

Watershed Innovations (WINS) Program

2020 Request for Proposals

The Water Resources Center (WRC), in cooperation with the College of Food, Agricultural, and Natural Resource Sciences (CFANS) and the Water Resources Research Institutes program at the U.S. Geological Survey, is pleased to invite proposals to the Watershed Innovations program (WINS). WINS replaces and significantly expands the WRC's former Annual Grants Competition.

The purpose of WINS is to catalyze lasting collaborations that are enhanced by WRC capabilities. The program seeks to support projects in which researchers: innovate to address important water resource concerns in Minnesota; collaborate to advance interdisciplinary inquiry; educate students and early-career researchers on team science skills; and sustain research efforts through extramural sources.

WINS will combine budgeted funding for projects with in-kind services from the WRC. Approximately 4 grants will be funded with a maximum of \$125,000 in budgeted support, and projects can be one to three years in duration. The WRC will provide in-kind support to each funded project in several possible ways, including a Graduate Research Assistantship for a WRS student, training and professional development workshops, consultation for project management and data management, access to WRC communications vehicles, and services to develop future funding.

The scope of current RFP is described in the 2020 Priorities section below. This program is expected to be offered every other year. Priorities in future RFPs may change based on input from stakeholders and the University community.

Eligibility and requirements

The primary Principal Investigator (PI) of a project may be any University of Minnesota faculty member or PI-eligible staff member. Additional project investigators need not be PI-eligible (for example, postdocs and graduate students) but all must be affiliated with the University of Minnesota. While funds may be budgeted for external parties to provide services, budgets may not include subawards to investigators at other institutions. There is no limit to the number of University of Minnesota investigators per proposal or to the number of proposals each investigator may submit.

Each funded team will enter into a cooperative agreement with the WRC. This agreement will include a final work plan and will fully articulate the responsibilities of all parties. Investigator teams will be responsible for:

- completing objectives as identified in the work plan;
- submitting annual progress reports and a final report to the WRC;
- submitting at least one abstract for presentation at the Minnesota Water Resources Conference;

- writing at least one short (approximately 500-word) article about the project to be featured in the WRC's quarterly newsletter, *Minnegram*;
- requiring funded graduate students and other project personnel, as appropriate, to attend WRC-led meetings and workshops (approximately monthly);
- acknowledging the funding source in project outputs.

The WRC will be responsible for:

- creating a webpage for each project to be updated with project outputs and outcomes;
- organizing a series of training and professional development workshops for graduate students, early-career researchers, and other interested investigators;
- announcing funded projects via WRC communication channels, and providing ongoing access to those channels to publicize project outputs and impacts;
- providing additional in-kind services, to be identified in the project proposal (see In-Kind Support section for further details).

2020 Program Priorities

Agricultural watersheds continue to be a source of accumulating stresses on water resources. In the Upper Midwest and elsewhere, agricultural loadings of sediment, nutrients, and chemicals drive water quality impairments, while the growing use of irrigation may deplete terrestrial water stores and exacerbate groundwater contamination. Meanwhile, climate change, land use change, and other long-term drivers amplify existing stresses and expand their reach into new landscapes.

The environmental impacts of agriculture have been documented for decades, prompting numerous initiatives at federal, state, and local levels. Despite sustained effort and substantial investments in conservation practices, the water quality impacts from agriculture have remained a persistent problem. Progress has been hindered by a number of factors, including the limited and uncertain economic incentives for farmers to engage in conservation; the difficulty in measuring the impacts site-specific impacts; and long-term exacerbating trends such as climate change and land-use change.

