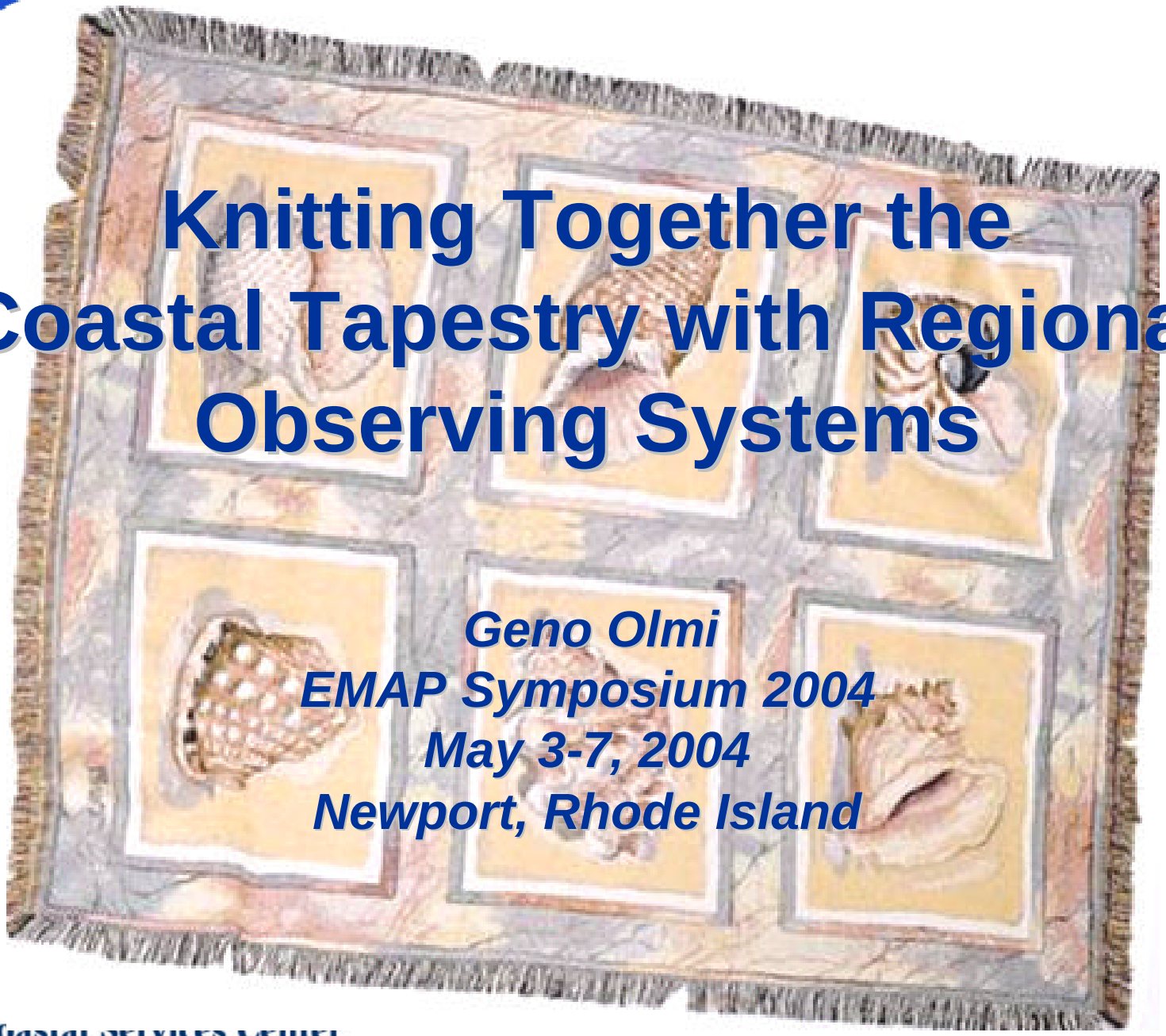
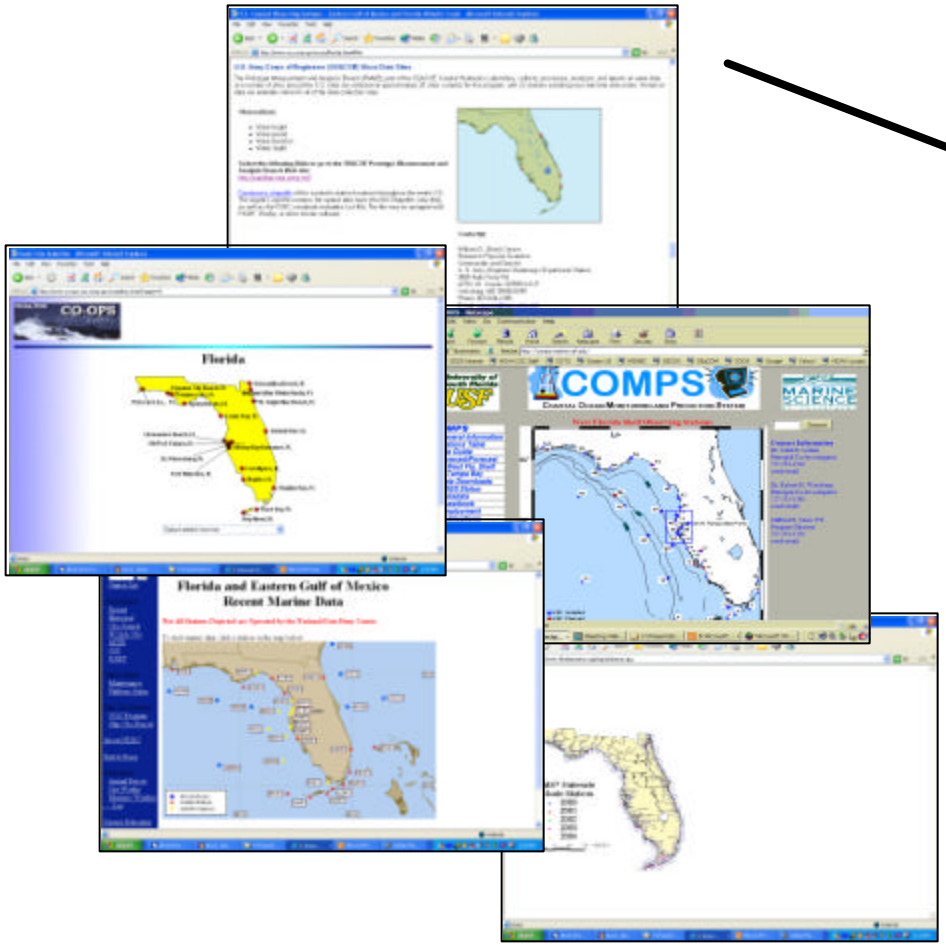
Knitting Together the Coastal Tapestry with Regional Observing Systems



Geno Olmi

EMAP Symposium 2004
May 3-7, 2004
Newport, Rhode Island

Loads of Data…
How Do We Integrate?



