

Regional Ocean Observing Systems

An Ocean.US SUMMIT

March 31-April 1, 2003, Ronald Reagan Building, Washington, D.C.

1. Purpose

Implementation of a U.S. Integrated Ocean Observing System (IOOS) that includes a national backbone and regional observing systems that contribute to and benefit from the backbone requires coordinated development of regional observing systems. The purpose of the summit was to reach consensus among scientists and other leaders in the development of ocean observing systems on actions needed to create and operate regional observing systems that can be linked together in a federation so as to contribute to and benefit from the IOOS as a whole.

Deliverables were as follows: (1) a signed resolution to establish a National Federation of Regional Associations (NFRA) and (2) recommendations for the structure and function of Regional Associations and the NFRA.

2. Process and Organization

The summit alternated between plenary and breakout (working groups) sessions (Appendix A). Participants were assigned to one of four working groups (Appendix B) that worked in parallel during two sessions to (1) draft recommendations for the structure and function of Regional Associations and a National Federation of Regional Associations, including their relationship to the federal government; and (2) develop a consensus resolution for the establishment of a National Federation of Regional Associations. The conclusions of each working group were discussed in plenary and are given in Appendix C.

This document presents a synthesis of working group conclusions from session (1) and the resolution that was completed and signed at the summit. The synthesis was drafted by Ocean.US, reviewed and edited by an interim review team, and finalized by Ocean.US based on input from participants during a two week comment period.

3. Results and Conclusions

3.1 Synthesis of Working Group Reports from Session I

The following assumptions were made concerning the development of Regional Observing Systems:

- Regional Associations (RAs) will be established to manage the design, implementation, operation and development of regional ocean observing systems;
- There will be one RA per region;

- Regional boundaries will be established by RAs as they develop, with the number of regions being manageable (order 10) in terms of national coordination and federal funding;
- RAs will develop their own management plans
- A sustained commitment to comprehensive data archiving that is coordinated nationally;
- Regional observing systems will be funded primarily by the federal government via RAs; and
- Recognizing the missions and goals of participating agencies, the primary agency responsible for the implementation and operation of the national backbone of observations and data management will be NOAA.

3.1.1 Regional Associations

Functions and Responsibilities

Based on nationally established guidelines and criteria, RAs will be formed to achieve the following:

- Promote regional interactions between data providers and users including government agencies (local, state and federal) and regional bodies as appropriate (e.g., regions established by the NWS, NMFS and EPA); the scientific community; and other public and private entities as needed;
- Define and prioritize issues to be addressed and related science requirements, including specification of time-space scales of resolution (sampling, precision, accuracy), acceptable lags between change and the detection of change (timely delivery of data and information), and the rates at which data and information are to be provided and managed;
- Consistent with nationally established guidelines and criteria, develop standards and protocols for measurements, data management and communications, and products based on state and regional needs;
- Generate value-added products through public-private partnerships;
- Provide easy and rapid access (e.g., through a “portal”) to data and information on the coastal ocean;
- Foster research and development and the timely incorporation of new technologies and knowledge to improve the capacity of regional observing systems to meet societal needs;
- Develop or participate in programs to improve public awareness and education on the marine environment and the goods and services of marine ecosystems;
- Establish mechanisms to minimize liability; and
- Coordinate monitoring and research activities within the region and with adjacent regions by establishing an open and continuous dialog among data providers and users and for the purposes articulated above.

Management

RAs will be formed to manage the development and operation of regional observing systems by involving both data providers (scientists and technicians from both private and public sectors) and users (government agencies, for profit and nonprofit corporations, research and educational institutions) in the region to achieve two broad goals:

(1) Involve data providers and users in the design, implementation, operation and development of regional observing systems to ensure efficient provision of data and information that meet the needs of user groups.

(2) Formulate and update a business plan that

- defines a framework for the formation of a governance structure that is representative of both data providers and users (e.g., Board of Directors, lead officer or executive director, appropriate committees);
- establishes checks and balances to harmonize input from the “grass roots” (individuals and institutions that constitute the providers and users) and the need for centralized coordination at both regional and national levels (“bottom up” and “top down” input); and
- establishes mechanisms to secure and allocate funds, ensure fiscal responsibility and accountability, add or delete members, grow the user base, resolve conflicts, and coordinate the development of an integrated system that builds on and incorporates existing assets to meet responsibilities described above.

Membership

RAs should be formed through alliances (partnerships, consortia) among data providers, users and other interested parties. Such associations may include government agencies (local, state and federal), private enterprise, non-governmental organizations, academic institutions, and international bodies. All members must support the development of regional observing systems as indicated by funding or “in-kind” commitments (including but not limited to personnel, facilities, recruiting and educating potential users, development of applications, etc.).

A consensus was not achieved concerning classes of membership or dues (fees) for membership in RAs. Pros and cons were not obvious. This should be addressed by RAs as they develop.

Relationship to Federal Agencies

RAs provide an important mechanism for federal agencies to work with institutions in the region (including local and state agencies, coastal zone management programs, etc.) to establish priorities and ensure that federal programs are regionally and locally relevant. In particular, RAs provide a framework for coordinating the activities of federal laboratories and federally established regional programs such as those for delivering

information on the weather (e.g., NWS regions), managing natural resources (e.g., NMFS Fishery Management Zones, Marine Sanctuaries, National Estuarine Research Reserves, National Parks) and protecting the environmental (e.g., EPA Regions).

