

## **Guidelines for the Development of a Business Plan for Regional Coastal Ocean Observing System Operations (6/24/04)**

### 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:

- a. The role 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;
- b. A summary statement concerning the process or mechanism by which the RA will engage in the four-year planning cycle of Ocean.US<sup>1</sup>;
- c. The relationship between the RA's governance plan and implementation of this plan; and
- d. The processes that will be used to update this plan and improve the RCOOS.
- e. A brief description of the RCOOS assets and partners.

### 2. Goals and Objectives<sup>2</sup>

Initially, goals and objectives must relate to one or more of the seven societal goals clearly and explicitly.<sup>1</sup> 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 principles<sup>1</sup> 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, 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. 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. 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:

- a. Academic and research institutions,
- b. For profit groups from the private sector,
- c. Education and outreach,
- d. Non-governmental organizations,
- e. 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. 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<sup>1</sup>.

##### 4.1. Budget

Each year, a five-year budget plan will be developed which 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 (1) operating costs for the RA management office and its activities; (2) operating costs for the infrastructure; (3) support for building the capacity for the RCOOS, including technology and product development; (4) costs to transition promising user-needs focused research or pilot projects to pre-operational and operational; and (5) system engineering and capital costs. It should be further broken down into research, pilot/pre-operational, and operational activities as appropriate. Provisions should be made for education and inreach/outreach activities, cost-benefit studies, and support to ensure adequate participation by the non-governmental community and state agencies. In order to succeed this requires a two-pronged approach:

- 4.1.1. Federal budgets are formulated two years in advance of appropriations. Budget planning must document the process by which the RA will identify its priorities and associated funding

needs so they may be communicated to Ocean.US in May, two years in advance of planned implementation.

- 4.1.2. The RA must engage all stakeholders, including state agencies and the non-public sector, in developing their budget plans. The potential contributions of these sectors include both funds and in-kind contributions, such as data, platforms, sensors or equipment, personnel support, and value-added products.

## 4.2. Income

Current sources of funding for the RA must be identified, including 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 show how much will be directed to research, pilot- and pre-operational projects as well as to operational activities.

## 5. 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 (1-5 years) will be used to achieve the RA's objectives (section 2 above). A gap analysis should be used to compare current capabilities with those required to achieve long-term goals (section 8 below).

This section describes the observing, data management and communication, and data analysis and modeling subsystems and how they will be efficiently linked and developed to achieve objectives. A plan should be given for acquiring, 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 standards and protocols for measurements, data management and communications, and products, and ensure their implementation.

### 5.1 Observations and Data Transmission

The sampling program of the observing subsystem should provide sufficient geographic coverage within a region, both alongshore and cross-shelf, 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 (1) establishing or identifying an operations center for oversight of all the observing elements; (2) assigning staff to oversee the operation and be ready to respond to changes

in the system, such as automatic notifications, communications, and emergency response plan; and (3) 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, 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 COOS), support cost, location, parameters measured, user group which benefits, 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 5-yr plan will help in future budgeting and in assessing the adequacy of the observing plan during the start-up years.

## 5.2 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 also address the current capabilities for data management and communications (DMAC) in the RA; what kinds of data from remote and *in situ* measurements will be integrated and from what sources; describe how the DMAC requirements for quality assurance/quality control, serving real time data, archival, metadata management, and product generation will be met; plan for the development of the subsystem in the next year and the four following years; explain how accepted national standards and protocols will be applied; and propose the relationship between the regional system and the developing federal DMAC effort. In summary, the RA must show how they will achieve the overall functional requirements of DMAC.

## 5.3 Data Analysis

User requirements for data, information, and products should be identified. The current capabilities (in terms of data assimilation, GIS, 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 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.

## 5.4 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 provision be made for insuring that the data products coming from the RA are made available 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.

## 6. Research and Development

### 6.1 Priorities

Given current operational capabilities and the objectives and goals of the RA, describe the region's priorities for research and pilot projects needed to improve the observing system to achieve objectives and goals.

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

## 7. 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.

## 8. System Performance

The evaluation of the system is critical to its continued improvement. Thus the 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 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; identify the measures

taken to improve user satisfaction; and an evaluation of the effectiveness of those measures.

### 8.3 Gap Analysis

The purpose of this section is to identify deficiencies (i.e., 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 identify how the value of the system will be periodically measured to evaluate the economic and social value of the proposed system.

## 9. Stakeholder Endorsements

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 NFRA and Ocean.US.

<sup>1</sup> Implementation of the Initial U.S Integrated Ocean Observing System, Part I

<sup>2</sup> 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