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# Sea-Sick: Legal Remedies for Cruise Ship Passengers Affected by the COVID-19 Pandemic

Monica PECHOUS\*

## Abstract

Since December 2019, over 3,600 people have been infected with coronavirus or coronavirus-like illnesses aboard cruise ships. Whether infected or not, many passengers assert that cruise lines negligently handled COVID-19 outbreaks on board ships, posing a significant risk to their health, safety, and emotional wellbeing. Various laws, including the Death on the High Seas Act, offer limited legal recovery for impacted passengers. However, the effectiveness of such laws depends heavily on the language of cruise carriage contracts, the country in which a cruise line is registered, and the maritime zone in which the injury occurred. This Comment argues that despite existing roadblocks to legal recovery across various international jurisdictions, the unprecedented COVID-19 pandemic calls for the development of a modernised form of legal recourse for cruise ship passengers.

**Keywords:** COVID-19, cruise ships, legal remedies, negligence, forum selection

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## 1. Introduction

Taking a cruise ship vacation is usually a relaxing, happy, and exciting experience. Every year, more than 28.5 million people embark on cruises worldwide,<sup>1</sup> spending their time on board sipping drinks, lounging by the pool, and frequenting the spa. However, the usually pleasant cruise experience quickly turned into a nightmare for thousands of cruise ship passengers early in 2020 as the novel coronavirus began its rapid spread across the globe.<sup>2</sup> Unfortunately, this nightmare is still ongoing and has no clear end in sight.

In December 2019, researchers in China identified a new, SARS-like virus.<sup>3</sup> Initially, the researchers were optimistic about the impact of the virus — claiming that there was no evidence that it could

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1 Karina Melikjanyan, 'Cruise Tourism in a Pandemic Reality: The End of the Industry or Not?' (2021) *Georgian Maritime Scientific Journal* 1, 65–73.

2 Thiago Carvalho, *et al* 'The First 12 Months of COVID-19: A Timeline of Immunological Insights' (2021) *Nature Reviews Immunology* 21, 245–256.

3 *ibid*.



spread from human to human.<sup>4</sup> However, such optimism was short-lived.<sup>5</sup> SARS-CoV-2, later labelled COVID-19,<sup>6</sup> began to spread quickly across China through human to human transmission.<sup>7</sup> On 11 January 2020, the Chinese state media reported the first death from the virus.<sup>8</sup> Within the same month, the World Health Organisation declared a global health emergency,<sup>9</sup> which, in turn, led to government-mandated lockdowns and travel restrictions around the world.<sup>10</sup> Presently, the disease has spread to over 220 countries and territories,<sup>11</sup> with over 172 million infections and over 3.7 million deaths.<sup>12</sup>

One place in particular has been a hotbed for infection and spread of the virus: cruise ships. Historically, cruise ships have frequently facilitated the transmission of noroviruses because of the high number of people on board in close proximity to one another.<sup>13</sup> However, the current coronavirus pandemic has resulted in extraordinary levels of infection on these ships.<sup>14</sup> Since December 2019, over 3,600 people have been infected with coronavirus or coronavirus-like illnesses aboard cruise ships.<sup>15</sup> Active outbreaks occurred on two Princess cruise ships, resulting in the company indefinitely cancelling all future cruises.<sup>16</sup> Following suit, the Centers for Disease Control and Prevention halted all future cruise ship voyages,<sup>17</sup> only allowing highly limited 'conditional sailing' starting on 30 October 2020.<sup>18</sup>

However, significant damage has already occurred. One elderly couple who was required to quarantine aboard a coronavirus-stricken Princess cruise ship filed suit on 9 March 2020,<sup>19</sup> alleging that the company was negligent in its response to the outbreak<sup>20</sup>—though the suit was thrown out

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4 *ibid.*

5 *ibid.*

6 World Health Organization, 'Naming the Coronavirus Disease (COVID-19) and the Virus That Causes It' *World Health Organization* <[https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)> accessed 20 March 2021.

7 *ibid.*

8 *ibid.*

9 *ibid.*

10 *ibid.*

11 Center for Systems Science and Engineering, 'Coronavirus COVID-19 Global Cases' *Johns Hopkins University* <<https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>> accessed 1 June 2021.

12 *ibid.*

13 Vivek Kak, 'Infections on Cruise Ships' (2015) 3 *Microbiology Spectrum* 1, 1-2.

14 Center for Systems Science and Engineering (n 11).

15 Tsuyoshi Sekizuka, *et al.* 'Halotype Networks of SARS-CoV-2 Infections in the Diamond Princess Cruise Ship Outbreak' (2020) 117 *Proceedings of the National Academy of Sciences* 33.

16 *ibid.*

17 Centers for Disease Control and Prevention, 'Cruise Ship Guidelines' *Centers for Disease Control and Prevention* (3 November 2020) <<https://www.cdc.gov/quarantine/cruise/>> accessed 3 November 2020.

