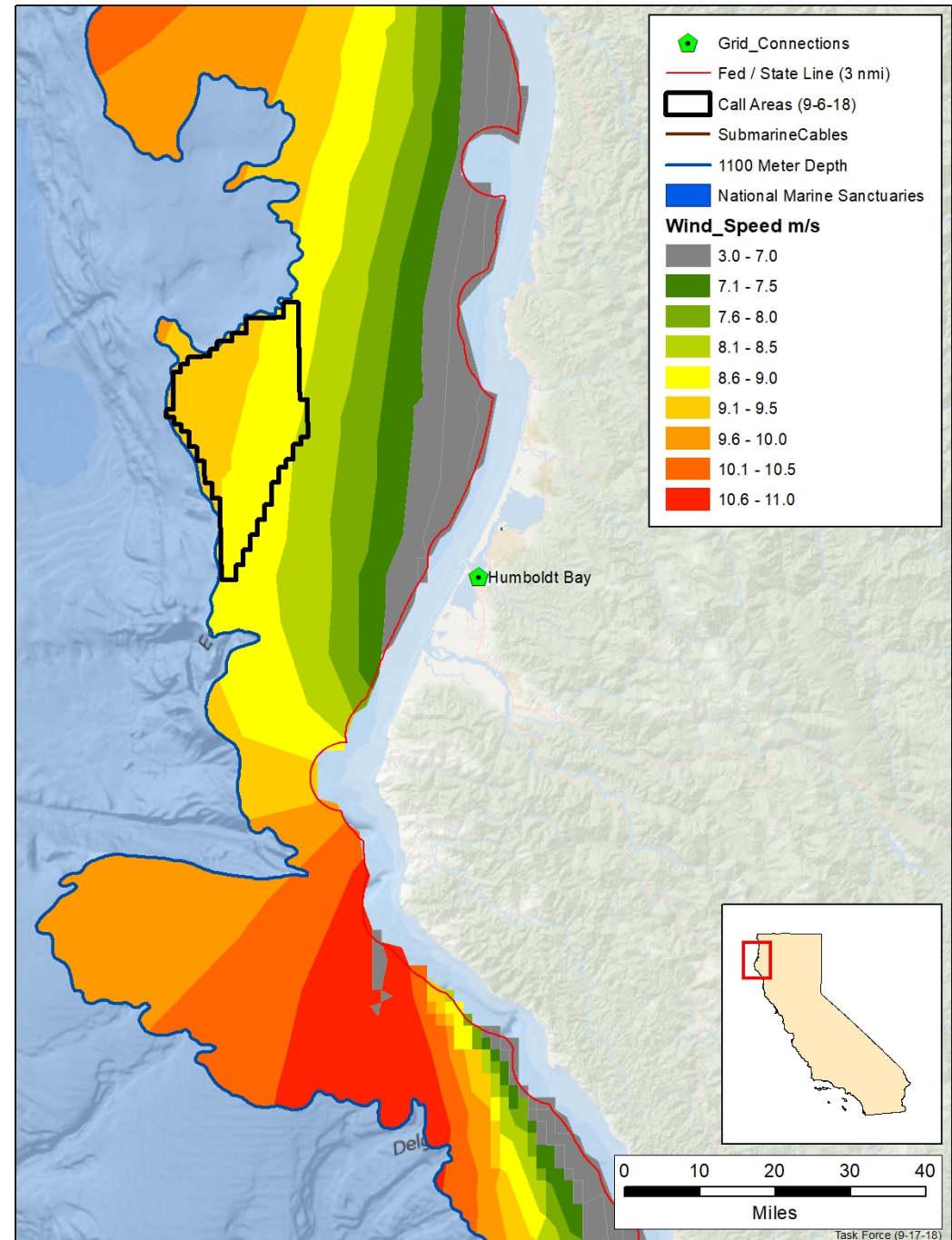
# North Coast Draft Call Area

Humboldt



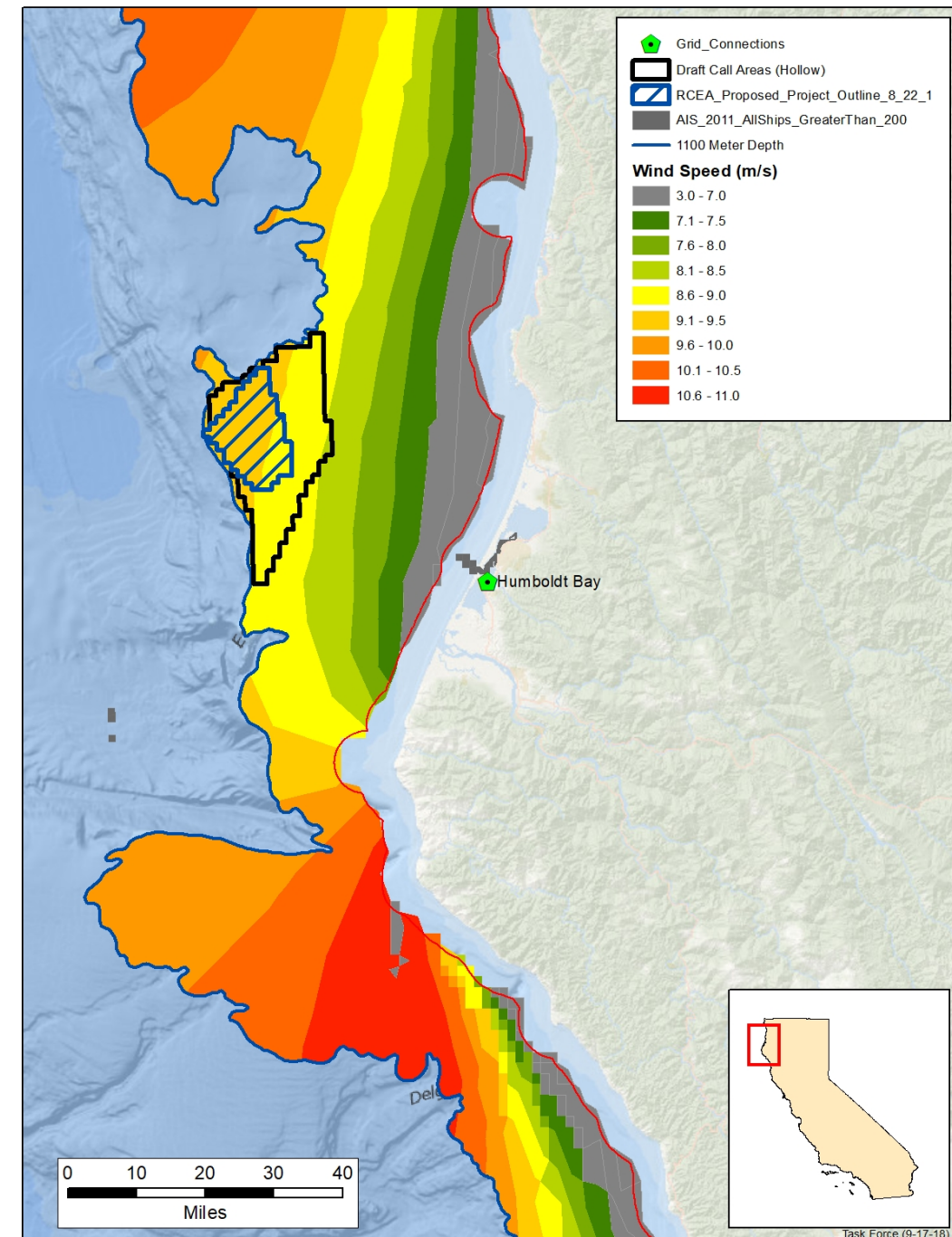
# California Offshore Wind

- North Coast Draft Call Area
  - Humboldt
- Grid connections
  - Humboldt Bay



# California Offshore Wind

- North Coast Draft Call Area
  - Humboldt
- Grid connections
  - Humboldt Bay
- 2017 AIS Data
- Redwood Coast Energy Authority proposed lease area



