

A photograph of a large flock of birds, likely seabirds, flying over a body of water. The sky is a clear, pale blue, and the water is a darker blue with some ripples. The birds are scattered across the horizon, some in flight and some resting on the water.

Scientific and Technical Subcommittee

Rondi Robison
MPA Center

MPA FAC Meeting
November 28, 2008
Monterey, California

Charge to the MPA FAC 2008-2009

- **Linkages Between the Observing Systems and the National System of MPAs**
 - Recommend how observing systems (e.g. IOOS, National Water Quality Network) and the National System of MPAs can be better linked to support their common goals and those of regional ocean governance initiatives.

Scientific and Technical Subcommittee Process

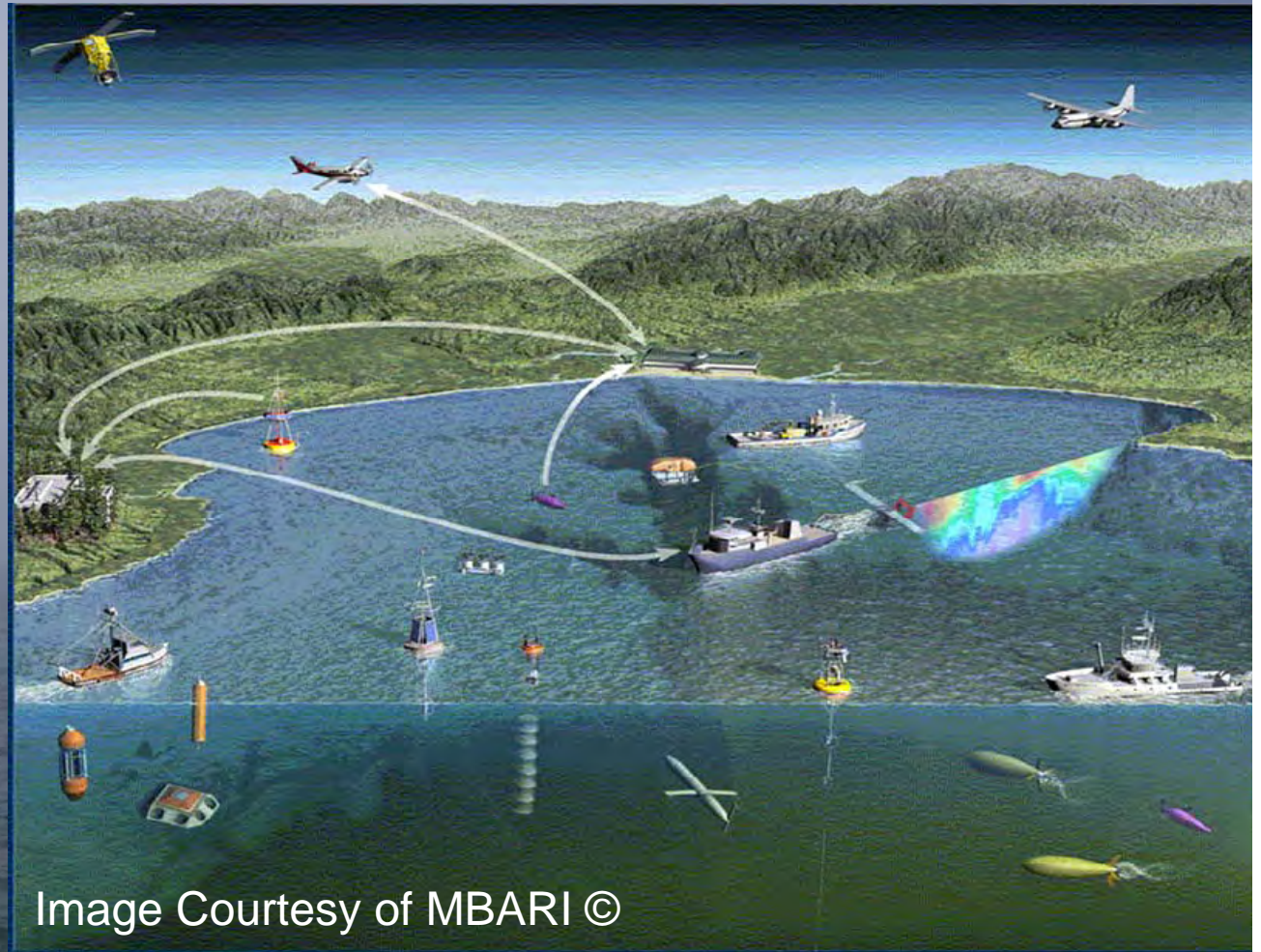
- Conference Call on 6/13
- In-person Experts Meeting 8/19
 - Experts attending
 - Zdenka Willis – Director, IOOS
 - Heather Kerkering – Coordinator, CeNCOOS
 - Jim Barry – Biological Oceanographer, MBARI
 - Drafted outline of white paper
- Draft of white paper 9/15 – Eugenio Piñerio-Soler, FAC & Katya Wowk, MPA Center
- White paper edited 9/30 – Mark Hixon
- White paper reviewed 10/6, 10/23 & 10/29– S&T Subcommittee, MPA Center & experts from 8/19
- White paper sent 11/3 to FAC & Panelists for review prior to November meeting
- Expert panel & FAC discussion and action 11/18-11/20