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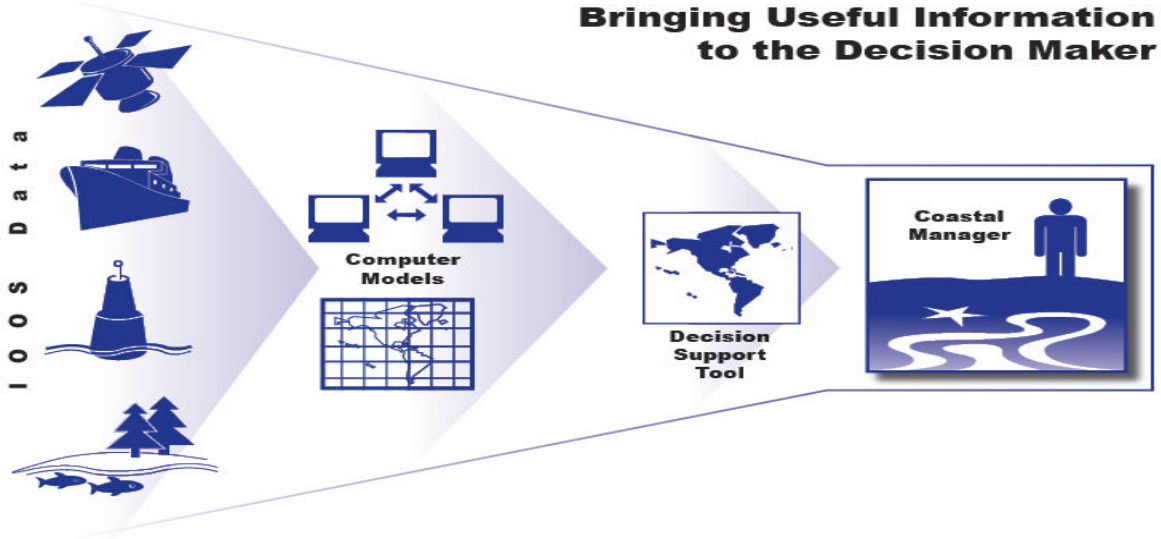
Benefits of Integration

- Discovery, access, and use of relevant data
- Increased resolution through integration



- Relate events to broader scale environment
- Better understanding for improved decision making

A Recurring Theme…

- **"A national [nutrient] monitoring program would involve a partnership of local, state, and federal agencies, as well as academic and research institutions. Participants would agree to use consistent measures of biological, physical, and chemical properties, as well as consistent procedures, quality control, and data management techniques." – *Clean Coastal Waters, 2000***

- **"Currently, comprehensive and nationally consistent data on the condition of coastal waters are not available for all coastal regions of the United States." – *National Coastal Condition Report, 2001***

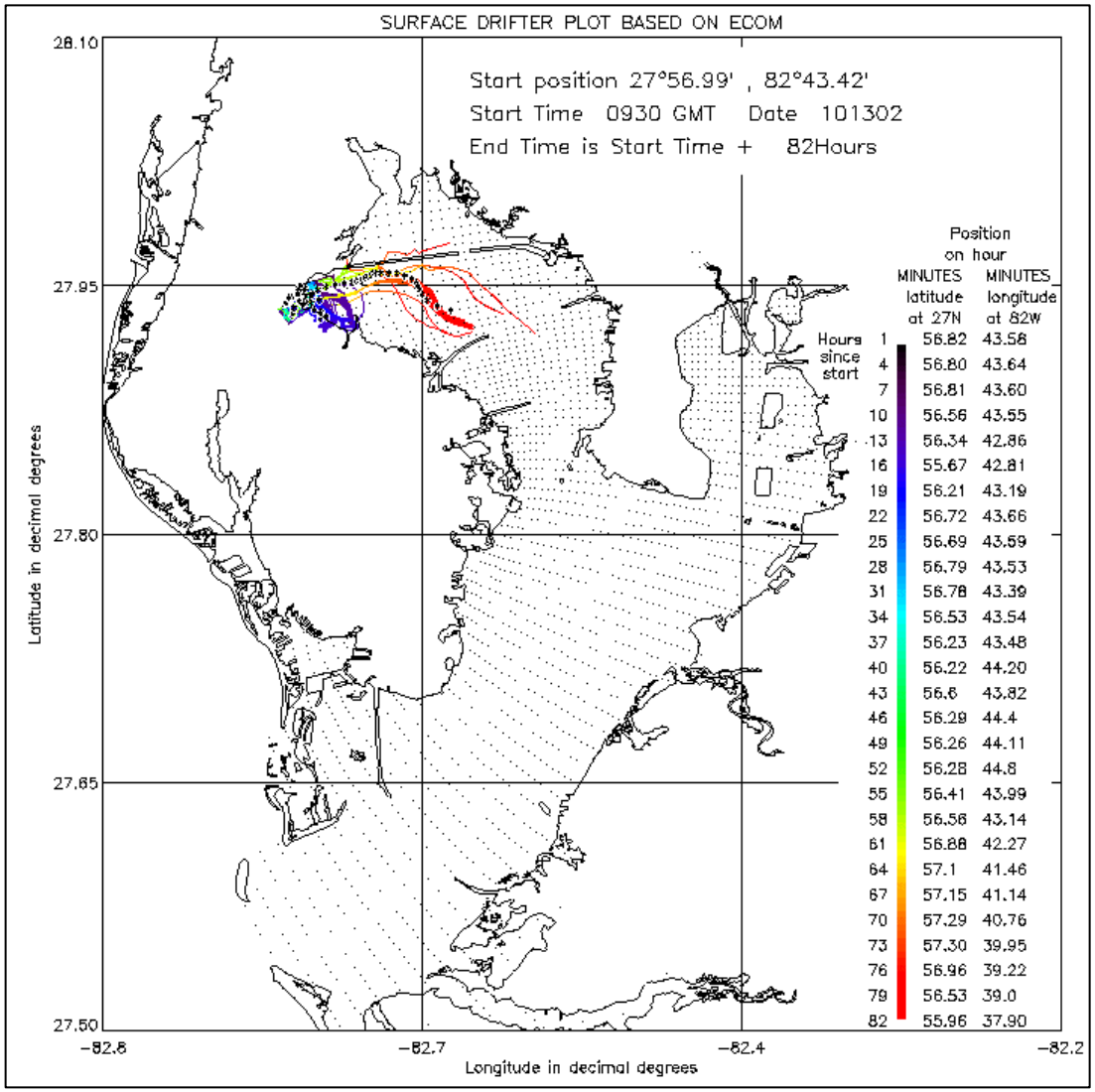
Why is IOOS important?

