

February 8, 2021

Dear Faculty Researchers and Graduate Students:

Each year, the Tennessee Water Resources Research Center (TNWRRC, housed in UT's Institute for a Secure and Sustainable Environment) funds projects through the U.S. Geological Survey's 104b program established under the Water Resources Research Act of 1984, and implemented between the USGS and the National Institute of Water Resources (NIWR). The application requirements for fiscal year 2021 are contained in this document. After this cover letter, this document contains: 1) the basic information and instructions for pre-proposals are summarized; 2) state research priorities summarized from agency/organization inputs, and 3) the reviewer's score sheet.

We are pleased to announce our request for pre-proposals for: 1) faculty research proposals, and 2) graduate student supplemental research grants. Please note, you may submit a research proposal on an idea other than those listed per state agency priorities, however more points will be awarded to a pre-proposal if it matches one of the priorities. For pre-proposals you do not need to obtain approval from your institute's sponsored program.

If selected for funding, you will be asked to submit a full proposal meeting USGS 104b Program formatting requirements, which may require additional information or modifications to the pre-proposal based on comments from TNWRRC-selected external reviewers and the TNWRRC Director. Your full proposal will need to be submitted to your sponsored program for approval including the letters of support for required funding match.

Please contact TNWRRC if you have questions.

John Schwartz, Director

jschwartz@utk.edu

865-974-8920

Website: <http://isse.utk.edu/wrrc/>

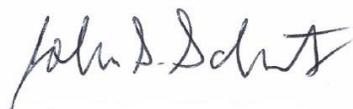
Tim Gangaware, Associate Director

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865-974-4777

We look forward to your pre-proposal submittal.

Sincerely,



Professor in Civil & Environmental Engineering
University of Tennessee, Knoxville



Tennessee Water Resources Research Center Fiscal Year 2021 Request for Pre-Proposals

The following information and instructions apply to the application process for the FY2020 Tennessee Water Resources Research Center (TNWRRC) competitive water research grants awarded through the 104b program administered by the US Geological Survey (USGS). The project period for FY2021 has yet to be determined by the USGS but it is anticipated to be May 1, 2021 through April 30, 2022. TNWRRC's obligation under this program is contingent upon availability of appropriated funds. Funding has been approved by the US Congress for the Program, however the US Department of Interior has not released the funds yet to the USGS. We anticipate to fund about 3-4 faculty research grants and 3 graduate student grants.

Pre-proposals are due by March 10, 2021. Email the completed pre-proposal to gangwrrc@utk.edu. The TNWRRC director, the USGS Nashville Office, and staff from selected state agencies will review and score each pre-proposal. If selected for funding you will be required to address reviewer comments and/or provide additional project information.

I. Eligibility — the following may apply:

- Faculty members or affiliates of any accredited college or university (public or private) in Tennessee.
- Federal employees are *NOT* eligible as a principal investigator, but can participate as a co-investigator.
- Full time graduate students in good academic standing attending an accredited college or university (public or private) in Tennessee.

II. RFP Priority Focus Areas — TNWRRC is interested in research projects that address the priorities as determined by state agencies and water resources organizations, and compiled in Attachment A. You may submit a research pre-proposal on an idea other than those listed per state agency priorities, however more points will be awarded to a pre-proposal if it matches one of the priorities. The state's priorities generally align with the national priorities in areas of water availability, water quality, sustainable water management, climate change, watershed planning, responding to water-related emergencies, and integrating water policy and planning with socioeconomic indicators.

III. Types of Pre-Proposals

We are soliciting two different types of project pre-proposals. They are:

1. faculty project research grants, and
2. graduate student supplemental research grants.

Funding requests for faculty research projects can be up to \$30,000 range and student requests are capped at \$5,000.

Student proposals should be supplementary to an already existing and funded faculty project. Student pre-proposals should be written by the student under the direction of a faculty advisor. This grant is intended to allow students to complete additional research objectives or products beyond the scope of the faculty-funded projects and to aid them in presenting or publishing their research results in peer-reviewed publications. A limited number of awards will be made based on merit and need.



