Centers for Ocean Science Education Excellence (COSEE)

Program Solicitation

NSF 07-527

Replaces Document(s):
NSF 05-503

National Science Foundation

Directorate for Geosciences
Division of Ocean Sciences

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

March 01, 2007

Proposals for Centers and the Central Coordinating Office

March 03, 2008

Proposals for New Collaborations with Existing Centers

REVISION NOTES

In furtherance of the President's Management Agenda, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize Grants.gov to prepare and submit proposals. Grants.gov provides a single Government-wide portal for finding and applying for Federal grants online.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system. In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

This solicitation is a revision of NSF 05-503. It has been updated with results from earlier COSEE competitions, and the request for proposals to operate a Central Coordinating Office has been added. The request for proposals for up to five new collaborations with existing COSEE Centers has also been added.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Centers for Ocean Science Education Excellence (COSEE)

Synopsis of Program:

The Division of Ocean Sciences seeks to establish additional Centers in a network of coordinated centers that facilitate collaborations and communications between ocean science researchers and educators. These Centers for Ocean Science Education Excellence (COSEE) foster the integration of ocean research into high-quality educational materials, allow ocean researchers to gain a better understanding of educational organizations and pedagogy, provide educators with an enhanced capacity to understand and deliver high-quality educational programs in the ocean sciences, and provide material to the public that promotes a deeper understanding of the ocean and its influence on each person's quality of life and our national prosperity.

The Division of Ocean Sciences also solicits proposals for: (a) innovative collaborations with existing COSEE centers; and (b) operation of the Central Coordinating Office, which organizes national oversight of the COSEE effort, enhances communication and collaboration among the centers, and documents COSEE activities and outcomes.

Cognizant Program Officer(s):

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Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 12 awards in total: six COSEE Centers for up to five years at a maximum of $500,000/year for the first year, increasing by $10,000/year up to $540,000/year, with a budget review after three years; one Central Coordinating Office at a maximum $450,000/year for up to five years with a budget review after three years; and five new collaborations with existing COSEE Centers at a maximum of $50,000/year for up to three years.

Anticipated Funding Amount: $3,000,000 is the approximate total for first year of all awards pending availability of funds and quality of proposals.

Eligibility Information

Organization Limit:

COSEE Centers: Eligible organizations include academic institutions of higher learning that award degrees in geoscience or environmental science, oceanographic research institutions, professional societies, non-profit or not-for-profit consortia, informal science centers, museums, aquaria, and state and local education agencies. Collaborations among three or more different types of organizations listed above is required.

Each COSEE Center must represent a minimum of three partners, including at least one organization from each of the following sectors: 1) ocean science research institutions; 2) informal education institutions; and 3) formal educational institutions.

COSEE Central Coordinating Office: No limit

New Collaborations with Existing Centers: Eligible organizations include academic

institutions of higher learning that award degrees in geoscience or environmental science, oceanographic research institutions, professional societies, non-profit or not-for-profit consortia, informal science centers, museums, aquaria, and state and local education agencies.

Potential partners must represent either an ocean research institution, a formal education institution, or an informal education institution.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

COSEE Centers: No limit

COSEE Central Coordinating Office: No limit

New Collaborations with Existing Centers: No more than two proposals for new partners may be submitted for collaborations with an existing Center.

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf/)

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  March 01, 2007

Proposals for Centers and the Central Coordinating Office

March 03, 2008

Proposals for New Collaborations with Existing Centers

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria apply.

Award Administration Information

Award Conditions: Standard NSF award conditions apply

Reporting Requirements: Standard NSF reporting requirements apply

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I. INTRODUCTION

For many years, the need for scientists to work with educators to enhance the general public's understanding of science has been recognized as an important priority in reports such as *Science for All Americans* (AAAS, 1990), *NSF in a Changing World* (NSF, 1995), and *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* (National Academy of Sciences, 2006). The needs for increased education and public understanding of the oceans are particularly evident. The 2004 report of the *U.S. Commission on Ocean Policy, Chapter 8,* the 2003 Pew Ocean Commission's report *America's Living Oceans: Charting a Course for Sea Change, Part II, Chapter VIII,* and the 1999 report

from the Cabinet to the President of the United States, *Turning to the Sea: America's Ocean Future* (NOAA, 1999) all stress the need for ocean scientists and educators to improve the general public's understanding of the ocean and its role in their lives. The integration of education and research is a priority recommended in *NSF Geosciences Beyond 2000* (NSF, 2000) and in the report of the Geoscience Education Working Group entitled, "*Geoscience Education: A Recommended Strategy*" (NSF, 1997).

