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# Request for GSI Services: Application Form

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## SUBMISSION INSTRUCTIONS

Completed application forms must be submitted electronically using the “submit” button located at the end of this form (see page 16). Clicking this button will automatically open your computer’s default email program and attach the application form to a pre-addressed email. Supporting information and reference documents (preferably in PDF format) can be attached to this email prior to sending. Alternatively, attachments can be sent in a separate email to [nmays@nemw.org](mailto:nmays@nemw.org).

Please ensure that all attachments are clearly labeled. Document file names must include the application question to which the document corresponds, i.e., a study attached in response to “Question IV part A number 1” would be named “Supporting Information - Question IV A 1.pdf”. Please also list the document name in the space provided within the form.

Please email [nmays@nemw.org](mailto:nmays@nemw.org) if you have any problems submitting this application form and/or supporting attachments.

## CONFIRMATION OF APPLICATION

All applications will receive an email confirming their receipt within 48 hours of submission. Please email [nmays@nemw.org](mailto:nmays@nemw.org) if you do not receive this confirmation email. Also, please email [nmays@nemw.org](mailto:nmays@nemw.org) if you have any questions or problems submitting the application form and/or supporting documents.

**APPLICANT INFORMATION**

Organization/Company:

Street:

City, State, Zip:

Phone:

Web Page:

Project Officer:

Financial Officer:

Telephone:

Telephone:

Fax:

Fax:

E-mail:

E-mail:

**ORGANIZATIONAL DESCRIPTION**

Tax Status:

Tax ID#:

Fiscal Year:  /  to  /

(e.g., For-profit corporation, Individual, etc.)

(month/day) (month/day)

Brief Description of Business/Organizational History:

## BALLAST WATER MANAGEMENT SYSTEM INFORMATION

### I. PATENTS

Is the technology/methodology proprietary?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the technology/methodology patented, copyrighted, licensed or otherwise protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p data-bbox="186 533 1409 604">Is there any specific information regarding your technology/methodology or company that you wish to be treated as strictly confidential? If Yes, please describe (no confidential data please).</p> <p data-bbox="233 617 500 667"><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <div data-bbox="204 688 1399 1747" style="border: 1px solid black; height: 500px;"></div>	

## II. STATE OF DEVELOPMENT OF THE BALLAST WATER MANAGEMENT SYSTEM

Indicate the overall stage of development for the subject ballast water management system (please check all boxes that apply), and also explain your response in the space provided.

Product Definition

Proof of concept

Working Model

Engineering Prototype

Other (please explain)

If at the stage of "Engineering Prototype" what steps have been taken? Please check all boxes that apply and also explain your response in the space provided.

Scale up    Test    Refine    Production Engineering    Product Safety Engineering

### III. GENERAL DESCRIPTION OF THE BALLAST WATER MANAGEMENT SYSTEM

**A.** Provide a general description of the ballast water management system, including treatment stages, treatment processes, physical configuration, materials of construction, and integration with the shipboard ballast system.



**B.** Discuss the range of shipboard or shore-side applications for the ballast water management system, including sizes and types of ships for which it would be intended, uptake versus discharge treatment, standard treatment capacities, new or retrofit shipboard applications, etc.



**IV. SYSTEM PERFORMANCE AND OPERATION INFORMATION**

**A.** Research has been conducted on the ballast water management system in the following categories (check all that apply). Supporting studies with full author reference information should be attached for each item checked.

	<b>Fresh</b>	<b>Brackish</b>	<b>Salt</b>
<b>1. Bench-treatment effectiveness</b>			
Zooplankton			
Phytoplankton			
Bacteria			
<b>2. Bench-eco-toxicity</b>			
Zooplankton			
Phytoplankton			
Bacteria			
<b>3. Land-based performance</b>			
Zooplankton			
Phytoplankton			
Bacteria			
<b>4. Ship-board performance</b>			
Zooplankton			
Phytoplankton			
Bacteria			
<b>5. Operational effects on</b>			
Corrosion			
Ballast throughput			
Energy consumption			
Crew time			

Names of attached supporting studies (with category number reference included in file name):

**B. Environmental Soundness** (i.e., the ballast water management system will not require regulatory discharge permits for operation in U.S. or Canadian waters; or, routine and prevalent use of the system as a ballast water management method would not otherwise result in acute or cumulative degradation of environmental quality of receiving ecological systems.)

Please describe what is known about the environmental soundness of the system.

	Yes	No	Maybe
Routine use will require a regulatory permit.			
Environmental soundness will be influenced by voyage duration, ship condition, or salinity of ballast water or receiving waters			
Treatment residue and/or by products will completely degrade prior to discharge into the receiving system.			
Treatment residue and/or by products will require dilution to render them harmless to a receiving system.			
Treatment residue and/or by products will be equally environmentally sound in the context of fresh and salt water.			

Please use the space below to provide any explanation for your responses.



**C. Biological Effectiveness** (i.e., the ballast water management system will yield dependable reductions in live biological material surpassing the IMO standard, and any other prevailing standards that may be stricter; or will significantly reduce ballast transfers of harmful microbes and viruses.

Please indicate the probable scope of effectiveness of the ballast water management system.

	Yes	No	Maybe
The ballast water management system will significantly reduce live zooplankton in ballast water discharge.			
The ballast water management system will significantly reduce live phytoplankton in ballast water discharge.			
The ballast water management system will significantly reduce microbes and viruses in ballast water discharge.			
The ballast water management system's effectiveness will likely be affected by salinity			
The ballast water management system's effectiveness will likely be affected by voyage duration.			
The ballast water management system's effectiveness will likely be affected by ship condition (BOB vs. NOBOB).			

Please use the space below for any additional narrative information.

**D. Automated System Monitoring Mechanism**

Please indicate the state of planning associated with automated monitoring of the ballast water management system in operational settings. Please attach (and clearly identify as “Supporting Information for Question III D”) all findings/supporting information related to the monitorability of the system.

No planning yet undertaken  Monitoring concept in place  Monitoring system developed

Please describe the monitoring concept in the space provided below.

**E. Operational Practicability** (i.e., the ballast water management system is compatible with the physical ship environment in terms of its physical footprint and power or other physical requirements, will operate effectively and efficiently in the environment of a commercial vessel for an extended period of time (i.e., 10 years); and will not impose in crew safety concerns.)

Please indicate by checking the appropriate box the degree to which the ballast water management system has been adapted to maritime applications. Please attach (and clearly identify as "Supporting Information for Question III E") all findings/supporting information related to operational practicability of the system.

No evaluation yet undertaken     Some initial planning in place     System fully marinized

In addition, please provide your best estimates regarding the following questions:

1. What will the onboard physical configuration of the system be, including general arrangement of installed equipment?

2. Could the system be installed in an existing ship? If so, will system installation in an existing ship require vessel dry-docking?

3. What, if any, special utility connections (power, water, air), interconnections with shipboard piping and equipment, storage requirements, other ancillary requirements, may be required for operation of this system in a ship?

4. What electrical, instrumentation and control (EI&C) components may be required to operate the system in a ship?

5. What are your plans regarding how can these components may be integrated with the existing shipboard ballast system, including:

○ Power demand?

○ Main and local control panels?

○ Power distribution system?

○ Power quality equipment?

○ Instrumentation and control system architecture?

○ Process control?

6. What health and safety risks may be associated with ballast water management system, including materials storage, handling and disposal? What health and safety certification/training may be required for system operators? Please attach the MSDS for any chemical components of the system.

7. What start-up, normal and emergency operating and shutdown procedures may be required for the ballast water management system?

8. What do you believe the overall reliability of the ballast water management system (e.g., percent downtime per 1,000 hrs of operation) will be?

**F. Cost-Effectiveness** (i.e., the ballast water management system will not bear significant net costs relative to other types of ballast treatment, considering effects on ballasting time, crew time demands, capital costs, operating costs, or structural decay)

Please indicate the state of knowledge associated with the extent to which operation will:

1. Significantly slow ballasting rate (please check one);

Unknown     Unknown but reason to believe not significantly     Certain not significantly

2. Add significantly to crew time demands (please check one);

Unknown     Unknown but reason to believe not significantly     Certain not significantly

3. Require significantly higher capital cost for purchase, operation (including consideration of any structural impacts on ships) and/or installation than other ballast systems (please check one);

Unknown     Unknown but reason to believe not significantly     Certain not significantly

Please attach and clearly label all findings/supporting information.

### G. GSI Service Requirements

Describe the type of service that you would like GSI to undertake on the ballast water management system, i.e., "Status Testing" at the bench, land-based or shipboard scale, or "Type Approval" testing at the land-Based or shipboard scale.

### V. PROJECT INSTALLATION SCHEDULE

1. Please indicate **the number of days** lead time you would require following any notice of award, i.e., how many days lead time would you need to deliver a system capable of 200 m<sup>3</sup>/hour flow rate to the GSI Land-Based RDTE Facility in Superior, WI, USA.

2. Please indicate **the number of days** required to commission the system for testing by GSI once delivered.

3. Will a qualified representative be present at the GSI Land-Based RDTE Facility during system hook-up and testing?

Yes  No

## VI. ATTACHMENTS

***Ensure the following attachments are included with your application.***

- One of the following for any private entity:
  - a. Professional references (3 or more), and, if relevant,
  - b. Most recent audited financial statements;
- Notification of any SEC, IRS or other government agency review, investigation or actions.
- Proof of appropriate insurance against liability for injury to persons or property.
- Certificate of Incorporation (if applicable).
- Correctly labeled supporting information/relevant attachments with full author reference information.

## VII. SIGNATURE OF APPLICANT

*I certify that the above information is true and accurate.*

\_\_\_\_\_  
*Signature of Executive or Project Officer*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Name, Title*