

**Centers for Ocean Sciences Education Excellence (COSEE)
Report and Recommendations for the
COSEE Council and Central Coordinating Office**

**Submitted
by the
COSEE National Advisory Board**

June 21, 2007

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Introduction

The National Advisory Board (NAB) of the Centers for Ocean Sciences Education Excellence (COSEE) convened its annual meeting on May 16, 2007 at the offices of the COSEE Central Coordinating Office (CCO) at the Consortium for Oceanographic Research and Education (CORE) in Washington, DC. In addition to the NAB, other groups represented at the meeting included the COSEE Council and CCO, CORE, National Science Foundation (NSF), NASA, and National Oceanic and Atmospheric Administration (NOAA). This report, submitted at the request of NSF's Division of Ocean Sciences, is a direct result of those discussions.

We begin by presenting the NAB's view of COSEE within the broader context of the scientific research and science, technology, engineering, and mathematics (STEM) education arenas. This is followed by specific recommendations for utilizing NAB expertise to tap into (and learn from) this broader universe. Finally, we present specific recommendations focusing on two issues of immediate importance: 1) COSEE governance, and 2) organizational funding, resources, and sustainability.

I. COSEE's Role in the Broader Context of STEM Research and Education and NAB Recommendations

A primary part of the COSEE mission is to bridge the gap between research scientists and the practice of educating students and citizens about the ocean. An important piece of achieving this goal is to recognize that the individuals working in these two arenas may overlap in expertise, but more often than not are from different professional cultures. Therefore, COSEE must work systematically to create programs that not only utilize both scientists and educators, but also ensure that the contributions of these individuals will add value to their respective work in research and practice beyond COSEE. Specifically, research scientists may not fully vest themselves in the COSEE enterprise unless it is explicitly clear how this work will improve or benefit their research, career, or life. For example, many scientists say that they were not genuinely concerned about or involved in K-12 education until they observed their own children in the system and wanted a better education for them. In this case, the benefit of working with educators (providing a better educational context for their own child to learn science) is explicitly clear.

As part of its effort to serve as an effective bridge between these cultures, it is important for the COSEE enterprise to find a way to compare its work to other high quality programs in STEM education and beyond and in the process learn from the efforts of others. The NAB is well positioned and prepared to assist the CCO and Council in this benchmarking effort. NAB members recognize that they need to become better informed about the efforts of the Centers and the CCO and are committed to strengthening the

connection between the NAB and the Network. The advisory boards for the individual Centers should be included in this work as well, fostering a broad collaboration that taps into the expertise of all COSEE leaders.

Reframing COSEE's goals, strategies, and programs within the context of the broader STEM education agenda at the national level will help research scientists and other individuals in the broader community better understand why COSEE is important and unique. By examining best practices from other programs, COSEE will learn from the wealth of information and experience that other STEM educators and researchers have compiled over several decades and avoid "reinventing the wheel" as COSEE works to integrate the work of research scientists into educational practice.

In addition, a broader view that encompasses both a national perspective and integration with the larger STEM community will make it possible for COSEE to leverage the recognition it already is receiving in the ocean education community to gain recognition as an exemplary program that can be emulated in other STEM areas. Such a transformation is the leap COSEE must make if it is to survive beyond its time as a NSF-funded program and truly make a difference in the ocean *and* science education enterprises.

NAB Recommendation 1: Work with the NAB and other appropriate leaders within COSEE and beyond to help the NAB gain a better overall understanding of COSEE and in turn help the Network better understand and incorporate the benchmarking of COSEE's initiatives and programs so that its contributions to the larger STEM education enterprise can be assessed, enhanced, and expanded.

NAB Recommendation 2: Work with the NAB to select several national programs against which COSEE can be benchmarked. Determine how COSEE's work and Indicators of Excellence (May 2005) measure up to their standards of excellence. Initiate plans with these programs' leaders to identify lessons learned and address areas that need to be strengthened.

II. COSEE Governance and NAB Recommendations

As part of its organizational "leap" from an embryonic program to a thriving, larger network of excellence, COSEE needs a strong system of internal governance that will support its mission and work beyond the life of any particular Center, NSF grant, or person. As a neutral group with extensive collective experience, the NAB is ideally suited to assist with the development of such a structure and has volunteered its services to support this work.

NAB Recommendation 3: Create a governance committee that includes a balance of internal and external expertise, including representation from appropriate COSEE leadership and the NAB. A committee chair should be selected from an organization external to COSEE.

