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**NSF 22-012**

## Frequently Asked Questions (FAQs) for Navigating the New Arctic (NNA) FY22 solicitation (NSF 22-520)

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## **INCUBATOR GRANTS**

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24. Must the original team for a successful Incubator grant proposal be retained for future NNA proposals?
25. The solicitation states "NSF particularly encourages Incubator Grant proposals that reflect integrative, convergence research; tangible research capacity-building; meaningful community engagement; and efforts to advance education." Is it required that all four elements be present in the proposal?

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30. Do Collaboratory Grants differ in the number of required components of the NNA Venn Diagram that must be addressed?

## COMMUNITY OFFICE

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31. Can we solicit letters of collaboration from the NNA Community Office (NNA-CO)?
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## GENERAL

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### 1. What happened to Planning Grants?

Planning Grants have been retired and replaced with Incubator Grants, to allow greater flexibility in preparing for future convergence research related to the Arctic.

### 2. What do you mean by "Arctic-related"?

Changes in the Arctic often influence areas outside the Arctic, and vice versa. In addition, the Arctic is inherently international. NNA therefore considers proposals for work that is conducted in or directly related to the Arctic as well as proposals for work conducted elsewhere that address how Arctic processes affect non-Arctic regions.

### 3. How does NSF define "co-production of knowledge" for the purposes of NNA and how is it evaluated?

Co-production is defined in Section II of the solicitation. The intent of co-production is meaningful, deep collaboration involving different ways of knowing to yield insights not possible without a co-produced approach. Collaborative research exists on a spectrum of high to low local and Indigenous involvement. Co-produced approaches are expected to involve local and Indigenous researchers as true partners in the research, from proposal development through project execution and dissemination of results. Co-produced research will be evaluated with respect to the extent to which this is achieved intellectually (including in relation to relevant scholarship) and budgetarily, as well as the likelihood to advance knowledge as a result.

### 4. Is co-production of knowledge a required component of NNA proposals?

No. Co-production of knowledge with Arctic Indigenous communities or other potential collaborators is encouraged when it is appropriate and when relationships have been established to ensure a genuinely co-produced approach. Many community-based

and/or participatory approaches may be appropriate for NNA review even if they do not involve co-production per se. Proposers should be explicit about the level and forms of community engagement in their proposals with reference to project questions and objectives and relevant scholarship, even if the approaches do not involve co-production.

**5. Does co-production of knowledge automatically meet the requirement for addressing 'social system' questions per the NNA Venn diagram?**

No. The NNA Venn diagram indicates that projects must scientifically engage with at least two of the Venn diagram components: natural environment; built environment; and social systems. For those proposals that aim to address social systems, the proposed work must advance basic science that contributes to fundamental understanding of social systems. This would ordinarily involve advancing a theoretical framework that is tested or expanded as part of the research aims. Co-production activities may or may not result in scientific knowledge relevant to social systems or to the other components included in the solicitation. Social systems science may be addressed with or without co-produced approaches.

**6. What is meant by "new and enhanced research community"?**

Understanding the profound changes affecting the Arctic requires a large and diverse research community empowered to work across disciplinary boundaries and with new perspectives to address local, regional, and global causes and consequences of Arctic change. For these reasons, one of NNA's major goals is to expand the community of researchers addressing relevant questions, including by engaging scholars who are new to Arctic research and teams that incorporate novel combinations of scientists, stakeholders, community members, and students from a range of disciplines, backgrounds, and social and cultural contexts.

**7. Is there a preference for any particular methodology or suite of methodologies?**

No. Given the required convergent nature of NNA research, multiple or mixed methodologies are likely to be appropriate in many instances, but no specific methodology is required.

**8. Do you have additional guidance for conducting educational activities? What are some examples of development, implementation, or evaluation of formal or informal educational activities?**

In general, education project activities associated with knowledge generation should be informed by the NSF's [Common Guidelines for Education Research and Development](#).

**9. Can NNA projects involve international collaborations?**

Yes. NSF encourages NNA proposals that include international components. These may arise through subawards, consultancies, or inclusion of international researchers as senior personnel (subject to organizational limits). Researchers need to justify foreign activities and collaborations in relation to project goals and objectives. Refer to the NSF Proposal and Award Policies and Procedures Guide (PAPPG), [Part I, Chapter I.E.6](#) and see below for instructions regarding inclusion of letters of collaboration.

**10. Can an individual be simultaneously involved as a PI, co-PI, or senior personnel in Research Grant, Incubator Grant, and Collaboratory Grant proposals?**

Yes. There are no limits on the number of proposals an individual may submit as PI, co-PI, and/or senior personnel in response to this solicitation.

