



NATIONAL MARINE  
SANCTUARIES

CHANNEL ISLANDS



# Overview of Available Data

For the MSWG

2/25/2015

CINMS and Seasketch



# GENERAL OVERVIEW

- Reference Layers
- Biological and Habitat Data
- Ocean User Groups
- Navigation and Shipping Activity
- Other Data

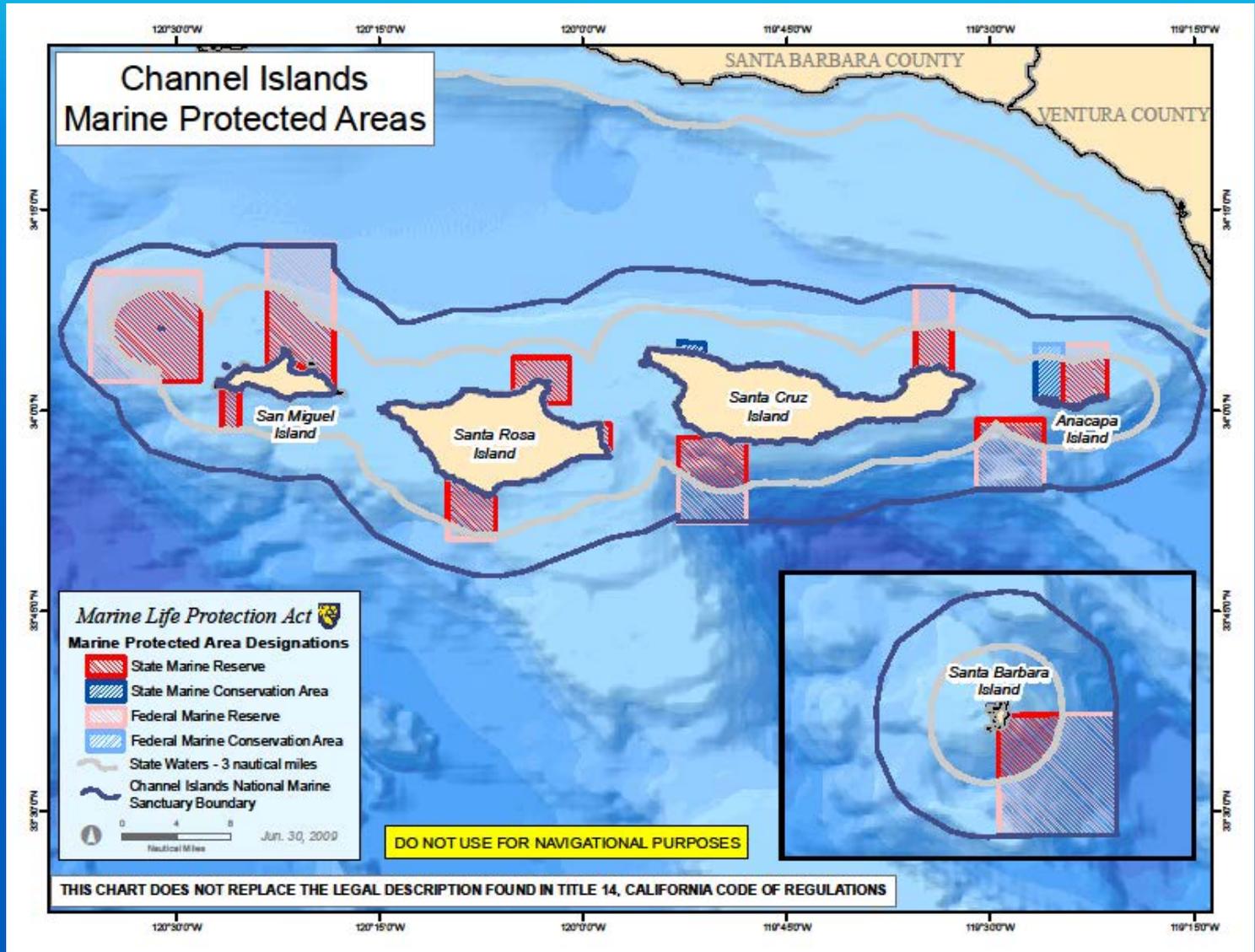


# Reference Layers

- Marine Protected Areas
- Government Agency Boundaries
  - National Park
  - Areas of Biological Significance
  - State Waters
  - Critical Habitat



