Public Comments on the U.S. Commission on Ocean Policy's Preliminary Report

Topic Area: Research Education and Marine Operations

Comments Submitted by:

- Leah Robinson, Rhode Island SAMP Citizen Advisory Committee
- Gary G. Adkins
- Michael J. McPhaden, Kenneth H. Brink, Antonio J. Busalacchi, Janet W. Campbell, Margaret L. Delaney, Jeffrey Dozier, Rana A. Fine, David M. Karl, John A. Knauss, Cindy Lee, and Jeffrey J. Park, American Geophysical Union
- Charles Schafer, Nova Scotia, Canada
- Frank Parrish, Hawaii
- Lesley Hofstede, Milwaukee, Wisconsin
- Worth D. Nowlin, Jr., GOOS Steering Committee

Comment Submitted by Leah Robinson, Rhode Island SAMP Citizen Advisory Committee

Public Comment to Chapter 28.1:

As a member of the Rhode Island SAMP Citizen Advisory Committee I have found the data collected for scientific research and monitoring is elusive at best. The state will only publish data required by the federal government agencies. The Sea Grant Program provides an enormous amount of money for grants to the University of Rhode Island and yet the results of the research and monitoring is not available to the citizens of Rhode Island.

I would like to request to the Ocean Commission to establish and fund the Ocean.IT program and should provide citizen access to all the scientific research and monitoring data.

Thank you.
Leah Robinson
Greenwich Bay SAMP Citizen Advisory Committee
Buttonwoods Bay Committee

Comment Submitted by Gary G. Adkins

Subject: Preliminary Report: U.S. Commission on Ocean Policy

Having reviewed the preliminary report referenced above, it is clear that the Commission has conducted a thorough and exhaustive review of ocean-related issues and laws. The Commission has presented numerous recommendations that, if implemented, could benefit the nation and provide comprehensive and coordinated policy. One such recommendation is addressed below:

Reference: ***"Recommendation 26 8. Congress should transfer the National Aeronautics and Space Administration's (NASA's) Earth environmental observing satellites, along with associated resources, to the National Oceanic and Atmospheric Administration (NOAA) to achieve continued operations. NOAA and NASA should work together to ensure the smooth transition of each Earth environmental observing satellite after its launch."***

The recommendation above, extracted for the preliminary report, clearly supports an operational role for NOAA with regard to transitioning earth observing satellites and environmental programs pioneered by NASA in furtherance of Research and Development of earth observation technology. One such program that has been singled out as a model public/private partnership is the SeaWiFS project, which resulted in the development of an earth observing satellite currently providing "science quality" earth imaging capability for both research and operational users. An immediate and positive step that can be taken to begin implementing the Commission's recommendation would be for Congress to fund NOAA to continue support for the SeaWiFS Project using earth observation data from the OrbView-2 satellite, owned and operated by private industry for the past 7 years. The system designed in collaboration and cooperation with NASA, has a design life of 10-years, is expected to continue operating well beyond the 10-year design life. NASA, however, has not been successful in sustaining adequate funding in its budget for the SeaWiFS project. The SeaWiFS sensor data from OrbView-2 has been continuously collected on a global scale since the beginning of operations in 1997. By appropriating funding and transitioning the operation of the SeaWiFS Project from NASA to NOAA, the nation will be able to continue receiving access to this data and preserves the opportunity to have a complete 10+ year climate/ocean color/land data record from the same science quality earth observation instrument. In addition to sustaining data collection for the continuous earth observation from the SeaWiFS instrument, other benefits include the opportunity to use this highly acclaimed data to support ongoing calibration activities for newer and less rigorously calibrated earth observation sensors onboard other NASA earth observing satellites. In particular, the NASA's Terra and Aqua satellites equipped with the MODIS sensor continue to require extensive efforts to develop and implement appropriate calibration techniques. The calibration of MODIS is but one example of an immediate benefit that can be realized by continuing support for SeaWiFS.

