



## TSB Recommendation M23-02

### Risk assessments for tugs of 15 gross tonnage or less

The Transportation Safety Board of Canada recommends that the Department of Transport require authorized representatives of tugs of 15 gross tonnage (GT) or less to assess the risks present in their operations, including the suitability of their tugs for the specific towing operations they are undertaking.

Marine transportation safety investigation report	<a href="#">M21P0030</a>
Date the recommendation was issued	08 March 2023
Date of the latest response	December 2025
Date of the latest assessment	March 2026
<a href="#">Rating</a> of the latest response	Satisfactory Intent
<a href="#">File status</a>	Active

All responses are those of the stakeholders to the TSB in written communications and are reproduced in full. The TSB corrects typographical errors and accessibility issues in the material it reproduces without indication but uses brackets [ ] to show other changes or to show that part of the response was omitted because it was not pertinent.

### Summary of the occurrence

On 10 February 2021, the tug *Ingenika*, with 3 crew members on board, was towing the loaded barge *Miller 204* in the Gardner Canal when the tug sank approximately 16 nautical miles west-southwest of Kemano Bay, British Columbia (BC). The barge subsequently drifted and went aground about 2.5 nautical miles southwest from where the tug sank. The search and rescue operation located 1 surviving crew member on land and recovered the bodies of the 2 other crew members from the water. The barge was recovered; the tug was not found. At the time of the occurrence, the tug had 3500 L of diesel fuel in tanks on board.

The Board concluded its investigation and released report M21P0030 on 08 March 2023.

### Rationale for the recommendation

The TSB has noted that, in addition to the need for regulatory surveillance for tugs of 15 GT or less, there is currently no requirement for towing companies operating these tugs to assess any of the risks that might be present in their operations, even when it comes to something as

essential as assessing the suitability of their tugs for the towing operations they are undertaking. Although the present investigation focused on tugs of 15 GT or less, it was noted that there are also no requirements for risk assessments for tugs of greater than 15 GT.

Although the *Canada Shipping Act, 2001* requires the authorized representative (AR) of any vessel to develop safe operating procedures and requires the master to ensure the safety of the vessel and anyone on board, what constitutes safe operating procedures is open to interpretation, and these requirements have not resulted in the effective management of risk on tugs of 15 GT or less. Combined with the fact that tugs in this category go largely uninspected and have no restrictions on their operations, there is the potential for accidents like the one involving the *Ingenika* to occur.

Requirements for risk assessment do exist for some towing vessels; Transport Canada (TC) requires a risk assessment to be performed when a vessel is towing a vessel carrying oil or dangerous chemicals in bulk.<sup>1</sup> These types of risk assessments provide an opportunity to look at each aspect of the towing operation, such as the weather, hazards posed by the cargo, and suitability of the tug for the tow. TC's recently developed SVCP-T<sup>2</sup> also provides useful data that can be used in risk assessments to support safe towing operations.

Since the occurrence involving the *Ingenika*, TC has taken some initiatives to improve tug safety through the development of the SVCP-T and the pre-publication of the proposed *Marine Safety Management System Regulations* in the *Canada Gazette*, Part I. The proposed regulations, in particular, give TC an opportunity to develop regulatory provisions to ensure that companies operating tugs of 15 GT or less incorporate risk assessments into their operations. However, although the SVCP-T and the proposed regulations are positive steps forward, in their present forms, they do not explicitly require tug operators to conduct risk assessments. This means that risks in towing operations will continue to go undetected and unmitigated, placing crews, tugs, tows, and the environment in danger. Therefore, the Board recommends that

the Department of Transport require authorized representatives of tugs of 15 gross tonnage (GT) or less to assess the risks present in their operations, including the suitability of their tugs for the specific towing operations they are undertaking.

**TSB Recommendation M23-02**

---

/marine-safety/tp15491e-small-vessel-compliance-program-tug-guidance-notes-06-2024

<sup>1</sup> <https://www.shipownersclub.com/latest-updates/news/louise-hall-tug-and-tow-practical-safety-and-operation-guide/>

<sup>1</sup> <https://maritime-mutual.com/risk-bulletins/tug-stability-regulation-hazards-and-loss-prevention/>

<sup>2</sup> The Ship Safety Bulletin announcing the new tug module for the Small Vessel Compliance Program was published on 13 January 2022.

