Progress Report for
Enhancing
Northwest Association of Networked Ocean Observing Systems (NANOOS)
#NA05NOS4731124

Dec 1, 2006- May 31, 2007

This progress report describes activities carried out in support of enhancing the Northwest Association of Networked Ocean Observing Systems (NANOOS). This report was compiled by Jan Newton, NANOOS Executive Director (ED), and David Martin, NANOOS President (P) and PI for this grant. Newton and Martin together form the NANOOS Leadership (ED&P), in consultation with the NANOOS Governing Council (GC) and its Executive Committee (EXCOM).

1) Project Summary

The goal of this project is to foster and enhance Pacific Northwest (PNW) Regional Partnerships to grow constituencies and develop and implement governance structures and business plans that will permit official federal certification of NANOOS as the PNW Regional Association and thus allow for the eventual installation and long-term maintenance of a PNW Regional Coastal Ocean Observing System (RCOOS).

Specific NANOOS Objectives of the work are to:

1) **Continue to identify and engage the full and expanding spectrum of stakeholders** having significant interests in the waters of the Pacific Northwest to ensure their views and opinions are fully recognized and taken into account in all aspects of planning, science and governance, and that this partnership building effort takes advantage of their scientific, economic, social, cultural and operational expertise.
2) **Proactively engage the regional ocean science community** in this partnership-building project to ensure their expertise helps guide the eventual design and evaluation of the system. This approach will ensure the PNW Regional IOOS evolves to take advantage of new knowledge and technology as they are developed.
3) **Obtain input about sub-regional scale oceanographic concerns** by engaging with local stakeholders to ensure these factors are addressed at the Regional level. NANOOS will work within these smaller groups to build a sense of community and partnerships at the sub-regional scale and then translate this into strong regional partnerships through larger gatherings and workshops.
4) **Implement the results of the consensus agreement on the overall process to evolve the Governance structure for a Pacific Northwest Regional Association**.
5) **Develop and implement a Business Plan** in consonance with Ocean.US criteria to guide NANOOS budget formulation, involvement of users, all aspects of linkages between observations and products, research and development decisions, training, and alternate funding opportunities.
6) **Strengthen international and inter-Regional partnerships** by engaging with Canadian colleagues and other western Regional Association efforts to build bridges to these efforts and ensure seamless integration of these efforts.
7) **Continue to engage at the national level** to ensure the PNW activities of NANOOS are fully supportive of the national effort to implement and maintain an IOOS.

2) Progress and Accomplishments

Key highlights of NANOOS progress and accomplishments for this period are listed below, with additional programmatic updates at the end.

- **<u>NANOOS response to NOAA BAA for RCOOS development</u>**

Much of the time during this period was spent responding to the announcement of competitive funds for RCOOS development. NANOOS utilized its Governance Structure to respond to the BAA. In reality, this was a rigorous test of our ability to utilize the established NANOOS Governance Structure to produce decisions and process for RCOOS development. This initial test of our Governance Structure to deliver was especially rigorous because of the tight timing for response. NANOOS ED&P established timelines and processes for the responses to the Letter of Intent (LOI) and proposal solicitations. NANOOS President (Martin) was the PI for the proposal.

<u>LOI Response Process</u>:

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- January 19, 2007 - NANOOS GC teleconference to discuss LOI process
- January 23, 2007 - Community input for LOI due to NANOOS
- January 24, 2007 - NANOOS EXCOM teleconference to discuss input
- January 25, 2007 - DRAFT LOI sent to NANOOS EXCOM by Martin/Newton
- January 26, 2007 - NANOOS EXCOM comments/feedback on LOI due to
Martin/Newton
- January 28, 2007 - Martin/Newton sent revised LOI back to EXCOM
- January 29, 2007 - Final EXCOM comments/feedback on LOI due to
Martin/Newton
- January 29, 2007 - NANOOS EXCOM teleconference to discuss input
- January 30, 2007 - Final LOI sent to entire NANOOS GC
- January 31, 2007 - Final LOI sent electronically to NOAA
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The 19 January GC teleconference resulted in three motions which passed unanimously:
#1: NANOOS would submit a LOI, and if successful, a full proposal, for end-to-end system.
#2: The NANOOS EXCOM would be chartered and empowered by the NANOOS GC to write the LOI.
#3: NANOOS should use the outputs from NANOOS Workshops 2 & 3 for priorities and system design for material but remain open to new and exciting opportunities in the crafting of the LOI and the development of the full proposal.

