

REGIONAL ORGANIZATIONAL WORKSHOP
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REGIONAL ORGANIZATIONAL WORKSHOP

BUILDING REGIONAL CAPACITY FOR THE IOOS



The National Office for
Integrated and Sustained Ocean Observations
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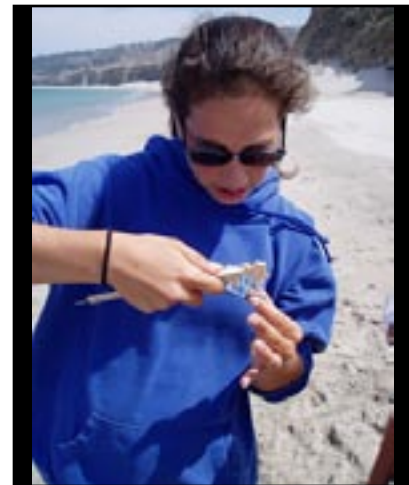
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Executive Summary

In March 2003, representatives from coastal organizations (research institutions, state agencies, non-governmental organizations [NGOs], and the private sector) and federal agencies participated in an Ocean.US Regional Ocean Observing Systems Summit. They resolved to establish Regional Associations (RAs) of coastal ocean observing systems and a National Federation of Regional Associations in order to enable the development of the coastal component of the U.S. Integrated Ocean Observing System (IOOS). The Regional Organizational Workshop, convened in March 2004, continued the work of the 2003 Summit and provided a venue for regional groups and federal agencies to establish criteria for certification of RAs as the entities responsible for governance of the integrated and sustained regional coastal ocean observing systems (including coastal marine, estuarine, and Great Lakes areas). The proceedings of the 2004 meeting are presented here.

A consensus was achieved among the workshop participants on the requirements for governance and business plans that must be met by regional groups before being considered for federal funding and for certification as RAs. The workshop concluded with the signing of a *Resolution to Establish a National Federation of Regional Associations* (Appendix VII). Signatories have begun the challenging tasks of engaging user groups from private sectors, state agencies, NGOs, and regional offices of federal agencies in the design, implementation, operation, and improvement of the sustained observations and predictions needed to achieve the seven societal goals of IOOS.



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Proceedings of the Ocean.US Regional Organizational Workshop

March 28–30, 2004
Washington, D.C.

1. Introduction

1.1 Background

The Integrated Ocean Observing System (IOOS) is the U.S. contribution to the Global Ocean Observing System (GOOS), and the oceans and coasts component of the Global Earth Observation System of Systems (GEOSS). The IOOS is envisioned as a user-driven, coordinated, national and international network of observations, data management and communications, and data analyses that systematically acquires and disseminates data and information on past, present, and future states of oceans and coasts (including the U.S. Exclusive Economic Zone [EEZ], Great Lakes, and estuaries). The IOOS involves a spectrum of activities from research to the operational system that will enable synergy between advances in scientific understanding of the oceans and the development of operational capabilities.

The IOOS will provide data and information needed to significantly improve the nation's ability to achieve seven societal goals:

- *Improve predictions of climate change and weather and their effects on coastal communities and the nation;*
- *Improve the safety and efficiency of maritime operations;*
- *More effectively mitigate the effects of natural hazards;*
- *Improve national and homeland security;*
- *Reduce public health risks;*
- *More effectively protect and restore healthy coastal ecosystems; and*
- *Enable the sustained use of ocean and coastal resources.*

Two interdependent components constitute the IOOS: (1) a global ocean component and (2) a coastal component. The latter includes a national backbone of observations for the Great Lakes and the U.S. EEZ, as well as a network of regional coastal ocean observing systems (RCOOSs) nested in the backbone. The national backbone is comprised of a sparse network of sentinel and reference stations. It measures and manages a common set of variables required by all regions and the

global component, and establishes national standards and protocols for measurements, data management, and modeling. Federal agencies are responsible for the design, operation, and improvement of the global component and the national backbone. RCOOSs customize the backbone by increasing the density of observations and the number of variables measured based on the priorities of user groups in their respective regions. Regional observing systems are designed, operated, and improved by Regional Associations (RAs).

1.2 Purpose

Building on the Ocean.US 2003 Regional Ocean Observing Systems Summit in Washington, D.C.¹, participants in this 2004 Regional Organizational Workshop were asked to continue the process of developing regional capacity for the IOOS by achieving the following:

- Reach consensus on criteria for certifying regional groups as RAs;
- Initiate a process for establishing a National Federation of Regional Associations (NFRA); and
- Finalize and sign a joint resolution supporting procedures for the development of RAs and the establishment of the NFRA.

In addition to addressing these specific goals, the workshop served as a forum for regional groups to exchange ideas, views, and approaches to issues associated with the coordinated development of RCOOSs as an integral part of the IOOS.

1.3 Participants

Over 50 experts were invited from coastal regions, drawn from the private sector, state and federal agencies, non-governmental organizations (NGOs), and academia (Appendix I). They have extensive knowledge and experience in coastal ocean observing activities and use, depend on, manage, or study coastal marine and estuarine systems.