Liability is a continuing concern. Although many participants in the summit feel that information used to make decisions that may have consequences in terms of life and property should be supported by federal agencies (which would assume the associated liability), others feel that this may not be necessary in all cases. Definitive information on this topic is needed, including examples of how liability issues have been solved successfully.

Establishing Regional Associations

The process of establishing RAs must be open. This can be facilitated by small grants for workshops where the concept of the RA is fully aired and all parties (providers and users) can participate. This is a critical step in getting RAs started. Federal funding will be needed to establish proof of concept pilot projects in regions that develop RAs successfully.

There are several issues that must be addressed at the regional and national level. One is boundaries. Discussion focused around the fact that there are 'oceanographic boundaries', 'ecological boundaries', and 'political boundaries'. Oceanographic and ecological boundaries may or may not coincide, and the boundaries selected depend on the problem being addressed. Political boundaries include state and national boundaries as well as federally defined regions for the purposes of delivering weather information, managing fisheries, and protecting the environment. In the end, it was agreed that boundaries will not be fixed, will often overlap, and are likely to be driven by funding considerations (e.g., section 3.1, 3rd bullet). This underscores the importance of establishing a mechanism for ongoing collaboration among adjacent RAs.

There is clear need for education at many levels including developing a clear understanding within the scientific community of the purposes and benefits of the IOOS, understanding and selecting governance models that are likely to succeed, training potential users in how to access and use data and information, educating data providers on user needs, training the next generation of scientists and technicians that will operate the IOOS, and educating the general public about the benefits of the IOOS.

Funding of pilot projects would provide a way to 'jump-start' regional observing systems that would make up the RA.

3.1.2 National Federation of Regional Associations (NFRA)

The following assumptions were made concerning the development of a National Federation:

- The National Federation and the RAs are governance mechanisms for the establishment and operation of the ocean observing system infrastructure.
- The National Federation will represent RAs at a high level in the federal government and provide a forum for coordinating inter-regional activities.

In regard to the last bullet, there was not a consensus on how "strong" or "weak" the NFRA should be, e.g., how distributed or centralized the processes of coordinating the development and operation of regional observing systems should be.

Functions and Responsibilities

The primary function of the NFRA is to coordinate RA activities at the national level in collaboration with Ocean.US and consistent with Ocean.US planning and coordinating activities (described in Part I of the Ocean.US implementation plan). A key NFRA function is to provide “one voice” with a coherent message to the federal government. To do this, the NFRA will synthesize regional priorities, provide a focal point for regional involvement, and work closely with Ocean.US to ensure that the national backbone meets the requirements of the RAs.

Each year Ocean.US, in collaboration with Federal Agencies and the NFRA, will prepare IOOS planning documents for the NORLC. The NFRA will be the conduit for information from the RAs and provide the means to create a coherent national plan that meets the needs of the regions. In this context, the NFRA will help to coordinate the development of RAs that both benefit from and contribute to the national backbone, e.g., the NFRA will provide a forum to identify core variables and specify related requirements for observations, data management and communications.

Although Ocean.US provides the primary link to the international development of the GOOS, international cooperation with our neighbors (Canada, Mexico, Caribbean, and Pacific Rim nations) will be important to the success of the IOOS. To these ends, the NFRA will work with Ocean.US, RAs and federal agencies to facilitate international collaboration with neighboring countries as needed.

An important function of the NFRA will be to facilitate “cross-fertilization” among RAs. This will include the development of standard performance criteria to apply to all RAs (e.g., standard protocols for data exchange and management), development and transfer of new technologies and knowledge, education and public awareness campaigns, annual workshops and training opportunities, and sharing of experiences (what works and does not work in terms of the provision of data, developing the user-base, specification of products, etc.).

Management

The NFRA should be the primary conduit through which Regional Associations interact with the Federal government and the NORLC, provide guidance to the annual development of the IOOS strategic plan by Ocean.US, and implement the integrated,

strategic plan developed by Ocean.US. The NFRA should establish policies and procedures for the conduct of these activities and to resolve issues between RAs. A management plan should be developed by RA representatives in consultation with the NORLC and its bodies, i.e., the IWG, Ocean.US and its EXCOM. Such a plan should include a process for electing a Director who reports to an elected Executive Committee or Board.

Membership

Membership in the NFRA will include, but not be limited to, representatives from all RAs. Additional members may be designated by RAs and by participating government agencies and organizations in consultation with an executive body of the NFRA and Ocean.US. The issue of dues or fees for membership was discussed. This should be resolved as RAs and the NFRA come into being.

3.2 Establishing a National Federation

The resolution below to establish a National Federation of Regional Associations was completed and signed at the summit (Table 1). It must be emphasized that the focus of this summit was on members of the research community who are actively involved in developing or operating observing systems for U.S. coastal waters. Thus, this agreement is not intended to be comprehensive, especially in terms of the participation of organizations from the private sector.

