MAY 2023 – REQUEST FOR RESEARCH PROPOSALS

Social and Economic Impacts of PFAS in the Great Lakes and Lake Champlain Regions

Background: Per- and polyfluoroalkyl substances (PFAS) are a suite of hundreds-to-thousands of manufactured "forever chemicals" that are persistent in nature and toxic to many organisms. Additional chemical precursors, metabolites, or degradates to PFAS and related substances exist in nature and have potential to be toxic to many organisms. While much remains to be learned about the fate and transport of PFAS and related compounds in the environment, people and communities are currently being impacted by the ubiquitous nature of PFAS and related compounds, for example, in drinking water, food, packaging, personal care products, and building materials.

With support from the National Sea Grant Office, the Illinois-Indiana Sea Grant College Program (IISG) has $400,000 to invest in promising research projects relevant to social and economic impacts of PFAS exposure, mitigation, and remediation in the Great Lakes and Lake Champlain regions. For purposes of this competition, "PFAS" refers to any component of the suite of per- and polyfluoralkyl substances and related compounds, including precursors. Work is to be conducted between October 1, 2023 and March 31, 2025. Funding is competitively awarded following procedures outlined below. Work can be conducted anywhere in the Great Lakes and Lake Champlain regions so long as it supports the priorities identified in this document. Priorities were identified via a series of scoping activities (3 workshops, 1 survey) in early 2023. A full report of the scoping effort, which includes additional details on key demographic groups and research needs for the regions, can be found at the project webpage.

Project Details: Projects should propose to answer a clear research question or set of related questions, should focus on one or more groups that live, work, and/or recreate in the Great Lakes and Lake Champlain regions, and should demonstrate fit with one or more of the following research priorities. The priorities are not listed in any particular order.

- *Understanding exposure to PFAS*
    - Improved understanding of how different groups or communities may be differentially exposed to PFAS, e.g., higher consumption of fish on a regular basis; use of well or other waterways that are not regularly monitored or not currently monitored
    - How exposure and consumption to PFAS translates within the context of traditional knowledge
- *Communicating risks and actions for PFAS*
    - How to best communicate uncertainty surrounding the scientific knowledge of PFAS and its effects, while also ensuring members of the public, or specific communities (e.g., those at higher risk of PFAS exposure, those more susceptible to effects of PFAS) take appropriate action to keep themselves safe
    - How to effectively communicate taking action(s) that are most successful at reducing or preventing PFAS exposure

- *Economic impacts of PFAS*
    - What are the economic impacts of PFAS contamination on communities, considering matrices such as drinking water, fish consumption, solid waste application
    - Cost-benefit analyses of the most effective and efficient treatment methodologies for PFAS
- *Policies and regulations for PFAS*
    - How to implement effective policies and regulations around PFAS including at local, regional, and international levels
    - Examination of the potential impacts of total vs. partial bans of PFAS

In addition, all projects must identify a local Sea Grant program that will support outreach activities associated with the proposed research.

Types of Research: For this RFP, IISG anticipates funding projects that use a variety of experimental techniques, including but not limited to social science assessments (e.g., of attitudes or perceptions related to behavior change), economic cost-benefit analyses, legal or policy analyses, and modeling efforts.

Outreach Requirement: For this RFP, applicants must identify clear end users or otherwise demonstrate connections to user groups who will benefit from their research; however, research teams need not conduct all or most of the outreach activities themselves. To be eligible for funding, applicants must demonstrate that, if successful, they will partner with at least one regional Sea Grant program (i.e., Minnesota, Wisconsin, Illinois-Indiana, Michigan, Ohio, Pennsylvania, Lake Champlain, New York) to extend the findings of their work. A small, separate pot of funds will be available to the partnering Sea Grant program to support outreach efforts. Additional details are included in the Proposal Guidance section.

Funding Amounts: Projects can request up to $100,000 to support proposed work. IISG anticipates funding 4 projects via this call. All applicants must demonstrate at least 50% in non-federal cost share or match (1 non-federal dollar for every 2 federal dollars requested) for the overall project. Examples of what can be used as match include academic year salary and volunteer time, but specifics of what can be claimed varies by institution. **PIs should work closely with the fiscal or business office at their home institution to determine what is allowable as match.**

Funding will be provided for up to eighteen months beginning October 1, 2023, or the date of the award, and projects should be completed by March 31, 2025. While IISG does not anticipate delays in project start dates, at times, federal budgeting activities delay receipt of funds by IISG and subsequent flow of funds to the successful PIs. Any anticipated delay in funds will be communicated by IISG to successful PIs so that workflows can be adjusted accordingly.