Further discussion entailed:

- To build the RCOOS, NANOOS' strategy will be to continue to integrate existing resources and strategize re priorities for new elements:
    - -Build on successful Pilot project to continue to support integration of estuarine and shoreline observing elements (e.g., CORIE, Puget Sound) and bring in coastal shelf (e.g., OrCOOS).
    - -Focus on new moorings, especially at the entrance to Strait of Juan de Fuca, Columbia River, and near Heceta Bank, similar to existing one at Newport line.
    - -Enhance HF radar along the coast, high-resolution at key locations.
    - -Evaluate new technologies, such as gliders

All of the above observational resources should support regional, inter-disciplinary, nested modeling.

- Re applications, NANOOS will provide data products and meaningful output to users in the four user-driven focus areas established from our workshops:
    -Maritime operations
    -Ecosystem impacts such as hypoxia and HABs
    -Fishing
    -Coastal hazards

These will include outreach and education mechanisms, such as displays, etc.

- Re DMAC, NANOOS will build (maintain and enhance) the distributed DMAC system to enable all of the above.
    -DMAC needs to address consistent or defined QA/QC for real-time data to assure comparability.
    -DMAC needs to address datastreams both in and out (e.g., to Education/Outreach).

Proposal Response Process:
NANOOS did not wait until notification from NOAA on LOI status to begin working on the proposal. Instead, a "Way Forward" document was drafted by NANOOS Leadership (ED&P) that outlined what priorities had been established in our LOI for the RCOOS sub-categories (Observations, Modeling and Data Products, DMAC, Education/Outreach) and invoked the appropriate NANOOS Standing Committees for leads and participants. NANOOS ED&P identified suggested leads from the Standing Committees, and asked that they confirm their intent/ability to work with suggested participants listed (and more, if suitable) to draft a 2-3 page text on an approach for the element that would be suitable for insertion in the "proposed work" section of the proposal relevant to that element. NANOOS ED&P also provided an overall budget split between the RCOOS sub-categories and asked the leads to provide a modular draft budget for their element. NANOOS then followed the timeline below.

- February 27, 2007 – NANOOS User Products Committee teleconference call to establish high priority useful products from workshops and other outreach used as input to proposal
- March 2, 2007 - Suggested leads confirmed their willingness/availability to perform the suggested actions listed above. Element teams then immediately began working on 2 - 3 page documents for their element.
- March 14, 2007 - NANOOS GC Teleconference call to discuss proposal content and process
- March 15, 2007 - NOAA response (positive) to our LOI submission received, with reviews
- March 15, 2007 – NANOOS User Products Committee teleconference call to build high priority user product matrix, used in proposal
- March 21, 2007 - Element teams deliver documents to Martin/Newton
- NANOOS EXCOM make recommendations on full NANOOS proposal in consultation with the leads. Martin/Newton compiled, composed, and produced final proposal with input from Leads and EXCOM and with selected review from targeted users.
- April 17, 2007 – Martin/Newton delivered full NANOOS proposal to NOAA

The NANOOS proposal included budgets from 7 institutions (3 academic, 3 state agency, 1 industry), CVs from 24 individuals, and 18 Letters of Support from diverse users and user groups.

➢ NANOOS Participation at NFRA Spring Meeting

David Martin and Jan Newton represented NANOOS at the NFRA Spring Meeting, 8-9 March 2007, in Washington, D.C. Jan presented the Regional Update for NANOOS Status and Trends to the NFRA, NOAA, and Ocean.US group.

Following the NFRA meeting, David and Jan joined with several other NFRA reps to visit the Senate subcommittee of Fisheries, Oceans, Atmosphere and Coast Guard meeting. In addition, we visited with Marc Korman, Rep. Brian Baird's staffer, and Simon Geerlofs and Joel Merkel from Senator Maria Cantwell's office. Simon announced that Senator Cantwell would be co-sponsoring the IOOS bill with Senator Snowe. We also visited the office of Rep Cathy McMorris-Rodgers and left materials for Chrissy Poe, her staffer, who was not able to meet with us that day.