18 *ibid.*

19 *Weissberger et al. v. Princess Cruise Lines, Ltd.*, [2020] C.D. Cal para 1.

20 *ibid.*



in July of the same year as a judge ruled that the couple was not in the legal ‘zone of danger’<sup>21</sup> to recover.<sup>22</sup> In the coming months and years, many more people infected with coronavirus aboard cruise ships will likely attempt to bring suit against cruise lines, though these suits are unlikely to be successful under existing legal frameworks.<sup>23</sup>

This Comment argues that despite roadblocks to legal recovery across various international jurisdictions, the unprecedented coronavirus outbreak calls for some form of legal recourse for cruise ship passengers. Part One of this Comment examines the ongoing coronavirus pandemic and how the cruise ship industry has responded to the rapidly spreading disease. Part Two explains existing maritime and admiralty laws, including the contractual relationship that exists between cruise ship companies and their passengers. Part Three explores the ways in which cruise ship passengers of all nationalities may seek—or be precluded from—recovery for the negligence of carriers through the protections afforded by the Death on the High Seas Act (DOHSA). Initially enacted in 1920, the Death on the High Seas Act assigned legal liability to carriers whose negligent actions resulted in the death of passengers on board a vessel further than three nautical miles from the United States coast. Over the years, the Death on the High Seas Act has been amended to include provisions for non-pecuniary damages, thus expanding the reach of the law—though not without criticism from various commentators. Such commentators challenge the effectiveness of the Death on the High Seas Act, highlighting the inconsistencies between the Act and maritime common law. Further, the Act was first adopted a century ago—long before the existence of additional maritime zones: the territorial sea, exclusive economic zone, and contiguous zone. Ultimately, Part Three argues that while the Death on the High Seas Act may be the most accessible means for cruise ship passengers to seek recovery, the United States Congress should amend the Act to allow for greater and more streamlined recovery for those individuals, while carefully limiting suits for concurrent foreign causes of action that might result in unjust enrichment for a plaintiff at the expense of a cruise line.

### 1.1 The Coronavirus Outbreak on Cruise Ships

While the coronavirus outbreak has disrupted many industries, the cruise ship industry is one of the most heavily affected.<sup>24</sup> Many passengers who expected a relaxing vacation have instead experienced illness, stress, and emotional distress due to coronavirus outbreaks. Outbreaks have resulted in weeks-long quarantines aboard ships—effectively stranding those passengers at sea, often with cruise ship officials offering little to no information about the ongoing situation—and sometimes even making the situation worse.<sup>25</sup> For example, some passengers assert that the failure of cruise companies to alert passengers of risks, adequately sanitise ships, or halt voyages entirely have contributed to the spread of coronavirus on board ships.<sup>26</sup>

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<sup>21</sup> *ibid* paras 2-3.

<sup>22</sup> *ibid*.

<sup>23</sup> *ibid*.

<sup>24</sup> Centers for Disease Control and Prevention (n 17).

<sup>25</sup> *Weissberger* (n 19) para 2.

<sup>26</sup> *ibid*.



Approximately 30 cruise ships remained at sea in the first few months of the pandemic.<sup>27</sup> On 28 February 2020, Jay and Carmen Martinez boarded one of those ships.<sup>28</sup> The couple intended to enjoy a 23-day honeymoon voyage, but instead found themselves quarantined aboard the ship for more than 30 days while they searched for an open port in which to dock during a rapidly-evolving global health crisis.<sup>29</sup> As the coronavirus spread, increasing numbers of cruise ships continued to report outbreaks of infectious disease. On 22 March 2020, cruise company Holland America Line reported that 13 passengers and 29 crewmembers aboard one of its ships had experienced ‘influenza-like symptoms’ while sailing around South America.<sup>30</sup> Accordingly, the company enacted a ship-wide quarantine, and started making plans to dock in Fort Lauderdale, Florida by 31 March 2020—though the ship did not dock until 2 April 2020.<sup>31</sup>

Some of the most disastrous impacts of the pandemic were felt aboard the *Grand Princess* ship. On 9 March 2020, an attorney on behalf of Ronald and Eva Weissberger filed suit against Princess Cruises in a Los Angeles district court while the couple was still aboard the cruise ship.<sup>32</sup> In their complaint, the couple alleged that the company’s ‘lackadaisical approach’<sup>33</sup> to passenger and crew safety resulted in ‘actual risk of immediate physical injury.’<sup>34</sup> Ship officials initially failed to announce the coronavirus outbreak on board—and only gave an explanation after passengers were confined to their rooms for quarantine.<sup>35</sup> As such, the Weissbergers continued to participate in typical cruise activities—such as playing bridge—until a family member who was following the news contacted them and alerted them of spread of coronavirus on board their ship.<sup>36</sup>