IV. Matching Funds (*Faculty research projects only*)

- Each applicant must match each federal dollar provided with at least two dollars from non-federal sources. This means a request for federal funds of \$25,000 through this program will require matching funds of at least \$50,000, for a total project cost of at least \$75,000.
- The matching funds shall be obligated during the performance period (anticipating May 1, 2021 through April 30, 2022).
- Matching funds may include non-federal salaries, wages, and benefits, other sources of non-federal monies obligated specifically to the proposed project, and indirect costs (IDCs) on the non-federal portion of the budget, as well as non-recovered IDCs on the federal funding request; IDCs cannot be charged on tuition or equipment.
- All indirect costs (F&A) must be waived, but can be counted as match.

V. Pre-Proposal Format

In fairness to all applicants, all pre-proposals must adhere to the following format guidelines. Those that do not follow the guidelines will be disqualified from the competition. Please double check the formatting of your pre-proposal before submission.

- 1-inch margins all around
- Times New Roman 12-point font
- Strict page limits as listed below
- Page numbers, starting with cover page as Page 1

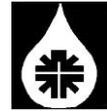
Pre-proposals must contain all of, and only, the following elements:

- Cover Page (*limited to one page*)
- Objectives and technical approach (*limited to two pages*)
- Significance to Tennessee water resources (*limited one page*)
- References (*as needed*)
- Letters of support (*optional if appropriate*)
- CVs (*limited to two pages per investigator*)

Cover Page—must include the following elements:

- Pre-proposal title
- Proposed start/end date
- Budget request (total amount only, no breakdown, federal and non-federal funds)
- Name, academic rank or title, university and department/school, mailing address, phone number, and e-mail address for each principal investigator (PI); all of above (except mailing address and phone number) for each co-investigator.
- Identify the priority area number as listed in Attachment A, or state “other”.
- Key words for the project, one to five key words.

Objectives and Technical Approach — Describe your project. State specifically what you plan to accomplish in the proposed project, in terms of goals, objectives, hypotheses to test, or research questions to answer, and how it will be done, i.e., technical approach/methods, brief time line, major milestones, and leveraging of existing resources. Be specific and provide details so that reviewers can assess the feasibility and appropriateness of the technical approach.



Significance to Tennessee Water Resources — Explain the significance and relevance of the proposed project to one or more important water resource issue in Tennessee and/or the focus areas in the RFP. Explain who needs the project, why, and the benefits or outcomes.

References Cited — Use a standard bibliographic format to list references cited.

Letters of Support — Letters of support may be submitted from partnering organizations, agencies or potential users of the information the proposed project intends to produce. Students should have a letter of support from their major advisor.

Curricula Vitae — CVs are limited to two pages per investigator and must be in standard NSF format at following link:

http://www.nsf.gov/pubs/policydocs/pappguide/nsf15001/gpg_2.jsp#IIC2f

Budget—Use the budget template found on page 4

Complete all elements of the application package and e-mail it as a single pdf file named “Lastname-preproposal2017.pdf” (where Lastname is PI’s last name). Email to gangwrrc@utk.edu **no later than 5:00 pm ET on March 8, 2021**. You will be notified regarding pre-proposal selection in April 2021.

VI. Pre-proposal Evaluation

Pre-proposals for faculty research projects will be sent to multiple external reviewers to score each submittal. Reviewers will be asked to score the pre-proposal based on ten criteria as shown in Attachment B. Student proposals will be evaluated by the TNWRRC Director.

VII. Timeline

February 8, 2021	RFP issued
March 8, 2021	Faculty and student pre-proposals due
March 26, 2021	Faculty notified of pre-proposal outcome
March 26, 2021	Students notified of proposal outcome
April 7, 2021	Faculty Full proposals due
April 14, 2021	Application package submitted to USGS for review
May 1, 2021	Projects begin
April 30, 2022	Projects end



Budget Template:

Cost Category	Federal (\$)	Non-Federal Match (\$)
Salaries and Wages		
PI (name)	\$	\$
Co-PI (name)	\$	\$
Student – (undergrad, MS or PhD, name)	\$	\$
<i>Total Salaries and Wages</i>	<i>sum</i>	
Fringe Benefits		
PI (name)	\$	\$
Co-PI (name)	\$	\$
Student – (undergrad, MS or PhD, name)	\$	\$
<i>Total Fringe Benefits</i>	<i>sum</i>	
<i>Total Supplies</i>	\$	\$
<i>Total Equipment</i>	\$	\$
<i>Total Services or Consultants</i>	\$	\$
<i>Total Travel</i>	\$	\$
<i>Total Other Direct Costs</i>	\$	\$
Total Project Costs	\$	\$



