Oceanographic Facilities and Equipment Support

PROGRAM SOLICITATION
NSF 13-589

REPLACES DOCUMENT(S):
NSF 04-052

National Science Foundation

Directorate for Geosciences
Division of Ocean Sciences

Full Proposal Target Date(s):

November 15, 2013

November 15, Annually Thereafter

Ship Operations

November 15, 2013

November 15, Annually Thereafter

Oceanographic Technical Services

December 16, 2013

December 15, Annually Thereafter

Oceanographic Instrumentation

December 16, 2013

December 15, Annually Thereafter

Shipboard Scientific Support Equipment

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

Proposals Accepted Anytime

Ship Acquisition and Upgrade: Contact Program

Proposals Accepted Anytime

Other Facility Activities: Contact Program

IMPORTANT INFORMATION AND REVISION NOTES

If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Proposals that do not provide the necessary information may not be accepted or may be returned without review.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

Program Title:

Oceanographic Facilities and Equipment Support

Synopsis of Program:

Oceanographic facilities and equipment are supported by the Integrative Programs Section (IPS) of the Division of Ocean Sciences Division (OCE), Directorate for Geosciences (GEO). These awards are made for the procurement, conversion and/or up-grade, enhancement or annual operation of platforms in the ocean, coastal, near-shore and Great Lakes. Awards are generally directed specifically to support facilities that lend themselves to shared use within the broad range of federally-supported research and education programs. Most of these platforms and facilities also receive partial support from federal agencies other than NSF. This includes state and local governments and private sources on a proportional basis; usually through a daily rate mechanism. The primary objective of these awards is to ensure the availability of appropriate facilities for federally-funded investigators and educators. Individual project-

based facilities and instrumentation, limited to one, or a small group of investigators, should be supported through appropriate research programs as opposed to the IPS programs listed herein.

The individual programs covered within this solicitation include:

1. Ship Operations (Ship Ops)
2. Oceanographic Technical Services (OTS)
3. Oceanographic Instrumentation (OI)
4. Shipboard Scientific Support Equipment (SSSE)
5. Ship Acquisition and Upgrade (SAU)
6. Other Facility Activities (OFA)

Ship Operations (Ship Ops): Ship Ops provide support for costs arising from the operation and maintenance of academic research vessels. Allowable costs include salaries and related expenses of crew members and marine operations staff; acquisition of minor or expendable equipment; maintenance, overhaul and repairs; insurance; and direct operating costs such as fuel, food, supplies, travel, and pilot and agent fees. Shore-side facilities and support costs are provided only to the extent that they relate directly to ship operations. Ship Operations support requests must be directly attributable to NSF-sponsored science.

Oceanographic Technical Service (OTS): The OTS Program provides support to enhance the scientific productivity of research programs using major facilities, primarily research vessels. Effective use of such facilities is enhanced by providing institutional technical support services to all users of an institution's facilities. Allowable costs include salaries and related expenses, maintenance and calibration of sensors and instrumentation, and travel. Services provided include quality assurance, scheduling of technical support, logistical assistance, and at-sea supervision of the instrumentation and shared-use equipment available to sea-going researchers. Like Ship Operations, Technical support requests must be directly attributable to NSF-sponsored science.

Oceanographic Instrumentation (OI): The OI Program provides support to enhance the scientific capabilities and productivity of seagoing research projects that use major facilities, primarily research vessels. Proposals for shared-use instrumentation may include items for the collection, processing and analysis of oceanographic data. Typical items which qualify are sensors, acoustic systems, data loggers, water sampling rosettes, biological net systems, coring equipment and auto-analyzers. Requested instrumentation must be justifiable in terms of multi-project cooperative utilization.

Shipboard Scientific Support Equipment (SSSE): The SSSE Program provides support to improve safety and enhance scientific capabilities and productivity of seagoing research programs that use major facilities, primarily research vessels. Proposals may include requests for either new permanent or portable equipment required to outfit a vessel to conduct oceanographic research and overhaul of equipment funded under this program including such items as science handling systems (winches, frames, cranes, etc.), the entire range of navigation and communication equipment, and safety and regulatory-related items. This program also provides support for the UNOLS equipment pools (wires, vans and winches). Requests for both replacement and installation of new equipment may be submitted.

Ship Acquisition and Upgrade (SAU): In coordination with interagency agreements and broader Academic Fleet modernization requirements, OCE periodically makes awards for the acquisition, design and construction, modification (either capability enhancement or Service Life Extension), or conversion of research vessels. These awards are dependent upon the availability of funds appropriated for this purpose and are made only on strong evidence of scientific need for a new or reconditioned vessel.

Other Facility Activities (OFA): OCE supports specialized facility operations (i.e. Deep Submergence), University-National Oceanographic Laboratory System (UNOLS) functions, workshops and other facilities enhancement and developmental activities. All projects must focus on shared-use capabilities for the ocean science research community.