Gary G. Adkins

Comment Submitted by Michael J. McPhaden, Kenneth H. Brink, Antonio J. Busalacchi, Janet W. Campbell, Margaret L. Delaney, Jeffrey Dozier, Rana A. Fine, David M. Karl, John A. Knauss, Cindy Lee, and Jeffrey J. Park, American Geophysical Union

Public Comment on Preliminary Report 26 May 2004
U.S. Commission on Ocean Policy
1120 20th Street, NW
Suite 200 North
Washington, D.C. 20036

Dear Ocean Commissioners:

The recently released preliminary report of the U.S. Commission on Ocean Policy represents a long-term vision for stewardship, sustainable development, and exploration of the oceans in the 21st century. The Commission's report, the first comprehensive national review of ocean policy since the Stratton Commission report *Our Nation and the Sea* 35 years ago, offers nearly 200 recommendations to create a new national ocean policy framework, to institute ecosystem-based management practices, to strengthen ocean science, and to enhance ocean education. These recommendations are motivated by a wide variety of considerations, most notably the value of the oceans to the national economy, the complex web of existing regulations for managing ocean resources and commerce, human stresses on the ocean environment, and the need for better scientific information to guide responsible policy decisions.

As ocean research scientists and educators, we applaud the efforts of the Commission to address many issues of great concern to the well being of our nation and our oceans. Furthermore, we would like to specifically endorse three of the many important recommendations in the report, namely those to double the U.S. investment in ocean research to $1.3B, to implement an Integrated Ocean Observing System (IOOS) as a U.S. contribution to the Global Ocean Observing System, and to expand the fledgling ocean exploration program. These recommendations, when fully implemented, will reverse the 20-year decline in the percentage of overall U.S. research spending devoted to ocean sciences. Implementation of these recommendations will also provide the financial resources necessary to maintain U.S. leadership in ocean research and technology development in the future. This leadership is essential not only for developing sound science-based ocean management strategies domestically, but also for promoting the principles of U.S. ocean policy internationally.

Recognizing the impact that this report will have on the conduct of ocean research and education in the U.S. for many years to come, we raise two issues of great concern to us in the preliminary report. The first is the relatively sketchy rationale provided to motivate new observations and research in the open ocean, which constitutes 90% of the global ocean. The second is the absence of focused discussion of the importance of the ocean's role in global climate change and the carbon cycle. We therefore recommend that:

1) **The report (particularly Chapter 25) be revised significantly to present a clearer perspective on the need for open ocean research, with one or two**

specific examples to illustrate the scientific and societal value of previous U.S. investments.

2) **The report significantly expand upon the importance of the ocean in global climate change and the carbon cycle within the broader context of Earth system science.**

These recommendations are consistent with the intent of the Oceans Act of 2000, which underscores the need for "…the expansion of human knowledge of the marine environment including the role of the oceans in climate and global environmental change…" in formulating a coherent U.S. ocean policy. The reasoning behind our recommendations is described below.

1) The Importance of the Open Ocean

The report places a heavy emphasis on improved observations and research in the coastal ocean surrounding the U.S. and its territories. The logic for this emphasis is clear especially considering the environmental stresses placed on coastal habitats by the combined influence of population growth and commercial development, exploitation of living and nonliving marine resources, point and non-point source pollution, and maritime commerce. Better science can inform sound management strategies to prevent further degradation of the coastal environment, restore threatened habitats, mitigate natural hazards, and strengthen national security.

The report likewise mentions in several places the need for an IOOS and the need for improved understanding of processes at work in the open ocean. Unlike for the coastal ocean however, the rationale for these statements is usually not as clear. Very little of the science that compels us to look beyond the coastal zone is sufficiently described. Chapter 25 states the rationale for establishing a national strategy in terms of ecosystem-based management, the build up of greenhouse gases in the atmosphere, and abrupt climate change. Of these, only ecosystem-based management is discussed in any detail. Moreover, there is far more that motivates scientific investigation of the oceans than these three drivers. The National Science Foundation's 2001 Report on *Ocean Sciences at the New Millenium* for example describes many of the grand challenges we face in ocean sciences research in addition to those involving the coastal zone and ecosystem dynamics. Specifically highlighted are the ocean's role in climate, long-term ocean observations and prediction, ocean turbulence, the oceans below the seafloor, and the dynamics of oceanic lithosphere and margins. These topics, which span the full range of ocean physics, chemistry, biology, and marine geology and geophysics, are not adequately addressed in the Commission's report.