# Contact Information



**Jean Thurston**

Renewable Energy Specialist/Task Force Coordinator

Jean.Thurston@boem.gov

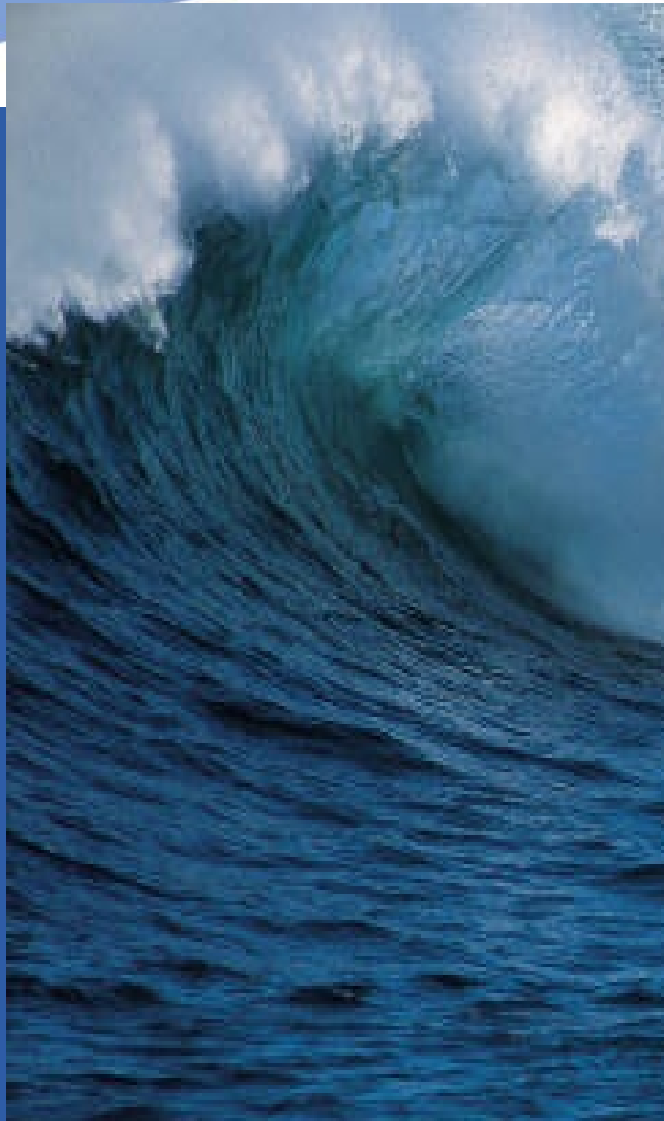
Office: (805) 384 – 6303

Cell: (805) 437 – 9175

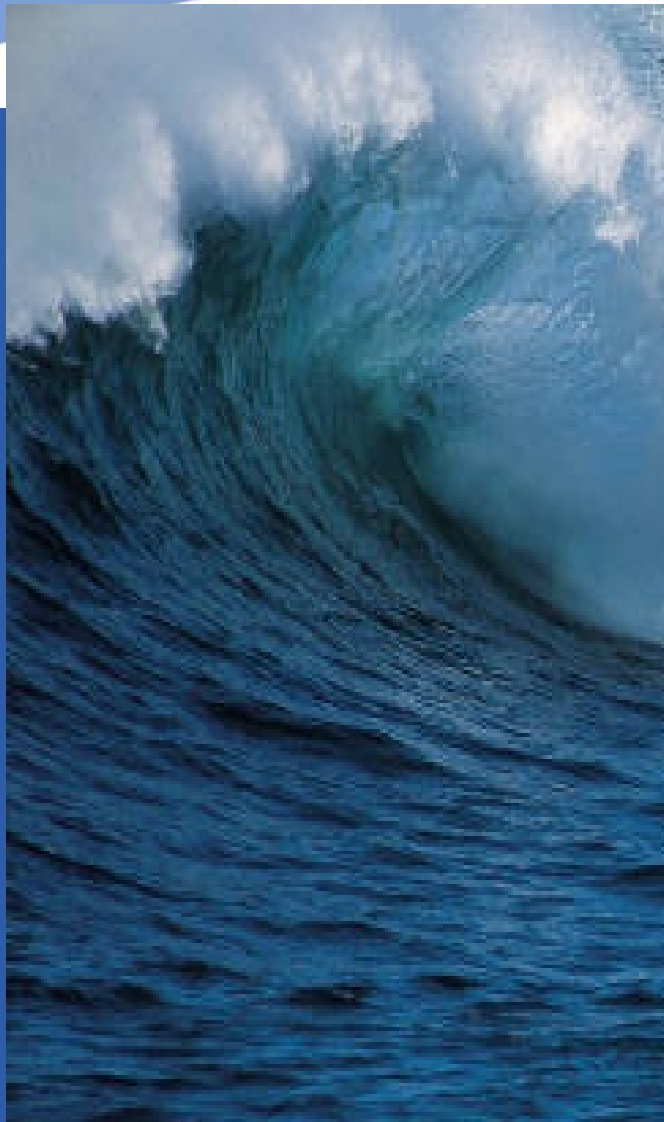
[www.boem.gov/california](http://www.boem.gov/california)

[www.caoffshorewind.databasesin.org](http://www.caoffshorewind.databasesin.org)