Compliance with the UNOLS *Research Vessel Safety Standards* (RVSS) is mandatory under these programs and will be more fully described in the cooperative agreement or grant terms and conditions.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Rose DuFour, (Ship Ops), telephone: 703-292-8811, email: rdufour@nsf.gov
- James Holik, (OTS and OI), telephone: 703-292-7711, email: jholik@nsf.gov
- Matthew Hawkins, (SSSE and SAU), telephone: 703-292-7407, email: mjhawkin@nsf.gov
- Brian Midson, (Other Facilities), telephone: 703-292-8145, email: bmidson@nsf.gov
- Bauke Houtman, (Other Facilities), telephone: 703-292-7704, email: bhoutman@nsf.gov

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

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 10 to 75

- **1. Ship Operations (Ship Ops).** Awards will be made in the form of a five year Cooperative Agreement.
- **2. Oceanographic Technical Services (OTS).** Awards will be made in the form of a five year continuing grant.
- **3. Oceanographic Instrumentation (OI).** Awards will be made in the form of a **two-year** standard grant.
- **4. Shipboard Scientific Support Equipment (SSSE).** Awards will be made in the form of a **two-year** standard grant.
- **5. Ship Acquisition and Upgrade (SAU).** Ship acquisition and upgrade awards are generally made in the form of grants or cooperative agreements, however other funding mechanisms may be considered by NSF. Duration of awards is dependent

upon the request and will be negotiated with the Program Officer to cause the least impact on scientific cruises. Typically, title to ships built or acquired with NSF funds will be retained by the Federal government.

Anticipated Funding Amount: $5,000 to $8,000,000

Amounts are subject to the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI or Co-PI:

There are no restrictions or limits.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **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 Target Date(s)**:

  November 15, 2013

  November 15, Annually Thereafter

  Ship Operations

  November 15, 2013

  November 15, Annually Thereafter

  Oceanographic Technical Services

  December 16, 2013

  December 15, Annually Thereafter

  Oceanographic Instrumentation

  December 16, 2013

  December 15, Annually Thereafter

Shipboard Scientific Support Equipment

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

Proposals Accepted Anytime

Ship Acquisition and Upgrade: Contact Program

Proposals Accepted Anytime

Other Facility Activities: Contact Program

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:

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

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I. INTRODUCTION

A. Background

NSF supports construction, conversion, acquisition, and operation of major shared-use oceanographic facilities. The University-National Oceanographic Laboratory System (UNOLS) schedules these facilities and other expeditionary programs. The Programs support facilities necessary to conduct federally-funded research and training of oceanographers. Examples of these facilities are ships, submersibles, large shipboard equipment, and shared-use instruments to collect and analyze data.

NSF highly encourages routine institutional purchase of ship and technical support for science and educational outreach purposes, as well as support from non-federal sources for oceanographic research activities.

The Division of Ocean Sciences (OCE) is comprised of three Sections: Integrative Programs (IPS), Marine Geosciences (MGS), and Ocean Sciences (OS). IPS is comprised of the Oceanographic Technology and Interdisciplinary Coordination (OTIC) Program and Oceanographic Education (OE) Program, as well as the programs pertaining to oceanographic facilities described in this solicitation. This solicitation updates the guidelines for oceanographic facilities programs published in NSF 04-052 and omits the OTIC and OE

programs that are now handled separately by OCE.

Oceanographic facility awards are made for the operation, conversion and upgrade of open-ocean, coastal, near-shore and Great Lakes platforms and instrumentation used for research and educational programs. Awards are principally directed to support large facilities that lend themselves to shared usage. Most of these facilities also receive partial support from other Federal agencies, state and local governments and private sources. The primary objective of these awards is to ensure the availability of appropriate facilities for NSF-funded investigators and education programs. Individual project-based facilities and instrumentation, limited to one, or a small group of investigators, are supported through appropriate research programs, not IPS programs.

NSF is an active participant in the Interagency Working Group on Facilities and Infrastructure (IWG-FI). Their 2007 report entitled, "Charting the Future for National Academic Research Fleet: A Long Range Plan for Renewal," stresses the continued need for a modern set of facilities to survey and conduct basic research on the complex ocean, seafloor, and sub-seafloor environments. The programs supported under this solicitation help meet the goals of that interagency requirement.

B. Science Imperatives

Vessels in the U.S. Academic Research Fleet provide at-sea laboratories necessary to effectively and safely support oceanographic scientists, post-doctoral scholars, graduate and undergraduate students as well as engineers, technicians, and teachers as they pursue fundamental questions in marine science. These intellectual endeavors broaden our understanding, and spur new questions, about the largest and most influential environment on the surface of the planet. The Academic Fleet and other related facilities are instrumental in collecting the observational and physical data that are critical in advancing our understanding of how these dynamic and natural processes work and affect our environment. The data collected have led to the identification of new energy resources, the discovery of life in extreme environments at and below the sea floor, and have enabled the search for marine organisms with the potential to treat human disease. At-sea sampling and observing has allowed researchers to:

- Better understand, model, and predict the responses of marine populations to long and short-term changes in ocean conditions
- More fully understand the physical state of the earth with regard to seismic activity and their affects on human populations
- Discover changes in deep ocean circulation and heat distribution around the planet leading to a better understanding of causes and consequences of climate change

Oceanographic expeditions are also an extension of university classrooms and consistently provide extraordinary educational experiences. Voyages expose participants to new ideas, teach fundamental scientific principles through observation and practice, and inevitably raise questions that stimulate new thinking about how the oceans work. An increased awareness of our responsibility to bring this science into the classroom and to the public has resulted in the development of new avenues to share these scientific findings. The internet is now routinely and effectively bringing active science to classrooms with real-time images, data and two-way communication between scientists and students in schools across the country. These efforts have extended the sea-going experience from a handful of participants to thousands of students across the country, as well as to the general public. Scientists on academic research vessels use these opportunities to present their data through web-based approaches either at their home institution or through web sites maintained by community organizations.

