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## **PUSHING THE LIMITS: HOW LIMITATION OF LIABILITY WILL APPLY TO MARITIME AUTONOMOUS SURFACE SHIPS**

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# **Pushing the limits: How limitation of liability will apply to maritime autonomous surface ships**

*Luci Carey\**

## **ABSTRACT**

The right of shipowners to global limitation has been in place for centuries. The persons entitled to limit have expanded from the shipowner to include the salvor, charterer, manager, and operator of a seagoing ship and any person for whose act, neglect, or default the shipowner or salvor is responsible. Claims brought against these persons can be limited (with some exceptions), with the limits calculated per distinct occasion. Uncrewed ships that are operated remotely and autonomous ships that self-navigate will not necessarily involve the shipowner's employees; instead, it is likely that independent contractors will monitor a fleet of uncrewed vessels. In addition, artificial intelligence is increasingly used to make navigational decisions on uncrewed vessels and conventional ships. Where there is no human presence onboard, and the ship is monitored by an independent contractor, finding fault of the shipowner will be increasingly difficult to establish for claims covered by the Limitation Conventions.

The paper examines the development of the right to limitation. It considers whether limitation will be available to the operators of remote-operated vessels, identifies difficulties with determining how the limits will be calculated, and the challenge of finding the 'distinct occasion.' It concludes that limitation should be available to the operators of remote-operated vessels to ensure that claimants are assured that insurance is in place. It is undesirable that novel categories of ships are excluded from a regime that applies to existing conventional ships.

**Keywords:** Limitation of liability; remote-operated vessel; autonomous ships; remote-control centre; MASS; global limitation

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## 1 Introduction

Global limitation of liability applies to claims<sup>1</sup> made against shipowners, whether based on statute, contract, tort, delict, or some other basis.<sup>2</sup> It has been both defended<sup>3</sup> and criticised.<sup>4</sup> However, all agree that justice is not the purpose of global limitation and, in a sense, limitation is a utilitarian concept.<sup>5</sup> Sir Barry Sheen eloquently explained the concept:

[I]t is one thing for the common law to be developed by judges in a manner which may generally be regarded as fair and equitable and quite another thing to place artificial limits upon the amount of damages recoverable when those damages are clearly not too remote and are in principle recoverable. A person may suffer financial loss by reason of the negligent conduct of another but damages are not recoverable because they are too remote from the act of negligence. But one shipowner may not be fully recompensed by another solely because a limit is placed upon the amount recoverable. Any limit which is placed on the amount of damages for which a person is liable, whether in tort by virtue of the Merchant Shipping Acts, or in contract by the Hague-Visby Rules, is a fetter upon the ability of a court to order a defendant to pay full compensation.<sup>6</sup>

As Lord Denning famously stated in *The Bramley Moore*, ‘... there is not much justice in this rule: but limitation of liability is not a matter of justice. It is a rule of public policy which has its origins in history and its justification in convenience.’<sup>7</sup>

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<sup>1</sup> Not all claims can be limited. For example, claims for salvage and oil pollution are excluded from the various limitation conventions: see art 3 of the Convention on Limitation of Liability for Maritime Claims 1976 (LLMC 1976) and Barnabas WB Reynolds and Michael N Tsimplis, *Shipowners’ Limitation of Liability* (Wolters Kluwer 2012) 64.

<sup>2</sup> *Ibid*, 54.

<sup>3</sup> See, for example, Amalia Tszima and Philip Morgan, ‘Justifying Global Limitation of Maritime Claims in the Modern Business Environment’ [2021] LMCLQ 292; David Steel ‘Ships are Different: The Case for Limitation of Liability’ [1995] LMCLQ 77.

<sup>4</sup> Patrick Bonner, ‘Limitation of Liability: Should it be Jettisoned after *The Deepwater Horizon*?’ (2011) 85 *Tulane L Rev* 1183; Lord Mustill ‘Ships are Different, Or Are They?’ [1993] LMCLQ 490.

<sup>5</sup> ‘Contemporary utilitarianism claims that the ‘overall interests produced by all the individuals in a community based on social cooperation, are greater than the sum of the individual interests produced by the same members of a society based on individual efforts, and that the newly added interests come from the social cooperation’: Shuyang Liu, *The Contemporary Evolution and Reform of Utilitarianism* (Springer 2024) [5.5.3].

<sup>6</sup> Sir B Sheen, ‘Limitation of Liability: The Law Gave and the Lords Have Taken Away’ (1987) JMLC 473, 473-474.

<sup>7</sup> *Alexandra Towing Co Ltd v Millett (Owners) and Egret (Owners) (The Bramley Moore)* [1964] P 200 (CA), 220.

Following several high-profile shipping incidents<sup>8</sup> which have highlighted the effect of the right to limitation of liability,<sup>9</sup> this paper discusses how limitation of liability in the context of autonomous ships and remotely operated uncrewed ships may yield very different results depending upon the structure of operation.

Limitation of liability is crucial to ensure that shipowners can obtain insurance for third-party liabilities. If a shipowner cannot limit its exposure, insurance may be unobtainable, and the shipowner exposed to ruin on every voyage.<sup>10</sup> Alternatively, the insurance premiums would be so high that the cost of the sea carriage of goods would increase exponentially. A cost that would ultimately be passed on to the consumer. Therefore, it is deemed to be in society's interests that goods are shipped around the world at a reasonable cost.

If crew are removed from the ship, not only does the question of who is liable arise, but can that person limit their liability? The shipowner would still be strictly liable for any damage caused by pollution, but what if there was no pollution and a collision with another vessel? In maritime collisions, liability is fault-based. Who would be at fault? Would it be the producer of the AI system? Would it be the operator in the Remote Control Centre (RCC)? Would it be the shipowner?

This paper examines the development of the right to global limitation of liability for maritime claims before discussing the categories of persons entitled to limit. It concludes that the international limitation conventions do not cover the developers of artificial intelligence (AI) systems, and those providing RCC services may not be included unless they have the requisite

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<sup>8</sup> In 2020, the *Wakashio* grounded off the coast of Mauritius and subsequently broke up, causing extensive environmental damage. See 'Responding to *MV Wakashio* Oil Spill' (International Maritime Organization (IMO) Hot Topics) <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/Wakashio-FAQ.aspx>> accessed 8 April 2024; 'Mauritius Oil Spill: Wrecked *MV Wakashio* Breaks Up' (BBC News) <<https://www.bbc.co.uk/news/world-africa-53797009>> accessed 9 April 2024. In March 2024, the container vessel *Dali* allided with a bridge in Baltimore, resulting in its collapse: see Michael Grey, 'What Can We Learn from the Baltimore Bridge Collision?' *Seatrade Maritime* (4 April 2024) <<https://www.seatrade-maritime.com/opinions-analysis/what-can-we-learn-baltimore-bridge-collision>> accessed 9 April 2024.

<sup>9</sup> The owners of the *Wakashio* constituted a limitation fund in Mauritius. See Adam Corbett, 'Wakashio Owner Begins Limitation Proceedings in Mauritius' *TradeWinds* (25 November 2021) <<https://www.tradewindsnews.com/casualties/wakashio-owner-begins-limitation-proceedings-in-mauritius/2-1-1105851>> accessed 8 April 2024. The owners of the *Dali* are seeking to limit their liability pursuant to United States law: see David Osler, 'Dali Owners Deny Liability for Baltimore Bridge Collapse' *Lloyd's List* (London, 2 April 2024).

<sup>10</sup> See, eg, *China Ocean Shipping Co v State of South Australia* (1979) 145 CLR 172 (H Ct Aus), 185; *Strong Wise Ltd v Esso Australia Resources Pty Ltd (The APL Sydney)* [2010] FCA 240, [2010] 2 Lloyd's Rep 555, [31].

level of control over the vessel required by the recent case, *The Stema Barge II*.<sup>11</sup> As will be discussed further later in this paper, the limits of liability in the Convention on Limitation of Liability for Maritime Claims 1976 (LLMC 1976) are almost unbreakable.<sup>12</sup> Therefore, when AI makes decisions onboard a vessel, it will be impossible to find fault, and the LLMC 1976 will be unbreakable. The paper concludes by examining the meaning of ‘distinct occasion’ and how this will be increasingly difficult to define in the context of fleets of vessels being monitored by one RCC. Law reform is required to accommodate these novel craft, and those operating MASS and uncrewed ships must have the right to limit their liability in line with owners and operators of conventional ships.

## 2 Maritime Autonomous Surface Ships (MASS)

The International Maritime Organisation (IMO) has identified several expected impacts on shipping brought by the so-called fourth industrial revolution, including big data, artificial intelligence, robotics, and new energy sources, which are anticipated to revolutionise how ships are built and operated.<sup>13</sup> One of these developments is the introduction of autonomous and uncrewed ships.

Proponents of these novel craft suggest that they are suitable for the next-generation passenger transport systems as smaller and more flexible vessels will provide higher quality of service for transporting passengers while avoiding increases in crew costs associated with operating fleets of numerous small ships. From the perspective of the carriage of goods, autonomous ships are intended to slot into highly automated transport chains.<sup>14</sup> Other benefits of the introduction of autonomous vessels are safety, sustainability, improvement of

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<sup>11</sup> *Splitt Chartering APS v Saga Shipholding Norway AS (The Stema Barge II)* [2021] EWCA Civ 1880, [2022] 1 Lloyd’s Rep 170.

<sup>12</sup> See below, 4.4.

<sup>13</sup> Kitack Lim (Secretary-General, International Maritime Organization (IMO)), ‘Future Developments in Maritime Transport’ in *50 Years of Review of Maritime Transport, 1968-2018: Reflecting on the Past, Exploring the Future* (United Nations, 2018) 38.

<sup>14</sup> Kevin Heffner and Ørnulf Jan Rødseth, ‘Enabling Technologies for Maritime Autonomous Surface Ships’ (2019) J Phys: Conf Ser 1357, 2. See also, Port of Rotterdam in association with British Ports Association Port Futures programme, ‘Move Forward: Step by Step Towards a Digital Port (White Paper) (August 2019) <[britishports.org.uk/content/uploads/2023/06/Port-of-Rotterdam-and-British-Ports-Association-digital-port-white-paper-August-2019.pdf](http://britishports.org.uk/content/uploads/2023/06/Port-of-Rotterdam-and-British-Ports-Association-digital-port-white-paper-August-2019.pdf)> accessed 8 June 2024.

crews' working environment, mitigating the risk of future shortage of seafarers, and reduction in transportation costs.<sup>15</sup>

The IMO urges caution:

But technological advances present challenges as well as opportunities, so their introduction into the regulatory framework needs to be considered carefully. We need to balance the benefits against safety and security concerns, the impact on the environment and on international trade, the potential costs to the industry and, not least, their impact on personnel, both on board and ashore.<sup>16</sup>

Several different technologies will be required, including artificial intelligence (AI). This will bring challenges to the legal regime. Safely using AI as a navigation system requires quality data and real-time information processing. Because AI is adaptive, it 'also requires constant fine-tuning as errors, faults and failures may accumulate.'<sup>17</sup>

## 2.1 Existing and Proposed Vessels

Examples of autonomous vessels in testing and operation include cargo-carrying vessels,<sup>18</sup> ferries,<sup>19</sup> offshore supply vessels,<sup>20</sup> subsea surveying vessels,<sup>21</sup> and remotely operated

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<sup>15</sup> Mingyu Kim, Tae-Hwan Joung, Byongug Jeong and Han-Seon Park, 'Autonomous shipping and its impact on regulations, technologies, and industries' (2020) 4 (2) J of Int'l Maritime Safety, Environmental Affairs and Shipping 17.

<sup>16</sup> Lim (n 13) 38.

<sup>17</sup> Hazel Sivori and Lauren Brunton (foreword by GPT 4), 'Out of the Box – Implementing autonomy and Assuring AI' Report, Lloyd's Register (23 April 2023) 28.

<sup>18</sup> *Yara Birkeland* <<https://www.yara.com/news-and-media/media-library/press-kits/yara-birkeland-press-kit/>> accessed 7 April 2024.

<sup>19</sup> Nippon Foundation 'Verification Testing to Start on World's First Unmanned Ship Navigation System' December 2020 <<https://www.nippon-foundation.or.jp/en/news/articles/2020/20200612-45520.html>> accessed 8 April 2024.

<sup>20</sup> Ocean Infinity 'Remote Control Centre Goes Live' 15 February 2022 <<https://oceaninfinity.com/remote-control-centre-goes-live/>> accessed 8 April 2024.

<sup>21</sup> Sea Robotics 'Enhance your Hydrographic Survey and Marine Operations' <<https://www.searobotics.com/products/autonomous-surface-vehicles>> accessed 8 April 2024.

underwater vehicles (ROVs).<sup>22</sup> These vessels will have a different risk profile depending upon the size, function, and place of operation.<sup>23</sup>

As part of a scoping exercise as to how the current international conventions concerned with ship safety can or will regulate maritime autonomous surface ships (MASS), the International Maritime Organization (IMO) has classified the levels of autonomy as:

1. Ship with automated processes and decision support. Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated and at times, be unsupervised, but with seafarers on board ready to take control.
2. Remotely controlled ship with seafarers on board. The ship is controlled and operated from another location. Seafarers are available on board to take control and operate the shipboard systems and functions.
3. Remotely controlled ship without seafarers on board. The ship is controlled and operated from another location. There are no seafarers on board.
4. Fully autonomous ship. The ship's operating system is able to make decisions and determine actions by itself.<sup>24</sup>

These levels should be considered alongside the levels of control as defined by the European Defence Agency:

Level 0: Crewed - MASS is controlled by operators aboard

Level 1: Operated - Under Operated control all cognitive functionality is within the human operator. The operator has direct contact with the MASS over, e.g., continuous radio (R/C)

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<sup>22</sup> ROVs are not defined as ships but rather equipment on board ship: see *Offshore AU Pty Ltd v SAAB Seaeye Leopard 1702 Remotely Operated Vehicle Lately on Board the Ship 'Offshore Guardian' (The Seaeye Leopard)* [2020] FCA 273, [2021] 1 Lloyd's Rep 201.

<sup>23</sup> For a summary of recent developments see: HFW Briefings 'Autonomous Vessels: Demonstrating Diverse and Dynamic Developments' <<https://www.hfw.com/Autonomous-Vessels-Demonstrating-Diverse-and-Dynamic-Developments>> accessed 8 April 2024.

<sup>24</sup> International Maritime Organization, 'Autonomous Shipping' <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx>> accessed 8 April 2024.

and/or cable (e.g., tethered UUVs and ROVs). The operator makes all decisions, directs and controls all vehicle and mission functions.

Level 2: Directed - Under Directed control, some degree of reasoning and ability to respond is implemented into the MASS. It may sense the environment, report its state and suggest one or several actions. It may also suggest possible actions to the operator, such as, e.g. prompting the operator for information or decisions. However, the authority to make decisions is with the operator. The MASS will act only if commanded and/or permitted to do so.

Level 3 - Delegated The MASS is now authorised to execute some functions. It may sense environment, report its state and define actions and report its intention. The operator has the option to object to (veto) intentions declared by the MASS during a certain time, after which the MASS will act. The initiative emanates from the MASS, and decision-making is shared between the operator and the MASS.

Level 4 - Monitored The MASS will sense environment and report its state. The MASS defines actions, decides, acts and reports its action. The operator may monitor the events.

Level 5 -Autonomous The MASS will sense the environment, define possible actions, decide and act. The Crewless Vessel is afforded a maximum degree of independence and self-determination within the context of the system capabilities and limitations. Autonomous functions are invoked by the onboard systems at occasions decided by the same, without notifying any external units or operators.<sup>25</sup>

As unmanned and autonomous ships gain momentum<sup>26</sup> and the control of ships removed from the bridge to an onshore location,<sup>27</sup> the question arises as to how the Convention on

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<sup>25</sup> European Defence Agency's Safety and Regulations for European Unmanned Maritime Systems (SARUMS) summarised in Maritime UK Autonomous Systems Working Group, MASS UK Industry Conduct Principles and Code of Practice 2023 (V7), <<https://www.maritimeuk.org/priorities/innovation/maritime-uk-autonomous-systems-regulatory-working-group/mass-uk-industry-conduct-principles-and-code-practice-2023-v7/>> 43, accessed 7 April 2024. See also 'Best Practice Guide: Unmanned maritime systems handling, operations, design and regulations' <[https://eda.europa.eu/docs/default-source/documents/eda\\_ums-bpg-edition-2022\\_public.pdf](https://eda.europa.eu/docs/default-source/documents/eda_ums-bpg-edition-2022_public.pdf)> 18, accessed 7 April 2024.

<sup>26</sup> BBC News 'Robot Ships: Huge Remote Controlled Vessels are Setting Sail', 7 March 2023 <<https://www.bbc.co.uk/news/science-environment-68486462>> accessed 8 April 2024.

<sup>27</sup> For example, the marine robotics firm Ocean Infinity has operational centres in the UK, Sweden, and Australia with more planned: <<https://oceaninfinity.com/ocean-infinity-to-open-robotic-ship-operations-centre-in-australia/>> accessed 8 April 2024.



Limitation of Liability for Maritime Claims 1976 as amended by the 1996 Protocol thereto (LLMC 1976) will apply to limit the shipowners' liabilities for loss caused by, or connected with, this new technology.

## 2.2 Case example: *The Wakashio*

Human error accounts for up to 96 per cent of maritime accidents.<sup>28</sup> An example of a high-profile marine casualty caused by human error is the grounding of the *Wakashio* on 25 July 2020 at Blue Bay off the coast of Mauritius. The bulk carrier grounded on a reef when it sailed too close to shore to try to pick up a mobile phone signal for the crew to contact family and friends at home.<sup>29</sup> The ship subsequently broke up and spilt approximately 1,000 tonnes of fuel oil.<sup>30</sup> The ship's Captain and Chief Officer were sentenced to prison for 16 months for their roles in the accident.<sup>31</sup>

The *Wakashio* incident occurred during the Covid-19 pandemic, where ship operators could not conduct crew changes due to restrictions on travel. The International Chamber of Shipping described this as the 'biggest operational challenge confronting the global shipping industry since the Second World War'.<sup>32</sup> The crew of the *Wakashio* had been on board for months without communicating with relatives, and some had expired contracts.<sup>33</sup> The report into the

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<sup>28</sup> *Safety & Shipping 1912-2012: From Titanic to Costa Concordia* (Allianz 2012) <[allianz.com/content/dam/onemarketing/azcom/Allianz\\_com/migration/media/press/document/other/agcs\\_safety\\_shipping\\_1912-2012.pdf](https://allianz.com/content/dam/onemarketing/azcom/Allianz_com/migration/media/press/document/other/agcs_safety_shipping_1912-2012.pdf)>.

<sup>29</sup> Paul Benecki, 'JTSB The *Wakashio* went aground because the crew sought Cell Coverage' *Maritime Executive* (28 September 2023) <<https://maritime-executive.com/article/report-wakashio-s-crew-went-aground-while-searching-for-cell-signal#:~:text=JTSB%3A%20Wakashio%20Went%20Aground%20Because%20Crew%20Sought%20Cell%20Coverage,-Published%20Sep%2028&text=After%20three%20years%2C%20the%20Japan,the%20bulker%20Wakashio%20off%20Mauritius>> accessed 9 April 2024. The Maritime Labour Convention (MLC) 2006, r 2.4, provides that a seafarer is entitled to annual leave of 2.5 days per month of employment, which equates to 30 days per year. This means that the maximum continuous period a seafarer can serve without leave is 11 months.

<sup>30</sup> Ibid.

<sup>31</sup> Mike Schuler, 'Wakashio Report Released 3 Years After Grounding in Mauritius', *G Captain* (20 July 2023) <<https://gcaptain.com/wakashio-report-released-3-years-after-grounding-in-mauritius/>> accessed 9 April 2024.

<sup>32</sup> 'The Covid-19 Pandemic: The Crew Change Crisis' (International Chamber of Shipping) <<https://www.ics-shipping.org/current-issue/the-covid-19-pandemic-the-crew-change-crisis/>> accessed 9 April 2024.

<sup>33</sup> Panama Maritime Authority, Directorate General of Merchant Marine, Maritime Affairs Investigation Department, 'Report: M/V 'Wakashio' IMO: NO. IMO 9337119, R-029-2021-DIAM, Casualty Date: July 25 2020.

*Wakashio* incident mentions that the ship's previous Bosun had 'jumped overboard' a month before the accident and was not replaced due to the Covid-19 restrictions.<sup>34</sup>

The incident report identified three main factors that led to the grounding:

1. Lack of safe distance from the coast.
2. Lack of recognition and implementation of voyage rules.
3. Lack of vigilance/failure to conduct proper navigation.<sup>35</sup>

The crew were celebrating the birthday of a crew member, and the master decided to navigate close to shore to obtain a Wi-Fi signal. The Officer of the Watch (OOW) kept his mobile phone with him on the bridge whilst on navigational watch, thus distracting him.<sup>36</sup>

Arguably, using a fully autonomous vessel for the same voyage would not have resulted in this environmental disaster. First, the human decision-making element is removed and replaced by an autonomous navigation system that uses sensors to gather data, process that information, and make safe navigational decisions.<sup>37</sup> Second, it is anticipated that autonomous ships will be supervised and supported by a remote control centre (RCC), which will enable standard working hours rather than 'exhausting shifts on board'<sup>38</sup> thus enabling better decision-making unaffected by fatigue.

One of the causal factors of the grounding of the *Wakashio* was human error by navigating too close to the shore, and the shipowner of the *Wakashio* was strictly liable for pollution, and the crew members were criminally liable and imprisoned.<sup>39</sup> However, if the ship had been using AI to navigate, how and to whom ought fault be attributed?

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<sup>34</sup> Ibid, 40.

<sup>35</sup> Ibid, 49-50.

<sup>36</sup> Ibid, 51.

<sup>37</sup> Marilia Abilio Ramos, Ingrid Bouwer Utne, and Ali Mosleh, 'Collision Avoidance on Maritime Autonomous Surface Ships: Operators Tasks and Human Failure Events' (2019) 116 *Safety Science* 33.

<sup>38</sup> Ørnulf Jan Rødseth et al, 'The Societal Impacts of Autonomous Ships: The Norwegian Perspective' in Tafsir Matin Johansson et al (eds), *Autonomous Ships in Maritime Affairs, Law and Governance Implications* (Springer 2023).

<sup>39</sup> 'Mauritius Oil Spill: *MV Wakashio* Ship Captain Sentenced' (BBC News, 27 December 2021) <<https://www.bbc.co.uk/news/world-africa-59800519>> accessed 3 April 2024.

In the *Wakashio* incident, two international maritime conventions were applied to limit the shipowners' liability. The International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (Bunkers Convention) requires ships to be insured for all related damage and pollution claims up to the liability limits. The limits of liability are determined by the Convention on Limitation of Liability for Maritime Claims 1976 as amended by the 1996 Protocol (LLMC).<sup>40</sup>

*The Wakashio* had compulsory insurance for material damage and pollution claims of up to 46.5 million SDR (equal to the 1996 LLMC Protocol limits, as amended). Panama, the flag State of the *Wakashio*, is also a State Party to the Bunkers Convention. However, Mauritius is party only to LLMC 76, which sets the limit of liability for material damage and pollution claims covered in the *Wakashio* case at 13 million SDR. Japan (where the shipowner is located) is a party to the LLMC Protocol 96, which sets the limit at 46.5 million SDR (equal to the related Bunkers Convention compulsory insurance requirement).<sup>41</sup>

Unsurprisingly, the owners filed a motion in the Supreme Court of Mauritius in November 2021 to limit the claims arising from the grounding to the equivalent of US\$16.6 million.<sup>42</sup> Whilst not illegal, on one view, this right to financial limitation does not appear morally right and 'it is unacceptable for a poor third-world government only to receive tens of millions of dollars in compensation for a clean-up that will cost hundreds of millions of dollars to undertake.'<sup>43</sup>

Before considering how or if the LLMC 1976 will apply to uncrewed and autonomous ships, a brief history of the development of the right to limitation is helpful to explain the principles behind this regime.

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<sup>40</sup> International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (Bunkers Convention), art 7(1).

<sup>41</sup> International Maritime Organisation (IMO) 'Responding to the *MV Wakashio* oil spill' <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/Wakashio-FAQ.aspx>> accessed 3 April 2024.

<sup>42</sup> 'Wakashio's Owner Limits Liability over Grounding as Wreck Removal Continues', *GCaptain* (22 November 2021) <<https://gcaptain.com/wakashios-owner-limits-liability-over-grounding-as-wreck-removal-continues/>> accessed 3 April 2024.

<sup>43</sup> 'Learn the Lessons Before the Next *Wakashio* Comes' *Lloyd's List* (London, 21 August 2020).

### 3 Unification of global limitation

As Tetley explains:

[L]imitation of shipowners' liability is a universal concept amongst shipping nations and recognises the potentially perilous nature of maritime transport. Limitation permits a shipowner, whether with respect to liability arising from collision, allision, grounding, cargo damage, death or personal injuries, to claim a limit upon his damages and was originally devised to promote shipping.<sup>44</sup>

The International Convention for the Unification of Certain Rules Relating to the Limitation of the Liability of Owners of Sea-Going Ships 1924 (LLMC 1924) was the first attempt to create a uniform limitation regime but did so by attempting to impose s 503 of the Merchant Shipping Act 1894<sup>45</sup> without compromise. This 'marked it out for failure',<sup>46</sup> and it was not widely adopted with 15 State parties.<sup>47</sup>

The Brussels International Convention relating to the Limitation of Liability of Owners of Sea-Going Ships 1957 (LLMC 1957) achieved wider acceptance with 48 State parties.<sup>48</sup> Limitation was again based on tonnage (rather than the value of the ship) and extended rights of limitation to shipowners, charterers, managers, operators, masters and crew members, and their servants or agents.<sup>49</sup> The right conferred on the charterer to limit its liability was to limit 'in the same way' as a shipowner could limit its liability.<sup>50</sup> It was given effect in the United Kingdom by the Merchant Shipping (Liability of Shipowners and Others) Act 1958<sup>51</sup> and earned this judicial critique:

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<sup>44</sup> William Tetley, 'Shipowners' Limitation of Liability and Conflicts of Law: The Properly Applicable Law' (1992) 23 JIML 585, 585.

<sup>45</sup> 57 & 58 Vict, c 60.

<sup>46</sup> S Derrington and J Turner, *The Law and Practice of Admiralty Matters* (2nd edn, OUP 2016) [10.14].

<sup>47</sup> Comité Maritime International, 'The Status of Conventions' <<https://comitemaritime.org/publications-documents/status-of-conventions/>> accessed 2 June 2024.

<sup>48</sup> Ibid.

<sup>49</sup> Art 1(3). See, generally, Michael Thomas, 'British Concepts of Limitation of Liability' (1979) 53 Tulane LR 1205, 1212 et seq.

<sup>50</sup> *MSC Mediterranean Shipping Co SA v Stolt Tank Containers BV (The MSC Flaminia)* [2023] EWCA Civ 1007, [2024] Bus LR 311, [20].

<sup>51</sup> c 62.

Were bewildered by the legitimate aim of statutes, the Merchant Shipping (Liability of Shipowners and Others) Act, 1958, would clearly be entitled to a high award. Indeed, the deep gloom which its tortuousities induced in me has been lifted only by the happy discovery that my attempts to construe them have led me to the same conclusion as my brethren.<sup>52</sup>

#### 4 The LLMC 1976 and 1996 protocol

The LLMC 1957 was replaced by the Convention on Limitation of Liability for Maritime Claims 1976 (LLMC 1976), which entered into force in 1986. The limits of liability were increased by the Protocol of 1996. At the time of writing, the LLMC 1976 has 55 contracting states, representing 52.90 per cent of world tonnage, and the LLMC Protocol of 1996 has 64 contracting states, representing 69.72 per cent of world tonnage.<sup>53</sup> The LLMC 1976 extends the right to limit liability to salvors and shipowners and contains an 'extended definition of shipowner for the purpose of the Convention' contained in art 1.<sup>54</sup>

Sir David Steel suggested that the LLMC 1976 marked two major developments. The first of these was the universal recognition that the desirability of limitation was simply insurability and the cost of insurance. As the Legal Committee of IMO explained:

The earlier concept of limitation held that a shipowner should be able to free himself from liabilities which exceeded his total interest in a venture subject to marine perils. The more modern view is that the shipowner should be able to free himself from liabilities which exceed amounts recoverable by insurance at reasonable cost.<sup>55</sup>

The second development was that the entitlement to limitation must be guaranteed, and only the most egregious cases should not benefit from limitation. This removed the difficulties surrounding the interpretation of 'actual fault and privity'.<sup>56</sup>

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<sup>52</sup> *The Putbus* [1969] P 136 (CA), 152 (Edmund-Davies LJ).

<sup>53</sup> International Maritime Organisation, Status of Treaties <<https://gisis.imo.org/Public/ST/Treaties.aspx>> accessed 3 April 2024.

<sup>54</sup> *The MSC Flaminia* (n 50), [21].

<sup>55</sup> Steel (n 3) 79.

<sup>56</sup> *Ibid*, 80.

Additionally, the LLMC 1976 reverses the burden of proof. Under the LLMC 1957, the shipowner, when faced with a successful claim, had to establish that there was no ‘fault or privity’ on its part.<sup>57</sup> The LLMC 1976 reverses the burden of proof. Thus, the shipowner is entitled to limit its liability unless the claimant proves that the person liable is guilty of ‘conduct barring’ limitation’.<sup>58</sup>

#### 4.1 The right to limit liability

Those with the right to limit liability are ‘shipowners and salvors’.<sup>59</sup> ‘Shipowner’ means the ‘owner, charterer, manager, and operator of a seagoing ship’.<sup>60</sup> In *The Stema Barge II*, the Court of Appeal held that the ‘operator’ of a ship for the purposes of art 1(2) was somebody who had management or control of the vessel; it was not enough to operate the vessel’s machinery or provide a crew for that purpose.<sup>61</sup> The charterer does not have to act as shipowner to limit liability under art 1(2) of LLMC 1976 but cannot limit in respect of claims for loss or damage to the ship.<sup>62</sup>

Article 1(4) extends the right to limit liability to ‘any person for whose act, neglect or default the shipowner or salvor is responsible.’ The claims subject to limitation include, inter alia, loss of life or personal injury, loss of or damage to property (including damage to harbour works, basins and waterways and aids to navigation) occurring on board or in direct connexion with the operation of the ship.<sup>63</sup>

Under the 1957 Convention, salvors operating from a ship could limit liability for claims arising from acts committed on board the salvage vessel and claims against them were aggregated with claims against other persons (the shipowner, etc.) entitled to limit on the basis of the tonnage of the salvage vessel. However, during a salvage operation in *The Tojo Maru*<sup>64</sup>, a diver

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<sup>57</sup> LLMC 1957, art 1(6). This provides that it is for the *lex fori* to determine the burden of proof. In common law jurisdictions, this would be the claimant.

<sup>58</sup> LLMC 1976, art 4. See below, 4.4.

<sup>59</sup> LLMC 1976, art 1.1; Reynolds and Tsimplis (n 1), ch 3.

<sup>60</sup> LLMC 1976, art 1.2. Salvor is defined in art 1.3 as ‘any person rendering services in direct connexion with salvage operations.’