Whereas the Congress and the National Ocean Research Leadership Council have made the implementation of an integrated ocean and coastal observing system a high priority; and

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

Whereas in the coming decade, a national, integrated ocean observing system will become operational, and information from this system will serve national needs for the following:

- *Detecting and forecasting oceanic components of climate variability;*
- *Facilitating safe and efficient marine operations;*
- *Ensuring national security;*
- *Managing resources for sustainable use;*
- *Preserving and restoring healthy marine ecosystems;*
- *Mitigating natural hazards;*
- *Ensuring public health; and*

Whereas the NORLC has asked the Ocean.US Office, as the National Office for an Integrated and Sustained Ocean Observing System, to draft an implementation plan for an integrated ocean observing system that calls for a federation of regional coastal ocean observing systems with sustained funding; and

***Whereas** a significant number of observing efforts already exist in the coastal waters of the nation's ports, harbors, estuaries, continental shelf, and exclusive economic zone, and these systems can add greatly to the goal of an integrated national ocean observing system; and*

***Whereas** these systems, which are in various stages of development, from nascent to well established, in general are not "integrated" in that frequently, they do not serve the multiple users or purposes called for by the NORLC, share standards and protocols, or address different spatial and temporal scales; and*

***Whereas** it is in the vital interest of these regions to organize themselves in order to have a voice in the development of the rules and procedures that will govern a National Federation of Regional Associations of Coastal Ocean Observing Systems; and*

***Whereas** it is in the vital interest of these systems to be prepared to effectively utilize funds that may be appropriated in the future as part of a national ocean observing system; and*

***Whereas** these systems need continual evaluation and improvement to incorporate new methodology, technology and requirements; and*

***Whereas** it is appropriate to begin discussion of the responsibilities and benefits of establishing regional observing systems and participation in the National Federation,*

Therefore, the undersigned Signatories hereby resolve to work together toward the establishment of a National Federation of Regional Associations of Coastal Ocean Observing Systems to develop regional governance structures and foster national coordination; to work toward common data management standards; and to openly share data, metadata and related information.

A. PURPOSE:

- a. To explore the cooperative steps necessary, within the respective region of each, to establish Regional Associations that collectively will comprise a national federation of Regional Associations.
- b. To collaborate with Ocean.US to establish a National Federation of Regional Associations.

B. DEFINITIONS:

- a. The *Coastal Ocean* encompasses the region from head of tide to the seaward boundary of the EEZ, including the Great Lakes.
- b. A *Coastal Ocean Observing System* is a system designed to produce and disseminate ocean observations and related products deemed necessary to the users, in a common manner and according to sound scientific practice. The system links the needs of users to measurements of the coastal oceans and the Great Lakes on a regional or sub-regional basis. Such a system requires a managed, interactive flow of data and information among three subsystems: 1) the observing subsystem (measurement and transmission of data); 2) the

communications network and data management subsystem (organizing, cataloging and disseminating data and information); and 3) analysis and applications subsystem (translating data into products in response to user needs and requirements). The regional observing system consists of the infrastructure and expertise required for each of these subsystems. It also includes oversight, evaluation, and evolution mechanisms that insure the continued and routine flow of data and information, and the evolution of a system that adapts to the needs of the user groups and to the development of new technologies and understanding.

c. A *Regional Association* is a partnership of information producers and users allied to manage coastal ocean observing systems within its region to the benefit of stakeholders and the public.

d. A *National Federation of Regional Associations* is the organization representing a nationally coordinated network of Regional Associations.

C. SIGNATORY QUALIFICATIONS: The Signatories to this Resolution are strongly committed to the establishment of a sustained coastal observing system in the United States that includes regional observing systems.

D. IMPLEMENTATION: The Signatories resolve to:

- Collaborate to establish the Federation, foster national coordination, and build capacity nationally
- Develop governance structures for regional observing systems (Regional Associations)
- Participate in the formulation of national standards and protocols for data management and communications
- Advocate free and open sharing of data, metadata and related information consistent with Ocean.US recommendations
- 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 A: Workshop Objectives & Agenda

Ocean.US Regional Observing Systems

A SUMMIT

March 31-April 1, 2003, Ronald Reagan Building, Washington, D.C.

Objectives

Implementation of a U.S. Integrated Ocean Observing System (IOOS) requires coordinated development of regional observing systems. The purpose of this event is to reach a consensus on actions needed to create and operate regional observing systems that contribute to and benefit from the IOOS as a whole. Participants were selected based on a variety of factors including their leadership in design and implementation of operational observing systems or elements thereof, their knowledge of system requirements, and their ability to speak for the entire community and individual regions. Participants will define and agree in writing to pursue a National Federation of Regional Observing Systems.

- (1) Formulate recommended actions for establishing regional observing systems nation-wide, and for advancing a National Federation of Regional Observing Systems.
- (2) Reach consensus on and sign a resolution to establish the Federation.
- (3) Initiate a process that will lead to a nationally coordinated strategy for increasing community participation and support for coastal component of the IOOS.

Deliverables

- (1) Finalize and sign a resolution to work toward the establishment of a National Federation of Regional Associations.
- (2) Specify functions, responsibilities, management and membership of RAs.
- (3) Specify functions, responsibilities, and management of the National Federation including requirements for membership.
- (4) Formulate plans for establishing RAs and the National Federation, including (a) designation of regional representatives to serve on an Interim Steering Committee for the establishment of a National Federation of RAs and (b) plans for regional meetings to initiate development of RAs and the Federation (the way forward)
- (5) A strategy for increasing public awareness and support for the IOOS (this may involve coordination with the US GOOS Steering Committee and the establishment of a team to recommend priorities and actions to be taken by RAs, the Federation, and government agencies; this may also involve)

Process & Format of Meeting

The meeting consists of a mix of plenary and working group sessions. Attendees will be assigned to one of four working groups each day. Concurrent Working Groups will each have the same tasks. The chair of each group, designated in advance, will be responsible for facilitating discussion. A rapporteur for each group, also assigned in advance, will record highlights and prepare a written summary of the group consensus. Rapporteurs will also track action items proposed throughout the meeting, and compile a complete list for distribution at the end of the meeting, identifying those responsible for each action.