ATTACHMENT A: State Priorities for Water Resources Research

Summarized from input per state agencies and organizations

Watersheds and Water Quality: Monitoring, Assessment, and Planning

- W1. Develop optimization procedures for improving the design of water quality monitoring frameworks to statistically detect trends and responses from BMPs.
- W2. Assess existing water quality and flow measurement data in the state of Tennessee for nutrient load estimates, and determine whether spatial spacing and temporal frequency is adequate and how it can be improved through an advanced GIS analysis.
- W3. Develop improved methods for estimating nutrient loads from urban stormwater BMPs, and explore nutrient trading protocols for stormwater management programs.
- W4. Phosphorus removal from wastewater digester supernatant and sludge filtrate.
- W5. Explore the use of dendrochronology to calibrate hydrology models in the Tennessee River Valley, and enhance drought preparedness modeling.
- W6. Improve remote sensing/satellite imagery techniques to identify and inventory: 1) riparian corridor characteristics and bufferstrips; and 2) water permanence in wetlands and streams (consider testing the USGS PROSPER model).
- W7. Investigate the sources, types, and extent of microplastics in the state of Tennessee and explore the potential impacts on aquatic ecosystems.
- W8. Improve on cost-effective devices and methods for stream flow gauging and computation of flood frequencies.
- W9. Develop new watershed planning and restoration approaches to increase floodplain connectivity and flood storage in human-impacted stream channels.
- W10. Enhance our understanding of surface – groundwater interactions with a focus on locations in the watershed near headwater lakes and streams.

Best Management Practices

- B1. Develop science-based criteria to rank BMP performance for improved water quality and/or pollutant load reductions.
- B2. Formulate a method to calculate/estimate the cost of various BMPs so that a “single-rate” incentive payment system could be implemented for the state or physiographic regions in the state to support implementation of funded conservation programs.
- B3. Develop new and/or enhance the performance of post-construction BMPs for stormwater management.
- B4. Improve stream mitigation practices.
- B5. Develop improved BMPs to minimize environmental impacts from civil infrastructure near waterbodies, i.e., bridges, pipeline crossings, piers, culverts, rip-rap, etc.

Water Availability, Hydrological Processes, and Climate Change

- A1. Explore issues with water availability with a focus on identifying potential demand conflicts among users with increased urban population growth and climate change.
- A2. Perform an economic analysis evaluating the social benefits to water supply users in the context of different water sources in the state.
- A3. Investigate the potential for agricultural crop adaptation and migration from other regions nationally within the context available water sources and climate change.
- A4. Investigate the need to make climate-informed changes to state infrastructure design standards.



Educational

- E1. Improve socioeconomic methods for the technical transfer of water and soil conservation practices with a cultural focus on rural communities.
- E2. Social science study to enhance diversity and inclusion in the water resources profession.



ATTACHMENT B: Pre-Proposal Evaluation Criteria

1. **RELEVANCE OF THE PROPOSED RESEARCH:** (10 points) - Does the proposal address relevant and important state priorities, and/or regional and national water resources issues. Is the research objective(s) clearly stated?
2. **TECHNICAL MERIT:** (10 points) - Feasibility of proposed methods and procedures. Are there any major methodological weaknesses of the proposed research? Are the investigators aware of relevant literature and similar ongoing or complete research?
3. **POTENTIAL RESEARCH CONTRIBUTION:** (10 points) - Would the proposed study result in a significant contribution to a state research priority and/or solve a research need as defined by principal investigator? Do you think that the results of the research have national or regional applicability? Is there a high risk that the proposed work cannot be successfully completed?
4. **QUALIFICATION OF THE INVESTIGATORS:** (5 points) - Do the investigators appear to be qualified to undertake and successfully complete the proposed work?
5. **ADEQUACY OF RESOURCES AND BUDGET:** (5 points) - Are the proposed research facilities, budget, and level of effort adequate to conduct the proposed research?
6. **USE OF GRADUATE STUDENTS:** (10 points) - Do the investigators appear to be qualified to undertake and successfully complete the proposed work? Does the proposed research proposal appear to effectively utilize graduate students and to provide them with training and research experience? Number 10 is the highest score--circle your rating score: