



**Date Posted: Monday, September 26, 2022**

## **REQUEST FOR PROPOSALS (RFP)**

### ***Fate of Microplastics in Drinking Water Treatment Plants (RFP 5185)***

**Due Date:** Proposals must be received by **3:00 pm Mountain Time on November 22, 2022**

**WRF Project Contact:** Ashwin Dhanasekar, [adhanasekar@waterrf.org](mailto:adhanasekar@waterrf.org)

#### **Project Sponsors**

This project is funded by The Water Research Foundation (WRF) as part of WRF's Research Priority Program.

#### **Project Objectives**

- Characterize Microplastic (MP) concentrations in source waters and quantify their loading variability
- Characterize MP concentrations before and after each unit process in drinking water treatment plants

#### **Budget**

Applicants may request up to \$250,000 in WRF funds for this project.

#### **Background and Project Rationale**

There is increasing public concern over the amount of plastic pollution in the environment and its effects on human health and ecosystems. Widespread reports about trillions of microplastics (MPs) discharging into freshwaters as well as reports of their toxicity and role as a vector of contaminant bioaccumulation quickly led to the popular banning of microbeads (one component of MPs). Current and ongoing WRF MP work has focused on occurrence, management, and monitoring strategies (WRF 5088) as well as the fate and major removal mechanisms in water and resource recovery facilities (WRF 4936). These projects were linked to a previous MPs research area; the associated Advisory Committee identified research on the fate and transport of microplastics in drinking water treatment facilities as the next logical step to complement the existing MP research portfolio.

To put things into perspective, California has now implemented a statewide program to mitigate microplastic pollution. They've also identified near-term actions to eliminate microplastic pollution at its point of origin and help educate the general public about the environmental risks presented by MPs. More research is needed on the removal of MPs by various conventional and advanced drinking water treatment processes—particularly for sizes smaller than 300 microns (0.3 millimeters).

#### **Research Approach**

Results will help utilities operating drinking water treatment plants better understand their current MP removal potential and inform optimization of the treatment process for MP removal. The project team is

expected to demonstrate that sample collection methods are reliable and consistent with minimum background interference. The proposal would ideally help demonstrate analytical methods performance in different size ranges.

MPs under 50  $\mu\text{m}$  (with a preference under 20  $\mu\text{m}$ ) are the most relevant for this study. Source water included in the study could be varied and consider different characteristics (e.g., TOC, turbidity, TSS, etc.). Conventional treatment processes in drinking water treatment plants and removal efficiencies need to be evaluated. Correlations between removal efficiencies and common operational parameters need to be included. Results will help utilities operating drinking water treatment plants better understand their current MP removal potential and inform optimization of the treatment process for MP removal. This is also a rapidly growing research area; innovative approaches are encouraged.

### **Expected Deliverables**

A final report outlining the fate of MPs through drinking water unit processes and identifying optimization potential using current infrastructure/processes. This will include a literature review, recommended sample collection methods, and a webcast.

### **Communication Plan**

Please review WRF's *Project Deliverable Guidelines* for information on preparing a communication plan. The guidelines are available at <https://www.waterrf.org/project-report-guidelines>. Conference presentations, webcasts, peer review publication submissions, and other forms of project information dissemination are typically encouraged.

### **Project Duration**

The anticipated period of performance for this project is 24 months from the contract start date.

### **References and Resources**

The following list includes examples of research reports, tools, and other resources that may be helpful to proposers. It is not intended to be comprehensive, nor is it a required list for consideration.

- Fahrenfeld, N. forthcoming. "Defining Exposures of Microplastics/Fibers (MPs) in Treated Waters and Wastewaters: Occurrence, Monitoring, and Management Strategies." Project 5088. Denver, CO: The Water Research Foundation.
- Sturm, B. 2022. "Determining the Fate and Major Removal Mechanisms of Microplastics in Water and Resource Recovery Facilities." Project 4936. Denver, CO: The Water Research Foundation.