Provisional Agenda

Monday, March 31

PRE-SUMMIT ACTIVITIES

1200 Mount Posters (Oceanic Suites A & B)

Lunch Meeting with Steering Committee, Chairs, and Rapporteurs (BYL, Continental B)

OPENING PLENARY (Horizon Ballroom)

1300 Welcome; Review Goals, Agenda & Deliverables of Summit (Lindstrom)

Overview of the IOOS: Design, rationale, principles of engagement, phased implementation, 4-yr planning cycle (Lindstrom)

Discussion and Questions

1415 IOOS Data Management and Communications Subsystem (Cornillon and Mundy)

1445 Two examples of regional observing system governance: (1) Gulf of Maine Ocean Observing System (Bogden); (2) Gulf of Alaska Environmental Monitoring (Mundy)

1515 Discussion of Breakout Session I (Davidson)

Developing integrated regional observing systems, Regional Associations (RAs), and a National Federation: governance models, specify deliverables and charge working groups

Tasks: In the context of the vision and design principles of the IOOS, (1) recommend functions, responsibilities, management plan and membership of RAs and their relationship to Federal agencies; (2) recommend functions, responsibilities, and management plan for a National Federation, including criteria for membership; and (3) formulate plans for establishing RAs and the National Federation, including plans for subsequent regional meetings to initiate development of RAs and the National Federation (the way forward).

1530 Break

BREAKOUT SESSION I

1545- Working Groups Meet (4) (Horizon Ballroom, Continental B, Meridian Suites B & C)
1730

1800- Reception and Poster Session
1930

Tuesday, April 1 (0830 – 1700)

0730 Breakfast meeting: Steering Committee, Working Group Chairs (Breakout Session 1)

0830 Working Groups Meet (continued)

1030 Break

PLENARY (Davidson and Briscoe) (Horizon Ballroom)

- 1045 Reports of WG Chairs from Breakout Session I
Discussion, synthesize and finalize recommendations
- 1145 Discussion of Breakout Session II (Malone)
Review of draft resolution and charge WGs
Task: Discuss resolution and agree on content, based on outcomes of earlier working groups
- 1200 Lunch (Hemisphere A)
Speaker: Hauke Kite-Powell “Economic Benefits of Regional Observing Systems”

BREAKOUT SESSION II

- 1300 Working Groups Meet (4) (Horizon Ballroom, Continental B, Meridian Suites B & C)

PLENARY (Lindstrom) (Horizon Ballroom)

- 1400 Reports from WG chairs, Breakout Session II (Malone)
Discussion, finalize resolution
- 1430 Outreach and Communications: Increasing Community Support for Coastal IOOS (Nowlin)
- 1500 Discussion of Next Steps to establish the National Federation of Regional Observing Systems (Davidson)

Designate regional representatives to serve on an interim Steering Committee for the Establishment of a National Federation of Regional Associations (members may change depending on the outcome of the regional meetings).

- 1600 Break: Signing of the Resolution
- 1630 Adjourn

Appendix B: Workshop Participants & Working Groups

(C1 – Chair, Session 1; R1 – Rapporteur, Session 1;
C2 – Chair, Session 2; R2 – Rapporteur, Session 2)

WG 1	WG 2	WG 3	WG 4
C1: David Musgrave	C1: Francisco Chavez	C1: Mark Luther	C1: Harvey Seim
R1: Ned Cyr	R1: Geno Olmi	R1: Jim Boyd	R1: Pat Dennis
C2: Nancy Rabalais	C2: Jack Barth	C2: Rocky Geyer	C2: Tony Michaels
R2: Larry Atkinson	R2: Cynthia Decker	R2: Muriel Cole	R2: Roz Cohen
Asper, Vernon	Birkemeier, Bill	Boicourt, William ¹	Beach, Reg
Barattino, William	Campbell, Janet ¹	Briscoe, Mel	Bruno, Michael S.
Bogden, Phil ¹	Clark, Andy	<i>DiGiacomo, Paul</i>	Childress, Earl ¹
Byous, Jim	Clark, Larry	Gilmore, R. Grant	Dantzler, Lee
Cohen, Bob	Cornillon, Peter	Kite-Powell, Hauke ¹	Glenn, Scott ¹
Davidson, Margaret	Fletcher, Madilyn ¹	Klump, Val	Isern, Alexandra
Dorman, Craig	Grassle, Fred	Malone, Tom	Jensen, Garth
Emery, William	Haines, John	Martin, Robert (Buzz)	Johnson, Ted G.
Hunter, John	Martin, David ¹	McManus, Margaret	Kendall, James
Kosro, Mike	McCammon, Molly ¹	Meeson, Blanche	Lobe, Hank
MacDonald, Alexander	<i>Melzian, Brian</i>	Moersdorf, Paul	Lukas, Roger ¹
Maul, George ¹	Merrifield, Mark	Mundy, Phil	Nieder, Chuck
Mooers, Christopher ¹	Ogden, John	Szabados, Mike	Nowlin, Worth ¹
Orcutt, John	Pietrafesa, Len	Thigpen, Jack ¹	Reutter, Jeff
Tenore, Kenneth	Piotrowicz, Steve	Watlington, Roy	Sheehan, Linda
Waddell, Van ¹	Richert, Evan	Weisberg, Bob ¹	Weisberg, Steve
	Steidinger, Karen ¹		

¹ Interim Working Group established to review and approve the Summit Synthesis prior its release.