II. PROGRAM DESCRIPTION

The objective of this solicitation is to provide properly managed and equipped facilities in support of federally-funded oceanographic research primarily funded by NSF.

Relationship to other NSF Programs: OCE facility awards are generally limited to support for shared-use facilities. Equipment or other facility requirements generated by a single research project should be included as an integral part of the scientific funding request for that project. Prospective principal investigators seeking scientific support should refer to the NSF website(http://www.nsf.gov) for information about funding opportunities and science program descriptions.

All OCE research proposals and any proposal submitted to NSF requesting support for research ship time must include a University-National Oceanographic Laboratory System (UNOLS) Ship Time Request (STR). The STR serves several purposes:

1. Identifies sea-going field work projects requiring research vessel support;
2. Enables OCE to predict and plan for vessel and equipment requirements; and
3. Assists ship operators and program managers in preparing ship schedules and cruise logistics.

The ship time request form can be obtained from the University-National Oceanographic Laboratory System (UNOLS) web site (http://www.unols.org). Any investigator who needs assistance in requesting ship time should contact the UNOLS Office at office@unols.org.

The individual programs covered within this solicitation include:

1. Ship Operations (Ship Ops)
2. Oceanographic Technical Services (OTS)
3. Oceanographic Instrumentation (OI)
4. Shipboard Scientific Support Equipment (SSSE)
5. Ship Acquisition and Upgrade (SAU)
6. Other Facility Activities (OFA)

Detailed descriptions of the programs are described below. However, additional information and specific guidance on proposal format and templates may be accessed at http://www.nsf.gov/geo/oce/programs/ips/index.jsp.

1. Ship Operations (Ship Ops)

Ship Operations provide support for actual costs of operation and maintenance of research vessels that provide significant support for NSF-funded researchers. Allowable costs include salaries and related expenses of crew members and marine operations staff; acquisition of minor or expendable equipment, maintenance, overhaul and repairs, insurance, and direct operating costs such as fuel, food, supplies, travel, and pilot and agent fees. Shore facility costs are provided only to the extent that they relate directly to the ship operation. Budgets should be prepared in accordance with standard definitions of operating days, sea days, maintenance days, and days out of service as defined on the link above. Support for shipboard technicians, instrumentation and scientific support equipment must be sought directly through the Oceanographic Technical Services, Oceanographic Instrumentation and Shipboard Scientific Support Equipment Programs, respectively. Equipment is defined as an item of property having an acquisition cost of $5,000 or more and having an expected service life of more than one year.

2. Oceanographic Technical Services Program (OTS)

The purpose of the Oceanographic Technical Services Program is to enhance the scientific productivity of research programs that utilize major facilities, primarily research vessels of the Academic Fleet. Services include maintenance, calibration of instruments/sensors, logistical assistance, and at-sea support of the instrumentation and shared-use equipment available to sea-going researchers. Technical support requested must be directly attributable to NSF-sponsored use of the facilities.

The program is limited to technical support activities associated with shared-use oceanographic facilities utilized by NSF-sponsored projects. Shared-use equipment and instrumentation are defined here as tools maintained by the proposing institution to which any oceanographic research project has access when using the institution's facilities.

With the exception of shore-based operations, all institutions requesting Oceanographic Technical Services support must provide minimum basic at-sea and shore-based technical services (described below). The full extent of basic services considered for support will depend on the shared-use instruments made available, the scientific capabilities of the research vessel(s) operated by the institution and the management structure of the technical support activities.

Institutions may also include requests for Specialized Support Services associated with NSF-funded shipboard research projects. To qualify for such support, the specialized shared-use instrumentation must be maintained and operated under the direction of the Oceanographic Technical Services Program.

Basic service activities and optional specialized support service activities should be addressed in the narrative sections of the proposal, and should describe the institution's plan with regard to the following as a minimum:

Basic services include both shore and sea-going support provided to all ship users. Charges for this support are based on the total annual operating days of each ship and represented as a daily rate for each ship. This day rate multiplied by the total number of operating days will represent the total operating budget for basic services.

Basic Technician Activities Ashore:

1. Communication and Coordination in advance of each cruise (pre-cruise planning)
2. Maintenance, Repair, Storage, and Calibration of sensors/Instruments
3. Coordination of off-loading and shipping (post cruise)
4. Management of data from shared-use instrumentation including distribution and transfer of data to the R2R gateway (post cruise)

Basic Technician Activities at Sea:

1. Support of facility-provided science instrumentation and operation
2. Service as liaison between ship's crew and scientific personnel, especially with regard to safety and over-the-side operations
3. Assistance with science set-up, tear-down, and operations
4. Responsibility with regards to maintenance and management of satellite communication system(s)

Specialized Support Services include use of instruments that normally require extra technical services personnel at sea (above the basic level) for their successful operation. Support for these services is not included as part of the day rate charged to all users of the vessel and is charged only to those who use the service.

