**The Need to Enhance Marine Occupational Health and Safety in Canada**

Desai Shan\*

*Ocean Frontier Institute, Schulich School of Law, Dalhousie University, Canada*

*Division of Community Health and Humanities, Faculty of Medicine, Memorial University of Newfoundland, St John’s, Canada*

# INTRODUCTION

On the midnight of 16th October, 2018, a third officer Alfred was lowered from the ship *Spruceglen* to a dock on the downstream side of the Eisenhower Locks on the St. Lawrence Seaway, in order to tie off the vessel while it waited to its turn to proceed the lock. However, Alfred lost his balance and fell into the water. Two workers from the St. Lawrence Seaway Management went into water and reached him within three minutes. However, Alfred was unresponsive, and then he was sent to Massena Memorial Hospital. Alfred was pronounced dead at 2 am, 17th October 2018. [[1]](#footnote-1)[[2]](#footnote-2)

The year of 2018 was called the deadliest year in over a decade for commercial fisherman in Canada. By Oct, 2018, 17 fatal accidents were reported. The fishing industry has long registered disproportionately large numbers of accidents and fatalities. Since 1992, the Transportation Safety Board of Canada has made 48 recommendations to address safety deficiencies. Fishing safety has been on the Watchlist since 2010. [[3]](#footnote-3)[[4]](#footnote-4)

On the morning of 24 August 2018, the passenger vessel *Akademik Ioffe* ran around 78 nautical miles north northwest of Kugaaruk, Nunavut, with 163 people on board. The vessel sustained major hull damage. Three ballast water tanks and two bunker fuel oil tanks were breached and took on water. Approximately 80 litres of fuel oil were released. No injuries were reported. The vessel was refloated the next day and the passengers were evacuated to the vessel *Akademik Sergey Vavilov*. It was estimated the rescue costs the Canadian Coast Guard $513,205 in this rescue.[[5]](#footnote-5)[[6]](#footnote-6)

With continuous efforts in maritime safety management and regulation, maritime casualties have been significant decreased since early 20th century. However, as illustrated in the three cases above, significant marine risks still exist in the Canadian waters. Seafarers, fishing harvesters are facing considerable risk of workplace injuries and death at sea. In addition, with the opening of the Arctic, unpredictable challenges in the polar navigation environment threaten the health and safety of maritime workers as well as passengers.

With the development of technology, increasing working activities are conducted at sea. In addition to traditional shipping and fishing undertakings, cruise shipping, offshore oil and gas exploration, deep sea mining and ocean research activities are increasing.[[7]](#footnote-7) In Canada, a significant increase of Arctic maritime activities can also be observed.[[8]](#footnote-8) Working at sea may encounter different types of challenges, including environmental hazards, weather challenges, workplace injuries and infectious diseases.[[9]](#footnote-9) Marine health and safety issues start to attract more and more regulatory attention at both of the international and national levels.

In recent years, international maritime legal instruments have gradually incorporated more and more labour and occupational health and safety protection provisions. For example, the Maritime Labour Convention 2006 provides health and safety representation rights on board[[10]](#footnote-10). Meanwhile, the definition of seafarers is expanded to any workers on board. On the other hand, ships navigating exclusively in inland waters and ships below 200 gross tonnage that are not carrying international voyages are not covered by the Maritime Labour Convention, 2006.[[11]](#footnote-11) This means in Canada, there are still a number of domestic seafarers may not be covered by the labour standard of the Convention. With the increasing diversity of maritime activities, and maritime activities in the polar water, whether current Canadian legal instruments are sufficient to protect maritime workers from occupational hazards is questionable. Canadian domestic occupational health and safety law provides duties of employers, employees, organisations of safety committees, and disciplinary actions[[12]](#footnote-12). Internal responsibility system between workers and employers is the foundation of the occupational health and safety law in Canada[[13]](#footnote-13). When regulating unprecedented occupational risks and hazards, whether this traditional internal responsibility system is sufficient is questionable. In this paper, we will take Canadian occupational health and safety law as an example, to analyse whether the current regulatory framework sufficient to provide maritime workers sufficient occupational health and safety rights. Through examining current Canadian occupational health and safety frameworks, the author aims to identify legal gaps existed in this area and suggest the future legislation and governance needs to enhance marine health and safety in Canada.