PI Eligibility: We encourage individuals from all disciplines to apply to this RFP. IISG is committed to supporting justice, diversity, equity, and inclusion efforts. The full IISG values statement can be found at https://iiseagrant.org/about/about-us/ #value.

Investigators from United States-based educational or research institutions including universities, museums, State and Tribal agencies, and NGOs, are eligible to serve as PI for these funds. Researchers from all states are welcome to apply but proposed work must demonstrate how it will benefit individuals or communities in the Great Lakes and Lake Champlain regions, and meet research priorities as described above. Sea Grant staff are eligible to serve as primary investigator on these funds. Consulting companies can serve as co-investigators or project partners but should not receive more than 50% of the project funds. Federal employees are not eligible to receive these funds and federal funds should not be used as match, but federal employees can partner with applicants on projects.

Early career scientists and/or persons who have partnered with, or plan to mentor, early career scientists are encouraged to apply. All applicants are encouraged to make research plans such that their work will effectively center on underrepresented racial and ethnic groups, people with disabilities, and/or people from economically or educationally disadvantaged backgrounds that have limited their ability to pursue a career in STEM. This could include recruitment of students or personnel from these underrepresented groups.

Funding Decisions:
Funding recommendations are based on external review, but are ultimately made at the discretion of the IISG director. Provided that enough proposals are of sufficient quality and scientific rigor, proposals will be selected for funding to maximize geographic and topical diversity of awards. Funding recommendations will also prioritize projects that demonstrate potential to benefit underserved* communities in the Great Lakes and Lake Champlain regions. Benefits may include but are not limited to improved quality of life, job training and student opportunities, and increased access to beneficial services or information.

Letter of Intent: To help expedite the review process, prospective PIs must submit a letter of intent at least 4 weeks before the full proposal submission date. PIs will not receive feedback on their letter of intent past acknowledgment that the letter was received. Letters of intent should be emailed to iisg@purdue.edu and include the following information, where project team members and partners need not be final at the time of submitting the letter of intent:

- Tentative Project Title (required)
- Principal Investigator and Affiliation (required)
- Associate Investigator(s) and Affiliation(s) (optional)
- Anticipated Sea Grant Program Partners (required)
- Anticipated Other Partners (optional)
- Project summary that outlines the Objectives, Methodology, and Rationale for the proposed project (required, no more than 2 pages)
- Name and contact information for 3 potential technical reviewers of the work (required)

Proposal Submission Deadline: Applicants who provided a letter of intent on time should submit all proposal materials via https://esg.iiseagrant.org/ by 11:59 p.m. Central time on July 31, 2023. Applications should be submitted to the "Regional PFAS Research Competition". Late applications will not be accepted unless the applicant has contacted IISG staff members

before the deadline to make them aware of potential issues, (e.g., computer, power, or internet issues). IISG reserves the right to refuse late applications if the program determines that individual circumstances do not warrant an extension. IISG staff members may only be available to answer questions until 5:00 pm Central time on July 31, 2023.

The proposal submission process will include a voluntary demographics questionnaire, which IISG is required to administer on behalf of the National Oceanic and Atmospheric Administration (NOAA, home to the Sea Grant program). NOAA is interested in learning more about who applies to their funding opportunities. Questionnaire answers will not be included in materials provided to reviewers or otherwise influence the current competition. Additional details are included in the eSeaGrant submission portal for this opportunity. Questions should be directed to BOTH Amanpreet Kohli (kohli19@purdue.edu) and Carolyn Foley (cfoley@purdue.edu).

Proposal Review Timeline:

July 3, 2023	Letter of intent due to IISG
July 31, 2023	Full proposals due to IISG
By September 15, 2023	Notification of funding, accompanied by panel and peer reviews
September 26, 2023	Final adjusted proposals due to IISG (if required)
October 1, 2023	Project initiation (subject to the availability of funds)

Questions regarding eligibility or submission requirements may be directed to BOTH Amanpreet Kohli (kohli19@purdue.edu) and Carolyn Foley (cfoley@purdue.edu).