In July 2020, Central District of California Judge R. Gary Klausner dismissed the Weissbergers’ case<sup>37</sup>—along with the cases of several other *Grand Princess* passengers.<sup>38</sup> The court held that the passengers aboard the *Grand Princess* were not in the legal ‘zone of danger’ necessary for recovery.<sup>39</sup> While the plaintiffs argued that they suffered emotional distress because of the negligent actions of the cruise line, the fact that those plaintiffs had not actually contracted COVID-19 while aboard the ship prevented their cases from moving

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27 Francesca Street, ‘At Least 30 Cruise Ships Are at Sea Right Now. Here’s What it’s Like on Board’ *CNN Travel* (21 March 2020) <<https://www.cnn.com/travel/article/cruise-ship-passengers-stranded-coronavirus/index.html>> accessed 27 June 2020.

28 *ibid.*

29 *ibid.*

30 ‘Statement Regarding Zaandam’ *Holland America Line* (22 March 2020) <<https://www.hollandamerica.com/blog/ships/ms-zaandam/statement-regarding-zaandam/?linkId=84817743>> accessed 24 April 2020.

31 *ibid.*

32 *Weissberger* (n 19) paras 1-2.

33 *ibid.*

34 *ibid.*

35 *ibid.*

36 *ibid.*

37 *ibid* paras 4-5.

38 *ibid.*

39 *ibid.*





forward.<sup>40</sup> However, lawsuits brought by several passengers who had contracted COVID-19, as well as the survivors of deceased passengers, are still pending against Princess Cruises.<sup>41</sup>

As the impacted passengers grapple with such unforeseen circumstances, many consider the legal remedies available to them. Whether infected or not, many passengers assert that cruise lines negligently handled the coronavirus outbreak on board ships, posing a significant risk to their health and safety, as well as causing emotional distress.<sup>42</sup> Some passengers believe that cruise lines were aware of sick individuals aboard their ships, yet decided to continue voyages and allow more passengers on board despite the considerable health risk it would pose.<sup>43</sup> However, the dismissal of the Weissbergers' case shows the court's reluctance to offer remedies in negligence without proof of an actual COVID-19 infection.<sup>44</sup> Even for those who have been infected with COVID-19 aboard a cruise ship, the path to recovery may be similarly narrow given the intricacies of the international cruise industry,<sup>45</sup> coupled with outdated negligence laws.<sup>46</sup>

## 2. Existing Maritime and Admiralty Law

### 2.1. Contractual Relationship Between Passengers and Cruise Lines

When a passenger buys a ticket to embark on a cruise, that passenger effectively enters into a contract with the cruise line.<sup>47</sup> The fine print of a cruise contract contains various provisions regarding financial and legal matters pertaining to the voyage.<sup>48</sup> Some of these provisions may shock cruise ship passengers—for example, a cruise line may assess new fees even after a passenger has paid for the trip in full.<sup>49</sup> Additionally, passengers may be charged a fee for disembarking at the wrong port.<sup>50</sup> However, some of the most alarming contractual provisions limit the legal remedies available to passengers for harms that befall them while aboard the ship.<sup>51</sup> The terms and conditions of cruise contracts often bar passengers from filing certain claims, and set strict time limits for filing any remaining claims that are allowed by the contract.<sup>52</sup> Also, contractual terms often prescribe specific jurisdictions in which lawsuits must be filed.<sup>53</sup>

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<sup>40</sup> *ibid.*

<sup>41</sup> *ibid.*

<sup>42</sup> Gary E. Davidson & Lourdes Naranjo 'Don't Fall Asleep at the Helm: Cruise Line Passenger Ticket Contracts and the Pitfalls of Personal Injury Litigation in US Courts' (1999) *International Travel Law Journal* 76.

<sup>43</sup> *Weissberger* (n 19) para 1.

<sup>44</sup> *ibid* para 5.

<sup>45</sup> 'Liability of Cruise Ship Operator for Injury to or Death of Passengers' 82 *American Law Reports* 6th 175.

<sup>46</sup> *Death on the High Seas Act* 2006.

<sup>47</sup> Davidson & Naranjo (n 42).

<sup>48</sup> *ibid.*

<sup>49</sup> *ibid.*

<sup>50</sup> *ibid.*

<sup>51</sup> *ibid.*

<sup>52</sup> *ibid.*

<sup>53</sup> *Carnival Cruise Lines, Inc. v. Shute* [1991] 499 US 585, 596.