Summary

- Ocean Observation Systems
- What is IOOS[®]?
- Partners of IOOS[®]
- Users & benefits of IOOS[®]?
- Example products of IOOS[®]
- MPA FAC draft white paper
 - National System needs
 - Opportunities
 - Main questions

Ocean Observation Systems

- Monitoring the physical, chemical, biological, & geological parameters
- Variety of scales (local – national) & needs



Some Examples of Ocean Observation Systems & Monitoring

- National Marine Sanctuaries monitoring programs
- National Estuarine Research Reserves monitoring programs
- Integration Ocean Observation System (NOAA) & Ocean.US
- Ocean Observatories Initiative (OOI)
- Regional Scale Nodes
- NorthEast Pacific Time-Integrated Undersea Networked Experiments (NEPTUNE)
- NEPTUNE & Victoria Experimental Network Under the Sea (VENUS) VENUS
 - MARS, MOOS, AOSN, OASIS, Land/Ocean Biogeochemical Observatory
 - Pacific Coast Ocean Observing System (PaCOOS)
 - Global Ocean Observation System (GOOS)
- Global Earth Observing System or Systems (GEOSS)
- Gulf of Maine Ocean Observing System (GoMOOS)



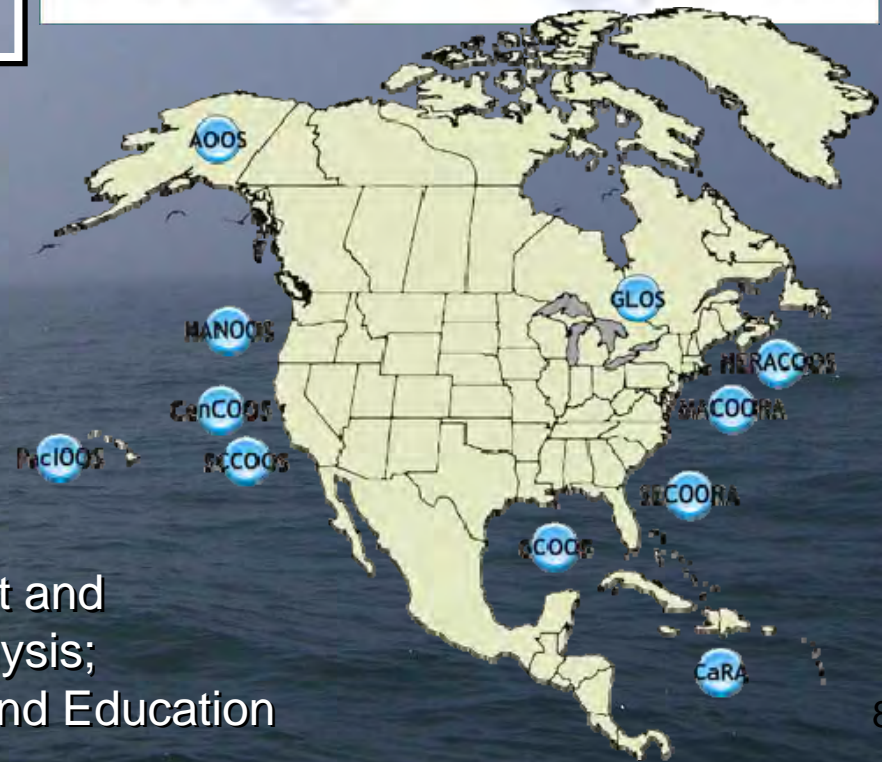
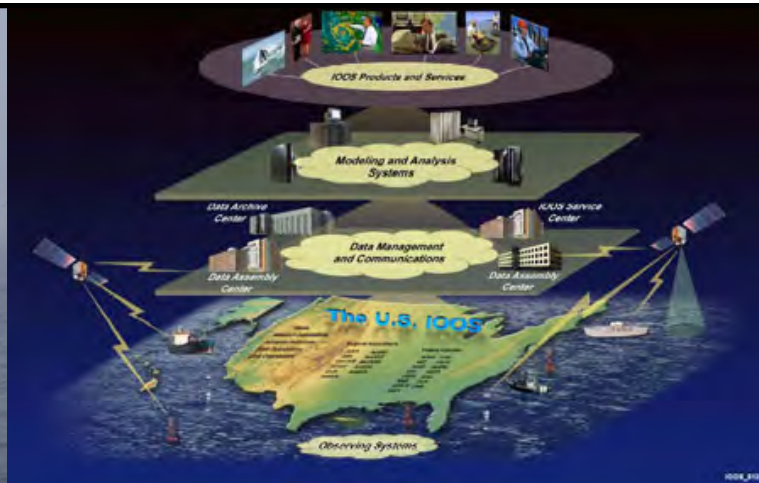
What is IOOS[®]?

- “Our eyes on the oceans, coasts and Great Lakes”
- It is a system of systems that routinely and continuously provides quality-controlled data and information on current and future state of the oceans and Great Lakes from the global to local scale.
- End user driven system

Background: US IOOS[®]

IOOS[®] Development Plan defines:

- 1) Global Component
- 2) Coastal Component
- 17 Federal Agencies
- 11 Regional Associations



3 Subsystems: Observing, Data Management and Communication (DMAC), Modeling and Analysis;
2 Cross Cuts: Research and Development and Education

Seven Societal Goals

- 1. Improve predictions of climate change and weather and their effects on coastal communities and the nation;**
- 2. Allow more effective protection and restoration of healthy coastal ecosystems;**
- 3. Enable the sustained use of ocean and coastal resources;**
4. Improve the safety and efficiency of maritime operations;
5. Allow more effective mitigation of the effects of natural hazards;
6. Improve national and homeland security; and
7. Reduce public health risks.

IOOS[®]

- Mission:
 - Lead the integration of ocean, coastal, and Great Lakes observing capabilities, in collaboration with Federal and non-Federal partners, to **maximize access** to data and generation of **information products**, **inform decision making**, and promote economic, environmental, and social benefits to our nation and the world.