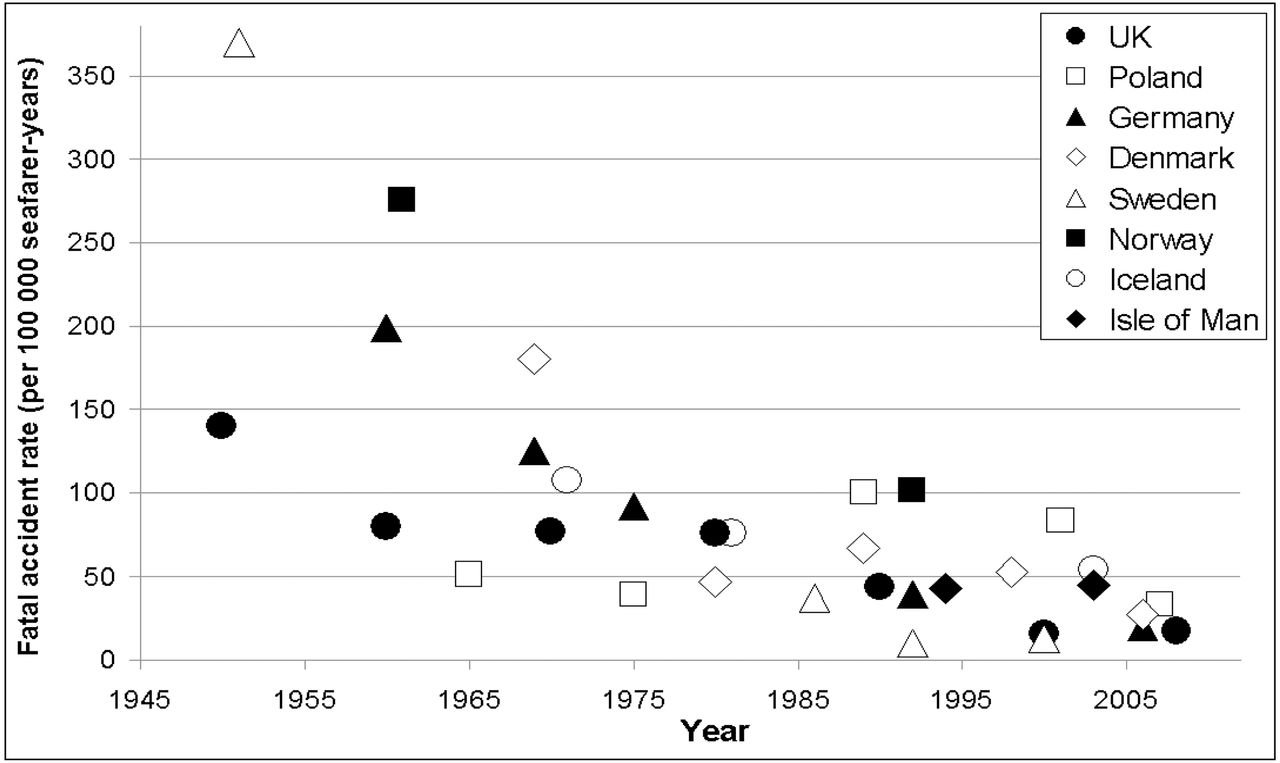
This paper will first review the occupational hazards at sea and also discuss the challenges Canadian seafarers confront in the short-sea shipping sector as well as in the Arctic shipping. Secondly, the fundamental principle of occupational health and safety law will be explained. Thirdly, the Canadian maritime occupational health and safety law will be examined. Then, referring to the international legal development in the maritime occupational health and safety law, together with the new occupational health and safety hazards emerging in Canada, the gaps and needs to enhance marine health and safety law will be discussed and some policy recommendations will also be given. Considering the complexity of occupational health and safety issues in the shipping industry, which is argued to range from technical requirements of ships and equipment on board, training and crewing, occupational medicine, and psychological and behavioural aspects of safety management, this paper cannot exhaust all these aspects. This research aims to address the marine occupational health and safety needs from a socio-legal perspective, which focuses on the core occupational health and safety protection available to Canadian workers, including the right to participate and the right to rest.

1. **OCCUPATIONAL HAZARDS AT SEA**

Maritime occupations, including seafaring and fishing, remain to be jobs with high risks to injuries and fatalities. A transnational study shows that 8.5% of seafarers suffered an injury during their most recent tour of duty,[[14]](#footnote-14) and a Danish study finds that the fatal accident rate in merchant shipping is ten times that in shore-based industries.[[15]](#footnote-15) The fatal accident rate among seafarers was 14.5 per 100,000 workers during 2003-2012, which was 21 times that in the general British workforce and 4.7 times that in the construction industry.[[16]](#footnote-16) According to a UK study, the fatal accident rate is 102 per 100,000 fishermen-years, which is the most hazardous industry nationwide.[[17]](#footnote-17) Through an international comparative study in 2014, the risk of fatal accident for workers in the fishing industry is about 25-50 times higher than onshore workers.[[18]](#footnote-18)