Appendix C: Working Group Conclusions from Session I

BREAKOUT SESSION 1

Topic: Developing Integrated Regional Observing Systems, Regional Associations (RAs), and a National Federation: governance models.

Tasks: In the context of the vision and design principles of the IOOS,

- (1) Recommend functions, responsibilities, management plan and membership of RAs and their relationship to Federal agencies;
- (2) Recommend functions, responsibilities, and management plan for a National Federation, including criteria for membership; and
- (3) Formulate plans for establishing RAs and the National Federation, including plans for subsequent regional meetings to initiate development of RAs and the National Federation (the way forward).

Working Group 1

Chair: Musgrave

Rapporteur: Cyr

Task 1: Provide recommendations for Regional Association

Assumption: includes broad membership – all stakeholders or interest groups

1.1 Functions and Responsibilities of the Regional Associations

1.1.1 Coordinate observations within a particular geographical region and with adjacent regional observing programs, fostering coordination and synergy across disciplines, institutions and political lines.

1.1.2 Introduce new technology.

1.1.3 Serve as the focal point/representative (to the Federal Government and other entities) for the span of observing activities in a geographical area

1.1.4 Reduce duplication of efforts.

1.1.5 Develop constituencies and work with them to ensure relevancy of systems and products.

1.1.6 Coordinate and promote “cheerleading” function to raise awareness and resources.

1.1.7 Coordinate development and implementation of a common regional set of standards and protocols and ensure compliance with established national standards

1.1.8 Enhance regional communications and ensure members are meeting obligations

1.1.9 Foster research for the purpose of improving the observing system.

1.1.10 Identify and recruit existing appropriate observing systems.

1.1.11 Regular assessment of system performance/status, including external reviews or audits.

1.1.12 Define regional needs, influence regional system and national backbone to meet those needs

1.1.13 Set priorities for funding and implementation strategies.

1.2 Management plans

1.2.1 Membership

Unresolved issue. Options include open to anyone, open to any dues-paying member, limited to organizations, not individuals

Problem: Potential conflict of interest with state/federal agencies. Mechanisms should be identified to work with these agencies so they can contribute resources.

1.2.2 Relationship to federal agencies

RAs should (i) serve as a point of contact for Federal agencies at the agency headquarters level; (ii) cooperate with local Federal agency representatives in developing their plans; (iii) serve a useful function by assisting Federal agencies with grants, contracts and procurement.

Additional Discussion -- Evaluate existing list of potential RAs with regard to boundaries. What should be the criteria for establishing RA boundaries? Should RAs fund research directly or just coordinate/prioritize research? How to address Antarctic observing? Where do regional data reside? Does the location(s) vary regionally?

Task 2: Provide Recommendations for a National Federation

Continuum from centralized system to federated system of regional associations. Advantages to each and no consensus on best approach.

2.1 Functions and Responsibilities of National Federation

- 2.1.1 Audit RAs and oversee creation of national standards.
- 2.1.2 Serve as an official/unofficial advisory body to Ocean.US.
- 2.1.3 Coordinate RA recommendations, priorities and requirements at the national level and advocate for/educate on these in the budget and political process.
- 2.1.4 Establish the process to develop national standards, recognizing that observations will vary regionally.
- 2.1.5 Integrate/coordinate inter-regional activities where scales are super-regional (e.g. climate).
- 2.1.6 Coordinate activities with appropriate national associations.
- 2.1.7 Ensure uniformity of observational coverage across geographical regions (protect against clumping in politically influential areas)
- 2.1.8 Set priorities for funding and implementing strategies.

2.2 Management plans for National Federation

- 2.2.1 Coordinate with other supra-regional programs.
- 2.2.2 Membership for National Federation – Representatives of the RAs and relevant national bodies; Issue – Should there be a user fee for RAs or national associations to join NF? No consensus.
- 2.2.3 Relationship to federal agencies – Ownership of observing systems, data and products – Federal, RA, private, depends on source? How is the national backbone coordinated and managed within the Federal government?

Task 3: Provide plans to

3.1 Establish a Regional Association – Convene and fund a small regional group to develop and promote ideas; then convene a larger group to implement those ideas (consider Nowlin's approach in the Gulf of Mexico)

3.2 Establish a National Federation

- 3.2.1 Revisit the number and boundaries of regional observing systems. How are regions defined in the context of a National Federation (biogeographical, political, population, ecosystem, existing programs)? International boundaries must be addressed at the regional, national and international levels.
- 3.2.2 Communications, outreach, marketing to get IOOS message out. Include outreach to all relevant entities.