➢ NANOOS-NERRS Collaboration

NANOOS and NERRS have been collaborating on a Pilot Project for Real-Time Data for Shellfish Growers Decision Making. Jan Newton has been working with Cathy Angell, shellfish grower representatives, and water quality data providers to design and develop a website to deliver real-time variables of interest to growers. NERRS contracted with a private web developer for this addition to the NANOOS website. This diverse collaboration features water quality data from federal, state, and university sources optimized for application to industry shellfish growers, presented in web format designed by industry, hosted on a regional association's website facilitated by a university, all thanks to leadership by NERRS and NANOOS to want to work together

Newton assisted with a review of the draft website. The review was initiated during a teleconference call on 27 April. Newton then assembled input from data providers from South Slough, OR, Katchemak Bay, AK, and Puget Sound, WA to provide input to Angell and the web developers. The collaboration will be featured at Coastal Zone 2007 meeting in Portland, OR.

➢ NANOOS Programmatic Updates

- RA Organizational Structure
    - o New members:

      NANOOS acquired five new members:
        - Western Association of Marine Labs
        - Sea-Bird Electronics, Inc.
        - SAIC
        - King County Dept. of Natural Resources
        - Oregon Dept. Fish and Wildlife

    - o Changes:

      We recently received permission from NOAA to our request to alter our original proposal regarding implementation of Education and Outreach activities. Originally, we anticipated that Oregon State University would be assigned primary responsibility for the Education/Outreach component. While they are certainly active in that

capacity we believe a dedicated person within the NANOOS leadership structure is the optimal way to proceed. Attached, as Appendix 1, is a brief job description for a NANOOS Education/Outreach Coordinator, which we plan to contract in the next period.

- Planning and Implementation
    - Progress made towards the development of the business plan:

One of our NANOOS members from the industry sector volunteered to assist with preparation of the NANOOS Business Plan. Casey Moore (WET Labs, Inc.) worked with Newton and Martin to produce a draft plan. This plan, currently under ED&P review, will be given to the GC this summer, as we had projected, for their review and input.

    - Progress toward defining regional observing system priorities:

The opportunity to respond to the NOAA BAA gave the impetus to sharpen and condense the observing system priorities information that NANOOS has received over the last several years from work conducted through this planning grant. NANOOS has held a series of large (~100 people) and small (~50-60 people) workshops to engage users across a wide variety of backgrounds. The process we used was to host User Needs Forums, and then, in our NANOOS System Design Workshop 3, to establish priorities for the system that could deliver on these needs. The NANOOS GC then took the results from regional workshops and selected four topical areas as the highest regional priorities: Maritime operations; Ecosystem impacts such as hypoxia and HABs; Fishing; Coastal hazards. These were then put forth in our NANOOS RCOOS proposal to be addressed by the RCOOS development.

    - Progress toward development of an observing system design for the region:

During this period, NANOOS has capitalized on the process it has been engaging with in order to produce a conceptual system design for the RCOOS, based on the input gathered in workshops and other outreach. As mentioned, the opportunity to respond to the NOAA BAA gave us the context to refine our system design.

Our philosophy has been to integrate what we have, and prioritize for what we want to build. As mentioned, in our process we used User Needs Forums, that then, via our NANOOS System Design Workshop 3, we were able to establish priorities for the system that could deliver on these needs. To do this, and using the initial priorities for the NANOOS observing systems developed at the second NANOOS Workshop, we addressed the following three related questions:

- What are the specific, prioritized data products and who are the users who need these?
- Based on these prioritized products, what variables are needed?
- Given the priority variables identified, what are the system design priorities (location, measurement capabilities, phasing, etc.) for various technologies?

Re federal assets, only NDBC has asked for input from the regions, to date. NANOOS discussed our priorities for NDBC buoys and assets in our Workshop 2. We sent back NANOOS community input info to them that they have been using to date.

Throughout this process, the needs for observing assets from the workshops were mostly on paper, but were recently turned into a conceptual design in a PowerPoint slide. As part of the NANOOS response to the NOAA BAA, we drafted a Conceptual Design for phase I of our RCOOS development, attached here as Appendix 2.