Furthermore, cruise ships do not necessarily have an explicit legal duty to protect the health and safety of passengers.<sup>54</sup> Under the ‘contract of carriage’ doctrine, which applies when a contractual relationship exists between a carrier and a passenger,<sup>55</sup> a carrier only has a duty to exercise reasonable care under the circumstances.<sup>56</sup> As such, a carrier does not have an affirmative obligation to prevent illness, injury, or death aboard its ship.<sup>57</sup> Ship owners must furnish aid and assistance only as an ‘ordinarily prudent person would render under similar circumstances.’<sup>58</sup> The required degree of reasonable care is dependent upon the circumstances—sometimes, a high degree of care may be necessary,<sup>59</sup> and other times, the duty of care may be less rigorous.<sup>60</sup> The COVID-19 pandemic presents a dilemma as far as degree of care—it is unclear whether carriers owe a higher degree of care because of the severity of the pandemic, or a lower degree of care because of its unprecedented nature. The contract of carriage also requires that a carrier offer reasonable warnings at the outset of passage for any restrictive provisions contained in a passenger’s ticket—for example, provisions limiting legal recovery.<sup>61</sup>

## 2.2. Complications Arising from Ship Registration

The cruise industry is international.<sup>62</sup> Cruise ships plot their courses through international waters, and may be registered in any country, regardless of the ports from which the ships actually embark passengers.<sup>63</sup> The availability of legal recovery for passengers is often limited by the rules of the country in which the cruise ship is registered.<sup>64</sup> Typically, cruise ships that embark from one country are registered in another country specifically for the reason that more lenient legal requirements are available in certain international jurisdictions.<sup>65</sup> For example, a large number of cruise ships are registered in countries like Bermuda, Panama, and the Bahamas.<sup>66</sup> Such countries are appealing to cruise ship companies because of the ‘convenience’ they offer to cruise companies based in countries with more stringent legal requirements. For example, American cruise ship companies can often subvert U.S. tax and labour laws by registering somewhere else.<sup>67</sup>

However, while a foreign registration may offer significant perks to cruise ship companies, such practice

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54 *Frango v. Royal Caribbean Cruises Ltd.* [2005] 891 So. Fla. Dist. Ct. App. 2d 1208, 1210-11.

55 *ibid.*

56 *ibid.*

57 *ibid.*

58 ‘Liability of Cruise Ship Operator for Injury to or Death of Passengers’ (n 45).

59 *ibid.*

60 *ibid.*

61 *Holland v. Norwegian Cruise Lines* [1990] 765 F. Supp. 1000, 1002.

62 William C. Terry ‘Flags of Convenience and the Global Cruise Labour Market’ (2017) 2 *Cruise Ship Tourism* 72-85.

63 *ibid.*

64 *ibid.*

65 *ibid.*

66 *ibid.*

67 *ibid.*



often makes it difficult for an injured passenger to seek legal recovery. For example, foreign registration status has complicated the process of legal recovery for the parents of an infant who passed away on board a Royal Caribbean ship.<sup>68</sup> In July 2019, 18-month-old Chloe Wiegand died after falling from an eleventh floor window of a Royal Caribbean cruise ship, *Freedom of the Seas*.<sup>69</sup> The ship, which embarked on its voyage from Miami, was registered in the Bahamas.<sup>70</sup> While aboard the ship at a port in Puerto Rico, Wiegand's grandfather lifted her over a railing to look out a window that he claims he believed was closed at the time, causing the infant to fall to her death.<sup>71</sup> The company and grandfather have disputed over which party is actually to blame for the infant's death.<sup>72</sup> The Wiegand family asserts that Royal Caribbean negligently maintained its vessel—which may have stemmed from lax Bahamian safety regulations.<sup>73</sup> More lenient safety regulations—as in the Wiegand case—often allow ships to avoid liability for negligence in cases of wrongful death or injury. Despite the incident taking place in Puerto Rico, and the ship being registered in the Bahamas, the Wiegand family brought suit in the Southern District of Florida against Royal Caribbean, as the jurisdiction was prescribed by the forum selection clause of the cruise contract.<sup>74</sup> While the case is still pending, it may serve as a framework for the types of issues which will arise in light of coronavirus infections caused by the negligent behaviour of cruise lines registered in foreign countries.

### 3. Existing Negligence Law

Cruise line companies typically specify the jurisdiction in which passengers may bring suit against them.<sup>75</sup> Although frequently registered in foreign countries such as the Bahamas, Panama, and Bermuda, most cruise line companies require suits to be brought in American jurisdictions.<sup>76</sup> While these ships are typically registered in foreign countries due to more lenient safety restrictions, bringing suit in an American jurisdiction may actually afford passengers a greater chance of recovery for negligence on the part of a cruise line, often through the Death on the High Seas Act ('DOHSA').<sup>77</sup> Notably, DOHSA offers a cause of action to individuals of all nationalities, even if another cause of action exists in a foreign jurisdiction.<sup>78</sup> However, DOHSA is outdated and limited in nature, which may preclude recovery in many instances, including in cases regarding the coronavirus pandemic.<sup>79</sup>

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68 *Wiegand v. Royal Caribbean Cruises Ltd.* [2020] 473 F. Supp. 3d 1348, 1350.

69 *ibid.*

70 *ibid.*

71 *ibid.*

72 *ibid.*

73 *ibid.*

74 *ibid.*

75 *Carnival Cruise Lines* (n 53) 596.

