

# **GIS in the Channel Islands National Marine Sanctuary: A Tool for Development of an MPA Network**



**West Coast Regional Coastal Management Meeting  
San Francisco, CA  
January 22 – 25, 2007**





# National Marine Sanctuaries



*“Areas of the marine environment with special conservation, recreational, ecological, historical, cultural, archaeological, or esthetic qualities...”* National Marine Sanctuaries Act (Sec. 301)

- Raising public awareness and understanding through education and outreach.
- Improving management through research (e.g., historical, conservation science, social science).
- Helping coastal economies by promoting and protecting healthy resources.
- Facilitating public use compatible with resource protection.



## *National Ocean Service*

**OAR**

*Oceanic and  
Atmospheric  
Research*

**NMFS**

*National Marine  
Fisheries Service*

**NOS**



**NATIONAL MARINE  
SANCTUARIES**™

**NESDIS**

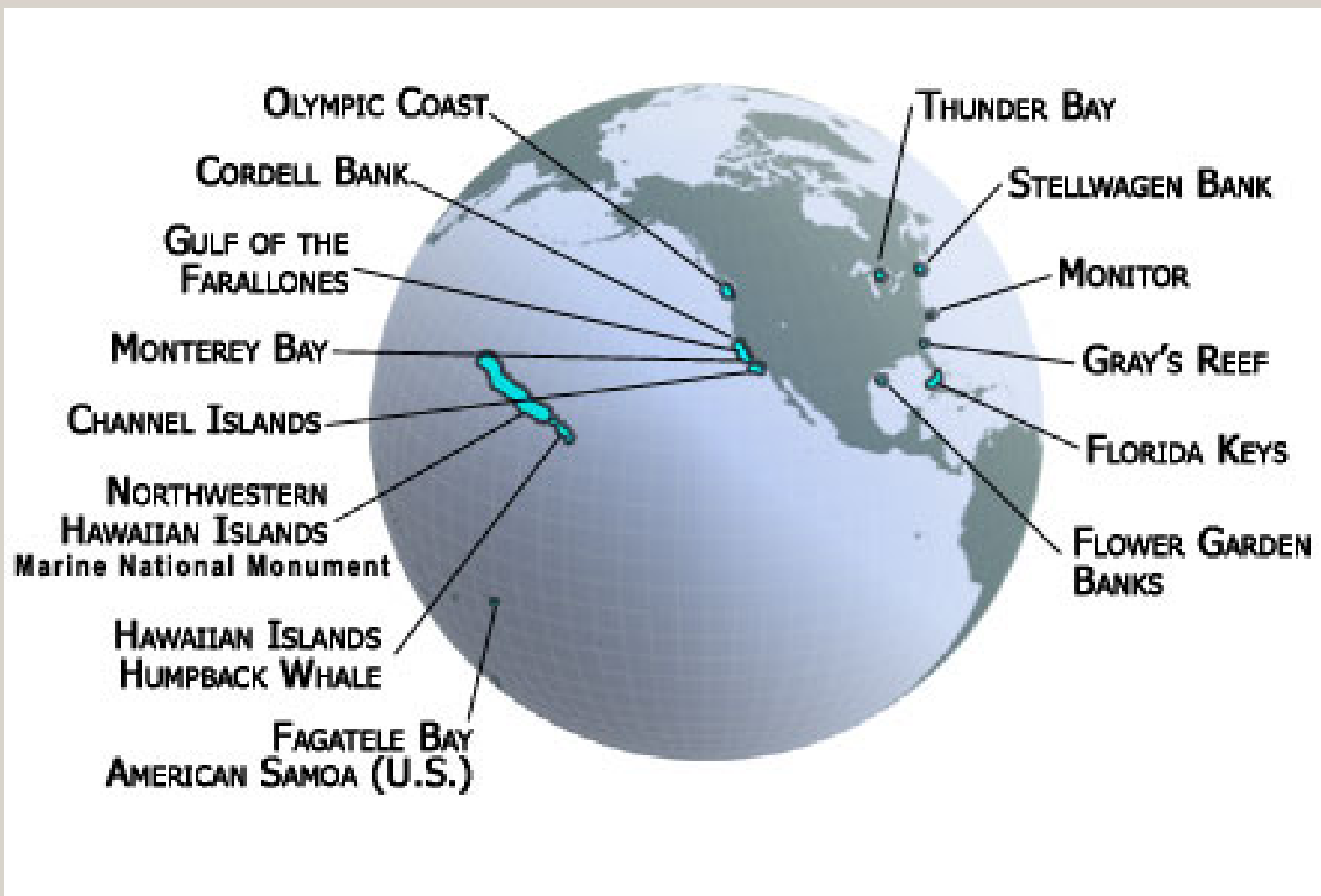
*National  
Environmental  
Satellite  
Data  
and Information Service*