## Previous responses and assessments

### June 2023: response from Transport Canada

Transport Canada (TC) agrees with the safety recommendation M23-02. The Department recognizes a structured, documented approach to safety management is necessary for the authorized representatives of tugs of 15 GT or less to account for and control safety risks inherent in their operations. This aligns with regulatory updates TC is putting forward through its proposed *Marine Safety Management System Regulations (MSMSR)* which were pre-published in the Canada Gazette Part I in spring 2022. TC is currently targeting publication and coming into force of these proposed regulatory updates in fall 2023.

The proposed MSMSR will address this issue by requiring the authorized representatives of all tugs of 15 GT or less to develop, implement, and maintain a safety management system (SMS), accessible to the crew at the time of voyage. An SMS serves to formalize and enhance safety culture in day-to-day operations on board a vessel. It is intended to serve as a mechanism to lessen accidents and help reduce human error, and it helps the owners and crew of a vessel prepare for, and respond to, emergencies.

In practice, an SMS is a collection of procedures and work instructions, tailored to reflect what happens on a particular vessel, that are followed by personnel on board vessels and on the shore, both during routine operations and in emergencies. Day to day, an SMS aims to keep the operation safe, reduce the risk of accidents, and prepare personnel for emergencies.

In addition to having an SMS in place, the proposed MSMSR will require authorized representatives of tugs to apply to TC to obtain related certificates for each of their vessels, covering both on-board and shore-based operations for the vessel's employees. Further, in response to this incident, the proposed MSMSR will be updated to include a requirement for the authorized representatives of tugs to calculate their vessel's bollard pull under all expected operational conditions to provide an accurate assessment of its limits for each given towing operation. This calculation will need to account for the vessel's design specificities and ranges of environmental conditions it may be expected to operate under. This assessment will need to be included in the operator's safety management system and be kept on board the vessel so crews remain familiar with it.

TC recognizes that alongside regulatory updates, it is necessary to foster a holistic approach toward the safe operation of small vessels to truly enhance their safety. To support the enhancement of a sound safety culture across the industry, TC will continue to serve as secretariat to the Pacific Coast Tow and Workboat Safety Advisory Group it helped establish in January 2022. This group, co-chaired by industry and labour, serves as a collaborative forum to raise issues, develop initiatives, and put forward practical solutions toward addressing outstanding safety issues on board tugs. The group also serves to develop and propose recommendations to federal marine safety regulators and provincial occupational health and safety regulators regarding potential changes to regulatory, enforcement, and health and safety regimes to enhance safety on board tug and barge operations.

In June 2023, TC will provide secretarial support to the group as it hosts an open workshop for owners, operators, and crew members in the tug industry, where members will share best practices to address hazards inherent on these vessels and enhance safety in day-to-day operations. This is intended to be the first of what is hoped will be regular events through which the collaborative work of TC, industry, and labour groups through the advisory group can be openly shared with the industry at large to holistically improve safety across small tug operations on the Pacific coast.

TC will also support the development of a digital application to provide educational resources to assist tug operators and crew in assessing their vessels tow capacity while launching a safety initiative to provide tug operators and crew with the knowledge and tools necessary to safely operate their vessels. Modeled on the “FishSafe” program in place for British Columbian fish harvesters, this initiative will empower those involved in the industry to design and deliver safety programs specific to tug operations, assisting others in understanding not only regulatory requirements, but how to employ technology and best practices to make their industry safer.

Lastly, TC will continue to work with the provincial WorkSafe BC to expand the scope of an existing Memorandum of Understanding between the Department and the Province of British Columbia respecting worker safety on board certain commercial vessels. This Memorandum of Understanding provides an administrative information sharing arrangement through which TC and the Workers’ Compensation Board of British Columbia work cooperatively and communicate openly with one another to assist in best fulfilling their respective mandates toward vessel safety and oversight. While this Memorandum of Understanding currently encompasses only fishing vessels, the proposed updates would expand this coverage to include all commercial vessels in British Columbia which fall under provincial health and safety regulations, including tugs.