Although the fatal accident rate among seafarers are still high compared to general labour force, a clear decline trend can be identified in the fatal rate in the second half of 20th century (see Figure 1). One major contributing factor to explain this is the continuous regulatory efforts in maritime safety, through the International Maritime Organisation, as well as flag states and port states[[19]](#footnote-19). The control of fatal accident rate among seafarers indicates that through regulatory efforts, health and safety can be improved in the maritime sector. To reduce maritime injury and fatal accident rate in the fishing industry, regulatory efforts are necessary.

Figure 1 Trends in fatal accident rates among seafarers employed in merchant fleets worldwide, 1945–2012[[20]](#footnote-20)



The occupational hazards faced by maritime workers can be divided into two types, one is occupational accident, and the other is occupational disease, including both of physical and mental diseases. Occupational accidents can be divided into three categories: firstly, accidents related to maritime disaster, for example, accidents or incidents involving ships, such as collision, foundering and explosion; secondly, on-duty accidents, personal accidents involving seafarers on duty, such as fracture caused by snapping mooring lines; thirdly, off-duty accidents, such as injuries caused by slips, trips and falls occurred when seafarers are off duty on board.[[21]](#footnote-21)

In the shipping industry, occupational accidents are the major causes (56%) to the fatalities of seafarers in the UK between 2003-12; maritime disaster accidents contributes 5% and off-duty accidents contribute 14% fatalities of seafarers.[[22]](#footnote-22) In the fishing sector, about half of the fatal injuries are related to maritime disasters and drowning.[[23]](#footnote-23) This difference indicates that regulating maritime occupational health and safety requires different strategies in the shipping and fishing sectors. To prevent maritime disasters should be the regulatory priority in the fishing health and safety governance. In addition, mental health problems at sea are also attracting research attention in recent years, particularly the fatigue issue among seafarers.

Canadian maritime workers, seafarers and fishing workers, face similar occupational hazards with their international counterparts. The mortality rate of Canadian seafarers are 22 per 100,000 workers, which is slightly higher than that of seafarers working on UK fleet.[[24]](#footnote-24) Fishing is also one of the most dangerous occupations in Canada with a fatality rate of 115 per 100,000 persons, which is one of the top-listed risk occupations.[[25]](#footnote-25) Canadian maritime workers’ fatality rate are slightly higher than that of British maritime workers. In addition, the major cause (58%) of fishing fatalities in Canada is maritime disaster, including capsizing, foundering, flooding or sinking.[[26]](#footnote-26) Through comparison, it can be found that in Canada, fishing mortality rate is more than five times of that of seafaring and maritime disaster accidents are the major challenge in fishing occupational health and safety governance.

Canadian merchant ships are mainly engaged in short-sea transport. In addition to the occupational hazard related to general shipping labour process, including watchkeeping during the voyage, piloting through narrow waterways, mooring and anchoring at terminals, loading and discharging, cargo handling, and trimming, marine engineering and vessel-sourced pollutant processing, Canadian seafarer confront additional risks related to landing boom operation, which is an operation of using the booms to swing crew member ashore to handle mooring lines on tie-up walls. This practice is unique to the Seaway[[27]](#footnote-27). Frequent calls to port in the near coastal regions will also require seafarers to be on call and shorten their rest hours.[[28]](#footnote-28) Shore-sea seafarers are more vulnerable to fatigue, a recently recognised workplace hazard.

With the increasing maritime activities in the Arctic, Canadian maritime workers also face special occupational hazard related to polar marine environment. The lack of port infrastructure in the Arctic region increases the difficulty of discharging operation and may create additional occupational hazard related to port operation[[29]](#footnote-29).

Navigation in the Arctic brings unique hazards such as atmospheric refractions resulting in mirages; lack of navigational aids or markers; no designated traffic segregation scheme; months of complete darkness; erratic compass readings due to anomalies in the earth's magnetic field; and less reliable navigation and satellite communications due to ionosphere interference.[[30]](#footnote-30) Working in the arctic may also create risks for individual seafarers, including numbness, frostbite, hypothermia, long term working in the cold may also cause musculoskeletal disorders. Cooling may worsen the symptoms of many diseases, including respiratory and heart diseases[[31]](#footnote-31).