For support of certain operations, whether on the proposer's vessel or not, and which require a level of support beyond that which is provided with basic services, it is appropriate to request specialized support services. In addition, for support efforts whose costs should not be distributed across all users, the specialized support services component is appropriate. In general, the maintenance and calibration for shared-use instrumentation falls under the Basic Services component of the Program. However, the following activities related to specialized support services are appropriate:

1. Shipping instruments to research vessel
2. Installation of instruments on research vessel
3. Technician(s) salary and overtime required for operation of specialized instruments at sea
4. Extra technician travel to and from the vessel
5. Spare parts and expendable supplies required for operation of specialized instruments

The Program will evaluate each request for a specialized support service individually and requires a budget for each specialized effort. The Program does not allow for requests for:

1. Upkeep and operation of scientific instrumentation that is under development or maintained for individual research projects
2. Routine underway watch standing
3. Data reduction or analysis

3. Oceanographic Instrumentation (OI)

The purpose of the Oceanographic Instrumentation Program is to enhance the scientific capabilities and productivity of oceanographic field research projects that use existing major facilities, primarily research vessels. A principal criterion for this Program is that the instrumentation requested is for "shared-use." Shared-use means that the operating institution/vessel normally has title of the equipment and is responsible for its routine maintenance and repair, but will facilitate its use on other vessels/projects on a "not to interfere" basis with its own operation. Only occasionally will NSF retain title to shared-use equipment. It is generally expected that costs associated with maintenance and operation of instrumentation acquired under this program will be proposed under the Oceanographic Technical Services Program.

Proposals for shared-use instrumentation may include items for the collection and analysis of oceanographic data. These instruments can be "Shipboard Instruments," predominantly or exclusively used from one or more of an operating institution's existing research vessels or "Portable Instruments," that could be used by both the requesting institution and/or other research vessels within the Academic Fleet.

Examples of items that are considered "Shipboard Instruments" include but are not limited to shipboard computer networks, meteorological sensor suites, and hull-mounted sonars. Items that would be considered "Portable Instruments" include biological net systems, coring equipment, towed instruments such as undulating profilers or side-scan sonars, current meters (acoustic or mechanical), moored current profilers, surface buoy systems and associated instruments.

Proposals for the acquisition or upgrading of major items of specialized instrumentation for laboratory-based research, e.g. mass spectrometers, department computer systems, etc., are not eligible for support under the Oceanographic Instrumentation Program.

This type of proposal should be submitted to the appropriate research program in the Division of Ocean Sciences or to the NSF Major Research Instrumentation (MRI) program. Instrumentation which is project-specific in nature, i.e. justifiable in terms of a single project or principal investigator, is not eligible for support from the Oceanographic Instrumentation Program. These requests should be submitted by the researcher to their science Program.

Proposals for instrumentation may include costs associated with design or fabrication if it is demonstrably more efficient to build them in-house than purchase them commercially. Appropriate documentation should be provided to address this. Costs associated with installation may also be included. Costs for instrument operation and maintenance, however, should not be included here as they are covered under the Technical Services Program.

Costs for stand-alone instruments less that $5000 will not be considered for award. These should be procured through the Ship Operations or Technical Services programs. However, it is acceptable to bundle related instruments costing less that $5000 as components of a larger instrumentation system (e.g. a replacement CTD package might include several sensors none of which were over $5000).

4. Shipboard Scientific Support Equipment (SSSE)

The purpose of the Shipboard Scientific Support Equipment (SSSE) Program is to improve safety, promote regulatory compliance, and enhance scientific capabilities and productivity, of federally-funded seagoing research projects that use existing major facilities, primarily research vessels. This Program does not consider individual items under $5,000. It can include a group purchase of equipment that totals over $5,000 when it can be shown to promote commonality of outfitting or a cost savings to the government. It can also include major overhaul of science support equipment and normal maintenance of equipment associated with the equipment pools.

Proposals may include permanent installations and portable equipment required to upgrade or enhance the capabilities of an existing oceanographic research vessel. This includes equipment such as load handling systems and components (winches, cranes, frames, etc.), oceanographic ropes and cables, the entire range of navigation and communication equipment, safety and regulatory-related items, and shore-based support equipment. Installation, management, and administrative costs will be considered to ensure proper and timely execution of the project; particularly with regard to the shared-use equipment pools.

Requested equipment must be justifiable in terms of multi-project cooperative utilization in support of NSF-supported science. Equipment that is project-specific in nature should be requested from an appropriate source of science research support. Normal ship-related maintenance items should not be proposed to this Program, but rather through the Major Overhaul Stabilization Account (MOSA) or the Normal Maintenance and Repair category within the Ship Operations Program. Significant vessel modification or upgrade requests should be submitted to the Ship Acquisition and Upgrade Program after discussions with the cognizant Program Officer.

All portable deck equipment funded under this program shall be considered "shared-use" equipment whether or not title is retained by NSF. "Shared-use" means that the operating institution/vessel normally has title of the equipment and is responsible for its routine maintenance and repair, but will facilitate its use on other vessels/projects on a not to interfere basis with its own operation. Only occasionally will NSF retain title to shared-use equipment.

"Pooled" equipment means that the managing institution for the pool is responsible for routine maintenance and repair of the equipment and that the equipment is intended specifically for broad use throughout the Academic Fleet and on other bona fide oceanographic research projects. NSF will retain title for all equipment purchased through the equipment pools.

Wires and cables purchased through the pool and distributed throughout the Fleet will become the responsibility of the vessel to use in accordance with the Research Vessel Safety Standards, Appendix A.