# Marine Protected Areas



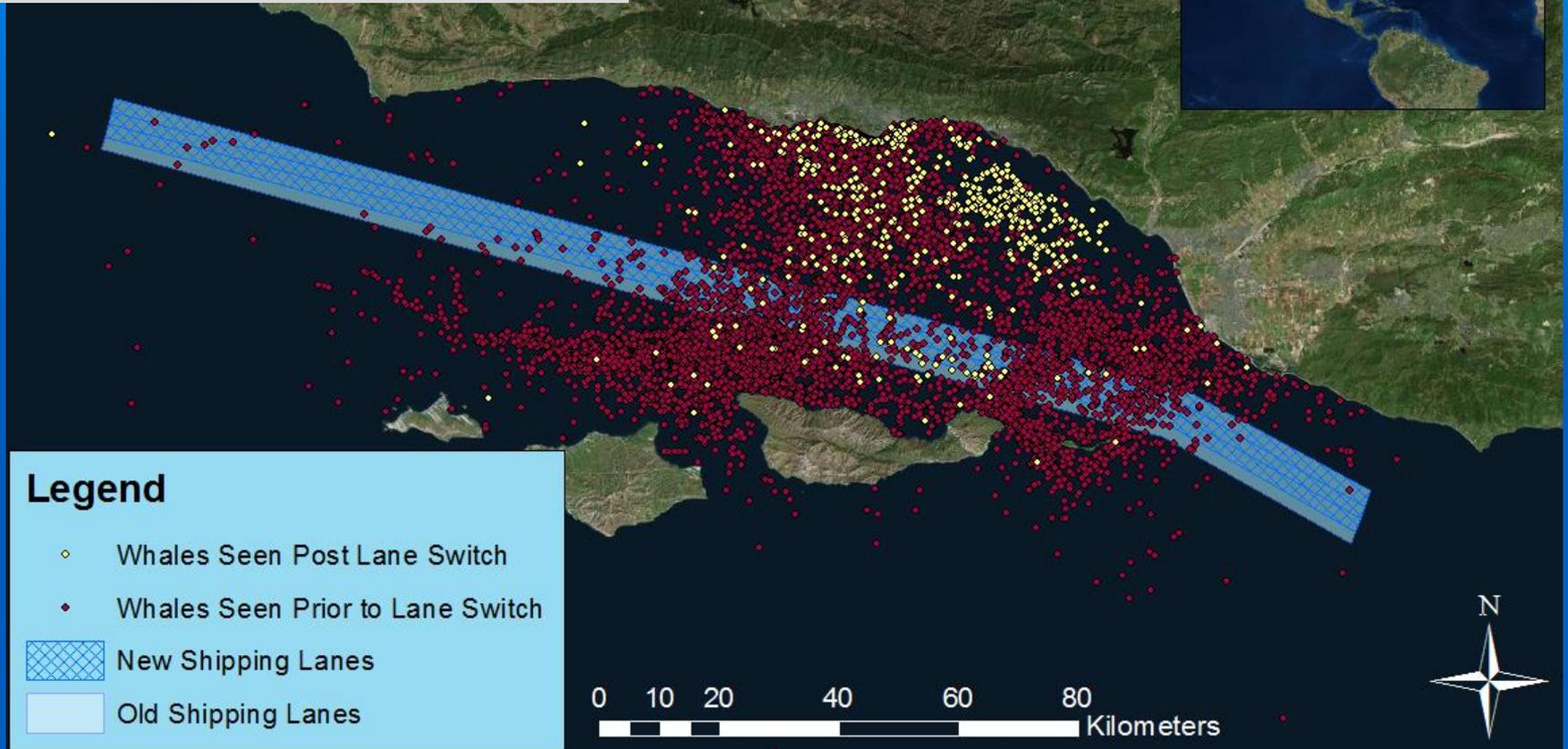
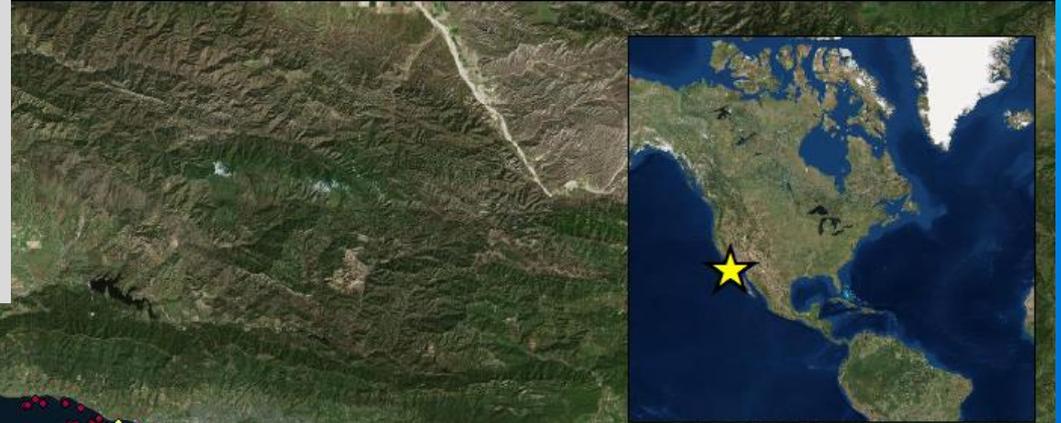
# Biological Info

