NOAA IOOS Program Office Regional Status Assessment for the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA)

23 April 2008

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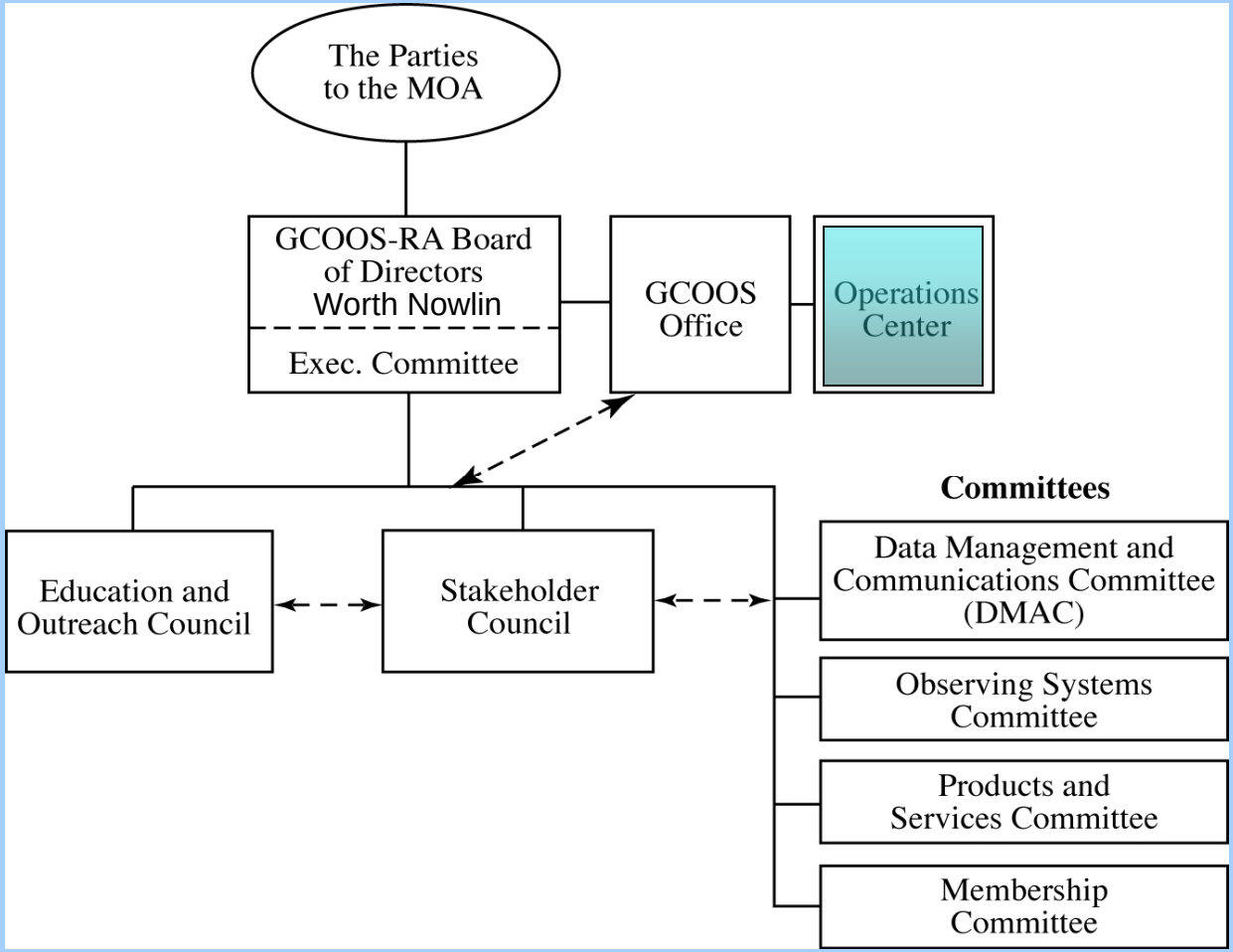
Worth D. Nowlin, Jr.

RA Structure and Governance

- Organizational structure
  - Memorandum of Agreement, effective 25 January 2005
  - Signatories to the MOA are called “Parties” to the MOA
  - Three classes of Parties
    - Voting (U.S. organizations; individuals contributing $2000 per year)
    - Individuals (no vote)
    - Associate (non-U.S.; no vote)
  - Board of Directors (12 members; 15 allowed)
  - 2 Councils
  - 4 Committees
  - GCOOS Office (5 people working at ~3 FTE level)

GCOOS Organizational Structure



RA Structure and Governance

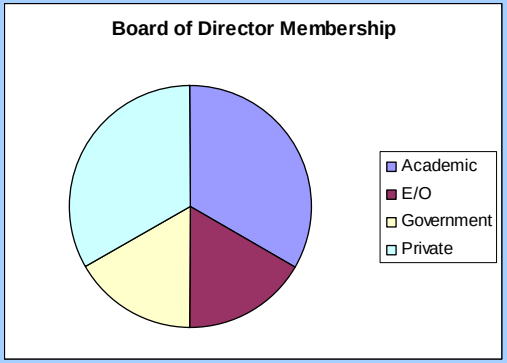
- RA leadership
  - Worth Nowlin, Chair, Board of Directors
  - 11 Additional Members of the Board of Directors
  - Robert Stickney, Chair, of Stakeholder Council
  - Jessica Kastler, Chair, Education and Outreach Council
  - Stephan Howden, Chair, Observing Systems Committee
  - Rost Parsons, Chair, Products and Services Committee
  - Ed Kearns, Chair, DMAC Committee
  - Landry Bernard, Chair, Membership Committee
  - Ann Jochens, Regional Coordinator
  - Matt Howard, DMAC Coordinator
  - Chris Simoniello, Education and Outreach Coordinator