1.4 Process

Parallel working groups were established to formulate recommendations for the functions and responsibilities, management, membership, and establishment of RAs and the NFRA. Consensus among the participants was achieved during plenary sessions following reports from each of the working groups (Appendix II). After the workshop, Ocean.US used this information to formulate guidelines for RA governance and business plans (Appendices III and IV). This guidance was subsequently vetted by the conferees and will be incorporated into the Ocean.US recommendations as part of the *First Annual IOOS Development Plan*.²

¹Regional Ocean Observing Systems: An Ocean.US Summit, March 31 – April 1, 2003, Ronald Reagan International Trade Center, Washington, D.C.
<<http://www.ocean.us/documents/regrecapworkshop.jsp>>

²*First Annual IOOS Development Plan* <<http://www.ocean.us>>

2. Results and Conclusions

2.1 Recommended Criteria for Certification of Regional Associations

Governance

The final criteria for a governance plan are presented in Appendix III. In summary, an RA's governance plan will provide proof of a governance structure that engages a broad spectrum of user groups and that delivers an integrated and sustained system by incorporating, enhancing, and supplementing existing infrastructure and expertise in a region.

Business Plan

Draft criteria for certification of RAs initially included a business plan, funding strategy, and a data collection and management plan. Following plenary discussions, these three elements were consolidated into the essential criteria for a business plan. Guidelines for development of a business plan are presented in Appendix IV.

Input of Regional Associations to the Annual IOOS Development Plan

The *First Annual IOOS Development Plan* recommends a four-year planning cycle for IOOS development (Part I, Section 3.2). This process is initiated each April when certified RAs submit an "IOOS Regional Association Annual Report: Status and Plans" to Ocean.US. The report must include status updates on each subsystem (observing, data management and communications, and modeling); performance evaluations based on objectives and user requirements; actions for improving performance during the next fiscal year; and priority enhancements to the three subsystems over the next ten years. These reports are required to assess performance and to provide a means by which RAs can influence the development of the national backbone. The outline of the report requirements are presented in Appendix V.



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2.2 Functions and Development of the National Federation of Regional Associations

At the 2003 Ocean.US Regional Ocean Observing Systems Summit, it was proposed that an NFRA be established to:

- Coordinate the development of RAs to ensure interoperability;
- Represent RAs at the federal level; and
- Provide a forum for coordinating inter-regional activities.

At the 2004 workshop, Ocean.US provided all participants with a draft proposal describing the functions and development of the NFRA. Participants reviewed and improved that list of functions, proposed the composition of the NFRA, established an NFRA Organizing Committee (Appendix VI), and agreed on the Committee's charge.

Charge to the National Federation of Regional Associations Organizing Committee

The NFRA Organizing Committee is charged to: (1) draft the NFRA terms of reference, charter, and by-laws; (2) participate in the FY 07 July planning meeting with participating National Oceanographic Partnership Program (NOPP) agencies (to initiate the four-year planning cycle)³; and (3) recommend a process for establishing the NFRA, with timelines and milestones.

Proposed Timeline for the Establishment of the NFRA

The timeline below was proposed as a starting point for the work of the Organizing Committee. The Committee will develop a final recommendation and timeline.

- | | |
|--------------------|---|
| 30 September 2004: | Complete draft terms of reference, charter, and by-laws for the NFRA, and provide these for review by the regional groups and participating NOPP agencies |
| 31 December 2004: | Receive comments and prepare the final terms of reference, charter, and by-laws for the NFRA |
| 1 January 2007: | Establish the NFRA |

2.3 Resolution to Coordinate the Development of Regional Coastal Ocean Observing Systems as an Integral Part of the U.S. IOOS

At the 2003 Ocean.US Regional Ocean Observing Systems Summit, attendees signed a *Resolution to Establish a National Federation of Regional Associations*. Similarly, at the 2004 Regional Organizational Workshop, participants signed a more targeted resolution "to collaborate with Ocean.US in the formulation of criteria and procedures for certifying regional groups as RAs that are eligible for funding to design, implement, operate, and improve sustained RCOOSs as a part of the U.S. IOOS." The full resolution can be found in Appendix VII.

³ The First Annual IOOS Implementation Conference was subsequently postponed until 31 August – 2 September 2004.