<sup>61</sup> *The Stema Barge II* (n 11).

<sup>62</sup> See now *The MSC Flaminia* (n 50), [70]; [74]. Cf also *CMA CGM SA v Classica Shipping Co (The CMA Djakarta)* [2004] EWCA Civ 114, [2004] 1 Lloyd’s Rep 460; *Gard Marine and Energy Ltd v China National Chartering Company Ltd (The Ocean Victory)* [2017] UKSC 35, [2017] 1 WLR 1793.

<sup>63</sup> LLMC 1976, art 2.

<sup>64</sup> [1972] AC 242 (HL).

employed by the salvor fired a bolt through the shell plating of the *Tojo Maru*. The salvor operating from a salvage vessel was denied limitation because the act giving rise to the claim was committed outside the salvage vessel and did not occur in connection with the navigation or management of the vessel. Within the Comité Maritime International (CMI), it was agreed that the benefit of limitation should also be given to salvors in the *Tojo Maru* situation.<sup>65</sup> This is reflected in art 1(3) and arts 2(1)(d)-(f) of the LLMC 1976.

Suppliers of software and navigational technology are not covered by the LLMC 1976. They neither have control of the ship as required by art 1(2) nor is the shipowner responsible for them as required by art 1(4). When providing navigational software and/or algorithms, a suggestion has been made to allow suppliers to be covered by a global limitation of liability scheme by including suppliers under the LLMC 1976 or by creating a similar regime for MASS.<sup>66</sup> If they are not included, then injured parties may elect to sue the supplier who has no limits on their liability rather than the shipowner who does. Thereby returning to the problem of *The Himalaya*,<sup>67</sup> which necessitated the expansion of the categories of persons entitled to limit under the 1957 Convention.<sup>68</sup>

The categories of persons entitled to limit liability under the LLMC 1976 are also relevant to the operation of remote control centres (RCC). The MASS UK Industry Conduct Principles and Code of Practice 2023 provides a definition of Remote Control Centre:

The Remote Control Centre (RCC) is a site off the ship from which control of an autonomous ship can be executed.

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<sup>65</sup> *Travaux Préparatoires of the LLMC 1976 and of the Protocol 1996* (CMI 1997) 274.

<sup>66</sup> Core Advokatfirma & Cefor, 'Maritime Autonomous Surface Ships: Zooming in on Civil Liability and Insurance' (December 2018) <<https://cefor.no/globalassets/documents/industrypolicy/news/mass---zooming-in-on-civil-liability-and-insurance---10-december-2018.pdf>> 12, accessed 7 April 2024.

<sup>67</sup> *Adler v Dickson* [1955] 1 QB 158 (CA). The claimant chose to sue the master of the *Himalaya* rather than the shipowner, which could limit liability.

<sup>68</sup> Richard Williams, 'Problematic Areas in the Current Global Limitation Regime' in D Rhidian Thomas (ed), *Liability Regimes in Contemporary Maritime Law* (Informa Law from Routledge 2007) 280.

The RCC may be located either ashore or afloat and may exercise varying degrees of control as defined under 'Levels of Control'.<sup>69</sup>

The first generation of autonomous ships has been ordered by users of shipping services rather than being in the business of owning and operating shipping services.<sup>70</sup> These autonomous ships are likely to be operated by third parties<sup>71</sup> who may not only act as managers for the ship but also provide the remote control centre and the personnel to operate the ship either ashore or on board.<sup>72</sup>

In *The Stema Barge II*,<sup>73</sup> what is an 'operator' for the LLMC 1976 was considered. Teare J, at first instance, held that the 'operator' embraced 'not only the manager of the ship but also the entity which, with the permission of the owner, directs its employees to board the ship and operate her in the ordinary course of the ship's business.'<sup>74</sup> However, the Court of Appeal<sup>75</sup> took a different view. Phillips LJ stated that there was

no difficulty in construing the term 'the operator' as requiring an element of management and control of the vessel. That is not to impose a gloss on the word operator, nor to read the Limitation Convention restrictively, but to give a sensible meaning to a term in the overall context of article 1, particularly in the light of the travail préparatoires.

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<sup>69</sup> Maritime UK Autonomous Systems Working Group, MASS UK Industry Conduct Principles and Code of Practice 2023 (V7) <<https://www.maritimeuk.org/priorities/innovation/maritime-uk-autonomous-systems-regulatory-working-group/mass-uk-industry-conduct-principles-and-code-practice-2023-v7/>> 22, accessed 7 April 2024.

<sup>70</sup> See for example YARA is a manufacturer of fertilizer and commissioned the *Yara Birkeland* <<https://www.yara.com/news-and-media/media-library/press-kits/yara-birkeland-press-kit/>> accessed 7 April 2024 and ASKO is a grocery distributor and commissioned two autonomous ships (*Marit* and *Therese*) for transporting its goods. See Rob O'Dwyer, 'ASKO Autonomous Vessels to begin two-year trial' (Smart Maritime Network, 21 September 2021) <<https://smartmaritimenetwork.com/2022/09/21/asko-autonomous-vessels-to-begin-two-year-trial/>> accessed 7 April 2024.

<sup>71</sup> See, for example, Massterly, a joint venture between Wilhelmsen and Kongsberg that provides operational services for autonomous vessels <<https://www.massterly.com/news-1>> accessed 7 April 2024.

<sup>72</sup> Grant Hunter, 'First Ever Standard Form Contract for Autonomous Ship Operation Underway' (BIMCO, 6 November 2020) <<https://www.bimco.org/News/Contracts-and-clauses/20201106-First-ever-standard-contract-for-autonomous-ship-operation-underway>> accessed 7 April 2024.

<sup>73</sup> *Splitt Chartering APS v Saga Shipholding Norway AS (The Stema Barge II)* [2020] EWHC 1294 (Admlty), [2021] 2 Lloyd's Law Rep 307.

<sup>74</sup> *Ibid*, [99].

<sup>75</sup> *The Stema Barge II* (n 11).



I see no reason why the position should be different in relation to an unmanned vessel, nor why the physical operation of such a vessel necessarily involves an element of management and control so as to make the provider of the crew the operator of the vessel, regardless of whether they are supervised by an operator and manager from afar.<sup>76</sup>

Stones suggests that Phillips LJ's decision could indicate that as remote-controlled and autonomous systems are developed, the company involved would need a level of real, substantial, and direct control of the ship that would equate it with being an owner, charterer, manager or operator.<sup>77</sup>

This aligns with Tettenborn's view that the *entire control* of a remote-controlled and autonomous vessel would need to be delegated to the RCC to be deemed an 'operator' for the purpose of art 1(2).<sup>78</sup> The decision in *The Stema Barge II* would then indicate that third-party producers or providers of control services are not covered by the LLMC 1976, which potentially allows claimants to circumvent the LLMC 1976<sup>79</sup> by bringing an action against the third-party provider who will likely have an indemnity or 'hold harmless' clause in their contract with the shipowner.

There is case law that supports third-party liability on the grounds of product liability where there is a right to limit. In *The Esso Bernicia*,<sup>80</sup> an oil tanker collided with a jetty at an oil terminal in Shetland. At the time, the tanker was under compulsory pilotage, and the cause of the collision was due to one of the tugs (the *Stanechakker*) manoeuvring the tanker catching fire, which required the tow to be cast off and caused the subsequent loss of control of the tanker. The owner of the tanker sued the shipbuilders of the tug for the value of bunkers lost, the cost of repair to the vessel, sums paid by them to sums for payment made by them to

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<sup>76</sup> Ibid, [59]-[60].

<sup>77</sup> Hannah Stones, 'Limitation of Liability: What is an Operator?' Lloyd's Shipping and Trade Law (February 2022). See also, Mayank Suri, 'Who is an Operator within LLMC? *The Stema Barge II*' [2022] LMCLQ 177 and 'Will LLMC Apply to Remote Control Centre Operators? (*The Stema Barge II*)' [2022] LMCLQ 9; Asli Arda, 'A Tale of Two Courts: Limitation of Liability and the Legal Position of Shore-based Controllers in the Light of *Spiltt Chartering*' [2023] JBL 627.

<sup>78</sup> Andrew Tettenborn, 'Product Liability Goes High Tech' in Barış Soyer and Andrew Tettenborn (eds), *New Technologies, Artificial Intelligence and Shipping Law in the 21st Century* (Informa Law from Routledge 2019) 120.

<sup>79</sup> Ibid.

<sup>80</sup> *Esso Petroleum Co Ltd v Hall Russell & Co Ltd (The Esso Bernicia)* [1989] AC 643 (HL).

crofters for injuries to sheep, and sums paid to another oil terminal operator in respect of the pollution caused.<sup>81</sup>

The House of Lords held the shipbuilder liable for negligence:

*Stanechakker* was designed and built for the purpose of berthing tankers in Sullom Voe. I do not see how it could possibly be said that in no circumstances could Hall Russell have reasonably foreseen the consequences of the tug catching fire during the course of a berthing manoeuvre. Equally to ignore the reason for *Stanechakker* becoming disabled is to put one's head in the sand.<sup>82</sup>

This decision has not been criticised or overturned. Thus, suppliers of shipping services via RCCs may find themselves subject to claims in negligence by third parties without the protection of the limits in the LLMC 1976.

Likewise, in the case of a collision caused by what would be deemed negligent navigation by the crew on a conventional vessel but instead caused by the autonomous system, a claim in product liability may be the only option for an injured third party. Negligent navigation will generally require an element of 'fault'.<sup>83</sup> Finding fault on the part of the shipowner will be impossible, absent some failure of due diligence to make the ship seaworthy. Therefore, the system producers may find themselves exposed to unlimited liability.

#### 4.2 The limits of liability

The general limits are set out in art 6: 'The limits of liability for claims other than those mentioned in article 7<sup>84</sup> arising on any distinct occasion, shall be calculated as follows ...' Both art 6 and art 7 contain the words 'arising on any distinct occasion'. The 1996 Protocol increases the limits and retains the text that provides that the liability 'must arise on a distinct

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<sup>81</sup> *Esso Petroleum Co Ltd v Hall Russell & Co Ltd (The Esso Bernicia)* 1988 SLT 33, 37.

<sup>82</sup> *The Esso Bernicia* (n 80), 669 (Lord Jauncey of Tullichettle).