RA Structure and Governance

- Board of Director Membership
  - Worth Nowlin* Texas A&M University (Chair) A
  - Cortis Cooper ChevronTexaco P
  - Mark Luther University of South Florida A
  - Buzz Martin* Texas General Land Office G
  - Chris Oynes Minerals Management Service G
  - Alfredo Prelat Terralliance P
  - Nancy Rabalais Louisiana Universities Marine Consortium A
  - Don Roman* University of Southern Mississippi A
  - Mike Spranger* Florida Sea Grant Program E/O
  - Jan van Smirren Fugro GEOS P
  - Raymond Toll* Science Applications International Corp. P
  - Sharon Walker J. L. Scott Marine Education Center E/O

*Member of the Board's Executive Committee

User groups: P = Private; G = Government; A = Academic; E/O Education/Outreach



RA Structure and Governance

- Board of Directors Meetings

  Meetings are held in person or by telephone approximately every other month

  - In person meetings held twice a year; ~2 days each
    - Jan-Mar meeting includes the annual meeting of the GCOOS-RA Parties (signatories to the MOA)
      - first day gives status of the RA and talks about relevant activities of other groups (e.g., NOAA's Integrated Ecosystem Assessments)
      - Second day focuses on business topics (e.g., Business Plan; membership of Committees/Councils)
    - Aug-Sept meeting focuses mainly on business topics
  - Telephone conferences held every other month
    - Focus is on business topics (e.g., proposals)

Stakeholder Engagement

- Stakeholder types
  - Private sector
  - State, federal, local governments
  - Academia
  - NGOs, K-12 Educators, Extension Agents, and General Public
- Some key stakeholder groups or individuals
  - Oil and gas and related industry
  - Managers and researchers of HAB or hypoxia issues
  - Emergency responders and managers
  - Education and outreach community
  - State resource agencies (e.g., Gulf of Mexico Alliance)
  - Researchers at academic institutions
  - Marine shipping/boating communities (commercial & recreational)
  - Fisheries (commercial, recreational, regulatory bodies)

Stakeholder Engagement

- Types and frequency of engagement
  - Focused stakeholder sector workshops (1-2/year)
  - Membership in GCOOS Board, Committees, Councils, and Standing Task Team on Public Health
  - List serv notices, including review of planning documents and suggestions for priority projects and proposals
  - GCOOS web site
  - GCOOS representatives at meetings & workshops of others
    - Gulf of Mexico Alliance (GOMA):
      - GCOOS Board member is on the Education Priority Issue Team (PIT)
      - GCOOS Regional Coordinator represents GCOOS-RA on the Nutrient and Water Quality PITs and the Coastal Resiliency Working Group (meetings/workshops/teleconferences)
    - Gulf States Marine Fisheries Commission & Gulf of Mexico Fishery Management Council (attend ~1 meeting/yr)
    - GCOOS presentations at science and education conferences
  - GCOOS meetings with individuals in stakeholder groups (e.g., Districts 7 and 8 of the U.S. Coastal Guard)

Stakeholder Engagement

GCOOS Focused Sector Workshops

1. A Workshop to Explore Private Sector Interests and Roles in the U.S. Integrated Ocean Observing System; Focus on the Southeastern U.S. and Gulf of Mexico. 2-4 March 2004, Houston, TX.
2. Harmful Algal Blooms: GCOOS Role in Detection, Monitoring, and Prediction, 13-15 April 2004, St. Petersburg, FL.
3. GCOOS Education and Outreach Council Formation Meeting, 29-30 November 2004, Biloxi, MS.
4. GCOOS and the Private Sector: Oil and Gas and Related Industry, 2-4 November 2005, Houston, TX.
5. GCOOS-SECOORA-NOAA CSC Storm Surge and Inundation Workshop, 24-26 January 2007, New Orleans, LA.
6. Harmful Algal Bloom Observing System Plan for the Gulf of Mexico Workshop, 14-16 November 2007, New Orleans, LA (GCOOS & GOMA).
7. Marine Transportation (in planning for 2008).
8. Recreational boaters (in planning for 2008-2009).
9. Urban Planners/Developers (in planning).

