

# **Buoyancy-Driven Transport Processes**

## **Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows**

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### ***Program Announcement***

***NSF-02-059***

DIVISION OF OCEAN SCIENCES

**FULL PROPOSAL DEADLINE(S): July 24, 2002**



**NATIONAL SCIENCE FOUNDATION**



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# SUMMARY OF PROGRAM REQUIREMENTS

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## GENERAL INFORMATION

**Program Title:** Buoyancy-Driven Transport Processes

**Synopsis of Program:** Coastal ocean regions with large freshwater inflows are major gateways for the transfer of materials from continents to oceans. Thus, it is important to understand how processes on shelves with large freshwater inflows affect cross-margin transport of biologically, geologically, and chemically important materials. This announcement, offered under the auspices of the Coastal Ocean Processes (CoOP) Program of NSF/OCE, calls for proposals investigating processes that control buoyancy-driven systems influenced by freshwater inflows.

**Cognizant Program Officer(s):**

- Dr. Alexandra Isern, Ocean Technology and Interdisciplinary Coordination (OTIC), Program Director, GEO/OCE, Division of Ocean Sciences, 725, telephone: 703 292-8582, e-mail: [aisern@nsf.gov](mailto:aisern@nsf.gov).

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

- 47.050 --- Geosciences

## ELIGIBILITY INFORMATION

- **Organization Limit:** None
- **PI Eligibility Limit:** None
- **Limit on Number of Proposals:** None

## AWARD INFORMATION

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** Not Specified.
- **Anticipated Funding Amount:** \$12 Million over five years

# PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

## *A. Proposal Preparation Instructions*

- **Full Proposals:** Deviations From Standard Preparation Guidelines
  - The program announcement/solicitation contains deviations from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full program announcement/solicitation for further information.

## *B. Budgetary Information*

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

## *C. Deadline/Target Dates*

- **Letters of Intent (*optional*):** None
- **Preliminary Proposals (*optional*):** None
- **Full Proposal Deadline Date(s):** July 24, 2002

## *D. FastLane Requirements*

- **FastLane Submission:** Required
- **FastLane Contact(s):**
  - Kandace Binkley, Associate Program Director, GEO/OCE, Division of Ocean Sciences, 725, telephone: 703 292-8583, e-mail: [ocefl@nsf.gov](mailto:ocefl@nsf.gov).

## PROPOSAL REVIEW INFORMATION

- **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.

## **I. INTRODUCTION**

This announcement is offered under the auspices of the Coastal Ocean Processes (CoOP) program of NSF/OCE. CoOP is an interdisciplinary program whose goal is to obtain a quantitative understanding of processes that control the cross-shelf transport, transformation and fate of biological, geological and chemical materials on continental margins. An important mechanism influencing these processes is that of buoyancy-driven transport. Coastal ocean regions with large freshwater inflows are major gateways for the transfer of materials from continents to oceans. It is important to understand how processes on shelves with large freshwater inflows affect cross-margin transport of biologically, geologically, and chemically important materials. In coastal waters, materials originating from offshore and terrestrial sources are subject to intense biological, chemical, and geological processing. The distribution and transport of these materials is influenced by a combination of wind, buoyancy, tidal and boundary layer processes. To investigate and elucidate processes controlling coastal systems dominated by freshwater inflows, CoOP will undertake a major study as outlined in this announcement.

In October 1998, CoOP sponsored an open community workshop that defined the research needed to better understand processes controlling buoyancy-driven systems influenced by freshwater flows. The workshop results and science plan were published as the CoOP Report "Coastal Ocean Processes: Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows (CoOP Report No. 7)". This report is available on the CoOP website (<http://www.skio.peachnet.edu/coop/>) and also may be requested from the CoOP office: Skidaway Institute of Oceanography, 10 Ocean Science Circle, Savannah GA 31411. Phone: (912) 598-2493; Fax: (912) 598-2310; [djahnke@skio.peachnet.edu](mailto:djahnke@skio.peachnet.edu).

In addition to the workshop report, CoOP solicited the preparation of four papers on this subject to synthesize existing knowledge of buoyancy-influenced systems. Preprints of the four papers are available on the CoOP website (Dagg et al. 2001; Geyer et al. 2001; McKee et al. 2001; Stabeno et al. 2001). These synthesis papers should not bias research topics or locations to be proposed as part of this announcement since the ultimate research focus and study area for this initiative should be science-driven.

## **II. PROGRAM DESCRIPTION**

Significant transfer of materials from continents to oceans occurs in coastal ocean regions with freshwater inflows. The northern Gulf of Alaska, Texas-Louisiana Shelf, and Washington-Oregon shelf are all examples of U.S. coastal regions impacted by substantial freshwater inflows whereas the Delaware River and adjacent shelf are impacted by smaller inflows. Inflows may occur as point or discrete sources as off the Columbia and Mississippi River coasts, or as distributed or line sources as in the Gulf of Alaska and South Atlantic Bight.