Upon a request for further clarification by the TSB on 04 July 2023, TC provided the following information:

TC Commitment	Proposed Timeline
<b>Ingenika</b>	
<b>(a) Increase oversight of small tugs to 10%</b>	Work is ongoing. Targets for the National Oversight Plan this fiscal year have been set and will be closely followed. <b>Tentative timeline</b> <ul style="list-style-type: none"> <li>• End of 2023/24 Fiscal Year: Results from the National Oversight Plan, expanding small tug oversight, will be set.</li> </ul>
<b>(b) Ongoing work with partners on safety awareness (e.g., Pacific Coast Tow and Workboat Advisory Group)</b>	Work is ongoing to identify and advance new and existing initiatives. Transport Canada is supporting work to develop a digital application to provide educational resources to assist tug operators and crew to safely operate their vessels. The advancement of the

	digital application, as well as potential timelines for its implementation, will be guided by industry partners.
<b>(c) Safety initiative for tug operators</b>	Work is ongoing to advance a safety initiative, modeled off the “FishSafe” program, to provide tug operators and crew with the knowledge and tools necessary to safely operate their vessels. Transport Canada has begun to advance this work, but timelines will be dependent on ongoing collaborative work with the province of British Columbia and the tug industry.
<b>(d) National Aerial Surveillance Program (NASP)</b>	Work is ongoing to finalize the development and implementation of using the NASP to expand oversight, as well as formalize the collection and analysis of data from the program. <b>Tentative Timeline:</b> <ul style="list-style-type: none"> <li>• Summer 2023: Implementation of NASP surveillance.</li> <li>• Fall 2023/Winter 2023: Results from data analysis completed.</li> </ul>
<b>(e) Marine Safety Management System Regulations</b>	Work is ongoing to finalize updates to the <i>Marine Safety Management System Regulations</i> , which will require all tug operators to develop and implement a certified safety management system on board their vessels <b>Tentative Timeline:</b> <ul style="list-style-type: none"> <li>• Fall 2023: Publication in the <i>Canada Gazette</i> Part II</li> </ul>
<b>(f) Expand existing Memorandum of Understanding with WorkSafe BC</b>	Work will continue into 2024 to expand the scope of the existing Memorandum of Understanding between the Department and the Province of British Columbia respecting worker safety on board certain commercial vessels. <b>Tentative Timeline</b> <ul style="list-style-type: none"> <li>• Implementation of the updated MOU is targeted for early 2024.</li> </ul>
<b>(g) Increase awareness of and enrollment in the Small Vessel Compliance Program</b>	Work is ongoing to identify and advance new initiatives to promote enrollment.

**August 2023: TSB assessment of the response (Satisfactory Intent)**

Transport Canada (TC) indicates that it agrees with this recommendation and has already taken concrete steps in addressing it. The Department indicates that its new Marine Safety Management System Regulations (MSMSR) were pre-published in the *Canada Gazette*, Part I in Spring 2022 and will require the authorized representatives of all tugs of 15 GT or less to develop, implement, and maintain a safety management system (SMS); however these SMSs will not be required to be audited. Additionally, the new MSMSR, which are planned for publication in Fall 2023, would require authorized representatives of tugs to apply to TC to obtain related

certificates for each of their vessels and to calculate their vessel's bollard pull under all expected operational conditions. TC will also continue to serve as secretariat to the Pacific Coast Tow and Workboat Safety Advisory Group and provide support for the group's first open workshop where owners, operators, and crew members will share best practices and enhance safety in tug operations.

Furthermore, the Department will support the development of a digital application which will provide educational resources to assist tug operators and crew in assessing their vessel tow capacity as well as launch a safety initiative which will encourage industry to design and deliver safety programs specific to tug operations. Finally, TC will work with WorkSafe BC to expand the scope of the existing Memorandum of Understanding between the Department and the Province of British Columbia to include all commercial vessels in the province for early 2024 in an effort to further vessel safety and oversight.