Stakeholder Engagement

- Level of involvement - GCOOS-RA Parties

Breakdown of Parties by STATE

FLORIDA - 25
ALABAMA - 3
MISSISSIPPI - 11
LOUISIANA - 6
TEXAS - 18
OTHER STATES - 12
  Virginia
  Maine
  California
  New York
  Washington
  District of Columbia

Breakdown of Parties by SECTOR

Voting Party - Academic 19
Voting Party - Government 12
Voting Party - Private Sector 25
Voting Party - A / G 1
Individual - Academic 16
Individual - Government 1
Individual - Private Sector 0
Individual - A / G 1

TOTAL = 75 Parties

Stakeholder Engagement

- Level of involvement (4/15/08; Sea Grant personnel split A/G)

GCOOS Group	Private/NGO	Government	Academic
Board (12)	4	2.5	5.5
Stakeholder Council (13)	6	4.5	2.5
Education & Outreach Council (24: TX-4;LA-3;MS-6;AL-4;FL-6;CO-1)	3	11.5	9.5
Observing System Committee (14)	5	5	4
Products&Services Committee (11)	2	6	3
DMAC Committee (12)	3	5	4
Membership Committee (3)	1	1	1
Task Team on Public Health (15)	0	7	8

Stakeholder Engagement

- Attendance at GCOOS Workshops

Workshop	Date	Attendees
Integrated Data System	Nov 00	41
NVODS for COOS Managers	Jan 03	51
Private Sector Interests/Roles	Mar 04	96
HABSOS-GCOOS	Apr 04	45
Next Steps	Jul 04	~130
E/O Formation	Nov 04	21
Initial Stakeholder	Jan 05	88
Oil&Gas and Related Industry	Nov 05	90
Storm Surge & Inundation	Jan 07	65
HAB Observing System Plan	Nov 07	46

Stakeholder Engagement

Key issues important to stakeholders; how addressed

1. Improved hurricane tracking and intensity forecasts — seeking support for adding autonomous met packages to platforms; endorsing research projects within NWS and academia
2. Knowledge of surface currents and waves — build HF Radar system
3. Public health of the beaches and near shore waters, HABs and beach health — HABs workshop/meetings to develop plan; working with GOMA; On line beach health
4. Storm surge and inundation — build water level system; support improved bathymetry and topography observations
5. Nutrient reduction and hypoxia for animal & public health — participate in planning activities of GOMA and of NOAA
6. Improve ocean literacy within the U.S. population — provide ~10% of GCOOS-RA funds to education or outreach activities
7. Improve maritime transportation and safety — new PORTS

Stakeholder Engagement

Support from stakeholders

- Voluntary inclusion of data streams, through NDBC, of more than 10, mainly academic, data providers. All GCOOS data sets are provided through systems not supported by IOOS funds.
- Voluntary participation (time commitment) on GCOOS Board, Councils, Committees, and Task Team by over 100 individuals.
- $1.5M from Oil and Gas Industry offered to improve Gulf of Mexico circulation models with a federal match of ~$600K over 3 years; but no federal funding was forthcoming so this opportunity to work with industry on a proven full Gulf model may be lost.
- Addition of ~30 ADCP data streams to the near-real-time data going through NDBC (MMS requirement; Oil and Gas industry cooperating).
- Addition of automated met instrumentation on platforms (e.g., Shell-NOAA agreement).

Stakeholder Engagement

Other stakeholders?

We are in the process of increasing our level of engagement with several classes of stakeholders, including:

- Commercial fishermen
- Recreational fishermen
- Fishery regulators
- U.S. Coast Guard
- Marine transportation
- Recreational boaters
- Urban planners/developers
- SECOORA and CaRA; Other RAs
- Mexican entities

Current Activities and Funding

- Summary of key IOOS-related activities
  - Provision of data
    - Physical (Currents, Salinity, Temperature, Water level, Tides)
    - Meteorological (Wind speed and direction, Barometric pressure)
    - Biological (Chlorophyll, Oyster health, HABs, E. coli, Fisheries)
    - Chemical/Geological (Nutrients, DO, Sediments)
    - River discharge rate, volume, and properties
  - Remote sensing of
    - Sea surface height (Satellite altimeter)
    - Sea surface temperature (Satellite AVHRR & MODIS)
    - Ocean color/chlorophyll (Satellite SeaWiFS & MODIS)
    - Winds (Satellite Quickscat)
    - Surface currents (HF radar)
  - Modeling of
    - General circulation & properties (T, S) in the Gulf of Mexico
    - Shelf circulation
    - Circulation in estuaries and bays (with some properties)

Current Activities and Funding

- Summary of key IOOS-related activities: Federal
  - National Water Level Network of NOAA (implemented with TAMU-CC) and measurements of USGS and ACOE;
  - NDBC data collection and management of real time data;
  - NOAA, EPA, and CDC involvement in HABs observing system;
  - NOAA support of hypoxia monitoring;
  - NOAA monitoring of fisheries, their environment and habitats;
  - Navy and NOAA modeling of Gulf and Caribbean sea;
  - Navy modeling of bays and estuaries;
  - NASA, NOAA, and DOD provision of remotely sensed data;
  - USGS and ACOE monitoring and prediction of river discharge;
  - MMS support of observations by oil and gas producers;
  - NOAA support of the RAs;
  - NOAA support of enhancement of data management activities within GCOOS

Current Activities and Funding

- Summary of key IOOS-related activities: State
  - TABS (implemented by TAMU);
  - TCOON (implemented by TAMU-CC);
  - WAVCIS (implemented by LSU)
  - COMPS (implemented by USF)
  - Monitoring for HABs by all Gulf states;
  - Monitoring for beach health by all Gulf states;
  - Modeling of estuaries and nearshore environments (e.g., Texas and Florida);
  - Pre- and post-storm observations by all states;
  - PORTS support activities of the States;
  - Satellite products (LSU and USF);
  - Monitoring measurements of resource management agencies
  - Oysters as sentinels for estuarine health