76 *ibid.*

77 Death on the High Seas Act 2006 (n 46).

78 *ibid.*

79 *ibid.*



### 3.1 Negligence Recovery through the Death on the High Seas Act

Since the onset of the pandemic, the United States has experienced the highest number of cases of COVID-19 globally.<sup>80</sup> Coupled with forum selection clauses that necessitate lawsuits be brought in certain American jurisdictions, most passengers impacted by COVID-19 aboard cruise ships may seek recovery in American courts through DOHSA.<sup>81</sup>

Over time, the United States has increasingly developed laws to address injury, illness, and death caused by the negligence of ship owners.<sup>82</sup> Prior to 1920, there was no wrongful death cause of action 'for an injury that result[ed] in death' at sea.<sup>83</sup> Such a cause of action was prevented by the felony-merger doctrine,<sup>84</sup> which barred civil actions for acts that were deemed both felonies and torts.<sup>85</sup> The deficiencies of then-existing law prompted the formation of the Maritime Law Association in 1899.<sup>86</sup> The primary purpose of the Association was to draft a bill 'that would create a wrongful death right of action in admiralty.'<sup>87</sup> Starting in 1900, the Association introduced several drafts of such a bill—all of which were unsuccessful.<sup>88</sup> However, after the sinking of the *Titanic* in 1912,<sup>89</sup> which resulted in over 1,500 deaths at sea, the Association's efforts to pass a bill garnered significant attention.<sup>90</sup> Accordingly, on 30 March 1920, Congress enacted the Death on the High Seas Act ('DOHSA').<sup>91</sup> DOHSA provides a framework for individuals to seek legal remedies from carriers whose negligence resulted in the death of a passenger on board a vessel.<sup>92</sup> Originally designed to only cover pecuniary damages, amendments to the Act in 2000 allowed plaintiffs to seek pecuniary damages as well, expanding the reach of the Act beyond pure economic recovery.<sup>93</sup>

Under DOHSA, if an individual's death is 'caused by wrongful act, neglect, or default occurring on the high seas beyond three nautical miles from the shore of the United States,'<sup>94</sup> an heir of the decedent

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80 Center for Systems Science and Engineering (n 11).

81 Death on the High Seas Act 2006 (n 46).

82 Madeline Burke 'The 1920 Death on the High Seas Act: An Outdated and Ambiguous Admiralty Law Shielding Cruise Line Companies from Civil Liabilities' (2018) 49 *Journal of Maritime Law and Commerce* 1, 3.

83 *ibid.*

84 *ibid.*

85 *ibid.*

86 *ibid.*

87 *ibid.* 4.

88 *ibid.*

89 *ibid.*

90 *ibid.*

91 Death on the High Seas Act 2006 (n 46).

92 *ibid.*

93 *ibid.*

94 *ibid.*



may ‘bring a civil action in admiralty’<sup>95</sup> against the responsible party—either an individual tortfeasor or the owner of the vessel which carried the decedent.<sup>96</sup> DOHSA prescribes that the spouse, parent, or child of the decedent may recover ‘fair compensation’ for the loss sustained.<sup>97</sup> Notably, contributory negligence of the decedent does not bar recovery under DOHSA.<sup>98</sup> DOHSA also accounts for issues of international law that may exist because of the registration status of a cruise ship.<sup>99</sup> For example, if death or serious injury occurs on a vessel registered in a foreign country, or the law of another country applies to the negligent behaviour of a carrier, the decedent or their representative may be able to sue in the United States under DOHSA, despite such complicating factors.<sup>100</sup> Under the Act, any plaintiff may bring a foreign cause of action in a United States court rather than in the court of the foreign country—essentially amounting to an opportunity for the plaintiff to select their preferred judicial forum.<sup>101</sup> However, the broad language of DOHSA—which initially appears to give plaintiffs greater rights—presents its own problems. DOHSA does not readily provide guidance for instances where there might be concurrent causes of action, in which negligent incidents are simultaneously covered by the laws of multiple countries.<sup>102</sup> Such cases have emerged with countries like Italy, France, and Venezuela, all of which have comparable wrongful death laws that offer similar recovery to that offered by DOHSA.<sup>103</sup> Courts have struggled to address this issue, in some cases allowing plaintiffs to file suit in two countries at once; at other times, barring recovery in certain foreign jurisdictions because of the overlap with the laws of another country.<sup>104</sup> Courts in favour of limiting recovery to one cause of action maintain that recovery under concurrent causes of action would amount to unjust enrichment for the plaintiff to the detriment of the defendant.<sup>105</sup>

These issues emerge primarily because there is no definitive universal law amongst countries for addressing negligence actions for passengers on cruise ships, resulting in dispute about which laws are applicable to whom and under what conditions. Conversely, public international law provides clearer standards for the treatment and protection of seafarers who work aboard vessels.<sup>106</sup> For example, the International Maritime Organization, the United Nations General Assembly, and the International Labour Organization have all adopted resolutions which urge international governments to “designate seafarers as key workers” to aid in the humanitarian and safety conditions for seafarers

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95 *ibid.*

96 *ibid.*

97 *ibid.*

98 *ibid.*

99 *ibid.*

100 *ibid.*

101 *ibid.*

102 Rebecca F. Doherty ‘The Death on the High Seas Act: Two Remaining Problems’ (1981) 41 *Louisiana Law Review* 4, 1214.

