NSF 24-543: Division of Environmental Biology
Core programs

Program Solicitation

Document Information

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National Science Foundation
Directorate for Biological Sciences
Division of Environmental Biology

Full Proposal Deadline(s):
Proposals Accepted Anytime

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Important Information And Revision Notes

DEB continues to accept unlimited no deadline full proposal submissions: proposals may be submitted any day, any time, with no limit on the number of proposals that may be submitted by an individual investigator.

The Directorate for Biological Sciences requires that proposers who include o-campus or o-site research as part of their project submit, as supplementary documentation, a Safe and Inclusive Fieldwork (SAIF) Plan. For this solicitation, this document replaces the required plan associated with the certification in Chapter II.E.9 of the Proposal and Award Policies and Procedures Guide (PAPPG). Instructions for inclusion of a SAIF Plan can be found in the additional proposal preparation instructions in this solicitation.

REVISON NOTES

STAR Grants: The Small Grants category has been replaced by STAR Grants with a maximum budget of $400,000.

Research Experience Educational Activities: This solicitation expands the categories of research experience educational activities that can be requested in the proposal submission to include Research Experiences for Post-Baccalaureate Students (REPS).

Any proposal submitted in response to this solicitation should be submitted in accordance with the NSF Proposal & Award Policies & Procedures Guide (PAPPG).

Summary Of Program Requirements

General Information

Program Title:

Division of Environmental Biology (DEB)
Core programs

Synopsis of Program:

The Division of Environmental Biology (DEB) Core supports research and training on evolutionary and ecological processes acting at the level of populations, species, communities, ecosystems, macrosystems, and biogeographic extents. DEB encourages research that elucidates fundamental principles that identify and explain the unity and diversity of life and its interactions with the environment over space and time. Research may incorporate field, laboratory, or collection-based approaches; observational or manipulative studies; synthesis activities; phylogenetic discovery projects; or theoretical approaches involving analytical, statistical, or computational modeling. Proposals should be submitted to the core clusters (Ecosystem Science, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Science). DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate
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.

- Division of Environmental Biology, telephone: (703) 292-8480, email: debquestions@nsf.gov

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

- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 120

each year, pending availability of funds.

Anticipated Funding Amount: $100,000,000 for new awards each year pending availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Levels of biological organization or across multiple spatial and temporal scales. Research addressing ecology and ecosystem science in the marine biome should be directed to the Biological Oceanography Program in the Division of Ocean Sciences; research addressing evolution and systematics in the marine biome should be directed to the Evolutionary Processes or Systematics and Biodiversity Science programs in DEB.

All programs in the Directorate for Biological Sciences strive to achieve the goals laid out in the NSF Strategic Plan. Among these goals are: (i) to empower Science Technology, Engineering, and Mathematics (STEM) talent to fully participate in science and engineering; (ii) to enable creation of new knowledge by advancing the frontiers of research and enhancing research capability; and (iii) to benefit society through translation of knowledge into solutions. In line with these goals, DEB welcomes the submission of proposals to this funding opportunity that include the participation of the full spectrum of diverse talent in STEM, e.g., as PI, co-PI, senior personnel, postdoctoral scholars, graduate or undergraduate students or trainees. This includes historically under-represented or underserved populations, diverse institutions including Minority Serving Institutions (MSIs), Primarily Undergraduate Institutions (PUIs), and two-year colleges, as well as major research institutions. Proposals from EPSCoR jurisdictions are especially encouraged.

Also aligned with the NSF Strategic Plan, DEB encourages submission of proposals in support of discovery-based explorations, as well as use-inspired, solutions-focused research, including proposals that address priority areas associated with building a resilient planet and biotechnology and the bioeconomy. Some examples of topics that address priority areas associated with building a resilient planet and biotechnology and the bioeconomy can be found in the life on a warming planet and bioeconomy metaprogram descriptions. The CHIPS Act of 2022 and the Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe and Secure American Bioeconomy highlight the importance of these two areas with respect to safeguarding national security and promoting prosperity. DEB also strongly encourages proposals that leverage NSF resources that facilitate integration across the biological sciences, such as the National Ecological Observatory Network (NEON), data networks, synthesis centers, and institutes.
Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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**:

B. Budgetary Information

- **Cost Sharing Requirements**:
  
  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations**:

  Not Applicable

- **Other Budgetary Limitations**:

  Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)**:
Proposals Accepted Anytime

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review criteria 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.