Current Activities and Funding

- Summary of key IOOS-related activities: Private
  - Current measurements from drilling and production platforms of petroleum industry;
  - Meteorological measurements from platforms and drill ships of petroleum industry and from other private firms;
  - Meteorological measurements from commercial vessels traversing the Gulf;
  - Major sponsorship of PORTS in the Gulf by various groups;
  - Improvement of circulation modeling capabilities

Current Activities and Funding

- Summary of key IOOS-related activities: Academic
  - Provision of products from remotely sensed data
    - Sea surface height fields, University of Colorado
    - Sea surface temperature fields, Johns Hopkins University
    - Sea surface temperature and ocean color fields, Louisiana State University
    - Ocean color/chlorophyll fields, University of South Florida
    - Altimeter products, University of Texas
  - Provision of products from numerical modeling
    - USF COMPS
    - FSU COAPS
    - TAMU/TGLO Surface Current Forecasts
  - Provision of data sets

Current Activities and Funding

- Interaction/joint work with other federal agencies
  - PORTS;
  - NOAA NDBC real time data management;
  - Work with NOAA CSC on data inventories and on user assessment surveys;
  - Work with NOAA CSCOR on hypoxia monitoring;
  - Work on IOOS DMAC standards/protocol development
  - Cooperation with MMS in encouraging open sharing of oil and gas industry data;
  - Cooperation of USCG district headquarters in discussing SAR requirements;
  - Cooperation of NOAA Southeast Fisheries Science Center in discussing difficulties in assessing and meeting fisheries' requirements

Current Activities and Funding

How can NOAA IOOS best support you in engaging other Federal agencies?

- Work effectively with members of the IWGOO and other agency representatives to make IOOS a truly multi-agency effort.
- Engage agency representatives at higher levels than usual to increase awareness of and support for IOOS at highest management levels
- Encourage continuation & strengthening of Ocean.US Office to plan and coordinate a multi-agency IOOS and to coordinate with the GOOS global module
- Support and encourage multi-agency cooperation in carrying out the IOOS DMAC plan
- Work with IWGOO to advocate satellite sensing projects of all types, not just NOAA-run programs

Current Activities and Funding

- Sources of funding
  - NOAA IOOS and other NOAA funds
    - RA Planning Grant (FY2005-2007)
    - Data Portal Development Project (calendar 2008)
    - Standardization of Local Data Nodes Project (calendar 2008-2010)
    - Pending: RA Support Grant (FY2008-2010)
    - Pending: Data Portal Maintenance/Regional Operations Center Development Project (calendar 2009-2011)
    - On Hold for Future Review: HF Radar Project (FY2008-2010)
  - Other Federal
    - National Backbone Data & Products (e.g., NDBC Buoys; USACOE/USGS river data; NWLON water level data; NERRs and NEPs; NASA & NOAA satellite data; Navy models; PORTS data and models)

Current Activities and Funding

- Sources of funding (none come through GCOOS-RA)
  - Non-Federal — States and Private (there also may be partial support through federal funding)
    - Texas Automated Buoy System (TABS)
    - Texas Coastal Ocean Observation Network (TCOON)
    - LSU Wave-Current-Surge Info. Sys. for Coastal Louisiana (WAVCIS)
    - LUMCON Environmental Monitoring Stations
    - LSU Earth Scan Laboratory
    - USM Central Gulf Ocean Observing System (CenGOOS);
    - MS Department of Natural Resources measurements;
    - AL Dauphin Island Sea Lab (DISL) measurements & models
    - Tampa Bay, Houston/Galveston Bay, and newer PORTS
    - USF Coastal Ocean Monitoring and Prediction System (COMPS)
    - USF Institute for Marine Remote Sensing (IMaRS)
    - FSU Center for Ocean-Atmospheric Prediction Studies (COAPS)
    - Oil & Gas Industry ADCP currents from platforms
    - Voluntary participation in GCOOS-RA work by TX, LA, MS, AL, and FL agencies and private entities

Current Activities and Funding

- RA plans/efforts to match IOOS dollars with funding from other sources
  - What sources, and in what areas of work?
    - Oil and gas industry: circulation models, met instrumentation of platforms, currents in near real-time from platforms
    - State agencies: support to enhance HABs observing system, to improve river monitoring (e.g., nutrients and pollutants), to help support development of PORTS
    - Other sources being investigated
  - How can the NOAA Program Office help?
    - Make sure there is a federal match when a substantial contribution requiring such a match arises.
    - It is critical that federal agencies participate in the data inventory begun by the NOAA CSC for all non-federal RA activities.