- Whale Data
  - CINC Marine Mammal Sightings
  - Grey Whale Migration Route
  - Habitat Models (Redfern et. al 2014)
- Habitat
  - Artificial Reefs
  - Coastal Habitat Types
  - Submerged Aquatic Vegetation



# CINC Whale Sightings

- 1999-2014
- Citizen Science sightings Database
- Not effort corrected



## Legend

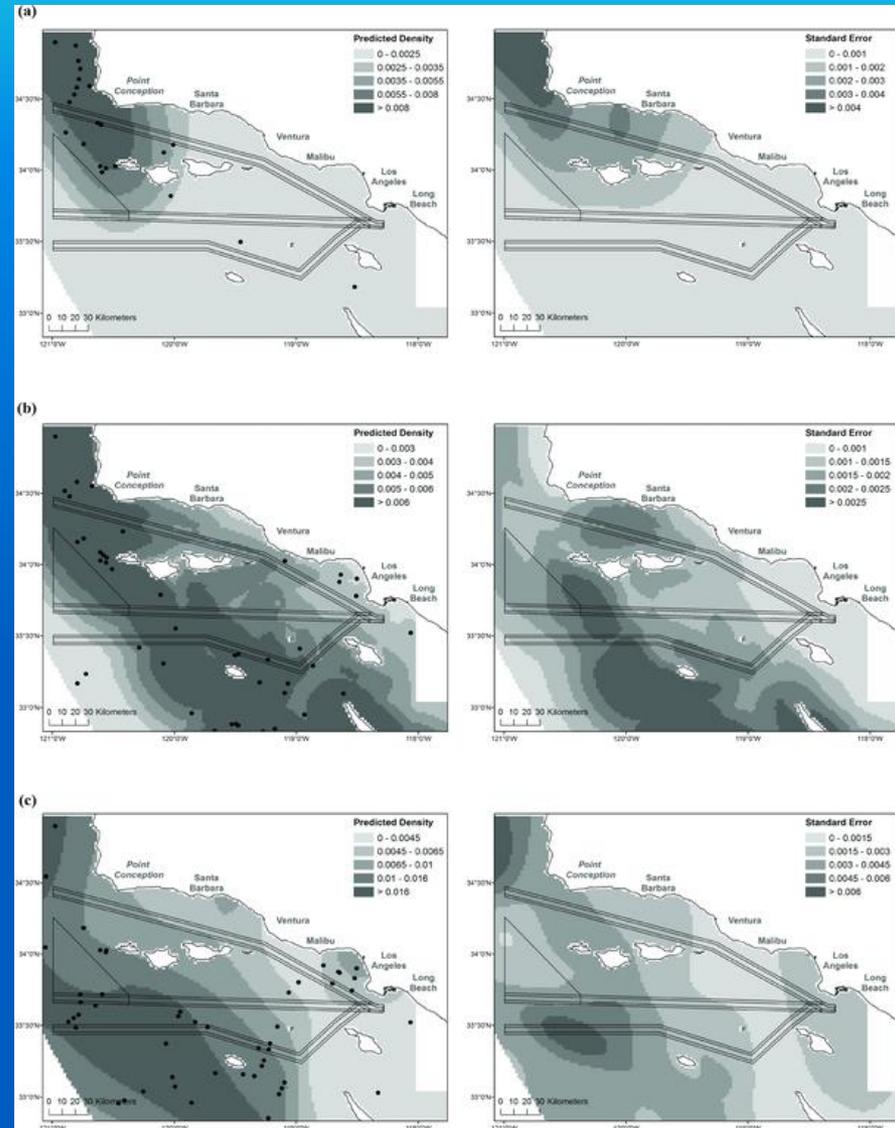
- ◊ Whales Seen Post Lane Switch
- ◆ Whales Seen Prior to Lane Switch
- ▨ New Shipping Lanes
- ▭ Old Shipping Lanes