- 3.2.3 Build capacity to allow users to fully utilize the capabilities of the system.
- 3.2.4 Assess governance structures of other institutions for conflict resolution and alternative governance models. Seek professional guidance/help on organization and governance structure.
- 3.2.5 Additional Discussion

- How do all levels of observing systems (local-fed) mesh? Will be challenging.
- Relationship between fed-state users and industry funding (who pays for data/information and are there proprietary issues)
- Membership too exclusive
- Observing systems must cover whole ecosystems (i.e., California Current)
- Need for international outreach (where ecosystems extend beyond national boundaries); concern that little new is being developed here
- Federal agency missions may take priority over regional observing system needs; observing system line items will not be agency priorities
- Data and methods need to be standardized
- Relationship between scientific and operational goals
- Adequate and sustained funding essential
- Agency responsibilities/jurisdictions must be clearly defined
- Need to differentiate between obs system products and the value-added sector
- Process must stay open and competitive, not exclusive
- Bring in coastal meteo/hydro
- We're at the start; coastal oceans are complex; this will take time but a good start has been made in the past 3 yrs
- Complexity of coastal env will require high res approaches
- Tie-in to Homeland Defense? Other agencies not represented here?

Working Group 2

Chair: Chavez
Rapporteur: Olmi

Task 1: Provide recommendations for Regional Association

Assumptions: (1) Eight to twelve regions; (2) Federal funds available to each region; (3) Real time and near real time data, delayed data products

1.1 Functions and Responsibilities of Regional Associations

- 1.1.1 Collect and provide data that meets standards
- 1.1.2 Provide information/products to meet a wide variety of user needs
- 1.1.3 Play role of coordinator/integrator
- 1.1.4 Provide input into the design and implementation of the national backbone
- 1.1.5 Planning, design, prioritization and implementation.
- 1.1.6 Outreach and education. Identify users.
- 1.1.7 Manage and allocate funds from federal agencies and private sources
- 1.1.8 Ensure that collection of key variables continues without interruption
- 1.1.9 Communicate regional needs to federal entities

1.2 Management plans for Regional Associations

- 1.2.1 Conflict resolution
- 1.2.2 Ensure checks and balances
- 1.2.3 Grow user base
- 1.2.4 Evolve

1.2.5 Does not have to be unique for each region
1.2.6 Evaluation Process
1.2.7 Organization: Board of Directors, science advisory, coordinating, users, finance committee, membership committee
1.2.8 Who to be involved: state, federal and local governments, universities, NGOs, industry

1.3 Membership for Regional Associations

1.3.1 What do we mean by membership – participation, paying member, stakeholder, some aspect of functionality, users? Open membership – but what criteria?
1.3.2 Commitment to some function of the system.
1.3.3 Tiered membership: commitment of agency or institution at top level (board of directors), with other levels for input by stakeholders, users, etc.
1.3.4 Participatory membership by organizations, not individuals

1.4 Additional Discussion:

1.4.1 Regional Association – operational issues

- If a requirement of regional system participation is real time or near real time, then are the participants liable? The region?
- Possible competition with private entities?
- Uncertainty about “national backbone” – what it is and what the relationships to RAs should be.

Task 2: Provide recommendations for a National Federation

2.1 Functions and Responsibilities of National Federation

2.1.1 Participate in the design and implementation of the national backbone
2.1.2 Ensure uniformity among regional associations
2.1.3 Serve as advocate for ocean observation resources
2.1.4 Provide conduit to the federal system
2.1.5 Analog of trade associations – represent members of regional associations; forum for information exchange; might evolve to decide self-regulatory issues
2.1.6 Arbitrator of issues between regions, such as boundaries, data management, positioning of assets
2.1.7 Propose budget for regional associations

2.2 Management Plans for National Federation

2.2.1 Advocacy – association of RAs (NERRA as model)
2.2.2 Competitive process
2.2.3 Led by Ocean.US
2.2.4 Needs to have some authority (granted by membership)

2.3 Membership for National Federation

2.3.1 Approved regional association designate
2.3.2 Federal agencies as ex-officio

2.4 Relationship to federal agencies

2.4.1 Advisory
2.4.2 Need an interagency planning office such as Ocean.US that reports to NORLC to coordinate; need for an interagency operations office

- 2.4.3 NORLC as federal analog to National Association of RAs
- 2.4.4 Must have strong forum for federal agency - RA interaction.
- 2.4.5 National federation to work with fed agencies on creation of national products.

Task 3: Provide plans to

3.1 Establish a Regional Association

- 3.1.1 Examine/evaluate regional associations for use as models
- 3.1.2 Organizational and business model training
- 3.1.3 Produce report from the Summit

3.2 Next Steps

3.2.1 Summit report: should clearly articulate the motivation for RAs and the consensus views for moving forward

- 3.2.2 Participants report back to their regional organizations
- 3.2.3 Identify possible participants in regions
- 3.2.4 Need a better articulation of the national backbone
- 3.2.5 Adopt eligibility criteria
- 3.2.6 Regions should provide input into criteria and NOPP should issue an announcement to fund organization of regional associations
- 3.2.7 Group encourages funding of association development
- 3.2.8 Need intra-region meetings and mega-region meetings
- 3.2.9 Host a national symposium on coastal observations with subsections on management, implementation, data management, outreach/communication, etc. (Have peer-reviewed papers published from presentations)
- 3.2.10 Self-organizational meetings within regions to hammer out nuts and bolts of regional associations