In order to explore the possible benefits of a nationally-coordinated effort in ocean science education, NSF's Division of Ocean Sciences (OCE) and the Division of Undergraduate Education (DUE) co-sponsored a workshop in May 2000. The report of this workshop is available on the internet at www.cosee.net. Workshop participants identified a wealth of opportunities for national coordination of ocean science education efforts and numerous strategies by which these opportunities could be realized. The workshop consensus was that NSF should establish Centers for Ocean Science Education Excellence (COSEE) as a nationally-coordinated program for ocean sciences education in both formal and informal educational sectors.

Subsequently, a panel of ocean research and ocean education experts met to advise OCE on priorities for the implementation of COSEE. A report from that meeting also is available at www.cosee.net. Proponents are strongly urged to review these reports to develop a better understanding of the background concepts for COSEE.

The first COSEE program announcement (NSF 01-173) was issued in 2001 and requested proposals for both Centers and a Central Coordinating Office. Initial awards were made in the Fall of 2002 for seven Centers and one Central Coordinating Office. A subsequent program solicitation (NSF 05-503) was issued in 2004 and requested proposals for additional COSEE Centers; three new Centers were funded as a result of this solicitation. Information on the ten current COSEE Centers can be found at http://www.cosee.net.

This competition is for COSEE Centers, a COSEE Central Coordinating Office, and new collaborations with existing COSEE Centers. Renewal proposals as well as proposals for new COSEE Centers and the COSEE Central Coordinating Office will be considered. It is anticipated that funding sufficient for six COSEE Centers and a Central Coordinating Office will be available. In addition, funding for up to five new collaborations with existing COSEE Centers is anticipated. Proposals may request up to 5 years of funding for Centers at up to $500,000/year for the first year, increasing by $10,000/year to $540,000/year. Proposals for the Central Coordinating Office may request up to $450,000 per year for up to 5 years. A third-year mid-term review by NSF will be required for all awards with durations of five years. Proposals for new collaborations with existing COSEE centers may request up to $50,000/year for a total of three years. Additional sites and collaborations may be established in the future as additional sources of funding are identified. An integrated master proposal, or a set of collaborative proposals, is sought from organizations wishing to establish or continue a Center (see Chapter II, Section D.3. of the Grant Proposal Guide for additional information on collaborative proposals). Centers will be funded beginning in September to November, 2007; funding for the COSEE Central Coordinating Office will begin in approximately February, 2008; funding for collaborations with existing Centers will begin in the summer of 2008.

II. PROGRAM DESCRIPTION

The National Science Foundation funds the development of centers where the proposed work requires a high degree of organization and networking. A center provides a rich environment in which collaborations and partnerships flourish, particularly those that include people and organizations with disparate goals.

a. ***COSEE Network:*** The COSEE network consists of a set of collaborating COSEE Centers (currently ten) plus the Central Coordinating Office (see www.cosee.net). Each Center in the network has a regional and/or thematic focus. Regional Centers develop most of their efforts in a particular geographical region, but also encompass a majority of the COSEE goals listed below under "Potential COSEE Activities." A thematic Center focuses its efforts on a particular intellectual theme or topic, and applies these efforts on a national scale. Both regional and thematic Centers are expected to contribute broadly to the national effort of improving ocean sciences education and public outreach, as well as the integration of ocean sciences research into education and public outreach. Proponents are advised to review the efforts and objectives of currently-funded COSEE Centers (www.cosee.net) to minimize any overlap or redundancy.