0 10 20 40 60 80 Kilometers



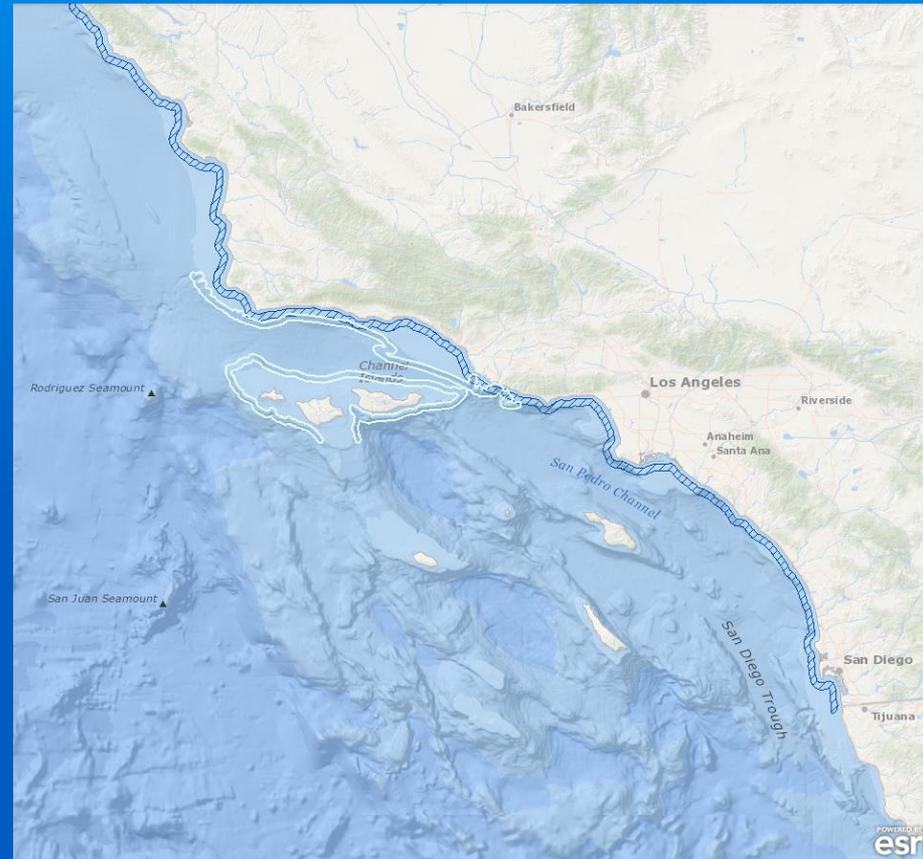
# Whale Habitat Models

- Models from Redfern et al. 2014
- Links sightings and habitat conditions to model regional habitats
- Built off SWFSC oceanographic and Cetacean Surveys