**NWS**

*National Weather  
Service*



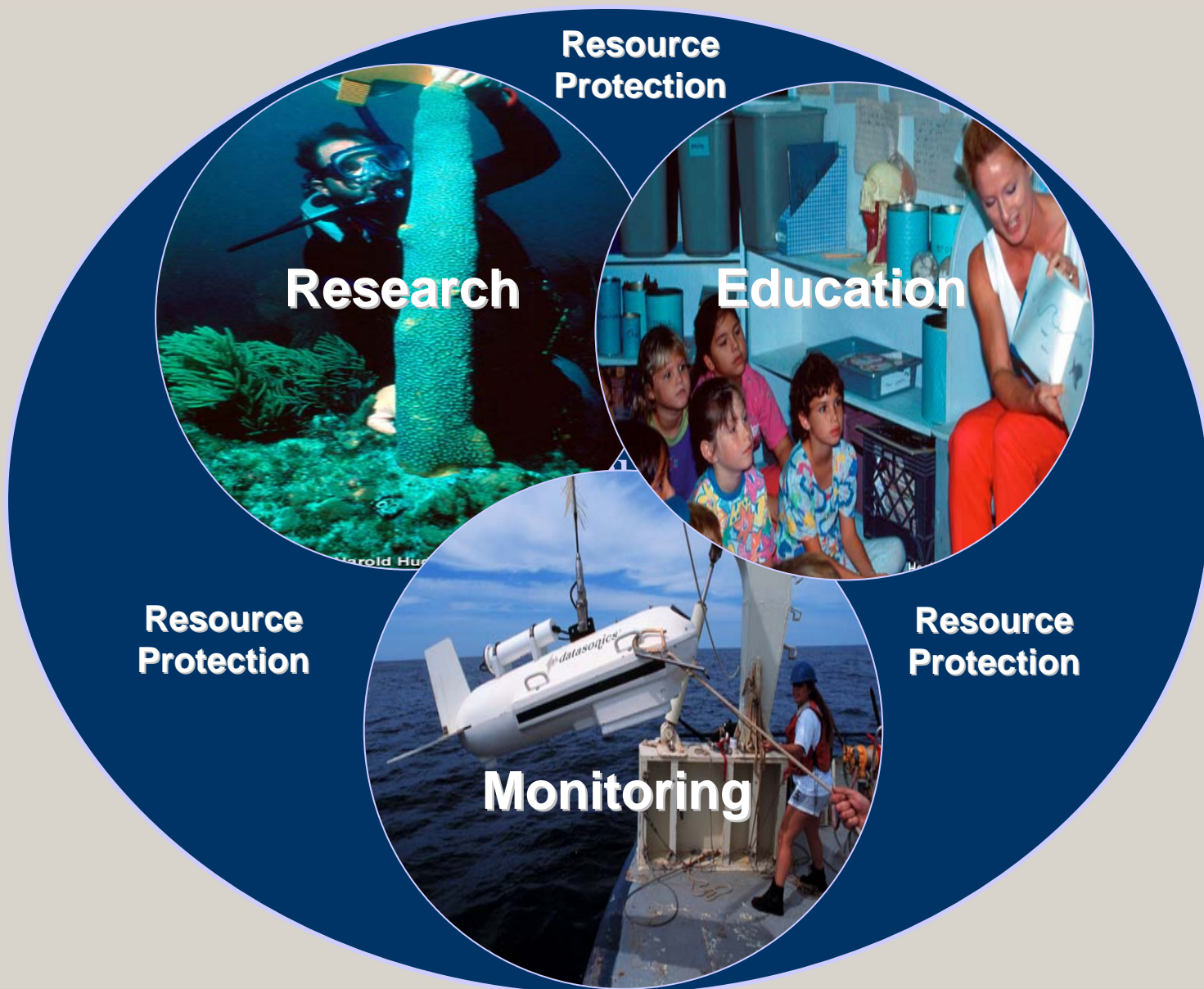
# National Marine Sanctuary Program



14 national marine sanctuaries and national marine monuments included in the NMSP



# National Marine Sanctuary Program



**Resource  
Protection**

**Research**

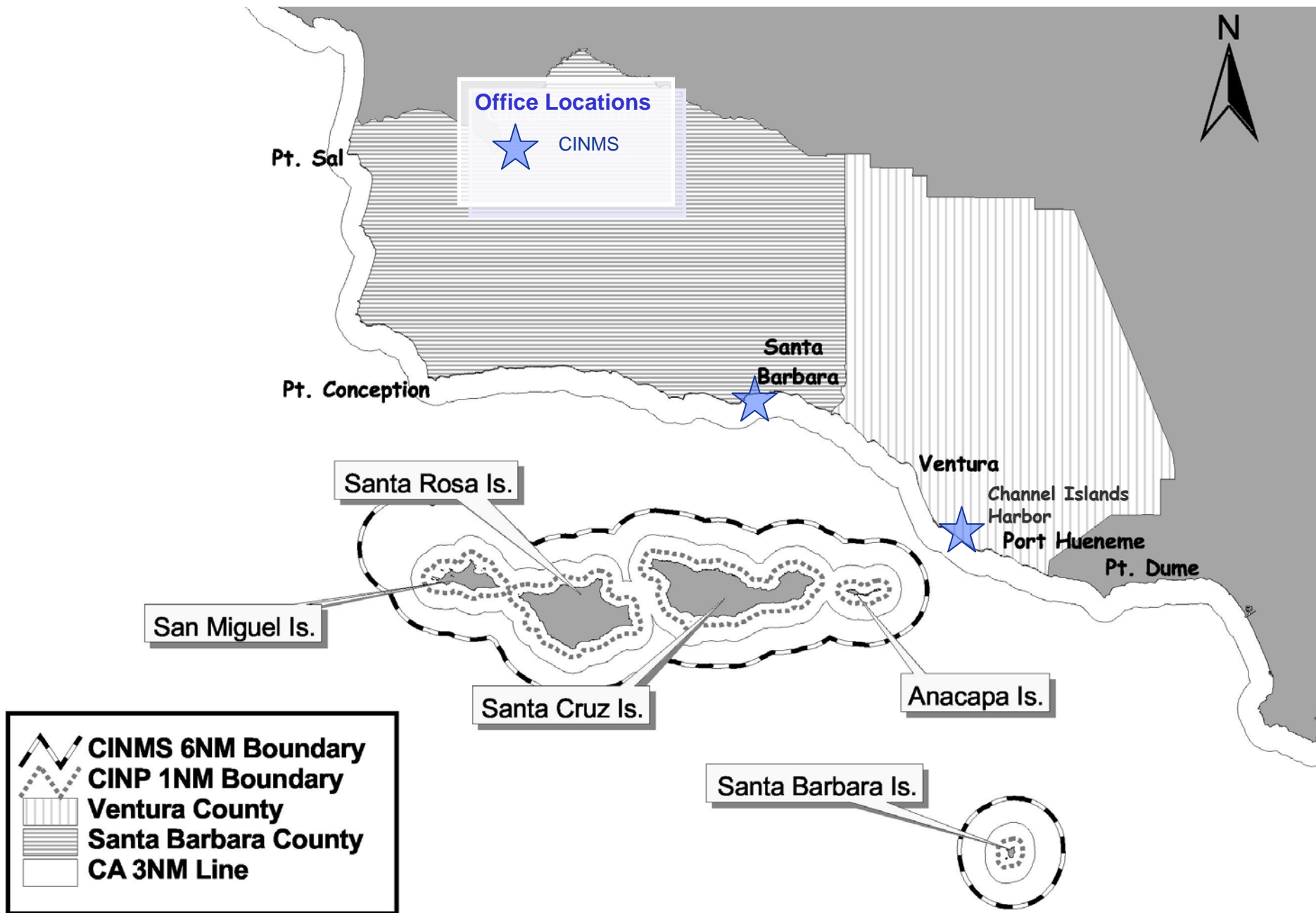
**Education**

**Resource  
Protection**

**Monitoring**

**Resource  
Protection**

# Channel Islands National Marine Sanctuary



# Marine Reserves Working Group

- Federal and State Resource Managers
- Commercial and Sport Fishermen
- Commercial and Sport Divers
- Kelp Harvesters
- Conservationists
- Community Representatives