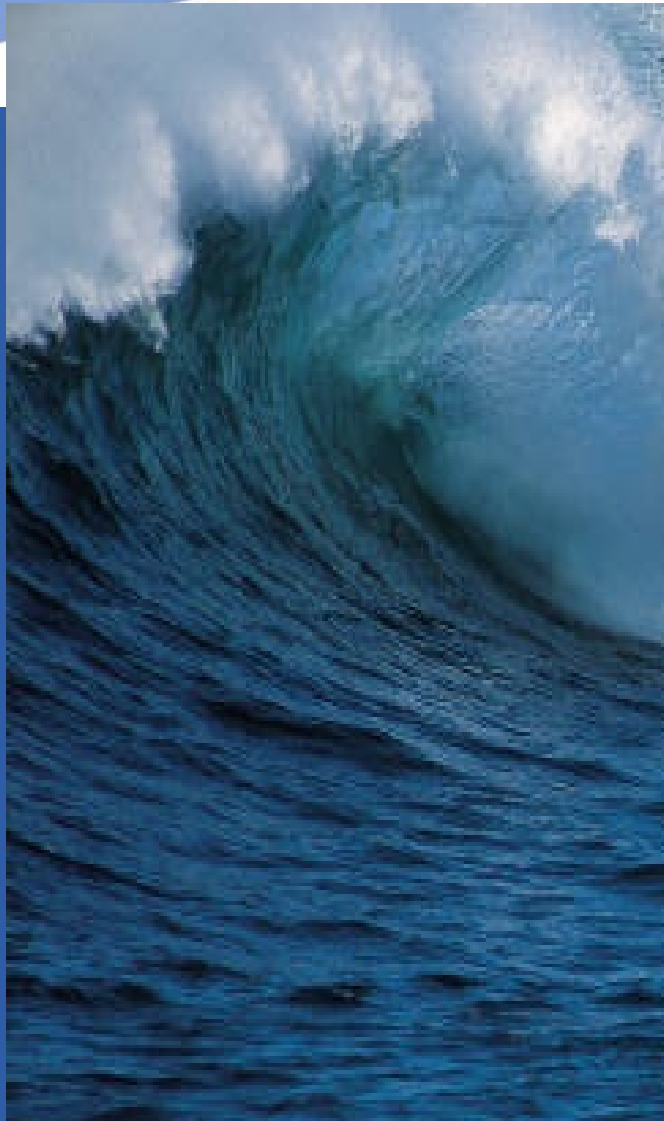




# Task Force Discussion on Draft Call Areas

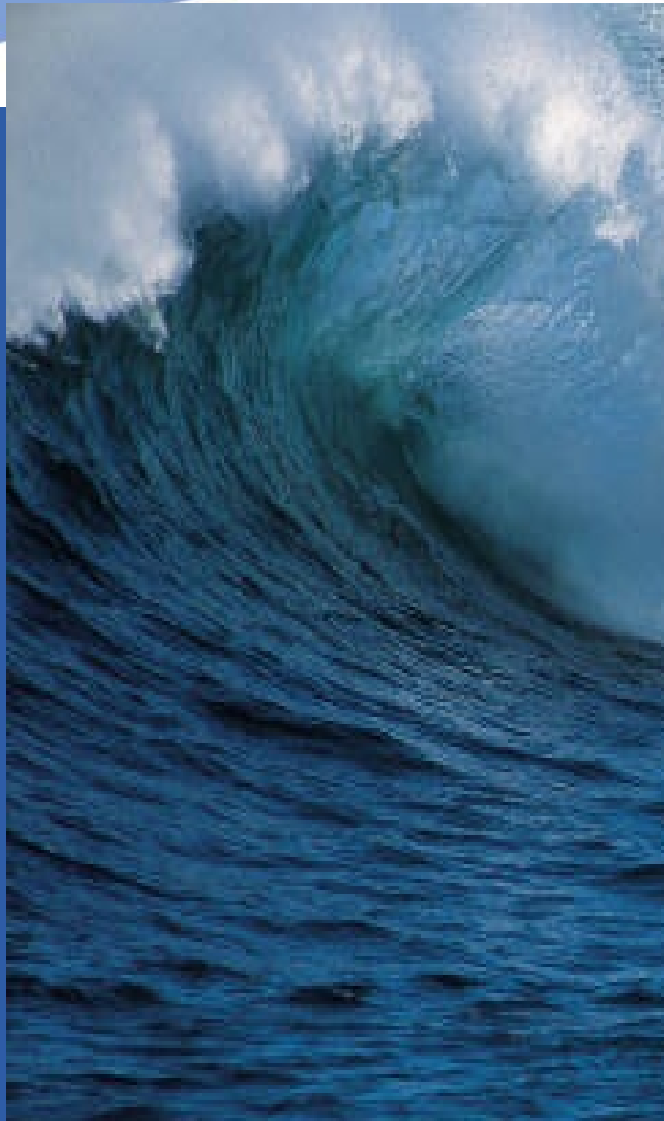


# Public Input Opportunity



# Lunch Break





# Data Basin: Offshore Wind Energy Gateway

Jim Strittholt, Ph.D.  
Conservation Biology Institute

# What kinds of content are available?



**DATASETS** – individual spatial data files (or layers)



**MAPS** – customized maps made by members



**GALLERIES** – collections of datasets and/or maps



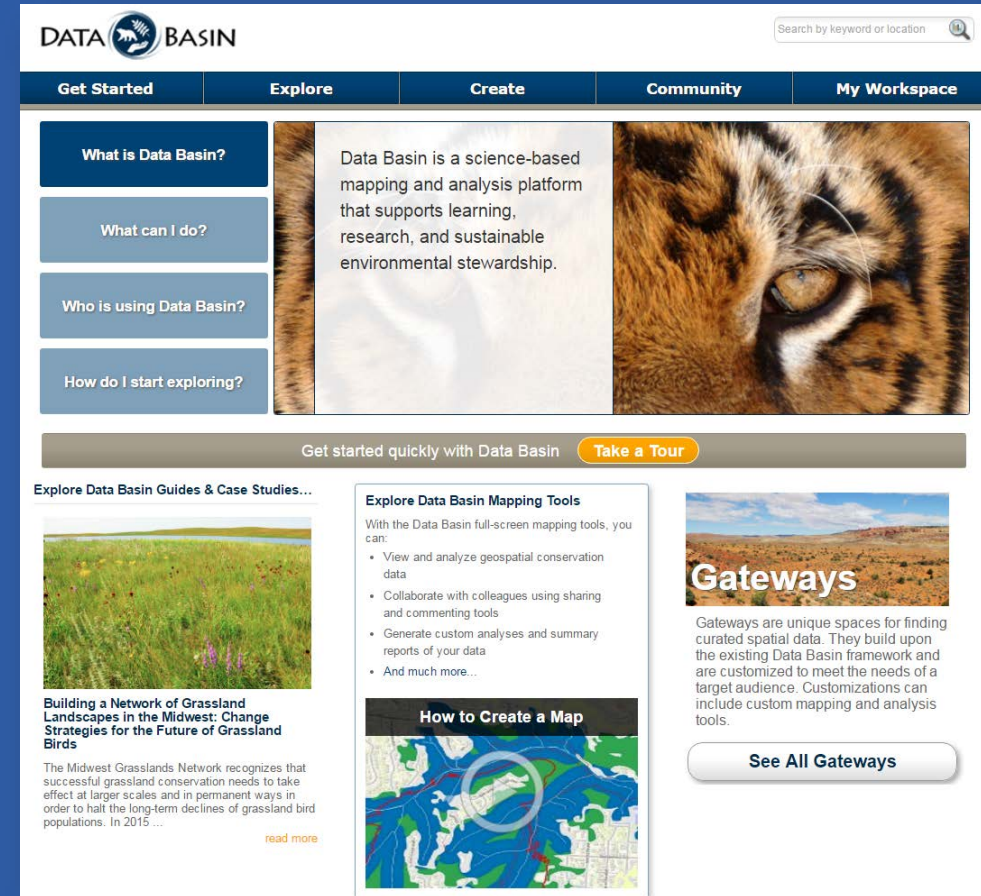
**GUIDES and CASE STUDIES** – examples



**GROUPS** – created by members to address specific issues



**MEMBERS** – individuals with platform accounts



# How do I gain access and what can I do?

- Create your own user account
- Review geospatial datasets
- Add your own datasets
- Create your own maps
- Participate in working groups
- Comment on datasets and maps