- Progress toward regional data management:

Similarly, the NANOOS response to the BAA gave new energy to a vision for NANOOS DMAC. The work being conducted under this planning grant was described in detail in our last progress report and there are no new developments to present. We do, however, attach the vision for NANOOS DMAC development that was put forth in the NANOOS proposal, as Appendix 3.

- Stakeholder Engagement
  - New and continuing partnerships:

Estuarine Research Federation: Newton has been working with Krista Kamer (CeNCOOS), Josie Quintrell (NFRA), and Geno Olmi (NOAA) to organize an IOOS session and RA Forum at the ERF 2007 meeting in Providence, RI, this November. Newton's role in this planning has been to contribute particularly from the standpoint of an RA.

Boater Community: Newton has given several outreach talks to the recreational boater community. First invited to a luncheon at the Seattle Yacht Club, she gave a brief NANOOS talk and then mailed brochures to a member who distributed them among the 25 member yacht clubs in the Puget Sound region. Newton has subsequently been asked by two other yacht clubs to give talks that explain IOOS, NANOOS, and a NANOOS 'claimed product', BIS, the Boater Information System. BIS gives real-time weather and predictions to boaters over the web. The BIS, developed at APL-UW, is now featured on the NANOOS website and could be exported to other areas in the NANOOS region.

Federal partners: Newton has been in touch with regional leads at NOAA (John Stein, Deputy Director, Northwest Fisheries Science Center) and USGS (Anne Kinsinger, Western Regional Director) regarding NANOOS. She will be following up with the PNW Federal Caucus to inform them of IOOS/NANOOS and to revitalize federal participation in NANOOS. Newton also visited the EPA's Newport OR office and met with its Branch Chief, Walt Nelson.

PaCOOS: Newton represented NANOOS at the recent PaCOOS (Pacific Coast Ocean Observing System) Board of Governor's meeting in Seattle, 16-17 May. She gave an update of NANOOS status and will work with Liz Clarke on a regional workshop to be sponsored by NOAA.

- Web page development:
  The NERRS-NANOOS Pilot Project on water quality data for shellfish growers was released and can be viewed via http://www.nanoos.org/ by following the link with the oyster on it!

- Education connections and products:
  Amy Sprenger, member of the NANOOS Education and Outreach Committee, is working with Newton to organize a NANOOS session at the NW Aquatic and Marine Educator's (NAME) conference in Astoria. The NANOOS session is scheduled for Monday, July 16 from 1415-1500 at the Columbia River Maritime Museum.

3) Scope of Work

We anticipate no changes to our statement of work or in meeting objectives. Our priorities for the next funding period are as follows.

- Review Business Plan: NANOOS ED&P will work with the GC to review and modify, as needed, the Draft NANOOS Business Plan.
- Contract Education/Outreach Coordinator: As described above, NANOOS will move forward on this element.
- Enhance Federal Partner Engagement: Because of the prohibition of federal employees to sign any RA MOA, NANOOS has not capitalized on its local federal representatives as much as would be beneficial. The NANOOS ED&P will proactively re-engage with PNW federal partners and develop a way to circumvent this restriction. Nine PNW (both WA and OR) federal offices have formed a "Federal Caucus" and have invited Newton to speak to them re NANOOS.
- Plan Full NANOOS Community Workshop: NANOOS will plan for this workshop to discuss emergent RCOOS development, to be held in late 2007-early 2008. Anticipating RCOOS funds in October 2007, NANOOS needs to re-engage with the full community in an open workshop forum to both inform of the RCOOS development plans and gather guidance, recommendations, and concerns from the community.

4) Leadership Personnel

No changes in Leadership.

5) Budget Analysis

For the period 06/01/2005 through 05/31/2007, NANOOS expended 67% of its anticipated expenditures in support of this project. Principal reasons for this were the actual arrival date of the funding (i.e., October 2005 vice the formal May 2005 start date) and the delay in executing the contract for the NANOOS Education/Outreach effort, which we have addressed. With the E/O contract in place, budget expenditures will rapidly match anticipated budgetary expenditures through the remainder of this project.