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop the GCOOS-RA
    - Held meetings of the GCOOS Parties
      - Jan 2005 Initial GCOOS Stakeholder Meeting; MOA ratified
      - Jan 2006; Mar 2007; Feb 2008
    - Held Board of Directors meetings
      - Aug 2005; Jan 2006; Aug 2006; Mar 2007; Sep 2007; Feb 2008
    - Held meetings of Councils and Committees
      - Joint meetings of Observing Systems, Products and Services, and DMAC Committees: Apr 2006; Nov 2007
      - Telephone conferences & email exchanges
      - Stakeholder and Education and Outreach Councils-next pages
    - Reviewed governance structure in 2006; reconsider in 2008
    - Enhance membership in the RA: 75 signatories and growing

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Entrain users and develop user requirements
    - Focused stakeholder sector workshops
      - Oil and Gas and related industry Nov 2006
      - GCOOS-SECOORA-NOAA CSC Storm Surge & Inundation Jan 2007
    - Held Stakeholder Council meetings
      - Jan 2006; Mar 2007
      - Invited to Board/council/committee meetings - 2008 on
      - Telephone conferences every other month beginning Jan 2008
      - Council members invited to GCOOS meetings and workshops
    - Presentations to industry, science, and education forums
      - Oral presentations (e.g., MTS, ASFPM, AGU/ASLO, NMEA)
      - Poster presentations (e.g., ERF)
      - Written publications (e.g., MTS Journal; ASFPM proceedings)

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop education and outreach component
    - Held Education and Outreach Council Formation Meeting Nov 2004
    - Formed Education and Outreach Council with ~25 members representing K-16 formal educators, informal educators, extension and outreach personnel
    - Held Education and Outreach Council meetings: Apr 2006, June 2007
    - Hired Education and Outreach Coordinator
      - Dr. Chris Simoniello Mar 2008
    - Action Plan developed (2006-2007; 2007-2008)
    - Strategic Plan developed (Feb 2008)
    - Participation in developing E/O component for each GCOOS proposal

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop Business Plan:
    - Draft presented at Initial GCOOS Stakeholder Meeting in January 2005
    - Reviewed by Board, Councils, Committees 2006-2007
    - Posted to GCOOS web site for review by stakeholders 2006
    - Edited March 2007
    - Under revision with new draft expected in summer/fall 2008 for Board and then general review

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop Business Plan: Outline

    Executive Summary

    1. Organization
    2. Marketing Plan
    3. Operations Plan
    4. Research and Development
    5. Education and Outreach
    6. Communication Strategy
    7. System Evaluation
    8. Financial Plan

    References

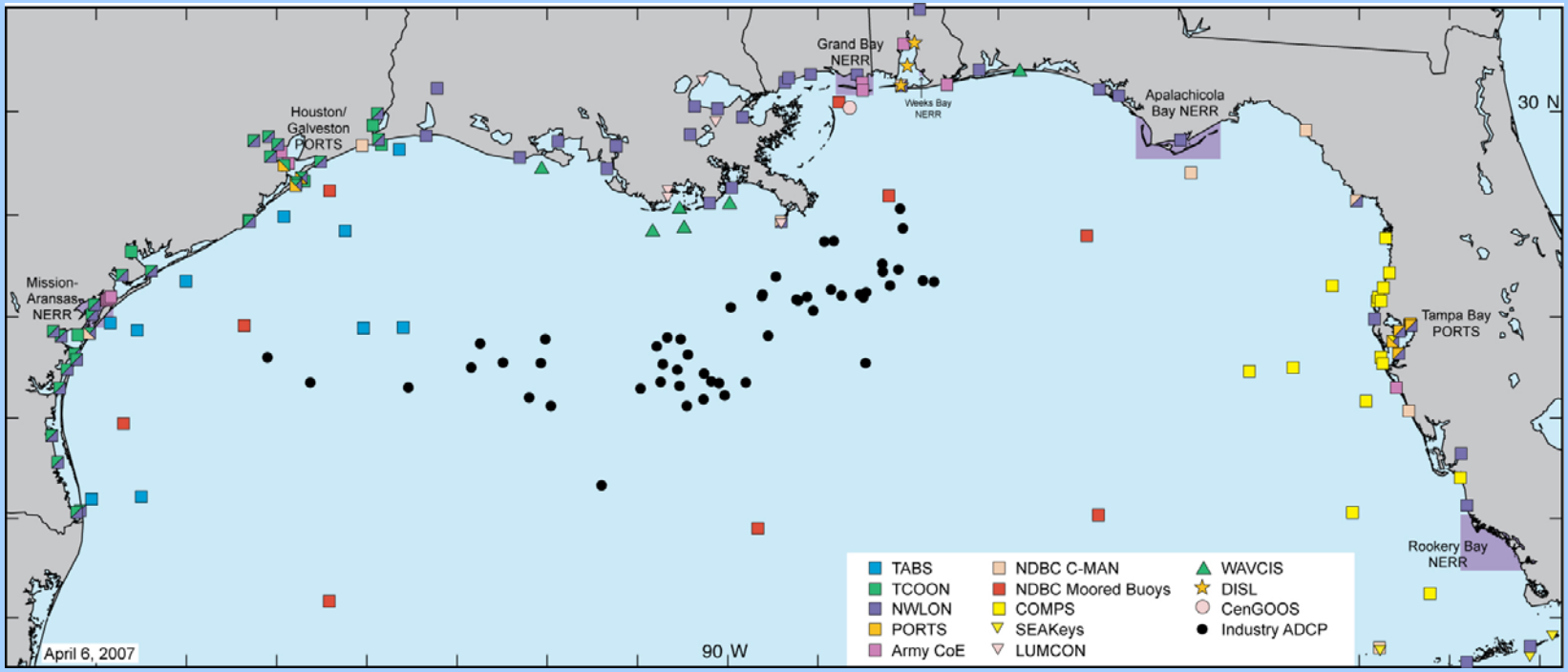
    Appendices

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Activities to develop GCOOS
    - Inventory of observing systems in the Gulf
      - Established 2006, Revised 2007
      - Undergoing revision in 2008
      - Promoting participation in the IOOS Data Registry
    - Promote data sharing by stakeholders
    - Proposal priorities developed with input from stakeholders
    - Successful proposals to promote interoperability and DMAC compliance by data providers and to develop a Data Portal that will provide capabilities to integrate data sets
    - No successful proposals to enhance existing or build new observing systems.