The Board is encouraged by the various initiatives proposed or undertaken by TC regarding this recommendation. The proposed regulatory changes, particularly the requirement to calculate bollard pull in order to provide an accurate assessment of its limits for each given towing operation, once implemented, would substantially address this safety deficiency. The Board will continue to monitor the progress and implementation of these initiatives.

Therefore, the Board considers TC's response to Recommendation M23-02 to show **Satisfactory Intent**.

#### **December 2024: response from Transport Canada**

##### **Upcoming Small Vessel Construction and Equipment Regulations**

The upcoming *Small Vessel Construction and Equipment Regulations*, anticipated for publication in 2026, will have specific requirements pertaining to a vessel that is constructed or converted for the purposes of towing such that the vessel must not undertake a towing operation unless the vessel's bollard pull has been assessed and is determined to be adequate for the operation in accordance with recommended practices and standards.

##### **Safety of Tug Operations – Requirements and related guidance**

Section 106 of the *Canada Shipping Act, 2001* [CSA, 2001] requires the authorized representative (AR) of a tug to develop procedures for the safe operation of the vessel, dealing with emergencies, and to ensure that the crew receives safety training. The AR is also required under the *Marine Personnel Regulations*, section 206, to provide the vessel master with written instructions to ensure that each crew member of the vessel is familiar with the shipboard equipment's operational instructions specific to the vessel and can effectively perform their duties related to safety and pollution prevention. Verification of these procedures are carried out by Marine Safety Inspectors during all statutory and risk-based monitoring inspections.

Standards and other guidance have been developed by TC to assist tug owners and operators to assess safety considerations in their particular operations and comply with the CSA, 2001 and associated regulations, for example:

- *Guidelines for the Construction, Inspection, Certification, and Operation of Tugs < 24 Metres in Length – TP 15180 E*<sup>3</sup> is a cohesive reference document to the multiple regulatory requirements and standards that are applicable to smaller tugs, including tugs of 15 GT or less. The guidelines TP 15180 also recommend, in paragraph 3.2.2, the use of classification society rules or other standards (e.g. Australian Transport Council and its National Standard for Commercial Vessels) for towline stability.
- *TP 11960 Standards for the Construction, Inspection, and Operation of Barges Carrying Oil or Dangerous Chemicals in Bulk*<sup>4</sup> provides a convenient, cohesive reference document to the various legislative and regulatory requirements and standards in Canada that apply to barges carrying oil and/or dangerous chemicals. Towing and operational requirements detail both regulatory requirements and industry best practices.
- In 2020, TC published the Ship Safety Bulletin No: 16/2020 *Hazards and Risks of Girding During Towing Operations*,<sup>5</sup> to explain the dangers of girding while engaged in towing operations and provides information on how to prevent girding. The bulletin was an update to the SSB 13/1994 *Towboats - Dangers Associated with Girding* referred in the TP 15180.
- Most recently, TC published the TP15491E *Small Vessel Compliance Program - Tug Guidance Notes*<sup>6</sup> (updated in June 2024), which provides detailed guidance (and best practices) to address tug owners' and operators' related legal obligations in regard to vessel and crew safety and addresses key safety issues, for example girding risks and assessing tugs' bollard pull and numerous links to relevant TC and third party publications.

Guidance developed by third parties, such as P&I clubs (a mutual insurance association that provides risk pooling, information, representation and risk mitigation for its members), classification societies, IMO, industry associations are also available, for example:

- Shipowners' Club: "Tug and Tow – A Practical Safety and Operational Guide"<sup>7</sup>
- Maritime Mutual Risk Bulletin No. 31: "Tug Stability: Regulation, Hazards and Loss Prevention"<sup>8</sup>

<sup>3</sup> <https://tc.canada.ca/en/marine-transportation/marine-safety/guidelines-construction-inspection-certification-operation-tugs-24-metres-length-tp-15180-e>

<sup>4</sup> [https://tc.canada.ca/sites/default/files/migrated/tp\\_11960\\_e.pdf](https://tc.canada.ca/sites/default/files/migrated/tp_11960_e.pdf)