<sup>83</sup> See art 3 of the International Convention for the Unification of Certain Rules of Law Relating to Collision between Vessels 1910 (the Collision Convention 1910) and see also Merchant Shipping Act 1995, c 6, s 187(1). On the fault basis for liability, see particularly Henry V Brandon, 'Apportionment of Liability in British Courts Under the Maritime Conventions Act of 1911' (1977) 51 Tulane LR 1025 and the extended discussion in *Nautical Challenge Ltd v Evergreen Marine (UK) Ltd (The Alexandra 1 and Ever Smart)* [2022] EWHC 206 (Admlty), [2022] 1 Lloyd's Rep 470, [132]-[136].

<sup>84</sup> Art 7 provides the limits for passenger claims.

occasion'.<sup>85</sup> This reference to 'distinct occasion' reflects s 503 of the Merchant Shipping Act 1894 and subsequent limitation conventions.

What is clear is that while the policy has shifted from promoting 'the increase of the number of ships and vessels and to prevent any discouragement to merchants and others from being interested and concerned therein'<sup>86</sup> to ensuring the insurability of ships by ensuring that the limits are almost unbreakable,<sup>87</sup> the justification for limitation remains firmly rooted in convenience.

#### 4.3 Substantive or procedural right?

The constitution and distribution of a limitation fund are procedural matters. Article 14 expressly provides that 'the rules relating to the constitution and distribution of a limitation fund, and all rules of procedure in connexion therewith, shall be governed by the law of the State Party in which the fund is constituted'.<sup>88</sup>

Whether the *right* to limit is procedural or substantive will determine which law is to be applied in the conflict of laws. If substantive, the *lex causae* applies, as identified by the jurisdiction's conflicts rules; if procedural, *the lex fori* applies as the 'master of procedure'.<sup>89</sup>

The nature of the right to limit is important because this determines whether the shipowner may limit its liability and the applicable limits. In *Victrawl Pty Ltd v Telstra Corp Ltd*,<sup>90</sup> one of the issues before the High Court of Australia was whether the LLMC 1957 was applicable because the casualty occurred before 1 June 1991<sup>91</sup> or was the LLMC 1976 applicable as the law in force when the orders were to be made?

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<sup>85</sup> Protocol of 1996 to amend the Convention on Limitation of Liability for Maritime Claims 1976, arts 3 & 4.

<sup>86</sup> The Responsibility of Shipowners Act 7 Geo 2, c 15 (1734), Preamble.

<sup>87</sup> Steel (n 3) 80.

<sup>88</sup> LLMC 1976, art 14.

<sup>89</sup> JM Carruthers, 'Substance and Procedure in the Conflict of Laws: A Continuing Debate in Relation to Damages' (2004) 53 ICLQ 691; Lord Collins of Mapesbury and Jonathan Harris (gen eds), *Dicey, Morris & Collins on the Conflict of Laws* (16th edn, Sweet & Maxwell 2023) [4-002] et seq.

<sup>90</sup> [1995] HCA 51, (1994) 183 CLR 595.

<sup>91</sup> The Limitation of Liability for Maritime Claims Act 1989 (Cth) gives effect to the LLMC 1976 and came into force on 1 June 1991.

The majority of the High Court (Brennan J dissenting) in *Victrawl Pty Ltd v Telstra Corp Ltd* held that:

[T]he statutory right to limit liability conferred by the 1976 Convention operating as part of our domestic law is ‘a substantive right enforceable by independent proceedings’. ...the effect of the conferral of that statutory right is, in cases where it is availed of, to limit and transform the ‘existing substantive right’ of an affected claimant.<sup>92</sup>

The court’s reasoning was based upon an earlier decision involving a collision, in which Dixon J stated the right to limitation:

In principle the title to relief of such a nature is a substantive right enforceable by independent proceedings. It is more than one of the conditions affecting the amount of the loss or damage to be awarded in the collision action.<sup>93</sup>

However, in *Caltex Singapore Pte Ltd v BP Shipping Ltd*,<sup>94</sup> Clarke J stated that the right to limit liability was procedural rather than substantive. This was because the right to limit liability was not substantive in the sense either that it qualified or attached to the claimant’s right or qualified the shipowner’s obligation:

The effect of the Convention ... is not to qualify the substantive right of the claimant against the shipowner but to limit the extent to which that right can be enforced against the limitation fund. It is in this respect unlike the package limitation in the Hague-Visby Rules ... which qualifies the plaintiff’s right to recover from the defendant. A right to limit of that kind would in my judgment be substantive for that reason.<sup>95</sup>

A number of subsequent cases have similarly held that the right is procedural<sup>96</sup> which is the generally held view.<sup>97</sup> This also appears to be the case in the United States. According to

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<sup>92</sup> (n 90) [25].

<sup>93</sup> *James Patrick and Co Ltd v Union Steamship Co of New Zealand Ltd* (1938) 60 CLR 652.

<sup>94</sup> [1996] 1 Lloyd’s Law Rep 286.

<sup>95</sup> *Ibid*, 293-294 (expressly approved by Lord Hoffmann in *Harding v Wealands* [2006] UKHL 32, [2007] 2 AC 1, [47]).

<sup>96</sup> *Seismic Shipping Inc v Total E&P UK plc (The Western Regent)* [2005] EWCA Civ 985, [2005] 2 Lloyd’s Rep 359.

<sup>97</sup> Stephen Girvin, *Carriage of Goods by Sea* (3rd edn, OUP 2022) [29.95].

Schoenbaum, the United States also treats the right as procedural. The rule in *The Titanic*<sup>98</sup> is that foreign shipowners seeking to limit liability are bound by the limitation amount under US law. '[A] foreign vessel or shipowner may invoke limitation of liability under American law because limitation is a procedural right determined by the law of the forum.'<sup>99</sup> Article 11 provides that a fund may be constituted 'with the Court or other competent authority in any State Party in which legal proceedings are instituted in respect of claims subject to limitation.' Although this could be read that legal proceedings must be underway *before* a limitation action is commenced, courts have held that there is no requirement for liability to be determined before the fund is constituted.<sup>100</sup>

#### **4.4 Breaking the unbreakable? Conduct barring limitation**

Article 4 of the LLMC 1976 proscribes the conduct barring limitation.

A person shall not be entitled to limit his liability if it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such loss, or recklessly and with knowledge that such loss would probably result.

This can be contrasted with art 1(1) of the 1957 Convention, which provided that limitation was not available if the claim resulted from the 'actual fault or privity of the shipowner'. In *The Lady Gwendolen*,<sup>101</sup> a case decided under s 503 of the Merchant Shipping Act 1894, the *Lady Gwendolen* collided with the *Freshfield*, which was lying at anchor in the River Mersey. The collision occurred in thick fog, and while the *Lady Gwendolen's* radar was switched on, the master was not paying attention to it. The master had not been given instructions on the use of radar, and the shipowner, who were in the business of brewing rather than shipowning, had not drawn the master's attention to the Ministry of Transport's notice M445 relating to navigation with radar in reduced visibility conditions. While the shipowner admitted liability for the collision, it sought to limit liability under s 503 of the Merchant Shipping Act 1894. Hewson J held that this failure constituted 'actual fault' and refused the decree, which was

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<sup>98</sup> *Oceanic Steam Navigation Co Ltd v Mellor (The Titanic)* 34 S Ct 754 (1914).

<sup>99</sup> Thomas J Schoenbaum, *Admiralty and Maritime Law* (6th edn, Thomson Reuters 2018), § 15.4.

<sup>100</sup> *Bouygues Offshore SA v Caspian Shipping Co (Nos 1, 3, 4, and 5)* [1998] 2 Lloyd's Rep 461 (CA) 4.

<sup>101</sup> *Arthur Guinness, Son & Co (Dublin) Ltd v The Freshfield (Owners) (The Lady Gwendolen) (Limitation)* [1965] P 294 (CA).

upheld on appeal. The shipowner 'the plaintiffs never succeeded in discharging the burden of proving that this collision happened without their actual fault or privity.'<sup>102</sup>

Article 4 of the LLMC 1976 reverses this burden of proof and raises the bar to limitation to require proof of intent and with knowledge that the loss would likely result. This was because 'shipowners agreed to a higher limit of liability in exchange for an almost indisputable right to limit their liability.'<sup>103</sup>

Article 4 has been tested on several occasions.<sup>104</sup> In *The MSC Rosa M*,<sup>105</sup> a container ship almost capsized, and the crew abandoned ship. The claimants argued that the master's 'shut eye' knowledge was enough to invoke art 4. David Steel J dismissed this and held that 'shut eye' knowledge does not constitute actual knowledge.<sup>106</sup> He stated that in order to invoke art 4 successfully, the claimants must plead and prove:

(i) that the capsize was caused by the personal act or omission of the demise charterers;

(ii) that the personal acts or omissions were committed recklessly; and

(iii) that at the time of those acts or omissions, the alter ego of the demise charterers actually knew that a capsize would probably result.<sup>107</sup>

The claimants were unsuccessful, and their application was dismissed as 'an unsuccessful attempt to disguise a plea of actual fault or privity for the purposes of the 1952 Limitation Convention as a plea of reckless conduct, with knowledge of the probable consequences, in the context of the 1976 Convention'.<sup>108</sup>

In the *Leerort*, another vessel, the *Zim Piraeus*, collided with her while at anchor in the port of Columbo. *The Leerort's* hull flooded, and the vessel sank. The owner of the *Zim Piraeus* was

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<sup>102</sup> Ibid, 348.

<sup>103</sup> *The Bowbelle* [1990] 1 WLR 1330, 1335.

<sup>104</sup> *Schiffahrtsgesellschaft MS Merkur Sky mbH v MS Leerort Nth Schiffahrts GmbH (The Leerort)* [2001] (EWCA Civ 1055, [2001] 2 Lloyd's Rep 291.

<sup>105</sup> *MSC Mediterranean Shipping Co SA v Delumar BVBA (The MSC Rosa M)* [2000] 2 Lloyd's Rep 399.

<sup>106</sup> Ibid, [22].

<sup>107</sup> Ibid, [23].

<sup>108</sup> Ibid, [28].

granted a decree of limitation against which the shipowner (and other interested persons) of the *Leerort* appealed.