*A community may be underserved because of geographic location, racial and ethnic status, and/or other special needs (such as language barriers, disabilities, citizenship status or age). To achieve the highest score during the review process, prospective PIs should plan to describe meaningful engagement of community members from the beginning of the project and/or suggest how project results will be shared in support of underserved community members, for example: by seeking out key partners at organizations that support underserved community members; or by working with NGO, industry, or agency partners to implement research findings in ways that would most benefit underserved communities/community members. Prospective PIs, particularly those who have not previously conducted research in the Great Lakes and Lake Champlain regions, are highly encouraged to engage with partners who are trusted by the populations the PIs hope to serve.

Proposal Guidance

Background: To achieve the highest score during the review process, prospective principal investigators (PIs) should carefully review all required components plus the review criteria described below. Though the specific research priorities that should be addressed are included above, PIs are strongly encouraged to review the full scoping workshop report developed for the region (available via the project webpage).

Full Proposal Application Components: Each full proposal application should include following required documents.

1) Project Summary – The project summary should include
    - A cover page that lists the project title and names, titles, affiliations, and contact information (email and phone) of the PI and any co-investigators. The cover page can be more than one page long if necessary (e.g., a proposal has many co-investigators).
    - A one-page project abstract that outlines the objectives, methodology, and rationale for the project, and includes notable expected outcomes.

2) Proposal Narrative – Submit as a PDF, no smaller than 11-point font, fifteen pages maximum including figures and tables. The proposal narrative should include the following components:
    - Project background
        - Explain the specific opportunities and challenges this project seeks to address. Further, justify its importance, for example by describing the impact of the problem.
        - Be sure that this section demonstrates how the proposed project is tied to a specific research priority identified in this RFP.
    - Project objectives
        - Provide a list of clearly defined objectives. Projects funded through this competition should propose to answer a clear research question or set of related questions, and the objectives should reflect this.
    - Project details, methodology, and approach
        - Provide an explanation of the methods you will use to address your project objectives. Explicitly explain how this project will be conducted. The proposals will be reviewed by both technical experts and more general experts, and should include sufficient information for evaluation per criteria outlined below. If applicants are currently conducting complementary research to that proposed for this competition, they are welcome to reference that in the project narrative; however, the work described in their application should be able to be completed independent of any other projects.
        - Identify the Sea Grant program(s) who will help your project team integrate end users of information into the research projects and/or extend the results of the work, if this application is successful, and provide a brief description of their expected involvement with the project. **The Sea Grant program(s) should also submit a letter of support that must be included with your application materials. Failure to include a letter of support from a relevant Sea Grant program will disqualify your proposal from the competition.**
    - Anticipated outcomes and results
        - What are the expected short- and long-term outcomes and results related to the creation of scientific knowledge? Provide a list of expected outcomes

and deliverables that will result from your project(s). Explain how these outcomes will be directly and beneficially applied to the current and future needs of communities and other interested parties. Throughout the proposal, applicants are strongly encouraged to identify clear end users or otherwise demonstrate connections to user groups who will benefit from their research.

- Outreach and technology transfer plan
    - Outline a strategy to ensure that users across the Great Lakes and Lake Champlain regions, beyond those who actively participate in the proposed work, will learn about the project's outcomes. If appropriate, outreach and technology transfer plans can be incorporated into the objectives and anticipated outcomes and results, rather than repeated in a separate section. Applicants are encouraged to use the terms "outreach" and "technology transfer", as appropriate, to help reviewers easily locate the information.
- Project timeline
    - Provide a timeline for accomplishing the proposed work. The timeline should cover the entire duration of the project. Include approximate dates for key milestones related to the proposed work. These milestones may include achieving the objectives, delivering the scientific and technical results, and achieving anticipated outcomes. At least some short-term outcomes are expected to fall within the timeline of the project. If long-term outcomes are beyond the scope of the project, they should not be described in the timeline. They can be described in the outreach and technology transfer sections.
- References
    - There is no required format for references. References do not count toward the page limit.

3) 90-4 Budget Form plus Budget Narrative – Funding will be provided for up to eighteen months beginning October 1, 2023, or the date of the award, and projects should be completed by March 31, 2025. Investigators can request up to $100,000.