I. Introduction

The Division of Environmental Biology (DEB) Core supports research and training on evolutionary and ecological processes acting at the level of populations, species, communities, ecosystems, macrosystems, and biogeographic extents. DEB encourages research that elucidates fundamental principles that identify and explain the unity and diversity of life and its interactions with the environment over space and time. Research may incorporate field, laboratory, or collection-based approaches; observational or manipulative studies; synthesis activities; phylogenetic discovery projects; or theoretical approaches involving analytical, statistical, or computational modeling. Proposals should be submitted to the core clusters (Ecosystem Science, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Science). DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate over levels of biological organization or across multiple spatial and temporal scales. Research addressing ecology and ecosystem science in the marine biome should be directed to the Biological Oceanography Program in the Division of Ocean Sciences; research addressing evolution and systematics in the marine biome should be directed to the Evolutionary Processes or Systematics and Biodiversity Science programs in DEB.

All DEB programs also encourage proposals that leverage NSF-supported data networks, databases, centers, and other forms of scientific infrastructure, including but not limited to the National Ecological Observatory Network (NEON), Long-Term Ecological Research (LTER) Environmental Data Initiative (EDI), and Integrated Digitized Biocollections (iDigBio). DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate over levels of biological organization or across multiple spatial and temporal scales, including the macrosystem scale.

II. Program Description

Proposals are welcome in all areas of science supported by the Division of Environmental Biology.

- Ecosystem Science Cluster (ES)
- Evolutionary Processes Cluster (EP)
- Population and Community Ecology Cluster (PCE)
- Systematics and Biodiversity Science Cluster (SBS)

Special Categories Included in the DEB Core Track

1) STAR Grants
The Division welcomes proposals for STAR (Special Targeted Awards for Research) Grants to the core programs via this solicitation. Projects with total budgets of $400,000 or less may be identified as such with the designation “STAR:” as a prefix to the project title in the full proposal. STAR Grants may address any topic appropriate for DEB core programs and could include a variety of important research activities that entail a narrower scope and/or reduced costs (e.g., analysis of existing data (including NEON data), theoretical research, synthesis projects, fieldwork projects, etc.). The STAR track should not be used predominately for the collection of preliminary data. STAR Grants may be useful for targeted research projects, including ideas initiated by postdoctoral researchers. The project description for STAR Grants is limited to 10 pages. STAR Grant projects will be assessed based on the same merit review criteria as all other proposals. If funds for educational supplements are requested, those can be in addition to the $400,000 funding limit for STAR projects.

2) NERC and BSF International Collaborative Proposals

The core programs will accept proposals for international collaborative research under two separate agreements for joint review between: 1) NSF and the Natural Environment Research Council (NERC) of UK Research and Innovation (UKRI) and 2) NSF and the U.S.-Israel Binational Science Foundation (BSF). Submission instructions for both opportunities are detailed below.

International collaborative proposals are expected to adhere to the eligibility requirements, remit, funding limits, and grant durations for the agency from which funding is sought (NSF, BSF, or NERC) and must represent an integrated collaborative effort.

If an international collaborative proposal is awarded, the U.S. researchers will receive funding from NSF and the international researchers will receive funding from the international partner agency. Questions regarding these activities can be directed to NSFDEB-NERC@nsf.gov or NSFDEB-BSF@nsf.gov respectively. These agreements do not preclude other international collaborations.

