Ocean Uses Atlas:

Informing Comprehensive Coastal and Marine Spatial Planning

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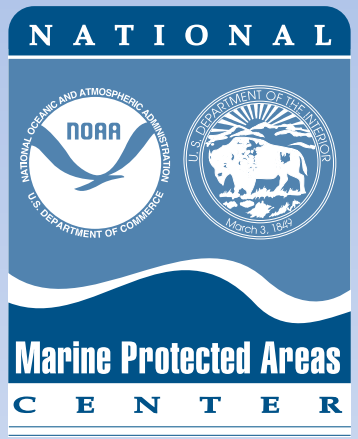
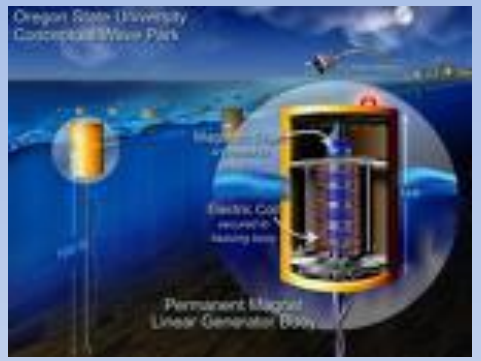
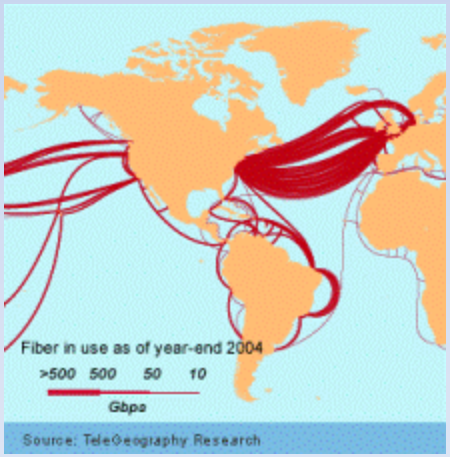