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### **Proposal Evaluation Criteria**

The following criteria will be used to evaluate proposals:

- Understanding the Problem and Responsiveness to RFP (maximum 20 points)
- Technical and Scientific Merit (maximum 30 points)
- Qualifications, Capabilities, and Management (maximum 15 points)
- Communication Plan, Deliverables, and Applicability (maximum 20 points)
- Budget and Schedule (maximum 15 points)

### **Proposal Preparation Instructions**

Proposals submitted in response to this RFP must be prepared in accordance with the WRF document *Guidelines for Research Priority Program Proposals*. The current version of these guidelines is available

at <https://www.waterrf.org/proposal-guidelines>, along with *Instructions for Budget Preparation*. The guidelines contain instructions for the technical aspects, financial statements, indirect costs, and administrative requirements that the applicant must follow when preparing a proposal.

Proposals that include the production of web- or software-based tools, such as websites, Excel spreadsheets, Access databases, etc., must follow the criteria outlined for web tools presented in the Web Tool Criteria and Feasibility Study for The Water Research Foundation Project Deliverables at <https://www.waterrf.org/project-report-guidelines#deliverables>.

### **Eligibility to Submit Proposals**

Proposals will be accepted from domestic or international entities, including educational institutions, research organizations, governmental agencies, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at <https://www.waterrf.org/policies>. Researchers who are late on any ongoing WRF-sponsored studies without approved no-cost extensions are not eligible to be named participants in any proposals. Direct any questions about eligibility to the WRF project contact listed at the top of this RFP.

### **Administrative, Cost, and Audit Standards**

WRF's research program standards for administrative, cost, and audit compliance are based upon, and comply with, Office of Management and Budget (OMB) Uniform Grants Guidance (UGG), 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in WRF's *Guidelines for Research Priority Program Proposals*, and include specific guidelines outlining the requirements for indirect cost negotiation agreements, financial statements, and the Statement of Direct Labor, Fringe Benefits, and General Overhead. Inclusion of indirect costs must be substantiated by a negotiated agreement or appropriate Statement of Direct Labor, Fringe Benefits, and General Overhead. Well in advance of preparing the proposal, your research and financial staff should review the detailed instructions included in WRF's *Guidelines for Research Priority Program Proposals* and consult the *Instructions for Budget Preparation*, both available at <https://www.waterrf.org/proposal-guidelines>.

### **Budget and Funding Information**

The maximum funding available from WRF for this project is \$250,000. The applicant must contribute additional resources equivalent to at least 33 percent of the project award. For example, if an applicant requests \$100,000 from WRF, an additional \$33,000 or more must be contributed by the applicant. Acceptable forms of applicant contribution include cost-share, applicant in-kind, or third-party in-kind that comply with 2 CFR Part 200.306 cost sharing or matching. The applicant may elect to contribute more than 33 percent to the project, but the maximum WRF funding available remains fixed at \$250,000. **Proposals that do not meet the minimum 33 percent of the project award will not be accepted.** Consult the *Instructions for Budget Preparation* available at <https://www.waterrf.org/proposal-guidelines> for more information and definitions of terms.

### **Period of Performance**

It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine

months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <https://www.waterrf.org/policies>.

### **Utility and Organization Participation**

WRF encourages participation from water utilities and other organizations in WRF research. Participation can occur in a variety of ways, including direct participation, in-kind contributions, or in-kind services. To facilitate their participation, WRF has provided contact information, on the last page of this RFP, of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their particular proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their particular proposal.

### **Application Procedure and Deadline**

**Proposals are accepted exclusively online in PDF format, and they must be fully submitted before 3:00 pm Mountain Time on November 22, 2022.**

The online proposal system allows submission of your documents until the date and time stated in this RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission. Submit your proposal at:  
<https://forms.waterrf.org/222555888917877>.

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Ashwin Dhanasekar at (303) 734-3423 or [adhanasekar@waterrf.org](mailto:adhanasekar@waterrf.org). Questions related to proposal submittal through the online system may be addressed to Caroline Bruck at (303) 347-6118 or [cbruck@waterrf.org](mailto:cbruck@waterrf.org).

## 5185 Utility and Organization Participants

The following utilities have indicated an interest in possible participation in this research. This information is updated within 24 business hours after a utility or an interested organization submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending upon your settings, you may need to click refresh on your browser to load the latest file.)**

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