# Criteria For MPA Design

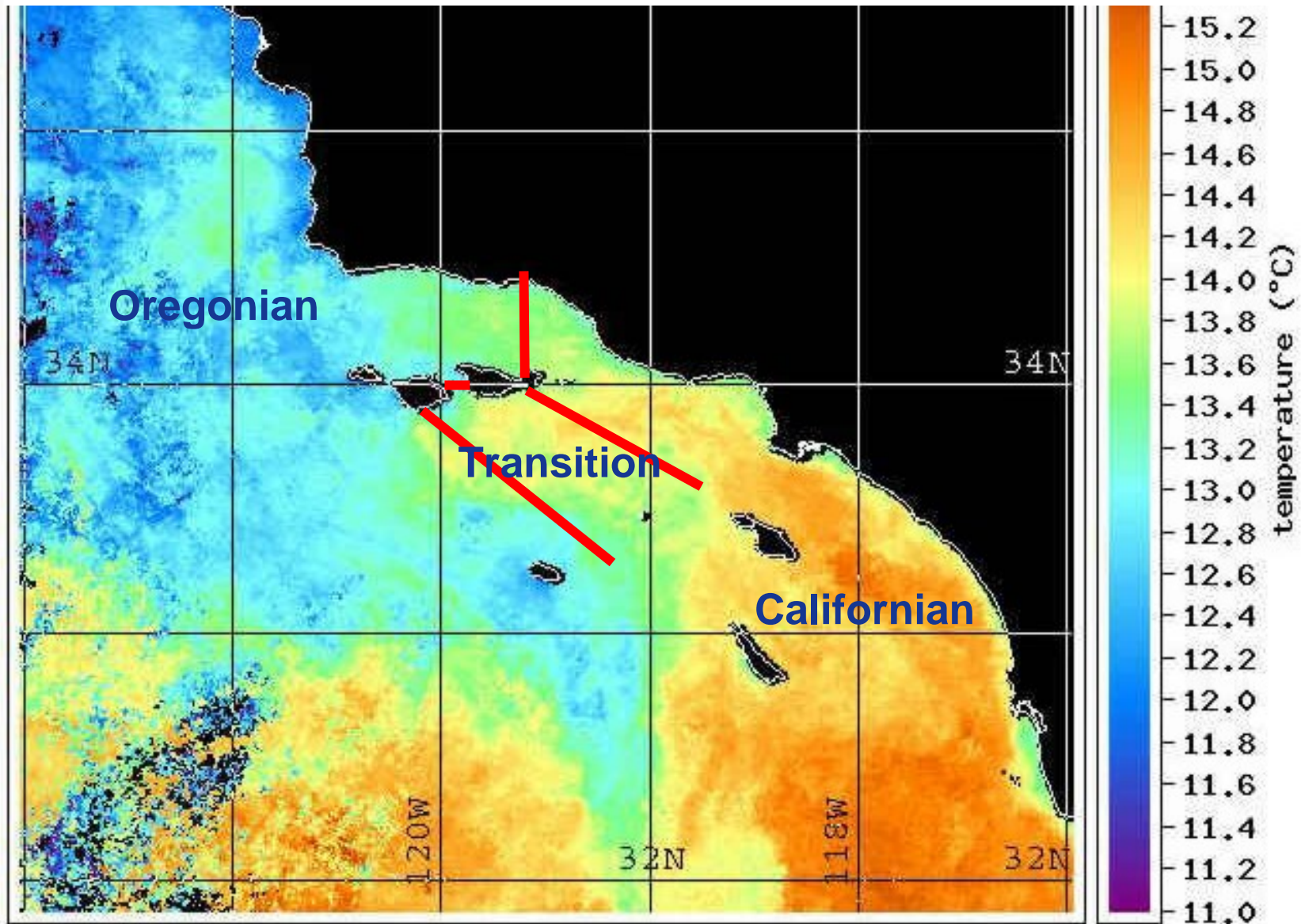


1. **Biogeographic representation**
2. **Habitat representation**
3. **Species of special concern**
4. **Reserve size and networking**
5. **Human threats and natural catastrophes**
6. **Social and economic criteria**