Chrome



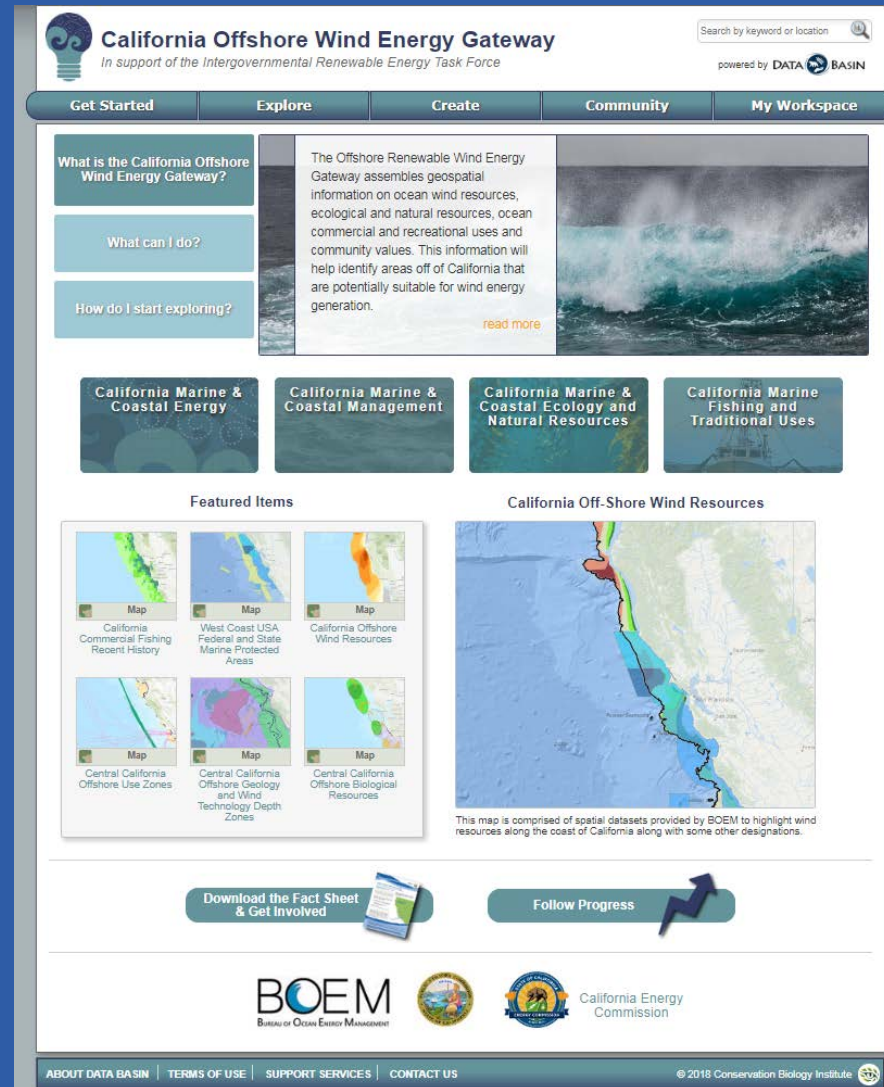
Firefox



Safari



Internet Explorer



The screenshot shows the homepage of the California Offshore Wind Energy Gateway. At the top, it features the BOEM logo and the text "Bureau of Ocean Energy Management". Below this is a navigation menu with tabs for "Get Started", "Explore", "Create", "Community", and "My Workspace". The main content area includes a search bar, a "powered by DATA BASIN" logo, and a central text box titled "What is the California Offshore Wind Energy Gateway?" with a "read more" link. Below this are four map thumbnails: "California Marine & Coastal Energy", "California Marine & Coastal Management", "California Marine & Coastal Ecology and Natural Resources", and "California Marine Fishing and Traditional Uses". There are also sections for "Featured Items" and "California Off-Shore Wind Resources" with various map thumbnails. At the bottom, there are buttons for "Download the Fact Sheet & Get Involved" and "Follow Progress", along with logos for BOEM and the California Energy Commission.

<https://caoffshorewind.databasin.org>



# How do I setup a user account?



**California Offshore Wind Energy Gateway**  
In support of the Intergovernmental Renewable Energy Task Force

powered by DATA BASIN

CA OFFSHORE WIND ENERGY | PEOPLE | JAMES R. STRITTHOLT

**James R. Strittholt** *President / Executive Director with Conservation Biology Institute*  
email: stritt@consbio.org Member since Nov 23, 2009 (last logged in Apr 11, 2017)

Profile Account Settings Manage Account

President and Executive Director of the Conservation Biology Institute founded in 1997. I have over 25 years experience in applying computer mapping technologies (including GIS and remote sensing) to address various ecological assessments and conservation planning projects in the U.S. and internationally. I hold undergraduate degrees in Botany, Zoology and Secondary Education – all obtained from Miami University (Oxford, Ohio) where I also earned a Masters in Zoology in population genetics of vertebrates. I received my Ph.D. in 1994 from Ohio State University in a self-designed multi-disciplinary program emphasizing landscape ecology, conservation planning, and computer mapping technologies. I have considerable experience working with large mammals, field research on forests and vertebrates. I have over eight years of high school and college teaching experience. Over the last decade, I have been principle investigator on numerous projects including nature reserve designs, conservation gap analysis, forest and watershed assessments, endangered species planning, ecological modeling, internet tool development, and remote sensing applications in conservation. I have authored numerous reports, peer-reviewed articles, and white papers. Areas of expertise include conservation planning, landscape ecology, forest conservation, vertebrate biology, geographic information systems, and remote sensing.