Scholars from multiple disciplines at the University of Minnesota have conducted pathbreaking research on these issues, positioning our community to lead discoveries that can overcome the remaining barriers. This RFP aims to advance research on innovations, practices, and management tools that meaningfully reduce the impact of agriculture on water resources, including the socio-economic forces driving their adoption and the impacts on different populations. Possible research topics include but are not limited to:

- Development of integrated modeling and decision support tools;
- Water storage on landscape to improve water quality and water access;
- Innovations in nutrient management;
- Innovations in drainage management;
- Innovations in irrigation management;
- Innovations in edge-of-field or in-stream treatment;
- Improved varieties of winter and perennial crops that provide continuous living land cover;
- Distributed monitoring devices and tools to combine and analyze disparate datastreams.

Regardless of research topic, all proposals should incorporate the following aims:

- Aim 1:** Develop interdisciplinary collaboration, either by assembling a new team spanning disciplines or by adding a new dimension to an existing interdisciplinary team;
- Aim 2:** Advance data resources through collection and/or improved techniques for interoperability, processing, or usability of data;
- Aim 3:** Train and educate graduate students, post-docs, and early career scientists;
- Aim 4:** Improve equity through relevance and benefits to underrepresented groups;
- Aim 5:** Position the team for long-term sources of external funding.

In-Kind Support

The WRC can provide various in-kind elements for each project, as outlined below. For these to be committed to a project, however, proposals must identify and describe the in-kind services being requested.

- **GRA support for a Water Resources Science (WRS) student:** The WRC is offering supplemental funding for research assistance from WRS graduate students. The supplement includes salary and tuition-inclusive fringe benefits for a 0.5 FTE, 12-month, appointment of a WRS graduate research assistant (GRA) for up to two student-years. The goals of the GRA supplements are to:
 - Bolster the water science and training potential of proposed projects.
 - Create new interdisciplinary research opportunities for WRS students, with a cluster of students and faculty studying similar topics

Each supplement will fund up to two student-years per submitted proposal. Supplemental funding can be divided to support more than one student over the life of the project, if desired, but all GRA supplements must be expended within the grant-funded period.

Each funded student will be expected to:

- Be enrolled in the WRS program supervised by a WRS faculty member on the project team (any current WRS faculty member may be the supervisor);
 - Have assistantship responsibilities directly tied to the proposed project.
- **Project management and communications support:**
 - External grant development assistance (for proposals budgeting WRC staff)
 - Develop list of proposal requirements
 - Aggregating proposal documents
 - Assist with budget development
 - Coordinate internal pre-submission proposal review
 - Consultation to identify University tools, resources, and training
 - Project management
 - Data management
 - Other project needs

- Communications channels (Water Resources Center Minnegrang, Confluence, etc.) will be open to disseminate project results with the WRC audiences
- **Training Workshops** to advance professional development and capacity of project personnel. Topics to include:
 - Project management
 - Data management
 - Grant development
 - Science communication
 - Website development
 - Diversity and equity
 - Facilitation
 - Bibliometrics and reference management
- **Registration and travel expenses to attend the Minnesota Water Resources Conference** (for one student and one additional team member annually).

Application instructions

A Letter of Intent (LOI) is required for all applications, due October 23, 2020. LOIs should be sent via email to Adam Wilke (awilke@umn.edu) and must include the following information:

- Name, affiliation, and contact information of the Principal Investigator (PI)
- Names and affiliations of co-Principal Investigators (may be changed in the final proposal).
- Brief description of the proposed project (1-2 sentences) and/or tentative title.
- Names and contact information for up to 4 suggested reviewers who have no conflicts of interest with team members.

Proposals are due by 5pm CDT on November 10, 2020. Proposals will only be accepted from investigators who have submitted an LOI. Further application instructions, including a weblink to upload applications, materials will be provided upon receipt of the LOI. All project proposals will be submitted online through a new WRC-CFANS online grant portal called WizeHive.

Note: All information needed for applicants to begin preparing a proposal is contained within this RFP. Teams are encouraged to begin proposal development before submitting a LOI.

A complete proposal includes the following elements:

Proposal and investigator information. Includes project title; names, affiliations and contact information for team members; start and end dates; project scope and keywords; primary work location; and request for WRS Graduate Assistantship supplement. This information will be entered in a webform on the application portal; a preview of the form is in the appendix.

