

Long Term Research in Environmental Biology (LTREB)

PROGRAM SOLICITATION

NSF 10-558

REPLACES DOCUMENT(S):

NSF 07-588



National Science Foundation

Directorate for Biological Sciences
Division of Environmental Biology
Division of Integrative Organismal Systems

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

July 13, 2010

July 13, Annually Thereafter

January 13, 2011

January 13, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the NSF Proposal & Award Policies & Procedures Guide (PAPPG), [NSF 11-1](#), was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in [NSF 11-1](#) apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 18, 2011, must also follow the guidelines contained in [NSF 11-1](#).

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the [PAPP Guide Part I: Grant Proposal Guide \(GPG\) Chapter II.C.2.g \(xi\)](#) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long-standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

Revision Summary

Three components are now required of all LTREB proposals: 1. at least six years of data in hand that motivate the proposed research, 2. a clearly stated decadal research plan, and 3. a plan for data management and dissemination.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Long Term Research in Environmental Biology (LTREB)

Synopsis of Program:

Through the LTREB program, the Division of Environmental Biology (DEB) and the Division of Integrative Organismal Systems (IOS) encourage the submission of proposals that generate extended time series of biological and environmental data to address ecological and evolutionary processes and resolve important issues in organismal and environmental biology. Researchers must have collected at least six years of previous data to qualify for funding, and these data must motivate the proposed research. The proposal also must present a cohesive conceptual rationale or framework for ten years of research. Questions or hypotheses outlined in this

conceptual framework must guide an initial 5-year proposal as well as a subsequent, abbreviated renewal. Together, these will constitute a decadal research plan appropriate to begin to address critical and novel long-term questions in organismal and environmental biology. As part of the requirements for funding, projects must show how collected data will be shared broadly with the scientific community and the interested public.

All proposals submitted to the LTREB program are co-reviewed by participating Clusters in the two participating Divisions, and specifically Ecosystem Science, Population and Community Ecology, and Evolutionary Processes in DEB, and Behavioral Systems and Physiological and Structural Systems in IOS. Proposals must address topics supported by these programs. Researchers who are uncertain about the suitability of their project for the LTREB Program are encouraged to contact the cognizant program director.

Cognizant Program Officer(s):

- Saran Twombly, Program Director, DEB, telephone: (703) 292-8133, email: stwombly@nsf.gov

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

- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 15 to 20 per year

Anticipated Funding Amount: \$2,000,000 pending availability of funds

Eligibility Information

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
 - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: 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/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
 - July 13, 2010
 - July 13, Annually Thereafter
 - January 13, 2011
 - January 13, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

TABLE OF CONTENTS

Summary of Program Requirements

- I. **Introduction**
- II. **Program Description**
- III. **Award Information**
- IV. **Eligibility Information**
- V. **Proposal Preparation and Submission Instructions**
 - A. **Proposal Preparation Instructions**
 - B. **Budgetary Information**
 - C. **Due Dates**
 - D. **FastLane/Grants.gov Requirements**
- VI. **NSF Proposal Processing and Review Procedures**
 - A. **NSF Merit Review Criteria**
 - B. **Review and Selection Process**
- VII. **Award Administration Information**
 - A. **Notification of the Award**
 - B. **Award Conditions**
 - C. **Reporting Requirements**
- VIII. **Agency Contacts**
- IX. **Other Information**

I. INTRODUCTION

Many important questions in organismal biology, ecology, ecosystem science and evolutionary biology can only be addressed with long-term data. Research areas include, but are not limited to, populations or predator-prey systems that oscillate over decades; communities of organisms that have extended life spans and long turnover times; pools of materials such as nutrients in soils that turn over at intermediate to longer time scales; external forcing functions such as climatic cycles that operate over long return intervals; and behavioral dynamics, stress physiology, or energetic condition of long-lived organisms. Investigators often are constrained in addressing questions in these areas or studying these phenomena by the relatively short support periods associated with typical research awards. In recognition of this problem, the Divisions of Environmental Biology (DEB) and Integrative Organismal Systems (IOS) encourage investigators to apply for LTREB awards. These awards are designed to provide the funding to maintain an ongoing, long-term research project for a period of a decade or longer.

Because the usefulness of long-term data sets extends beyond typical scientific publications, a means of sharing data with other investigators should stimulate synthesis and generation of novel ideas. The results also should be of interest to the general public. To take advantage of the unique informational aspects of long-term projects, LTREB investigators will be required to implement mechanisms of data sharing in the broadest manner possible.

II. PROGRAM DESCRIPTION

The NSF seeks to stimulate and enhance long-term perspectives on problems in organismal and environmental biology. Long-term environmental research is funded through two NSF programs—Long-term Ecological Research (LTER) and LTREB. The two programs are different. LTER projects are funded in response to calls for specific proposals, are evaluated by a special panel, and are characterized by multiple investigators conducting multi-disciplinary investigations at large temporal and spatial scales. In contrast, LTREB projects are submitted at semi-annual target dates, evaluated by appropriate programmatic panels (Evolutionary Processes, Population and Community Ecology, Ecosystem Studies) and are initiated by one or a few investigators. Examples of current LTREB awards can be viewed at <http://www.nsf.gov/awardsearch/> by including "LTREB" in a title search.

