

THE ENGINEERING PROFESSION'S POSITION

- The federal government has an important role to play in improving the safety of those involved in the fishing industry and should therefore open a consultation on fishing vessel stability analysis, to ensure that this process is more rigorous.
- Federal departments should recognize the authority of provincial and territorial engineering regulators, specifically within regulatory fishing vessel frameworks, to ensure public safety and that where engineering work is being performed in Canada, that work is done by an engineer licensed in the province or territory where the work is being completed.
- Any new regulatory framework must recognize the authority of provincial and territorial regulatory associations and must also recognize that work requiring unbiased and transparent naval architectural expertise should be conducted by an engineer licensed to practice in Canada.

The challenge(s)

For decades, key stakeholders in Canada's vessel design industry have been calling on the federal government to undertake critical steps to introduce a new regulatory framework regarding the design of small fishing vessels in Canada.

A small fishing vessel (SFV) is defined by Transport Canada as a vessel measuring 24.4 meters in length and below, and that is less than 150 gross tonnage. The current regulatory framework that governs the design of SFVs in Canada has evolved over time to result in unsafe and non-environmentally conscious design practices. Currently, a design must: meet a simple length restriction imposed by the Department of Fisheries and Oceans Canada (DFO) aimed at reducing the catch capacity of the vessel; and, at the same time, meet the minimum static stability requirements of Transport Canada's [Fishing Vessel Safety Regulations](#).

However, to date, Transport Canada does not specify a maximum stability. The wider a vessel is, the more stable it becomes. Yet as counterintuitive

as it may seem, there is such a thing as a vessel that is 'too stable.' The wider-beamed vessels that are designed to allow for greater catch capacity have such extreme proportions that they also pose a significant safety concern by being too stable. An excessively stable vessel has motions so extreme that crew members must tie themselves to the vessel to avoid being thrown around. This has resulted in several motion reduction strategies being employed for which there is no regulatory framework and has resulted in repeated loss of lives, capsized vessels, and environmental damage from spilled fuel. One notorious example was that of the Ryan's Commander, which was designed by an unlicensed practitioner, built in 2004 and capsized and sank later that same year. The loss of the vessel was a case study in the contradiction between regulations imposed by DFO and those imposed by Transport Canada as described by the report of the Transportation Safety Board of Canada¹. Similarly, the May 2022 report by the Transportation Safety Board regarding the 2020 sinking of the Sarah Anne and associated loss of life acknowledges that there are many small

¹ The contribution of the regulatory contradiction between DFO length restrictions and Transport Canada's stability requirements was highlighted by the Transportation Safety Board of Canada in its Marine Investigation Report M04N0086 "Capsizing and Loss of Life: Small Fishing Vessel Ryan's Commander – 5 Nautical Miles East of Cape Bonavista, Newfoundland and Labrador, 19 September 2004".

² Transportation Safety Board of Canada (2022). "Marine transportation safety investigation report M20A0160." Retrieved September 26, 2022 from: <https://www.tsb.gc.ca/eng/rapports-reports/marine/2020/m20a0160/m20a0160.html>

vessels that have no stability studies done². A finding as to cause and contributing factors for the loss of the Sarah Anne was that there was no stability assessment done for the vessel.

The practice of engineering in Canada, including naval architecture, is regulated by provincial and territorial associations of professional engineers, as mandated by provincial and territorial laws and regulations. However, in many cases the federal government is exempt from those laws. In the case of SFVs, Transport Canada is accepting the work of non-licensed individuals who are undertaking engineering work but who do not have to follow the requirements and standards set by provincial and territorial engineering regulators. It is not Transport Canada's mandate to govern who practices naval architecture engineering in Canada, but it is responsible for reviewing work submitted by naval architectural engineers who design the vessels and produce the required stability books. Transport Canada reviews the work to ensure that the analysis meets the requirements of the regulations, but it takes no responsibility to ensure the analysis and the data on which it is based is correct, or that it is, in fact, safe. This puts vessel operators and fishers and more broadly, every single crew member on board at risk.

Recommendations to the federal government

To improve the safety of those involved in this industry, the federal government should review its current *Stability Assessment and Stability Standards* to ensure that all new vessels (or those that have undergone a major modification or a change in activity that is likely to adversely affect its stability) of more than six meters in length, require an assessment conducted by a licensed practitioner, such as a professional engineer. The federal government has an important role

to play in improving the safety of those involved in the industry and should therefore open a consultation on fishing vessel stability analysis, to ensure that this process is more rigorous.

In addition, Engineers Canada and the engineering profession uphold that SFV design must be performed under the supervision of a professional engineer. Professional engineers who are involved in the design of SFVs are mandated and held accountable by the terms of their license to ensure that the welfare of the public and the environment are paramount in their work. Unlicensed practitioners have no such accountability.

How Engineers Canada will contribute

Engineers Canada will:

- Advocate for a public consultation regarding fishing vessel stability analysis, to ensure that this process is more rigorous.
- Continue to work with federal departments such that they recognize the authority of provincial and territorial engineering regulators, specifically within regulatory fishing vessel frameworks, and to ensure that where engineering work is being performed in Canada, that work must be done by an engineer licensed in the province or territory where the work is being completed.