3. Next Steps

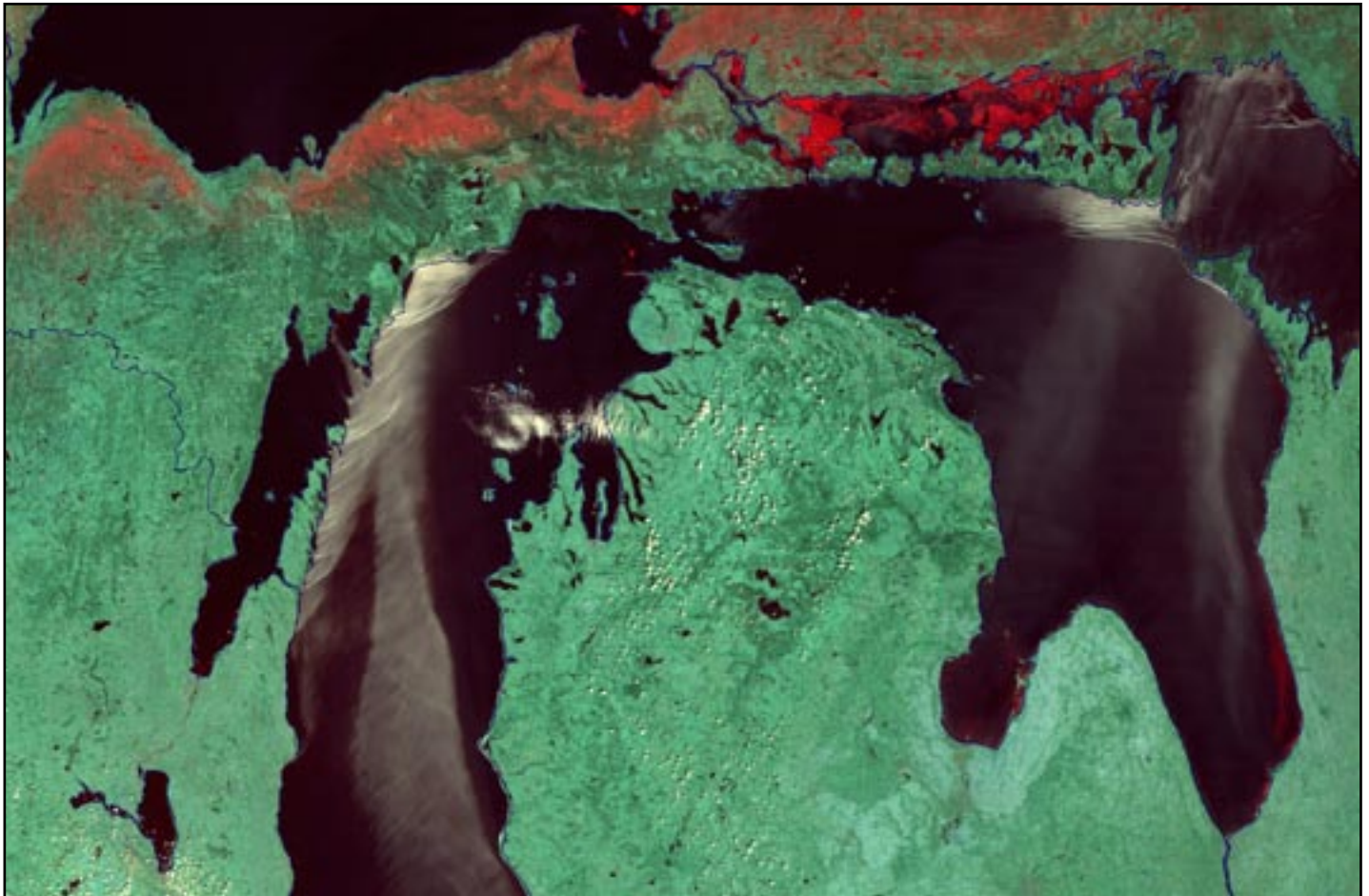
The Regional Organizational Workshop represents an important step forward in the establishment of the NFRA and RAs, which are all now in the process of organizing to meet the criteria for governance and business plans. The next milestone will be the organization of and participation in the First Annual IOOS Implementation Conference, which will provide guidelines for completing the *First Annual IOOS Development Plan*. This plan must meet the data and information needs of federal agencies and regional organizations, representing their diverse stakeholders (e.g., state agencies, the private sector, NGOs, regional offices of federal agencies, research organizations, and academia).

The successful completion of the Regional Organizational Workshop and planned First Annual IOOS Implementation Conference will initiate the planning cycle recommended in Part I of the *First Annual IOOS Development Plan*.



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The background of the top half of the page is a photograph of sand dunes. The dunes are covered in a fine layer of sand and are bathed in a soft, blue light, giving them a monochromatic appearance. The ridges and valleys of the dunes create a rhythmic, wavy pattern across the upper portion of the image.

Appendices

Appendix I

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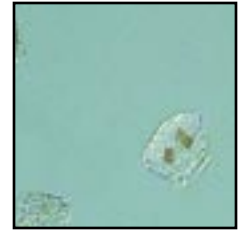
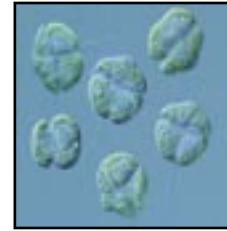
Appendix II

REGIONAL ORGANIZATIONAL WORKSHOP: BUILDING REGIONAL CAPACITY

Ronald Reagan International Trade Center

Washington, DC

28 – 30 March 2004



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Agenda

Sunday, March 28, 2004 – Hotel Washington (Skyroom)

- 4:30 – 5:30 pm Registration
- 4:45 – 5:30 pm Instructions to Breakout Session Chairs
- 5:30 – 7:00 pm Reception