ONMS MSP Science Symposium
Nov. 16, 2009

Oceans Are Becoming Crowded Places:
Fishing Uses

Oceans Are Becoming Crowded Places:
Industrial and Military Uses



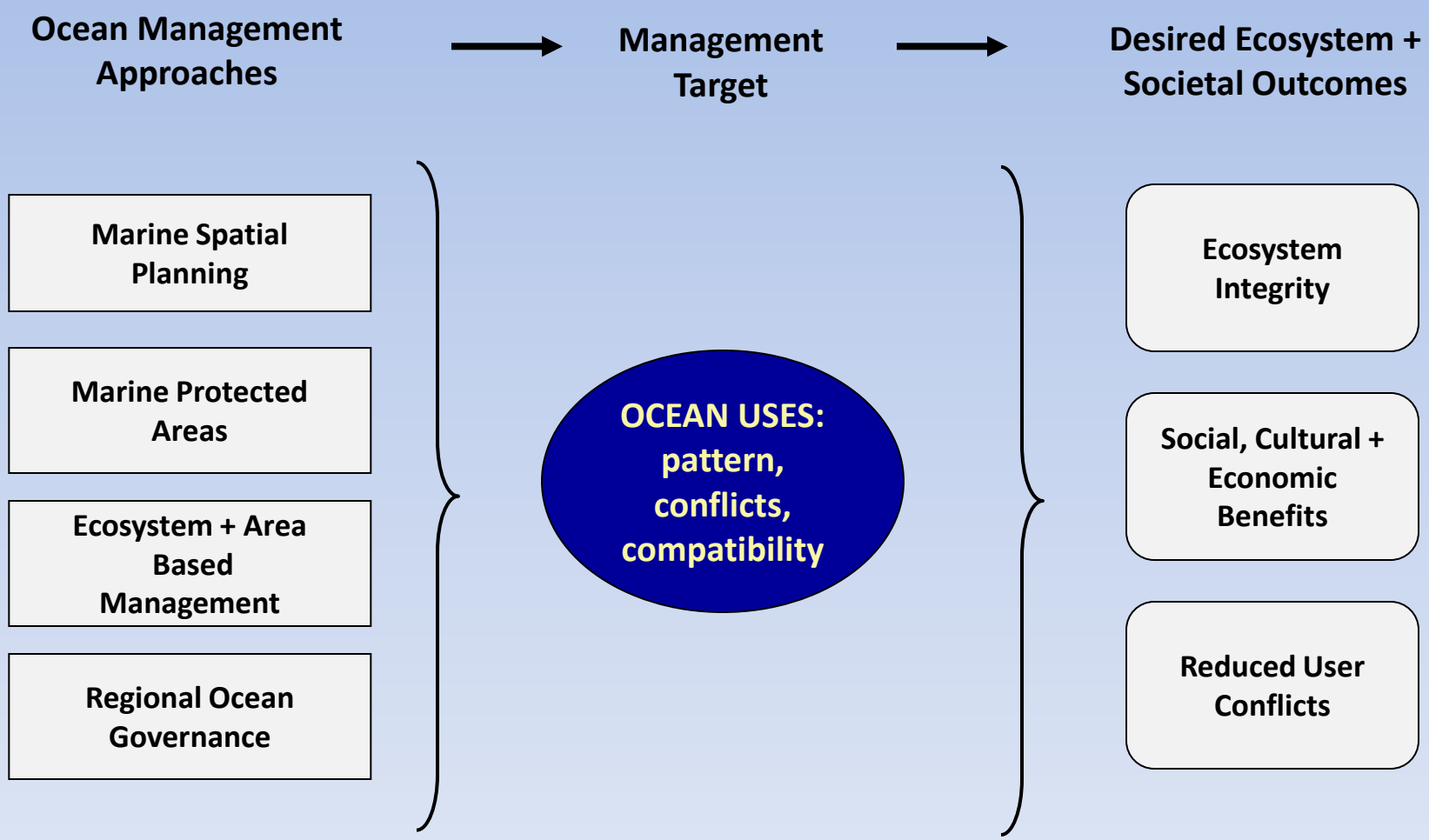


Oceans Are Becoming Crowded Places:
Non-Consumptive Uses

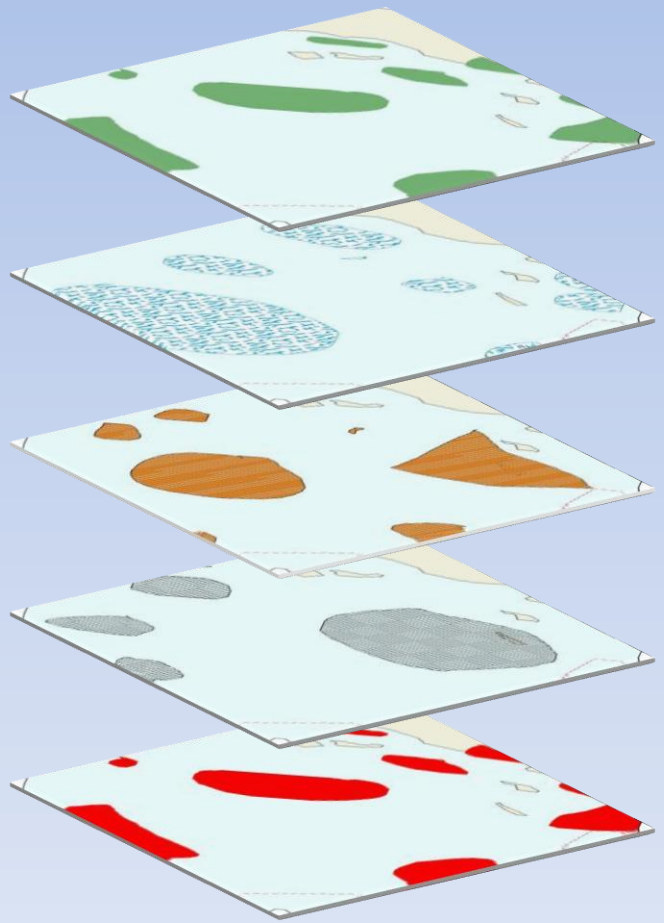
Emerging Uses

Spreading Out from Florida Keys NMS

CMSP is Comprehensive and Requires Planning for All Ocean Uses



The Missing Puzzle Piece of CMSP:
Comprehensive, Continuous and Consistent Spatial Data on Current and Planned Ocean Uses