103 *ibid.*

104 *ibid.*

105 *ibid.*

106 International Maritime Organization ‘Frequently Asked Questions about how COVID-19 is Impacting Seafarers’ <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/FAQ-on-crew-changes-and-repatriation-of-seafarers.aspx>> accessed 24 November 2021.



during the COVID-19 pandemic.<sup>107</sup> Notably, such resolutions do not apply to cruise ship passengers, as cruise ship passengers aboard a vessel are classified as consumers as opposed to workers and thus have different legal rights.<sup>108</sup>

### 3.2 Viability of Legal Recovery and Future Implications

The cruise industry has grown tremendously over time, with greater numbers of passengers embarking on larger cruise ships each year.<sup>109</sup> As the magnitude of the cruise industry increases, the number of potential legal issues correspondingly increases.<sup>110</sup> Commentators argue that as the cruise industry grows and modernises, existing laws will fail to sufficiently protect the health and safety interests of passengers, especially in regard to global health crises.<sup>111</sup> The coronavirus pandemic highlights such a gap in legal remedies available to passengers infected by the disease while aboard a cruise ship. While existing legislation provides compensation for deaths occurring at sea due to the negligence of vessel owners,<sup>112</sup> no similar legislation exists for passengers who have contracted an infectious disease aboard a cruise ship due to such negligence but have since recovered.<sup>113</sup> Further, existing legislation offers no recovery for individuals who were exposed to COVID-19 but did not actually contract the disease.<sup>114</sup> Finally, courts grapple with confusion surrounding concurrent causes of action across foreign countries and how such causes of action would impact both the injured plaintiff and the defendant cruise line.<sup>115</sup>

One option for addressing the coronavirus crisis aboard cruise ships is to amend existing legislation—or propose new legislation entirely—to allow individuals access to greater compensation if they are infected with coronavirus while aboard a ship. DOHSA currently applies only to individuals who die as a result of the negligence of a vessel owner.<sup>116</sup> As such, DOHSA would not currently cover individuals who become ill after contracting coronavirus aboard a ship, but who recover.<sup>117</sup> Even if an infected individual recovers, the ongoing impacts of coronavirus can be severe and long-lasting.<sup>118</sup> For example, those who recover from coronavirus may face significantly decreased lung function,

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<sup>107</sup> *ibid.*

<sup>108</sup> *ibid.*

<sup>109</sup> Leticia M. Diaz, *et al.* ‘Crimes and Medical Care On Board Cruise Ships: Do the Statistics Fit the Crimes?’ (2014) 27 *Loyola Consumer Law Review* 40, 42-43.

<sup>110</sup> *ibid.*

<sup>111</sup> *ibid.*

<sup>112</sup> Death on the High Seas Act 2006 (n 46).

<sup>113</sup> *ibid.*

<sup>114</sup> *ibid.*

<sup>115</sup> Doherty (n 102).

<sup>116</sup> *ibid.*

<sup>117</sup> *ibid.*

<sup>118</sup> Sana Salehi, *et al.* ‘Long-term Pulmonary Consequences of Coronavirus Disease 2019 (COVID-19): What We Know and What to Expect’ (2020) 35 *Journal of Thoracic Imaging* 4, 87-89.



perhaps for the duration of their lives.<sup>119</sup> Emerging studies indicate long-lasting organ damage in coronavirus survivors as evidenced by spots and patterns present in lung scans.<sup>120</sup> These figures still only indicate what is currently known about the disease—the true extent of the disease’s impacts may not yet be realised given the novelty of the viral strain.<sup>121</sup> Further, coronavirus has effectively skyrocketed rates of unemployment as global shutdowns bring certain industries to a halt.<sup>122</sup> DOHSA offers no protection to those who will face lasting physical and financial harm as a result of contracting coronavirus, thus preventing them from returning to work in the long term.<sup>123</sup>