Monday, March 29, 2004 – Ronald Reagan International Trade Center

Morning Session

- 7:30 – 8:30 am CONTINENTAL BREAKFAST AND REGISTRATION (Hemisphere Prefunction Area)
- 8:30 – 10:00 am PLENARY SESSION (Hemisphere A)
- 8:30 – 9:00 am Welcome and Introduction – Tom Malone, Director, Ocean.US
- 9:00 – 9:30 am “The View from the EXCOM” – Rick Spinrad, NOAA Assistant Administrator for Ocean Services
- 9:30 – 9:45 am Questions and Answers
- 9:45 – 10:00 am Breakout Session Process – Dick McCaffery, McCaffery Associates
- 10:00 – 10:30 am BREAK (Hemisphere Prefunction Area)
- 10:30 – Noon BREAKOUT SESSION: Criteria for Certifying Regional Associations (Five breakout groups: Hemisphere A; Polaris A, B, C; and Meridian B)
 - Funding Strategy
 - Governance
- Noon – 1:00 pm LUNCH (Hemisphere A)

Afternoon Session

- 1:00 – 2:00 pm PLENARY SESSION (Hemisphere A)
- 1:00 – 1:30 pm Status of the Ocean Commission Report – Ken Turgeon, Assistant Director for Research, Education, and Marine Operations
- 1:30 – 2:00 pm Reports of Working Groups
- 2:00 – 3:30 pm BREAKOUT SESSION CONTINUED (Hemisphere A; Polaris A, B, C; and Meridian B)
 - Business Plan
 - Data Collection and Management
- 3:30 – 4:00 pm BREAK (Hemisphere Prefunction Area)
- 4:00 – 5:00 pm PLENARY SESSION (Hemisphere A)
- 4:00 – 4:30 pm Reports of Working Groups
- 4:30 – 5:00 pm Review Tuesday’s agenda and goals

Tuesday, March 30, 2004 – Ronald Reagan International Trade Center

- 8:30 – 9:00 am NFRA Development Discussion – Mike Hemsley, OceanUS
- 9:00 – 10:00 am Finalize Joint Resolution – Tom Malone
- 10:00 – 10:30 am Open Discussion of Regional Concerns
- 10:30 – 10:45 am BREAK (Hemisphere Prefunction Area)
- 10:45 – 11:00 am Workshop Highlights and Next Steps – Tom Malone
- 11:00am – 12:00pm House Briefing Overview – Molly McCammon, Alaska Ocean Observing System, and Josie Quintrell, Gulf of Maine Ocean Observing System
- 12:00pm Adjourn

Appendix III

RECOMMENDED CRITERIA FOR CERTIFICATION AS A REGIONAL ASSOCIATION

GOVERNANCE

To be certified, regional groups must formulate [a] governance plan that can deliver an integrated and sustained system by incorporating, enhancing, and supplementing existing infrastructure and expertise in the region.

1. Documentation of a legal structure:

- a. Established pursuant to articles of incorporation under the laws of the state in which the Regional Association (RA) is headquartered; or, if not a corporation, pursuant to a binding agreement between or among two or more existing corporations, government agencies, partnerships, or similar organizations, each with legal authority to enter into such an agreement;
- b. That serves as its own fiscal agent with (i) the final responsibility for acceptance and expenditure of funds according to the rules of grantors of the funds, and (ii) the ability to enter into enforceable contracts, or provides for a fiscal agent who has these responsibilities; and
- c. That is insurable, unless the regional coastal ocean observing system is deemed an instrumentality of the United States with respect to any act or omission committed by the system or any employee thereof.

2. Adoption of a membership policy:

- a. That specifies one or more categories of members, qualifications for membership, and rights and responsibilities of members, including those of partners who are not full members;
- b. That specifies the manner in which members may enter into or be removed from the RA;
- c. That provides for membership from all geographic areas of the region as well as stakeholder organizations, and including, where appropriate, non-voting representation from adjacent RAs and organizations from neighboring countries; and
- d. That ensures diverse membership from regional user and provider groups including the private sector, federal agencies and regional federal



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science and management organizations, state and local agencies, Native American communities and tribal governments, research organizations, academic institutions, non-governmental organizations (NGOs), and others as may be appropriate for the functioning of the RA.

3. Creation of a governing board which:

- a. Is established through bylaws, signed articles of agreement, or similarly binding documents;
- b. Is public in all transactions of the board, consistent with applicable state and federal laws;
- c. Provides for representation of the RA to the National Federation of Regional Associations (NFRA) and ensures conformity to binding guidelines established by the NFRA;
- d. Appoints a Chief Administrative Officer or executive body with signatory authority and describes the duties and authority of such person or body to implement the decisions of the governing board and carry out the purposes of the RA;
- e. Is bound by procedures, as set forth in bylaws, articles of agreement, operations manual, or similar document, to be followed in calling meetings of the board and in reaching decisions that are to be executed by or on behalf of the RA;
- f. Develops metrics to monitor, analyze, and improve system performance;