*GIS is a tool that can be used to characterize many of these criteria*



# 1. Biogeographical Representation





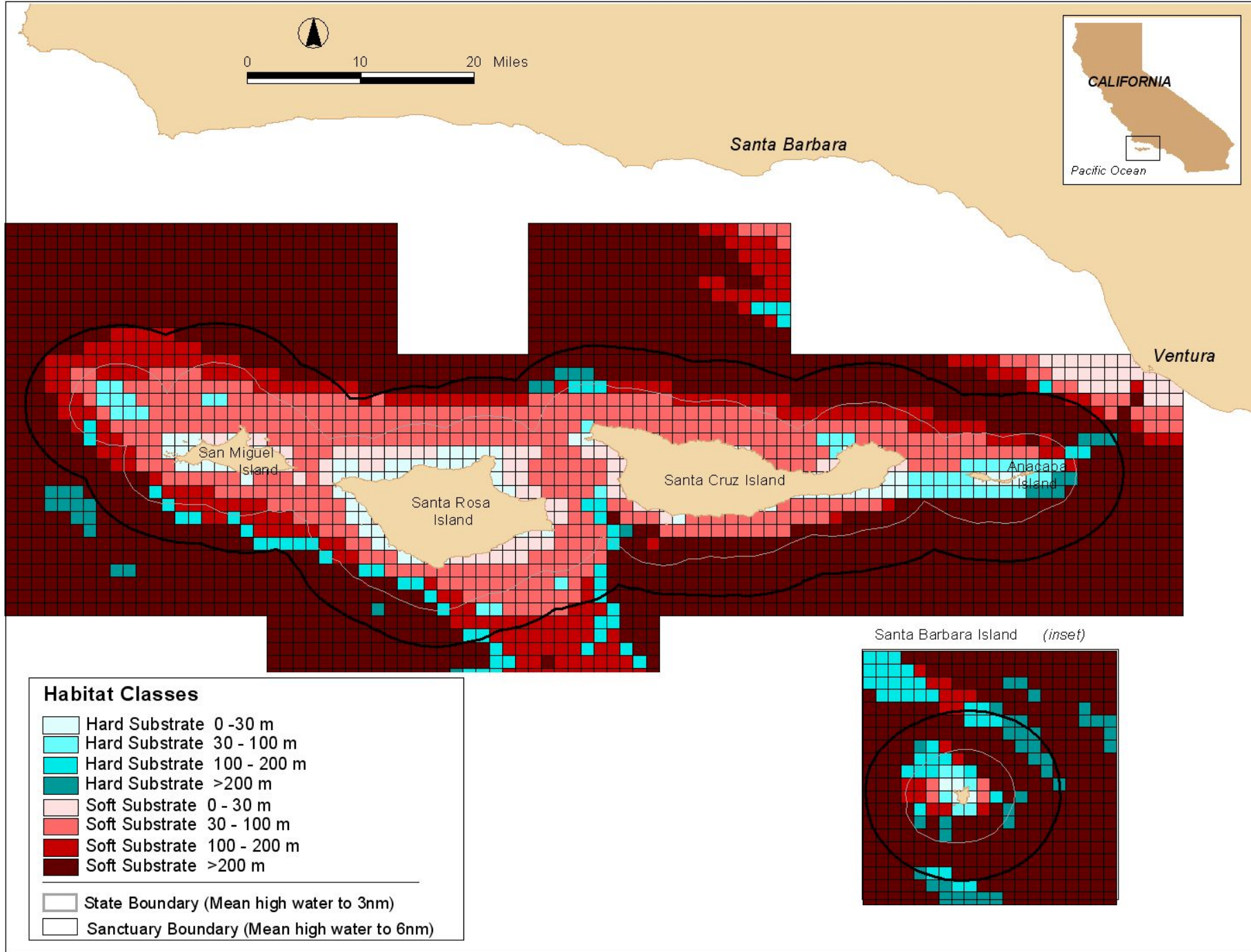
## 2. Habitat Representation



The inclusion of **different types of habitats**

### Some Marine Habitats

- rocky intertidal habitat
- sandy beach
- estuary
- seagrass meadow
- rocky reef
- kelp forest
- sand and mud bottom





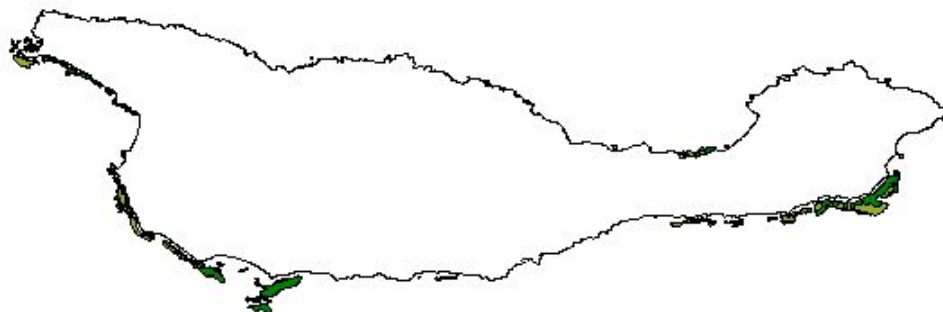
# 3. Vulnerable Habitats: Giant Kelp

San Miguel Island



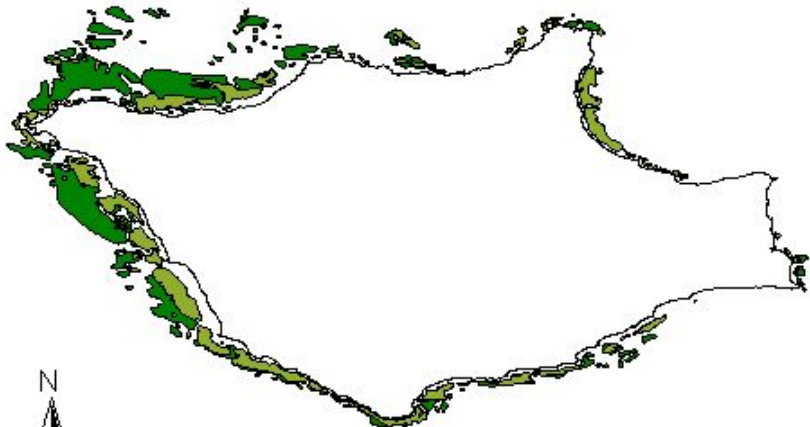
1:90,000

Santa Cruz Island



1:205,000

Santa Rosa Island



1:160,000

Anacapa Island



1:46,000

Santa Barbara Island



1:71,000

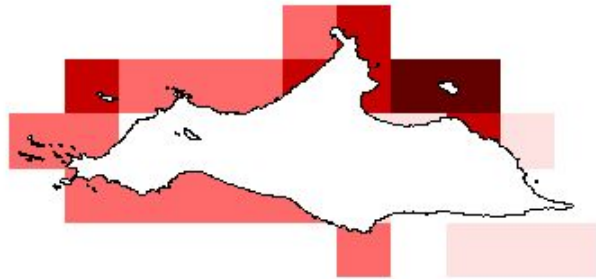
## LEGEND

Giant Kelp Canopy  
1989  
1980-1988

Data Source:  
Ecoscan Resource Data  
PO Box 1046  
Freedom, CA 95019  
408-728-3285