The need for social and economic research discussed in Chapter 25 is exclusively in terms of coastal issues. While there is brief reference to El Niño, the Pacific Decadal Oscillation, and the North Atlantic Oscillation elsewhere in the report, they could also be discussed at this point. These and other climate phenomena can affect year-to-year and longer time scale patterns of rainfall, air temperature, streamflow, winter snowpack, and length of growing season over the U.S. Systematic description of the ocean's role in climate variability and climate change, and how we can benefit from a better understanding of it, are largely missing in the report. Lack of focus on these physical climate issues also misses an opportunity to connect the requirements of enhanced ocean observations and research to atmospheric phenomena. Weather

forecasting is mentioned as an example of how to move forward in developing routine products and services for the ocean. However, the case can also be made that a comprehensive observing system that encompasses the global ocean will enable better day-to-day and long-range forecasts over the U.S.

An enhanced program of ocean exploration, as called for in Chapter 25, is but one component of a comprehensive research strategy for understanding the oceans. Traditional ocean research activities that systematically advance our knowledge and the development of an IOOS are other components of that strategy. We are concerned that intelligent nonscientists reading the preliminary report will not clearly discern the reasons they should be interested in supporting research and observations in the open ocean, beyond those of a purely exploratory nature. The Integrated Ocean Drilling Program for example is discussed principally in terms of the need for a drilling ship as part of the U.S. contribution to the international program. However, the reader is not informed as to why it is scientifically important to undertake such a program. This lack of scientific motivation for further study of the open ocean could translate into funding biases that shortchange our ability to address the urgent challenges we face in developing the ocean observing system and in providing the research required to better understand the Earth System.

We therefore recommend that the report (particularly Chapter 25) be revised significantly to present a clearer perspective on the need for open ocean research, with one or two specific examples to illustrate the scientific and societal value of previous U.S. investments.

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2) Global Climate Change and the Carbon Cycle

Ocean biology and geochemistry respond to climatic forcing, nutrient supplies, and atmospheric inputs. Conversely, marine biogeochemical processes influence atmospheric levels of greenhouse gases and, hence, climate. Reliable predictions of future climate change will depend on models that accurately depict the complex interactions among multiple factors affecting earth's climate system, and on an accurate understanding of feedbacks within the terrestrial and ocean carbon cycles that affect the future fate of atmospheric carbon dioxide (CO_2).

Approximately one third of the CO_2 released to the atmosphere by fossil fuel combustion and deforestation has already been taken up by the ocean, about one third remains in the atmosphere, and the remainder is thought at present to be accumulating in the terrestrial biosphere. Future climate scenarios will depend on whether these fractions stay the same, or whether feedbacks resulting from changes in the marine and terrestrial carbon cycles change them.

While our understanding of the oceanic carbon cycle has improved dramatically in the last decade, we cannot yet predict probable ocean responses to global change. Similarly, we have not yet developed the capability to evaluate comprehensively the physical, geochemical and biological feedbacks to atmospheric CO_2 and potential long-term storage of carbon in marine sediments. A quantitative understanding of the ocean carbon cycle is a necessary but certainly not a sufficient condition for addressing the ocean's role in climate change. Credible projections of the ocean carbon cycle response to climate perturbations will not be possible without a much more detailed, mechanistic understanding of the processes that control the partitioning of carbon among the marine,

terrestrial and atmospheric reservoirs. One of the critical components needed to answer these questions is an improved understanding of the past, present and future variability of the ocean carbon cycle especially as it relates to the air-sea and land-sea exchange of carbon.