- g. Exercises at least the following powers and responsibilities to ensure its autonomy:
 - i. Adopts and carries out a business plan, including a budget;
 - ii. Authorizes the execution of grants, contracts, and cooperative agreements;
 - iii. Determines the distribution of funds provided to or raised by the RA for the purposes of an ocean observing system using a well-defined system for measuring performance and setting priorities for funding;
 - iv. Establishes the policies of the RA
 - v. Amends the bylaws; and
 - vi. Carries out other such powers and responsibilities designated by law or by terms of agreement(s) between or among the parties comprising the RA; and
 - h. Includes board members who reflect the diversity of user and provider groups in the region, including the private sector, federal agencies and regional federal science and management organizations, state and local agencies, Native American communities and tribal governments, research organizations, academic organizations, NGOs, and others as may be appropriate for the management of the RA.
- 4. **Formally involves users or their representatives who will use the data and information products generated by the RA or its component organizations and who will provide similar data and information products, as evidenced by:**
 - a. A panel advisory to the governing board that includes representatives of a significant share of sectors identified as primary users and private sector data and product providers in the RAs business plan, along with a description of how the advisory panel will be used; and
 - b. An active, ongoing outreach and marketing program, detailed in the RAs business plan, that:
 - i. Includes a person or entity assigned responsibility for education and communication who reports to the RAs governing board, Chief Administrative Officer, or executive body;
 - ii. Documents how the design and deployment of the observing subsystem of the RA or its component organizations is responsive to the needs of the users and private sector data and product providers; and
 - iii. Establishes processes by which the needs of users and private sector data and product providers are frequently gauged and the provision of pertinent information is evaluated on a regular and continuing basis.



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Appendix IV

RECOMMENDED CRITERIA FOR CERTIFICATION OF REGIONAL ASSOCIATIONS

BUSINESS PLAN: FORMAT AND GUIDELINES

Executive Summary

Highlight goals and objectives, benefits, funding strategy, methods and procedures, and performance metrics.

1. Introduction

The introduction is intended to provide background and context for the business plan. It should communicate the following:

- Roles of the regional coastal ocean observing system (RCOOS) in the sustained development of the Integrated Ocean Observing System (IOOS), including the importance of the Regional Association (RA) as a forum for enabling user groups and private sector data and product providers, consistent with the governance plan, to influence the design and development of the IOOS;
- A summary statement concerning the process or mechanism by which the RA will engage in Ocean. US's four-year planning cycle¹;
- Relationship between the RA's governance plan and implementation of this business plan;
- Processes that will be used to update this business plan and improve the RCOOS; and
- A brief description of the RCOOS assets and partners.

2. Goals and Objectives¹

Initially, goals and objectives must clearly and explicitly relate to one or more of the seven societal goals of the IOOS². Ultimately, the intent is for the RA's goals to attempt to address all seven of the societal goals. They must be consistent with IOOS design principles³ and with the RA's governance plan. Objectives should clearly relate to the RA's immediate priorities for establishing and meeting user requirements for data and information on the coastal and ocean environment within the region. In addition, objectives should clearly relate to the RA's priorities for considering, and, as appropriate, integrating private sector data and products, for improving education and outreach, for assuring data management and communications, and for contributing to the IOOS as a whole.

3. Needs, Benefits, Product Development, and Marketing

This section should describe what sectors of society will benefit and how. The sustainability of the IOOS depends on the provision of data and information needed by a cross section of user groups for multiple applications, as well as appropriate coordination and integration with private sector data and product providers. Explain how this will be achieved through the RA by the development of the RCOOS and through partnerships with related and relevant programs in the region to meet the needs users have identified. The immediate objective should be to engage non-academic user and provider groups in product development that will guide design and implementation of the observing system. The long-term goal should be to diversify the user base.

In addition, this section should (1) link objectives to benefits and product development; (2) present a five-year plan for product development in and marketing of RCOOS data and information; and (3) identify the short- and long-term contributions to the IOOS as a whole. It should also briefly describe how the groups below may be involved as data providers (implementers and operators of the system), data users (value added applications), and/or sources of new technologies and knowledge:

- Academic and research institutions;
- For-profit groups from the private sector;
- Education and outreach;
- Non-governmental organizations (NGOs); and
- Government entities at every level with responsibilities for areas such as public health, environmental protection, resource management, coastal zone management, or coastal engineering.

Lastly, it should describe how these interests will be accommodated and nurtured by the RA and what steps will be taken to involve these groups in the design, implementation, and evolution of the IOOS.

4. Linking Observations to Models and Other Products

The initial observing system will not provide all of the data and information required to achieve the goals of the RA. This section should show how current assets and those that will be acquired in the short-term (one to five years) will be used to achieve the RA's objectives (Section 2). A gap analysis should be used to compare current capabilities with those required to achieve long-term goals (Section 8).

This section describes the observing, data management and communication, and data analysis and modeling subsystems how will be efficiently linked and developed to achieve objectives. A plan should be given for acquiring,

¹ Goals are desired outcomes or end results to be achieved over the long term. Objectives are specific actions to be taken over specified periods of time to achieve the goals. The strategic plan describes how these objectives will be achieved in the context of long-term goals.