- All applicants must demonstrate at least 50% in non-federal match (or cost-share; 1 non-federal dollar for every 2 federal dollars requested) for the overall project, i.e., if a PI requests $100,000 they must display a minimum of $50,000 in non-federal match in their budget, for an overall project budget of $150,000. Examples of what can be used as match include academic year salary and volunteer time, but specifics of what can be claimed varies by institution. *PIs should work closely with the fiscal or business office at their home institution to determine what is allowable as match.*

- Investigators should budget for the negotiated federal indirect costs rates for their home institutions. The full list of budget categories can be found on the 90-4 form. Investigators should use the Excel version of the 90-4 form, and should outline the budgets for each year of the project plus an overall budget request (i.e., break out

years 1 and 2, but also provide the overall request). For subawards, applicants should include each subaward as a line item in the main budget plus narrative then attach a 90-4 form plus budget narrative specific to each subaward.

4) Investigator Bio-Sketch – Include a maximum two-page bio-sketch or CV for each investigator. NSF or NIH format is acceptable but not required.

5) Letters of Support – If applicable, letters from key end users of information (e.g., communities, professional groups, agency personnel) can help make the case for the usability of your proposed research.

   In addition, **all applicants to this RFP must include a letter of support from at least one regional Sea Grant Program (i.e., Minnesota, Wisconsin, Illinois-Indiana, Michigan, Ohio, Pennsylvania, Lake Champlain, New York) to extend the findings of their work. Failure to include a letter of support from a relevant Sea Grant program will disqualify your proposal from the competition.** Sea Grant partners of successful research proposals will be able to apply for up to $10,000 to support the Sea Grant program's efforts to extend the research team's impact and results. This $10,000 must also be accompanied by at least $5,000 in non-federal match (cost-share). This $10,000 plus cost share should not be included in the proposal budget (Item 3).

   Support letter(s) from Sea Grant programs should include at a minimum: the name(s) of Sea Grant staff who will partner with the research team if the team is recommended for funding via the competition; a brief description of activities the Sea Grant staff will undertake to support the research being conducted by the team; written confirmation that the Sea Grant program will support their staff in this work, including providing required non-federal matching funds.

6) Current and Pending – Include current and pending funding for all investigators and co-investigators.

7) Abbreviated Environmental Compliance Questionnaire and Institutional Review Board Requirements (IRB) – Sea Grant-funded research projects are subject to local, state, and/or federal environmental permitting requirements associated with the work being proposed. Examples of such projects include but are not limited to: aquaculture projects; projects that will conduct any sampling in sensitive areas, including state or national parks, or private property and/or deploy equipment long-term; projects on or in the area of threatened or endangered species, or any vertebrate species. All potential PIs should provide an Abbreviated Environmental Compliance Questionnaire, completed to the best of their abilities, with their full proposal. **This is intended to be a standalone document that is independent of the proposal narrative and applicants should ensure that relevant details from the proposal narrative are included in the Abbreviated Environmental Compliance Questionnaire and vice versa.** Every box should have an answer, and the Abbreviated Environmental Compliance Questionnaire should cover all activities proposed.

- Per the requirements in the Abbreviated Environmental Questionnaire, potential PIs must include with their full proposal a list of all state and federal permits required to complete the project, including whether these permits have already been acquired. Copies of all permits required for project activities must be provided if they are final. If a permit is pending or planned, please provide this information. If a partner institution will be responsible for acquiring permits, this should be stated in the application. The responsibility for acquiring permits lies with the funded PI, and failure to secure permits may result in delayed receipt of funds or changes to the scope of work proposed. Funded PIs are required to share with the Sea Grant program proof that all required permits and permissions have been granted prior to expending funds on the work covered by the permit. This is typically accomplished by providing copies of the permits. Absence of required permits will result in the NSGO placing restrictions on the award until those permits are provided, and host institutions may have additional restrictions on such funds, per their own policies. The Abbreviated Environmental Compliance Questionnaire, guidance on how to complete the questionnaire, as well as examples of completed questionnaires, webinars, and Q&As can be found here under NEPA Compliance: https://seagrant.noaa.gov/insideseagrant/Implementation

- Potential PIs who plan to conduct human subjects research should state in their proposal whether the proposed research is subject to Institutional Review Board (IRB). No work involving human subjects may be undertaken, conducted, or costs incurred and/or charged for human subjects research, until appropriate documentation is approved in writing by IRB. IISG staff will work with those PIs whose projects are recommended for funding to ensure all forms are properly filled out. No work involving human subjects may be undertaken, conducted, or costs incurred and/or charged for human subjects research, until the appropriate documentation is approved in writing by the NOAA grants officer. Host institutions may have additional restrictions on such funds, per their own policies.

8) Data Management Plan (where applicable) – Submit as PDF, no smaller than 11-point font, two pages maximum.