   The funded COSEE Centers each provide one representative to a management group called the COSEE Council. The Council meets formally two or three times a year and communicates informally between these meetings. The COSEE Council addresses issues related to long-term planning, the coordination of COSEE activities, and collaborations. All funded COSEE Centers and the Central Coordinating office are expected to be represented at the COSEE Council meetings. COSEE also holds annual PI meetings where all COSEE PIs are expected to attend, as well as occasional special focus meetings.

The Central Coordinating Office organizes national oversight of the COSEE effort, enhances communication and collaboration among the Centers, and documents COSEE activities and outcomes. The Central Coordinating Office obtains advice from the individual COSEE Centers, the COSEE Council, the COSEE National Advisory Board, the National Science Foundation, and other sources in setting priorities, planning, and enhancing the national impact of the COSEE network.

b. ***COSEE Centers:*** **Each Center must represent a minimum of three partners, including at least one organization from each of the following sectors: 1) ocean science research institutions; 2) informal education institutions; and 3) formal educational institutions.** One institution may not represent more than one sector. Ocean science research institutions are defined as institutions with a primary mission of promoting basic oceanographic research and/or graduate education in biological, physical, chemical and geological oceanography. Eligible research institutions must not focus predominantly on fisheries or aquarium/exhibit-related science. Informal science education institutions are defined as museums, aquaria, or science centers with a primary mission of public outreach and education. Formal education organizations must be accredited by their appropriate accreditation body.

To illustrate the structure and scope envisioned, a Center might consist of a collaborative effort among an oceanographic research institution, an aquarium, and a K-12 school district. Regionally, research scientists could advise education specialists on oceanographic issues and content. Education specialists would then assist the school district and the state's Department of Education to integrate current ocean science material into the curriculum. Nationally, a collaborative effort might focus on identifying gaps in K-12 ocean science educational material, encouraging development of programs at the aquarium partner to promote public knowledge of current oceanographic research efforts, and/or sponsoring workshops to introduce both scientists and educators to innovative pedagogical methods, new uses of instructional technology, or communication strategies for the public or media.

Each Center is to have an external Advisory Board composed of representatives of the research, formal education, and informal education communities. The external Advisory Board should regularly provide advice to each Center on its operations, direction, priorities, and opportunities. Advisory Board reports will be provided to the cognizant NSF Program Officer, and NSF expects to attend selected Advisory Board meetings as part of its oversight of the Center's progress.

Each Center must designate a director who has the capacity and vision to develop and lead the team. The position of director may rotate among PI's at pre-defined periods. In addition, each Center needs to have an internal management structure capable of supporting the education, outreach, and research missions of the Center in a manner that balances the interests of the different institutions involved. Centers will support personnel having expertise to engage the oceanographic research community and the formal and informal educational communities in efforts to advance the availability and quality of information on the oceans. The office(s) for each Center may be located at any of the Center's affiliates. Affiliates of a Center need not be in close proximity to each other, but all personnel associated with a Center must work together as a team.

c. ***COSEE Central Coordinating Office:*** The Central Coordinating Office organizes national oversight of the COSEE effort, enhances communication and collaboration among the Centers, and documents COSEE activities and outcomes. More specifically, these activities include:

- Coordinate and maintain the primary COSEE website, with links to individual COSEE Centers and other relevant materials;
- Provide administrative, logistical, and resource support for the COSEE National Advisory Board and their meetings;
- Provide administrative, logistical, and resource support for the COSEE Council and their meetings;
- Provide administrative, logistical and resource support for the annual PI meetings and special focus meetings;
- Provide leadership, coordination, and administrative support for COSEE planning processes at the national scale;
- Coordinate national advocacy for COSEE priorities in education, public outreach, and linkages to the ocean sciences research community;
- Provide information and advice to prospective COSEE Centers on COSEE procedures, practices,

and planning processes;

- Coordinate, facilitate, and enhance collaboration among the Centers and other organizations with similar or complementary interests; and

- Conduct evaluation and assessment studies of COSEE activities with the objective of identifying the major accomplishments, best practices, and opportunities in the context of the constantly evolving educational, public outreach, and research communities, and to document the capabilities and effectiveness of the network as a whole.