3.3 General Discussion

3.3.1 Factors affecting governance structure of regional associations:

- How are resources distributed?
- How are resources generated?
- What are the scientific problems?
- User outreach
- Full time operation and liability
- Relationship to national backbone
- Matching funds – Are matching funds to be necessary for federal monies? States are strapped and may not be able to contribute. We probably want the flexibility to have match requirements but not at a high level (must be <50%). Should be creative to think about revenue-generating options for each of the regional systems. Want to get away from specific earmarks but may want a structure of “regional earmarks”.
- What is method of funding – is it not through a NOPP-like process? At present, Ocean.US can not receive a large chunk of money from Congress to distribute to regional systems.
- GOMOOS Model – public good. Not consumed by any one person or entity – still available for others (which is why it will never pay for itself). Region observing system can play role of data coordinator in addition to acquiring data. GOMOOS moving toward distributing others data – otherwise data are not integrated. What does this do to user and governance model? GOMOOS has evolved and is continuing to evolve. Next evolution of GOMOOS is geographic – need to coordinate with other “regional” systems.

- Regional Governance (organization/structure) – Within regional governance – how do we make sure everyone is at the table? Difficult to pull these individual efforts together – not a trivial task.
- Dollar flow – critical to discussions of organization. Important that governance body is separated from receivers of funds. What are governance issues?
- How do we improve overall collection of data, data management, and products? What exists? What's needed? Evolutionary model – what works now may not be ideal model down the road. Perhaps set up as research organization but with plan to mature to different model. What are similarities among regions? What are the key functions of regional observation systems that all share? Use these as the basis to tailor each system.
- Size and number of political entities important in determining organizational structure.
- Nesting concept critical – municipalities within states, states within sub-regions, sub-regions within regions, regions within national, national within global. Need governance structure that allows for this nested structure.
- Options for determining appropriate (reasonable) size (scaling) of regional associations: Biogeographical provinces; scale of impacts; scale of physical processes; other natural organizational units; economic units.
- Important to have some sort of organizational unit within regions – some entity with authority to contract to others. Non-profits may not be the only or best method.
- EPA Coastal Assessment Program – example of federal –state cooperation using regional “offices” as the coordinating unit.
- EPA National Estuary Program as example: EPA sets general guidance that each program must follow, but within that guidance there is flexibility to shape program at local level.

Working Group 3

Chair: Luther
Rapporteur: Boyd

Task 1: Provide recommendations for Regional Association

Assumptions: (1) One association per region; (2) Manageable number of regions; (3) Institutionally maintained archives needed – need long-term commitment; (4) Different regions may choose different mgmt. plans (5) Funds will flow from feds to RAs; (6) Must be a member of an RA to get IOOS funds; (7) Backbone primarily governed by NOAA

1.1 Functions/Responsibilities of Regional Associations

- 1.1.1 define where we want to be; define and prioritize problems and needs; work from the users needs – will allow for defining what the pieces of the system need to be
- 1.1.2 identify the users themselves (may need to do this before the needed products can be identified)
- 1.1.3 public involvement process (get public buy-in)
- 1.1.4 engage user groups as part of the RA team
- 1.1.5 identify user-based information needs and science requirements
- 1.1.6 RA structure should retain the scale of all systems within the region
- 1.1.7 how to allocate resources within regions
- 1.1.8 identify and secure sources of funding
- 1.1.9 define and develop coordination among neighboring regions (is this national function?)
- 1.1.10 Provide help desks, extension agents - answer basic questions
- 1.1.11 Coordinate and cross-cut all observation system requests in a region
- 1.1.12 Adhere to national data and products standards – Metadata, Specific products produced across RAs (if applicable)

- 1.1.13 Regional node/portal for access to data, info, and products – May also have multiple portals to access what is needed; Links for info within the region and also links to the other RAs
- 1.1.14 Develop and maintain metrics for performance
- 1.1.15 Mechanism for configuration changes (coordinated with regional and national federation)
- 1.1.16 Ensure relevance and consistency of products developed; Quality assessed by users; RA endorsement or quality stamp of approval; QA/QC of data
- 1.1.17 Take observations at appropriate scales
- 1.1.18 365/24 operation
- 1.1.19 Mechanism to transfer evolving systems to a new set of operators – pre-operational to operational systems – and how to keep it operational; Foster the transfer of new and innovative technologies into observing systems
- 1.1.20 Generate value-added products – include private and public sector involvement in the RAs (when does the private sector pick up this product development function?)
- 1.1.21 Open and continuous dialog with public and other users
- 1.1.22 Timely delivery
- 1.1.13 Mechanism for reducing or eliminating liability

1.2 Management Plans for Regional Associations

- 1.2.1 Top down, bottom up, or checks and balances system
- 1.2.2 Independent and objective sections of the governance structure (insulated from each other to some extent)
- 1.2.3 Provide mechanism to resolve conflicts
- 1.2.4 Respond to changing needs of members
- 1.2.5 Mechanism for including all member input
- 1.2.6 Develop membership strategies

1.3 Membership for Regional Associations

- 1.3.1 Substantial contribution to maintaining the existence of the RA
- 1.3.2 Develop mechanism for adding or deleting members
- 1.3.3 Develop levels of membership (specific criteria defined) – primary operators, users/stakeholders, interested parties