Aquaculture

Alternative Energy

Fishing

Non-Consumptive Uses

Underwater cables

Filling the CMSP Knowledge Gap: The California Ocean Uses Atlas

- **Purpose** – to enhance California's ocean management and CMSP 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

30 Significant Human Uses Mapped by the CA Ocean Uses Atlas Project

Industrial and Military (8)

Offshore oil and gas
Offshore alternative energy
Mining + mineral extraction
Underwater cables
Maritime shipping
Cruise ships
Military operations
Aquaculture

Fishing (12)

Recreational pelagic fishing from boats
Recreational benthic fishing from boats
Recreational fishing from shore
Recreational dive fishing
Kayak fishing
Commercial pelagic fishing
Commercial fishing w/ benthic fixed gear
Commercial fishing w/ benthic mobile gear
Commercial dive fishing
Hunting
Commercial algae harvesting
Shore-based recreational harvest

Non-Consumptive (10)

Swimming
Surface water sports
Paddling
SCUBA and snorkeling
Motorized boating
Sailing
Tide pooling
Beach use
Wildlife viewing from charter boats
Tribal spiritual/cultural places

Workshop Design and Technology

Process

Participants in **3-4 balanced groups based on expertise**

Groups are paired with a **facilitator and GIS specialist**

Provided **orientation to technology, basemap**

Software
ESRI ArcGIS 9.2
ESRI ArcSketch 1.2 Extension

Hardware
E-Beam Electronic Whiteboard
Sympodium Digital Tablet

Data
Basemap – bathymetry, cities, coastal access points, underwater features, kelp, shipwrecks, etc.