The Central Coordinating Office can be located outside of the Washington, DC metropolitan area, but proposals should indicate how a national vision and nationwide participation will be achieved. Proponents need to develop internal management plans and structure that will integrate with the existing activities of the National Advisory Board and the COSEE Council in a supportive manner. Proponents should consider the roles of an Executive Director, senior support staff, and communications/internet expertise in developing their internal management plans and structure.

d. ***New Collaborations with Existing Centers:*** An organization that wishes to partner with an existing Center may submit a proposal to add a new activity to the Center's portfolio or to expand an existing activity to a new audience. These proposals may be submitted by the new partner or by the existing Center. Funding may be requested for no more than $50,000/year for up to three years. Potential partners must represent either an ocean research institution, a formal education institution, or an informal education institution. The proposals should describe the activities of the new partner in relationship to the existing Center programs. Potential activities are described in the section "Potential COSEE Activities". The new partner(s) must be fully integrated into the COSEE management structure and participate in national-level COSEE activities. *No more than two proposals for new partners may be submitted for collaborations with an existing Center.*

e. ***Potential COSEE Activities:*** **Each Center should be a multi-faceted collaborative activity with the primary goal of improving the integration of ocean research and education.** As new concepts and knowledge from the ocean sciences research community are developed, it is important that innovative collaborations flourish among the research, education, and public outreach communities in ways that disseminate knowledge, create broader public awareness of the role of scientific discovery in society, and enhance educational opportunities and content. The COSEE Centers, and the collective network of individual Centers, have a crucial role in fostering communications and collaborations amongst the ocean sciences research, education, and public outreach communities.

In order to build public literacy of the ocean sciences and to foster these collaborations, each Center is expected to:

- Develop sustainable ocean science education and public outreach activities with leading-edge scientists;

- Use Ocean Literacy Essential Principles in developing educational activities (see www.coexploration.org/oceanliteracy/documents/OceanLitChart.pdf);

- Implement at least one educational activity/program developed by existing COSEE Centers (or build off the strategy developed in one of these activities/programs) so that these activities/programs will be progressively tested and refined. Examples of these educational activities/programs are Communicating Ocean Sciences, SEPORT, and Taking the Pulse of our Changing Planet. A list of current COSEE activities is provided at http://ope.ed.sc.edu/cosee/activities2006.asp

- Ensure that underrepresented groups in the ocean sciences have improved access to ocean science education and research results. Individual Centers should make a concerted effort to include underrepresented groups in educational activities, both formal and informal, involving the oceans.

  Each Center should strive to implement several of the activities listed below - preferably a majority of them, but not necessarily all of them. Proposals should identify a regional and/or thematic set of activities and address how they will be undertaken.

- Establish and/or expand connections between people and organizations conducting ocean science research and those providing educational leadership or those providing outreach among diverse communities.

- Facilitate the integration of research into high-quality educational materials and establish linkages that will foster the development and dissemination of these materials. For example, a Center could work with scientists and educators to establish goals and guidelines for educational material that should be made available both regionally and nationally.

- Provide pedagogical expertise and guidance for research scientists involved in education. For example, a Center could sponsor workshops at major scientific conferences that encourage faculty to develop collaborative proposals with educators or to experiment with different pedagogical strategies.

- Create new professional development opportunities for a variety of COSEE users. For example, a Center could establish collaborative programs with ocean research institutions, science education faculty, and administrators of colleges of education, or promote the development of ocean science and technology courses at minority-serving institutions and community colleges or technical colleges. Centers are expected to support the ongoing costs of programs with outside funding.

- Provide incentives and assistance for school districts and teachers to integrate ocean sciences into their curricula. For example, Center personnel could help school districts identify ocean-related curricula that would be appropriate for them and help align the curricula to state or national standards as necessary.

- Provide expertise and design evaluation instruments that can be used to assess and strengthen new or ongoing efforts. Because oceanographers are largely unfamiliar with the specialized techniques used to evaluate educational effectiveness, the COSEE community must provide knowledgeable personnel who are fully aware of both evaluation fundamentals and the specific challenges of ocean education. For example, COSEE staff could design evaluation plans for ocean education programs or serve as consultants on future proposals, strengthening both the proposals and future programs if funded.

