Ship-based Science Technical Support in the Arctic (STARC)

Augmenting Science Support on the USCGC *Healy* and USCGC *Polar Sea*

PROGRAM SOLICITATION
NSF 10-594

National Science Foundation

Office of Polar Programs
Division of Arctic Sciences

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

November 08, 2010

IMPORTANT INFORMATION AND REVISION NOTES

Please be advised that the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) includes guidelines implementing the mentoring provisions of the America COMPETES Act (ACA) (Pub. L. No. 110-69, Aug. 9, 2007.)   As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: *Grant Proposal Guide* Chapter II for further information about the implementation of this requirement).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Ship-based Technical Support in the Arctic
Augmenting Science Support on the USCGC *Healy* and USCGC *Polar Sea*

Synopsis of Program:

This solicitation is for proposals to enhance marine science and technical services provided to NSF-supported research cruises on U.S. Coast Guard cutters *Healy* and *Polar Sea*. U.S. Coast Guard (USCG) provides basic services that will be augmented by the awardee to the level provided by the University-National Oceanographic Laboratory System (UNOLS) for supporting academic research. This solicitation is for an awardee to perform two primary functions: 1) to plan, coordinate and deliver science technical support onboard *Healy* and *Polar Sea*, augmenting the role of the USCG marine science technicians and 2) to coordinate with NSF, USCG and the academic community to provide for the operation, maintenance and upgrade of science equipment installed or used on *Healy* and *Polar Sea*. The awardee is expected to coordinate support among qualified providers as appropriate for specific cruises, utilizing the capabilities and equipment available through the UNOLS system. Ship-based science support will be planned and provided in close coordination with the research teams and USCG personnel with input and approval from NSF.

Cognizant Program Officer(s):

- Renee D. Crain, telephone: (703) 292-4482, email: rcrain@nsf.gov

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

- 47.078 --- Office of Polar Programs

Award Information

Anticipated Type of Award: Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 1   One award for 3 years as a continuing grant or cooperative agreement to a lead institution or a collaborative proposal involving multiple institutions.

Anticipated Funding Amount: $300,000 to $600,000 per year, subject to availability of funds. The funding amount is given as a range because the annual funding amount will be based on support requirements of funded research projects for each annual period of performance and availability of funds. After the first year, the funding request will be proposed by the awardee and agreed to by NSF through an annual program plan.

Eligibility Information

Organization Limit:

> Proposals may only be submitted by the following:

> - U.S. institutions or organizations.

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:** 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):

    November 08, 2010

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.

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I. INTRODUCTION

The Arctic Sciences Division supports ship-based research in the Arctic in all aspects of oceanography and marine science as individual projects or organized research efforts. The USCGC *Healy* was commissioned for active service in 2000 and was designed to support research in the Arctic. It has supported approximately 3-4 projects per year during the arctic summer season, March-October, funded by NSF, NOAA, NASA, USGS, ONR and other agencies. Its capabilities are described in greater detail on the USCG website http://www.uscg.mil/pacarea/healy/ and a science support website for the USCG http://icefloe.net/.

Requests for ship time on *Healy* are made through the University-National Oceanographic Laboratory System (UNOLS) ship time request system http://www.unols.org. The Arctic Sciences Division collaborates with USCG to schedule and manage the icebreakers in collaboration with other federal agencies and involving the research community through the Arctic Icebreaker Coordinating Committee (AICC), a subcommittee of UNOLS. In conjunction with USCG and the AICC, NSF has supported development of the scientific capabilities of *Healy*. The awardee will work with USCG, NSF, other agencies and AICC to identify and implement improvements to the technical systems that support science in addition to proving science technical support during cruises.

II. PROGRAM DESCRIPTION

The Arctic Sciences Division seeks proposals to provide two main functions: 1) to plan, coordinate and deliver science technical support onboard *Healy* and *Polar Sea*, augmenting the role of the USCG marine science technicians and 2) to coordinate with NSF, USCG and the academic community to provide for the operation, maintenance and upgrade of science equipment installed or used on *Healy* and *Polar Sea*.

The number of cruises supported by the Arctic Sciences Division varies each year based on funded proposals. Historical data about the duration and scope of work on past cruises is available on the icebreaker cruise planning website, http://www.icefloe.net. Because other agencies like NOAA, USGS and NASA fund cruises on the USCG icebreakers, NSF expects that these agencies will request services provided by the awardee on a cost-reimbursable basis to NSF. To provide a scope of work for proposers to respond to, the awardee may anticipate supporting 4 cruises per year for a total of 112 days conducting oceanographic and marine science research on *Healy*. *Polar Sea* is used less frequently, so proposals should anticipate supporting one 14-day cruise.

Three technicians are typical to operate all underway systems, plus an additional person that may be needed onshore for data management for all cruises. The awardee should plan to have technical staff available for shakedown and transit cruises to the Arctic prior to the field season for a total of 14 days, depending on the area of research focus. Key personnel should also plan to attend pre-cruise planning meetings with the ship, routine telephone calls with USCG or UNOLS organizations and post-cruise debrief teleconferences. These parameters are intended to simplify the proposal budget development and to outline an expected scope of work. Services provided onboard will include operation of all "Standard" equipment and systems described below. Those support services described as "Other" will vary depending on the nature of the cruise and are not necessary to include in your proposal budget for the purpose of this review.