Level of Education: PhD Years of Experience: > 20 years

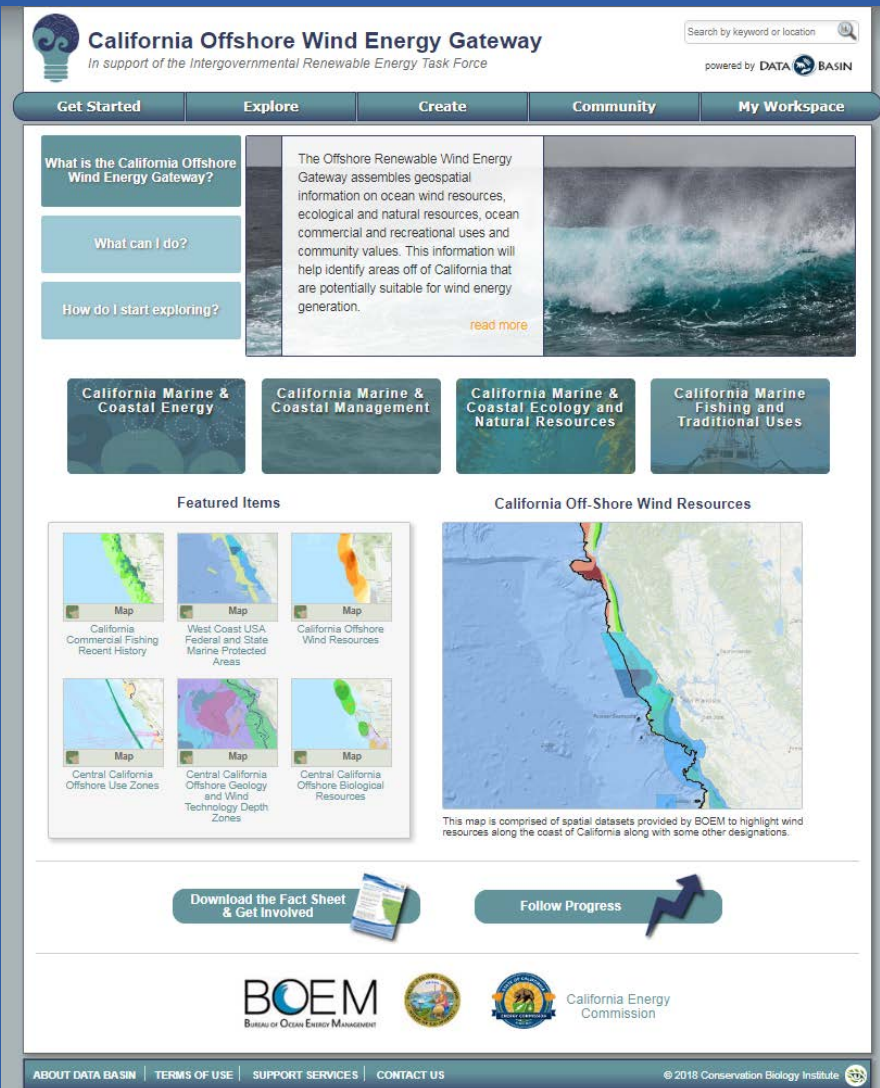
Websites:  
http://www.consbio.org

Tags  
landscape ecology, biodiversity, gis, protectedareas, remote sensing, vertebrate biology, vertebrates, conservation, conservation planning, forest conservation

Contributed:  
4 Datasets (1 private)  
302 Maps (274 private)  
16 Galleries (4 private)  
17 Groups (14 private)

Participating in:  
79 Groups (52 private)  
41 Comments on items

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**California Offshore Wind Energy Gateway**  
In support of the Intergovernmental Renewable Energy Task Force

powered by DATA BASIN

Get Started Explore Create Community My Workspace

What is the California Offshore Wind Energy Gateway?  
The Offshore Renewable Wind Energy Gateway assembles geospatial information on ocean wind resources, ecological and natural resources, ocean commercial and recreational uses and community values. This information will help identify areas off of California that are potentially suitable for wind energy generation. [read more](#)

What can I do?  
How do I start exploring?

California Marine & Coastal Energy  
California Marine & Coastal Management  
California Marine & Coastal Ecology and Natural Resources  
California Marine Fishing and Traditional Uses

Featured Items  
California Commercial Fishing Recent History  
West Coast USA Federal and State Marine Protected Areas  
California Offshore Wind Resources  
Central California Offshore Use Zones  
Central California Offshore Geology and Wind Technology Depth Zones  
Central California Offshore Biological Resources

California Off-Shore Wind Resources  
This map is comprised of spatial datasets provided by BOEM to highlight wind resources along the coast of California along with some other designations.

Download the Fact Sheet & Get Involved  
Follow Progress

BOEM Bureau of Ocean Energy Management  
California Energy Commission

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# Platform Homepage Layout

Easy navigation to content



Datasets & maps curated for easy access



Featured items



Quick-start map



<https://caoffshorewind.databasin.org>



The screenshot shows the homepage of the California Offshore Wind Energy Gateway. At the top, there is a search bar and a navigation menu with five tabs: "Get Started", "Explore", "Create", "Community", and "My Workspace". Below the navigation menu, there is a main content area. On the left, there are three buttons: "What is the California Offshore Wind Energy Gateway?", "What can I do?", and "How do I start exploring?". To the right of these buttons is a text block with a "read more" link and a large image of waves. Below this, there are four thumbnails for datasets: "California Marine & Coastal Energy", "California Marine & Coastal Management", "California Marine & Coastal Ecology and Natural Resources", and "California Marine Fishing and Traditional Uses". Further down, there are two sections: "Featured Items" with three map thumbnails and "California Off-Shore Wind Resources" with a large map. A caption below the large map states: "This map is comprised of spatial datasets provided by BOEM to highlight wind resources along the coast of California along with some other designations."

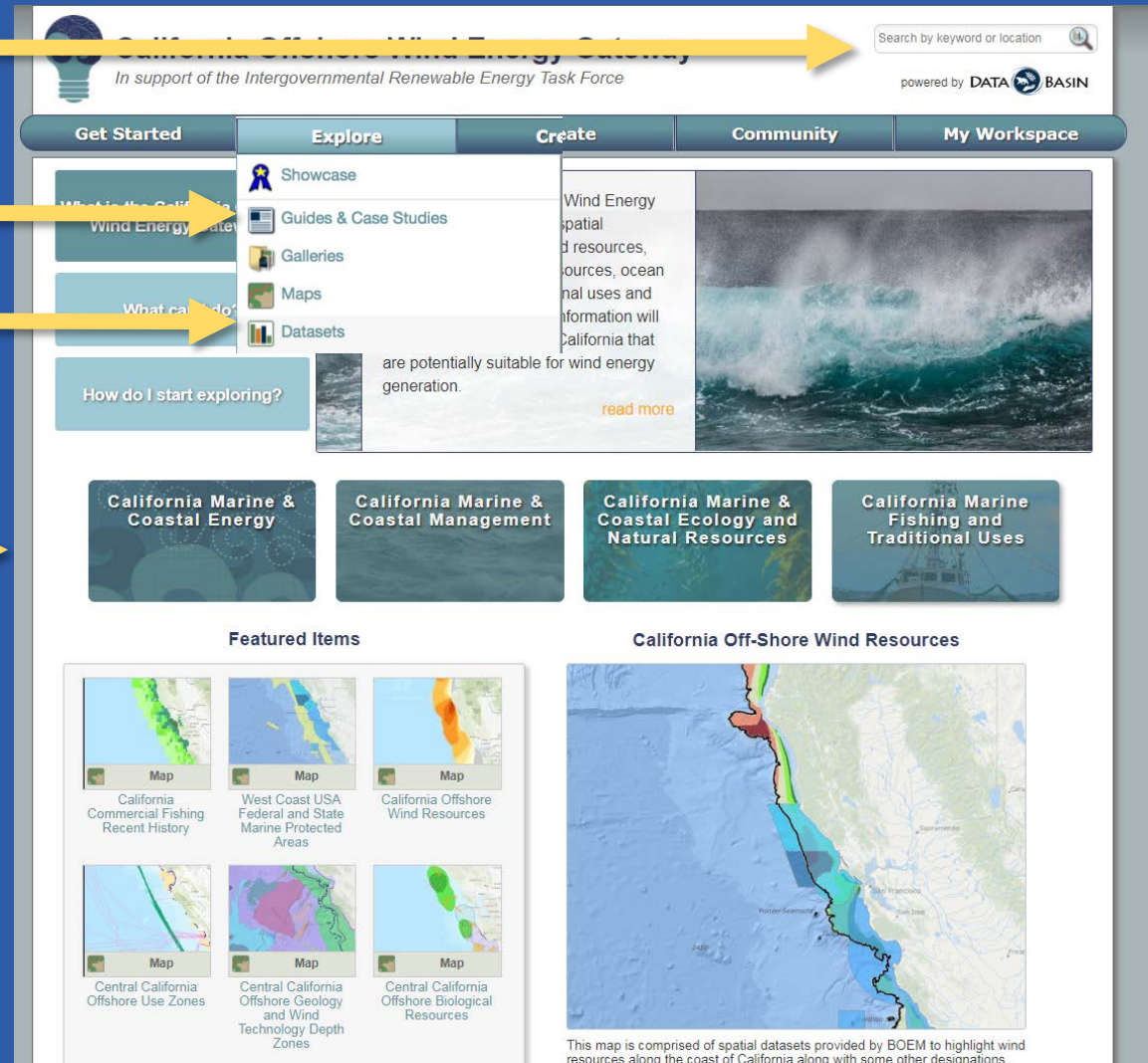
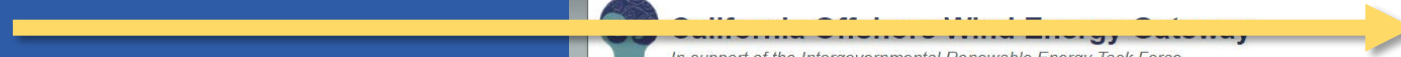


