Integrated Ocean Observing System (IOOS)

NOAA’s Approach to Building an Initial Operating Capability

February 23, 2007
Outline

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• NOAA’s IOOS Program Office
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NOAA’s IOOS Plan

**Organize for Success**

- Establish NOAA IOOS Program Office
  - Lead and manage NOAA’s IOOS efforts
- Support external collaboration
  - Identify and encourage similar data integration, test and evaluation approach by partners

**Integrate Data**

- Develop an Integrated Data Framework as the Initial Operating Capability
  - Integrate priority IOOS core variables and deliver to end users and models
  - Quantify product improvements

**NOAA IOOS Definition:**

The U.S. Integrated Ocean Observing System (IOOS) is a coordinated network of people and technology that work together to generate and disseminate continuous data on our coastal waters, Great Lakes, and oceans. IOOS is our nation’s ocean contribution to an international effort called the Global Earth Observation System of Systems (GEOSS), which is designed to continuously and comprehensively monitor Earth and transmit observations globally. IOOS supports both a coastal and global component of ocean observing.
NOAA’s IOOS Program Office: Purpose & Functions

NOAA IOOS Activities

- NOAA Ocean Council
- NOAA Observing System Council
- NOAA Administrator
- NOS Assistant Administrator
- OAR Assistant Administrator
- IOOS Program Office Director
- IOOS Project Management
- Program Operations

Interagency Connections

- Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI)
- Joint Subcommittee on Ocean Science and Technology (JSOST)
- Interagency Working Group on Ocean Observations (IWGGO)
- Ocean.US

Regional Coastal Component

Leveraging existing NOAA-wide capabilities

- Observations
- Data Management & Communications
- Modeling & Analysis

Guidance & Requirements
Capacity & Capabilities
NOAA’s IOOS Program Office: Process to Establish

Steps and Timeline:

- **IOOS Director (0-3mos)**
  - On Feb. 5, Zdenka Willis, former Director of NOAA’s Oceanographic Data Center, was selected as the full time IOOS Director to manage NOAA IOOS activities
  - Organize existing staff to manage day to day IOOS operations
  - Director will develop full staffing and budget plans

- **IOOS Program Office (6-9mos)**
  - NOAA/NOS is working with NOAA and DOC to seek necessary approvals to form the IOOS Program Office
The IOOS Challenge: Data Integration

Societal Challenges

Global climate not well understood

Coastal populations at risk

Ocean, coastal, and Great Lakes ecosystems at risk

Information Needs

Characterize the state of the global climate system and its variability

Improved models (e.g., hurricane intensity, coastal inundation, and harmful algal bloom model)

Improved ecosystem assessments

Updated management approaches

Improved access to data, and scientific information

IOOS Core Variables

Temperature
Salinity
Sea Level
Surface currents
Ocean color
Bathymetry
Surface waves
Ice distribution
Contaminants
Dissolved nutrients
Fish species
Fish abundance
Zooplankton species
Optical properties
Heat flux
Bottom character
Pathogens
Dissolved O₂
Phytoplankton species
Zooplankton abundance

Integration
Long-term data series, coordinated in space and time

Decision Tools

Hurricane Intensity Model

Coastal Inundation Model

Harmful Algal Bloom Model

Integrated Ecosystem Assessment
NOAA’s Initial Operating Capability: Integrated Data Framework

**NOAA 5 Core Variables**
- Temperature
- Salinity
- Sea Level
- Currents
- Color

**NOAA IOOS Integrated Data Framework**
- Systems Engineering & Standards Development
- Data Standards
- Data Access & Exchange

**External sources of 5 Core Variables** (consistent with NOAA standards)

**NOAA’s Initial Operating Capability**

- **Months 0-12**: Integration of 5 IOOS Core Variables
- **Month 18**: Integrated Variable Ingest for Select Data Products
- **Month 24**: Test & Evaluation
- **Month 36**: Benchmarked Product Improvements for Operational Use

**MISSION OBJECTIVES**

- Integrated information services for NOAA programs
- Identify observation gaps
- Validated enhanced data products
- NOAA’s Data Integration Framework

**Future State**
- Regional-coastal data integration for
- Regional scale data and information products and services
Summary

- NOAA is advancing IOOS through improved organization, management, and focus
  - The process for establishing a NOAA IOOS Program Office is underway
  - The NOAA IOOS Program Office is building an Initial Operating Capability (IOC) for IOOS
    - The IOC will be tested, evaluated, and benchmarked for success
- NOAA continues to coordinate larger U.S. IOOS efforts with federal and international partners through participation in inter-agency forums
- NOAA continues to support development of regional infrastructure and management to enable a fully configured and scalable U.S. IOOS
The U.S. Integrated Ocean Observing System

www.ocean.us
SCCOOS
Southern California Coastal Ocean Observing System

www.sccoos.org
TALK OVERVIEW

- History of the Southern California Coastal Ocean Observing System
- **Organization** Structure
• ~20 million people, representing roughly 25% of the coastal population of the U.S., live within 50 miles of the coast
• Beach usage in California is higher than the other 49 states combined
• 175 million users spend over $10 billion annually on tourism
SOME HISTORY

Sept 2002: Legislative Workshop held urging the establishment of an integrated coastal observation system in Southern California

• March 2003: Memorandum of Understanding signed by 11 organizations to initiate the formation of SCCOOS

• Feb 2004: CeNCOOS and SCCOOS sign an MOU establishing a Federation of California Regional Observing Systems.

• June 2004: SCCOOS awarded resources by NOAA Coastal Services Center to initiate formal stakeholder engagement

• June 2004: SCCOOS awarded resources from the NOAA COTS to implement pilot technologies

• March 2005: SCCOOS begins implementation of the State of California’s Coastal Ocean Currents Monitoring Program (COCMP)

• August 2005: Marine Resources Legacy Foundation fund a coordinated business plan development effort with SCCOOS/CeNCOOS

• Feb 2006: Formal Bylaws approved by the Board of Governors

• Feb 2006: Senior Advisory Committee elected

• Sept 2006: Senior Advisory Committee inaugural meeting held

• April 2007: SCCOOS submits continuation proposal to NOAA

• June 2007: Senior Advisory Committee convenes meeting
Senior Advisory Committee

CA Office of Spill Prevention and Response
CA Sea Grant
Central Bight Water Quality Working Group
City Los Angeles
Marine Exchange of Southern California
Minerals Management Service
NOAA
NOAA Southwest Fisheries/PacOOS
Orange County Health Care Agency
Southern California Stormwater Monitoring Coalition
State Coastal Commission
State Coastal Conservancy
State Water Resources Control Board
Tijuana NERR
U.S. Coast Guard
U.S. Army Corps of Engineers
U.S. Geological Survey
USC Sea Grant
USN METOC