Users and Benefits of IOOS[®]

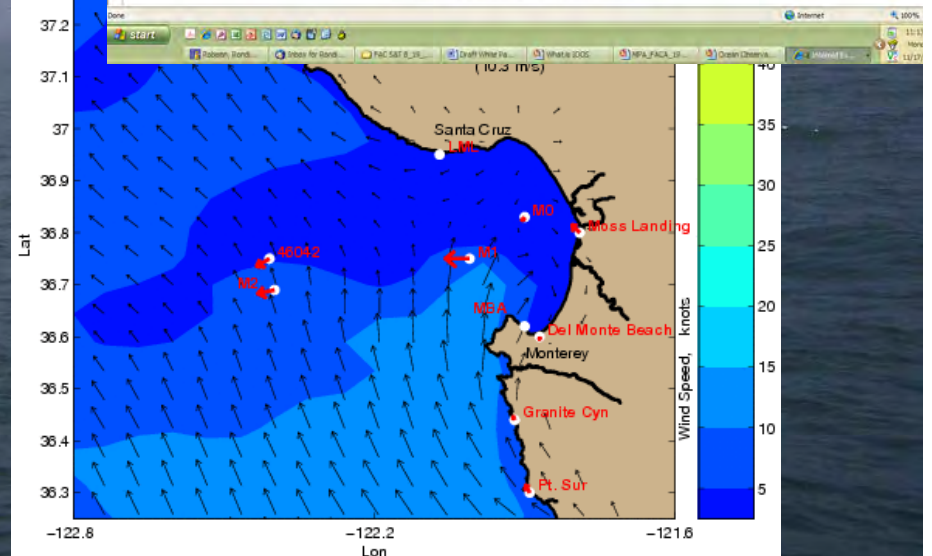
- Marine recreational users
- Scientists & coastal managers
- Policy makers & government
- Fishermen

- Weather and climate predictions
 - Improved weather & climate predictions
- Harmful algal blooms