# How do I find things?

Find content using “search”

Find content via well-organized galleries  
or browse through datasets

Find content via well-organized galleries



The screenshot shows the homepage of the California Offshore Wind Energy Gateway. At the top, there is a search bar with the text "Search by keyword or location" and a magnifying glass icon. Below the search bar is a navigation menu with tabs for "Get Started", "Explore", "Create", "Community", and "My Workspace". The "Explore" tab is active, showing a dropdown menu with options: "Showcase", "Guides & Case Studies", "Galleries", "Maps", and "Datasets". Below the menu, there is a section titled "How do I start exploring?" with a "read more" link. Further down, there are four gallery tiles: "California Marine & Coastal Energy", "California Marine & Coastal Management", "California Marine & Coastal Ecology and Natural Resources", and "California Marine Fishing and Traditional Uses". Below these are two sections: "Featured Items" and "California Off-Shore Wind Resources". The "Featured Items" section contains six map thumbnails with titles: "California Commercial Fishing Recent History", "West Coast USA Federal and State Marine Protected Areas", "California Offshore Wind Resources", "Central California Offshore Use Zones", "Central California Offshore Geology and Wind Technology Depth Zones", and "Central California Offshore Biological Resources". The "California Off-Shore Wind Resources" section features a large map of the California coast with wind resource designations and a caption: "This map is comprised of spatial datasets provided by BOEM to highlight wind resources along the coast of California along with some other designations."



# Using Search

Search using key word and/or geography →  
Search within Gateway or all of Data Basin

All content types are searched simultaneously →



The screenshot shows the search interface of the California Offshore Wind Energy Gateway. At the top, there is a search bar with the text "CA Offshore Wind Energy" and "protected areas" entered. Below the search bar, there are several instructions for using the search function. To the right of the search bar is a map of the United States with a zoom-in (+) and zoom-out (-) button. Below the search bar, there is a "Search" button. The results section shows "Showing 1 - 18 of 62 Items; Page 1 of 4". There are filters for "Datasets (62)", "Maps (3)", "Galleries (1)", "Guides & Case Studies (1)", "Members (292)", "Groups (0)", and "Other (0)". The results are sorted by "Relevance" and displayed in a grid view. The first result is "Marine Protected Areas Inventory, March 2012" by NOAA Marine Protected Areas Center. The second result is "Protected Areas - California, May 2010" by Conservation Biology Institute. The third result is "Protected Areas - Oregon, May 2010" by Conservation Biology Institute.

# Standardized Overviews

Action dropdowns →

Dataset Description →

Quick start thumbnail →

**Marine Protected Areas Inventory, March 2012**  
Uploaded by Conservation Biology Institute Jun 8, 2012

Manage... Add to... Download... [Open in Map](#)

**Recommended by Conservation Biology Institute**

**Description:**  
The MPA Inventory is a comprehensive catalog that provides detailed information for existing marine protected areas in the United States. The inventory provides geospatial boundary information (in polygon format) and classification attributes that seek to define the conservation objectives, protection level, governance and related management criteria for all sites in the database. The comprehensive inventory of federal, state and territorial MPA sites provides governments and stakeholders with access to information to make better decisions about the current and future use of place-based conservation. The information also will be used to inform the development of the national system of marine protected areas as required by Executive Order 13158.

**Details** Data Layers (1) Attachments (0) Comments (0)

**Data Provided By:**  
NOAA Marine Protected Areas Center in joint effort with the US Department of the Interior

**Content date:** not specified

**Contact Organization:**

**Contact Person(s):**  
not specified

**Use Constraints:**  
This work is licensed under a Creative Commons Attribution 3.0 License.

This dataset is visible to everyone

**Dataset Type:** Layer Package

**Tags:**  
united states, marine protected areas, noaa

Downloaded by 16 Members  
Bookmarked by 4 Members, 3 Groups  
Included in 5 public maps, 14 private maps

Complete metadata →

Use history →

# Browsing Galleries and Datasets

**California Offshore Wind Energy Gateway**  
*In support of the Intergovernmental Renewable Energy Task Force*

powered by **DATA BASIN**

Get Started
Explore
Create
Community
My Workspace

CA OFFSHORE WIND ENERGY | GALLERIES

## Galleries

Showing 1 - 9 of 9 Items; Page 1 of 1

Sort by: Creation Date (newest to oldest)

Display: grid list

California Marine Fishing and Traditional Uses

Fishing

California Marine & Coastal Ecology and Natural Resources

Global Marine Datasets - TNC

California Marine & Coastal Energy

California Marine & Coastal Management

Coastal and Marine Resources

Sea level rise data for the USA

California, USA: Sea Level Rise Data

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powered by **DATA BASIN**

Get Started
Explore
Create
Community
My Workspace

CA OFFSHORE WIND ENERGY | DATASETS

## Datasets

*Spatial information for visualization or download.* [see all 630 datasets](#)

**Recommended Datasets**

**Seabird Spring Survey Compilation: Observations from various surveys between 1975 and 2008**

Compilation of 29 surveys varying in survey methods, temporal and geographic extent along the California coast.