Several important research questions must be addressed:

- What are the critical components of the ocean carbon cycle regulating the partitioning of CO_2 between the atmosphere and the ocean, and how can we improve prediction of the response and feedback of these processes to changes in environmental conditions (e.g., due to global warming)?

- What are the potential responses of marine ecosystems and ocean biogeochemical cycles to climate?

- What are the feedbacks between ocean physics, chemistry, biology, and marine geological processes that govern the carbon cycle?

- How can we more realistically represent biological, physical, chemical, and geological processes in ocean carbon cycle models?

To address these questions, we must execute a coordinated and directed interdisciplinary and interagency program of ocean carbon research in biogeochemistry, ecology, and paleoceanography. We must also understand how ocean circulation and exchanges with the atmosphere, land, and sediments of the seafloor affect the carbon cycle. Some of these issues are covered in the strategic plan of the new U.S. Climate Change Science Program (CCSP). However, existence of the CCSP does not obviate the need for a thorough discussion of these topics from an ocean perspective in the Commission's report.

Thus, we recommend that the report significantly expand upon the importance of the ocean in global climate change and the carbon cycle within the broader context of Earth system science.

It will be our responsibility as members of an American Geophysical Union (AGU) review committee to formulate an official AGU position statement on the Commission's final report. We therefore offer our comments as a constructive guide to enhance the report and would be happy to work with the Commission to strengthen it prior to final publication. Thank you for your attention.

Sincerely,

Michael J. McPhaden
President, AGU Ocean Science

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Jeffrey J. Park
New Haven, Connecticut

Comment Submitted by Charles Schafer, Nova Scotia, Canada

Dear Oceans Commission,

I have two points for your consideration at this time.

(1) The side-by-side pdf format that was used to post the preliminary report is great for readers that have a 20 inch PC screen. For the rest of us its just impossible to read without going through a lot of magnification manipulations. Perhaps something could be done to improve the view?

(2) I would like to bring to your attention via the attached draft powerpoint presentation (NAMARWATCH), a rationale for assessing seafloor ecosystems health using protozoan proxy indicators that will be needed to complement the suit of current and planned physical monitoring networks deployed in U.S. oceanspace. My recent read about the data shortcomings of attempts at assessing U.S. regional-scale ecosystems (*THE STATE OF THE NATION'S ECOSYSTEMS - Measuring the Lands,Waters, and Living Resources of the United States. 2002,* The John Heinz III Center for Science, Economics and the Environment) leads me to believe that an effective Oceans Policy must deal with realistic ecosystems "effects" monitoring at both the regional and local scales. Otherwise, all of the present and planned physical (in situ) networks and satellite monitoring arrays will have been underexploited.

Best wishes,

Charles Schafer, Emeritus Scientist
Nova Scotia, Canada

Comment Submitted by Frank Parrish, Hawaii

Comment on the report on national ocean policy
-U.S. Commission on Ocean Policy

Public comment: Frank Parrish May 2004

Focus: Support for submersible infrastructure

I'm a federal research biologist stationed in Hawaii that routinely conducts ecosystems investigations using submersibles. The Ocean Commission preliminary report identified some key issues and needs for US ocean policy. One of the important elements they identified was the need for greater access and improved technology for deep submergence vehicles in support of scientific missions. This is clearly needed to address many of the ecosystem mandates proposed in the report. However some glaring omissions are evident in the commissions report probably due to its reliance on the recently published (2004) National Research Council (NRC) report entitled "Future Needs in Deep Submergence Science: Occupied and Unoccupied Vehicles in Basic Ocean Research." The submersible assets listed in the national inventory were poorly represented by the NRC report. Some commonly used submersible systems were not detailed, most notably were the two NOAA/UH *Pisces* subs which are federally funded, three person vehicles that function to 2000 meters. The fact that they were poorly documented is surprising given the NRC report emphasis on the Pacific frontier and the fact these vehicles are stationed in the middle of the Pacific and have a dedicated support vessel capable of Pacific-wide operations. It seems pretty clear that the NOAA *Pisces* subs run by the Hawaii Undersea Research Laboratory were ignored and the readers are left to believe the Alvin and the Johnson Sea-Link are the nations submersibles. Based on this the Commission made the following recommendations:

"It is apparent that realizing the vision of deep ocean research will require access to a broader mix of more capable vehicles than are currently available through the NDSF [National Deep Submergence Facility]. Because the NDSF is funded irrespective of vehicle use, the marginal cost (i.e., cost of an additional day of operation) is zero. In contrast, the marginal cost of using non-NDSF assets can be substantial. From a fiscal perspective, it is therefore sensible to require, when possible, that NDSF assets be used in favor of non-NDSF assets. In the absence of additional funds, excess demand for NDSF assets can be managed by a combination of asset substitution (ROV for HOV or vice versa), scheduling, and if necessary, proposal rejection. If additional funds were to be made available, excess demand could also be addressed by leasing non-NDSF assets. There appear to be situations, however, in which deep submergence scientific goals cannot be met by NDSF assets but can be met by non NDSF assets.

Recommendation: NSF/OCE should establish a small pool of additional funds (on the order of 10 percent of the annual budget for NDSF) that could be targeted specifically to support the use of non-NDSF vehicles for high-quality, funded research, when legitimate barriers to the use of NDSF assets (as opposed to personal preference) can be demonstrated.

Recommendation: NSF/OCE should construct an additional scientific ROV system dedicated to expeditionary research, to broaden the use of deep submergence tools in

terms of the number of users, the diversity of research areas, and the geographical range of research activities.

Recommendation: NSF/OCE should, after a proper analysis of the cost- benefits of distributed facilities, strongly consider basing this new ROV system at a second location that would minimize the transit time for periodic overhaul and refit of both ROV systems.

Recommendation: NSF/OCE should construct a new, more capable HOV [Human Occupied Vehicle] (with improved visibility, neutral buoyancy capability, increased payload, extended time at working depth, and other design features discussed [earlier in the report]. The bulk of existing Alvin use is at depths considerably shallower than its 4,500-m limit. Even at these shallower depths, scientific demand remains unmet."

I would propose the submersible assets of NOAA's Hawai'i Undersea Research Laboratory should be made available with additional federal funding to the scientific community for intermediate-depth submergence based operations in the Pacific region to relieve some of the demand for *Alvin* time. The average max dive depth for all *Alvin* dives is currently 2079 meters, just slightly beyond the range of the *Pisces* submersibles. Thus, *Pisces* could do many of the *Alvin* operations. Seventy percent of the *Alvin* dives from 2000 to mid-2004 took place in the Pacific. Therefore, future growth in deep submergence science, including new deep diving ROVs, should be strategically operated out of the Main Hawaiian Islands. HURL is an obvious site to receive supporting funds and perhaps one of the proposed deep diving vehicles. Since the Pacific is the focus of much of this work there is little point in centralizing new deep diving vehicles at Woods Hole which already has the Alvin. One of the deep diving units should be provided to the Hawaii Undersea Research Laboratory, which has an impressive diving history and an excellent safety record. Scientists in the Pacific region including Federal, State and academic have come to rely on the HURL submersible infrastructure as one tool they use to meet the mandates of their institutions. The demand for scientific missions using submersibles in the Pacific region will likely continue.

Comment Submitted by Lesley Hofstede, Milwaukee, Wisconsin

I strongly support creating a National Ocean Council and would highly recommend increasing fed. research dollars. H2O is the life support of our planet and we cannot afford to neglect our oceans. PLEASE reform our national oceans policies.

Though their voices are too young to be heard as voters, my second grade class has an overwhelming love for animals and mysteries of the seas, I would hate to deny any future children of the amazement and intrigue that drive my seven and eight year olds to do research as if they were high schoolers.