Post-workshop Steps

GIS Processing

- Systematic edits of raw workshop files
- Data normalization
- Boundary Issues

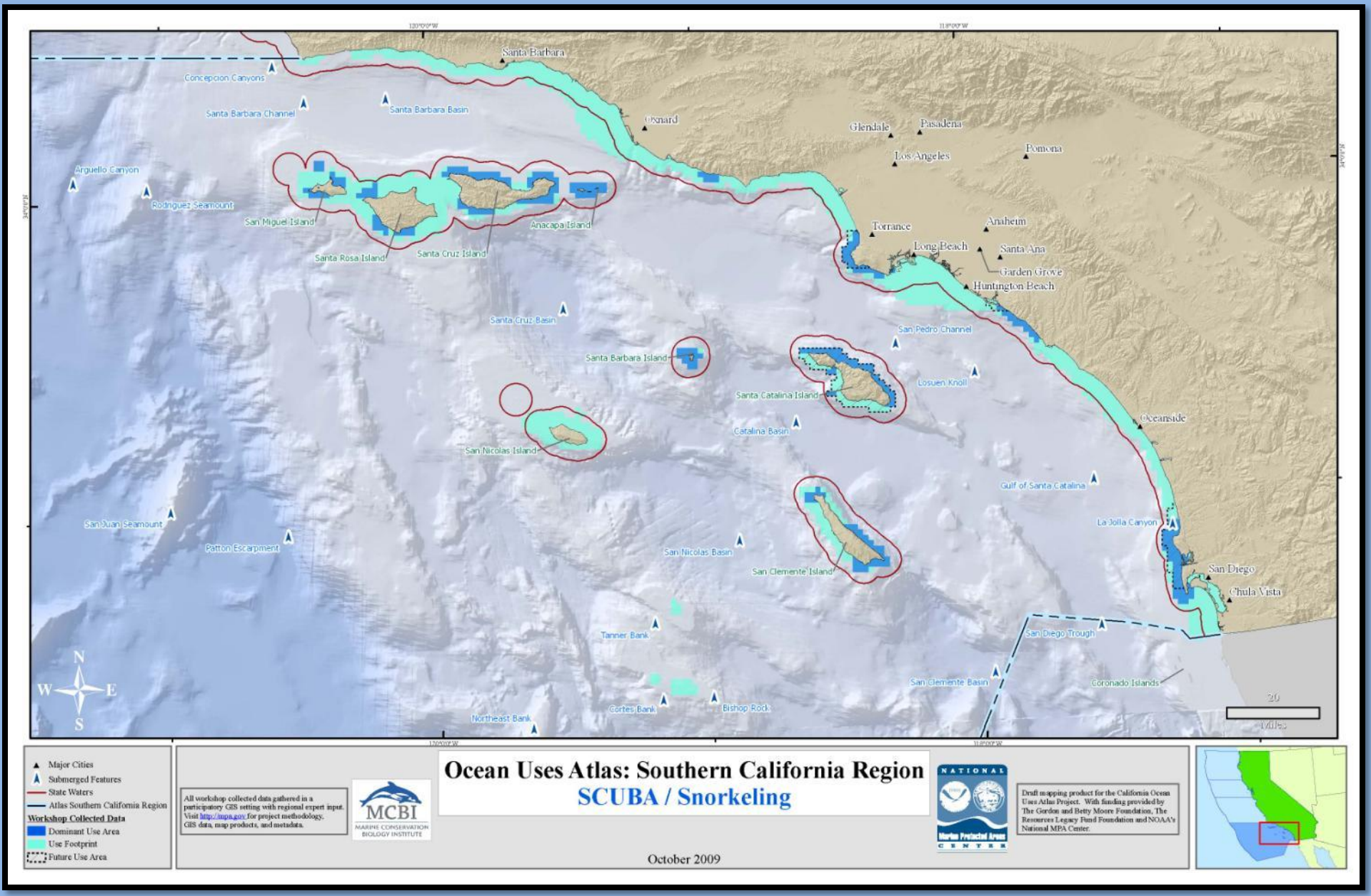
Distributed Products

- Individual Use and Sector maps for each region of California
- Geodatabase for end-user analysis and cartography
- Analytical maps of potential applied uses of data
- Interactive web tool for public visualization