Seabird distribution layers are from CDAS, a compilation of at-sea survey data maintained by RG Ford Consulting Company under contract to CDFW-OSPR. The seabird layers here show mean density (weighted to survey effort) from the following surveys, from 1975 through 2008.

For more details please view "Data Layers" tab for survey methods from...  
Report: California Seabird Ecology Study. Prepared by the Institute of Marine Sciences, University of California, Santa Cruz, for the Pacific OCS Region, Minerals Management Service, Contract No. 14-12-001-30183. vii and 153 pp.  
[read more](#)

**Dataset**  
California Offshore Wind Speed: Monthly Ave. across Year (2007 - 2013)

**Dataset**  
Offshore Wind Resource Potential

**Dataset**  
ACP Environmental Sensitive Sites

**Dataset**  
Essential Fish Habitat

**Dataset**  
Marine Protected Areas Inventory, March 2012

[see more](#)

Looking for something specific?

**Recent Datasets**

**Dataset**  
Recommended Vessel Tracks Monterey Bay NMS

**Dataset**  
Shipping Lanes CA 2016

**Dataset**  
100m Depth Contours

**Dataset**  
Fin Whale Relative Habitat Suitability, West Coast

**Dataset**  
Total Commercial Landings in Ex-Vessel Value for all Fishing Gear Types

**Dataset**  
Total Commercial Landings in Metric Tons for all Fishing Gear Types

**Dataset**  
Average Ex-Vessel Value for All Fishing Gear Types (1980-2016)

[see more](#)

<https://caoffshorewind.databasin.org>



# Galleries Organized into Subfolders

- Energy Demand
- Oil & Gas
- Submarine Cables
- Wind Resources – including time-enabled

<https://caoffshorewind.databasin.org>



**California Offshore Wind Energy Gateway**  
In support of the Intergovernmental Renewable Energy Task Force

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CA OFFSHORE WIND ENERGY | GALLERIES | CALIFORNIA MARINE & COASTAL ENERGY

**California Marine & Coastal Energy**  
Created by Conservation Biology Institute  
Feb 25, 2017 (Last modified Mar 27, 2017)

Manage... Add to...

**About**  
This gallery contains datasets pertaining to traditional (i.e., oil & gas) and renewable wind resources and existing coastal infrastructure needed to support energy production.

**Tags**  
california, wind energy

This gallery is visible to everyone

**Gallery contains**

- 5 Folders
- 35 Datasets
- 2 Maps

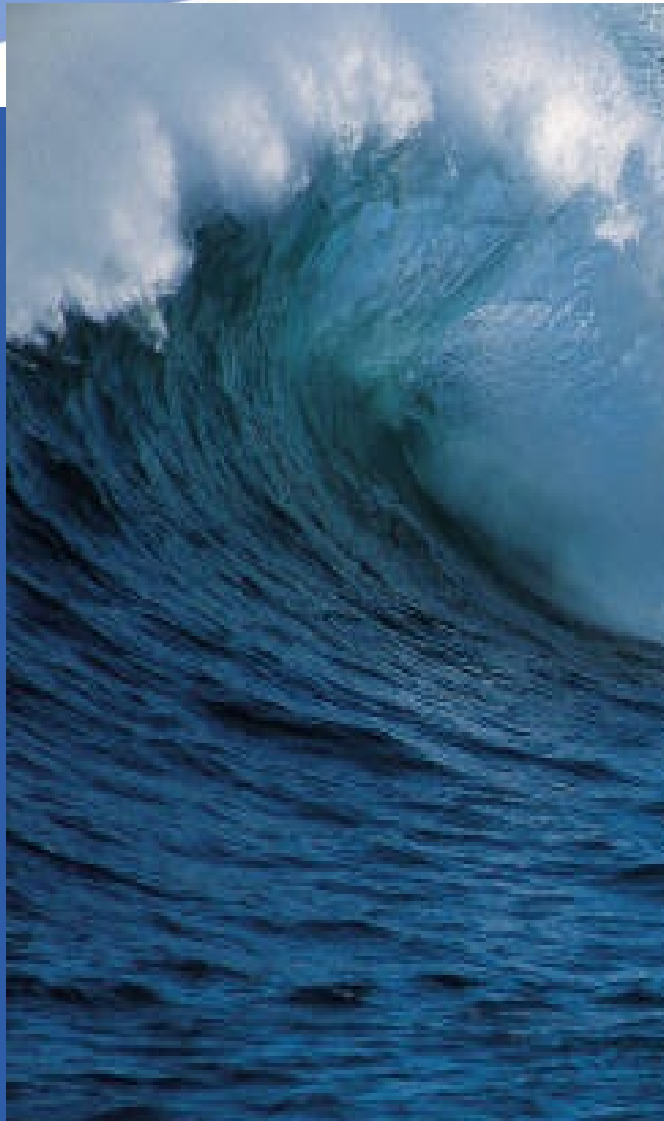
**Usage**

- bookmarked by 1 member

**Gallery Contents** Comments (0)

Sort by: [Default] Display: [Grid]

- Energy Demand (2 items)
- Oil and Gas (13 items)
  - Regulated Facilities
  - District 6 Wells
  - District 2 Wells
  - District 5 Wells
  - District 4 Wells
  - District 1 Wells
  - District 3 Wells
  - Approach Pipeline Area - NOAA
  - Approach Pipeline Submarine on Land
  - Crude by Rail Terminals



# Task Force Roundtable Discussion

## Future Activities:

- Draft Call to Task Force members – early/mid October
- Publication of the Call in the *Federal Register* (60-day comment period due to holiday season)
- Area Identification
  - Review comments received during Call
  - Refine Area(s) based on input
  - Identify Wind Energy Areas (WEAs)
- Conduct NEPA on WEA(s)
- Publish Proposed Sale Notice (60-day comment period)
- Publish Final Sale Notice (at least 30-days before sale date)
- Hold Auction



# Offshore Renewable Energy Leasing Process

## Planning & Analysis

- **Intergovernmental Task Force**
- **Call for Information & Nominations (Call)**
- Area Identification
- Environmental reviews

## Leasing

- Publish leasing notices
  - Proposed
  - Final
- Issue lease(s)