**11. I have never worked in the Arctic before, but I think my research could be appropriate for NNA. Should I submit a proposal?**

Yes. NSF welcomes proposals from investigators new to the Arctic. If you are unsure, please email a 1-2-page synopsis of your proposed research activities to [NNA@nsf.gov](mailto:NNA@nsf.gov)

**12. What if my organization has never submitted a proposal to NSF?**

We welcome proposals from organizations that have not submitted previously or recently to NSF. NSF is interested in engaging new investigative teams and organizations in Arctic-related research through the NNA solicitation. Guidelines for submitting a proposal to NSF are available in the [PAPPG](#), which lists a wide range of eligible organization types. Organizations that have never before received an NSF award should review the requirements detailed in the [NSF Prospective New Awardee Guide](#) to understand the auditability and internal control standards that will need to be met before receiving NSF funding.

**13. Do the logistics costs for fieldwork in the Arctic count toward the total budget of the proposal?**

Please read the section of the solicitation, titled "Proposals Involving Arctic Fieldwork or Ship Time." Briefly, the Arctic Research Support and Logistics (RSL) program provides support for the fieldwork of projects awarded by the Arctic Sciences Section and may support other projects on a reimbursable basis. The RSL program supports a prime logistics contract, the Arctic Research Support and Logistics Services contract, currently operated by Battelle Arctic [Research Operations](#). The RSL program also funds ship time, ice core drilling support, infrastructure support for monitoring networks, and related support for field projects. The RSL program can fund many of these third-party research support and logistics service providers directly or funds can be requested through the proposal budget. Investigators may decide how best to arrange for the logistics costs

and may reach out to the RSL program managers or the cognizant science program officer to discuss these arrangements.

**14. Can NNA proposal budgets include funds to support activities by individuals employed by Federal agencies or Federally Funded Research and Development Centers (FFRDCs)?**

As described in [PAPPG, Part I, Section I.E.7](#), NSF does not normally support research activities by employees of other Federal agencies and/or FFRDCs. NNA will consider requests for an exception only when the other Federal agency or FFRDC can make unique contributions to the needs of researchers elsewhere. A request for an exception must provide specific detail about what unique contributions the other Federal agency or FFRDC can provide. Please note that employees of other Federal agencies and/or FFRDCs may participate as unfunded collaborators. Any proposers potentially involving support via another Federal Agency, FFRDC, or employees thereof must contact a program officer at [NNA@nsf.gov](mailto:NNA@nsf.gov) prior to proposal submission.

**15. For multi-organization, collaborative projects, must investigators from each collaborating organization attend the annual NNA Principal Investigator (PI) Meetings?**

All NNA proposal budgets must include funding for at least one representative associated with each proposal to attend each PI meeting during the proposed lifetime of the award. For collaborative projects involving multiple organizations, this means at least one representative from each funded collaborative organization is expected to attend. In other words, if the collaborative project involves 4 proposals from four organizations, then at least 4 individuals (1 from each respective organization) are expected to attend these annual meetings. There may be anticipated circumstances for a given project that mean not every participating organization can be represented, which should be clearly articulated in the budget justification. COVID-19 Note: **Funds should be allocated in the budget for an in-person meeting; these can be subsequently re-allocated if the meeting is held virtually or in hybrid format.**

**16. Do all proposals require a Data Management Plan?**

Yes, all proposals submitted under this solicitation are required to include a Data Management Plan. Special requirements for the Data Management Plan are described in the solicitation, Section V.A. A description of metadata, full data sets, derived data products, and information describing how to access them, must be submitted to the NSF Arctic Data Center within a specific time frame.

**17. Do all proposals require a Management and Integration Plan?**

Yes. The page limit is 6 pages for the Management and Integration Plan. Please note that the quality and appropriateness of the Management and Integration Plan are important review criteria for NNA proposals. The convergence statement is an important part of the Management and Integration Plan. If co-production is involved, then it should also be addressed in the Management and Integration Plan. **Note that new information is now required articulating any relevant ethical and/or environmental considerations associated with the project.**

**18. Is the submission deadline flexible?**

No. Proposals will not be accepted after 5:00 PM, submitter's local time, on the deadline, Feb 16, 2022. Please take into account the new submission platform of Research.gov when planning your submission timeline.

**19. The solicitation lists maximum durations and budgets for the different types of NNA proposals. Can we propose a project with a shorter duration or smaller budget?**

Yes. NNA anticipates a range of budgets and durations will achieve project aims, and that they will be commensurate with the scope of the work proposed. Budgets and durations may not exceed the limits described in the solicitation for each type of proposal.