The LTREB Program now intends to support decadal projects. Funding for an initial, 5-year period requires a full 15 page proposal following the guidelines in the Grant Proposal Guide. A cogent conceptual framework for a decadal research plan is a required and a critical part of the initial proposal. This plan must clearly articulate important questions that cannot be answered with the data in hand, but that could be answered if ten additional years of data were collected. Proposals for renewal of support for a second 5-year period are limited to 8 pages in length and will be evaluated using the standard NSF Merit Review Criteria and three additional

criteria: 1) progress made toward long-term goals during the initial 5-year award, 2) a brief description of planned research activities and 3) evidence that previous data are available to the broader research community.

Projects submitted for LTREB funding must include long-term research and plans for data management and dissemination.

Long-Term Research: The Divisions of Environmental Biology and Integrative Organismal Systems recognize that five years are not adequate to address many pressing questions in organismal and environmental biology. In response, the LTREB Program now encourages decadal research projects. This decadal perspective requires that proposers develop a conceptual framework that spans at least ten years. This framework will be a critical component of an initial 5-year proposal, and questions or hypotheses outlined in this framework must guide any subsequent renewal. At least six years of data must have been collected continuously at an appropriate time interval (for example, monthly or annually) and must be documented to seek LTREB funding. These data should motivate the new questions posed and the decadal research plan provided. Justification must be provided for continuing data collection for at least ten years beyond the initial six-year period. Although most LTREB projects involve field studies, some laboratory projects (for example, long-term selection experiments) may also be suitable for LTREB funding. The approach to data collection must be hypothesis driven. The LTREB Program does not support basic monitoring efforts.

Decadal Research Plan: As described above, this plan should clearly articulate important questions that cannot be addressed with data that have already been collected, but could be answered if ten additional years of data were collected. This plan is not a research timeline or management plan. It is a concise justification for ten additional years of support in order to advance understanding of key concepts, questions, or theories in organismal and environmental biology.

Plan for Data Management and Dissemination: Data from long-term research projects have value beyond the peer-reviewed and other publications generated by the investigators collecting the data. Other researchers may develop new perspectives on the same long-term data or new ideas may arise from a combination of long-term data sets. Also, long-term data are expected to be of special interest to the public. Therefore, all proposals must describe details of information management and plans for data sharing with the broader research community and the interested public.

LTREB Renewals: To implement the decadal time frame intended for LTREB projects, proposals for renewed support during a second, five-year period will be evaluated using the standard NSF Merit Review Criteria and three additional criteria: 1) progress made toward the decadal research plan outlined in the initial five-year award, 2) a brief description of planned research activities to complete this decadal plan, and 3) evidence that previously-collected data (at least 6-11 years) are available to the broader research community. Research activities must address questions or hypotheses that are consonant with the initial decadal research plan. Renewal proposals are limited to 8 pages (project description). Titles for renewal proposals must begin with "LTREB Renewal." The only proposals eligible for submission as an LTREB Renewal are those that continue projects that began via an LTREB award with a decadal research plan. Renewal of LTREB projects beyond ten-years will follow this same sequence: an initial proposal of 15 pages, followed by a renewal proposal of 8 pages.

All proposals submitted to the LTREB Program are co-reviewed by participating Clusters in the Division of Environmental Biology (Ecosystem Science, Population and Community Ecology, and Evolutionary Processes) and the Division of Integrative Organismal Systems (Behavioral Systems, Physiological and Structural Systems). Proposals must address topics supported by these programs. Researchers are strongly encouraged to contact cognizant program officers to ensure that their projects are appropriate for this program.

Ecological research on marine populations, communities and ecosystems is not supported by LTREB and should be directed to the Biological Oceanography Program: (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11696&org=OCE). However, proposals addressing long-term questions focused on marine organisms that are consonant with areas of research supported by the Behavioral Systems Cluster and the Physiological and Structural Systems Cluster in IOS are appropriate for LTREB. Investigators who are uncertain about the suitability of their research for LTREB are encouraged to contact one of the managing program officers listed in this solicitation.

III. AWARD INFORMATION

LTREB awards are not to exceed \$90,000 per year (direct and indirect costs) and \$450,000 over a 5-year (60 month) effort. NSF anticipates making 15-20 awards annually for a total of \$2,000,000 pending availability of funds. Involvement of undergraduate and graduate students is encouraged. Researchers may request up to one month of salary per year. These requests must be justified carefully and proposers are encouraged to contact the cognizant program officer prior to proposal development. Because data management is a key aspect of these research projects, it is expected that the proposed budget will reflect the establishment or periodic upgrading of information technology to provide for data sharing with other researchers and the general public. In general, funds will not be provided to purchase major equipment. Under unusual circumstances, the purchase of major equipment (over \$5,000) will be entertained if these expenses are well justified. Support from the LTREB Program does not preclude support from other NSF programs.