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - 2007 Near-Real-Time Data Inventory



RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop linkages
    - Contacts established in Mexico with PEMEX, Mexican Navy, SEMARNAT, GOOS-Mexico, others
    - Participation in IOOS Regional Coordination Workshops
    - Ongoing coordination with NOAA CSC
    - Contacts established with NOAA IOOS Program Office
    - Participation in National Federation of Regional Associations
      - Board members Ray Toll and Buzz Martin are the GCOOS reps
    - Contacts established with other RAs
      - Hold joint workshops of mutual interest (e.g., GCOOS & SECOORA Storm Surge and Inundation Workshop Jan 2007)
      - Reciprocal endorsement of GCOOS-RA/SECOORA proposals
      - Information exchange between GCOOS-RA, SECOORA, CaRA

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop linkages (continued)
    - Contacts established with the Gulf of Mexico Alliance (priority issues of state agencies of the 5 Gulf coast states)
      - Nowlin leads development of GCOOS-GOMA HAB Integrated Observing System plan
      - Jochens participates in GOMA Nutrient/Water Quality team meetings, workshops, teleconferences; and in prep. of nutrient fate study design
      - Jochens participates in GOMA Coastal Resiliency working group meetings, and email exchanges
      - Walker participates in GOMA Education team activities
      - Joint meeting between GCOOS-RA EOC and GOMA Environmental Education Network (EEN) in June 2007
      - Some EOC members participate on GOMA EEN
      - Simoniello works with GOMA EEN Coordinator and as a Tampa rep
    - Contacts established with personnel in various regional federal agencies (e.g., MMS, USGS, USCG, EPA, NOAA, Navy, NASA, ACOE)

RA Coordination: Cooperative Agreements

- Summary of progress: Milestones & status
  - Develop linkages (continued)
    - Service on Relevant Committees and Steering Teams, including
      - Jochens serves on the NOAA CSCOR Steering Committee for the Gulf of Mexico Hypoxia Monitoring Implementation Plan
      - Howard serves on the IOOS DMAC Steering Team
      - Howard chairs the DMAC RA Caucus
      - Simoniello serves on the IOOS Education: Data and Technology Protocols (EDATP) for Education Committee
      - Simoniello serves on Education Council of the Florida COOS Consortium
      - Simoniello serves on the IOOS Key Messages and Themes Work Group, chairing one of its subcommittees
      - Nowlin serves on Management Committee of WMO-IOC JCOMM

RA Coordination: Cooperative Agreements

- Summary of progress: Update to progress report
  - Parties and Board of Directors meeting was held 26-27 February 2008 in Biloxi, MS.
  - GCOOS Conceptual Design Version 1.0 was provided to NFRA and NOAA IOOS Program Office
  - GCOOS Conceptual Design Version 1.2 was completed April 2008
  - GCOOS Observing System Plan Version 1.1 was completed April 2008
  - GCOOS Education and Outreach Strategic Plan was completed March 2008
  - The Harmful Algal Bloom Integrated Observing System Plan is in draft version 5

RA Coordination: Cooperative Agreements

- Summary of progress: New information
  - We plan an update of our observing system status in 2008
  - GCOOS web site is being completely revamped
  - We will begin preparing exhibits to entrain stakeholders and for general education and outreach

RA Coordination: Cooperative Agreements

- Summary of overall progress: How are you doing?
  - Organization is in place
  - Strong linkages have been and are being developed between regional data providers
  - Strong stakeholder engagement
  - Lack of funds to establish new observational systems is causing enthusiasm to wane precipitously—a potential death knell for IOOS

RA Coordination: Cooperative Agreements

- What will change with the new RA grant in FY08?
  - Many aspects of planning will be completed and implementation will be pursued as funds to do so become available
  - The improved inventories of GCOOS observations and the GCOOS conceptual design will allow an initial gap analysis to be conducted
  - Less funds per year will reduce ability to engage stakeholders at their meetings (e.g., GOMA meetings and workshops)

RA Coordination: Cooperative Agreements

- New directions, partners, etc.?
  - Partner on proposals with Gulf of Mexico Alliance
  - Partner with SECOORA on proposals relevant to the Florida coastal system
  - Partner with SECOORA and CaRA on appropriate DMAC and education/outreach activities
  - Efforts to engage new stakeholder sectors will bring in new sectors
  - Share Data Portal/Regional Operations Center information with other interested RAs
  - Without funds for new observational systems there will be no new enhancements to data delivery for users.

RA Future Development

- RA views on function and performance metrics

  In general, different metrics are needed for different functions:

  - Governance including stakeholder engagement
  - DMAC and data-related activities
  - Building and maintaining observing system components

  Application of metrics should be dependent on the support, including both funds and labor, that is available for the activity associated with the metric.

  Application of metrics should take into account any catastrophic events, such as hurricanes, that damage infrastructure.