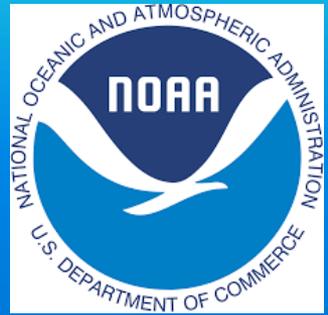
# Whale Vector-Based Info

- Grey Whale Migration Route
  - Individuals travel along the west coast of Canada, US and Mexico
- 200 m Isobath
  - Thought to be associated with cetacean habitat use



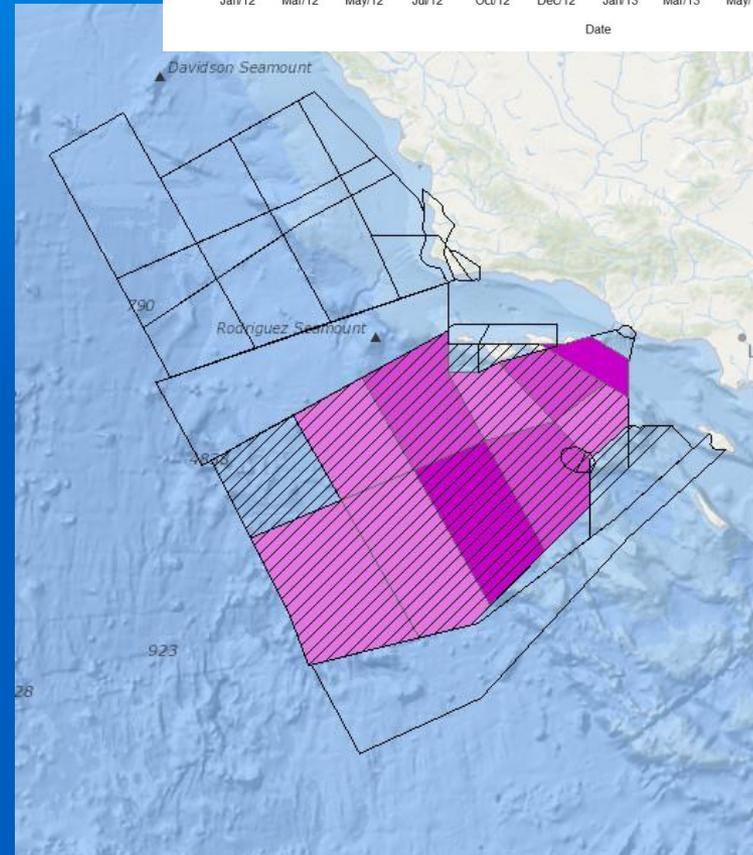
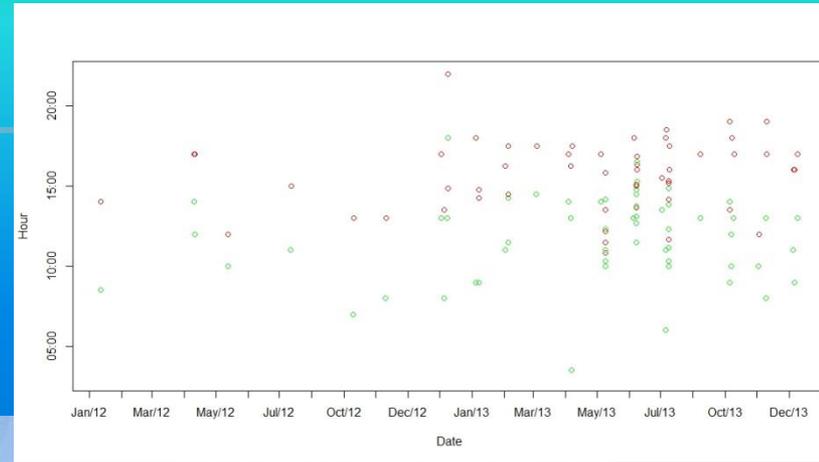
# Ocean User Groups

