Assembling the Tree of Life (ATOL)

Program Solicitation
NSF 08-515

Replaces Document(s):
NSF 07-535

National Science Foundation

Directorate for Biological Sciences

Directorate for Geosciences

Directorate for Computer & Information Science & Engineering

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

March 14, 2008

REVISION NOTES

Revisions to NSF 07-535 include extension of the competition for 2008 and minor edits to clarify the text.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Assembling the Tree of Life (ATOL)
To construct an evolutionary history for all species of life.

Synopsis of Program:

A flood of new information, from whole-genome sequences to detailed structural information to inventories of earth's biota to greater appreciation of the importance of lateral gene transfer, is transforming 21st century biology. Along with comparative data on morphology, fossils, development, behavior, and interactions of all forms of life on earth, these new data streams make even more critical the need for an organizing framework for information retrieval, analysis, and prediction. Phylogeny, the genealogical map for all lineages of life on earth, provides an overall framework to facilitate information retrieval and biological prediction. Currently, single investigators or small teams of researchers are studying the evolutionary pathways of heredity usually concentrating on taxonomic groups of modest size. Assembly of a framework phylogeny, or Tree of Life, for all 1.7 million described species requires a greatly magnified effort, often involving large teams working across institutions and disciplines. This is the overall goal of the Assembling the Tree of Life activity. The National Science Foundation announces its intention to continue support of creative and innovative research that will resolve evolutionary relationships for large groups of organisms throughout the history of life. Investigators also will be supported for projects in data acquisition, analysis, algorithm development and dissemination in computational phylogenetics and phyloinformatics.

Cognizant Program Officer(s):

- AToL Working Group, telephone: (703) 292-8480, email: BIO-atol@nsf.gov
- Patrick Herendeen, 635 N, telephone: (703) 292-7184, email: pherende@nsf.gov

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

- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 3 to 6 awards anticipated in Fiscal Year 2008

Anticipated Funding Amount: $12,000,000 is the anticipated budget available to the program in FY 2008, pending the availability of funds. Each award, whether single-institution or collaborative project, may range up to $3 million total, for durations up to five years.

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/bfa/dias/policy/docs/grantsgovguide.pdf)

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **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 14, 2008

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: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Darwin's vision of the "great Tree of Life ... with its everbranching and beautiful ramifications" has challenged scientists and others for generations. Darwin's use of tree imagery inspired efforts to classify all the major groups of organisms, and to reveal the pattern of historical relationships that would explain the similarities and differences among them. Phylogenetic knowledge, by virtue of its explanatory power, has proven useful in many fields, such as choosing experimental systems for biological research, tracking the origin and spread of emerging diseases and their vectors, bioprospecting for pharmaceutical and agrochemical products, preserving germplasm, targeting biological control of invasive species, and evaluating risk factors for species conservation and ecosystem restoration. Currently, the large-scale features of life's genealogy have been captured in the three-domain model of Archaea, Bacteria, and Eukaryota, but relationships of many groups of organisms remain unanalyzed and unresolved. Patterns of phylogeny within the domains and within most phyla, the extent of web-like reticulate connections among lineages, and the tempo and mode of evolutionary change remain unknown for most species on earth.

Despite the enormity of the task, with 1.7 million described species and the likelihood of vastly more yet to be discovered, now is the time to reconstruct the tree of life: the conceptual, computational and technological tools are available to resolve most, if not all major branches of the tree of life. At the same time, progress in many disciplines from genomics to evolution and development is currently hampered by the lack of a rigorous phylogenetic framework to guide research. Researchers in biological and computational fields have recognized both the need and the potential for success and have called for a national and international effort to Assemble the Tree of Life. There are three general goals:

1. To scale up the numbers of taxa and data sets beyond current practice with an emphasis on acquisition and integration of molecular, morphological, and physiological evidence on extant and extinct organisms in order to resolve phylogenetic relationships of large taxonomic groups. This includes support of research to understand the role and importance of lateral gene transfer and reticulation in evolutionary history;

2. Research on and development of tools for computational phylogenetics and phyloinformatics. These projects might include the archiving and managing of phylogenetic data, matrices, trees and networks; collaborative work environments for large scale systematics; software development to improve construction, visualization and navigation of the Tree of Life; assessment of empirical support and uncertainty in trees and networks; and exploration of the predictive capabilities of hierarchical structure in the Tree of Life; and

3. Outreach and education in comparative phylogenetic biology and paleontology, emphasizing new training activities, informal science education, and Internet resources and dissemination.