The high risk of fatal accidents in the maritime sectors indicates that additional regulatory efforts are required to ensure the health and safety of workers at sea. In addition, considering the expansion of Arctic maritime activities due to climate change, how to protect maritime workers in the polar maritime working environment is also an important question to address in Canadian maritime occupational health and safety law.

1. **THE PRINCIPLES OF OCCUPATIONAL HEALTH AND SAFETY LAW AND THEIR APPLICATION IN MARINE SECTORS**

The use of law to regulate economic activities has become a defining characteristic of modern society,[[32]](#footnote-32) and arguable so has the risk.[[33]](#footnote-33) Occupational health and safety law is a form of law to regulate economic and industrial activities, and prevent the harm caused by these activities, in particular working activities. This section reviews the principles of general occupational health and safety law and also discusses some special features of the occupational health and safety regulatory development in marine sectors.

In 18th century, risks arising from working activities were rarely regulated, and the harm arising from working activities were mainly suffered by individual workers and their families. Workers’ compensation became the first source of occupational health and safety law, which attempted to re-address the attribution of risk between workers and employers. No-fault based workers’ compensation was established through levying employers to ensure workers would be entitled to reasonable remedies when industrial accidents occurred. This rationale behind this is that modern industrial risks and the harm arising from it are the price should be paid by the industry, rather than individuals. Afterwards, preventing and controlling risk arising from industrial accidents was recognised as a regulatory objective in modern societies.

Command and control was the major approach in the first stage of occupational health and safety law in the 19th century. The first ‘safety’ provisions, requiring the fencing of dangerous machinery, appeared in the 1844 Factory Act in the UK.[[34]](#footnote-34) According to the economist Sidney Webb, health and safety legislation was ‘a typical example of English practical empiricism’, considering it proceeded from ‘no abstract theory of social justice or the rights of man’ (unlike continental Napoleonic law), but instead responded pragmatically to particular problems as they emerged.[[35]](#footnote-35) In the 1960s, this direct “command and control” regulatory mode was criticized heavily due to the fragmentation of regulations: there were nine acts and over 500 regulations governing workplace health and safety, as well as controlling special hazards.[[36]](#footnote-36) On the other hand, weakness of the enforcement was identified: although factory inspectorates were authorized legal power to correct and persecute infringements of OHS law. They were unwilling to persecute the employers, to some extent because many of these middle-class businessmen were also magistrates.[[37]](#footnote-37) The health and safety inspection system were gradually converted from a ‘conflict-oriented’ enforcement to a ‘consensus-oriented’ one. Meanwhile, voluntary safety management approaches were undertaken by factory employers, which informed the philosophy of self-regulation, which was recommended in the 1972 Report of the Committee on Safety and Health at Work, i.e. the Robens Report.[[38]](#footnote-38) At this stage, a shared internal responsibility system was introduced in the occupational health and safety regulation, which means that although the employer has primary responsibility, all workplace stakeholders, including supervisors and workers, have statutory duties to ensure compliance.

In the maritime sector, the development of occupational health and safety regulation were also driven non-state actors, including both of international organisations, as well as industrial organisations. The global nature of the maritime activities, shipping in particular, requires uniformed the consistent safety standards applicable to international ships regardless of their flags. With the continuous efforts of the International Maritime Organisation, a series of international legal instruments, such as the International Convention for Safety of Life at Sea, 1974 and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1995, have been introduced to regulate safety and competency of seafarers. In addition, global industrial organisations, including classification societies, Protection and Indemnity Clubs (liability insurers), and Oil Companies International Marine Forum (OCIMF), plays as “private regulators”, promoting the enforcement of the international conventions, developing guidelines for maritime safety practice and conducting private inspection of compliance.[[39]](#footnote-39)

However, the issue of maritime safety has for many years emphasized technical aspects and prevention of accidents to the ship through rectification of operational deficiencies and incompetency of seafarers. These efforts were primarily concerned with the efficiency of maritime operation through preventing accidents to ships, while aspects of occupational health and safety, in particular the aspects related to individual workers’ health, in the workplace have had a comparatively low priority.[[40]](#footnote-40) In addition, as an empirical study shows, the “blame culture” existed in the ship management discourages seafarers to report accidents and express their safety concerns in the workplace, which undermines the effectiveness of the International Safety Management Code[[41]](#footnote-41).