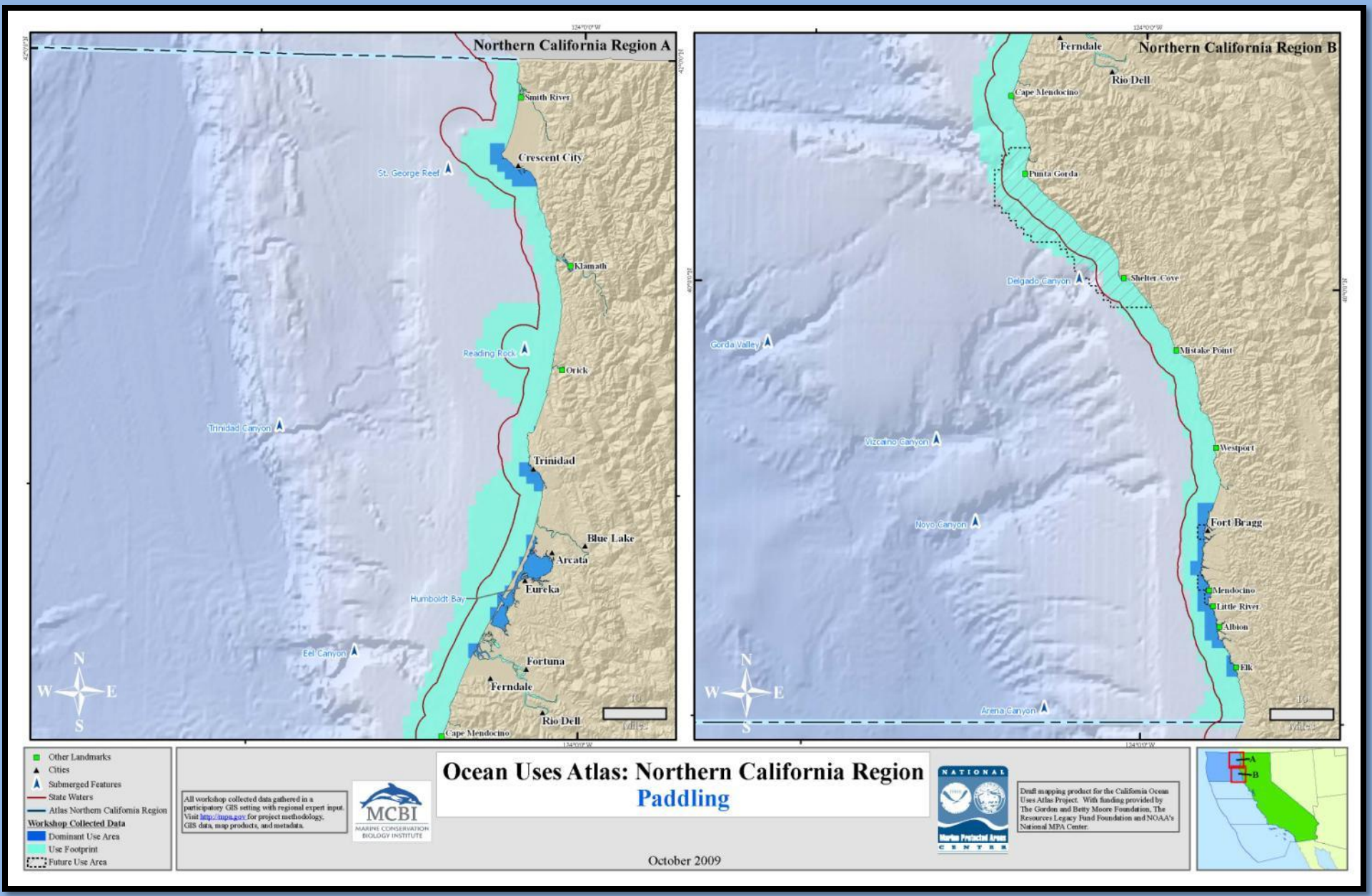
Next Steps

- Best Available Data to QC where applicable
- Repeat (or update) to assess changes in use patterns