**Submission of NSF & NERC Collaborative proposals** Proposers designate a “lead” agency, either NSF or NERC, based on where the largest proportion of the research lies. The title of the proposal should begin with “NSFDEB-NERC:” followed with the substantive title. The lead agency will carry out the review. While not identical in their review process, both the NSF and NERC ask reviewers to evaluate proposed projects on the basis of scientific/intellectual merit as well as broader societal impacts.

Proposers must follow the submission guidelines and deadlines for the lead agency and adhere to the NERC submission limits.

For NSF-lead proposals, applicants are required to submit an email to NSFDEB-NERC@nsf.gov ahead of the planned proposal submission. This email should be jointly prepared by US and UK researchers, and provide a clear outline of the research proposed, a listing of senior personnel, and a bottom-line budget for both US and UK researchers. This information will be shared with NERC to check for eligibility (whether the proposed research fits within the participating agencies’ remits and whether the proposed researchers and institutions meet eligibility requirements).

NERC-lead proposals should follow the NERC guidelines for applicants (https://www.ukri.org/opportunity/work-with-us-based-researchers-on-environmental-science-research/). Applicants are required to submit an Expression of Interest form to https://reg.nerc.ac.uk/391f/ three months prior to the closing date of the scheme to which the applicants plan to submit. Note: For NERC-lead proposals, the NSF DEB (non-lead) portion of the project budget cannot exceed $500,000. For NSF DEB-lead proposals the NERC (non-lead) portion of the budget cannot exceed £300,000.

**Submission of NSF & BSF Collaborative proposals** Detailed submission instructions are described in the Dear Colleague Letter NSF 20-094. NSF is always designated as the “lead” agency and NSF will conduct the review of these submissions. The title of the proposal should begin with “NSFDEB-BSF:” followed with the substantive title. The Israeli investigator(s) must submit a parallel proposal to BSF in accordance with BSF guidelines for applicants (http://www.bsf.org.il/ElectronicSubmission/GatewayFormsAndGuidelines.aspx).

All NERC-Collaborative and BSF-Collaborative submissions to DEB will be reviewed alongside other proposals received in the same review period.
Integrative Research in Biology (IntBIO) Track

The Integrative Research in Biology (IntBIO) Track invites submission of collaborative proposals to tackle bold questions in biology that require an integrated approach to make substantive progress. Integrative biological research spans sub-disciplines and incorporates cutting-edge methods, tools, and concepts from each to produce groundbreaking biological discovery that is synergistic, such that the whole is greater than the sum of the parts. The research should produce a novel, holistic understanding of how biological systems function and interact across different scales of organization, e.g., from molecules to cells, tissues to organisms, species to ecosystems and the entire Earth. Where appropriate, projects should apply experimental strategies, modeling, integrative analysis, advanced computation, or other research approaches to stimulate new discovery and general theory in biology.

Proposals submitted to the IntBIO Track must span sub-disciplinary boundaries within the BIO Directorate. Projects suitable for review in a single existing BIO program should be submitted to that program and not to the IntBIO track. Proposers are strongly encouraged to contact the cognizant program director(s) representing the relevant subdisciplines prior to submission to obtain advice on suitability of the project idea for the IntBIO Track.

To be responsive to the IntBIO track, proposals must:

- Articulate a fundamental overarching biological question or technical challenge that is addressed either through a bold, integrative hypothesis- or question-driven research, and that aims to produce outcomes that are synergistic and have potential to reveal new principles underlying function or interaction of biological systems.
- Include a graphical illustration that effectively conveys how integration will be accomplished through interconnection among sub-disciplines, elements, or systems and how integrated strategies will lead to a synergistic outcome.
- Have an optimally configured collaborative investigative team that includes two or more investigators with diverse perspectives and expertise. The role of each team member must be clearly described and justified. Team members may be from a single organization or multiple organizations.
- Describe a training and education plan, as part of broader impacts, that is inclusive and involves training in integrative approaches to biological research.