The International Labour Organisation have consolidated minimum labour standards for international maritime workers, and the Maritime Labour Convention, 2006 applicable to global seafarers is the major legal source to protect occupational health and safety rights at sea. In Regulation 4.3 – Health and safety protection and accident prevention, going beyond the risk assessment and management, required by the Chapter IX of the SOLAS Convention, International Safety Management Code, workers’ right to participate, specially refers to the appointment of safety representatives and requires that ships with five or more seafarers on board have safety committee meeting established.[[42]](#footnote-42)

In another marine sector, fishing industry, the development of occupational health and safety law is falling behind the shipping industry, although a series of legal instruments have also been adopted, including the IMO conventions: Torremolinos International Convention for the Safety of fishing Vessel, 1977 and the Cape Town Agreement of 2012, International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F), 1995; and the Work in Fishing Convention, 2007 (No. 188) of the International Convention. However, except the STCW-F convention and the Work in Fishing Convention, 2007, the Torremolinos Convention has not come into force so far.

Unlike the development of domestic occupational health and safety law, which has a historical stage of command and control mode with inspectors authorized significant legal power, the enforcement of international law usually relied on the cooperation of sovereign states and international organisation cannot have enforcement legal power beyond sovereign states. Therefore, the international maritime occupational health and safety legal instruments adopts a goal-based regulatory mode or regulated self-regulation, rather than the command and control mode. At the current stage, both of the domestic occupational health and safety law and international maritime legal instruments related to workplace health and safety are coming to a stage of regulated self-regulation. Although this mode is argued to be more efficient and effective to promote health and safety in the workplace, the lack of power of balance between employers and workers, in particular in the context of precarious employment increase and union density drops.[[43]](#footnote-43)

**Marine Health and Safety Law in the Canadian Occupational Health and Safety Regulatory System**

Under the Canadian Constitution, employment and labour legislation, including occupational health and safety law, is primarily a provincial responsibility under s. 92(13).[[44]](#footnote-44) The management of undertakings, working conditions and labour relations are at the core of OHS law.[[45]](#footnote-45) These matters are included under s. 92(13) of the Constitution Act, 1867. Thus, provincial OHS law is presumptively under provincial jurisdiction provided that the provincial OHS law is focused on those three matters. The federal government has jurisdiction to regulate labour relations in two circumstances: when the employment relates to a work, undertaking or business within the legislative authority of Parliament under s. 91 of the Constitution Act, 1867; or when it is an integral part of a federally regulated undertaking, sometime referred to as derivative jurisdiction. The federal government administers general labour affairs, including OHS issues, only for the following undertakings that have an extra-provincial or international character: ferries, tunnels, bridges, and canals; shipping and shipping related services; marine transport. The Parliament of Canada has granted the territorial governments the same power as the provinces to legislate on employment and labour matters that do not fall under federal jurisdiction.

However, due to the occupational hazards in the marine sector, as above mentioned, are related to the vessel, to the labour process on board, to the living environment on board. These technical standards of ships are covered by the federal Canada Shipping Act, 2001. Maritime workers, seafarers and fishing workers are subject to different jurisdictions.

Seafarers’ occupational health and safety rights are subject to federal jurisdiction, and regulated according to the Canada Labour Code, Part II and Maritime Occupational Health and Safety Regulations. In addition, in the Canada Shipping Act, 2001 and its Marine Personnel Regulations, incorporate certain amounts labour standards in the Part III Maritime Labour Standards, which stipulate the detail requirements related to recruitment, employment conditions, hours of work and rest, shore leave, food and water and on-board complaint procedures.

Fish harvesters’ health and safety are subject to both of the federal and provincial regulations. At the federal level, under the Canada Shipping Act, 2001, Fishing Vessel Safety Regulations, C.R.C., c. 1486 requires written safety procedures for crew, proper safety equipment (life-saving appliances and visual signals, firefighting equipment) on board and stability assessment for all commercial fishing vessels that are not more than 24.4 meters in length and not more than 150 gross tonnages.[[46]](#footnote-46) For fishing vessel over 24.4 meters in length, or 150 tons, gross tonnage, Large Fishing Vessel Inspection Regulations require stability inspection, and inspection of engines, boilers, electrical equipment, fuel tanks, lifesaving equipment, and firefighting equipment.[[47]](#footnote-47) The navigation crew on fishing vessels, including fishing master and watchkeeping engineer on motor driven fishing vessels, are required to fulfil the certification criteria, including training in navigation safety, first aid and medical exams. On the other hand, fishing harvesters’ occupational health and safety rights are not covered by the federal Canada Labour Code, but by the provincial occupational health and safety acts.