- Foster the effective use of ocean observing data and information technology for education. Ocean observing systems and information technology are rapidly advancing fields that will play an increasingly important role in lifelong educational activities. It will be important for COSEE to provide a foundation for an open discussion of how real-time data and technology can enhance curriculum reform, professional development, assessment and minority involvement in ocean science education. Examples of developing ocean observing systems include ORION (www.orionprogram.org), MARS (www.mbari.org/mars), NEPTUNE (www.neptune.washington.edu), VENUS (www.venus.uvic.ca/data/mainpage.html) and LEO-15 (www.marine.rutgers.edu/mrs/leo/leo15.html).

- Provide career information. For example, a Center could provide undergraduates and undergraduate faculty with access to a synthesis of career information, including links to job options. This information should highlight non-academic career paths, including marine technology, industry, non-college teaching, advocacy, and policy-related jobs.

Although a Center may work to foster demonstration programs consistent with its goals, its primary role should be catalytic, not programmatic. For example, funds might be used to organize workshops that provide opportunities for an exchange of ideas and expertise between scientists and educators, but would not be used to support research programs, for construction of museum displays, or for participant costs in ongoing educational programs.

Each Center must reserve funds (a minimum of 7% of the overall budget) for personnel, travel and other expenses associated with participation in national COSEE efforts. Attendance at annual PI meetings and COSEE Council meetings is required. Participation in various COSEE-sponsored events and activities that promote ocean education on a national level is expected. Centers are to use the national COSEE logo and may not use funding to develop new logos. Budgets should not exceed $500,000/year for the first year, with the maximum increasing by $10,000/year to $540,000/year. The maximum duration of awards will be five years.

Proponents are urged to consider affiliation with other NSF-funded systemic science education reform efforts, including programs funded via the Louis Stokes Alliances for Minority Participation (LSAMP), Centers for Teaching and Learning (CTL), and Advanced Technological Education (ATE), Rural Systemic Initiative (RUI) and the Urban Systemic Program (USP), Alliances for Graduate Education Program (AGEP) and the Graduate K-12 program. Information on these programs may be found via the NSF website at http://

www.nsf.gov/dir/index.jsp?org=EHR. Funding for specific programs should not be requested via a COSEE proposal. For undergraduate course development, teacher preparation and two-year technical programs, please refer to NSF's Division of Undergraduate Education (DUE) website (http://www.nsf.gov/div/index.jsp?div=DUE). For K-12 materials development and teacher preparation program support, please refer to NSF's Division of Elementary and Secondary Education (ESIE) website (http://www.nsf.gov/div/index.jsp?div=ESIE).

f. ***Required Information*** For a COSEE Center to be successful, it must select an innovative and important set of activities to undertake, and it must have a sufficiently well developed management and administrative structure to implement these activities effectively. Proponents should develop their plans for a Center on the strengths of their recent activities, their interests in developing effective catalytic activities, and their ability to foster communications between the education, public outreach, and ocean sciences research communities.

In the process of forming the partnerships that develop the proposed activities of a Center, attention should focus on how to integrate the institutional partners into shared projects that can bridge the educational, public outreach, and research communities rather than have them operate on "parallel tracks". It is important that the individual goals of the leaders and institutions are aligned with the overall goals of the COSEE Center.

All proposals must include a description of results from prior NSF support. Proposals from organizations with prior support from the COSEE program should document their results and provide evidence of national and regional level progress for their Center's activities. Proposals requesting renewed support for a Center should not continue programs or activities developed in prior years unless Centers can demonstrate a need for further development or plans for dissemination and/or expansion to new partners. Funding should not be requested for ongoing programmatic functions unless the specific program is very effective at connecting leading-edge scientists with the educational and public outreach communities.

