

Great Waters Research Collaborative (GWRC)

2021 Request for Applications for Bench-Scale Testing Services

The [Great Waters Research Collaborative \(GWRC\)](#), a major program of the University of Wisconsin-Superior's (UW-S) [Lake Superior Research Institute \(LSRI\)](#), offers bench-scale testing services to developers of novel technologies and methods. LSRI-GWRC specializes in testing ballast water treatment (BWT) process prototypes at the laboratory scale. This Request for Applications (RFA) applies to technology testing to be conducted 01 January to 31 December 2021. In 2021, federal funding¹ is available to support LSRI-GWRC independent testing of three meritorious technologies at the bench scale of testing.

RFA Opening Date: 09 December 2020

RFA Closing Date: 07 April 2021

INTRODUCTION

LSRI-GWRC is devoted to assessing the effectiveness of technologies for sustainable commercial and recreational use of the Great Waters of the world, especially green shipping. A major LSRI-GWRC focus area is testing and validation of these technologies, with the objective of providing support to accelerate the development of technologies having potential for preventing the introduction and controlling the spread of invasive species within the Laurentian Great Lakes. This 2021 RFA applies to unique and/or enhanced technologies and methods with justified potential for use within the Laurentian Great Lakes. Specifically, BWT processes, such as, novel components, active substances, procedures, mechanisms, and activities that may be able to reduce or eliminate introductions and secondary spread of invasive species associated with commercial shipping via ballast water.

BENCH-SCALE TESTING SERVICES

LSRI-GWRC bench-scale BWT process testing services include determination of the aquatic degradation of active substances under various temperatures and water quality conditions; biological effectiveness of the prototype treatment process on cultured, freshwater organisms in a range of taxonomic categories (bacteria, green algae, and zooplankton); and residual toxicity assessment on freshwater model organisms (green algae, zooplankton, and fish). Please go to the [GWRC Bench-Scale Testing Services Webpage](#) for a more detailed description of LSRI-GWRC bench-scale testing capacity.

Eligibility for Federally-Funded Testing Services

Federal funding is available for 2021 to underwrite the cost of bench-scale test services for up to three technologies. Technologies must align with the spirit of US EPA GLRI Action Plan III, and provide

¹ Federal funding is provided by the United States Environmental Protection Agency's Great Lakes Restoration Initiative via the United States Department of Transportation – Maritime Administration. Funding supports GWRC personnel and supply costs associated with routine testing services.

demonstrated applicability of the technology to treatment of ballast water within the Great Lakes System. Funding eligibility includes public and private nonprofit institutions, public and private universities and colleges, and profit-making firms inside or outside the US.

CONFIDENTIALITY

Technology developers are responsible for providing any confidentiality or non-disclosure agreement desired prior to planning the test design. LSRI-GWRC will maintain confidentiality of any declared proprietary information relative to the technology subject to testing, and will work with award recipients to ensure that proprietary technologies are referred to in a generic and categorical way in all planning and reporting documents. LSRI-GWRC may publish findings from testing on its website, in peer-reviewed scientific or technical journals, and other publications or reports as deemed appropriate. Publication will be completed in collaboration with technology developers, and no declared proprietary information about the technology will ever be reported by LSRI-GWRC in publicly-available documents.

APPLICATION PREPARATION AND SUBMISSION

Applications will be accepted until 07 April 2021. Awards to qualified applicants will be made on a first-come, first-served basis over time. Applicants must complete the *Great Waters Research Collaborative Application for Testing Services*, including the cover page ([Application Documents Accessible Here](#)), according to the “Guidance for Completion” provided below, and submit the full, completed application package to move on to the review process. Referenced documents may be uploaded with the application package to LSRI’s Egnyte Ballast Water Server *only if* the document(s) provide evidence-based support of the technology’s eligibility for funding and justification for applicability to the protection of the Laurentian Great Lakes ecosystem. Letter(s) of support from industry stakeholders may also be uploaded with the application package.