The awardee will work closely with the chief scientist and other participating researchers to provide an appropriate level of cruise support. The types of support will vary from cruise to cruise, aspects of which are noted below. NSF anticipates that no single institution will provide all the ship-based technical support, but rather that the awardee will work with the academic research community to coordinate services from established providers. The awardee should provide pre-cruise planning, deliver support during cruises, provide underway data to approved data archives, and provide information for the chief scientist's post-cruise report. The awardee will participate in cruise debriefs conducted by the AICC to address concerns of the research team or ship. Because Arctic cruises may be supported by vessels other than the USCG icebreakers, the awardee may be requested to coordinate with other vessel operators and the chief scientist to share or transfer equipment.

The awardee will work with NSF, AICC, USCG and the academic community to define program needs and priorities for maintenance and upgrades to ship-based science support capabilities. To accomplish that, the awardee is expected to participate in meetings of the AICC and other UNOLS committees such as Research Vessel Operators Committee (RVOC) and Research Vessel Technical Enhancement Committee (RVTEC) and to work with the engineering and operations staff of *Healy* and with NSF.

More information about UNOLS institutions, pooled equipment, research vessels and UNOLS committees is available on the UNOLS website at http://www.unols.org/. Additional information about science support on the USCG icebreakers is available from the science liaisons, for *Healy* Dave Forcucci (David.Forcucci@uscg.mil) and for *Polar Sea*, Phil McGillivary (philip.a.mcgillivary@uscg.mil).

Planning, Coordination and Reporting

Ship time requests for use of the U.S. Coast Guard icebreakers are submitted by researchers through the UNOLS request system and will be copied to the awardee. NSF will notify the awardee when projects are funded to initiate their detailed planning process. When funding decisions are made, USCG develops the icebreaker schedules in collaboration with NSF and other agencies. The awardee will work with NSF during this planning phase of each arctic field season. As an additional service, researchers during the proposal stage or NSF may request that the awardee develop a budget estimate for proposed work to inform proposal review. This may include 5-10 estimates for cruise support.

An annual program plan will be due on **January 15** of each year detailing the planned technical support for scheduled cruises and related science technical support activities for review and approval by NSF. This will form the basis for each year's activities with adjustments negotiated as needed between NSF and the awardee. Each year after the first year, an annual report should accompany the program plan. The report should summarize major activities and accomplishments and include a government-recognized performance metric of the number of days of service lost due to the organization's performance. Other performance metrics may be included as well.

Science Support on *Polar Sea*:

Polar Sea is used less frequently to support research cruises but may be requested for mooring cruises or research in heavy ice. Because installed instrumentation onboard *Polar Sea* is limited, cruises may require borrowing or deploying over the side, equipment that is portable to make oceanographic measurements. Proposals should address the operation of the Bathy 2010 echo sounder and

the Knudsen 320 sub-bottom profiler on *Polar Sea*. In addition, the measurements from the acoustic equipment, ship position and ice imagery provided by the National Ice Center should be integrated into a real-time map server for use by scientists and the ship.

Science support on *Healy* includes, but is not limited to:

Acoustic Equipment

Proposals should address operational support of the ADCP, multibeam sonar and Knudsen 320 sub-bottom profiler onboard *Healy*. The awardee will operate these instruments almost continuously while underway. The successful proposer should present a staffing plan and approach for collecting and distributing data from these and other underway measurements and for providing spatial data services such as real-time bottom mapping and georeferencing satellite imagery of ice conditions.

Hydrographic systems

A mainstay of arctic research includes collecting essential oceanographic data. The awardee will provide support to operate and manage onboard hydrographic systems. These systems include CTD rosettes, thermosalinograph, salinometer, and other devices that may be required for oceanographic studies.

Meteorological systems

The awardee will operate the science meteorological systems available on *Healy* and provide a plan to maintain and configure meteorological sensors in support of research. *Healy's* systems include photosynthetically active radiation (PAR), long and shortwave radiation, air temperature, barometric pressure, precipitation, and anemometers.

Navigation systems

Onboard *Healy*, the POS-MV inertial navigation system requires configuration and maintenance from the science support provider. GPS systems are maintained by the USCG. The awardee will operate the Terascan remote sensing satellite data receiving system. USCG supports the maintenance and configuration of the Terascan system. The awardee will provide onboard GIS support for displaying Radarsat and Terascan satellite images, georeferencing these images to the ship's location and inputting science underway data collection and station data for the science team.

Information Technology and Data

The USCG operates and maintains an onboard science network and science data logging and provides ship-board email addresses for email access. Underway connectivity is limited to two hours per day with small data transmissions via INMARSAT and Iridium. The awardee will work with USCG on IT solutions for research teams. Proposals may include new approaches to provide better connectivity for science teams on board *Healy*. Proposals should include an approach for disseminating underway data to science teams immediately following cruises. Underway measurement data should be quality assured, quality controlled and submitted to relevant NSF-recognized data archives following each cruise.

Other Ship-based Support includes, but is not limited to:

Coring

The awardee will coordinate coring support for research cruises as required. A Jumbo Piston Corer (JPC) purchased for *Healy* is managed by Oregon State University for storage and maintenance and is typically operated by OSU technicians. In addition the awardee may need to plan for other coring in support of research.

The awardee will gather requirements from funded research projects and plan to meet those requirements. In addition to operating the above equipment onboard *Healy*, the awardee may be required to provide or arrange support that includes but is not limited to the following:

- assisting with mooring deployment or recovery
- arranging and coordinating the use of general or special purpose vans
- ensuring proper handling and disposal of hazardous or radioactive material
- assisting with deployment and recovery of autonomous vehicles
- arranging scientific diving
- designing and implementing active seismic systems
- conducting environmental assessments, consultations and permitting activities
- engineering on-deck flow-through sea water systems
- assisting with requirements gathering for helicopter services in support of research
- other tasks as needed

The awardee should provide key personnel who will work with USCG and the chief scientist to determine the cruise requirements. To meet these requirements, services may be provided directly by the awardee or coordinated by the awardee utilizing other institutions that are equipped and experienced at providing aspects of cruise support required. The Arctic Sciences Division is interested in making use of existing infrastructure and institutions and technicians with expertise in relevant aspects of cruise support.

The proposal should describe an approach to gathering researcher requirements and planning to support the requests. The proposal may include a work breakdown structure, describe the approach to providing cruise support, describe the roles and responsibilities of personnel or entities involved, and should include metrics for how the service provider will assess their performance. The proposal should also address aspects of planning and overseeing maintenance and upgrades to science equipment on *Healy* and *Polar Sea* in collaboration with USCG, NSF and the research community.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Cooperative Agreement

Estimated Number of Awards: One award for 3 years as a continuing grant or cooperative agreement to a lead institution or a collaborative proposal involving multiple institutions.

Anticipated Funding Amount: $300,000 to $600,000 per year, subject to availability of funds. The funding amount is given as a range because the annual funding amount will be based on support requirements of funded research projects for each annual period of performance and availability of funds. After the first year, the funding request will be proposed by the awardee and agreed to by NSF through an annual program plan.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- U.S. institutions or organizations.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Additional Eligibility Info:

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.

Principles for the Conduct of Research in the Arctic

Proposers should observe the Principles for the Conduct of Research in the Arctic http://www.nsf.gov/od/opp/arctic/conduct.jsp. Proposers may also find helpful the "Guidelines for Improved Cooperation between Northern Communities and Arctic Researchers" (http://www.arcus.org/guidelines).

The Arctic Research Support and Logistics (RSL) program was created, in part, to enhance access, safety and interactions with arctic communities. Accordingly investigators are encouraged to propose effective and efficient use of logistics resources to achieve research goals and to cooperate with communities near field research sites.

Relevant Organizations

The University-National Oceanographic Laboratory System (UNOLS) includes pooled, university operated equipment to meet specific research needs. UNOLS equipment may be requested for science support onboard Healy.

When private aircraft are required for science support, NSF works with the Aviation Management Directorate (AMD) at the Department of the Interior (DOI), which coordinates contracting for federal aviation support.

NSF's prime arctic logistics contractor is CH2M Hill Polar Services (CPS; http://www.polar.ch2m.com/). CPS may be involved in some aspects of marine research projects, but does not typically provide ship-based support services.

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):

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:

Proposals responding to this solicitation are to provide science technical support to funded research projects on the USCG icebreakers *Healy* and *Polar Sea*. Accordingly, the intellectual merit of the proposal may be somewhat different than that in most research proposals. Intellectual merit will be reflected in proposing an organized approach to providing science support or coordinating service providers to meet requirements of funded research projects. Broader impacts of this support proposal will likely focus on services provided to a community of researchers, but may also include education, training and outreach in fields relevant to marine sciences.

Meritorious proposals will:

- Describe an approach to gathering detailed science support requirements, planning, and providing ship-based science technical support.
- Describe what aspects of science support will be provided directly and which aspects will be coordinated with other institutions and how this coordination will be managed successfully.
- Include metrics for measuring their success at providing research support and improving on their performance.
- Include approaches to participate in ship scheduling meetings, AICC meetings and other relevant meetings.
- Leverage the investment NSF has made in developing the UNOLS pool of equipment, services and expertise as appropriate.
- Include an approach for managing the maintenance and upgrade of science equipment in collaboration with USCG, NSF and the research community.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by 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:

- Renee D. Crain, telephone: (703) 292-4482, email: rcrain@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.

Additional information regarding science support onboard USCG *Healy* is available from Dave Forcucci, Science Liaison for *Healy*, at dforcucci@pacnorwest.uscg.mil.

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

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