**20. I submitted a proposal to a previous NNA competition, and the proposal was declined. Am I allowed to resubmit?**

Yes, you can submit a revision of a previous NNA submission to the FY22 competition, but revisions must be substantive and responsive to major comments from the prior NSF review. If the proposal is deemed too similar to a previous proposal that was submitted, it may be returned without review. See the guidance on resubmissions provided in [PAPPG, Part I, Chapter IV.E](#).

**21. Can I submit a proposal for a conference to this solicitation?**

This solicitation does not accept RAPID, EAGER, or conference proposals. However, NNA Incubator Grant proposals may include support to conduct organizational planning meetings; therefore, small workshops or meetings may be proposed as an integral component of an Incubator Grant proposal.

**22. The solicitation lists six focus areas. Can you provide examples of activities that might fit under each focus area?**

***Arctic Residents.** Convergence research approaches to help researchers to understand the complex relationship between Arctic residents and their natural and*



*cultural landscape. Studies are needed to better understand how social, economic, and governance systems interact with infrastructure and how environmental and biophysical changes in the Arctic impact these interactions.*

This could include a focus on multi-scalar governance systems, how Arctic communities adapt to rapid Arctic transformations, shifting demographics and cultural systems, or resilience and vulnerability of coastal and inland settlements to rapid environmental changes, including sea level rise and increasing wildland fires. In addition, studies could focus on changes in biodiversity and ways of life and their effects on livelihoods, food security, and subsistence harvests; efforts made to maintain and share Indigenous knowledge and languages in the face of rapid loss; and wider social, ecological, institutional, and cultural efforts being made by Arctic residents to adapt to these changes.

***Data and Observation.*** *Innovations in interoperable national and international Arctic observational networks, instruments, sensing and sensor-network technologies; shared and open data collections; and/or intelligent data management, analysis, and/or modeling efforts that address impacts and new opportunities on the interactions or connections between at least two of the natural and built environments and social systems. Engaging local and global communities in the design and deployment of these new technologies and observational networks is strongly encouraged.*

Examples include: anticipating, understanding, and predicting changes in Arctic social systems and natural and built environments, e.g., via the introduction of customized sensor platforms; or use of underwater robots as novel tools to map sea floors, characterize biogeochemical, geophysical, and ecological sea conditions, and/or provide ground-truthing for satellite estimation of ice thickness. Novel and robust observation techniques by Arctic residents could also provide a valuable source of information that can deepen understanding of Arctic systems at multiple scales. New sensors, sensing, and sensor-networking/Internet of Things (IoT) technologies to solve problems and development of improved data management systems including machine learning for analyses and computational models that inform decision-making relevant for NNA may also be appropriate as elements of NNA proposals.

***Education.*** *Research on the effectiveness of formal and informal education activities; methods and impact of dissemination of science, technology, engineering and mathematics (STEM) research results; and formation of collaborations for convergence research in the new Arctic. Studies are also needed on diverse methods to create an informed public, which is critical to the development of national policies and priorities.*

Examples include: research on successful models to develop graduate students as the next generation of scientists who are well-trained to address the scientific challenges in



Arctic science; research on the development of effective methods for developing strong partnerships between Arctic researchers and Arctic residents to collaborate on the co-production of knowledge in NNA projects; studies of the efficacy of existing learning environments and development of new learning environments in northern regions; basic research on improved student learning using new education materials developed by NNA projects; or research on the effectiveness and impact of methods of dissemination of NNA project results to diverse stakeholders.

***Forecasting.*** *Studies to understand and forecast interdependent changes in the biogeochemical, geophysical, biological, ecological, institutional, and social processes occurring in the new Arctic, including, when appropriate, global feedbacks. The dramatic expansion of information and emergence of novel simulation techniques provide an exciting opportunity for the science community to understand present conditions and model possible futures to which we must respond.*

Examples include: evolutionary, physiological, and ecological responses of flora and fauna; changes in Arctic landscapes, driven by permafrost thaw and fire, that fundamentally alter ecosystems; dynamic interactions between changing Arctic landscapes and the atmosphere as well as the Arctic ocean; changes in Arctic Sea temperatures and salinity that impact marine ecology; or a wide range of human activities, such as governance and decision-making structures, examinations of the influence of environmental change in the Arctic on global security and political phenomena, and/or the impact of responses of state governmental institutions and international organizations to rapid Arctic change. Novel simulation techniques, including for multi-domain simulations, may enable all these examples and other NNA-relevant research questions. Keep in mind that, as stated above, proposals must address how research activities will lead to understanding of questions at the intersection between the natural environment, the built environment, and social systems.