The IntBIO Track is common to each of the core research program solicitations in the Divisions of Environmental Biology, Integrative Organismal Systems, and Molecular and Cellular Biosciences. Proposals should be submitted to a program in one of these divisions. Proposals submitted to this track will be evaluated by co-review or joint review across two or more of these BIO programs. Proposal titles should start with the designation "IntBIO:"

Information for Other Types of Proposals under this Solicitation

In addition to the regular research proposals sought under this solicitation, the clusters/programs support a variety of other Foundation-wide activities:

- **Faculty Early Career Development Program (CAREER)** proposals may be submitted to any of the clusters/programs described in this solicitation but must be submitted by the deadlines listed in the CAREER solicitation and follow the proposal preparation guidance in that solicitation.
- **Mid-Career Advancement program (MCA)** proposals may be submitted to any of the clusters/programs described in this solicitation but must be submitted by the submission window for the MCA program. This is another opportunity available to mid-career researchers to advance their career trajectory.
- **Research Coordination Networks (RCN)**, and **Research at Undergraduate Institutions (RUI)** proposals may be submitted at any time, to any of the clusters/programs described in this solicitation but must follow the proposal preparation guidance in those solicitations.
- This solicitation will accept Renewal and Accomplishment Based Renewal (ABR) Proposals. Information on eligibility, scope, and format for Renewal and ABR submissions can be found in the PAPPG. If you are considering an ABR submission you are strongly advised to contact a Program Officer prior to submission.
Grants for Rapid Response Research (RAPID), Early-concept Grants for Exploratory Research (EAGER), Research Advanced by Interdisciplinary Science and Engineering (RAISE), Grant Opportunities for Academic Liaison with Industry (GOALI), Planning proposals, and proposals for Travel or Conferences support, including workshops, can be submitted at any time to any of the clusters/programs described in this solicitation. These types of proposals should be submitted in accordance with the guidance in the PAPPG. Conference and Travel proposals should be submitted at least 6 months before the start date of the conference or workshop. You are strongly advised to contact a Program Officer prior to submission; also see guidance at https://www.nsf.gov/bio/deb/confrapideagerguidance.jsp. Note that for RAPID, EAGER, RAISE, or Planning proposals, a concept outline must be submitted prior to submission of a full proposal. We strongly encourage the use of NSF's new Program Suitability and Proposal Concept Tool (ProSPCT) [https://suitability.nsf.gov/s/] for RAPID, EAGER, RAISE, and Planning proposals. Prior to submitting a full RAPID, EAGER, or RAISE proposal, proposers must receive approval from a DEB Program Officer in the programmatically relevant cluster. Proposals submitted without the relevant program officer concurrence will not be accepted or will be returned without review (see PAPPG Chapter I.D.1).

III. Award Information

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. For FY 2024, it is estimated that $100 million will be available to fund approximately 120 new awards.

IV. Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

- Non-profit, non-academic organizations: Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

There are no restrictions or limits.

Additional Eligibility Info:

Note that organization types, other than those listed in the "Who May Submit Proposals" section, are allowed to receive subawards through an eligible organization, but there are limitations on what can be supported by those subawards. The PI should discuss with a program officer any plans to incorporate a subaward to an organization not eligible to submit directly to this solicitation.
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 Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.

- 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: https://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) 292-8134 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 Research.gov. PAPPG Chapter II.E.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.D.2 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 PAPPG instructions.

Additional Proposal Preparation Instructions beyond those that must be followed in the PAPPG:

Title of Proposed Project: If appropriate, the title should include acronyms for the following special tracks or categories preceding the substantive title:

- STAR Grants "STAR:"
- Research in Undergraduate Institutions "RUI:"
- DEB-led NERC collaborations "NSFDEB-NERC:"
- DEB-led BSF collaborations "NSFDEB-BSF:"
- Advancing Revisionary and Taxonomic Systematics "ARTS:"
- Poorly Sampled and Unknown Taxa "PurSUiT:"
- IntBIO Track Proposals "IntBIO:" 
- Multi-organizational collaborative proposals should begin with "Collaborative Research:" followed by an optional acronym listed above and then by the substantive title. Please note that if submitting via Research.gov, the system will automatically insert the prepended title "Collaborative Research" when the collaborative set of proposals is created.
- Accomplishments Based Renewal "ABR:"

Project Description:
The Project Description for STAR Grants is limited to 10 pages.

In addition to the reporting requirement format described by the PAPPG, the **Results from Prior NSF Support** section must include evidence of deposition of samples, data and/or data products in recognized, accessible, community-accepted repositories by listing such repositories and, if practical, metadata. All publications, data, data products, programs and/or scripts that are specifically mentioned in the Results from Prior NSF Support section must be referenced in the References Cited section and must provide unique, resolvable, and persistent identifiers (such as Digital Object Identifiers [DOIs]; Uniform Resource Locators [URLs], or similar).

For proposals submitted to the **IntBIO** Track, the Project Description should contain the graphical illustration, information about the collaborative team, and, as a part of the Broader Impacts section, the description of the training and education plan.

**Senior/Key Personnel:** For **NERC** and **BSF** collaborative proposals, all UK and Israeli investigators must be designated as Senior/Key Personnel on the proposal and must provide Biographical Sketch(es), Current and Pending (Other) Support, and Collaborators & Other Affiliations Information as required by the PAPPG.

Post-doctoral fellows can optionally be included, but if included, they must be added as Senior/Key Personnel and provide the required Senior/Key Personnel documents.

Individuals providing a “Letter of Collaboration” who are otherwise not a core collaborator on the project should not be designated as Senior/Key Personnel on the proposal.

**Other Supplementary Documents Section:** The following documents are uploaded as Supplementary Documents:

- **Data Management and Sharing Plan.** All full proposal submissions require a Data Management and Sharing Plan per the PAPPG. The plan can be no longer than two pages, must be inclusive of the entire project, and must address the following points.

  All projects must ensure that data and biological materials are collected, archived, digitized, and made available using methods that allow current and future investigators to access data and material. Funded projects must disseminate project data broadly in a timely and responsible manner, using widely accepted electronic data standards, a named community-accepted, publicly accessible data repository, and with as few restrictions as possible. Data and digital products should be identified, and the following described for each of them:

  - Format and standard of primary data;
  - Metadata to be collected and disseminated with the primary data; timetable of release of ALL data, consistent with privacy and other concerns regarding sensitive information;
  - Public repository to be used;
  - License for use, with an emphasis on open-source licenses such as MIT and GPL;
  - Any constraints on release, which must be clearly justified; and Person(s) responsible for the release.

  All software and code must be in a versioned code repository (e.g., GitHub, BitBucket). We strongly encourage release of ready-to-use software and code through integration with computing resources (e.g., Galaxy, CyVerse), in Virtual Machines (e.g., AWS, JetStream), and/or in Containers (e.g., Docker/DockerHub). Published results should always include information on how to access the supporting data.

  For projects that involve collecting or generating **specimens** (e.g., organisms, parts of organisms, fossils including trace fossils, microbial isolates, etc.), the Data Management and Sharing Plan must include a description of how the specimens and associated data will be accessioned into, and maintained in, an established biological collection.

• **Safe and Inclusive Fieldwork (SAIF) Plan:** All proposals submitted to this solicitation that include research that will be conducted off-campus or off-site must submit a plan for safe and inclusive fieldwork as a supplemental document that will be considered under the broader impacts review criterion. This supplemental document is in lieu of the required plan associated with the certification called for in Chapter II.E.9 of the PAPPG. More information regarding review of the plan is provided under Solicitation Specific Review Criteria.

It is NSF policy to foster safe and harassment-free environments wherever science is conducted. Work conducted off-campus or off-site should be an enriching experience for everyone and help draw researchers to biological sciences research. By requiring advanced planning and attention to maintaining an inclusive environment, NSF is working to ensure that off-campus or off-site research is safe and inclusive for all participants.

Off-campus or off-site research is defined as data/information/samples being collected off-campus or off-site, such as fieldwork and research activities on vessels and aircraft. The plan must be no longer than two pages.

The SAIF Plan must include:

- a brief description of the field setting and unique challenges for the team;
- the steps the proposing organization will take to nurture an inclusive off-campus or off-site working environment, including processes to establish shared team definitions of roles, responsibilities, and culture, e.g., codes of conduct, trainings, mentor/mentee mechanisms and field support that might include regular check-ins, and/or developmental events;
- communication processes within the off-site team and to the organization(s) that minimize singular points within the communication pathway (e.g., there should not be a single person overseeing access to a single satellite phone); and
- the organizational mechanisms that will be used for reporting, responding to, and resolving issues of harassment if they arise.

• **Research Experience Educational Activities:** Proposals can include requests for four types of educational activities: Research Experiences for Undergraduates (REU), Research Experiences for Post-Baccalaureate Students (REPS), Research Experiences for Teachers (RET), and Research Assistantships for High School Students (RAHSS). When such activities are anticipated, requests should be included in the proposal at the time of submission. The request for each type of educational activity is limited to three pages as a supplementary document. If multiple institutions of a collaborative proposal are requesting funds for a given type of activity, all activities must be included in one 3-page supplementary document. Details about the requirements and budgets for these types of activities can be found on the DEB supplemental request website: [https://www.nsf.gov/bio/deb/suppopp.jsp](https://www.nsf.gov/bio/deb/suppopp.jsp). Post-award supplements may be available if such activities were unforeseen at the time of proposal submission.

• **NERC or BSF Collaborative full proposals:**

The following additional supplementary documents must be submitted:

1. Funding requested from non-lead agency (budget): A detailed breakdown of funding requested from non-lead agency, using the non-lead agency’s budget form.
   a. For **NERC**, complete and attach the form found at: [https://www.ukri.org/wp-content/uploads/2022/03/NERC-110322-Funding-Opp-WorkWithUSBasedResearchersEnvironmentalScienceResearch-UKBudgetForm.docx](https://www.ukri.org/wp-content/uploads/2022/03/NERC-110322-Funding-Opp-WorkWithUSBasedResearchersEnvironmentalScienceResearch-UKBudgetForm.docx)
   b. For **BSF**, complete and attach the form found at: [http://www.bsf.org.il/data/FormsToDownload/Budget_Page_NSF.xlsx](http://www.bsf.org.il/data/FormsToDownload/Budget_Page_NSF.xlsx). Important: The Israeli partners must also submit this information online as part of the parallel submission to BSF. Completing this form does not replace the requirement to submit a budget when using the BSF system.

2. Institutional endorsement: An institutional acknowledgement of the submission must be a signed letter from an authorized institutional representative from the non-lead partner’s country with the following
"I confirm on behalf of [insert name of institution] that the [pick one: US-UK or US-Israel] Collaborative proposal between [insert name and institution of US PI] and [insert name and institution of UK or Israeli PI] is endorsed and has been submitted by [insert name of Research Office], thereby acknowledging the proposed collaboration."

**Single Copy Documents**

- **Suggested Reviewers.** Pls are encouraged to provide a list of suggested reviewers, including the individuals' names, institutions, areas of expertise, email addresses, and URLs, if available.

- **NERC or BSF Collaborative full proposals.** The following additional Single Copy document must be submitted.
  - Consent for sharing of unattributed reviews: Unattributed reviews will be shared with the funding agency partner, NERC (UK) or BSF (Israel). The following text must be signed by the lead investigator, confirming that the investigators involved in the proposal acknowledge and confirm this fact.

  *Template to be used for consent:*

  On behalf of the proposal investigators, I, ______ [insert Lead PI Name], consent that the Full proposal as well as its unattributed reviews will be shared with the DEB partner funding agency.