Opportunity not only to collect more data, but an opportunity to push the integration of existing data streams with new data streams to achieve an improved ability to monitor and understand changes in the coastal environment.

After all…

"If we don't get the data integration done right, then mo' betta' data does nothing but clog the pipeline…"

Tampa Bay Sewage Overflow



Harmful Algal Bloom Bulletin

- Notice of changing conditions
- Available within e-mail to coastal managers

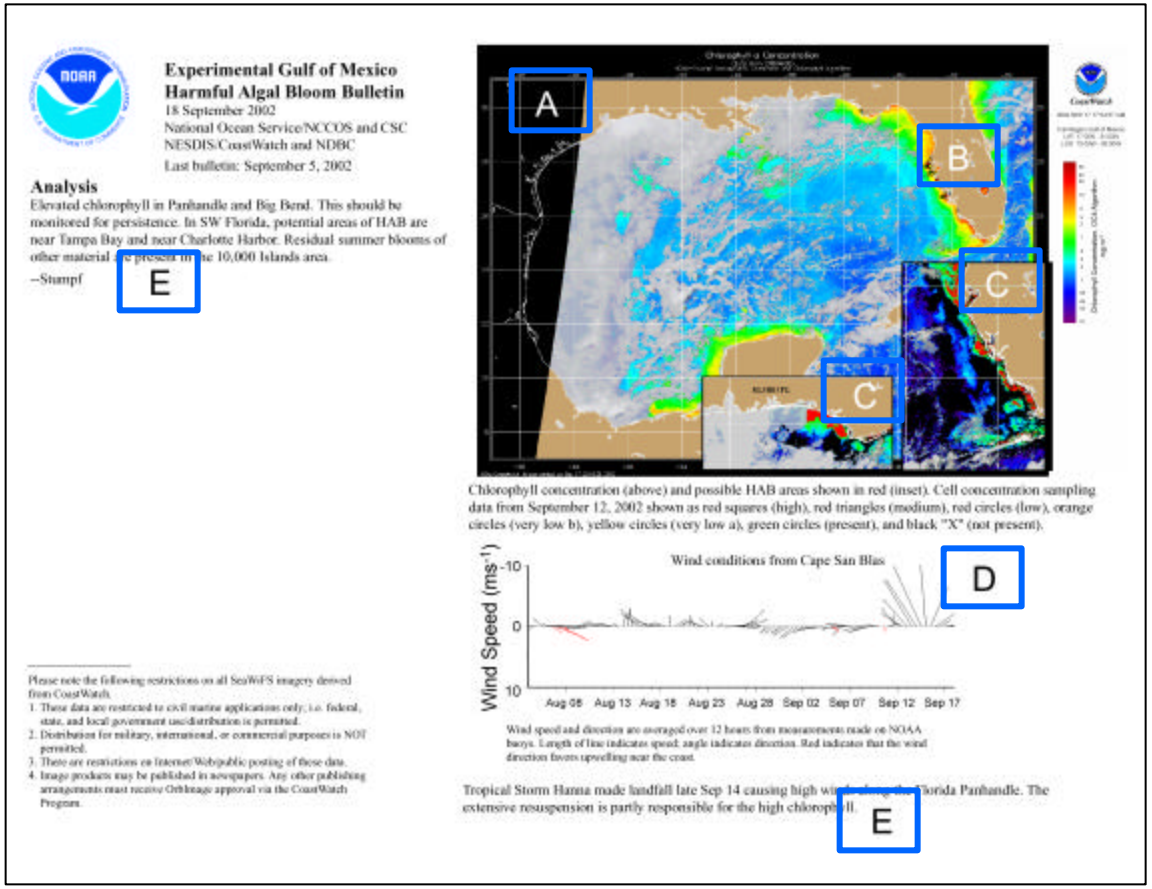
A – SeaWiFS chlorophyll image

B – Last known position

C – Areas affected – cell counts

D – Local winds

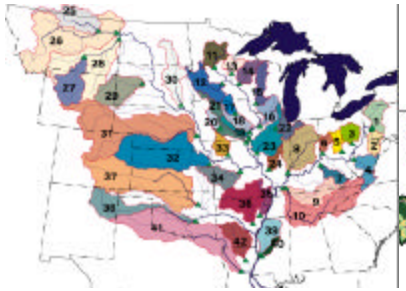
E – Data interpretation

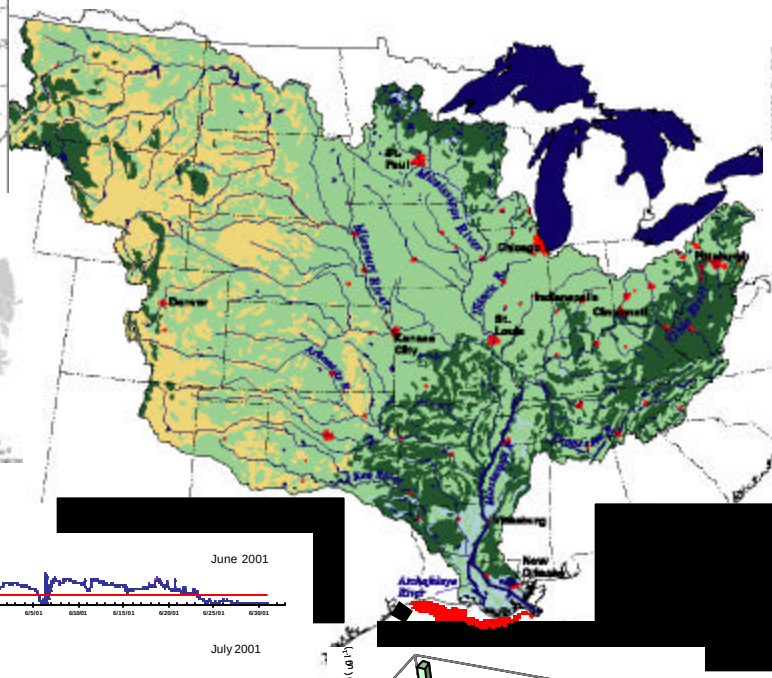


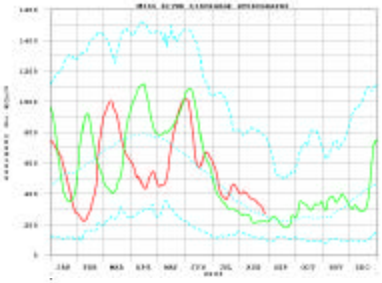
NOAA Center for Coastal Ocean Science
NOAA CoastWatch
NOAA Coastal Services Center