Lord Phillips MR explained:

The limitation provisions in relation to merchant shipping provide even greater protection than those in relation to carriage by air. It is only the *personal act or omission* [emphasis added] of a shipowner which defeats the right to limit. A shipowner is defined in article 1 as the owner, charterer, manager or operator of a seagoing ship. Thus, to defeat the right to limit, it is necessary to identify the causative act or omission on the part of such a person that caused the loss. Furthermore, it is only conduct committed *with intent to cause such loss, or recklessly with knowledge that such loss would probably result*, [emphasis added] that defeats the right to limit. It seems to me that this requires foresight of the very loss that actually occurs, not merely of the type of loss that occurs.<sup>109</sup>

In finding for the owner of the *Zim Piraeus*, Lord Phillips explained the effect of art 4:

If the appellants had appreciated the full impact of the limitation regime under the 1976 Convention, I do not see how they could have contemplated that there was any realistic prospect of defeating the right of the owners of the *Zim Piraeus* to limit their liability once they learned of the collision.<sup>110</sup>

*The Realice*<sup>111</sup> illustrates how high the bar is to break limitation. In that case, a fisherman cut a submarine telecommunications cable entangled in the *Realice's* fishing gear, not once but twice. The Supreme Court of Canada, reversing the Federal Court,<sup>112</sup> held that, notwithstanding the deliberate actions of the appellant, art 4 could not be invoked as the appellant did not intend that 'very loss' or 'type' of loss that occurred.<sup>113</sup>

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<sup>109</sup> *The Leerort* (n 102), [13].

<sup>110</sup> *The MSC Rosa M* (n 103), [23].

<sup>111</sup> *Peracomo Inc v TELUS Communications Co* [2014] SCC 29, [2014] 2 Lloyd's Rep 315.

<sup>112</sup> *Peracomo Inc v Société Telus Communications* 2012 FCA 199, 2012 AMC 1521; *Soci t  Telus Communications v Peracomo Inc* 2011 FC 494, 389 FTR 196.

<sup>113</sup> *The Realice* (n 111), [34].

The burden of proof for a claimant to break the limits in the LLMC 1976 'is a high hurdle to jump and is very rarely jumped with success.'<sup>114</sup> This is demonstrated by the fact that in the decades since its adoption, only two cases have successfully relied on art 4.

In the *Saint Jacques II & Gudermes*,<sup>115</sup> a fishing vessel collided with a tanker in the English Channel. *The Gudermes* (the tanker) was proceeding in the South West Traffic Lane of the Dover Straits Traffic Separation Scheme.<sup>116</sup> *The Saint Jacques II* (the fishing vessel) was on course to the Falls Bank fishing grounds and involved crossing the South West Traffic Lane against the flow of traffic, contravening Rule 10 of the Collision Regulations (COLREGs).<sup>117</sup> Gross J (as he then was) likened this to 'the nautical equivalent of a motorist proceeding the wrong way along a motorway.'<sup>118</sup>

The skipper, who was also the fishing vessel's owner, set the course and went below deck, where he fell asleep, leaving an unqualified 17-year-old deckhand (who did not speak English) keeping watch. The course was set in breach of the COLREGs for commercial reasons, namely, to reach the fishing grounds ahead of other vessels who had left Boulogne at the same time. Gross J held that the negligent navigation was sufficiently egregious to invoke art 4 (although falling asleep was not).<sup>119</sup>

In *The Atlantik Confidence*,<sup>120</sup> following the sinking of its vessel, the shipowning company failed in its application for a declaration that its liability was limited by the LLMC 1976. Teare J found that when the circumstances of the sinking were looked at collectively and the involvement of senior employees in the shipowner's company, there was no real or

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<sup>114</sup> *Bahamas Oil Refining Co International Ltd v Owners of the Cape Bari Tankschiffahrts GmbH & Co KG (Bahamas) (The Cape Bari)* [2016] UKPC 20, [2016] 2 Lloyd's Rep 469, [14].

<sup>115</sup> *Margolle v Delta Maritime Co Ltd (Saint Jacques II & Gudermes)* [2002] EWHC 2452 (Admlty), [2003] 1 Lloyd's Rep 203.

<sup>116</sup> For the background to traffic separation schemes (TSS) and the rules in the Dover Strait, see Maritime and Coastguard Agency, Marine Guidance Note MGN 364 <[https://assets.publishing.service.gov.uk/media/5e2efbc840f0b62c47c5466f/MGN\\_364\\_all\\_tagged.pdf](https://assets.publishing.service.gov.uk/media/5e2efbc840f0b62c47c5466f/MGN_364_all_tagged.pdf)> accessed 6 April 2024.

<sup>117</sup> Convention on the International Regulations for Preventing Collisions at Sea 1972, Rule 10 (Traffic Separation Schemes).

<sup>118</sup> *The Saint Jacques II & Gudermes* (n 115) [6].

<sup>119</sup> *Ibid*, [22].

<sup>120</sup> *Kairos Shipping Ltd v Enka & Co LLC (Atlantik Confidence)* [2016] EWHC 2412 (Admlty), [2016] 2 Lloyd's Rep 525.



substantial, as opposed to a remote or fanciful, possibility that the sinking of the vessel was accidental.<sup>121</sup>

The vessel was deliberately sunk by the master and chief engineer at the request of Mr Agaoglu, the alter ego of the Owners. In those circumstances the loss of the cargo resulted from his personal act committed with the intent to cause such loss. The loss of the cargo was the natural consequence of his act as he must have appreciated. There can be no doubt that he intended the cargo to be lost just as much as he intended the vessel to be lost. It follows that the Owners' claim for a limitation decree must be dismissed.<sup>122</sup>

The 'fault based' nature of art 4, coupled with the burden of proof on the claimant, will be problematic if artificial intelligence (AI) is the cause of loss. As the AI becomes more advanced, the data sets and the calculation process it uses become impossible to interpret. This is known as the black box of AI.<sup>123</sup> Trying to establish the AI system made a decision with the deliberate intent to cause 'such loss' is currently impossible.<sup>124</sup>

In December 2021, the Assembly of the IMO adopted Resolution A.1163(32) on the interpretation of art 4. This set out the following:

The test for breaking the right to limit liability as contained in article 4 of the 1976 LLMC Convention is to be interpreted:

(a) as virtually unbreakable in nature, i.e. breakable only in very limited circumstances and based on the principle of unbreakability;

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<sup>121</sup> Ibid, [316].

<sup>122</sup> Ibid, [317].

<sup>123</sup> IBM 'What is explainable AI?' <<https://www.ibm.com/topics/explainable-ai#:~:text=the%20next%20step-,What%20is%20explainable%20AI%3F,expected%20impact%20and%20potential%20biases>> accessed 8 April 2024.

<sup>124</sup> This may not be the case in the future as explainable AI develops. Explainable AI looks at AI results after the results are computed. Responsible AI looks at AI during the planning stages to make the AI algorithm responsible before the results are computed. Explainable and responsible AI can work together to make better AI. IBM 'What is explainable AI?' <<https://www.ibm.com/topics/explainable-ai#:~:text=the%20next%20step-,What%20is%20explainable%20AI%3F,expected%20impact%20and%20potential%20biases>> accessed 8 April 2024.

(b) to mean a level of culpability analogous to wilful misconduct, namely:

(i) a level higher than the concept of gross negligence, since that concept was rejected by the 1976 International Conference on Limitation of Liability for Maritime Claims;

(ii) a level that would deprive the shipowner of the right to be indemnified under their marine insurance policy; and

(iii) a level that provides that the loss of entitlement to limit liability should begin where the level of culpability is such that insurability ends;

(c) that the term 'recklessly' is to be accompanied by 'knowledge' that such pollution damage, damage or loss would probably result, and that the two terms establish a level of culpability that must be met in their combined totality and should not be considered in isolation of each other; and

(d) that the conduct of parties other than the shipowner, for example the master, crew or servants of the shipowner, is irrelevant and should not be taken into account when seeking to establish whether the test has been met.<sup>125</sup>

The Resolution was adopted by 63 States parties and is significant because as 'an explanation of the travaux préparatoires or a subsequent agreement', it ought to be admissible in a common law court.<sup>126</sup> This is a Unified Interpretation, and under the Vienna Convention on the Law of Treaties, it 'shall be taken into account when interpreting the convention.'<sup>127</sup> In the context of MASS or remotely-operated vessels, it will need to be clarified whose actions are attributed to the shipowner and whose conduct is not to be taken into account.<sup>128</sup>

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<sup>125</sup> International Maritime Organisation, IMO Resolution A.1163(32), 'Interpretation of Article 4 of the Convention on Limitation of Liability for Maritime Claims 1976/1996 available at <[https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1163\(32\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1163(32).pdf)> accessed 2 June 2024.

<sup>126</sup> Nicholas Gaskell, 'LLMC 1996: Living with Limitation of Liability' (2022) ANZ Mar LJ 1, 33.

<sup>127</sup> Vienna Convention on the Law of Treaties 1969, art 31(3)(a). For a discussion of the IMO resolution, see Leyla Pearson, 'The Unified Interpretations of the Shipowners' Right to Liability – A Defence of the Indefensible?' CMI Yearbook 2023 Parallel Session IV.2 – Harmonising Interpretation of Art 4 LLMC 1976 <<https://comitemaritime.org/publications-documents/cmi-yearbook/>> accessed 8 June 2024.

<sup>128</sup> Gaskell (n 126), 33.

#### 4.5 Aggregation of claims on one distinct occasion

Global limitation means the person liable may limit liability for all such claims arising on one distinct occasion by establishing one limitation fund.<sup>129</sup> At the Comité Maritime International (CMI)'s Hamburg Conference, it was proposed that all claims arising on one distinct occasion against the owner, charterer and operator of the ship and all persons for whom they are responsible would be aggregated in accordance with the LLMC 1957.<sup>130</sup>

Article 9 of the LLMC 1976 provides:

The limits of liability determined in accordance with Article 6 shall apply to the aggregate of all claims which arise on any distinct occasion:

- (a) against the person or persons mentioned in paragraph 2 of Article 1 and any person for whose act, neglect or default he or they are responsible; or
- (b) against the shipowner of a ship rendering salvage services from that ship and the salvor or salvors operating from such ship and any person for whose act, neglect or default he or they are responsible; or
- (c) against the salvor or salvors who are not operating from a ship or who are operating solely on the ship to, or in respect of which, the salvage services are rendered and any person for whose act, neglect or default he or they are responsible.

The intention of art 9 was to assure that all claims arising on one distinct occasion against the shipowner, salvor, persons for whom they are responsible and a pilot would be aggregated in accordance with the provisions of art 6.2, of the 1957 Convention.<sup>131</sup>

#### 5 What is a 'distinct occasion'?

These two words are crucial when determining the quantum for which the shipowner will be liable. Prior to the tonnage limitation system, the limiting event was the voyage, meaning if there were two collisions during the voyage, there was only one limit. For example, if there

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<sup>129</sup> *Travaux Préparatoires* (n 65) 5.

<sup>130</sup> *Ibid*, 274.