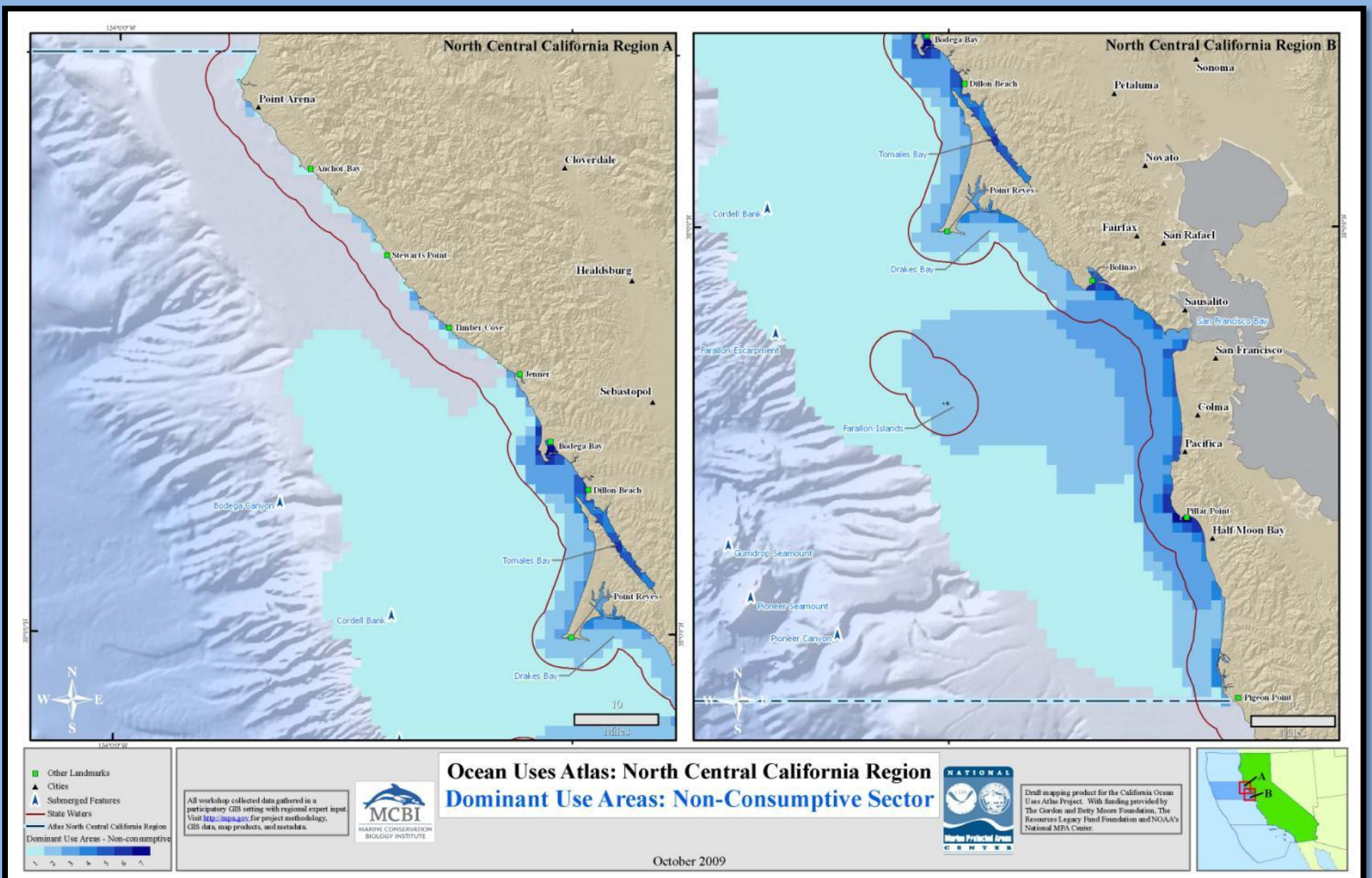
Sample Product: Single Use, SoCal Region