5. Ship Acquisition and Upgrade (SAU)

Occasionally, OCE makes awards for the design, acquisition, construction, modification (either capability enhancement or Service Life Extension) or conversion of research vessels that have traditionally or will support NSF-funded research. These awards are dependent upon the availability of funds appropriated for this purpose. The Division of Ocean Sciences will continue to acquire and modify existing ships and construct new ships for the Fleet based on the renewal plan established through coordination with the Interagency Working Group on Facilities and Infrastructure (IWG-FI) and the University-National Oceanographic Laboratory System (UNOLS).

Institutions must consult with the cognizant Program Officer in advance of any proposal submission. There is no prescribed format for acquisition and upgrade proposals. Upgrade proposals must describe the proposed changes, urgency and rationale (e.g., safety, improvements, existing conditions, science requirements, etc.), provide strong justification (e.g., examination of alternatives, engineering studies and designs, time schedule, and how NSF-funded scientists will benefit from an upgrade, etc.) and include cost details.

6. Other Facility Activities (OFS)

In addition to the programs listed above, IPS supports specialized activities such as workshops, symposia, studies, facilities enhancement and operation, and administration of the Academic Research Vessel Fleet. Examples include the Deep Submergence Facility and the UNOLS Office.

Criteria for evaluation of proposals for this type of support will vary according to the project but all requests must focus on activities and facilities of broad use to the ocean science research community, especially NSF-funded scientists. Before submitting proposals for such activities, potential Principal Investigators should contact the IPS Section Head or the cognizant Program Officer to determine if the activity is appropriate.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Cooperative Agreement or Standard Grant

Estimated Number of Awards: 10 to 75

Multiple grants and/or cooperative agreements (CAs) are expected to be made under this solicitation based on annual operational requirements in support of federally-funded science.

Anticipated Funding Amount: $5,000 to $8,000,000, subject to the availability of funds

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI or Co-PI:

There are no restrictions or limits.

Additional Eligibility Info:

OCE support for major facilities is distributed throughout the United States at a number of institutions suitably located and geographically positioned to carry out operations in support of ocean science research and education. Ship operator institutions may include colleges and universities, non-profit research institutions, and associations of colleges and universities. To qualify for an award from this solicitation, an institution must have a substantial in-house ocean science research program, and must demonstrate the capability to operate the facility effectively and economically with procedures to support qualified researchers from other parts of the oceanographic community. Appropriate quality control, safety, shared-use instrumentation access and technical support procedures must be provided. A concurrent Ship Operations Program award is required to qualify for Oceanographic Technical Services support.

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.5 of the Grant Proposal Guide provides additional information on collaborative proposals.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions.

The following Proposal Preparation instructions should be followed for all proposals. Additionally, individual programs have other specific proposal preparation guidelines that must be followed. These instructions are listed below.

General Proposal Preparation Instructions

1. **Page Limits**. Proposals under this solicitation are exempt from the 15-page project description limit. Instead, they have a 45-page project description limit with a total limit of 250 pages (including the special information and supplementary documents). The entire proposal, including all charts, diagrams and figures, must be submitted via Fastlane or Grants.gov. Due to the complexity of the proposals being submitted, however, use of FastLane to prepare and submit proposals is strongly encouraged.

2. **References Cited.** These Programs do not require a "References cited" section, however this is a required section of the proposal. To enable FastLane to accept your proposal, insert text or upload a document that states "This proposal contains no references."

3. **Facilities, Equipment and Other Resources**. These Programs do not require a "Facilities, Equipment and Other Resources" section, however this is a required section of the proposal. To enable FastLane to accept your proposal, insert text or upload a document that states "See Project Description."

Specific Proposal Preparation Instructions by Program

Additional supplementary documentation that may be required for programs in this solicitation is listed below.

1. Ship Operations (Ship Ops)

A separate proposal submission will be required for the operation of each ship operated by an institution. In conjunction with the format and tables (www.nsf.gov/geo/oce/programs/ips/index.jsp), each proposal shall include:

Cover Sheet

- TITLE OF PROPOSED PROJECT: "*Institution/Vessel Name* Ship Operations - CY 20XX - 20XY"
- NSF ORGANIZATION UNIT: OCE - Ship Operations
- FUND CODE: 5411

Project Description

- Section 1: Description of Vessel
- Section 2: List of NSF Projects Requesting Ship Time in Next CY
- Section 3: Ship Operating Schedules with Cruise Tracks for current and upcoming CY Year
- Section 4: Personnel, Quality of Service and Training Data
- Section 5: Table 1, Ship Time Costs per Project
    - Table 1 A: Past CY
    - Table 1 B: Current CY
    - Table 1 C: Next CY
- Section 6: Detailed 4 Year Ship Operating Budget (by calendar year)
- Section 7: Budget, Insurance and Inspection Discussion (by calendar year)
- Section 8: Technical Merit and Broader Impacts of the Proposed Work (by calendar year)
- Section 9: Cumulative Summary Budget (by calendar year)

Additional Information (include in supplementary documents)

- Proof of Insurance Certificate
- Ship Inspection Summary Response
- Major Overhaul Stabilization Account (MOSA)

2. Oceanographic Technical Services Program (OTS)

Each proposal must include:

Cover Sheet

- TITLE OF PROPOSED PROJECT: "*Institution/Vessel Name* Oceanographic Technical Support - Year X of 5"
- NSF ORGANIZATION UNIT: "OCE - Oceanographic Technical Support"
- FUND CODE: 5415

Project Description

- Section 1: Description of Management Structure
- Section 2: Inventory of Shared Use Equipment
- Section 3: Basic Technical Services Provided
- Section 4: Basic Services Proposed Year Program Plan
    - Operating Days (Table 4.1.)
    - Calendar Months Charged to Basic Services (Table 4.2)
    - Summary 12 Month Basic Services Budget (Table 4.3)
        - Salaries, Wages and Fringe (by calendar year)
        - Other Direct Costs (by calendar year)
        - Indirect Costs (by calendar year)
        - Total Basic Services Program Budget (by calendar year)
        - Reductions/Additions to NSF Request (by calendar year)
        - Final NSF Basic Services Request (by calendar year)
    - Basic Services Request
- Section 5: Specialized Support Services for Proposed Year (if applicable)
    - Summary of Specialized Support Services (Table 5.1)
    - Specialized Support Services 12 Month Budget(s) (Table(s) 5.2.X)
    - Specialized Support Services NSF Carry-forward (Table 5.3)
    - Total NSF Specialized Support Services Request
- Section 6: Total NSF Request Summary (Table 6.1)
- Section 7: Post Cruise Assessment Review

3. Oceanographic Instrumentation (OI)

Cover Sheet

- TITLE OF PROPOSED PROJECT: "*Institution/Vessel Name* Oceanographic Instrumentation"
- NSF ORGANIZATION UNIT: "OCE - Oceanographic Instrumentation"
- FUND CODE: 5413

Project Description

1. Ranking of Instrumentation Requests: Provide a table that includes a description of each requested item with its ranking and estimated cost.

2. Description: Background, Justification and Costs: A complete description including background information, justification and costs must be included for each item in the Ranked Table of Instrumentation Requests. These descriptions must permit technical evaluation by external merit reviewers. To that end, the Project Description should address the following:

    a. Discuss what problem(s) currently exists and how the new request will address the problem. Generic statements like *"Old unit is not adequate to meet current and future needs"* require further expansion and inclusion of specific information relating to the problem to ensure the reviewer that the proposer fully understands the problem
    b. Specifically list scheduled or anticipated research projects that require the item's use, indicating when the requested item is going to impact specific science programs
    c. If the equipment requested is a replacement for a piece of equipment in an institution's shared-use inventory, state which science projects used the old equipment, their funding source, and how often it was used in the past
    d. If the request is for a piece of equipment that is old and will need major repairs/overhaul include a comparative cost for these repairs. Also include known costs - above and beyond normal maintenance and repair - to keep this piece of equipment operational
    e. Provide evidence that the proposer contacted other Marine Superintendents, Marine Technicians, and/or the equipment pools as part of proposal development. This is to ensure an operation understands what is currently in the Fleet and provide evidence that it works and has enhanced the operations of other UNOLS operations
    f. Give evidence to demonstrate the shared-use aspects of the equipment requested (e.g. Niskin bottles to collect water for all disciplines of Marine Sciences)
    g. Supporting justification from Post-Cruise Assessments and Ship Inspections
    h. Demonstrate a well-considered installation process

Additional Information (include in supplementary documents)

It is required that major procurements are competitively evaluated. Quotes from multiple vendors are required when possible. If the procurement is sole-sourced, provide explanation and rationale.

List the cost of the whole system and outline any costs that make up the whole. Shipping and handling charges should be explicitly identified. Installation charges are an allowable cost associated with acquisitions. These charges, however, must always appear as separate items and must be explained. Every cost that is presented here should be explained in the narrative.

Certain materials are required as supporting information to reinforce the justification statements and to provide technical data and specifications. The following types of supporting materials must be provided, but the number of pages must be the minimum essential for describing any given item.

1. Technical specifications from web sites, catalogs or brochures. Information on commonly used instruments need not be included
2. Photographs of existing equipment to be replaced, sketches, drawings or photographs of deck layouts to illustrate fit-up and installation, concept drawings for new equipment
3. Price quotations
4. Any additional information required to document or justify the requests

4. Shipboard Scientific Support Equipment (SSSE)

Proposals must contain sufficient detail to justify the requested support based on needs for maintaining and updating present capabilities and acquiring additional capabilities consistent with goals for improved Fleet quality and ability to support NSF ocean science research. Each proposal shall include:

Cover Sheet

- TITLE OF PROPOSED PROJECT: "*Institution/Vessel Name* SSSE"
- NSF ORGANIZATION UNIT: OCE - Shipboard Scientific Support Equip
- FUND CODE: 5416

Project Description

1. Outline of Equipment and Service Support Requests: An annotated list of equipment or services requested must be provided. The annotations highlight the relative importance of the requested items only.
2. Background and Justification: The following information must be provided for each item in the outline:

    a. A technical description of the item(s) with supporting statement of expected improvements in meeting safety requirements and standards, or the scientific mission of a particular ship or the broader Academic Research Vessel Fleet. Clearly identify and describe the existing equipment or system and whether or not the request is for a replacement unit. If this is a replacement unit, describe why a new system is needed and how the proposed new system will improve science support capabilities. Identify any problems that would exist if the item were not obtained. Note alternatives or options to obtaining the requested item (such as complete overhaul) and ramifications.