1. **THE NEEDS TO ENHANCE THE MARINE HEALTH AND SAFETY SYSTEM**

Various regulatory factors may affect the performance of marine health and safety, including technical standards of ships, safety equipment compulsory requirements, search and rescue organisation, crew training standards, labour conditions and standards and crew’ participation in health and safety decision.[[48]](#footnote-48) On the other hand, the clarity, uniformity and consistency of regulations will also affect the effectiveness of compliance, inspection and enforcement. Marine industry also has strong international nature. Commercial shipping and fishing are inevitably operating in international water to conduct transport and fish harvesting. In addition, international maritime and labour governance are also evolving, which also require a higher standard for Canadian health and safety law to fulfill. The opening of the Arctic, the increase of maritime activities in the polar water, including shipping and fishing, also require enhancing current environmental, health and safety regulations. The increase of women’s participation in the marine sector strengthen the need to eliminate harassment and bullying in workplaces at sea.

The first need to enhance the marine health and safety system is to eliminate conflicts of laws and jurisdictions. As discussed above, Canadian fishing health and safety are subject to both of the federal and provincial regulations. Vessel as a shipping vehicle, on one hand is subject to Canada Shipping Act, 2001 and its regulations, but on the other hand as a workplace, one may also argue it is subject to workplace health and safety conditions as well. In R v Mersey Seafoods (Crown against Mersey Seafoods)[[49]](#footnote-49), a case decided by the Nova Scotian Court of Appeal, is a case on point. Mersey seafoods is an owner of sea-going fishing vessels, including Mersey Venture, a factory freezer shrimping trawler, about 60 meters long and 2300 gross tonnage and has 27 crew. The port of registry is in Nova Scotia, but it fishes from shore to the Greenland coast, about 1500 nautical miles at sea and time at sea is between 30 and 50 days. In 2005 the provincial crown charged Mersey seafoods with eight counts of alleged violations of Nova Scotia’s Occupational Health and Safety Act, including failures to provide and ensure the use of a personal floatation device, to supply fresh air, establish occupational health and safety policy, program and joint occupational health and safety committee. Mersey seafoods made a preliminary motion for dismissal of the charges, based on the that the matter the charges is within federal jurisdiction and provincial OHS act is not applicable because of inter-jurisdictional immunity or inoperative for paramountcy. The key question to determine in the dispute was whether safety aboard fishing vessels, in pith and substance, as an essential party of the management of ship, is a federal undertaking immunized from the provincial OHS Act, or subject to provincial regulation.

At the first trial, the Provincial Court judge gave an oral decision quashing the charges. He said:

An examination of the Canada Labour Code and the Marine Occupational Health and Safety Regulations made thereunder, the Canada Shipping Act and the Safe Working Practises Regulations, the Tackle Regulations and the Large Fishing Vessel Inspection Regulations all make it clear that the Federal Government is attempting to regulate workplace safety aboard vessels.

In fact, Section 2 of the Canada Labour Code defines Federal work as including a work that is carried on, for, or in connection with navigation and shipping. And it is hard to imagine that that definition is not intended to cover the work carried out upon the Mersey Venture as a factory freezer trawler.

The provincial court judge confirmed that fishing occupational health and safety is a matter subject to federal regulation, in particular section II of the Canada Labor Code.

The crown appealed. The Court of Appeal held a different opinion from the provincial court judge, and they found that

The provincial Crown does not sue Mersey Seafoods in tort. There is no issue of maritime negligence law. This is a prosecution under a provincial occupational health and safety statute. Occupational health and safety legislation has its own genealogy, rooted in neither maritime law nor tort.

They concluded that

As Mersey seafoods, …, is a provincial undertaking, Part II of the Canada Labour Code and Maritime Occupational Safety and Health Regulations are replaced by Nova Scotia’s OHS Act. But that substitution does not change the federal purpose – the Canada Shipping Act does not aim to exclude occupational health and safety legislation. Nova Scotia’s OHS Act does not frustrate any federal statutory purpose.

The crown’s appeal was allowed.

The Nova Scotian Court of Appeal’s judgement, R v Mersey Seafoods (Crown against Mersey Seafoods), reconfirms the application of provincial occupational health and safety regulations into the fishing vessels. However, this province-based fishing occupational health and safety standards for fishing workers are imbalanced. For example, only two provinces, British Columbia and Newfoundland and Labrador have workplace legislation, specific to fishing vessels. The remaining provinces apply general workplace legislation to fishing vessels. New Brunswick and Prince Edward Island, although taken certain efforts to develop awareness tools, still not expressly ascertain provincial OHS jurisdiction over fishing vessels (Transport Safety Board 2017). For Arctic fishing OHS regulations, province-based regulations may not be effectively harmonized with international maritime safety and health standards in the polar waters. To establish a uniform, consistent and clarified health and safety standards for fish harvesters in Canada is the primary condition to ensure effective health and safety protection for marine workers. Considering the nature of fishing vessels is of a vessel, as well as a workplace, marine health and safety regulations must fulfill the two safety aims, one is to ensure safety of vessel and the other is to further ensure the vessel is a safe workplace. However, relying on provincial OHS regulations, which are primarily designed to regulate land-based workplaces may not be an ideal option, but rather increase the difficulties in legal compliance for fishing enterprises.