² First Annual IOOS Development Plan, Part I <<http://www.ocean.us>>.

ingesting, and distributing data at rates and in forms needed by user groups in the region. The plan should commit to the use of nationally established guidelines and criteria, including the use of recommended standards and protocols for measurements, data management and communications, the identification of targeted data products, and it should address how they will be implemented.

4.1 Observations and Data Transmission

The sampling program of the observing subsystem should provide sufficient geographic coverage within a region (alongshore, cross-shelf, semi-enclosed bodies of water as appropriate) as well as provide measurements of a broad suite of physical, biological, and geochemical parameters that will support diverse needs.

A strategy that details the operational plan, including real-time support and maintenance of the observational infrastructure (both *in situ* assets and information dissemination) should be provided, as well as identification of evaluation mechanisms to ensure that the plan is responsive to user needs. An adequate operations plan should include

- Establishing or identifying an operations center for oversight of all the observing elements;
- Assigning staff to oversee the operation and be ready to respond to changes in the system, such as automatic notifications, communications, and emergency response plans; and
- Backup instruments and sensors, especially for critical observations that affect national and homeland security, safe navigation, and emergency response.

Requirements for observations, such as variables to be measured, time and space resolution, and data collection interval and rate, will be identified in this plan.

One-and five-year plans for incorporating and enhancing existing assets, both regionally and in the context of the national backbone, which include techniques (platforms, sensors, and methods), responsible entity (agency, academic, state, local coastal ocean observing systems), support cost, location, parameters measured, and user groups which benefit, should be developed and updated annually. The purpose of these plans is to specify observational requirements, such as time-space resolution, precision and accuracy, existing assets, and gaps (i.e., the difference between requirements and capabilities), as well as the requirements for data transmission (such as 24/7 operations or delayed transmission). The five-year plan will help in future budgeting and in assessing the adequacy of the observing plan during the start-up years.

4.2 Data Management and Communications

This section should detail how data will be collected, integrated among the elements of the RCOOS, stored and archived, verified and certified, and retrieved and disseminated, as well as the integrity of the data and products guaranteed in the short and long terms.

The plan should describe the kinds of data to be processed and data sources, current capabilities for data management and communications (DMAC), and how the regional effort will interface with the national DMAC program and conform to DMAC standards and protocols developed under the auspices of the National Ocean Research Leadership Council through Ocean.US.³

4.3 Data Analysis

User requirements for data, information, and products should be identified. The current capabilities (in terms of data assimilation, Geographic Information Systems, statistical and numerical modeling) of the RA's subsystem in terms of serving data and information at rates and in forms specified by user groups, should be described. The business plan should include plans for calibration, validation, and inter-calibration as needed. An annually updated five-year plan should be prepared to detail how it is envisioned that capacity will be increased through model development, transitioning research models to operational models, and other such products.

4.4 Data Products

Many of the people and organizations involved with an RA are more interested in the information and data products that come from the data than the data themselves. It is important, therefore, that provisions be made for ensuring that the data products coming from the RA are made available both to users and for coordinating with private sector data production. It is important to describe, therefore, who will undertake this task and how it will be accomplished.

5. Research and Development

5.1 Priorities

Describe current operational capabilities relative to objectives and goals of the RA. Identify priorities for research and pilot projects needed to improve the observing system to achieve objectives and goals.

5.2 High Priority Projects

Identify the research that should be initiated, explain its purpose, and estimate the cost. List the research activities that should be transitioned into pilot projects, provide a

³ The plan must s□ve-year timetable with milestones for meeting these requirements. This includes a description of how IOOS DMAC standards and protocols will be met in the following areas:
(1) quali□

rationale that justifies the transition, and include a cost estimate. Indicate if these activities are funded, and, if not, describe a plan for acquiring the required funds.

6. Training

Describe plans for growing the workforce of trained system operators and how the user community will be trained to access the data, information, and/or products.

7. Funding

Present a plan for obtaining, increasing, sustaining, and diversifying revenues for system design, implementation, operation, and improvement, including the process or mechanism by which the RA will engage in the four-year planning cycle of Ocean.US.⁴

7.1. Budget

Each year, a five-year budget plan will be developed that includes a detailed, priority-based budget for the next year and out year budgets, in less detail, for an additional four years. The budget plan should include:

- Operating costs for the RA management office and its activities;
- Operating costs for maintaining and sustaining the infrastructure;
- Support for building the capacity for the RCOOS, including technology and product development;
- Costs to transition promising user-needs focused research or pilot projects to pre-operational and operational; and
- System engineering and capital costs.

The budget should be further broken down into research projects, pilot projects, and pre-operational activities as appropriate. Provisions should be made for education and outreach activities, cost-benefit studies, and support to ensure adequate participation by state agencies, private sectors, NGOs, and regionally organized federal programs.

7.2 Planning and Budget Development

Each RA will describe an annual planning and budgeting process that is in synchrony with the Ocean.US cycle as described in Part I of the First Annual IOOS Development Plan¹ and involves both data providers and users from private sectors, state agencies, regionally organized federal programs, NGOs, and academia.