<sup>131</sup> *Ibid*, 275.

was one collision departing Southampton and a second on the approach to Brisbane, there would only be one limit.<sup>132</sup>

The issue of a distinct occasion is a question of fact. In *The Schwan*,<sup>133</sup> a case involving a collision where the ship was manoeuvred in such a way that the ship collided with two different vessels within a short time interval, Lord Esher MR explained:

There were therefore two mistakes causing accidents to two ships. That would leave the *Schwan* liable to two ships in respect of two different mistakes, so that she cannot have this limited liability divided between the two. She is liable to each of them to the whole extent of her statutory liability. She cannot put them together under the same limitation decree... If a ship runs into one ship on a Monday morning, and into another ship at another place on Tuesday morning, he admits that the ship must be liable for each of these two. Then if the ship runs into one ship in the morning and into another in the afternoon, what does that signify? So if you run into one ship half an hour before you run into another, what difference does it make? It is not the time which is the substantial thing; but whether both are the result of the same act of want of seamanship, and, if they are not, the Act does not apply, except as to each of them separately. This is the result of what is rightly laid down in the case of *The Creadon*.<sup>134</sup>

The burden lies on the person seeking to limit his liability to prove that a claim did not arise on a distinct occasion. In *The Lucullite*,<sup>135</sup> a steamer was moored next to another ship, the *R Mackay*. During the night, the wind changed direction, and the strong wind blew the *Lucullite* into the *R Mackay* a number of times, causing damage. *The Lucullite* then moved into the inner harbour and collided with the *Dora*, which consequently sank. The petitioners (owners of the *Lucullite*) requested the court to limit to one distinct occasion, namely the act of improper management in mooring in an improper position. The court applied Lord Esher MR's

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<sup>132</sup> Nicholas Gaskell, 'Compensation for Offshore Pollution: Ships and Platforms' in M Clarke (ed), *Maritime Law Evolving* (Hart 2013) 73.

<sup>133</sup> [1892] P 419 (CA).

<sup>134</sup> *Ibid*, 438-439.

<sup>135</sup> (1929) 33 Ll L Rep 186 (Ct of Sess).

test in *The Schwan*:<sup>136</sup> were there two different mistakes causing accidents to two ships, or, in other words, was the vessel before the second incident occurred again a free agent?<sup>137</sup>

Lord Justice-Clerk (Alness) stated: '[T]he onus is upon [the petitioners] to establish that the improper navigation which caused both sets of damage was the same and not distinct. In discharging that onus I am clearly of opinion that [the petitioners] have failed'.<sup>138</sup>

The petitioners, therefore, failed to establish that the manoeuvre adopted was 'absolutely the best and that the resulting collision [with the *Dora*] was inevitable and was not due to any want of skill or foresight on her part'.<sup>139</sup>

Several Australian cases have found, on the facts, more than one distinct occasion. Gaskell notes that this reflects the tension in Australia between the 'British maritime legal heritage and a desire to not always be beholden to it'.<sup>140</sup> In *The APL Sydney*,<sup>141</sup> the container ship *APL Sydney* dragged at anchor in Port Philip Bay during a gale fouling a gas pipeline that ruptured. Six minutes later, the *APL Sydney's* engine was put astern. This pulled one end of the ruptured pipeline backwards, bending it to a right angle before a piece of the pipe broke off and freed the anchor. The owner of *APL Sydney* claimed it was entitled to limit liability, this being one distinct occasion. The pipeline owners argued that there was more than one act, neglect, or default in respect of which claims could be made.

Rares J explained:

The Convention allows the shipowner to limit his liability in respect of each particular, distinct occasion. A shipowner who commits more than one distinct navigational error, even within a short period of time, each of which causes damage to third parties or even to the same third party, ordinarily will not be entitled to assert that all of the acts, neglects or defaults amount to a cognate 'distinct occasion'. As a matter of commonsense, usually, they do not. There is more than one 'distinct occasion', and the shipowner is liable for each. The ordinary and natural meaning of the Convention

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<sup>136</sup> Above (n 133).

<sup>137</sup> Above (n 135) 186-187.

<sup>138</sup> Ibid.

<sup>139</sup> Ibid, 189.

<sup>140</sup> Gaskell (n 126), 7.

<sup>141</sup> Above (n 10).

accords with the commonsense meaning. The shipowner cannot use the Convention as a shield to escape that second source or occasion of his liability. However, there may be instances where the occasions will not be 'distinct'. This will depend upon all of the circumstances, but, in particular the existence of some connection or lack of distinctiveness.<sup>142</sup>

...

Thus, whether one occasion is distinct from another will depend upon whether the causes of the claims that arise from each act, neglect or default are sufficiently discrete that, as a matter of commonsense, they can be said to be distinct from one another.<sup>143</sup>

Rares J goes on to provide several examples of what would and would not be a 'distinct occasion'.

One error can cause many persons to suffer loss or damage; e.g. when a passenger ship sinks causing many losses of life or personal injuries. Each casualty or injury may have its own associated causes, e.g. an explosion of a gas cylinder negligently handled by the crew that may cause a chain of events to occur. There may be a lack of life boats, a fire and a pierced hull letting in seawater, causing differing problems for the passengers in different parts of the ship. But the distinct occasion is the explosion, even though the losses that arise do so by different related causes. Whether there is a dividing line between a number of acts, neglects or defaults that occur in a particular situation, so as to constitute more than one distinct occasion, is question of fact and degree.<sup>144</sup>

...

Where a single act, neglect or default gives rise to or causes a particular incident, such as a single collision with another vessel, a wharf, or even a pipeline, commonsense will say that minute dissection of the circumstances will not lead to identification of more than one 'distinct occasion'.<sup>145</sup>

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<sup>142</sup> Ibid, [57].

<sup>143</sup> Ibid, [80]

<sup>144</sup> Ibid, [81].

<sup>145</sup> Ibid, [85].

Determining what is a distinct occasion can be arduous. In holding that there were, in fact, two distinct occasions, Rares J stated:

[C]laims arose during a period of about two hours on 13 December 2008. As it transpired, I found, after nearly four weeks of hearing very complex evidence and reserving judgment, that two of those four occasions were, in fact, part of two others.<sup>146</sup>

In *The Shen Neng 1*,<sup>147</sup> issues around disclosure arose in a case where the *Shen Neng 1* grounded on the Great Barrier Reef. The shipowner admitted the grounding was caused by the negligent navigation of the master. They contended that the Commonwealth, as the applicant in a liability proceeding, in order to overcome the admission of liability in the defence, had to plead and prove that the shipowner was liable for loss or damage arising on more than one distinct occasion. The shipowner contended that this required the Commonwealth to specifically identify each such alleged distinct occasion in a pleading. Thus, the shipowner argued that, if, for example, the Commonwealth wished to make a case that the master's actions in seeking to refloat the ship at 02:25 on 4 April 2010 were a separate act, neglect or default giving rise to another distinct occasion, it had to plead such a case.

The Full Court of the Federal Court found that this was not the case<sup>148</sup>:

It is only after the facts are known that it is possible to determine whether a shipowner can limit his liability to one or however many distinct occasions had been found to exist for the purposes of Art 6(1) of the Convention.

Derrington has suggested that because it is virtually impossible to break limitation, there is a trend in Australia to establish multiple funds under the LLMC on the basis that there was more than one distinct occasion on which damage was caused.<sup>149</sup> She argues that a reading of the *Travaux* of both the 1957 and 1976 Conventions suggests that this was not the intention of

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<sup>146</sup> *Strong Wise Limited v Esso Australia Resources Pty Ltd (No 2)* [2010] FCA 575, [26]. For a critique of this decision see S Derrington, 'Of Reefs and Men: When the Best Laid Plans go Awry, Have We An Acceptable Way Forward?' (2017) (3)(1) ANZ Mar Law LJ 1.

<sup>147</sup> *Commonwealth of Australia v Shenzhen Energy Transport Co Ltd* [2015] FCAFC 116, (2015) 234 FCR 113.

<sup>148</sup> *Ibid*, [28].

<sup>149</sup> Derrington (n 146), 9.

the drafters, and this approach is likely to undermine the longstanding insurance arrangements in the international shipping industry.<sup>150</sup>

### 5.1 Distinct occasions and MASS

Soyer points out that

the heavy reliance on software technology for autonomous navigation, any problem in the software might have a cascading adverse impact on a large number of other vessels using the same software. For example, in a case where a software update contains a critical bug that can cause 20% of the vessels to take a wrong decision when navigating, it is very likely that more than one vessel will be affected by this mishap, potentially increasing the risk of loss for tens or hundreds of vessels relying on the same software'.<sup>151</sup>

He goes on to argue that there is a risk of overstating this possibility because manufacturers will respond by issuing a product recall.<sup>152</sup>

Viljanen provides a similar fictitious example from land-based autonomous vehicles to illustrate the stakes involved. A software update contains a critical bug that causes 10 per cent of the one million vehicles in which it is installed to veer off the road. In the maritime context, a critical bug could affect many ships and cause multiple accidents.<sup>153</sup>

RCCs are anticipated to monitor more than one vessel simultaneously. In order to operate 24 hours a day, seven days a week, it will require at least two or three persons on watch, meaning a minimum of 18 personnel. In order to be cost-effective, it will need to serve more than one vessel, or it risks being 'no more than a costly showcase.'<sup>154</sup>

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<sup>150</sup> Ibid, 10.

<sup>151</sup> B Soyer, 'Insuring Remote-controlled and Autonomous Shipping: A Paradigm Shift in Law and Insurance Markets Required?' in D Rhidian Thomas (ed), *The Modern Law of Marine Insurance* vol 5 (Informa Law from Routledge 2023) 24.

<sup>152</sup> Ibid.

<sup>153</sup> M Viljanen, 'Insuring Autonomous Vessels – Scoping Issues' in Henrik Ringbom, Erik Røsæg and Trond Solvang, *Autonomous Ships and the Law* (Routledge 2022) 212.

<sup>154</sup> L Carey, 'Report on BIMCO Autonomous Ships Seminar' NUS Centre for Maritime Law Report 19/01 <<https://law.nus.edu.sg/cml/wp-content/uploads/sites/8/2020/04/CML-R1901.pdf>> 4, accessed 7 April 2024.



Extending Viljanen's thought experiment to a land-based remote control centre (RCC) that operates several vessels simultaneously.<sup>155</sup> A software update system the RCC uses to operate the vessels contains a critical bug. All the vessels in the fleet could be impacted, causing loss to multiple third-parties. Equally, the following situations could cause multiple casualties: an incident at the RCC itself, such as operator negligence, operator incompetence, fire, power failure, flooding, earthquake, or cyber-attack.<sup>156</sup> Connectivity failures, phishing, malware, keyloggers, disgruntled staff, and building security are all risks affecting the RCC.<sup>157</sup>

The next question would be whether the RCC will be included in the LLMC and, if so, whether the incident at the RCC is the 'distinct occasion' or whether each vessel's incident is considered the 'distinct occasion'.