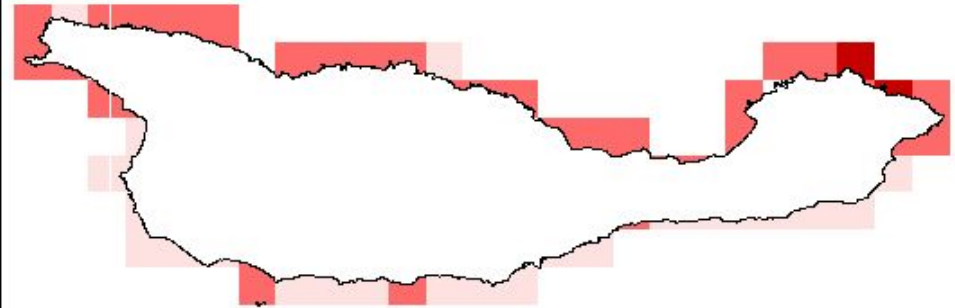
# 3. Species of Special Concern: Birds

San Miguel Island



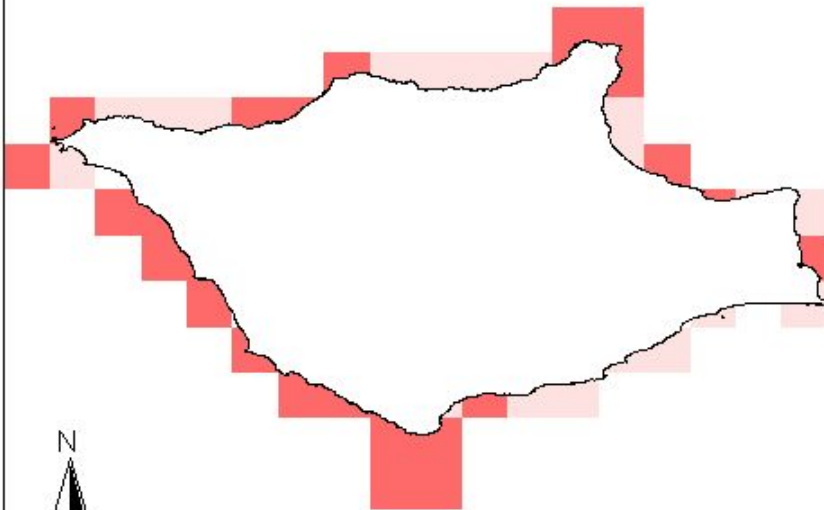
1:90,000

Santa Cruz Island



1:205,000

Santa Rosa Island



1:160,000

Anacapa Island



1:46,000

Santa Barbara Island



1:71,000

## LEGEND

### Bird Diversity



Data Source:  
Carter, H.R. et al. 1992.  
Breeding populations of  
seabirds in California,  
1989-1991. Vol. II.  
US Fish and Wildlife.

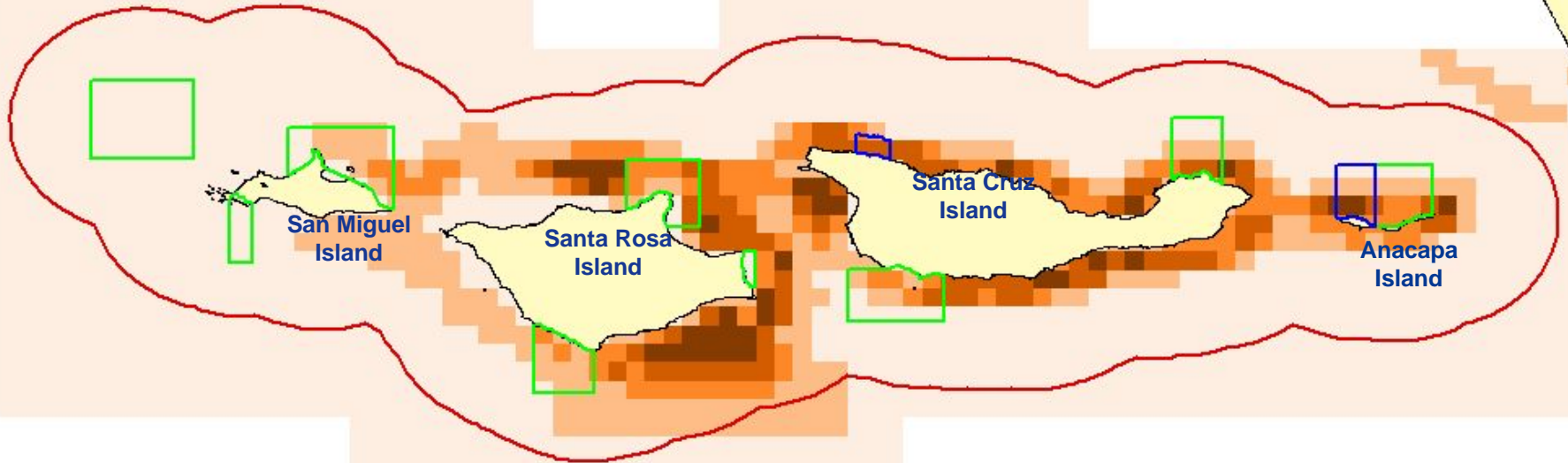
Ingram, T. and Carter, D.J.  
1997. Seabird monitoring  
in the Channel Islands  
National Park. CINP Tech.  
Report CINP-TR-97-02.

# 6. Social and Economic Criteria

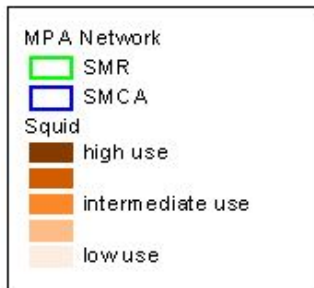
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Channel Islands National Marine Sanctuary