1.4 Relationship of Regional Associations to Federal Agencies

- 1.4.1 Appropriate federal agencies will be contributing members of RAs and the national backbone
- 1.4.2 Final products issued through federal agencies for liability issues

Task 2: Provide Recommendations for a National Federation

Assumptions: (1) Both national and RAs are governance rather than operational mechanisms; (2) National Federation will represent RAs – will provide for RA input – forum for RAs to come together

2.1 Functions/Responsibilities of National Federation

- 2.1.1 Ensure coordination among regions (RAs) and institutions (agencies, NGOs, etc..)
- 2.1.2 Regional user priorities are synthesized up to national level
- 2.1.3 Focal point for user involvement (regional representatives advocating the interests of RAs); data management and communication, applications, observation systems' operations (ensure cross fertilization)
- 2.1.4 Forum for communication to RAs – new technology, tech transfer, education and outreach ; annual series of workshops and training opportunities; sharing of wisdom; sharing of user needs and concepts

- 2.1.5 Federal level priorities are addressed – backbone level type concepts that transcend the regional boundaries
- 2.1.6 Carry out day to day operations of national federation office
- 2.1.7 Allocate resources among regions
- 2.1.8 Define baseline suite of measurements, core set of variables, requirements for national backbone
- 2.1.9 Establish standards and ensure quality of products
- 2.1.10 Mechanism to transfer evolving systems to a new set of operators: pre-operational to operational systems
- 2.1.11 Provide recommendations to Ocean.US on future pilot projects
- 2.1.12 Represent RAs to external bodies – Represent national interests and RAs in international organizations; Facilitate agreements between RAs and international organizations as needed; Serve as a voice for the RAs with the federal agencies – lobbying voice?

2.2 Management plans for the National Federation

- 3.2.1 National backbone governance structure distinct from National Federation
- 3.2.2 National Federation governance consisting of RA representatives and federal interest representatives (backbone governance reps?)
- 3.2.3 National Federation as representing RAs – National level fed reps? Feds working at regional level as reps? Difference between these two levels of feds?

2.3 Membership in National Federation

- 2.3.1 Representatives from each of the regions – Specific representatives for the each of the various activities in the regions (users, applications, etc..)
- 2.3.2 International interfaces – Non-US components as representatives (observers)? This is federal responsibility – Ocean.US issue
- 2.3.3 Who has voting vs. ex-officio rights?

Task 3: Provide plans to

3.1 Establish a Regional Association and a National Federation: Next Steps

- 3.1.1 Formalize identification of RA geographies – look at existing administrative jurisdictions at federal levels to help define boundaries
- 3.1.2 Develop resolutions w/in each region to delineate boundaries, partners, and purposes (recognition of multiple purposes of systems)
- 3.1.3 Provisions that the established entities can and do overlap
- 3.1.4 Determine how to be more inclusive
- 3.1.5 Ocean.US draft model document w/ potential boundaries
- 3.1.6 Follow up rounds of meetings after synthesis of information from this meeting
- 3.1.7 Hold open forum in conjunction with national mtg.
- 3.1.8 Hold regional workshops to begin doing the above
- 3.1.9 Ocean.US provide assistance to relatively unorganized regions
- 3.1.10 Examine other models of national and regional governance
- 3.1.11 Establish bylaws – how to do business
- 3.1.12 Proposals solicited from regions
- 3.1.13 Set a deadline for governance structures in RAs – 3 reps be elected to form “Continental Congress” under Ocean.US auspices
- 3.1.14 Fill in financial and operational details of a draft (big picture) governance model
- 3.1.15 Establish standards to be applied to all regions; take pilots to the next level
- 3.1.16 Each region choose a feasible pilot project that provides a product or application - happen at each region level and at backbone level
- 3.1.17 Obtain statement from federal agencies stating that observation systems’ funding will go through recognized RAs only

3.1.18 Awareness and education campaign for researchers, users and stakeholders; elicit feedback from stakeholders

Working Group 4

Chair: Seim
Rapporteur: Dennis

Task 1: Provide Recommendations for Regional Associations

1.1 Functions and Responsibilities of Regional Associations

- 1.1.1 Meet needs of users
- 1.1.2 Technical coordination and more
- 1.1.3 Marketing, education, communication
- 1.1.4 Be the banker
- 1.1.5 Interface with neighbors
- 1.1.6 Strategic vision
- 1.1.7 Prioritize
- 1.1.8 Facilitate

1.2 Management Plans for Regional Associations

- 1.2.1 elected governance structure with rotation (e.g. Board, CEO)
- 1.2.2 Create effective local link to Feds (National Federation)
- 1.2.3 Develop a business plan

1.3 Membership for Regional Associations

- 1.3.1 open membership across complete spectrum of users/producers (real buy-in)

Task 2: Provide Recommendations for a National Federation

2.1 Functions and Responsibilities of a National Federation

2.2 Management Plans for a National Federation

- 2.2.1 Office in NOAA to route funds to RAs and National Federation
- 2.2.2 National Federation reviews annual Ocean.US plans for backbone and funding of RAs
- 2.2.3 Participation on NORLC and all appropriate committees
- 2.2.4 Working groups to address specific issues

2.3 Membership for National Federation

Task 3: Provide plans to

- 3.1 Establish a Regional Association
- 3.2 Establish a National Federation
- 3.3 Next steps