    b. The description must permit technical evaluation by external reviewers who may not be familiar with the arrangement details of a particular vessel. Electronic drawings, sketches and digital photographs are not only encouraged, but are considered essential for a full understanding of major equipment and system installations. If the item is a component of a larger system or is dependent on inputs from other shipboard equipment, explain the interrelationship and compatibility to the larger system. Possible advantages of commonality with equipment and/or spares on hand, or with similar equipment used on other vessels in the Academic Fleet should be discussed, as well as any potential for group-purchase arrangements.

    c. Justification for NSF support must be provided. The need for the shared-use or pooled equipment to enhance federally-sponsored research, meet safety and/or regulatory requirements or increase efficiency of ship operations to conduct science at sea, for both current and long-term needs, should be addressed. Reference to the most recent NSF Ship Inspection Report, Navy INSURV, or Post Cruise Assessments should be included as applicable. Indicate funding in hand or being sought from other sources (including joint funding requests).

    d. Total cost of the equipment being requested including itemization of all associated costs, such as spare parts, shipping, engineering/design, and installation must be provided. If the equipment is being co-sponsored by other research sponsors or the institution, identify the status of those funds.

    e. If a specific manufacturer's brand has been requested, describe why it has been chosen over other brands or options and whether or not this particular brand has been successfully used on other vessels. If possible, more than

one quote per item requested should be included in the Supplementary Information even if a specific brand is being requested. If more than one quote cannot be obtained, a detailed explanation should be provided.

Ranking: Provide a summary page with the relative importance, in rank order, of each item requested. An explanation of ranking order should be included.

Broader Impacts: Address and describe the broader impacts resulting from acquisition of the proposed equipment that fully addresses NSF Merit Review Criteria 2.

Management Plan and Quality Control: Proper execution of some SSSE items can be complex and have profound effects on vessel capabilities such as arrangement and stability. The procedures and responsible persons that will manage, maintain, and assure quality control for all equipment must be provided. Describe other anticipated sources of funding support for operations, logistics and maintenance.

Budget: Except for group purchases, individual items that cost less than $5,000 should not be requested through the SSSE Program but rather through the Ship Operations Program under Normal Maintenance and Repair. Indirect costs, management and administration associated with equipment pools, installation and shipping charges are all allowable costs associated with equipment requests. However, these charges must always appear as separate items and be fully explained in the proposal.

Additional Information (include in supplementary documents):

Certain materials are required as supplementary information to reinforce the justification statements and to provide adequate technical data to facilitate review. Lack of this information can severely impact reviewer ratings and programmatic decisions to recommend the proposal for funding.

The following types of supplementary materials must be provided, but the number of pages must be the minimum essential for describing any given item:

a. Technical Specifications. This may consist of pages reproduced from catalogs or brochures

b. Drawings, Sketches and Photographs: These are preferred in the body of the proposal to facilitate review. However, if too large to be incorporated in the Project Description, drawings, sketches and photographs should be included here

c. Engineering Analysis: Supporting engineering studies, calculations and analyses for the equipment and the supporting ship's structure and stability should be included

d. Price quotations. More than one quote per item is encouraged. If more than one quote cannot be obtained, a detailed explanation should be provided

e. Any additional information required to document and justify the requests, including ship schedules, letters of support from the science community and/or need based on vessel inspections or Post Cruise Assessments should be included in the Project Description

5. Ship Acquisition and Upgrade (SAU)

Cover Sheet

- TITLE OF PROPOSED PROJECT: *Various*
- NSF ORGANIZATION UNIT: OCE - Ship Acquisition and Upgrade
- FUND CODE: 5417

6. Other Facilities Activities (OFA)

Cover Sheet

- TITLE OF PROPOSED PROJECT: *Various*
- NSF ORGANIZATION UNIT: Contact Program Officer
- FUND CODE: Contact Program Officer

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Annual Institutional purchase of ship days and technical support for the purposes of research, education and/or outreach is highly encouraged on the Ship Ops and OTS proposals.

Indirect Cost (F&A) Limitations: Not Applicable

C. Due Dates

- **Full Proposal Target Date(s)**:

  November 15, 2013

  November 15, Annually Thereafter

  Ship Operations

  November 15, 2013

  November 15, Annually Thereafter

Oceanographic Technical Services

December 16, 2013

December 15, Annually Thereafter

Oceanographic Instrumentation

December 16, 2013

December 15, Annually Thereafter

Shipboard Scientific Support Equipment

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

Proposals Accepted Anytime

Ship Acquisition and Upgrade: Contact Program

Proposals Accepted Anytime

Other Facility Activities: Contact Program

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions 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.

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. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical 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.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with 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. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

All NSF proposals must address the two NSF Merit Review Criteria (Intellectual Merit and Broader Impacts) explicitly. Proposals that do not adhere to this requirement will be returned without review. In addition, proposals must address the additional review criteria

outlined below by program.

1. Ship Operations (Ship Ops)

In addition to the standard merit review criteria, continuing Ship Operation Cooperative Agreements are evaluated annually by the cognizant Program Director and every five years through an external merit review process. The main criteria (of equal weight) used in the evaluation of ship operation proposals are:

1. The amount of scientific utilization of the ship, particularly by National Science Foundation supported investigators;
2. The logistic, managerial and quality control capability of the proposing institution as evidenced by ship inspections and operator follow-up actions, analysis of post-cruise assessments, agency site visits and other relevant mechanisms; and
3. The configuration, capability and operating costs of the vessel(s).