Intent to Submit

Developers interested in applying for services must first send an “Intent to Submit” e-mail to [Kelsey Prihoda and Christine Polkinghorne](#) that briefly describes the technology and its potential applicability to the Great Lakes – St. Lawrence Seaway System (500 word maximum). Please feel free to contact [Kelsey Prihoda and Christine Polkinghorne](#) in advance to discuss any questions you may have as you prepare this justification and the potential feasibility of addressing LSRI-GWRC target testing objectives. Within five working days of receipt of the “Intent to Submit” e-mail, an upload link to the LSRI Egnyte Ballast Water Server will be sent to applicants.

Guidance for Completion

We encourage technology developers NOT to include any proprietary information that the developer wishes to keep confidential. If there is a need for such information in the application materials, the developer must request that the application reviewers complete a confidentiality or non-disclosure agreement. Applicants are responsible for providing any confidentiality or non-disclosure agreement desired to LSRI prior to uploading the application materials. The application is available online as a fillable PDF form. Section page limits must be followed, and the application must be completed

following the guidance below:

- I. **Executive Summary (Limit: One Page):** Please describe the BWT process and its potential for applicability to and effectiveness in the Great Lakes – St. Lawrence Seaway System, including operational feasibility in Great Lakes ships. Summarize the differences from commercially-available processes/tools/technologies, and how the proposed solution may address gaps in the current state of technology. Describe potential advantages of the technology.
- II. **Description of State of Technology Development and Preliminary Data (Limit: Two Pages):** Briefly describe the state of development of the BWT process (i.e., proof of concept, working model, engineering prototype, etc.), the technology’s readiness for bench-scale testing, and summarize any preliminary data that relate to the viability of the solution, including its potential operational requirements, environmental soundness, safety, and biological effectiveness.
- III. **Target Technology Use/User (Limit: One Page):** Please describe the technology’s target use. Please include any target market/customers/end users of the technology and details of the vision for commercialization.
- IV. **Referenced Documents:** List only documents cited in application. Referenced documents may be uploaded with the application package to LSRI’s Egnyte Ballast Water Server if the documents provide evidence-based support of the technology’s eligibility for funding and justification for applicability to the protection of the Laurentian Great Lakes ecosystem. Letter(s) of support from industry stakeholders may also be uploaded with the application package.

Submission

Developers must fully complete the application form according to the above guidance and upload it, along with supporting documents, to the LSRI Ballast Water Egnyte File Server via the upload link supplied by LSRI-GWRC.

APPLICATION EVALUATION AND REVIEW PROCESS

Completed applications will be reviewed by a LSRI-GWRC-convened panel within two weeks of receipt. Review criteria are:

- Possible applicability for use by ships in the Great Lakes - Saint Lawrence Seaway (including operational feasibility in Great Lakes ships, and potential effectiveness and environmental soundness in the Laurentian Great Lakes ecosystem);
- Feasibility of testing at LSRI-GWRC;
- Readiness of the technology for small-scale, laboratory testing; and
- Developer’s intent to progress to commercial readiness.

Any questions that come up during this review will be transmitted to the applicant for feedback by email. After the two-week review period, LSRI-GWRC will transmit an email indicating outcomes of the review, any testing services that may be offered, and potential timing.

If testing services are awarded, LSRI-GWRC will forward a *Participation Agreement for Testing Services* for developer review, revision, and countersignature. Next, LSRI-GWRC will develop a Test/Quality

Assurance Plan (TQAP) tailored to the technology and testing objectives, also for developer review, revision, and countersignature. BWT developers (at their own expense) will deliver and install the BWT process at LSRI, train LSRI-GWRC staff to operate the technology, provide LSRI-GWRC with an Operations and Maintenance Manual, and sign a form confirming effective commissioning of the technology at LSRI. Depending upon the technology being evaluated, GWRC may also request that certain technology-specific consumables (e.g., active substance) be supplied by the BWT developer. Testing will commence only after the Participation Agreement, TQAP, and Commissioning Form are complete and executed by both parties.

QUESTIONS

Questions regarding the application process, uploading the application package to the LSRI Egnyte Ballast Water File Server, and notification of granted testing services must be directed to Kelsey Prihoda and/or Christine Polkinghorne. Contact information:

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