  Signed: __________________________

  Organization: _____________________

  Date: _______________________________

**B. Budgetary Information**

**Cost Sharing:**

Inclusion of voluntary committed cost sharing is prohibited.

**C. Due Dates**

- **Full Proposal Deadline(s):**

  Proposals Accepted Anytime

**D. Research.gov/Grants.gov Requirements**

**For Proposals Submitted Via Research.gov:**

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandForResearch.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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: https://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 Research.gov for further processing.


When submitting via Grants.gov, NSF strongly recommends applicants initiate proposal submission at least five business days in advance of a deadline to allow adequate time to address NSF compliance errors and resubmissions by 5:00 p.m. submitting organization's local time on the deadline. Please note that some errors cannot be corrected in Grants.gov. Once a proposal passes pre-checks but fails any post-check, an applicant can only correct and submit the in-progress proposal in Research.gov.

Proposers that submitted via Research.gov may use Research.gov 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 PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [https://www.nsf.gov/bfa/dias/policy/merit_review/](https://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 **Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026**. 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. (PAPPG Chapter II.D.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 PAPPG Chapter II.D.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 other underrepresented groups 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**

For IntBIO Track proposals, reviewers will be asked to evaluate the extent to which:

- The proposal describes a fundamental overarching question or significant technical challenge that is addressed through bold, integrative, hypothesis- or question-driven research and that aims to produce outcomes that are synergistic and have potential to reveal new principles underlying function or interaction of biological systems.
- The graphical illustration effectively conveys how integration will be accomplished through interconnection among subdisciplines, elements, or systems and how integrated strategies will lead to a synergistic outcome.
The proposal provides a clear description of the investigative team and evidence that they are well-positioned to achieve the goals of the proposed work.

The proposal describes an inclusive training and education plan, as part of broader impacts, that is likely to produce a new generation of diverse scientists who are trained in integrative approaches to biological research.

Reviewers will be instructed to evaluate the Safe and Inclusive Fieldwork Plan within the Broader Impacts review criterion, specifically:

- Is there a compelling plan (including the procedures, trainings, and communication processes) to establish, nurture, and maintain inclusive off-campus or off-site working environment(s)?
- Does the proposed plan identify and adequately address the unique challenges for the team and the specific off-campus or off-site setting(s)?
- Are the organizational mechanisms to be used for reporting, responding to, and resolving issues of harassment, should they occur, clearly outlined?

B. Review and Selection Process

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

Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. 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 strives to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer’s recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements or the Division of Acquisition and Cooperative Support for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

VII. Award Administration Information

A. Notification of the Award

Notification of the award is made to the submitting organization by an NSF Grants and Agreements Officer. 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 https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.


Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, Ensuring the Future is Made in All of America by All of America's Workers (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States.

For additional information, visit NSF’s Build America, Buy America webpage.

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.

**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:

- Division of Environmental Biology, telephone: (703) 292-8480, email: debquestions@nsf.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-381-1532
- Research.gov Help Desk e-mail: rgov@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.

General inquiries regarding this program should be made to:

- Ecosystem Science Cluster
- Evolutionary Processes Cluster
- Population and Community Ecology Cluster
- Systematics and Biodiversity Science

Inquiries regarding U.K.-Collaborative proposals (NSFDEB-NERC) should be made to:

- For questions related to NERC led submissions email: international@erc.ac.uk
- For questions related to DEB led submissions email: NSFDEB-NERC@nsf.gov

Inquiries regarding Israeli-Collaborative proposals (NSFDEB-BSF) should be made to:

- For questions related to the BSF submission email: Mrs. Yael Dressler (yael@bsf.org.il; 972 2 5828239)
- For questions related to DEB submission email: NSFDEB-BSF@nsf.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
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 (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the NSF Proposal & Award Policies & Procedures Guide Chapter II.F.7 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 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 proposers 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 proposers 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 System of Record Notices, NSF-50, “Principal Investigator/Proposal File and Associated Records,” and NSF-51, “Reviewer/Proposal File and Associated Records.” 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:

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