- The National Oceanic and Atmospheric Administration requires that all environmental data (see full definition **here**) from funded projects be verified and made accessible, free of charge, or at no more than the cost of reproduction, within two years of completion of the project. To be considered for Sea Grant funds, researchers should outline how their data will be shared and maintained in perpetuity. The Data Management Plan should be a written narrative that briefly describes the parameters of the project. The contents of the Data Management Plan (or absence thereof), and past performance regarding such plans, will be considered as part of proposal review.

- A typical data management plan should include descriptions of the types of environmental data and information expected to be collected or created during the course of the project; the tentative date by which data will be shared; the standards to

be used for data/metadata format and content; procedures for providing access, data, and security; the approximate total volume of data to be collected; the type of collection method (e.g., aircraft, ship, satellite); and a point of contact for questions about the data covered by the plan. Applicants may choose to rely on to their home institution's tools for ensuring data stewardship and preservation and may refer to those in their plan. If a project does not generate environmental data, note this in the Project Summary (item 1).

Forms and additional guidance for all components can be found at https://iiseagrant.org/research/funding-opportunities/templates-and-guidance-for-proposal-submissions/. Information in the current RFP document overrides any guidance documents available at that link. Questions should be directed to BOTH Amanpreet Kohli (kohli19@purdue.edu) and Carolyn Foley at Illinois-Indiana Sea Grant **(**cfoley@purdue.edu**).**

Review Process for Full Proposals

A panel of subject experts will be convened to evaluate the proposals in light of the technical reviews. Panel members will be selected for their ability to evaluate not only the science of the proposed work, but the potential for the proposed work to have broader impacts in both scientific communities and society. Panelists may be based anywhere in the world, thus applicants should not assume that all reviewers are completely familiar with the issues their proposal plans to address. All panelists must declare conflicts of interest.

Items 1 through 6 will be provided to these panelists. Every panelist will not necessarily review every proposal; however, each proposal will have at least 3 panelists that evaluate it as follows:

Before the panel discussion, panelists will evaluate each of their assigned proposals according to this rubric:

OVERALL PROPOSAL RATING
A Excellent – A truly meritorious research project
B Good – A research project that clearly deserves support but to which minor improvements are recommended in order to achieve desired outcomes
C Adequate – A research project that should be supported, assuming major reservations related to achieving desired outcomes can be addressed
D Questionable – A research project about which reservations are so serious that it should be supported only in exceptional circumstances

TECHNICAL MERIT OF PROPOSED RESEARCH (each of these ranked on a scale of 1-to-5, 5 being best)

- Is the problem to be addressed a valid and significant one?
- Are the objectives clearly stated?
- Are the methods appropriate and feasible? Are they innovative?
- Will the data be analyzed in an appropriate way?
- Is the proposed time frame adequate to complete the project?

RELEVANCY AND IMPACTS OF PROPOSED RESEARCH (each of these ranked on a scale of 1-to-5, 5 being best)

• Does the proposal address research questions and data gaps outlined in the RFP?
• Is the proposal technically sound?
• Do the researchers clearly identify potential users of the information being developed in the project? (Note this portion of the work could potentially be completed by a Sea Grant partner with the additional funds available to support successful projects, but a description of users of the information plus a plan for engaging with them should be included in the proposal narrative.)
• Is the research team qualified to perform the work?
• Is the budget adequate?

The following bonus point categories are worth up to 2 points each:
• Bonus points 1: Will the proposal benefit (an) early career scientist(s)?
• Bonus points 2: Does the proposal outline a plan to recruit and engage with students and staff from underrepresented racial and ethnic groups, individuals with disabilities, and/or individuals from economically or educationally disadvantaged backgrounds that have inhibited their ability to pursue a career in STEM?
• Bonus points 3: Does the proposal include a clear pathway toward benefitting underserved communities in the Great Lakes or Lake Champlain regions (even if the expected outcome will require additional work to achieve impacts)? Underserved communities may be underserved because of geographic location, racial and ethnic status, and/or other special needs (such as language barriers, disabilities, citizenship status or age).

During the panel discussion, panelists will discuss the relevancy of the projects in light of all available reviews, and will ultimately come to consensus on the overall proposal rating (A, B, C, D, as described above), plus whether proposed projects are fundable, or not, as written. The fundable/not fundable designation outweighs any numerical scores, as sometimes proposals review extremely well technically but discussion among panelists reveals key flaws.