For examples of successful proposals for meeting these goals, the awards for the Assembling the Tree of Life program can be accessed at http://www.nsf.gov/bio/award.htm.

II. PROGRAM DESCRIPTION

Projects for Assembling the Tree of Life are expected to be ambitious, large scale, and when appropriate to involve multiple investigators from multiple disciplines, likely from multiple organizations, and to include training, outreach, and dissemination components. Tree of Life projects that are taxon-oriented will focus on phylogenetic resolution of large lineages or clades; this taxon focus is not intended to deflect interest in and attention to theoretical or analytical issues, particularly when the clade under study raises critical questions about the suitability or power of current phylogenetic methods of analysis, such as complexities caused by reticulate evolution and lateral gene transfer. In addition to hypothesis-driven work, Tree of Life projects may also be method or theory-oriented, in which case they will address major analytical or computational problems in phylogenetic research and phyloinformatics. The taxon-focus and method-focus approaches described here are intended for guidance only, and not as constraints on innovative projects for Assembling the Tree of Life.

Tree of Life projects that are taxon-oriented should address the following issues:

- the taxonomic scope of research, with justification for the proposed large-scale approach beyond the scope of current single-investigator or small-team projects, as well as summaries of current classification (including identification of specialists in the taxa) and current phylogenetic knowledge of the group and closest relatives, fossil record and its concordance with patterns of evolutionary divergence, major collections or stocks or cultures and their availability for the study, and Internet resources relevant to these organisms;
- comprehensive plans for sampling and data collection, including choice of taxa and samples, types of data (genomic, morphological, other phenotypic data), retrospective data capture, procedures for acquisition and quality control for new data especially automatic or high-throughput data, curation and vouchering of specimens and cultures (and extracts, images, etc.), and databasing of observations and associated specimens and cultures with appropriate annotation and Internet access; and

- description and justification of data analyses, with specific plans for dissemination of results, and including attention to tree-search criteria, data combinability and congruence, strategies for handling large data sets and for concatenating trees (if necessary), evaluation of tree robustness and of alternative topologies or networks, and archiving of datasets (specimens, characters, nomenclature, trees, character-by-taxon matrices), along with description of computer and software resources and expertise available to the project. Knowledge of, contribution to, and explicit coordination with appropriate major global database and portal efforts to disseminate taxonomic data are expected.

Tree of Life projects that are method or theory-oriented should address the following issues:

- description and justification of research in computational phylogenetics and phyloinformatics, on problems such as data acquisition and management, alignment and analysis of gene order, combinability of data whether genomic or morphological or both, tree-search or network strategies with very large datasets, measures of robustness and support, methods for linking or concatenating trees ("supertrees"), evaluating molecular clock estimates, integrating fossil evidence, and assessing empirical support and alternative topologies; hardware and software resources required for the project should be described, with plans for dissemination of products developed from the project;
- description and plans for archiving and managing data, trees, networks and associated character matrices and analytical methods from completed or ongoing phylogenetic projects, including development of efficient Internet tools for data submission from researchers in the community or other sponsors of phylogenetic research results; current NSF awardees conducting phylogenetic research are identifiable from the FastLane award abstracts posted on the NSF website (http://fastlane.nsf.gov/);
- development of software for phylogenetic reconstruction, navigation, visualization, and query throughout the hierarchy of the Tree of Life and for data mining of associated character-by-taxon matrices developed as part of the project or available in other biological databases; and
- development of databases of taxonomic or clade-based names, including names at upper ranks of the formal hierarchies, with associated taxonomic synonyms and vernacular equivalents in the major international languages, to facilitate sophisticated query and data mining functions; this activity should be closely coordinated with global efforts in this area and should include the use of globally recognized data standards, with appropriate metadata, and service, or update to, at least one major electronic database or portal. Broad coordination with multiple providers is strongly encouraged.

Regardless of approach taken, whether taxon-oriented or method-oriented, a mix or otherwise, all proposals for Assembling the Tree of Life should address the following issues including submission of a Management Plan:

- training and outreach activities, including field, laboratory, and/or museum experience for trainees, as well as communication among team members and expansion of the group if justified, integration with colleagues not formally part of the group whether national or international, and efforts to disseminate results to the public as well as to scientific communities. Hosting of workshops and other service activities are encouraged, to disseminate best-practices resulting from the project, new software, and other products. Activities designed to encourage participation of investigators at small institutions, minority serving institutions, community colleges, and secondary school teachers are encouraged; and
- a Management Plan should identify personnel responsible for all major tasks with time-scheduling across all members of the team for the duration of the project, with annual milestones for judging productivity and progress; describe curatorial, computational, sequencing, and informatic facilities and resources; describe the database schema, if databases are being created as part of the project, including database design and metadata standards, interface for Internet query, and plans for maintenance beyond the duration of the grant, with identification of personnel charged with technical design and implementation; and describe plans for coordination with foreign-based projects on the same or related organisms. The Management Plan may be up to 5 pages in length and is in addition to the 15-page Project Description, and should be submitted in the Supplementary Documentation section of FastLane. For Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. Three to six awards are anticipated in FY 2008, made as standard or continuing grants, from the anticipated $12 million in FY 2008 available to the program. Each award, whether single-institution or collaborative project, may range up to $3 million total, for durations up to five years.

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 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.

The following instructions supplement GPG or NSF Grants.gov Application Guide guidelines.

Results from Prior NSF Support:
Be aware that if any PI or co-PI on the project has received NSF funding in the past five years, information on the prior award (s) is required. Each PI and co-PI who has received more than one prior award (excluding amendments) must report on the award most closely related to the proposal. The information required is described in the GPG and the NSF Grants.gov Application Guide. Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. Please note that the proposal may devote up to five pages to describe the results, within the maximum 15 pages of

Project Description. Results may be summarized in fewer than five pages, which would leave the balance of the 15 pages for the Project Description.

Management Plan for Assembling the Tree of Life:
A Management Plan, up to 5 pages maximum, as described in the Program Description, should be included in the Supplementary Documentation section of the FastLane proposal. For Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form. This section, therefore, is in addition to the 15 pages of Project Description in the proposal, and should be coordinated with the research and education activities therein described.

Coordination among Projects for Assembling the Tree of Life:
If phylogenetic research on the chosen group of organisms is already funded by another NSF award (check the NSF FastLane website for award listings), the PI will be asked to provide a plan for coordinating activities with the funded project. If two or more proposals with substantially overlapping goals and scope remain in consideration for funding after initial merit review, the PIs of those proposals may be asked to collaborate, and to submit a coordination plan prior to the final funding decision.

International Opportunity:
The Tree of Life activity encourages laboratory-to-laboratory interactions between U.S. and foreign organizations to address Tree of Life goals. NSF funds may be requested to support foreign investigators and students to work in U.S. laboratories, and for U.S. investigators and students to work in international laboratories. However, foreign counterparts should secure support for their projects from their own national programs.

A "Conflicts of Interest" Document:
A "Conflicts of Interest" document must be included in the "Additional Single Copy Documents" section of the proposal. Include a table, in the format shown below, that lists the names of persons with conflicts of interest for all senior personnel (PI and co-PIs) and any named personnel whose salary is requested in the project budgets. Conflicts to be identified are: (1) Ph. D. thesis advisor or advisee; (2) postdoctoral adviser or advisee for the previous 48 months; (3) collaborators or co-authors for the past 48 months; and (4) any other individual or organization with which the investigator has financial ties (please specify). Organize the information as shown in the sample table here; list full names in each column in alphabetical order.

Last Name	First Name	Institution	Conflict Type
Apple	Alison A.	Reed College	Ph.D. advisor for (Name)
Barley	Barry B.	Brown Institute	Collaborator for (Name)
Raspberry	Rudy R.	White University	Financial ties with co-PI2 (Name)

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.

C. Due Dates

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

  March 14, 2008

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.

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:

Reviewers will look for sound and imaginative responses to the Program Solicitation and will judge the degree to which proposed activities meet the overall goals for Assembling the Tree of Life. Reviewers will also pay close attention to the Management Plan, and they will take note of efforts to engage current taxonomic specialists in the phylogenetic research proposed for the organisms under study.

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 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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions: For awards that include specimen collection activities, the awardee shall ensure that award activities carried on both inside and outside the U.S. and its territories and possessions are coordinated, as necessary, with appropriate Government authorities, and that appropriate licenses, permits, or approvals are obtained prior to undertaking proposed activities. NSF does not assume responsibility for awardee compliance with the laws and regulations of the country in which the work is to be conducted.

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.

The Principal Investigator shall provide a summary in the "Special Requirements" section of each annual and final project report, of all permits, licenses, or other necessary approvals associated with specimen collection. The information should include the names of all permits/licenses/necessary approvals, the granting authority, date acquired, duration, and the purpose of the permit/license/approval.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- AToL Working Group, telephone: (703) 292-8480, email: BIO-atol@nsf.gov
- Patrick Herendeen, 635 N, telephone: (703) 292-7184, email: pherende@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, 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.

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