RA Future Development

Metrics for RA governance activities

- Meetings held and reports
- Follow-up on actions to meetings
- Review and update of RA planning documents such as Business Plan, Conceptual Design, Observing Systems Plan, E/O Strategic Plan
- Measures of efforts to engage stakeholders
- Numbers and classes of web site users
- Numbers and classes of data portal users and operations center users

RA Future Development

Metrics for RA data management activities

- Number of observing system nodes that are preparing and serving data to IOOS standards
- Number of real-time data servers that are stated to be quality assessed by the NDBC
- Percentage of time that real-time data providers are serving data
- Number of legacy data centers that are openly serving data via OpenDap or other approved data transfer protocols

RA Future Development

Metrics for RA observing system activities

- Metrics that depend on the addition of new data and products cannot readily be applied to RAs that have no new funding sources to develop new observing system components
- Comparisons of results to schedule of milestones in accepted proposals and observing system plan (requires Regional Operations Center)
- Metrics on the operations of observing system components: e.g., when last calibrated? how often considered to produce outliers based on QC? (requires Regional Operations Center)

RA Future Development

- Objectives of the RA and plans for the near-term FY08-12
  1. Maintain and further develop the infrastructure of the RA itself (e.g., organizational structure, plans of the RA, education and outreach activities, and the web site),
  2. Identify regional and local stakeholder needs and priorities,
  3. Identify and maintain an inventory of observations and products from the region,
  4. Identify gaps in observations and products needed to meet stakeholder needs,
  5. Select and prepare proposals for projects to fill gaps and to provide for enhancements to observing systems, products, and data management,
  6. Conduct activities to strengthen regional involvement with the evolution of and compliance with data management and communication (DMAC) plans of the U.S. Integrated Ocean Observing System (IOOS), and
  7. Coordinate and collaborate with other observing system entities.

RA Future Development

- Summary of top five priorities for development of RCOOS capabilities with ROUGH cost estimates
  1. U.S. Gulf-wide HF Radar Observing System for Surface Currents and Waves — build out costs of $22M over 7 years; $3.8M per year for full system maintenance
  2. Harmful Algal Bloom Integrated Observing System — $$ TBD
  3. U.S. Gulf-wide Water Level Observing System — build out costs of $18.5M over 5 years; maintenance at $1.3M-$1.4M/yr
  4. Complete DMAC Development (Data Portal, Regional Operations Center, DMAC compliant nodes) — build out costs of ~$7M over 6 years; maintenance of ~$1.8M/year
  5. Operational 3-D circulation model — build out costs of ~$10M over 6 years; maintenance of $2.5M/yr

RA Views on Regional and National IOOS

- RA needs with regard to the integration of regional and national planning efforts
  - Clarification of relationship between federal efforts and those of the regional RAs
  - Participation of all federal agencies in the NOAA CSC data inventory
  - Clarification of future funding for IOOS DMAC Plan
  - Need strong Ocean.US Office for interagency planning and coordination and interactions with GOOS global module
  - Improved interaction between NFRA and IWGOO to aid in IOOS planning

RA Views on Regional and National IOOS

- RA expectations for development of the “national backbone” of observations
  - One basic problem is that the national backbone has never been carefully defined.
    - All federal agencies should realistically identify IOOS assets.
    - Needed is a mechanism for RAs to present to and discuss with federal agencies the RA perceived needs regarding the national backbone systems in their regions.
    - What systems might be evolved by the RA, but transitioned to the federal backbone when operational?
    - What mechanism is there to identify what systems might be transitioned?
    - How will regional operations centers be evolved? We view the ROC as a critical component for the GCOOS, with its many, diverse data providers.

RA Views on Regional and National IOOS

- RA expectations for development of the “national backbone” of observations (continued)
  - Satellite data are vital and must be fully supported under the national backbone.
  - Another problem is that the relationships between the local federal agency representatives & the RAs remain unclear.
    - We prefer direct RA interaction with the local representatives of federal agencies,
    - But strong, articulated IOOS support from the agency’s top management is absolutely vital.
  - There is not yet a clear set of DMAC standards for IOOS.
    - These are critical for interoperability & smooth evolution of RCOOSs.
    - These must be developed with extensive input from the RAs, as well as federal agencies.

Cross-regional Coordination

- Discuss existing and potential coordination with other IOOS RAs on regional efforts or issues
  - GCOOS made an initial effort to coordinate broadly with CaRA and SECOORA at the November 2006 IOOS Regional Workshop, but time was very limited and too many other entities were represented.
  - GCOOS and SECOORA have been jointly involved in two focused stakeholder workshops and have attended reviews and meetings of one another's organizations.
  - Our 24 April 2008 meeting between CaRA, GCOOS, and SECOORA will discuss issues of highest mutual interest and should be the beginning of an ongoing dialog.
  - GCOOS and SECOORA also have mutually endorsed proposals, are working together to improve data management practices, and share common approaches to education and outreach.
  - GCOOS is working with various groups in Mexico to enhance collaboration, including sharing of information, techniques, and data.

Cross-regional Coordination

- Discuss existing and potential coordination with other IOOS RAs on the national scale
  - When the U.S. GOOS Steering Committee suggested an NFRA, we had in mind a body where common problems could be discussed and solutions shared. NFRA meetings have not been organized to provide the level of discussion needed to promote strong coordination among RAs.
  - The annual IOOS Regional Workshop does not seem to be effective in promoting meaningful discussions among the RAs—it is too NOAA-centric. This annual workshop should be planned by and for RA reps.