Secondly, due to the international nature of shipping and fishing, it is also necessary to fill the gaps between Canadian health and safety standards and international standards. To fulfill the minimum international marine health and safety standards, the Canadian regulations need to be enhanced in hours of rest, and workers’ representation in health and safety management. In the current hours of rest regulations, workers on federally regulated ships are exempted from the maximum hours of work stipulated in the Canada Labour Code Section 171, which are 48 hours/week.[[50]](#footnote-50) Instead, *Marine Personnel Regulations* stipulate the minimum hours of rest for people working on federally regulated ships. However, the legal standards of Canadian seafarers’ right to minimum hours of rest is inferior to both of the International and EU standards (see Table 1).

**Table 1. Minimum hours of rest[[51]](#footnote-51)**

|  |  |  |
| --- | --- | --- |
| **Canadian Standards\*\*** | **International Standards \*\*\*** | **EU Standards\*\*\*\*** |
| Minimum hours of rest:  i) at least 6 consecutive hours of rest in every 24-hour period;  ii) at least 16 hours of rest in every 48-hour period; and  iii) not more than 18 hours but not less than 6 hours elapsing between the end of a rest period and the beginning of the next rest period | Maximum hours of work shall not exceed:  i) 14 hours in any 24-hour period; and  ii) 72 hours in any seven-day period  minimum hours of rest shall not be less than:  i) ten hours in any 24-hour period;  ii) 77 hours in any seven-day period | Working time shall not exceed:  a) 14 hours in any 24-hour period; and  b) 84 hours in any seven-day period  If, according to the work schedule, there are more working days than rest days, an average weekly working time of 72 hours shall not be exceeded over a four-month period |
| \*\* See Section 320, Marine Personnel Regulations (SOR/2007-115)  \*\*\*See Regulation 2.3 of the Maritime Labour Convention 2006.  \*\*\*\* See Paragraph 4, COUNCIL DIRECTIVE 2014/112/EU of 19 December 2014 implementing the European Agreement concerning certain aspects of the organisation of working time in inland waterway transport, concluded by the European Barge Union (EBU), the European Skippers Organisation (ESO) and the European Transport Workers' Federation (ETF) | | |

In addition, marine workers’ right to participate safety management should also be enhanced. The workplace health and safety committee is a key institution, but the mandatory establishment of workplace health and safety committees is not applicable to ships. According to Section 135 (1), “for the purposes of addressing health and safety matters that apply to individual work places, and subject to this section, every employer shall, for each work place controlled by the employer at which twenty or more employees are normally employed, establish a workplace health and safety committee and, […], select and appoint its members”. However, an employer is not required to establish such a committee for a workplace that is on board a ship in respect of employees whose base is the ship.[[52]](#endnote-1) Canadian ships are, however, required to have health and safety representatives. As per Section 136 (1), every employer shall for each workplace controlled by the employer which is not required to establish a workplace committee, appoint a person as the health and safety representative.[[53]](#footnote-52) This exemption of workplace health and safety committee makes Canadian maritime workers’ right to participate in the health and safety management lower compared to the land based workers. In addition, this exemption may also place Canada, as a member state of the Maritime Labour Convention, 2006, fail to comply with its obligations to provide minimum health and safety protection standard. According to the Standard A4.3.2 (d), a ship’s safety committee shall be established on board a ship on which there are five or more seafarers and seafarers should be appointed or elected as safety representatives to participate in meetings of the ship’s safety committee. However, the current Canadian health and safety standard allow a ship with more than 20 seafarers operate with a safety representative rather than with a properly established health and safety committee on board. Through this comparative study, to fulfill Canadian obligation as per the Maritime Labour Convention, 2006, it is necessary to require a mandatory establishment of workplace health and safety committee on board a vessel with more than 5 seafarers.