<sup>5</sup> <https://tc.canada.ca/en/marine-transportation/marine-safety/ship-safety-bulletins/hazards-risks-girding-during-towing-operations-ssb-no-16-2020>

<sup>6</sup> <https://tc.canada.ca/en/marine-transportation/marine-safety/tp15491e-small-vessel-compliance-program-tug-guidance-notes-06-2024>

<sup>7</sup> <https://www.shipownersclub.com/latest-updates/news/louise-hall-tug-and-tow-practical-safety-and-operation-guide/>

<sup>8</sup> <https://maritime-mutual.com/risk-bulletins/tug-stability-regulation-hazards-and-loss-prevention/>

- IMO MSC/Circ 8841 (Guidelines for Safe Ocean Towing)

### Compliance with MSMSR

TC notes the coming into force of the *Marine Safety Management System Regulations* (MSMSR) in July 2024. The MSMSR require the authorized representative of a Canadian vessel to identify the ship manager defined as a qualified person who is responsible for managing the shore-based and on-board operations of a vessel. This ship manager must develop, implement and maintain a documented safety management system that addresses the shore-based and on-board operations of the vessel. Emergency preparedness, which would include identifying potential emergency situations and developing programs for drills and exercises to prepare for these emergencies is an important component of the required SMS, ensuring captain and crew are prepared to respond at any time to hazards, and emergency situations in accordance with the type of vessel operation.

For tugs [of] 15 GT or less, the requirements to comply with these regulations are as follows:

- **Beginning 03 July 2025** – Class 4B vessels of 15 GT or less that is a tug (**more than 7m**) require certification under MSMSR
- **Beginning 03 July 2026** – Class 4B vessels of 15 GT or less that is a tug (**7m and less**) require certification under MSMSR

Oversight and validation of compliance with MSMSR will be carried out through risk-based monitoring inspections.

### March 2025: TSB assessment of the response (Satisfactory Intent)

Transport Canada (TC) indicates that its new *Marine Safety Management System Regulations* (MSMSR), which came into force in July 2024, will require the authorized representatives of all tugs of 15 GT or less to comply with these regulations by July 2026. They will be required to develop, implement, and maintain a safety management system (SMS); however, these SMSs will only have oversight and validation of compliance during monitoring inspections from TC inspectors. Additionally, the new MSMSR will require authorized representatives of tugs to apply to TC to obtain related certificates for each of their vessels and to calculate their vessel's bollard pull under all expected operational conditions.

The Board is encouraged by the initiatives undertaken by TC regarding this recommendation. The requirement to provide an accurate assessment of a tug's limits for each given towing operation will be included in the *Small Vessel Construction and Equipment Regulations*, which are anticipated to be pre-published in the *Canada Gazette*, Part I, in 2026. The Board will continue to monitor the implementation of these initiatives.

Therefore, the Board considers TC's response to Recommendation M23-02 to show **Satisfactory Intent**.

## Latest response and assessment

### December 2025: response from Transport Canada

Regarding the requirement to provide an accurate assessment of a tug's limit for each given towing operation will be included in the proposed *Small Vessel Construction and Equipment Regulations*. Transport Canada notes the target for pre-publication in the *Canada Gazette*, Part I of regulations is now Spring 2027.

### March 2026: TSB assessment of the response (Satisfactory Intent)

All tugs will be required to have a safety management system on board tugs as of July 2026, which will help to address the underlying safety deficiency, as long as TC can ensure that the operators of these vessels are aware of the requirements.

The Board notes the delay from 2026 to Spring 2027 of the pre-publication of the proposed *Small Vessel Construction and Equipment Regulations*, which include the requirement for an accurate assessment of a tug's limit for a given towing operation. The Board is concerned that there may be further delays to the publication of these regulations. Until tug operators are required to conduct risk assessments of their operations, including the suitability of their tugs for the specific towing operations, risks in towing operations will continue to go undetected and unmitigated, placing crews, tugs, tows, and the environment in danger.

The Board therefore considers the response to show **Satisfactory Intent**.

### File status

The TSB will monitor the actions taken by Transport Canada.

This deficiency file is **Active**.