Best Practices and Lessons Learned

- Describe problems encountered to date and their resolutions
  - RE stakeholder groups:
    - Identifying needs of the fishery communities. Working with regional Council, Commission & NOAA SouthEast Fisheries Science Center.
  - RE setting up the GCOOS-RA:
    - Changing and unclear directions from Ocean.US regarding requirements for plans and certification; information requests from NOAA with inadequate lead time. No solutions yet.
    - Decreased RA support funding level. Man-power is reduced and travel for engaging with stakeholders is diminished.

Best Practices and Lessons Learned

- Describe problems encountered to date and their resolutions
  - RE data management:
    - Lack of financial support of the IOOS DMAC Plan; lack of general IOOS community decisions regarding formats, standards, and protocols. No solutions yet.
  - RE enhancements to observing system elements:
    - Very little new federal support for enhancements; lack of support to maintain elements initiated with earmarks. No solutions yet.
    - Some federal programs suffering too; identification of assets as IOOS might enable RAs to provide a voice in support of such assets.
  - RE Volunteer efforts needed to develop and maintain RCOOSs:
    - Enthusiasm is waning because, although plans are laid, no new support seems clearly on the horizon. No solutions yet.

Best Practices and Lessons Learned

- What are some “good ideas” or best practices that you can share with other RAs?
  - Involve the private sector and government representatives (regional, state, and federal) in all aspects (including governance) of your RA.
  - Develop a strong education and outreach component within each RA and allocate a fixed percentage of available funding to that effort.
  - Develop and publicize an open procedure for soliciting, shaping, and approving proposals in response to RFPs.

Parting Thoughts

- What support or information do you need from NOAA that you are not currently receiving?
  - Funding for existing and new observing system components
  - Schedule of NOAA information needs so we can plan the work into our schedules

Parting Thoughts

- Is there input you would like to give to us, but don’t have a venue?
  - No, we have appropriate venues.

Parting Thoughts

- How can NOAA IOOS best receive regular updates or information from the RAs? (RA and partner achievements, news items, expressions of stakeholder support, engagement of new stakeholders)
  - NOAA first should determine what types of information it needs for what purposes.
    - Some information is readily available on RA web sites; no burden should be placed on the RA for sending this.
    - Some information is provided broadly through the GCOOS List Serv, so appropriate NOAA IOOS personnel should have their emails added.
    - Information pertaining to the progress of the RA and RCOOS projects that is needed for program management could be provided routinely (e.g., semi-annual reports) with specified topics covered.
  - It is hoped that the various elements within NOAA wishing information will coordinate and standardize their requests.
  - It is hoped that the approach will not change often.
  - It is hoped that the reporting burden imposed by NOAA IOOS will be relatively small (e.g., semi-annual reports) to allow best use of the very limited labor resources.

Parting Thoughts

- How can NOAA IOOS best understand how RAs support the national system?
  - The coastal module of IOOS is in big trouble if NOAA IOOS does not already understand how RAs support the national system.
- How can NOAA IOOS best articulate how RAs support the national system?
  - The national system contains a coastal component that should address the differing issues & needs of the various regions.
  - As originally envisioned, RAs would be the entities that identified the regional issues and the associated prioritized measurement and product needs of the stakeholders in a region. They then would develop the RCOOS that could meet those needs.

Parting Thoughts

- How can NOAA IOOS best articulate how RAs support the national system? (continued)
  - Regional issues and needs will change through time, necessitating possible changes in the national system. The RA structure would continue to function to identify and address these issues and needs.
  - Portions of the operational RCOOS might become part of the national backbone, and so would be transitioned to the federal government. Thus the RAs work to develop components of the national system.
  - Development of the RCOOSs would deliver data according to national DMAC standards, thus RAs contribute to the reliability and interoperability of the national IOOS system.
  - The RAs would share experiences in building their RCOOSs and thus would more effectively identify and address common issues of the nation.

Parting Thoughts

- How can NOAA IOOS help to support your _? (RA?)
  - More $$$$$
  - Encourage all IWGOO agencies to allow their regional personnel to serve on RA Boards, Councils, Committees, Task Teams, Working Groups, etc.
  - Encourage all IWGOO agencies to work with RAs to identify their assets that contribute to the RCOOS; then label them as IOOS.
  - Engage the RA data management community and assist to get the DMAC plan fleshed out and working.
  - As NOAA IOOS develops its approach to managing RAs, engage the RAs early in the process of defining the issues, including accountability, as well as criteria, metrics, etc.

Parting Thoughts

- Other parting thoughts?
  - The method for funding proposals should be revamped.
  - Funding by project for 1-3 years does not provide the longevity or flexibility needed to build an integrated, operational system. Longer term funding is needed (5-10 years).
  - Cooperative Agreements may be a good way to fund RAs as RCOOS components could be easily changed in response to changing requirements.
  - Although we support proposal review processes, the RA is a different sort of entity from general proposers, and the reviewers should be selected from people who have an understanding of what RAs are and what RCOOSs are meant to be.
  - Long lead times are needed for RAs to develop effective proposals. This is because of the many entities that should be engaged during the formulation of priorities to be proposed. We suggest 4-6 months be provided.