Project Narrative (Use the template provided on the [WRC Funding Opportunities webpage](#) and upload final document in pdf format). The project narrative document includes an abstract page, a project description (which is itself composed of

several required sections, limited to a total of 8 pages). and a list of references cited (no page limit). Instructions for each part and section of this document are outlined below.

- **Abstract.** Provide a brief description of the problem, methods, and objectives (not to exceed 1 page, including Project Title and Abstract headings)
- **Project Description (up to 8 pages).** Include all the following elements:
 - **Statement of regional or state water problem.** Explain the issue(s) the project will address and their importance to water resources (up to ½ page).
 - **Statement of results or benefits.** Specify the type of the information that is to be gained and how it will be used (up to ½ page).
 - **Nature, scope, and objectives.** Identify the project's scope and objectives. Clearly explain how the project would fulfill the aims of the WINS program (up to ¾ page).
 - **Methods, procedures, and facilities.** Provide enough information to permit evaluation of the technical adequacy of the approach to satisfy objectives (2 – 3 pages).
 - **Related research.** Describe how the project is related to previous and ongoing research, and how it will contribute to scientific literature (2 -3 pages) .
 - **Training potential.** Estimate the number of postdoctoral scholars and students, by degree level, who are expected to receive training on the project and briefly describe the knowledge and skills they will acquire. Include student(s) to be supported by WRS Assistantship Supplement, if requested (up to ~½ page).
 - **Project Management and Sustainability.** This section of your proposal explains how your project will be coordinated and sustained, including plans to obtain additional funding. Required elements in this section follow (1 ½ - 2 pages).
 - Clearly explain how the project will position the team for future funding. Identify your plans to seek funding, being as specific as possible about potential funding sources.
 - Identify the requested in-kind services to be provided by WRC staff. Also identify any other WRC capabilities that could be brought to bear in future related projects, if applicable.
 - Provide a timeline of project activities.
 - Describe your plans for team communication and coordination, including roles and responsibilities of team members.
- **References.** Provide a consistently formatted list of references cited in the Project Description (no page limit).

Budget (Use the template provided on the [WRC Funding Opportunities webpage](#) and upload final document in Excel format). Indirect costs are not an allowable expense for this program. Maximum budget of \$125,000 over a duration of 1 to 3 years. Funds for graduate students should *not* be included in the budget if the team is requesting a GRA Supplement for a WRS student. Graduate students from other programs can be part of projects but the associated salary, fringe benefits, and tuition must be included in the budget. Inquire with the WRC for specific budget questions.

Budget justification. (Use the template provided on the [WRC Funding Opportunities webpage](#) and upload final document in pdf format). Provide a budget narrative describing the expenses and connecting each expense to specific activities and objectives. In-kind and matching funds are not required.

Data Management Plan. Describe your plans for data management, including:

- The types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
- The standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
- Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
- Provisions for re-use, re-distribution, and the production of derivatives; and
- Plans for archiving data, samples, and other research products, and for preservation of free public access to them (up to 1 page).

Team qualifications. Include a biosketch or abbreviated curriculum vitae for each team member, highlighting professional experience and qualifications related to the proposed work (up to 2 pages per team member).

Letters of Commitment (Optional). Letters from non-UMN entities to contribute resources to the project to commit staff time, resources, data, etc. are allowable and encouraged.

Note: Proposals should *not* be submitted through Sponsored Projects Administration (SPA). Grants will be awarded using internal account transfers. We recommend, however, that proposers notify their unit head(s) and finance professionals about their proposal prior to submission.

Review and selection process

Proposals will be reviewed by a panel of peer researchers. Panelists will evaluate proposals based on the criteria below and will make funding recommendations to be approved by the WRC director. Proposers will receive a summary of panel reviews. For projects to be funded, the WRC reserves the right to request changes or alterations to proposals before entering into a cooperative agreement.