 - Improved warnings & mitigation of natural hazards
- Marine ecosystems & coastal habitats
 - Advanced warnings of environmental stress
- Hazardous spills
 - Prediction of movements



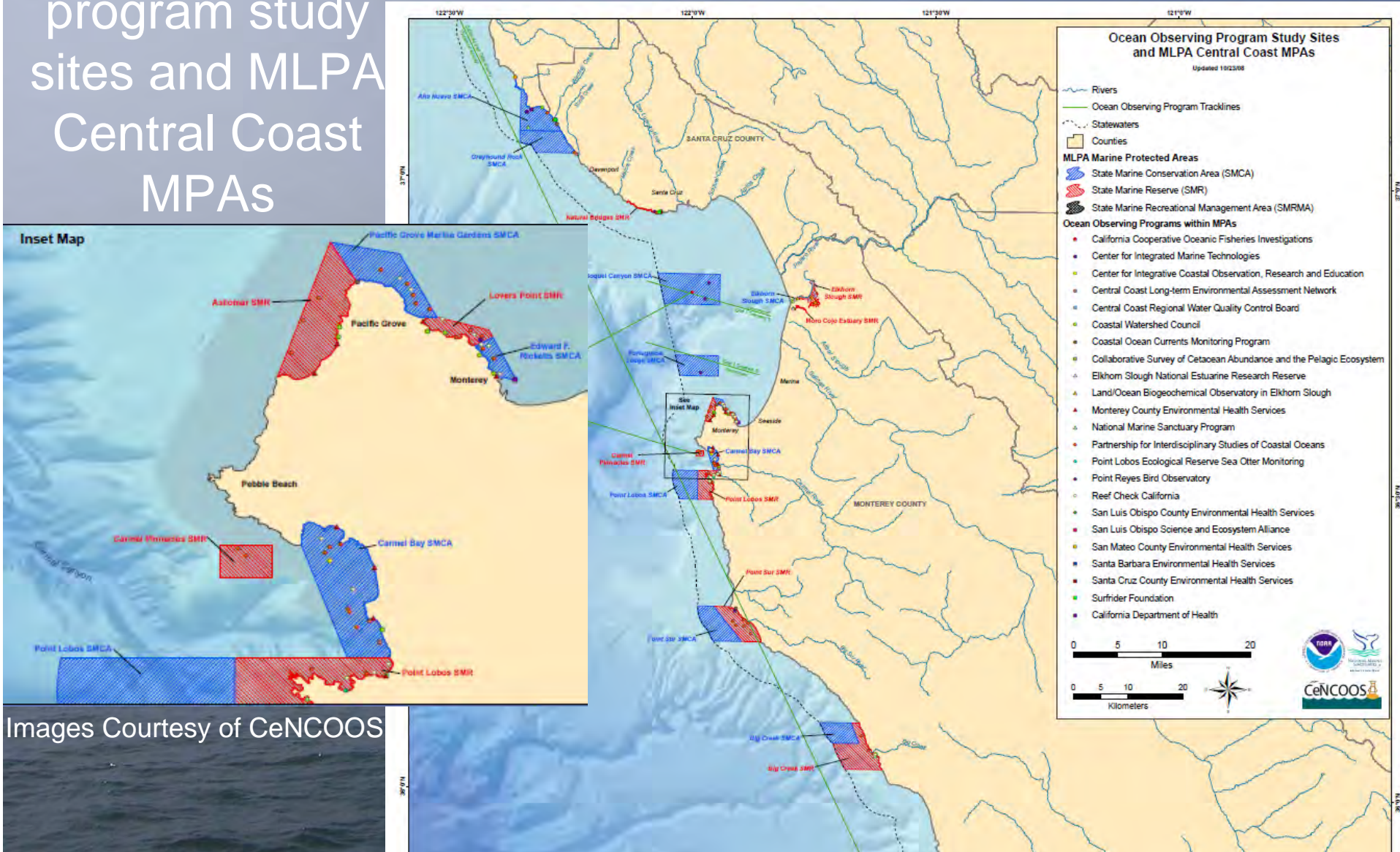
Example Products of IOOS[®]