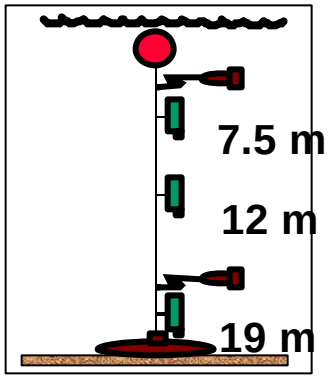
NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

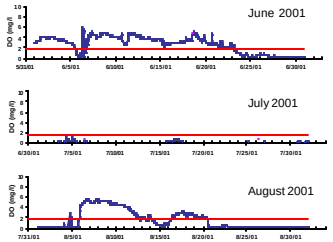
Linking Watersheds and Coastal Waters

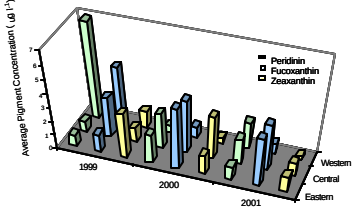


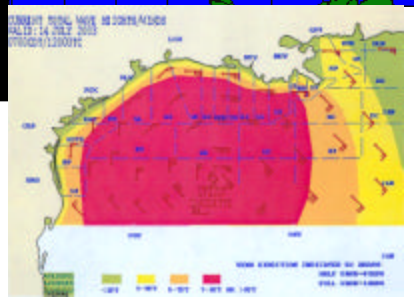












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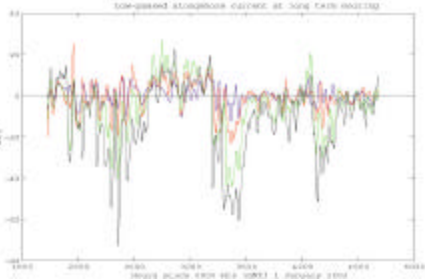
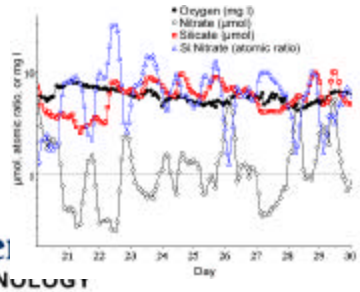
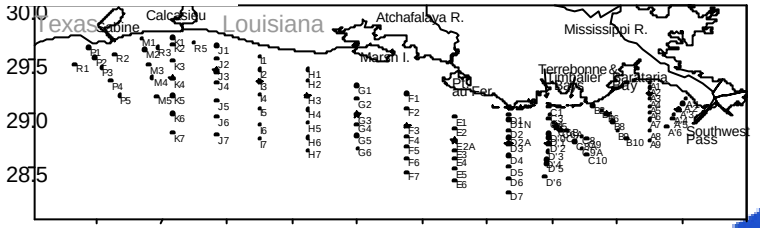






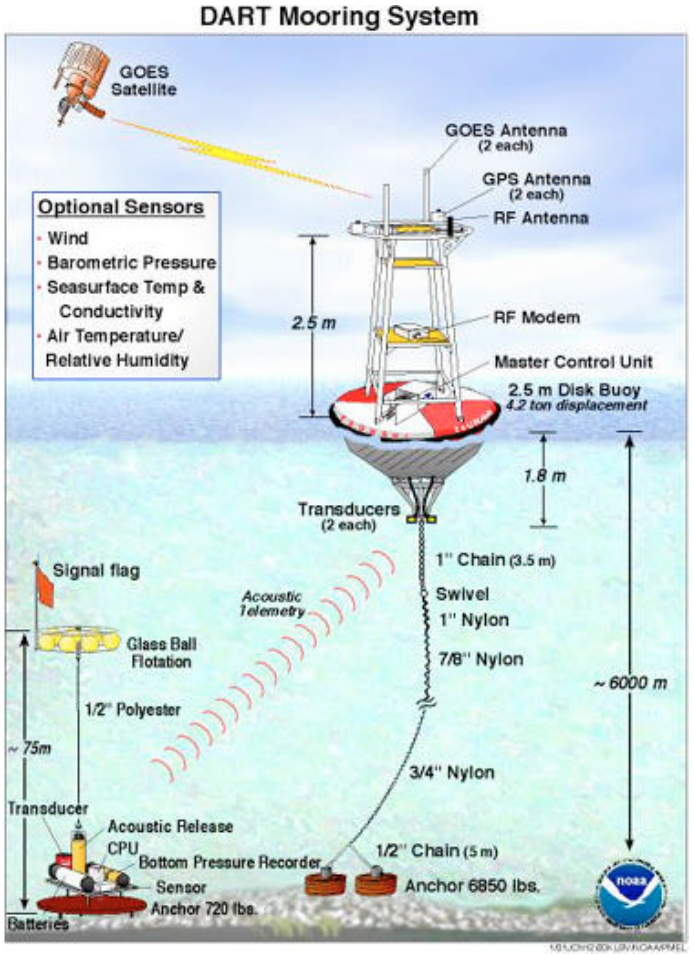
How do we make it happen?

- Data Standards/Protocols
  - Quality assurance
  - Location, access, transfer, integration
- Regional Organization and Coordination
  - Regional Associations
  - Build capacity
- National/Federal Coordination
  - Ocean.US
  - USCOP
  - S1400