If the RCC is operated offshore, it will likely be a 'ship' for the purposes of the LLMC 1976, provided its characteristics meet the tests set out in the case law to date.<sup>158</sup> The commonly understood characteristics are that if the RCC ship itself is involved in a claim covered by the LLMC 1976, it will be able to limit its liability qua ship.

It is less straightforward whether an onshore RCC would be deemed part of the ships it is monitoring. An argument could be made that it is the functional equivalent of the ship's

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<sup>155</sup> For a promotional video that provides a cursory demonstration of how ROC's are planned to operate, see Kongsberg Gruppen, Kongsberg Maritime – Remote Operation Center <<https://www.youtube.com/watch?v=UPtdgilrJI>> accessed 7 April 2024.

<sup>156</sup> See Ayşegül Buğra, 'Insuring Remotely Operated Vessels: Tempestuous Waters for Hull Insurers?' CML Working Paper Series, No 19/08, October 2019 <https://law.nus.edu.sg/cml/publications/#cml-repository-tab-4>, 12.

<sup>157</sup> Maritime UK Autonomous Systems Working Group, MASS UK Industry Conduct Principles and Code of Practice 2023 (V7), <<https://www.maritimeuk.org/priorities/innovation/maritime-uk-autonomous-systems-regulatory-working-group/mass-uk-industry-conduct-principles-and-code-practice-2023-v7/>> 43, accessed 7 April 2024.

<sup>158</sup> The cases determining whether a craft is a ship are numerous. See, eg: *Wells v Owners of Gas Float Whitton (No 2)* [1897] AC 337 (HL); *Merchants Marine Insurance Co Ltd v North of England Protecting and Indemnity Association* (1926) 26 Ll L Rep 201 (CA); *Polpen Shipping Co Ltd v Commercial Union Assurance Co Ltd* [1943] KB 161; *Marine Craft Constructors Ltd v Erland Blomqvist (Engineers) Ltd* (1953) 1 Lloyd's Rep 514; *Cook v Dredging & Construction Co Ltd* [1958] 1 Lloyd's Rep 334; *Canada v St John Shipbuilding & Dry Dock Co Ltd* (1981) 126 DLR (3d) 353; *Steedman v Scofield* [1992] 2 Lloyd's Rep 163; *The Von Rocks* [1998] 2 Lloyd's Rep 198; *Cyber Sea Technologies Inc v Underwater Harvester Remotely Operated Vehicle* [2003] 1 FC 569; *R v Goodwin* [2005] EWCA Crim 3184, [2006] 1 WLR 546; *Michael v Musgrave (trading as Ynys Ribs) (The Sea Eagle)* [2011] EWHC 1438 (Admlty), [2012] 2 Lloyd's Rep 37; *The Seaeye Leopard (n 22)*; *Vallianz Shipbuilding & Engineering Pte Ltd v Owner of the Vessel 'Eco Spark'* [2023] SGHC 353. See Sabrina Hasan, 'Analysing the Definition of 'Ship' to Facilitate Marine Autonomous Surface Ships' (2023) 15 Australian J of Maritime & Ocean Affairs 268.

bridge, as most of the bridge's function will be done by the RCC,<sup>159</sup> albeit in a different location, therefore, the RCC is part of the ship. However, this argument does not stand up to scrutiny. First, the two are conceptually and physically different.<sup>160</sup> They are not one physical unit. Second, the owner of the RCC is unlikely to be the owner of the vessel. Indeed, the owner of the physical building may not be the operator of the RCC as the operator may lease the space it is using as an RCC.<sup>161</sup>

## 5.2 RCC and LLMC 1976

As foreshadowed, whether the RCC itself is included in the LLMC 1976 will come down to a factual assessment of whether the operator of the RCC has the requisite level of control required by art 1 as framed by Phillips LJ in *The Stema Barge II*.<sup>162</sup> But shore-based RCCs are not automatically included in the LLMC 1976. Sözer makes the point:

The whole scheme of limitation, since the concept was introduced, has been based on the 'ship'. All conventions, and also the national legislative provisions based on them, limit liability with reference to ship's tonnage. But this is clearly not appropriate in the days of unmanned ships and [RCCs]. Put briefly, a simple answer is advocated here: the [RCC] should be expressly added to the class of those entitled to limit. It should, in other words, be made clear that the liability of a [RCC], or to be more precise, the owner of the [RCC], should, in an analogous manner to the 1976 Convention on Limitation of Liability for Maritime Claims, be limited by reference to the tonnage of the ship, which causes damage while sailing under the control of that [RCC] to the same extent that the owners of that ship herself could have limited their liability.<sup>163</sup>

This argument holds weight. Suppose the shore-based RCC is included in the LLMC 1976 because the operator of the RCC has the requisite control of the ship and the loss is due to

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<sup>159</sup> Bülent Sözer, *Unmanned Ships and the Law* (Informa Law from Routledge 2024) 87.

<sup>160</sup> *Ibid*, 94.

<sup>161</sup> There are also issues with jurisdiction, the ship may be flagged in a different state from the location of the RCC.

<sup>162</sup> *The Stema Barge II* (n 11) [59]-[60].

<sup>163</sup> Bülent Sözer, 'Control Centres in the Context of Unmanned Ship Operations – Their Status and Potential Liabilities' in Barış Soyer and Andrew Tettenborn, *Damages, Recoveries and Remedies in Shipping Law* (Informa Law from Routledge 2023) 154.

the fault of the RCC. In that case, it is logical that the tonnage limitation is calculated on the basis of that particular vessel.

Returning then to the example of the software 'bug'. Imagine that a software bug affects a shore-based RCC that simultaneously affects all the ships under its control. If two ships then ground as a result, one causing damage akin to the *Wakashio* incident and another that does not cause harm but requires towage assistance, what would be the proper tonnage limitation? The distinct cause is the software bug, but there are two distinct events. Although there is one RCC acting as the navigator and controller of the two ships, as it stands, logically, each vessel's grounding would be deemed a distinct occasion because the LLMC 1976 applies to the ship itself, which means two limitation funds could be established.

However, the claims against the vessel that causes environmental damage will be considerably higher than the claims against the vessel that requires towage. Combining the tonnage of both ships will potentially provide a higher recoverable amount for the victims of the first vessel. Or, should the tonnage limitation be the combined tonnage of the entire fleet the RCC is operating in cases where the uncrewed vessel has caused significant environmental damage that causes claims that exceed the tonnage limitation of the particular ship involved? It should also be considered that without amendments to the LLMC 1976, if the shore-based RCC does not have the requisite level of control to be deemed an 'operator' under art 1, they may find themselves exposed to unlimited liability for multiple ships.

Conversely, if the RCC is operated onboard a vessel, then this would be the ship that limits liability. For example, a fleet of remotely operated vessels is sent to salvage a stricken vessel. During the salvage operation, the person monitoring the fleet negligently fails to intervene when they should,<sup>164</sup> and one of the uncrewed ships causes the loss of the stricken vessel, and this results in environmental pollution. What if another vessel of an uncrewed fleet then collides with a third party due to the same failure of the person monitoring to intervene? Is

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<sup>164</sup> This is important for vessels that operate at control levels 3 & 4, where the person monitoring may be required to veto actions of the MASS or intervene. For a draft Code of Practice see, in Maritime UK Autonomous Systems Working Group, MASS UK Industry Conduct Principles and Code of Practice 2023 (V7), <<https://www.maritimeuk.org/priorities/innovation/maritime-uk-autonomous-systems-regulatory-working-group/mass-uk-industry-conduct-principles-and-code-practice-2023-v7/>> 43, accessed 7 April 2024.

the liability capped at the tonnage of the RCC vessel, the uncrewed vessel, or all of them combined?

The LLMC 1976 was not drafted to answer these questions. Of course, these are possibly far-fetched scenarios but should be addressed before fleets of uncrewed vessels begin operating beyond trials.

## 6 Conclusion

The importance of answering the question of limitation cannot be overstated, not only for MASS. As AI is increasingly adopted for navigation and operation, finding fault on the shipowner's part is impossible. Therefore, claims that would have been directed at the shipowner will instead be redirected to the producer of the services, either the RCC operator or the producer of the technology. LLMC 1976 does not apply to the producer of the technology and may not apply to the RCC operator, thereby exposing those entities to unlimited liability. If that producer is liable for a cascade of incidents caused by the same defect, the insurer (assuming it is covered by insurance) and its reinsurer will potentially be exposed to billions. As Viljanen states, '[t]hat is the nature of the nightmare maximum loss scenario. In marine terms, instead of one *Costa Concordia*, imagine ten within a year'.<sup>165</sup> If ten incidents like the *Wakashio* or the *Dali* occur, the loss scenario could be in excess of US\$40 billion.<sup>166</sup>

Unless the RCC is deemed the 'operator' under art 1 of the LLMC 1976, the person providing the RCC services is similarly exposed. As indicated above, current case law would indicate that RCC services do not meet the threshold required. Therefore it is desirable that the LLMC 1976 is amended to include this new class of maritime person. If limitation is denied, the only option available may be insolvency, leaving claimants with nothing. 'There is nothing to be ashamed about in repeating and acting on the truism that it is better for the victim to have a limited claim which he can be certain that can be paid than to have an unlimited claim against an insolvent party.'<sup>167</sup> What is a 'distinct occasion' is open to interpretation. Australian courts have

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<sup>165</sup> Viljanen (n 153) 212.

<sup>166</sup> Insurers are expected to face claims of up to \$US 4 billion as a result of the *Dali* allision with the Baltimore Bridge: see David Osler, 'Marine Insurers Face Billion-dollar Payout on Baltimore Bridge Collapse' *Lloyd's List* (London, 27 March 2024).

<sup>167</sup> See Steel (n 3) 87.

been open to finding more than one distinct occasion for the purposes of the LLMC 1976, but Australia is an outlier and has been criticised for undermining the purpose of the Convention. However, uncrewed and autonomous vessels are exposed to a variety of new risks and determining the distinct occasion and appropriate tonnage limits are likely to vex courts as the use of this form of ship gathers momentum. Operators and shipowners alike must ensure that they are aware of their risk exposure to claims and limitation thereof. The introduction of MASS and Remotely Operated Vessels will probably require a new LLMC protocol,<sup>168</sup> but in the meantime it would be advisable for parties to ensure they have carefully drafted contractual clauses in the absence of legislative reform.

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<sup>168</sup> Gaskell (n 126), 51.