As such, U.S. Congress should amend DOHSA to cover injuries resulting from infectious diseases aboard a cruise ship. DOHSA may be the only viable means for cruise ship passengers to recover for negligent acts caused by cruise lines during the COVID-19 pandemic, given the lax safety laws of foreign countries coupled with the forum selection clauses of cruise contracts. However, the limits of such an amendment should be closely tailored. By nature, cruise ships lend themselves to the spread of disease because of the close proximity of passengers to one another.<sup>124</sup> Therefore, amendments to DOHSA should not be overly aggressive, especially because even minor illnesses can quickly spread aboard a ship.<sup>125</sup> Moreover, proposed changes to DOHSA should be made in consideration of the substantial economic harm that the coronavirus pandemic has had, and will continue to have, on the tourism and hospitality industries.<sup>126</sup> As such, amendments should also be limited in nature, ensuring that cruise lines are not unfairly targeted by concurrent foreign causes of action which might unjustly enrich plaintiffs at the expense of the cruise line. While DOHSA should be improved, legislators should be careful that such amendments do not cause undue financial harms to already-struggling cruise ship companies, which may be required to pay high-valued damages to passengers for extraordinary events that occurred during an unprecedented global crisis. Conversely, the existing language of DOHSA overwhelmingly protects the finances of cruise lines—accordingly, a balance must be struck between the financial interests of the industry and the health and safety interests of passengers.

Some legal implications of the coronavirus pandemic do not yet have a clear solution. For example, DOHSA’s territorial limits are uncertain.<sup>127</sup> DOHSA covers deaths resulting from incidents occurring in the territorial waters of the United States, as well as incidents occurring beyond United States territorial waters.<sup>128</sup> Classifications like the territorial sea, exclusive economic zone, and contiguous zone further

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119 *ibid.*

120 *ibid.*

121 *ibid.*

122 Sangheon Lee, *et al.* ‘The Labour Market Impacts of the COVID-19: A Global Perspective’ (2020) 63 *Indian Journal Of Labour Economics*, 11-15.

123 *Death on the High Seas Act 2006* (n 46).

124 *Kak* (n 13).

125 *ibid.*

126 Lee, *et al.* (n 122).

127 *Death on the High Seas Act 2006* (n 46).

128 *ibid.*



complicate matters, as such classifications can determine which laws are applicable to whom and in which jurisdictions. Such territorial limits complicate the process of identifying where the negligent behaviour occurred.<sup>129</sup> Courts have grappled with whether negligent behaviour is covered under the Act depending on if it occurred on the 'high seas,' or while docked at a port.<sup>130</sup> Such an issue is exceedingly relevant considering the number of cruise ships that have been stuck on the 'high sea' because of coronavirus outbreaks, or docked at a foreign port for months at a time under quarantine. Many U.S. and foreign states also have wrongful death statutes, which sometimes have different requirements and provide different remedies than those of DOHSA.<sup>131</sup> Further, the overlap between statutes may create confusion for affected passengers, especially those who reside outside the United States.<sup>132</sup>

Similarly, the registration country of the affected cruise ship might also pose uncertainty for future legal recourse. While DOHSA currently allows for an additional cause of action on top of any other available foreign causes of action, in instances where DOHSA does not presently apply, passengers will have to rely on the law of the foreign jurisdiction in which the cruise ship is registered—if, in fact, they are not precluded by the cruise contract from bringing suit in a foreign jurisdiction.<sup>133</sup> In the Bahamas and Panama, where a significant number of cruise ships are registered, a gray area exists as to legal liability for passenger safety issues.<sup>134</sup> Further, the existence of restrictive contract terms may make navigating foreign legal systems nearly impossible for passengers. As such, counsel seeking to represent such passengers should be prepared to navigate uncharted waters.<sup>135</sup>

## 4. Conclusion

The cruise ship industry will face substantial legal consequences in the coming months and years as the coronavirus pandemic continues to ravage the globe. As the world attempts to recover from a devastating health crisis, many individuals will seek legal remedies for the alleged negligent acts of cruise lines in which coronavirus outbreaks occurred.<sup>136</sup> Currently, the existing global legal landscape is difficult to navigate for individuals who have experienced injury, illness, or death aboard a cruise ship.<sup>137</sup> Further, the fine print of cruise contracts often delineates stringent requirements as to the types of claims a passenger may bring against a cruise company.<sup>138</sup> The existing legal landscape is also compli-

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129 Andrew S. Levy 'A Territorial Sea Change: The Death on the High Seas Act and the Extension of the Territorial Sea' (2012) 80 Fordham Law Review 1721, 1736.

130 *Balachander v. NCL Ltd.* [2011] 800 F. Supp. 2d 1196, 1200-02.

131 Levy (n 129) 1732.

132 *ibid.*

133 Death on the High Seas Act 2006 (n 46).

134 Thomas R. Panko, *et al.* 'Cruise Crimes: Economic-Legal Issues and Current Debates' (2009) 11 *Amfiteatru Economic Journal* 26, 585-596.

135 Davidson & Naranjo (n 42).

136 *ibid.*

137 *ibid.*

138 *ibid.*





cated by a ship's place of registration.<sup>139</sup> Standards for legal liability vary by country,<sup>140</sup> and some of the countries in which cruise ships are typically registered will often fail to investigate claims of negligent conduct by cruise lines.<sup>141</sup> Ultimately, these legal roadblocks prevent passengers who have been injured aboard a cruise ship from receiving sufficient—if any—recovery for harms they have suffered.