Large natural variations in the quantity and seasonality of freshwater inflow, winds, and other factors lead to significant variability in the distribution and magnitude of buoyancy-driven processes. Such variability may affect the location of sediment deposition and the cross-shelf transport direction of dissolved and particulate species. In addition, material export to the open ocean or import to the shelf may occur. In many regions, nutrient inputs associated with freshwater inflows may cause coastal areas to be highly productive and support major fisheries. Conversely, freshwater inputs that are low in dissolved nutrients, such as those found in the Gulf of Alaska, may entrain nutrients into the photic zone from oceanic sources.

Many continental shelves impacted by freshwater inflows are also greatly influenced by human activities due to the congregation of human populations along rivers and estuaries. For example, eutrophication resulting from anthropogenic nutrient inputs has contributed to seasonal anoxia over substantial areas of the coastal seafloor in the Gulf of Mexico. Furthermore, agricultural practices have increased the sediment load in major rivers due to unchecked erosion, while the construction of dams and levees has profoundly altered freshwater inflow through estuaries. It is also possible that marked alteration in freshwater discharge and material transport in these shelf regions could occur with anthropogenically induced climatic warming.

#### RESEARCH PROGRAM GOALS

The recommendations contained in CoOP report No. 7, "Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows", present the rationale for interdisciplinary process studies in one or more locations impacted by buoyancy-driven transport. By not specifying a geographic location, it is the CoOP Scientific Steering Committee's intent to allow the proposed science to drive the selection of study locations. However, site selection(s) should consider potential cooperative research benefits arising from coordination with other NSF programs (e.g. the "Integrated Carbon Cycle Research Program") and those of other U.S. agencies. Successful proposals must justify their study location by addressing the questions outlined in the Scientific Prospectus section of CoOP report No. 7.

#### RESEARCH APPROACH

Appropriate study locations should have one or more of the following: buoyancy-influenced flow as a major component of coastal transport, flow-induced dissolved and particulate constituent loads large enough to allow detection and quantification, and a sufficiently large buoyant input so as to influence the structure and/or productivity of biological communities that are affected by freshwater inflow.

A CoOP process study of coastal systems strongly influenced by freshwater inputs will require close coupling between modeling and observations and should account for the range of spatial and temporal scales of phenomena likely to contribute to cross-shelf transport. NSF/CoOP advisors envision a close integration between modeling and fieldwork as part of any proposed program and encourage the use of modeling and laboratory results for the design of field experiments. Other elements of a proposed study that could be considered include: characterization of boundary conditions, including freshwater flow and wind forcing; characterization of the buoyant water and its biological communities with approaches suited to a range of spatial and temporal scales, including moored instruments, shipboard observations and experiments, drifters, and remote sensing; studies of the benthic boundary layer and seabed; and tracer studies of cross-margin transport.

#### PREPARATION AND SUBMISSION OF PROPOSALS

Based on the recommendations from the NSF-CoOP Buoyancy-Driven Transport Workshop and the CoOP Scientific Steering Committee, proposals are being accepted for a coordinated study of processes that control buoyancy-driven systems influenced by freshwater flows. This initiative anticipates supporting integrated, multi-investigator, interdisciplinary programs of modeling and process studies with the overall goal of improving our understanding of the effects of freshwater inflows on cross-margin transport. Proposed studies must present a balanced and well-rationalized scientific plan for addressing the scientific goals described in CoOP Report No. 7:

"Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows". Study location(s) will be science-driven and determined by successful proposals. Site selection(s) should consider, where appropriate, potential cooperative research benefits with other NSF programs and other U.S. agencies. Studies may be proposed by submission of several collaborative or individual proposals from different PIs having some common objectives, or by an omnibus proposal that contains various multi-disciplinary components. In either case, a common overview statement of research approach and objectives should be prepared. In addition, proposals involving a group of PIs must contain an explicit management plan that is appropriate to the coordination of the proposed activities including a clear identification of the individual(s) responsible for program integration and synthesis.

Prior to proposal preparation, prospective investigators are strongly advised to acquaint themselves with the contents of the CoOP Report "Coastal Ocean Processes: Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows (CoOP Report No. 7)". The Executive Summary and Science Plan from this report are available on the CoOP website (<http://www.skiio.peachnet.edu/coop/>). Full copies of the report are available from the CoOP office at the Skidaway Institute of Oceanography. The CoOP Office will facilitate the exchange of information amongst PIs wishing to develop proposals in response to this Announcement and will provide occasional postings of other useful information.

To adequately address the scope of the study described in this Announcement, the CoOP Scientific Steering Committee envisions a five-year study encompassing a pilot program/ startup year, two years for field studies, and two years for data synthesis and analysis. Depending on availability of funds, approximately \$2.0M, \$2.5M, \$3.0M, \$2.5M, and \$2.0M will be made available in FY2003, FY2004, FY2005, FY2006 and FY2007 respectively, to cover activities herein described. This funding availability should be adequate to support a set of collaborative continuing grants for an interdisciplinary team of investigators.