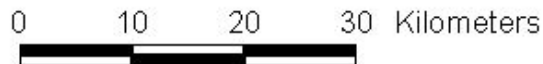


Squid

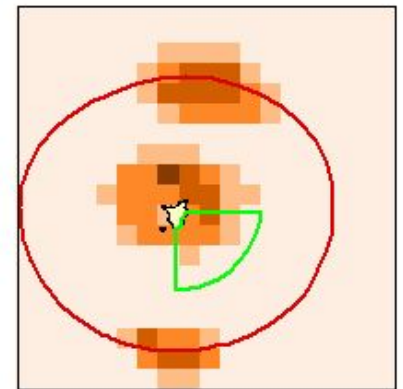


Value: \$13,046,664

Potential Impact: -9.5%

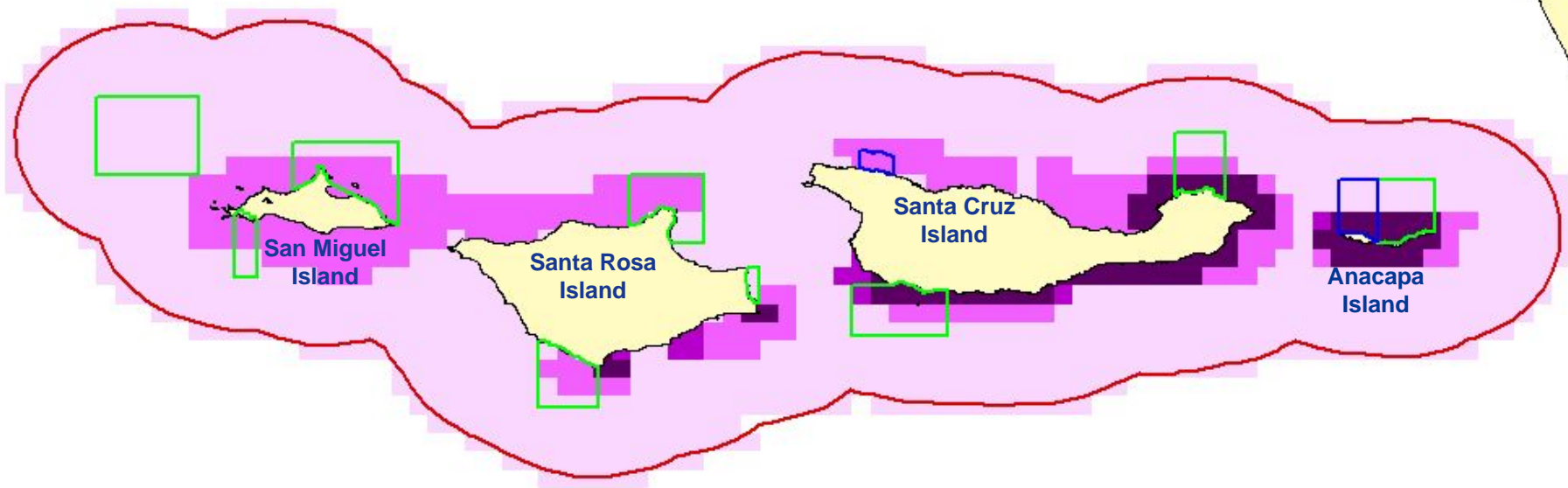


Santa Barbara Island

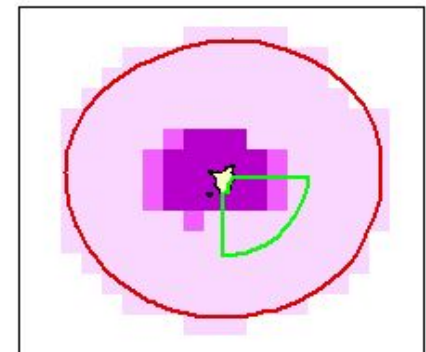


# 6. Social and Economic Criteria

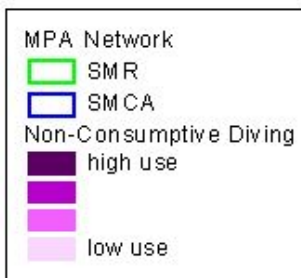
Channel Islands National Marine Sanctuary