1. *Proposals for COSEE Centers* must include a description of the activities to be undertaken if the proposed Center is funded. This description should include the following:

- Significant collaborations between research, educational, and public outreach organizations dedicated to the improvement of ocean science education, with clearly defined roles for all collaborators and partners. Particular emphasis should be placed on transformative projects that can be best undertaken in the structure of a COSEE Center, in contrast to those projects that do not particularly benefit from being in a Center;

- Information on the backgrounds and professional experiences of senior investigators that is relevant to their ability to form, nurture, and lead the proposed activities in a multi-institutional setting. Because the goals of being catalytic and bridging the education, public outreach, and research communities require special talents, information on the support of these goals is important;

- A coherent and well-organized management plan for the Center that represents the balanced interests of all partners. Centers function most effectively if a support position is designated for maintaining internal communications and monitoring progress of all center participants;

- The general framework for the operation of an external Advisory Board that meets at least annually and provides an annual report to NSF;

- Plans to build, coordinate and maintain an appropriate regional or thematic website that will be linked to the national network COSEE website;

- Plans for proactive outreach to segments of the population that have historically been underrepresented as learners, teachers, and researchers in ocean sciences;

- A budget that reflects an appropriate balance between resources and responsibility for all collaborators; and

- A minimum of 7% of the budget should be devoted to participation in national activities of the COSEE network. This could include travel expenses to attend the annual COSEE Council Meeting, funds to produce a nationally-recognized educational material, etc. If there are particular contributions to the national activities of the COSEE network envisaged by a proponent, they should be described in the proposal.

Proposals should include salaries (up to 12 months per year) and related personnel costs. Typical personnel may include: PI, Center coordinator, communications manager, research specialist, education specialist, and public affairs/media specialist. Participant support costs (travel; workshop per diem) are also expected to be a significant portion of the budget in some cases. Participant support funds may not be diverted by the grantee to other categories of expense without the prior written approval of the cognizant NSF Program Officer. Administration or clerical support for travel arrangements or workshop-related activities, if requested, must be justified as non-routine, and specifically identified with a project activity. No funds for capital equipment will be provided.

2. *Proposals for the Central Coordinating Office* should fully describe their proposed management and administrative structure. The proposal should also discuss the strengths and background of the organization and key individuals for this project in acting as a facilitator, catalyst for change, and intermediary between the research, education, and public outreach communities. It is also important that the proposal address the proponent's ability to conduct the Central Coordinating Office activities noted above with respect to the national website, communications, advocacy, evaluation, and the various planning activities of the National Advisory Board, the COSEE Council, and the COSEE network.

   Proposals for the Central Coordinating Office should include salaries (up to 12 months per year) and related costs for personnel. Typical personnel may include: PI, Executive Director, research specialist, education specialist, and public affairs/media specialist. Administration or clerical support for travel arrangements or workshop-related activities, if requested, must be justified as non-routine, and specifically identified with a project activity. No funds for capital equipment will be provided.

3. *Proposals for Collaborations with Existing Centers* should include a description of the new organization(s), their strengths in either education or ocean research, and how the new partnership will benefit each organization. The proposed activities/collaborations should be fully described. Funding for up to $50,000/year for three years may be requested and should be distributed between the new organization(s) and the existing COSEE in a manner that reflects the contributions of both (all) partners. Funding may be requested for development of new programs, or dissemination of existing programs, but not for continuing programmatic support.

   For all proposals, the Project Description should address the criteria used by reviewers to judge the merit of the proposal. NSF's two general criteria (Intellectual Merit and Broader Impacts, see Section VI) often lead to questions, including the examples that follow, during the review process. A proposal need not explicitly answer each of the questions below, however these examples are meant to help proposal writers understand the types of issues that may be considered during the review process.

- Does the project have the potential to increase understanding of the oceans by students, the public, and members of under-represented groups?

- Does the project have the potential to reach a large number of ocean scientists who desire assistance developing educational components of future research proposals?

- Does the project provide a unique and useful addition to the current COSEE network?

- Do the management structure and leadership plans foster an environment that is likely to lead to a very successful Center?

- Is the budget appropriate for the size and scope of the proposed effort and does it fairly reflect the contributions of each organization?