- Wind
- Ocean currents
- Animal tracking
- Bathymetry
- Education & outreach
- Data access
- SST
- Nutrients



Images Courtesy of CeNCOOS/CIMT

Ocean observing program study sites and MLPA Central Coast MPAs



Images Courtesy of CeNCOOS

National System of MPA Needs

- Understanding and evaluation of regional and national trends in environmental and ecosystem conditions
- Determine the effectiveness of MPA sites and networks within the National System
- Establishing linkages between offshore areas

Commonalities

- Common goals of
 - protecting, understanding and monitoring marine ecosystems
 - conservation and sustainable use of marine resources
 - making products broadly available in a standardized manner
- Both systems are in the early stages of development & implementation

Opportunities

- Enhanced coordination with information and data
 - A strong national IOOS[®] program coupled with an effective network of RAs provides an oceanographic context to the National System of MPAs
- IOOS[®] can provide key resources for MPA design, gap analysis, monitoring and assessment
- Develop products
 - That facilitate management decisions,
 - to educate & involve the public
 - to leverage resources to maximize information available to make informed choices concerning the establishment, monitoring and management of MPAs
- Enhance the ecosystem-based approach to management of marine resources

Main Questions

1. What are the needs of MPAs and how can IOOS[®] meet those needs? For example, the:
 - Assessment of the effectiveness of individual MPAs or networks of MPAs, and the
 - Evaluation of the value of the National System of MPAs?
2. At what spatial and temporal scales does IOOS need to provide data/information to meet the needs of individual MPAs, networks of MPAs and, the National System of MPAs?
3. What are the roles of the MPA Center and IOOS[®] management in building capacity and linkages that will contribute to meeting the needs of the National System of MPAs?
4. Have we clearly made the case for the importance of linkages between the National System of MPAs and IOOS[®] and the benefits that those linkages would provide to each?
5. If the agencies undertake the building of linkages between IOOS[®] and the National System of MPAs, what will be the three most important initial actions that will be required.