Santa Barbara Island

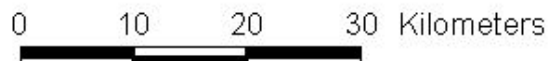


## Non-Consumptive Diving

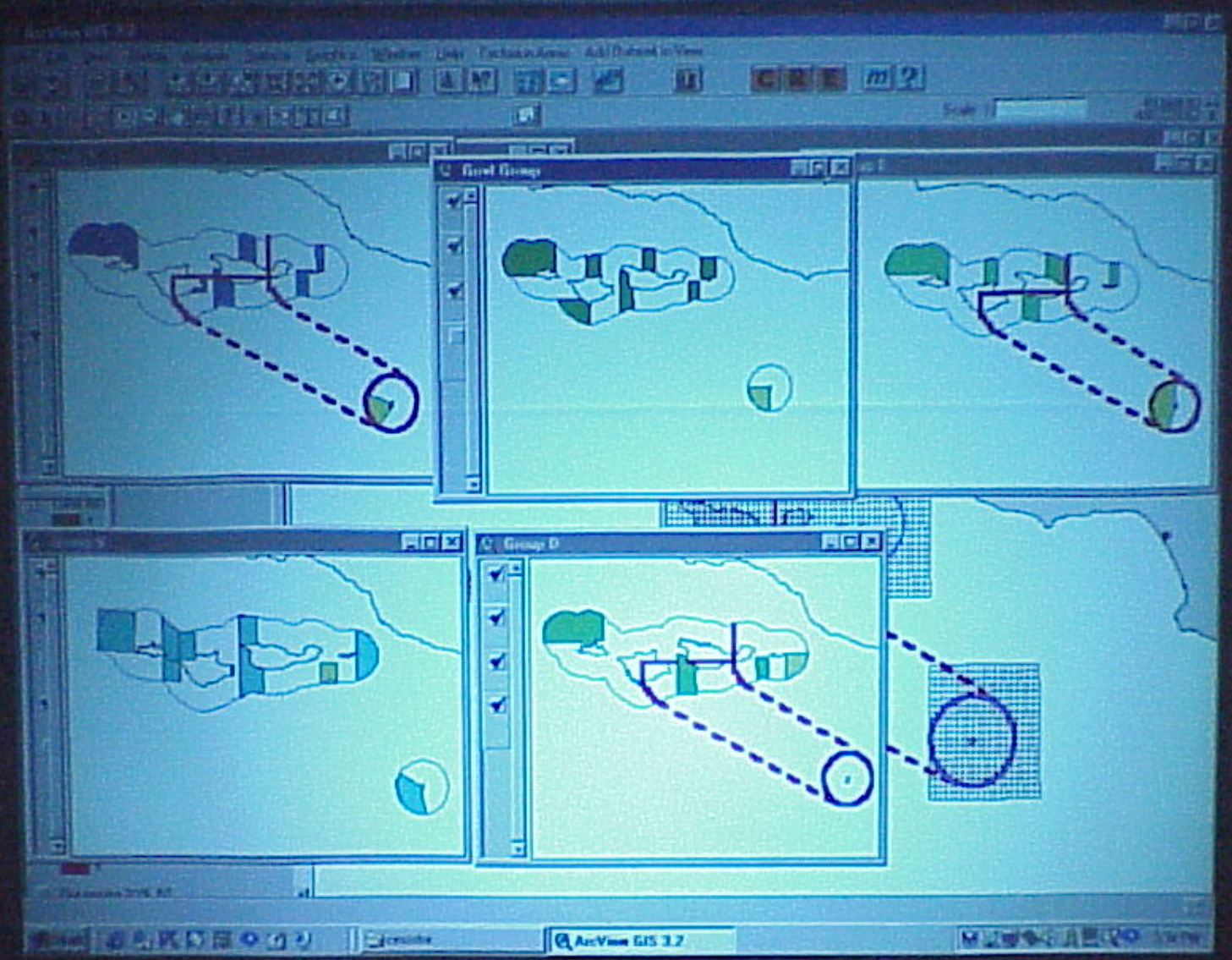


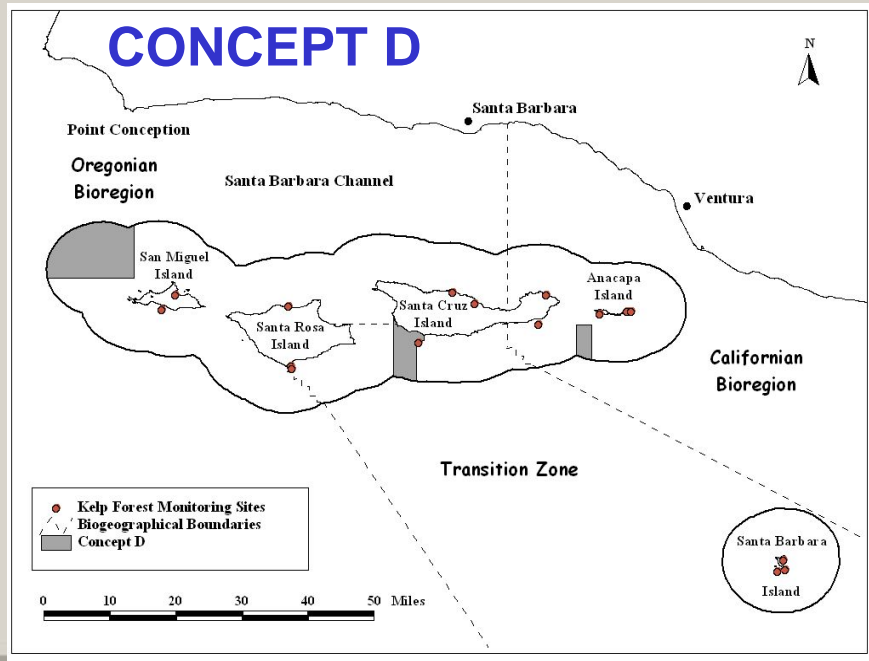
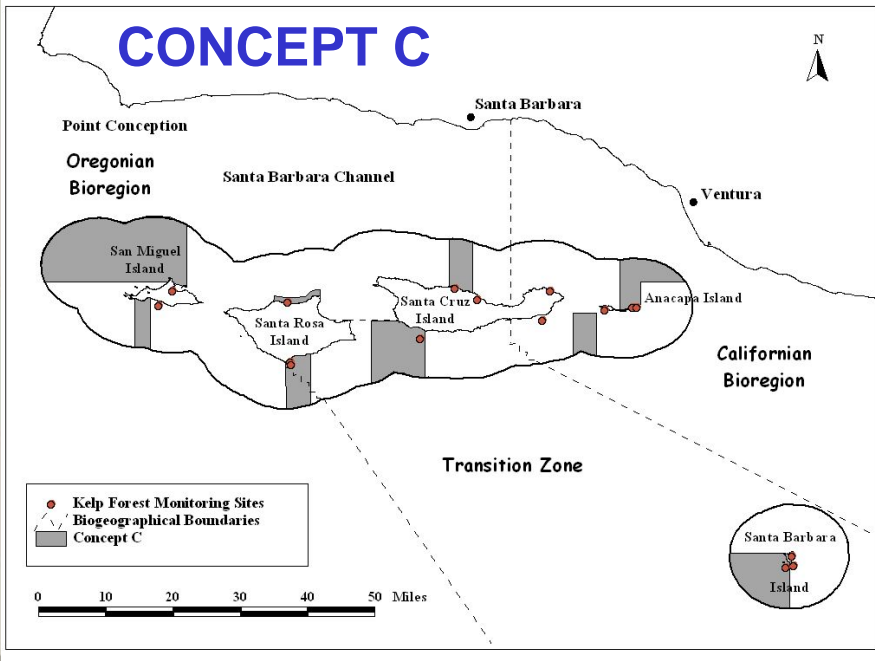
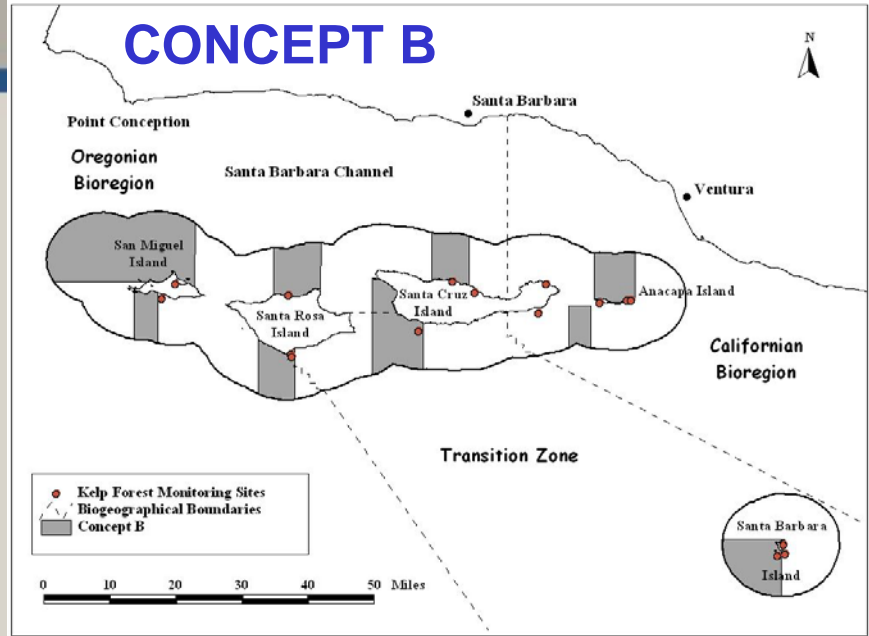
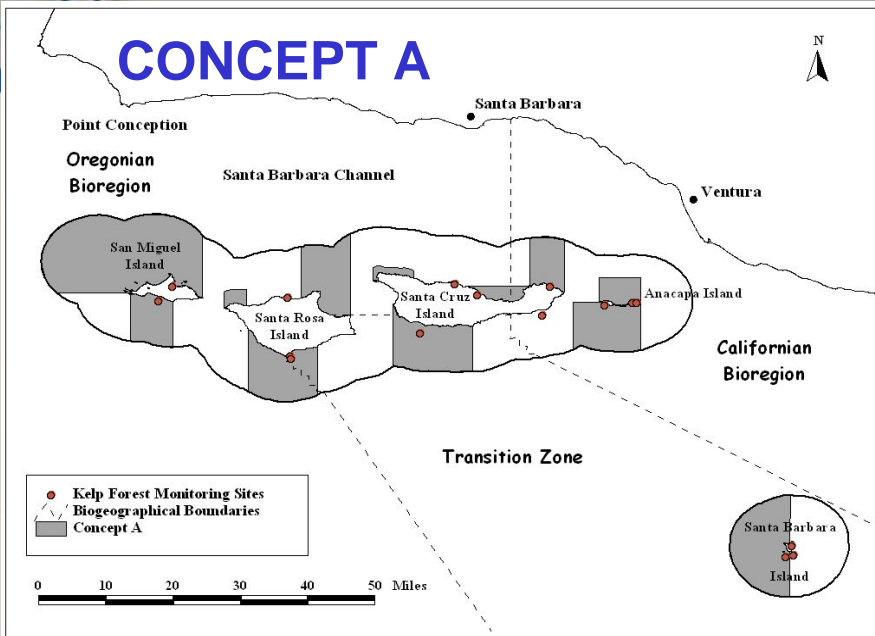
**Value: 10,776 person days**