- Is the project supported by adequate facilities, resources, and institutional commitment?

REFERENCES

American Association for the Advancement of Science, 1990. *Science for All Americans*. Oxford University Press, New York, NY

National Academy of Sciences, 2006. *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future.* The National Academies Press, Washington, DC.

National Oceanic and Atmospheric Administration, 1999. *Turning to the Sea: America's Ocean Future*. National Oceanic and Atmospheric Administration, Washington, DC

National Science Foundation, 1995. *NSF In a Changing World: The National Science Foundation's Strategic Plan*. National Science Foundation, Arlington, VA.

National Science Foundation, 1997. *Geoscience Education: A Recommended Strategy*. National Science Foundation, Arlington, VA.

National Science Foundation, 2000. *NSF Geosciences Beyond 2000*, Arlington, VA.

Pew Ocean Commission, 2003. *America's Living Oceans: Charting a Course for Sea Change*, Arlington, VA 2003.

U.S. Commission on Ocean Policy, 2004. *An Ocean Blueprint for the 21st Century*, Washington, DC.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. Approximate number of awards: six COSEE Centers for up to five years at a maximum of $500,000/year for the first year, increasing by $10,000/year up to $540,000/year, with a budget review after three years; one Central Coordinating Office at a maximum $450,000/year for up to five years with a budget review after three years; and five new collaborations with existing COSEE Centers at a maximum of $50,000/year for up to three years.

IV. ELIGIBILITY INFORMATION

Organization Limit:

COSEE Centers: Eligible organizations include academic institutions of higher learning that award degrees in geoscience or environmental science, oceanographic research institutions, professional societies, non-profit or not-for-profit consortia, informal science centers, museums, aquaria, and state and local education agencies. Collaborations among three or more different types of organizations listed above is required.

Each COSEE Center must represent a minimum of three partners, including at least one organization from each of the following sectors: 1) ocean science research institutions; 2) informal education institutions; and 3) formal educational institutions.

COSEE Central Coordinating Office: No limit

New Collaborations with Existing Centers: Eligible organizations include academic institutions of higher learning that award degrees in geoscience or environmental science, oceanographic research institutions, professional societies, non-profit or not-for-profit consortia, informal science centers, museums, aquaria, and state and local education agencies.

Potential partners must represent either an ocean research institution, a formal education institution, or an informal education institution.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

COSEE Centers: No limit

COSEE Central Coordinating Office: No limit

New Collaborations with Existing Centers: No more than two proposals for new partners may be submitted for collaborations with an existing Center.

Limit on Number of Proposals per PI:

None Specified

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

Refer to Section II, Program Description, for specific proposal preparation information and instructions. Although the Project Description is limited to the standard 15 pages, detailed information on the management plan, timeline and composition of external advisory committees may be included as additional material within the Supplementary Documents section of FastLane. For Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form. Supplementary Documents are limited to 10 single-spaced pages in addition to letters of collaboration. All budgets (including subawards) must be accompanied by a detailed budget justification.

B. Budgetary Information

Cost Sharing: Cost sharing is not required by NSF in proposals submitted to the National Science Foundation.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  March 01, 2007

  Proposals for Centers and the Central Coordinating Office

  March 03, 2008

  Proposals for New Collaborations with Existing Centers

D. FastLane / Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

  Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

  Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: http://www.grants.gov/CustomerSupport. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

  Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program and, if they meet NSF proposal preparation requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that

reviewers have no conflicts with the proposer.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Adhoc Review or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/general_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Elizabeth Rom, Program Director, 725, telephone: (703) 292-7709, fax: (703) 292-9085, email: elrom@nsf.gov
- Donald Elthon, Program Director, 725, telephone: (703) 292-8475, fax: (703) 292-9085, email: delthon@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.
- Brian Midson, Assistant Program Director, 725, telephone: (703) 292-8145, fax: (703) 292-9085, email: bmidson@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, MyNSF (formerly the Custom News Service)is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. MyNSF also is available on NSF's Website at http://www.nsf.gov/mynsf/.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to

enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: pubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records, " 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services

National Science Foundation
Arlington, VA 22230