Thirdly, there are some emerging areas need to be enhanced in Canadian marine health and safety legal system, such as fatigue prevention and harassment and violence prevention. Due to the minimum hours of rest for seafarers in Canada is lower compared to international and European standards, plus the fact that the Canadian coastal short-sea shipping involves intensive operation in locks, canals, and narrow waterway, fatigue is a huge challenge for Canadian workers at sea. In addition, the increase of polar maritime activities in low temperature and under continuous icebreaking noise, may exacerbate the fatigue level experienced by Canadian marine workers. Fishing harvesters’ fatigue issue has not been properly addressed in the current health and safety law, and seafarers’ fatigue is not sufficiently addressed. Both areas need extra regulatory efforts to ensure Canadian marine workers are well-protected from fatigue-related accidents at sea. In October 2018, the Bill C-65, the federal anti-harassment and violence legislation received Royal Consent, which aims to protect workers from harassment and violence in federal regulated workplaces, and ships are not exception.

In the current Canadian marine health and safety legal system, workers on fishing vessels are subject to provincial regulations. Different provinces have developed occupational health and safety regulations to prevent workplace violence and harassment.[[54]](#footnote-53) Different levels of obligations to prevent workplace violence and harassment are imposed to employers. For example, in Nova Scotia, once a workplace violence/harassment incident occurs, “an employer must ensure that incidents of violence in a workplace are documented and promptly investigated to determine their causes and the actions needed to prevent reoccurrence.”[[55]](#footnote-54) In Newfoundland and Labrador, in response to a workplace violence/harassment incident, “an employer shall, within 3 days after an accident happens to a worker that result in a serious injury to the worker, provide written notices to the minister.”[[56]](#footnote-55) Fishing harvesters’ occupational health and safety rights currently fall under provincial jurisdiction, as a result, any development of the rights, including the workplace violence and harassment prevention, may not be consistent and uniformed. This may lead to uneven fields of competition where fishing vessel operator could choose a registration port with a lower health and safety standards in Canada.

Fourthly, the enforcement of occupational health and safety law needs to be enhanced. The contemporary occupational health and safety law adopts the internal responsibility system, which aims to promote the participation of employers and workers and achieve certain level self-governance in safety. But when it applies to the marine sector, the impact of ships as total institutions cannot be ignored. Such institutions are purportedly established to pursue some technical task and are justified only on these instrumental grounds. Similar to company towns and operations where workers stay in work camps, one of the totalistic features of ships is that work, rest, and entertainment are all under a single authority on board. The ship operator controls the work schedules and rest hours as well as food choices, accommodations, and entertainment facilities on board. As a result, while working, the safety, health, and wellbeing of all aspects of seafarers are largely subject to the management practices as well as the hierarchical control on board.[[57]](#footnote-56) While the key of this system is to empower workers, therefore, safety representative, workplace health and safety committee and joint health and safety policy committee are very important mechanisms to empower the workers at workplaces. With the legal exemption of workplace health and safety committee as per the 136 (1) of the Canada Labour Code, in the enforcement of occupational health and safety law in the marine sector, the power of workers to participate in safety management is more restricted on ship as a total institution. Therefore, to enhance the enforcement mechanism of occupational health and safety law in the marine sector is also necessary. The Ministry of Labour plans to amend the Canada Labour Code to create a new Part IV Administrative Monetary Penalties to strengthen the enforcement of occupational health and safety standards in the federally regulated industries, including shipping. This legislative plan aims to introduce an up to CAD 250,000 penalty associated with the violations of occupational health and safety standards[[58]](#footnote-57). This change, to some extent, may overcome the weakness of current internal responsibility system. For maritime sector, this penalty system may promote employers’ compliance with occupational health and safety standards, considering the fact that seafarers’ right to participate health and safety management in the internal responsibility system is weaker compared to land-based workers.

**CONCLUSION**

Marine health and safety is a complicated area today in Canada, and various factors, including the increase of marine activities in the opening Arctic, the adoption of international maritime health and safety instruments by the International Maritime Organisation and International Labour Organisation. In addition, the reform of occupational health and safety law, including recent efforts to prevent workplace harassment and violence, to introduce administrative monetary penalties to enhance the enforcement of health and safety standards in Canada, requires contribution from the marine sector.

However, on the other hand, the marine sector, in particular shipping and fishing industries, are falling into two different jurisdictions, federal and provincial, in Canada. The deep sea fishing activities, may take place outside Canadian territorial sea as well as exclusive economic zones, and the technical aspects of trawler navigation safety is as complicated as commercial shipping. In this context, the overlap of provincial and federal jurisdictions led to the lack of uniformity of marine health and safety standards, which will further create barriers for Canada to implement international fishing-related health and safety standards in the near future. To harmonise the marine occupational health and safety regulations and streamline the compliance process is a crucial need to promote sustainable development of the marine sector in Canada.

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