



## What We Heard: Ballast Water Innovation Program Stakeholder Engagement

### Introduction

In 2021, Canada's new *Ballast Water Regulations* came into force, requiring regulated entities to transition to the use of ballast water management system (BWMS) to reduce the introduction and spread of aquatic invasive species. The use of BWMS present technical and operation challenges in the Great Lakes and St. Lawrence River (GLSLR) region. This is due to the short voyages and the cold, fresh waters that are sometimes mixed with sediment and high density of organisms. Under the Oceans Protection Plan, Transport Canada (TC) is launching a Ballast Water Innovation Program (BWIP), which will provide up to \$12.5 million in contribution funding through 2026-27.

Specifically, the objectives of the BWIP are to support projects that will:

- support industry efforts to advance solutions that address technical challenges with the installation, operation and maintenance of BWMS on vessels in the GLSLR region thereby increasing environmental protection; and
- increase the availability of data/information on the installation, operation and maintenance of BWMS in the GLSLR to: help inform the implementation of the Regulations; inform Canada-U.S. discussions about regulatory compatibility; and support Canada's international efforts to improve the Ballast Water Management Convention.

Results from BWIP projects will be disseminated for the benefit of all stakeholders with a view to furthering the successful use of BWMS, particularly in this challenging region.

### Engagement Approach

TC engaged industry stakeholders to better understand their experience with BWMS in the GLSLR and to help inform the design of the BWIP. TC retained a consultant naval architect, Mr. Andrew Kendrick of Silvery Consulting Inc., to facilitate this stakeholder engagement.

Between August and October 2022, the consultant interviewed:

- vessel owners/operators and their supporting organizations;
- BWMS suppliers and original equipment manufacturers;
- testing and research organizations;
- coatings specialists; and
- installation support organizations (e.g., naval architects, marine engineers and classification societies).

On October 26, 2022, the consultant facilitated a workshop in Montreal, Quebec on behalf of TC. Attendance included the major Canadian-owned vessel owners/operators and industry associations that operate in the GLSLR. TC invited BWMS manufacturers, and representatives from one manufacturer attended. The government was represented by TC policy, regulatory and innovation centre officials as well as the science branch of Fisheries and Oceans Canada. This engagement session included discussions on:

- Results of recent scientific assessment of BWMS performance in the GLSLR;
- Progress of international discussions on ports with challenging water quality;
- BWMS installation, operation and maintenance challenges in the GLSLR;
- Industry R&D needs and priorities; and
- BWIP design considerations.

Follow-up meetings were held after the workshop with stakeholders who requested them, and discussions were also held at the meeting of the Canadian Marine Advisory Council's Standing Committee on the Environment on November 8, 2022.

## Stakeholders' Views

The following section summarizes feedback collected through our engagement with stakeholders. They have been organized by discussion topic.

The opinions and views expressed in this report are solely those of the consultant and stakeholders and should not be interpreted as those held by TC or as a guide to the potential scope, requirements or outcomes of the BWIP.

### BWMS Installation, Operation and Maintenance Challenges

- There are challenges in providing space, weight and power for BWMS, but these installation challenges are being mitigated with experience.
- There is limited availability of skilled labour and facilities to complete installation, commissioning, testing and ongoing maintenance activities in the GLSLR region is a challenge to BWMS installation.
- BWMS operational challenges such as reduced flow rates and component breakdowns are most pronounced at GLSLR ports when water quality is poor — particularly during early spring and late summer. In other circumstances, operational challenges are becoming more manageable as experience is gained by industry.
- There are outstanding questions about suitable contingency and recovery measures when BWMS reach design operational limitations or have difficulty meeting operational demands in challenging water conditions.
- The initial level of effort for maintaining BWMS has been high; however, with experience and planning, they are becoming better equipped to manage maintenance challenges (e.g. mitigating supply chain issues by carrying additional spare parts).

### R&D Needs and Priorities

- There is a need to collect and share relevant data in order to better define/understand how different GLSLR water quality conditions impact BWMS performance (e.g. biological efficacy), vessel systems (e.g. ballast flow rate, maintenance issues) and port operations (e.g. berthing time).
- Stakeholders offered a number of potential areas for R&D that could address BWMS technical challenges, including: pre-filtration and enhanced filter systems, improved UV lamps and hybrid systems that incorporate multiple treatment options (e.g. ultraviolet light and chemical injection).

- Some stakeholders noted the potential use of mobile or shore-based treatment options as supplementary to on-board BWMS. However, others expressed concerns about the cost-effectiveness of such options given that vessels take up ballast at many locations in the GLSLR.
- There is interest in exploring off-design operations to address challenging water quality, such as modifying current BWMS to enable partial bypass or recirculation and determining the implications of these operations on BWMS operation and biological efficacy.
- Training initiatives need to compile and disseminate best practices to promote continuous improvement in BWMS operation and maintenance in the GLSLR.

### BWIP Design Considerations

- Stakeholders are generally receptive to the program and its objectives, while noting they need to balance efforts with competing priorities (e.g. decarbonization).
- They articulated the need for attractive cost sharing ratios with the federal government, notably due to the limited potential for return on investment and cost/disruptions involved in experimentation.
- There is a need for sufficient time and additional resources to recast their operational challenges in terms of R&D and to explore the formation of project teams. It was noted that capturing the attention of BWMS manufacturers is a challenge due to the limited market size of the GLSLR.
- Some vessel owners/operators conveyed a lack of internal capacity to lead R&D projects for the BWIP but indicated a willingness to work through their associations and provide access to vessels for research activities.
- Stakeholders asked for clarifications regarding the Canadian regulatory process for using prototype BWMS to demonstrate new technology or a modified installation of an existing approved BWMS under the BWIP and how such R&D activities may be viewed by the U.S.
- There are potential domestic and international regulatory implications of reporting non-compliant discharges as part of an R&D project under BWIP in a manner that could be attributed to a specific ship or ballasting event.

### Next Steps

TC would like to thank all of those that have shared their time, views and expertise to support the development of the BWIP.

TC is analyzing what was heard from stakeholders during the engagement process, as well as the consultant's advice. The feedback will be considered to define the call for proposals under the BWIP.

TC intends to finalize the program design and announce a call for proposals in 2023 via TC's website and social media channels.