Data standards/protocols – quality assurance

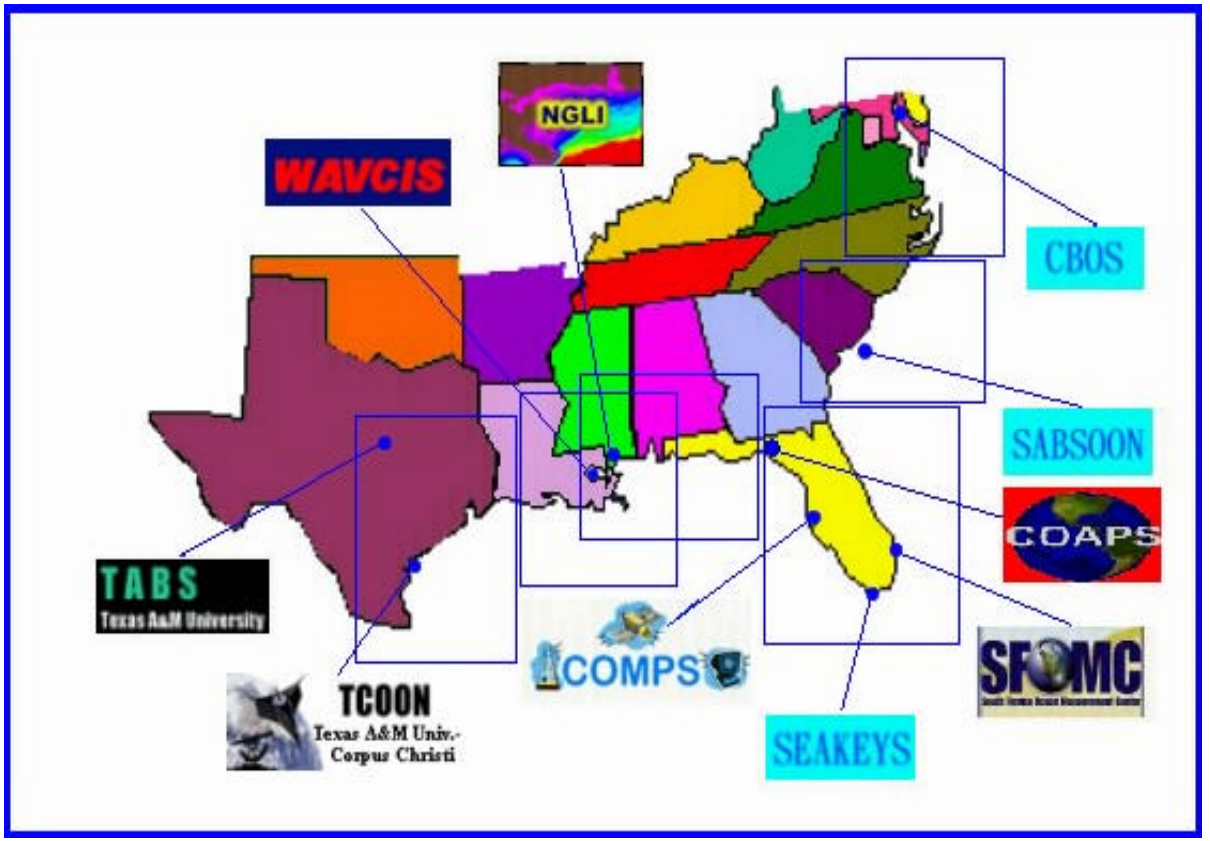
Including

- Collection methods and sensors
- Processing
- Appropriate usage



Data standards/protocols

- Discovery
- Access
- Transfer
- Integration

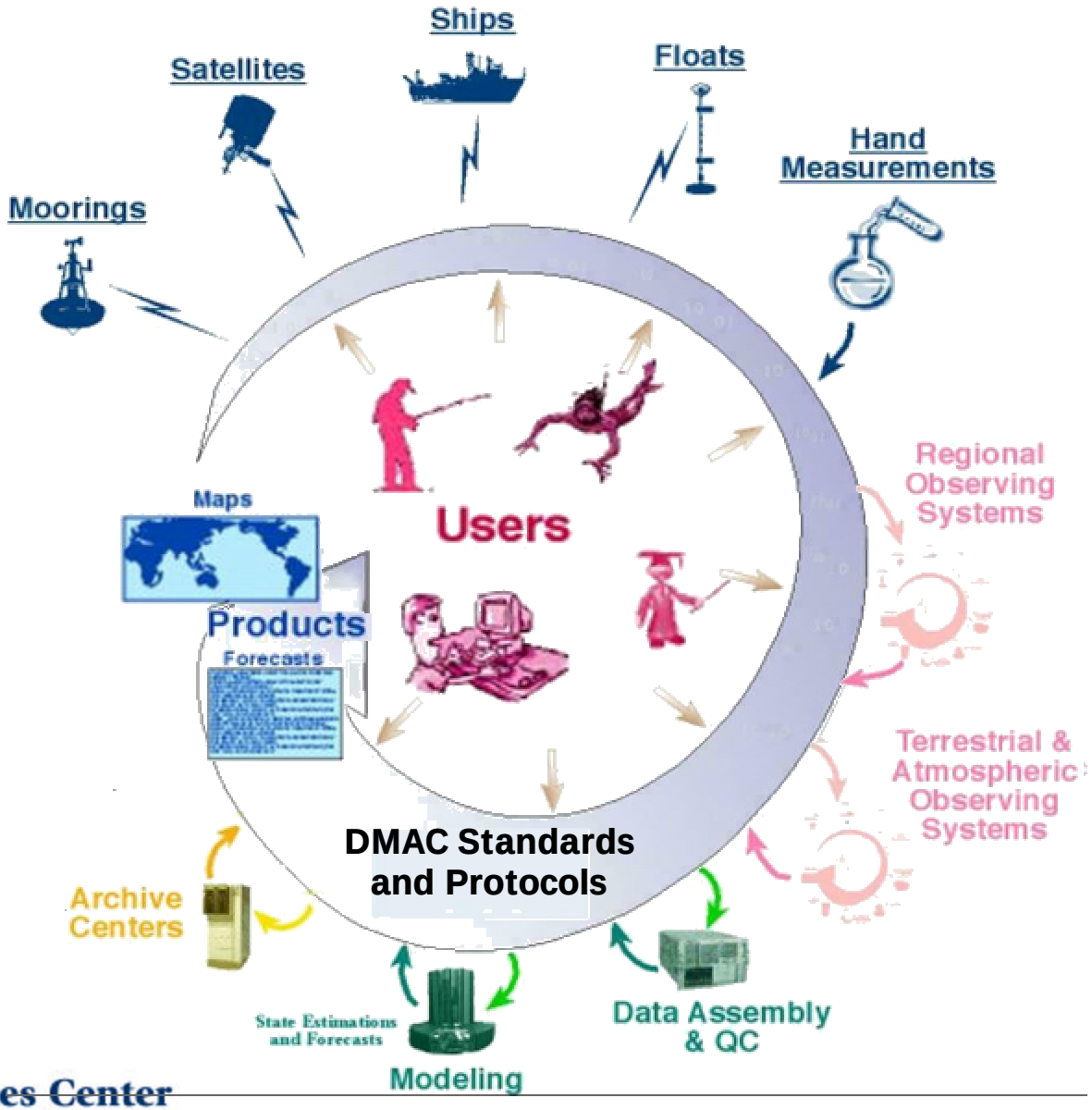


Metadata

High quality, detailed metadata is a must:

- **Critical for quality assurance, access, and data integration**
- **Can be stored in one or more formats**
- **Must be both human and machine readable**

Data Management and Communication



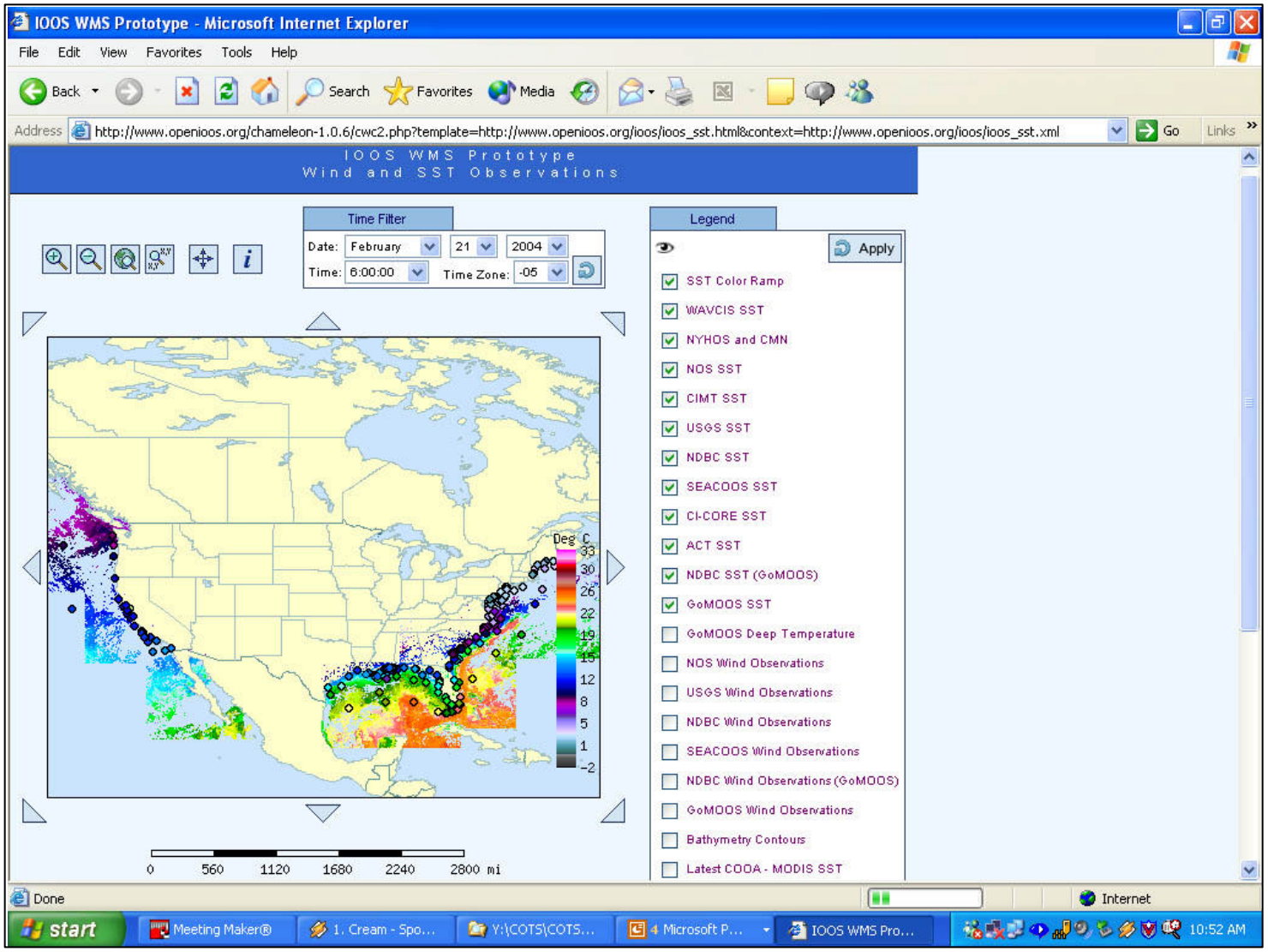
Pilot Projects and Demonstrations

NOAA and ONR Pilots:

- **Deploying observational infrastructure**
- **Follow DMAC Standards/protocols**
- **Incorporating existing data sets into prototype products/services**
- **Exploring technologies and methods for data sharing**

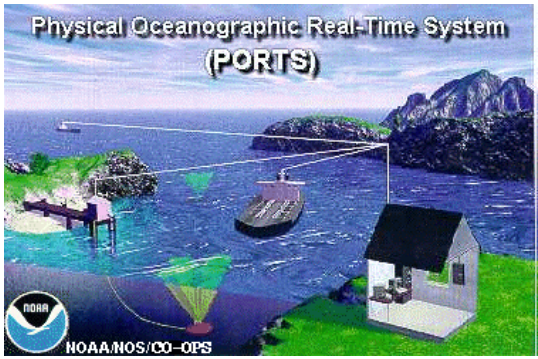
"Working out the kinks"

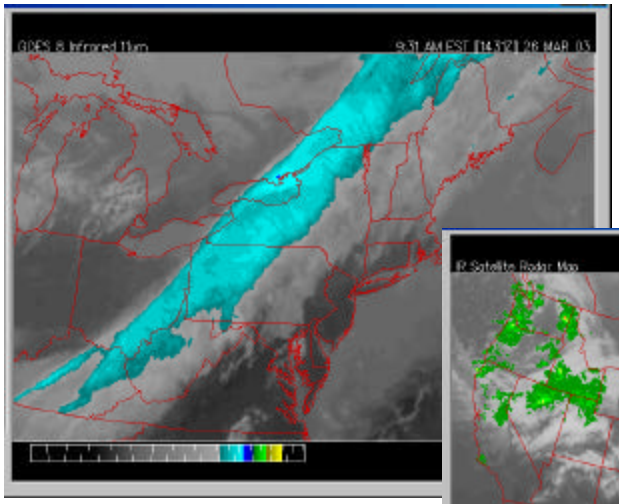
Data Portal Prototype – SST

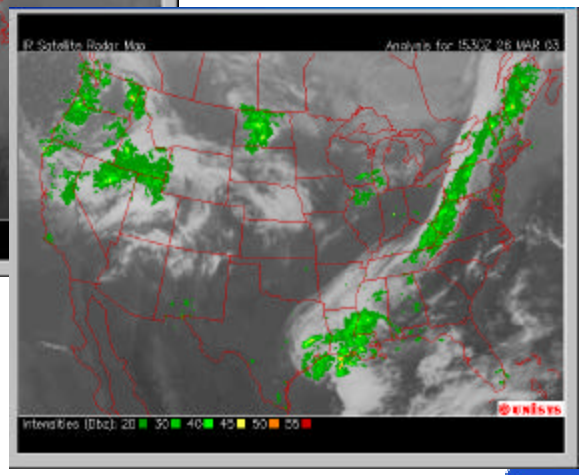


COASTMAP Data Sources

- **NWS Weather Forecast**
  - Text based for any station
- **Images**
  - World wide satellite Enhanced IR and IR coverage
  - Web Cam
  - RADAR
- **Web Data Links**
  - CO-OPS Water Levels
  - USGS River Flow
  - PORTS Data and Graphics
  - NDBC Data
- **COASTMAP Data and Model Results**
  - Currents
  - Waves
  - Winds
  - Extratropical Storm Surge
  - PORTS Archive
  - CODAR







NOAA Coastal Services Center
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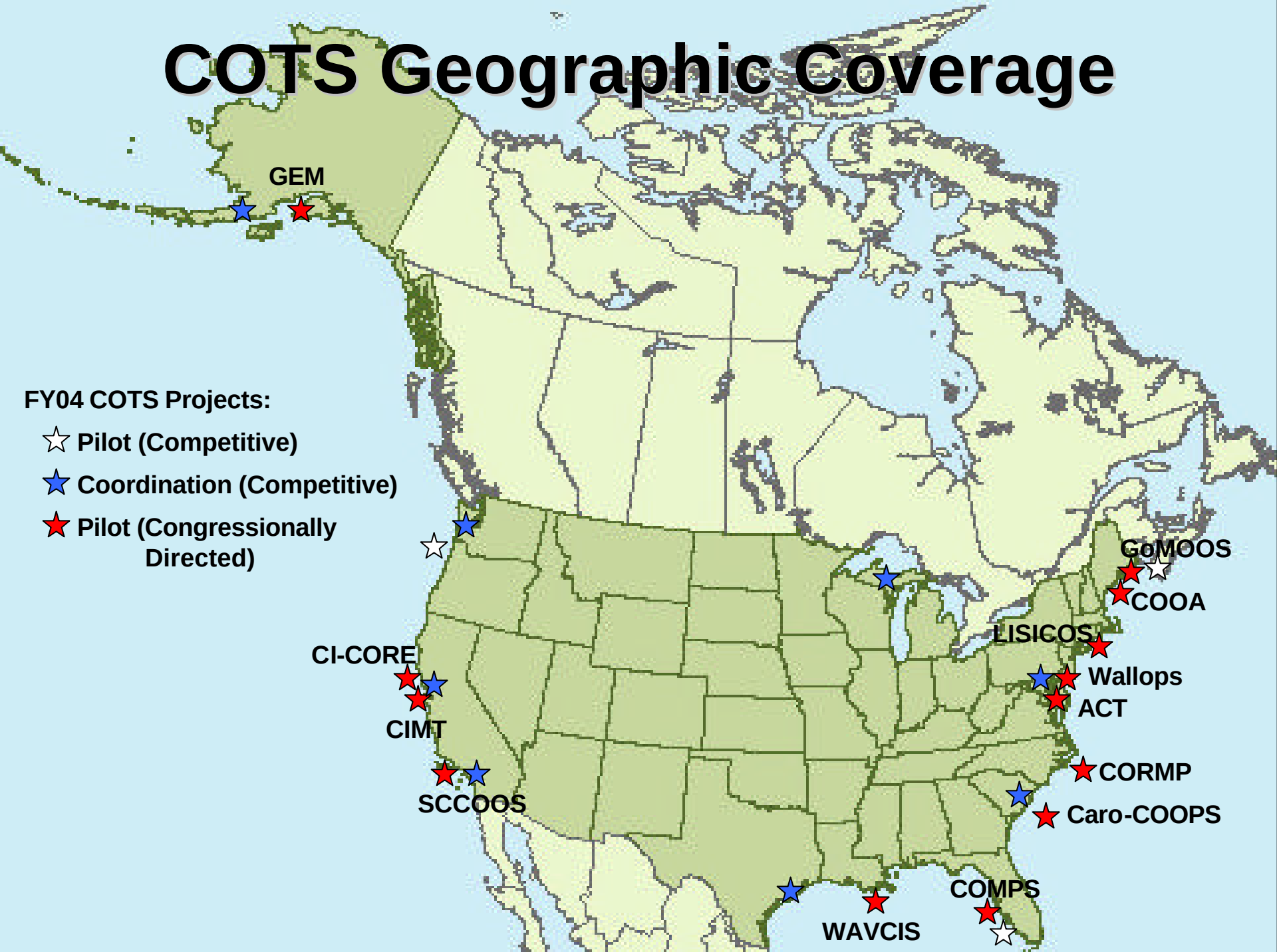
Capacity building for IOOS: Coastal Observation Technology System (COTS)

Designed to further the development of integrated coastal ocean observing systems on a regional basis. COTS projects target two critical elements of developing regional capacity for coastal/ocean observations:

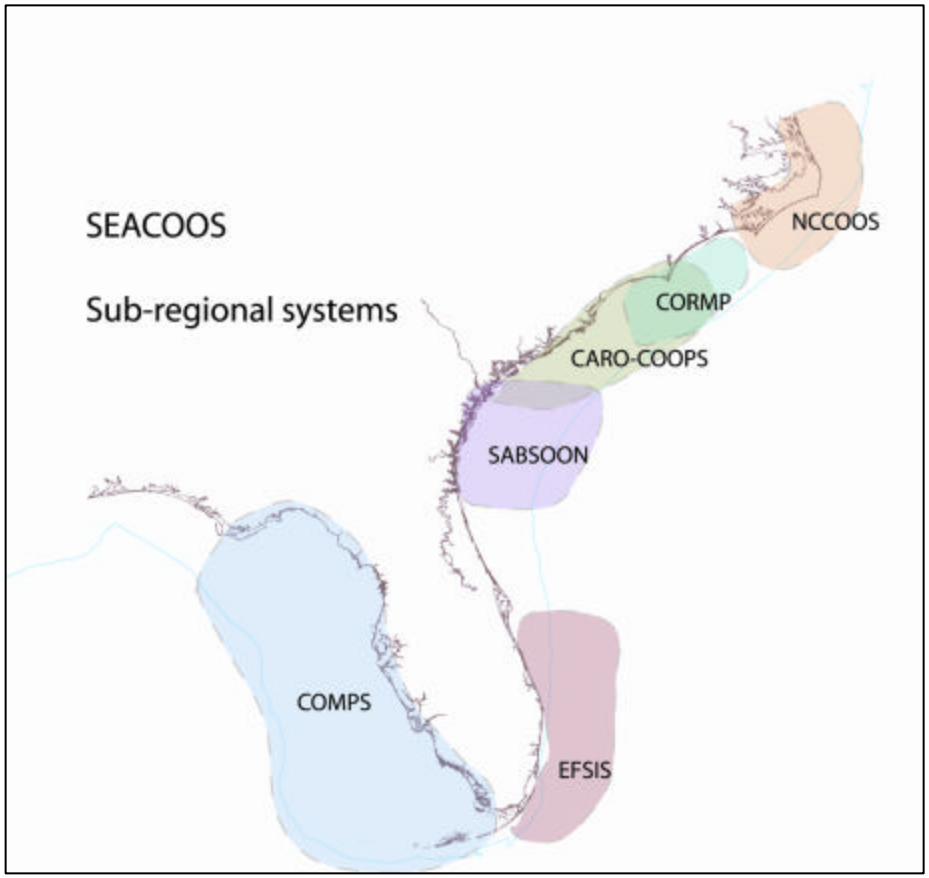
- **Creating infrastructure (e.g., sensors, data management systems) and methodologies to collect, share, and integrate environmental data and create useful information products, and**
- **Developing organizational/governance structures for regional associations as components of the IOOS.**