- Boating
- Industrial
- Scientific
- Military Use



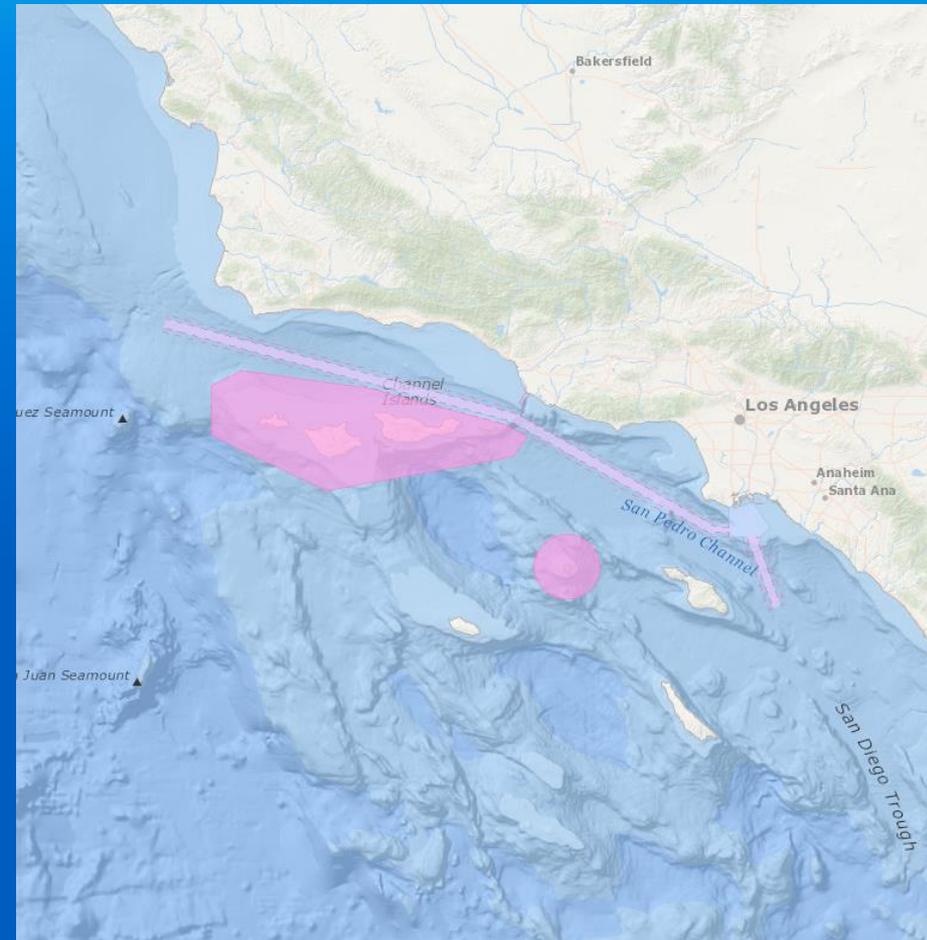
# The Naval Sea Range

- Operations only cover 2013
  - Interannual variability
- Majority of Ops occur from 9:00-17:00
- Type of operations differ and some are more sensitive than others
  - Not reflected in SeaSketch