Very Sincerely,
Lesley Hofstede
Milwaukee, Wisconsin

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May 10, 2004

Admiral James Watkins, Chairman
U.S. Commission on Ocean Policy
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Washington, D.C. 20036

Dear Admiral Watkins:

Re: Reconciling the Commission on Ocean Policy Preliminary Report and the Implementation Plan for the Integrated Ocean Observing System

I wish to share with you and other Commissioners, initial broad considerations of the U.S. GOOS (Global Ocean Observing System) Steering Committee regarding the development of the U.S. Integrated Ocean Observing System as compared with recommendations in the Preliminary Report of the U.S. Commission on Ocean Policy (Governors' Draft).

The Preliminary Report recommends making the sustained establishment of the IOOS (COP Governors' Draft sections 26-1, 26-9) and Ocean.US (26-2, 26-3) a high priority. It also strongly recommends developing regional ocean observing systems as a high and immediate priority for implementing the IOOS (4-11; 5-1, 5-2, 5-3, 5-5, 5-6; 6-4; 25-1). To achieve the latter, the immediate establishment of regional ocean information programs and regional boards nationwide is recommended to "improve coordination, set regional priorities for research, data collection, science-based information products, and outreach in support of ocean and coastal management."

- Recognizing the importance of such a regional approach, Ocean.US initiated in 2002 a nationally coordinated, regionally organized "grass roots" effort to involve regional stakeholders (data providers and users from private and public sectors) in the design and implementation of regional ocean observing systems that are "user-driven" and encompass a continuum of research, operational, educational and outreach activities. This is expected to lead to the establishment of Regional Associations (RAs) within two years that will have functions similar to those recommended for regional ocean information programs. Continued investment in the development of RAs is critical to the establishment of the IOOS.

- As proposed, the RAs differ from regional ocean information programs in three major ways. (1) RAs are formed through a bottom-up process involving a broad spectrum of stakeholders in each region (rather than being established top-down by Congress). This bottom-up approach is consistent with the Preliminary Report's finding that the IOOS "must result in tangible benefits for a broad and diverse user community". (2) Research activities of RAs are focused on those which will enhance operational capabilities of regional observing systems. And finally, (3) RAs do not have a mandate to conduct regional ecosystem assessments. A bottom-up approach is preferred as the most effective means to engage user groups in the development of the IOOS from the beginning, and the scope of RA activities could easily be expanded to include more broad-based research priorities and regional ecosystem assessment. The RA approach also leverages existing activities rather than starting anew.

The report recommends the establishment of an Ocean.ED Office "to strengthen ocean education and coordinate federal education efforts" (8-1) and an Ocean.IT Office to "lead federal interagency planning and organization for ocean and coastal data and information management" (28-1).

- Recognizing the importance of education and extension services to "life-long" education and greater public awareness, and the great potential of the IOOS as "windows to the sea", Ocean.US began work this year to form a national collaborative of science education networks, whose expertise is in science education and ocean observations (local, state and federal organizations; non-governmental organizations; and academia). Members will further national objectives in science and technology education using the Ocean.US and IOOS infrastructure as the uniting elements, participate in the development and implementation of education recommendations for IOOS, and advocate participation of IOOS members in science and technology education.

- Recognizing the critical need for an integrated data management and communications (DMAC) system that enables rapid transparent access to diverse data from many sources, the Ocean.US DMAC Steering Committee has completed an action plan for establishing such a system and has initiated a process for its development that involves representatives from federal agencies, state agencies, academia and regional groups. This effort has been identified as the most important IOOS priority, and the required resources are modest. Additional funding is required to proceed.

These Ocean.US initiatives set the stage for the establishment of the Ocean.ED and Ocean.IT Offices as recommended by the Commission. Thus, it is important that these critical first step efforts by Ocean.US be supported at the highest levels in the federal government.

Sincerely,

Worth D. Nowlin, Jr.

Worth D. Nowlin, Jr., Chairman
U.S. GOOS Steering Committee

WDN/srm