COTS Geographic Coverage



Regional Approach to IOOS

- Ocean.US and IOOS Implementation Plan
- Data Management and Communication (DMAC)
- Regional Associations
- Pilot Projects



Regional Associations (RAs)

- **Primary interface with user groups outside federal agencies.**
- **Focal point for data analysis and product development that will have local, regional and national applications.**

Regional Associations

National Federation of Regional Observing Systems

Provide a pathway for bringing ongoing monitoring efforts into the IOOS planning and implementation process

National Framework

Ocean.US Leadership (through National Ocean Leadership Council)

US Commission on Ocean Policy Report

Selected recommendations:

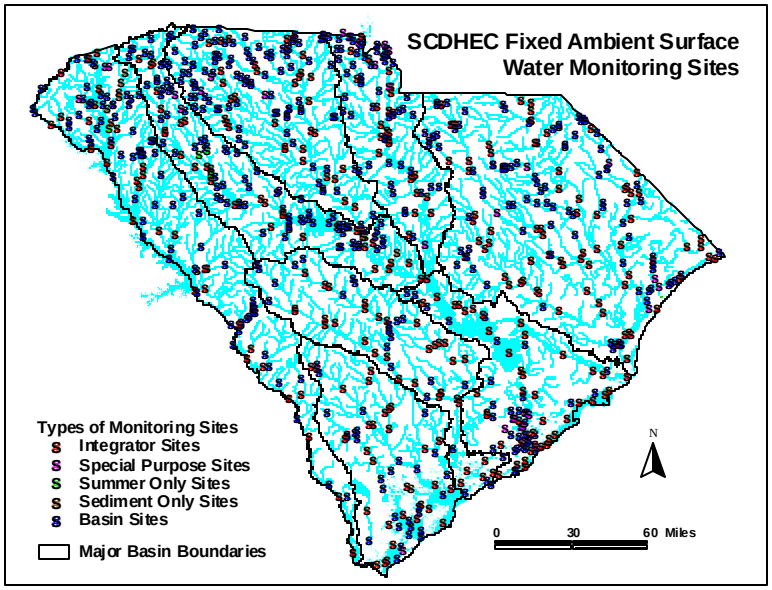
- **Implement regional approach (Ch. 5)**
- **Build national water quality monitoring network linked to IOOS (Ch. 15)**
- **Fund and implement IOOS (Ch. 26)**
- **Coordinate, integrate, and modernize coastal and ocean data information systems (Ch. 28)**

S.1400: Ocean Observations & Coastal Systems Act

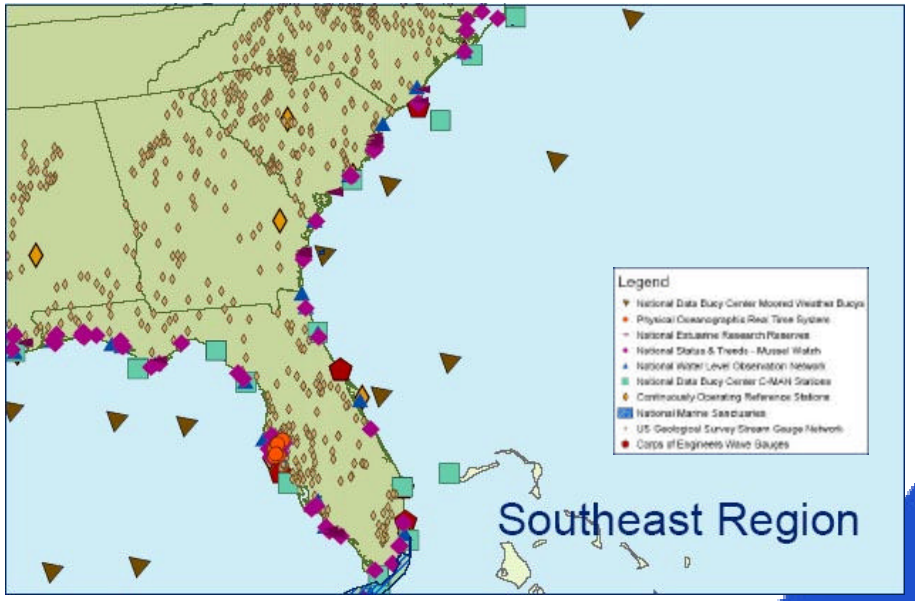
Snowe, Kerry, McCain, Hollings, Inouye & Breaux

- **Authorization – Passed Senate October, 2003**
- **Assigns responsibility for establishing & maintaining the IOOS to NOPP**
- **Formalizes in statute an Interagency Program Office (Ocean.US)**
- **Directs the NORLC to establish a Joint Operations Center to be managed by NOAA in consultation with its NORLC partners**
- **Authorizes $216M for FY 04 => $257M in FY 08**

The Goal



This, with this…



Integration is the Key

- Integrate offshore, coastal, and watershed systems
- Integrate local, state, regional, national, and international data
- Integrate existing and potential data users and data providers into process through RAs and NFRA

An Opportunity

The Integrated Ocean Observing System is an opportunity to improve the monitoring and management of our coasts through enhanced data collection and integration, regional coordination, and national leadership.