7.3 Income

Current sources of funding for the RA are to be identified, including anticipated support received by partners through other means, such as in-kind contributions. Present a plan for diversifying the funding base and partnering with other

programs or groups. Describe projected sources of funding and their status (e.g., committed, proposal submitted, in preparation, or planned). Projected income distribution should be broken down in terms of support for RA activities (administration, personnel), support for operational infrastructure (including maintenance and improvements), and support for research, pilot, and pre-operational projects.

8. System Performance Monitoring

A process through which the system is actively monitored is required. This evaluation of the system is critical to its continued improvement and the early detection of problems. The business plan should identify milestones and metrics to be used in evaluating the success of the system and its elements on a regular schedule.

8.1 Maintaining Operational Continuity

Procedures for sustaining continuity should be developed and included in the business plan. A process to monitor the flow of data and information among observing, DMAC, and data analysis and modeling subsystems is critical. These procedures should also include appropriate calibration and servicing approaches for sensors.

8.2 User Satisfaction

A self-assessment mechanism must be instituted whereby users can address, on a recurring basis, the adequacy of the system as a whole and the subsystems in particular. The mechanism should include procedures for obtaining and responding to user feedback concerning timely delivery, quality, and usefulness of products; identification of the measures taken to improve user satisfaction; and an evaluation of the effectiveness of those measures. Endorsements of the IOOS and the process created to implement it are important. They are often testimonies of the importance of the system to stakeholders. Endorsements and success stories should be maintained by the RA and copies provided to the National Federation of Regional Associations and Ocean.US.

8.3 Gap Analysis

The purpose of this section is to identify deficiencies (e.g., sampling program, variables measured, rate at which data and information are delivered) and establish priorities for addressing them based on an assessment of current capabilities against the infrastructure required to achieve the goals of the RA.

8.4 Cost/Benefit

This section should describe how the value of the system will be periodically measured and assessed in terms of operational costs.

⁴ First Annual IOOS Development Plan (Part 1, Section 3.2) <<http://www.ocean.us>>

Appendix V

IOOS REGIONAL ASSOCIATION ANNUAL REPORT: STATUS AND PLANS

(Required from Certified Regional Associations)

1. Expected Progress through March 31

- 1.1 Grant Period
- 1.2 Timeline of activities to date, including (i) regional meetings and (ii) names of participants in stakeholder categories (state and federal agencies, educators, non-governmental organizations [NGOs], academic institutions, private for-profits organizations, etc.
- 1.3 Names of individuals who are leading the effort (not limited to principle investigators)
- 1.4 Existing observing systems that are candidates for incorporation into the regional coastal ocean observing system (RCOOS) with:
 - 1.4.1 Annual operating costs
 - 1.4.2 Current funding period
- 1.5 Status of studies to determine socio-economic benefits of the RCOOS

2. Growing Pains and Future Development

- 2.1 Description of unanticipated problems encountered to date and what have been the responses
- 2.2 Description, based on experience to date, of the major barriers that must be overcome to meet criteria for becoming an official Regional Association (RA)
- 2.3 Expected completion date of governance and strategic operational plans

3. Plans for the Immediate Future (next two fiscal years)

- 3.1 Objectives of the RA
- 3.2 Annual operating budget estimates to operate the RA and RCOOS
- 3.3 Description of expectations for development of the national backbone (including *in situ*, remote sensing, and data management and communications [DMAC] capabilities)

4. Plans for the Budget Year and Outyears

- 4.1 Top five priorities for enhancing the national backbone (*in situ* and remote sensing, DMAC)
- 4.2 Top five priorities for development of regional coastal ocean observing capabilities with cost estimates for capitalization
- 4.3 RA Operating Costs
 - 4.3.1 Administration and Coordination
 - 4.3.2 RCOOS operations

5. Issues & Recommendations

- 5.1 Major issues that must be resolved
- 5.2 Recommendations
 - 5.2.1 Organizing and funding RAs
 - 5.2.2 Development of the national backbone
 - 5.2.3 Developing RCOOSs
 - 5.2.4 DMAC



Appendix VI

NATIONAL FEDERATION OF REGIONAL ASSOCIATIONS (NFRA) ORGANIZING COMMITTEE

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Appendix VII

RESOLUTION TO COORDINATE THE DEVELOPMENT OF REGIONAL COASTAL OCEAN OBSERVING SYSTEMS AS AN INTEGRAL PART OF THE U.S. INTEGRATED OCEAN OBSERVING SYSTEM

Whereas the Congress and the National Ocean Research Leadership Council (NORLC) have made development of a sustained integrated ocean and coastal observing system (IOOS) a high priority; and

Whereas the Congress has directed that the IOOS include the development of "integrated regional systems" as vital components of a national system; and

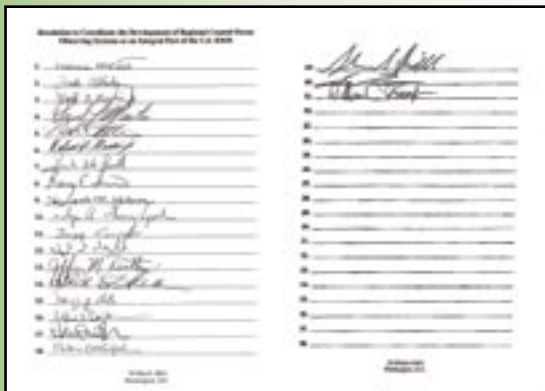
Whereas the NORLC has charged the Ocean.US Office to draft and update annually an implementation plan for an integrated ocean observing system; and