# IMO Designations

- Areas To Be Avoided
  - One exists around CINMS
- IMO Shipping Lanes

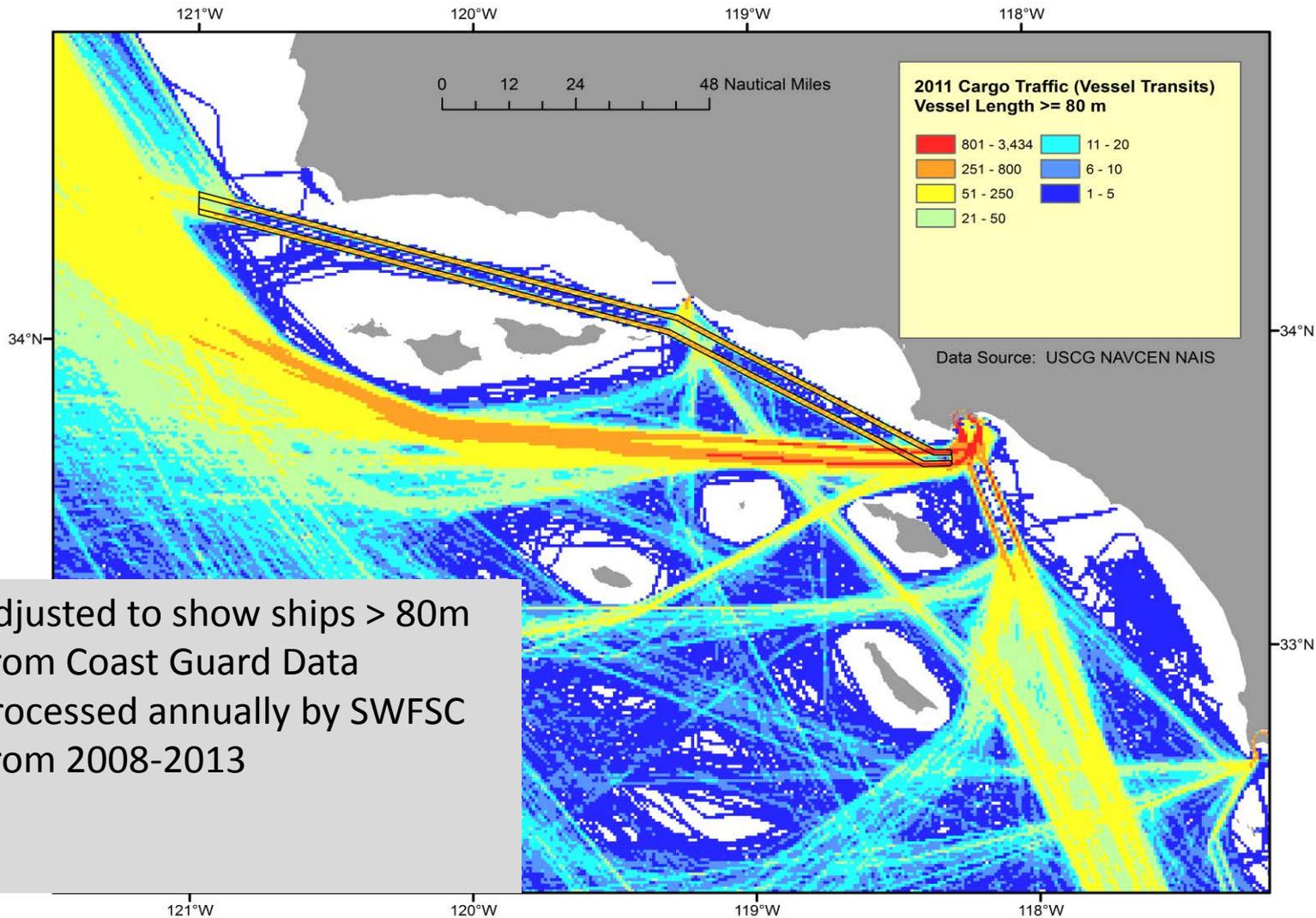


# Navigation and Shipping Activity

- AIS Info
  - Vessel Densities
  - Speed Over Ground
- Navigation Tools
  - Shipping Lanes
  - Lighthouses
  - Ports
  - Unexploded Ordnances