**Potential Impact: +20.4%**









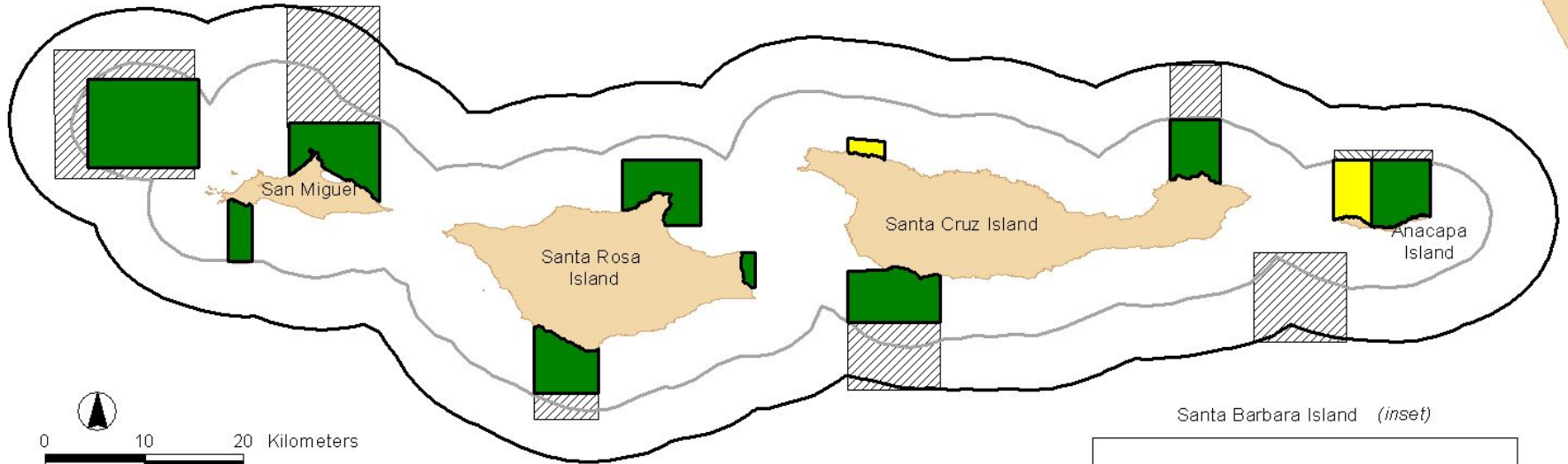
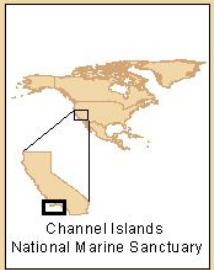
# State Proposed Project—Two Phases

Pt. Conception

Santa Barbara

Ventura

SANTA BARBARA CHANNEL



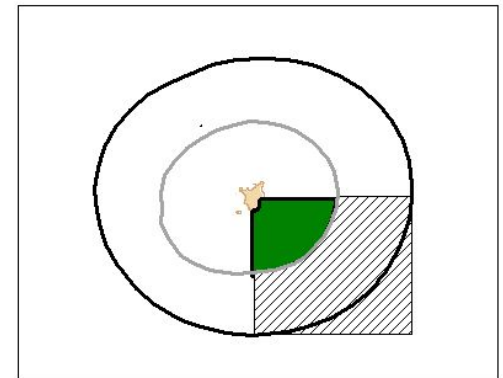
## Phase I Preferred Alternative

- State Marine Reserve
- State Marine Conservation Area

## Phase II Preferred Alternative

- Marine Reserve
- Marine Conservation Area

- State Boundary (Mean high water to 3nmi)
- Sanctuary Boundary (Mean high water to 6nmi)





## For More Information

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**National Marine Sanctuary**  
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**Santa Barbara, CA 93109**

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**<http://channelislands.noaa.gov>**



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