Whereas user requirements for data and information on coastal marine and estuarine systems differ from region to region; and

Whereas it is in the vital interests of the nation for regional coastal ocean observing systems (RCOOS) to develop in response to user requirements in a consistent and orderly manner in order to ensure efficient and timely access to data and information nationwide and satisfy the far-ranging user needs across the U.S. IOOS; and

Whereas the U.S. IOOS is a national effort requiring partnerships of federal and non-federal institutions and joint funding, and recognizing that the Ocean.US Office is an expression of the IOOS at the federal level, it is essential that regional interests be represented by an independent, non-federal body;

Therefore, the undersigned Signatories hereby resolve to work together to establish Regional Associations (RA) that meet a specified set of common criteria and a National Federation of Regional Associations (NFRA) to represent RAs at the federal level to coordinate the development of RCOOSs nationwide that conform to IOOS design principles.



A. PURPOSE

- To collaborate with Ocean.US in the formulation of criteria and procedures for certifying regional groups as RA that are eligible for funding to design, implement, operate, and improve sustained RCOOSs as a part of the U.S. IOOS.
- To recommend procedures and a timeline with milestones for the establishment of the NFRA.
- To recommend the format and content of the annual reports by regional groups that are to be submitted to Ocean.US in May of each year.

B. DEFINITIONS

- RAs design, operate, and improve RCOOSs.
RAs:
 - Represent the interests of those that use, depend on, study, and manage coastal environments and their resources in a region;

- Are legal entities that provide for a fiscal agent with final responsibility for acceptance and expenditure of funds according to the rules of grantors of the funds, insurability, and the ability to enter into enforceable contracts;
- Are partnerships or consortia of data providers and users from state and federal agencies, private industry, non-governmental institutions (NGOs) and academia;
- Provide the means by which these bodies and the public at large benefit from and contribute to the development and sustained operation of an integrated ocean observing system for the open ocean and the nation's estuaries, Great Lakes, and Exclusive Economic Zone (EEZ); and
- Ensure continued and routine flow of data and information and the evolution of RCOOS that adapt to the needs of the user groups and the timely incorporation of new technologies and understanding based on these needs.

b. RCOOSs are designed, implemented, operated, and improved by RAs to provide data, information, and products deemed necessary to the users on marine and estuarine systems in a common manner and according to sound scientific practice. RCOOSs link the needs of users to measurements through a managed, interactive flow of data and information among three subsystems:

- Measurements and data transmission;
- Data management and communications; and
- Data analysis and modeling.

RCOOSs consist of the infrastructure and expertise required for each of these subsystems.

c. The NFRA represents the interests of RAs and their members at the federal level and fosters the development of regional observing systems that conform to IOOS design principles.

d. The Interim Organizing Committee is an *ad hoc* committee established to:

- Draft Terms of Reference, a Charter, and By-Laws of the NFRA;
- Recommend categories of and requirements for membership in the NFRA;
- Work with the Ocean Research Advisory Panel to recommend a process for certifying RAs and discuss other important topics as they arise;
- Implement procedures for the establishment of the NFRA; and
- Function as an interim NFRA until a formal body has been established.

C. SIGNATORY QUALIFICATIONS

Workshop participants have extensive knowledge and experience in coastal ocean observing activities and use, depend on, manage, or study coastal marine and estuarine systems. Participants were drawn from the private sector, state and federal agencies, NGOs, and academia. The Signatories to this Resolution are committed to the establishment of a national network of Regional Associations and the NFRA as an integral part of IOOS.

D. IMPLEMENTATION

The Signatories resolve to:

- Collaborate to establish and participate in RA, the NFRA, and an interim Organizing Committee that foster national coordination and build capacity nationally;
- Develop governance structures for RA and the NFRA;
- Develop products that serve regional as well as multi-regional and national needs;
- Participate in the formulation and implementation of national standards and protocols for QA/QC and effective data management;
- Contribute to the design and implementation of an integrated data management and communications (DMAC) subsystem that provides rapid, free, and open access to non-commercial and non-proprietary data, metadata, and related information; and
- Foster improved public awareness, involvement, and education.

E. RESERVATION OF AUTHORITY

Nothing herein shall be construed in any way as limiting the authority of individual Signatories in carrying out their respective responsibilities.

Appendix VIII

Acronyms

DMAC	Data Management and Communications
EEZ	Exclusive Economic Zone
FY	Fiscal Year
GEOSS	Global Earth Observation System of Systems
GOOS	Global Ocean Observing System
IOOS	Integrated Ocean Observing System
NFRA	National Federation of Regional Associations
NOPP	National Oceanographic Partnership Program
NORLC	National Ocean Research Leadership Council
NGO	Non-governmental organization
RA	Regional Association
RCOOS	Regional Coastal Ocean Observing System



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