2. Oceanographic Technical Services (OTS)

The following equally weighted criteria will be used in the evaluation of proposals:

1. The likely success of proposed technician activities to provide effective support for scientific research using institutional facilities and personnel
2. The extent to which the scope of basic technical support services match the facility, i.e. research vessel operating areas and schedule for the calendar year, size and capability of the vessel, and its scientific outfit and capability
3. The degree to which specialized instrument support activities, if requested, match the capabilities of the institution, vessel and technical support personnel
4. The costs of the support activities in terms of day rate and specialized service costs. Rates will be evaluated in the context of the historical rates as well as the working schedule of a particular vessel
5. The proportion of NSF-sponsored activities supported by the institutional facilities relative to total technical support activities and available funding

3. Oceanographic Instrumentation (OI)

Evaluation of proposals is based on the following equally weighted criteria:

1. Effective shared-use potential
2. Urgency of the procurement, replacement, or upgrade of present capabilities
3. Amount of federally-sponsored research that will utilize this instrument
4. Ability of the institution to install, support and maintain the instrument
5. Requested budget providing appropriate detail and including more than one vendor quotation when applicable/available

4. Shipboard Scientific Support Equipment (SSSE)

The following programmatic criteria will be used in the evaluation of SSSE proposals:

Justification:

1. Relationship to federally-sponsored research to meet science support requirements
2. Potential for improving an existing ship's oceanographic research capability
3. Degree of multi-project use
4. History, description and condition of existing equipment
5. Urgency to meet safety standards, regulatory requirements, and/or science program requirements
6. Examination of alternatives including the overhaul of existing equipment
7. Technical sufficiency of equipment proposed including compliance with latest UNOLS standards
8. Installation details including arrangement drawings/sketches and photographs
9. Evidence of proper engineering studies (as required)
10. Long-term maintenance plan(s)

Costs: Reasonableness, degree of budget detail, provision of more than one vendor quotation when applicable/available. This includes purchase cost, installation, maintenance, and management and administration if associated with the shared-use equipment pools.

5. Ship Acquisition and Upgrade (SAU)

Criteria for evaluation of proposals for SAU will be determined on an individual project basis and may include factors such as technical and management approach, proposer past performance and cost.

6. Other Facilities Activities (OFS)

Criteria for evaluation of proposals for this type of support will vary according to the project but all requests must focus on activities and facilities of broad use to the ocean science research community, especially NSF-funded scientists. Before submitting proposals for such activities, potential Principal Investigators should contact the IPS Section Head or the cognizant Program Officer to determine if the activity is appropriate.

B. Review and Selection Process

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

Ad hoc Review and/or Panel Review, Internal NSF Review, or Site Visit Review.

*Use of one or a combination of the review methods (Ad hoc, Panel, Internal NSF and/or Site Visit) will be decided by the Program Officer in consultation with the Integrative Programs Section Head and the OCE Division Director.

Reviewers will be asked to provide independent advice to NSF on the scientific and technical merit of each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation for award or decline.

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 notice, 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 notice; (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 notice. 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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following 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 all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also 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.

More comprehensive information on NSF Reporting Requirements 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.

In order to negotiate budgets annually after the first year, reports are required for the Ship Operations and Oceanographic Technical Services programs. This report is not a requirement for the other programs covered in this solicitation.

Annual budgets for multi-year grants such as those associated with OTS and equipment pools (SSSE) will be negotiated annually with the cognizant Program Officer based on operational requirements and/or associated Ship Operations grants.

Contents of Annual Reports

1. Ship Operations

Annual reports will be submitted in Years 2 -5. They should contain the information necessary to negotiate the budgets in the subsequent years. An Annual Project Report should include sections 2, 3, 4, 5, 6, 7 and 9 (see http://www.nsf.gov/geo/oce/programs/ips/index.jsp). An inspection report with updates shall be included. The Annual Project Report shall also include the written summary of its IT security program as described in the Article of the CA-FATC-Large Facilities entitled "Information Security." Although the award is dependent on the number of ship days and that information is not known beyond the current year, the original proposal should contain a 5-year budget. This should be an estimate based on current year schedules.

2. Oceanographic Technical Services Program

Annual reports will be submitted in Years 2 -5. They should contain the information necessary to negotiate the budgets in the subsequent years. Although the award is dependent on the number of ship days and that information is not known beyond the current year, the original proposal should contain a 5-year budget. This should be an estimate based on current year schedules.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Rose DuFour, (Ship Ops), telephone: 703-292-8811, email: rdufour@nsf.gov
- James Holik, (OTS and OI), telephone: 703-292-7711, email: jholik@nsf.gov
- Matthew Hawkins, (SSSE and SAU), telephone: 703-292-7407, email: mjhawkin@nsf.gov
- Brian Midson, (Other Facilities), telephone: 703-292-8145, email: bmidson@nsf.gov
- Bauke Houtman, (Other Facilities), telephone: 703-292-7704, email: bhoutman@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, "NSF Update" 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 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. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this 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 55,000 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 Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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

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

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

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

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

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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

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

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
Arlington, VA 22230