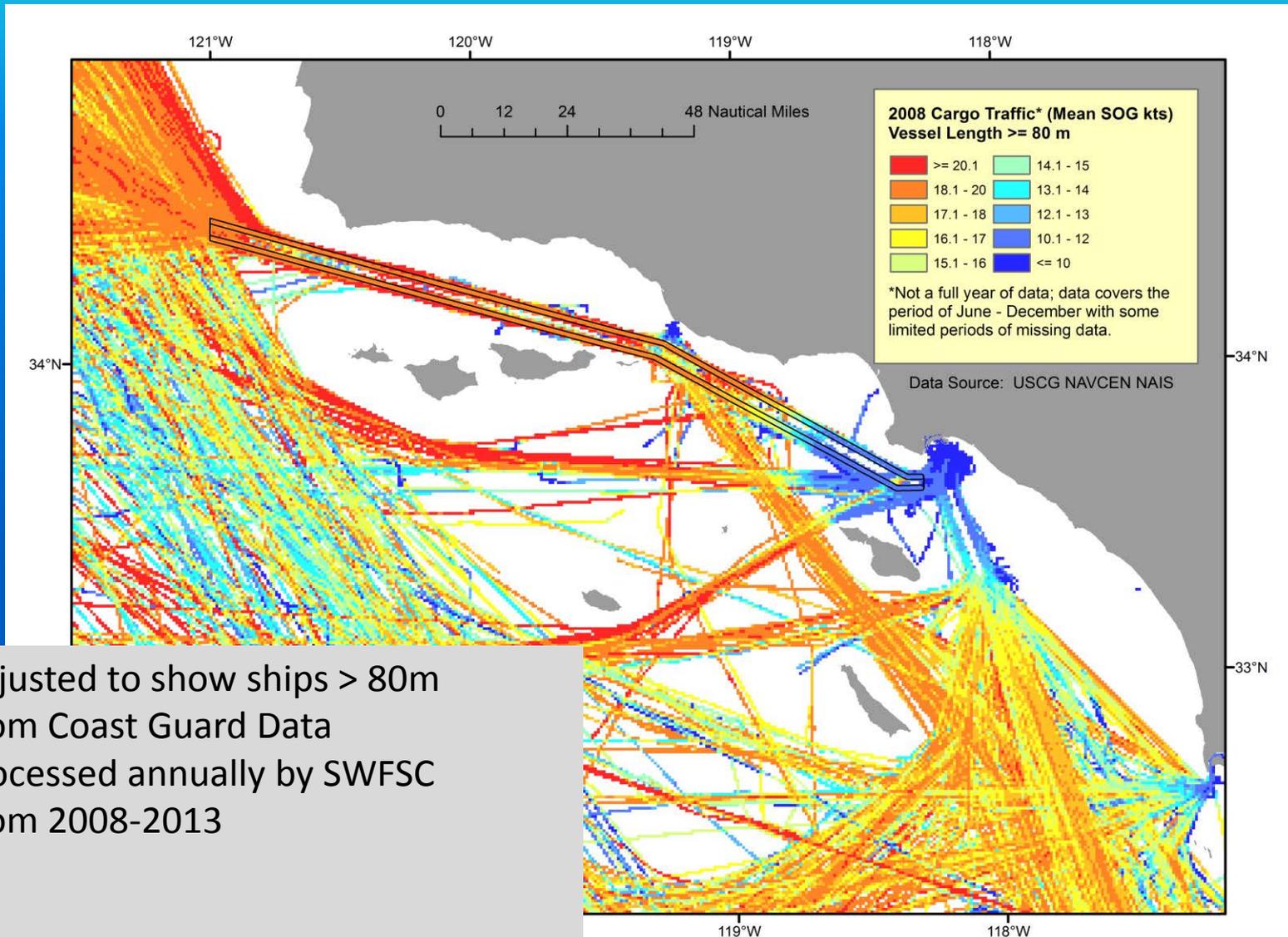


# AIS: Vessel Density



- Adjusted to show ships  $>$  80m
- From Coast Guard Data
- Processed annually by SWFSC
- From 2008-2013

# AIS: Speed Over Ground



- Adjusted to show ships > 80m
- From Coast Guard Data
- Processed annually by SWFSC
- From 2008-2013

# Local Air Quality

- SeaSketch uses speed and distance to estimate emissions in analytical reports
- Nitrogen Oxide ( $\text{NO}_x$ )  
Reactive Organic Gases (ROG), Sulfur Oxide (SOX), Carbon Monoxide (CO), Particulate Matter (PM-10), Carbon Dioxide ( $\text{CO}_2$ ), Methane ( $\text{CH}_4$ )



# Other Themes to Consider

- Underwater Noise & Acoustics
- Essential Fish Habitat
- Economic information



What info would you  
find useful in  
decision-making?

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How would you like  
the info presented?  
Visually, analytically?

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# Thank You!

- Southwest Fisheries Science Center
- Cascadia Research
- SB Air Pollution Control District
- Point Blue & Channel Islands Naturalist Corp
- CA DFW Marine Region GIS Unit
- Marinecadastre.gov
- Marine Exchange
- Whale Alert – Conserve iO
- US Navy