## REFERENCES

Henrichs, S., N. Bond, R. Garvine, G. Kineke and S. Lohrenz (2000) CoOP Report No. 7. Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows. Report on the Buoyancy-Driven Transport Processes Workshop, October 6-8, 1998.

Dagg, M., R. Benner, S. Lohrenz, and J. O'Donnell (in review) Transport and transformation of dissolved and particulate materials on continental shelves influenced by large rivers: Plume processes. Continental Shelf Research.

Geyer, W.R., P.S. Hill and G.C. Kineke (in review) The transport and dispersal of sediment by buoyant plumes. Continental Shelf Research.

McKee, B., R. Aller, M. Allison, T. Bianchi, and G. Kineke (in review) Transport and transformation of dissolved and particulate materials on continental shelves influenced by large rivers: Seabed and sediment-water interactions. Continental Shelf Research.

Stabeno, P., N. Bond, A. Hermann, C. Mordy and J. Overland (in review) Meteorology and Oceanography of the Northern Gulf of Alaska. Continental Shelf Research.

### **III. ELIGIBILITY INFORMATION**

The categories of proposers identified in the [Grant Proposal Guide](#) are eligible to submit proposals under this program announcement/solicitation.

### **IV. AWARD INFORMATION**

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

### **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

#### **A. Proposal Preparation Instructions**

##### **Full Proposal:**

Proposals submitted in response to this program announcement/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 Web Site at: <http://www.nsf.gov/cgi-bin/getpub?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](mailto:pubs@nsf.gov).

Project descriptions are limited to 15 pages with up to two additional pages detailing the management plan for this program and up to one half a page per investigator for listing prior support. The management plan should specify one person that will coordinate the project. In addition, all proposals must include one page in the Supplementary Documents section listing the names and institutional affiliations of all persons associated with the proposal. This information is necessary to identify conflicts with reviewers.

Proposers are reminded to identify the program solicitation number (NSF-02-059) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

#### **B. Budgetary Information**

Cost sharing is not required in proposals submitted under this Program Announcement.

#### **C. Deadline/Target Dates**

Proposals must be submitted by the following date(s):

**Full Proposals by 5:00 PM local time:** July 24, 2002

#### **D. FastLane Requirements**

Proposers are required to prepare and submit all proposals for this Program Announcement through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <http://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov).



*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 certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane website at: <http://www.fastlane.nsf.gov>.

## **VI. PROPOSAL REVIEW INFORMATION**

### **A. NSF Proposal Review Process**

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The two 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 he/she 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.

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 Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

**B. Review Protocol and Associated Customer Service Standard**

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Mail and/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.

NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 70 percent of proposals. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

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 its 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 Division 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.A. 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 (NSF-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 agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

\*These documents may be accessed electronically on NSF's Web site at [http://www.nsf.gov/home/grants/grants\\_gac.htm](http://www.nsf.gov/home/grants/grants_gac.htm). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Web site at <http://www.nsf.gov/cgi-bin/getpub?gpm>. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Web site at <http://www.gpo.gov>.

### **C. Reporting Requirements**

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented an electronic project reporting system, available through FastLane. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, 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.

## **VIII. CONTACTS FOR ADDITIONAL INFORMATION**

General inquiries regarding Buoyancy-Driven Transport Processes should be made to:

- Dr. Alexandra Isern, Ocean Technology and Interdisciplinary Coordination (OTIC), Program Director, GEO/OCE, Division of Ocean Sciences, 725, telephone: 703 292-8582, e-mail: [aisern@nsf.gov](mailto:aisern@nsf.gov).

For questions related to the use of FastLane, contact:

- Kandace Binkley, Associate Program Director, GEO/OCE, Division of Ocean Sciences, 725, telephone: 703 292-8583, e-mail: [ocefl@nsf.gov](mailto:ocefl@nsf.gov).

## **IX. OTHER PROGRAMS OF INTEREST**

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF [E-Bulletin](#), which is updated daily on the NSF web site at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's [Custom News Service](#) (<http://www.nsf.gov/home/cns/start.htm>) to be notified of new funding opportunities that become available.

## **ABOUT THE NATIONAL SCIENCE FOUNDATION**

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement/solicitation for further information.

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 or (800) 281-8749, FIRS at 1-800-877-8339.

The National Science Foundation is committed to making all of the information we publish easy to understand. If you have a suggestion about how to improve the clarity of this document or other NSF-published materials, please contact us at [plainlanguage@nsf.gov](mailto:plainlanguage@nsf.gov).

## 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; 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 applicant 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 needing information as part of the review process or in order to coordinate programs; 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," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Pursuant to 5 CFR 1320.5(b), an agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid 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 this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230, or to Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for National Science Foundation (3145-0058), 725 17th Street, N.W. Room 10235, Washington, D.C. 20503.

*OMB control number:* 3145-0058.