***Global Impact.*** *Understanding and forecasting global influences, consequences, and opportunities arising from a changing Arctic. Studies are needed to help researchers understand how biophysical and other changes in the Arctic link to environmental, social, geopolitical, and economic realities in the rest of the world.*

Examples include: projects focused on understanding the impacts of Arctic change on environmental, climatic and biophysical processes across the globe, where the link to Arctic processes is made clear; and understanding the consequences and opportunities for international trade, the global economy, natural resource extraction industries, national security, and other geopolitical factors from the expanding ability to navigate the new Arctic.

**Resilient Infrastructure.** *Innovations and studies enabling fundamental science and engineering research in forward-looking, sustainable, adaptable, and resilient infrastructure to meet current and future challenges of a changing Arctic. Infrastructure must be capable of withstanding extreme and variable temperatures in Arctic marine, freshwater, soil, and sediment environments, as well as adapt to ongoing changes in the atmospheric, cryospheric, marine, terrestrial, and institutional systems.*

Examples include: projects (1) to understand and mitigate the negative effects of thawing permafrost, changes in the frequency and nature of natural disasters; and changing demands for, and stresses on, current and future built infrastructure; (2) to explore approaches to vastly improve communications, housing, and transportation systems that can endure Arctic conditions, including ground-based and marine transportation systems (manned or autonomous), satellite-based communications, and/or supply chain logistics under dynamic and uncertain conditions; and/or (3) to research new technologies that are needed to enable sustainable, green Arctic infrastructure capable of withstanding extreme and variable conditions.

## INCUBATOR GRANTS

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**23. Is it necessary to submit an Incubator grant proposal, or receive an Incubator grant award, to submit proposals to future NNA competitions?**

No.

**24. Must the original team for a successful Incubator grant proposal be retained for future NNA proposals?**

No.

**25. The solicitation states "NSF particularly encourages Incubator Grant proposals that reflect integrative, convergence research; tangible research capacity-building; meaningful community engagement; and efforts to advance education." Is it required that all four elements be present in the proposal?**

No.

## RESEARCH GRANTS

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**26. How do I know if my project is more appropriate for an NNA Research Grant or for another program at NSF?**

As stated in the NNA solicitation, Research Grant proposals must address a question or questions at the intersection between at least two components of the NNA Venn

diagram: the natural environment, the built environment, and social systems. All Research Grant proposals also must address at least one of the six focus areas listed in the solicitation. In addition, proposals must have a strong connection to real-world needs of the changing Arctic or its global impact, with clear evidence of domain expertise within the investigative team. Proposals are expected to be convergent in nature as [defined by NSF](#). Projects not meeting these requirements would not be appropriate for NNA Research Grants but could be appropriate for other programs at NSF. Contact program officers of relevant programs if you are unsure.

**27. Can I submit a Research Grant proposal for a project that does not involve research in the Arctic?**

Yes, provided the project meets the requirements of the solicitation. As an example, a project that examines the implications of the changing Arctic on two or more of the natural environment, built environment, and social systems could be appropriate under the Global Impact focus area, even if those environments and/or systems are not located in the Arctic itself.

## **COLLABORATORY GRANTS**

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**28. Must a Collaboratory Grant include support for a physical center that organizes NNA activity?**

No. Although a physical center may facilitate activities that are coordinated across diverse stakeholders, PIs may suggest other means by which they intend to cultivate long-term partnerships or infrastructures that enhance the likelihood and feasibility of convergence research.

**29. Partnerships are encouraged in NNA Research Grants. How do Collaboratory Grants differ?**

NNA Research Grants are intended to support fundamental research whereas Collaboratory Grants are intended to provide the foundation for long-term activities that support diverse research projects that contribute to NNA Program Goals. We anticipate that partnerships in Collaboratory Grants will address grand challenge questions of a scope broader than what is expected for Research Grants, with outcomes that have far-reaching implications for scientists, engineers, and educators, Arctic residents, and the global community.

**30. Do Collaboratory Grants differ in the number of required components of the NNA Venn Diagram that must be addressed?**

Yes, unlike Research and Incubator Grants, Collaboratory Grants must address all three

components of the NNA Venn Diagram

## COMMUNITY OFFICE

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### 31. **Can we solicit letters of collaboration from the NNA Community Office (NNA-CO)?**

No. The solicitation states, "NNA proposals may not include letters of collaboration from NNA-CO personnel in their capacity as a representative from the NNA-CO." Individuals who are involved in the NNA-CO may collaborate in other capacities, but not under the auspices of the NNA Community Office.