The COSEE governance committee should be small enough to enable frequent electronic and face-to-face meetings. The task at hand is large and complex but of great and immediate importance. We recommend that the committee take the following actions:

Study and select an appropriate governance model

1. distributed model vs. national authority
2. review of other organizations, to learn from and adopt best practices
3. study of possible models: professional society, business, non-profit organization, etc.
4. role and authority of the Council and/or other governing body

Define the role of COSEE Centers

1. awareness among all Centers about expectations for national and cross-Center participation and collaboration, including the importance of joint governance
2. resolution of the “tug-and-pull” for Centers between their commitments to individually-funded programs/regional assistance and national projects/broader impact
3. solicitation of outside advice and learning from other organizations and individuals
4. importance of expanding and maintaining a larger COSEE organization, including the elimination of the perception and reality that there is a COSEE “club”

Define the role of the CCO

1. National Network Director: scope of responsibilities; balance of leadership, management, and coordination; line of reporting; mechanisms for support
2. CCO Principal Investigator and other senior personnel: needs of Network and interactions with the Council
3. evaluation: procedures for decision-making, data collection, analyses
4. website: effective message/content for home page and other parts of site, need for oversight committee, further development and implementation of consistent sites for Centers
5. fundraising: role of CCO, decision-making and coordination, support mechanisms

Identify the composition and role of the NAB

1. gap analysis of NAB and development of plan to recruit in needed areas
2. NAB calendar, including bi-annual meetings
3. regular information to be provided to NAB from Centers, including annual reports and lists of specific catalytic activities, and the timing for this information
4. utilization of NAB in the development of professional development opportunities for the Council and Network
5. specific types of advice and input desired from NAB
6. appointment of NAB standing committees (e.g., research and evaluation, business development, strategic partnerships, public understanding)
7. management, organization, and support for a more proactive NAB by the CCO.

The current “fork in the road” that COSEE faces relative to its organizational structure is not unique and is a natural part of the growing pains within any grass roots organization. In addition to thoughtful committee discussions, it is important to also remember that there is much to be learned from many other organizations in the sciences and beyond that have faced similar issues, dilemmas, and decisions.

NAB Recommendation 4: Request that the governance committee present to the Council an optimal model for governance, including: pros/cons; expenses and appropriate coordination between money, responsibility, and authority; necessary personnel and their roles; implementation plans; and, necessary professional development for the effective implementation of this model. This should occur no later than October 2007.

NAB Recommendation 5: As part of the governance review, work with the NAB to select several organizations with missions or governance models of interest. Interview these organizations’ leaders as case studies in governance.

III. Organizational Funding, Resources, and Sustainability and NAB Recommendations

A looming question for the Network and the NAB is “How will COSEE sustain itself financially beyond NSF?” It is imperative that COSEE make it an immediate priority to create a strong position in the funding community outside of NSF and other government agencies, at a time when Federal budgets are shrinking and unstable.

Working together the CCO, Council, and Network have made good progress in the preliminary work required to present a positive face for COSEE to the broader community (i.e., with the publication of the COSEE brochure, Blueprint, and special issue of *Current*, as well as *Education and Public Outreach: A Guide for Scientists*). However, before initiating an effective fundraising campaign, these resources need to be packaged together within the context of an implementation strategy and viable marketing plan. Because COSEE leaders have limited expertise and experience in the areas of marketing, communications, and fundraising, it will be important to look to the broader COSEE community and others for the guidance that will help in the preparation of a complete packet of materials for presentation to possible donors and others.

NAB Recommendation 6: Revisit the COSEE Marketing Plan as developed and presented by the CCO (Spring 2006). Work with CORE’s communications staff and the NAB to complete its development and approval by Fall 2007.

NAB Recommendation 7: Utilize the NAB and advisory boards for individual Centers to assist in the final development of a national COSEE marketing and fundraising packet by Spring 2008, including a short list of possible funders at the national level and an initial contact with appropriate personnel in those organizations/agencies.

Appendix A
COSEE National Advisory Board Membership

Dan Baden	Professor and Director, Center for Marine Research University of North Carolina, Wilmington
Ted Beattie	President/CEO John G. Shedd Aquarium
Andrew Clark	President Harris Corporation
Chuck Fisher	Professor of Biology Pennsylvania State University
Pat Hagan	Research Associate King & Associates
Gordon Kingsley	Associate Professor of Public Policy Georgia Institute of Technology
Eric Jolly	President Science Museum of Minnesota
George Matsumoto	Senior Education and Research Specialist Monterey Bay Aquarium Research Institute
Carolyn Randolph	Assistant Executive Director South Carolina Education Association
Sally Goetz Shuler (Chair)	Executive Director, National Science Resources Center Smithsonian/The National Academies
Carolyn Thoroughgood	Vice Provost for Research University of Delaware

Appendix B
National Advisory Board Recommendations to the COSEE Council and CCO
June 21, 2007

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