Proposals will be evaluated for the following:

Relevance. Does the proposed project relate to connections between land use change and water resources in agricultural watersheds in Minnesota? Does it have high value to Minnesota water resource professionals, managers, farmers, policy leaders, or other stakeholders? Does this project evaluate, improve, or innovate the performance and effectiveness of agricultural watershed management? Does the work avoid duplicating previous efforts?

Scientific merit. What is the quality of the research plan? Is the approach scientifically valid? Are the objectives and activities clearly explained? Will proposed activities achieve objectives? Will the research activities result in a significant advance in knowledge?

Team qualifications and interdisciplinary collaboration. Does the team have the capacity and expertise to effectively complete proposed work? Does the project make an interdisciplinary advance by bringing a new team of investigators together and/or by combining approaches from multiple fields in a new way?

Project budget and timeline. Is the budget reasonable and adequate for the work proposed? Is the proposed timeline appropriate, with time allowed for completion of final reports? Are project benchmarks identified?

Training potential. What are benefits to students, post-docs, and/or early career researchers?

Expected benefits and project sustainability. Does the proposal clearly describe the potential outcomes and the potential realistic impacts of the proposed work? Does the proposal actively address the eventual transfer of results to user groups and/or actively engage entities involved in agricultural watershed management (MDA, BWSR, MAWD, MASWCD, or others)? What is the potential to build long-term project activities and secure and leverage external funding resources? Are funding opportunities identified and realistic sources of sponsorship?

Timeline

- RFP released September 15, 2020
- Letter of Intent due October 23, 2020
- Proposals due by 5pm CST on November 10, 2020
- Review decision announced by January 8, 2021
- Proposers may choose a start date between March 1, 2021 and June 30, 2021.

Contacts

Adam Wilke, WINS Program Coordinator, awilke@umn.edu, (612) 625-0279
Jeff Peterson, WRC Director, jmpeter@umn.edu, (612) 624-9282

Appendix: Applicant and Proposal Information

Title: Provide a concise but descriptive title (a maximum of 255 characters).

Project Type: Choose one of the following: Research, Information Transfer, Information Management System, Education, or Other.

Focus Category: Choose up to three categories from the following list, with the most preferred category first: acid deposition; agriculture; climatological processes; conservation; drought; ecology; economics; education; floods; geomorphological processes; geochemical processes; groundwater; hydrogeochemistry; hydrology; invasive species; irrigation; law, institutions, and policy; management and planning; methods; models; nitrate contamination; nonpoint pollution; nutrients; radioactive substances; recreation; sediments; solute transport; surface water; toxic substances; treatment; wastewater; water quality; water quantity; water supply; water use; wetlands

Research Category: Chose one from the following list that most closely applies: Social Sciences, Groundwater Flow and Transport, Water Quality, Biological Sciences, Engineering, Climate and Hydrologic Processes.

Keywords: Enter five keywords of your choice descriptive of the work (a maximum of 255 characters).

Start date: Choose a date between March 1, 2021 and June 30, 2021.

End date: Up to 36 months after the start date.

Principal Investigator(s): Provide the name, academic rank, university, email address, postal address, and phone number of the principal investigator(s).

Congressional District: Identify the Congressional District of the primary location of the project. The St. Paul Campus is in MN-4 and the Minneapolis Campus is in MN-5.

Water Resources Science Graduate Assistant Supplement: Are you requesting a supplement for your project? Yes/No

(If Yes)

Number of Student-Years Requested: (0-2)

Assistantship Allocation: Describe how you plan to allocate the requested student years over the duration of your project (estimated start and end dates of assistantship support). If more than one student will be supported, provide this information for each student.

Advisor and Student Roles: Briefly describe the expected role(s) of WRS the student(s) in the project and the WRS faculty member(s) to supervise the students(s).