## Site Assessment

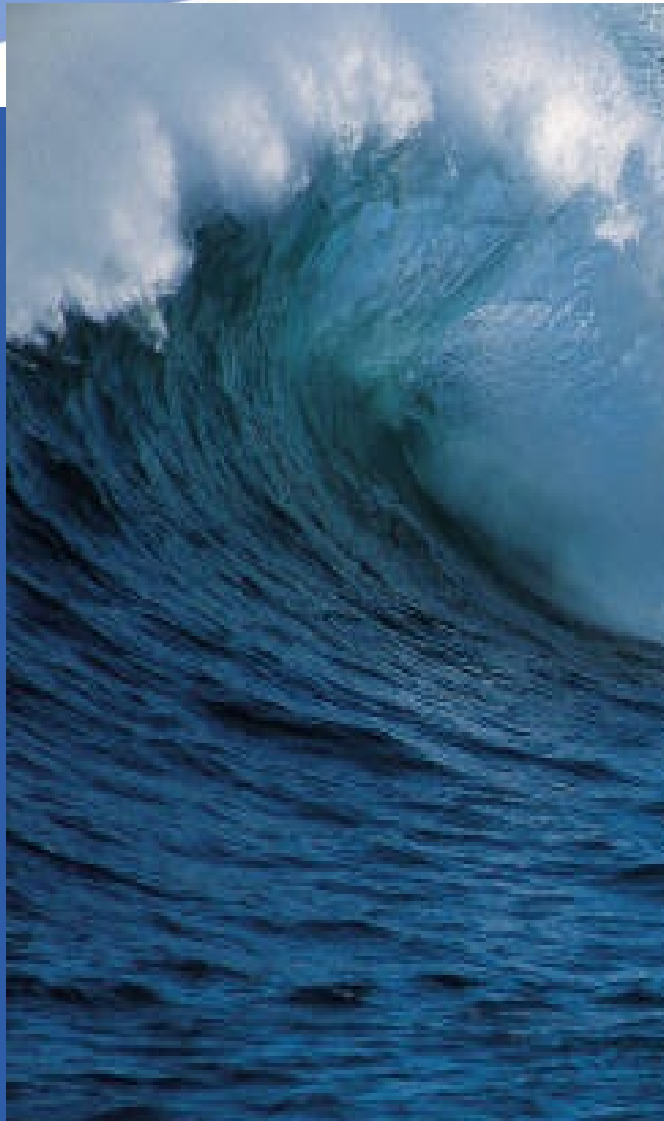
- Site Characterization
- Site Assessment Plan (SAP) developed by Lessee

## Construction & Operations

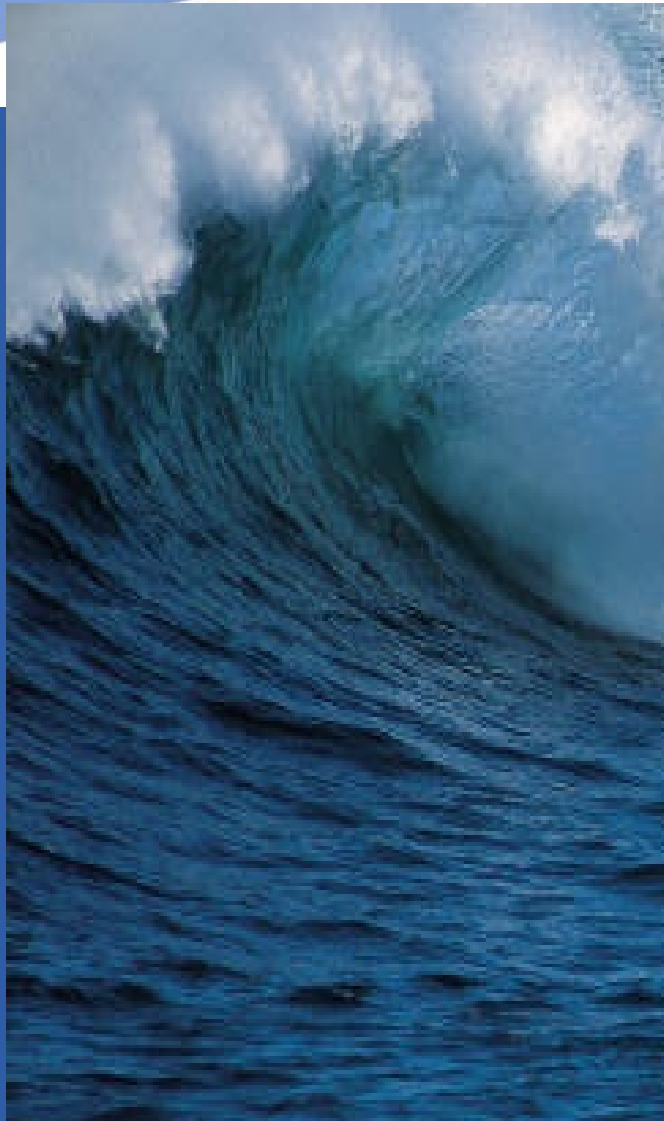
- Construction and Operations Plan (COP) reviewed under NEPA
- Facility Design Report & Fabrication and Installation Report
- Decommissioning

*Public input opportunities throughout the process including public meetings and Federal Register notices providing for public comment periods and opportunity for tribal consultation throughout*

**Multi Year Process**

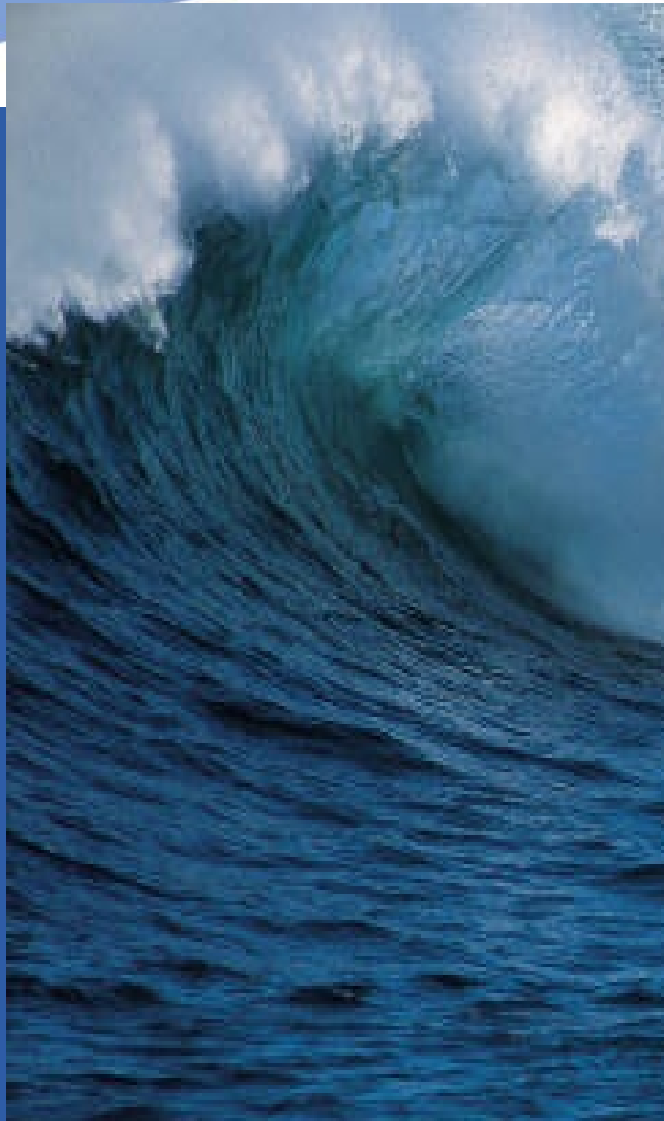


# Action Items and Next Steps



# Closing Comments





# Public Input Opportunity and Discussion