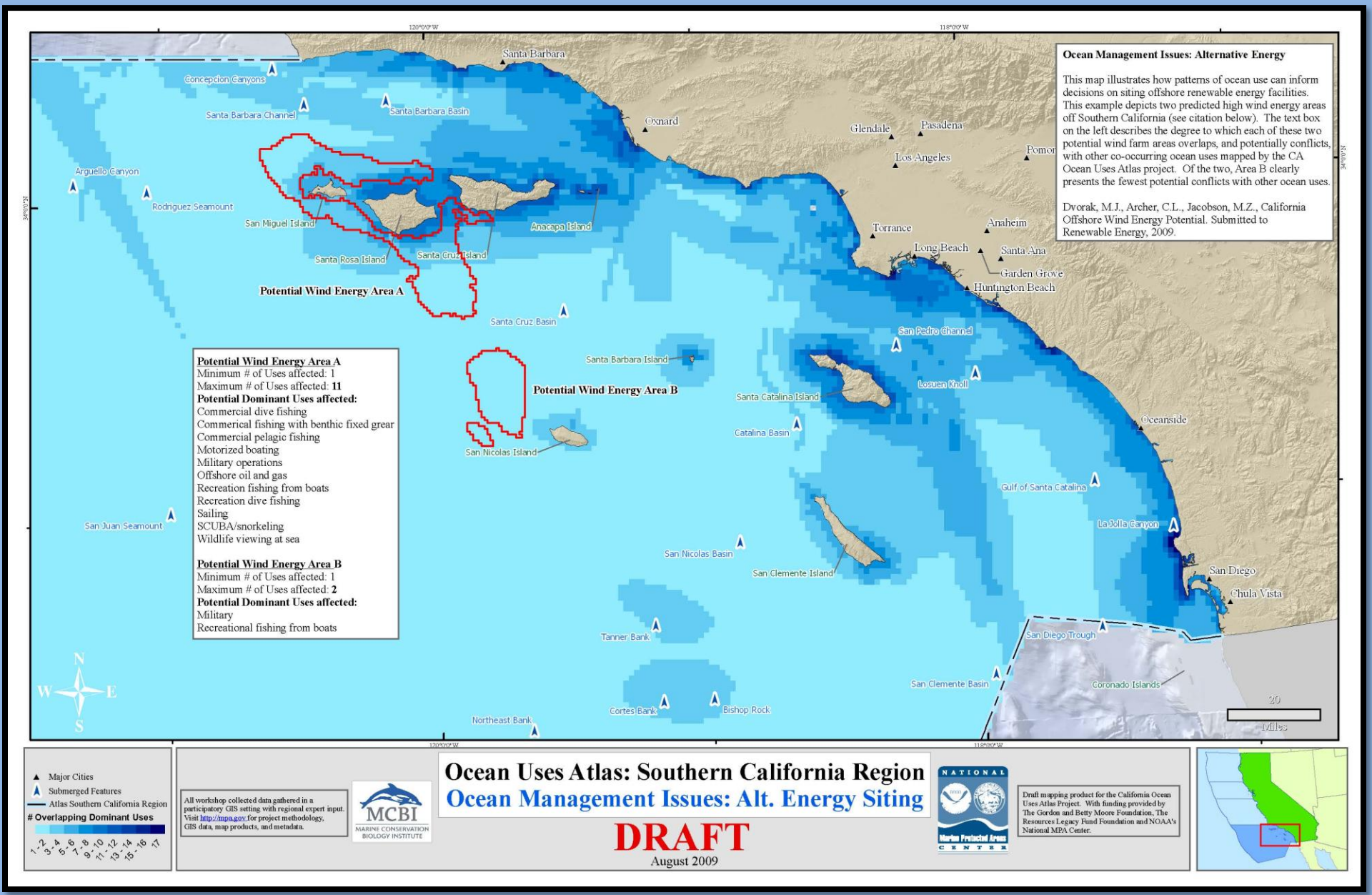
Sample Product: Single Use, Zoomed In



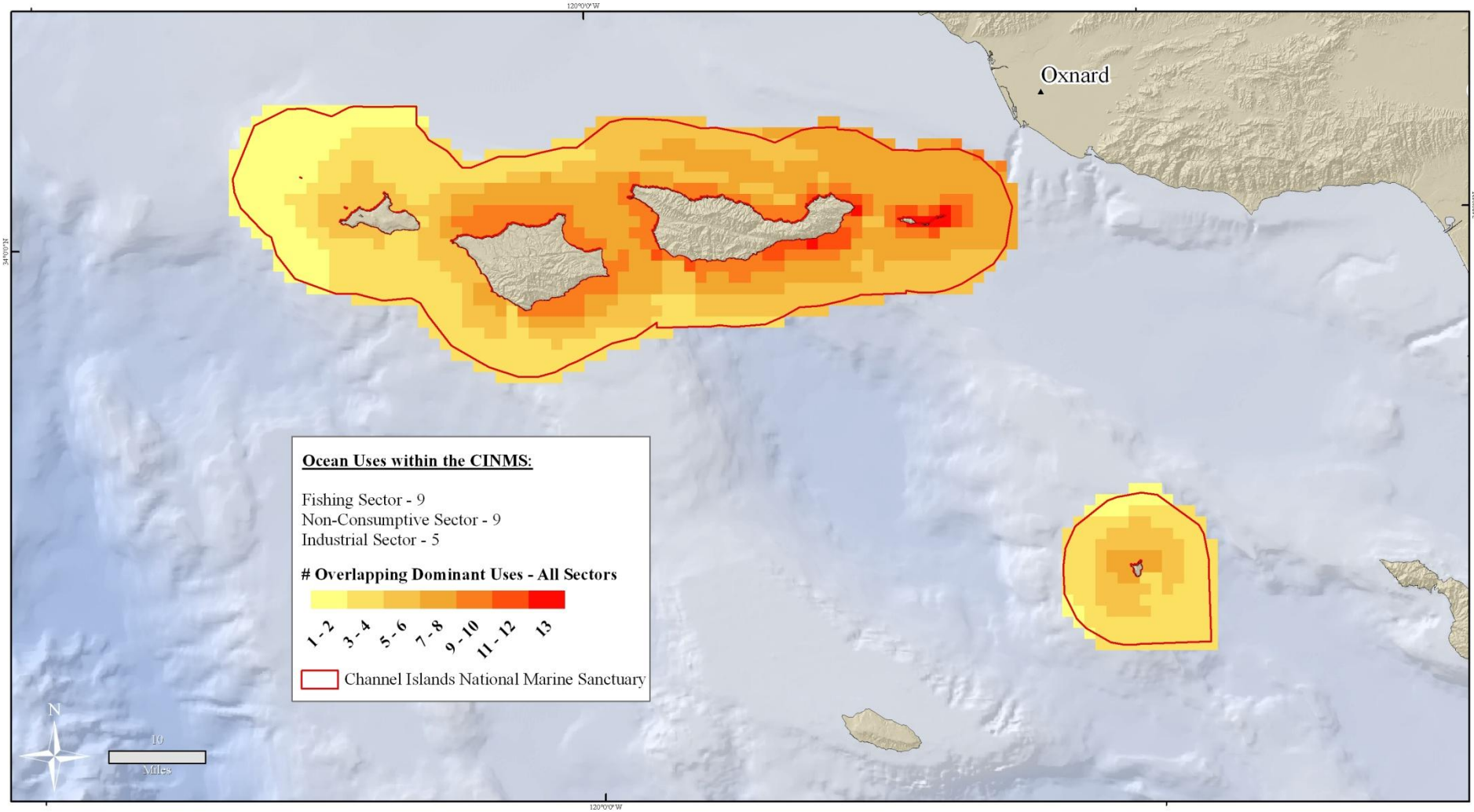
Sample Product: Aggregated Sector, Zoomed In



Sample Product: Alternative Energy Siting



Sample Product: Overlapping Uses in Channel Islands NMS



Nice Maps, But What Are They Good For?

- **CMSP:** ID areas of potential conflict or compatibility among uses (e.g Rigs to Reefs)
- **MPA Design and Adptv. Mgmnt.:** siting and restrictions addressing key threats tracked over time (e.g. CA MLPA)
- **Offshore Energy / Aquaculture:** Streamline infrastructure by targeting areas with compatible ocean uses (e.g. current project proposals)
- **Emergency Response:** planning for threats to human uses (e.g. NH/So. Maine)
- **Education, Outreach and Research Priorities:** ID key uses and threats and target relevant local user groups and demographics
- **Coastal Economic Development:** ID opportunities for developing coastal economies and infrastructure to support ocean uses
- **Strategic Conservation Targets:** ID important ocean areas that could be conserved w/out major stakeholder impacts

Lessons Learned

Strengths:

- Workshop setting
  - Explain uses and drawing methods in person
  - Group quality-checks the work of individuals
  - Typically get complete coverage of study area
  - Portability
- Ignore existing data that is of varying quality/currency, often hard to find, not continuous for entire region

Challenges:

- Workshop setting
  - Expensive travel and facility costs
  - Expected attendance not always met
- Some uses are poorly known, might need to rely on existing data

Alternative Approach = Web-based mapping tool:

- Either as a stand alone or to augment workshop data
- Expensive to build, host, manage; need to keep technology current
- Hard to QC incoming data, bias towards computer-savvy individuals

Contact Information

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