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

IV. ELIGIBILITY INFORMATION

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the [Grant Proposal Guide](#), Chapter I, Section E.

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

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 nsfpubs@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/publications/pub_summ.jsp?ods_key=grantsgovguide). 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 nsfpubs@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.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

The following information provides instructions that supplement the GPG and the NSF Grants.gov Application Guide.

Program Solicitation Number: FastLane Users: Select the LTREB program solicitation from the drop-down menu. Note: solicitation number is found on the coversheet of this document. Grants.gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.

Project Title: The project title must begin with 'LTREB:', followed by the substantive title.

Project Description (maximum 15 pages, including Results from Prior NSF Support for PI and all co-PIs): The proposal should address the following three themes in the Project Description or where otherwise indicated.

Conceptual Issues. Proposals must address critical concepts in understanding long-term (decadal or longer) patterns and processes in organismal and environmental biology. Clearly defined hypotheses must guide the research. These hypotheses must be motivated by at least 6 years of data already collected on the study system or organism, and must be grounded in appropriate concepts or theory.

Core Data Set. A feature central to all successful LTREB projects is a set of core data that are already being collected continually in the laboratory or at an existing site or sites. Proposals should clearly indicate what core data have been collected, how long they have been collected, if they will continue to be collected, and how these data motivate the questions addressed in the proposal. Proposed modifications to these core data _ for example, the addition of new sites or the initiation of a new manipulation _ must be consistent with and complementary to the long-term data collection. New study sites or new manipulations will be considered if they do not compromise the integrity of the long-term data set, and if their justification is consonant with the long-term rationale for the study. Questions concerning the appropriateness of an existing data set as the basis for an LTREB proposal should be discussed with the cognizant NSF Program Officer prior to proposal development. The LTREB Program does not provide support solely for the analysis of long-term historical data.

Decadal Research Plan: The Project Description must include a specific section that identifies questions or hypotheses that require an additional 10 years of investigation to be answered. Although many research questions benefit from long-term data, LTREB intends to support only those studies that require long-term data. Investigators must demonstrate that the questions posed cannot be answered with data already in hand, or with data collected from typical three-to-five-year awards made by core programs. The decadal research plan should provide the overarching motivation for the initial 5-year investigation as well as for a 5-year renewal.

Data Management and Dissemination: Long-term data are a valuable resource that can stimulate and support investigations well beyond the scope of the initial study. The value of these data depends on their availability, along with the availability of associated metadata. It is NSF's policy that data collected as part of an LTREB-funded project must be made available to other researchers and to the general public within two years of their collection. LTREB proposals must include a section that clearly articulates how and where data will be archived, how they will be made available to the broader scientific community, and how future access to the data will be guaranteed. As data maintenance is an iterative process, the information technology used should have sufficient flexibility to allow periodic updates. Proposers may wish to consult with the cognizant program officer on the best manner in which to achieve this component of the project.

Renewal. To implement the decadal time frame intended for LTREB projects, proposals for renewed support during a second, five-year period will be evaluated using the standard NSF Merit Review Criteria and three additional criteria: 1) progress made toward long-term goals during the initial five-year award, 2) a brief description of planned research activities, and 3) evidence that previously-collected data (at least 6-11 years) are available to the broader research community. Research activities must address questions or hypotheses that are consonant with the initial decadal research plan. Renewal proposals are limited to 8 pages (project description). Titles for renewal proposals must begin with "LTREB Renewal." The only proposals eligible for submission as an LTREB Renewal are those that continue projects that began via an LTREB award with a decadal research plan. Renewal of LTREB projects beyond ten-years will follow this same sequence: an initial proposal of 15 pages, followed by a renewal proposal of 8

pages.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations: Proposals will be limited to \$90,000 per year and a total of \$450,000 over five years.

C. Due Dates

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

July 13, 2010

July 13, Annually Thereafter

January 13, 2011

January 13, Annually Thereafter

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 where they will be reviewed if they meet NSF proposal preparation requirements. 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 of interest with the proposal.

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, original, or potentially transformative 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?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

NSF staff also 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.

Additional Review Criteria:

In evaluating proposals against the two standard review criteria established by the National Science Board, reviewers will look for convincing responses to the three required components of an LTREB project: (1) Core data - at least six years of data collected by the investigator at the time of submission. (2) A compelling decadal research plan; and (3) A plan for data management and dissemination to other researchers and the general public.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review 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.

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 deadline or target date, or receipt date, whichever is later. 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 Research 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/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

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

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, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report 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. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Saran Twombly, Program Director, DEB, telephone: (703) 292-8133, email: stwombly@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@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, National Science Foundation Update is a free e-mail subscription service 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 when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the [NSF web site](#).

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.

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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:**

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

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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.

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