While DOHSA provides a dedicated means for the heirs of a decedent to receive compensation for the negligent conduct of a vessel owner which resulted in the death, the Act is too narrowly constructed and does not sufficiently address modern maritime concerns. While amending DOHSA should not unduly burden cruise lines—which will undoubtedly suffer economically due to the pandemic—such amendments should impart greater accountability on cruise lines for the health and safety of passengers, especially as the coronavirus outbreak continues to grow exponentially. Though providing legal remedies to such groups may be unprecedented, such a pandemic is equally unprecedented. As such, passengers who become 'sea-sick' from coronavirus outbreaks fuelled by cruise ship negligence should have a more accessible route by which they may seek recovery in the coming months and years.

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<sup>139</sup> Panko, *et al.* (n 134).

<sup>140</sup> *ibid.*

<sup>141</sup> *ibid.*

# International Maritime Organisation Framework on Cyber Risk Management - a Case for a Comprehensive Legal Framework

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## Abstract

The global maritime industry continues to embrace information technology and operational technology in automating its processes. Increased digitalisation has brought about cyber vulnerabilities, opening the door for cyber-attacks. Cyber-attacks can have serious consequences for crews, ships, and cargos, including casualties, loss of control of ship and ship or cargo hijacking. This research paper examines and discusses the limitations of the current IMO framework. The paper calls for a comprehensive legal framework on cyber risk management through the strengthening of the ISM Code and potentially through creation of a Cyber Code.

**Keywords:** cyber code, cyber-attacks, cyber security, cyber risk management, international maritime organisation, safety management system

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## 1. Introduction

Digitalisation has become an important part of maritime business operations, improving safety, efficiency, and maximising productivity and cost-effectiveness.<sup>1</sup> Digitalisation is the application of digital technology to all things used in daily life.<sup>2</sup> In the maritime industry, digitalisation has had a huge impact because of the continuous advancement of satellite communication and data generators.<sup>3</sup> Daily information exchange takes place between ships and ports, or companies and agents. The implementation of this technology and network, cyber structure has increased the likelihood of cyber-attacks.<sup>4</sup> Despite this, the maritime industry has been slow to recognise the impact

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1 Vivian Louis Forbes, 'The Global Maritime Industry Remained Unprepared for Future Cybersecurity Challenge', (Future Directions International, 21 August 2018) <[www.futuredirections.org.au/publication/the-global-maritime-industry-remains-unprepared-for-future-cybersecurity-challenges/](http://www.futuredirections.org.au/publication/the-global-maritime-industry-remains-unprepared-for-future-cybersecurity-challenges/)> accessed 1 August 2021.

2 David Silgado, 'Cyber-Attacks: A Digital Threat Reality Affecting the Maritime Industry' (2018) 663 WMU Dissertation 2.

3 DNV.GL, 'Digitalisation in the Maritime Industry' <[www.dnvgl.com/maritime/insights/topics/digitalisation-in-the-maritime-industry/index.html](http://www.dnvgl.com/maritime/insights/topics/digitalisation-in-the-maritime-industry/index.html)> accessed 1 November 2020.

4 Constantinos Varouxis, 'Cyber Maritime Security Vulnerabilities Prospect for EU' (SCRIBD, 2019) <[www.scribd.com/document/468659061/CyberMaritimeSecurity](https://www.scribd.com/document/468659061/CyberMaritimeSecurity)> accessed 27 October 2020.



of cyber-attacks on the industry.<sup>5</sup> According to a Global Maritime Issue monitor survey,<sup>6</sup> for the next ten years, cyber-attacks and data theft rank fifth in terms of their impact in the maritime sector, while in terms of likelihood of an issue and disaster preparedness, cyber-attack and data theft rank third.<sup>7</sup>

Cyber-attacks can threaten lives, the environment, lead to financial losses, and can significantly disrupt the movement of maritime trade.<sup>8</sup> In view of the devastating impact of cyber-attacks on global trade, the International Maritime Organisation (IMO)<sup>9</sup> recognises cyber-attacks as a problem in the maritime industry and has proposed a regulatory framework to address cybersecurity threats.

The IMO developed regulations and guidance through the subcommittee Maritime Safety Committee (MSC). The MSC, during its 96th session on 11 to 20 May 2016 adopted provisional cybersecurity Guidelines (MSC.1/Circ.1526).<sup>10</sup> This provisional response was necessary due to increased cyber-attacks in the maritime industry. In June 2017, the MSC adopted Resolution MSC.428(98),<sup>11</sup> which mandates the incorporation of cyber risk management in the company's existing Safety Management System (SMS) in compliance with the ISM Code.<sup>12</sup>

Lastly, the MSC in July 2017 adopted the (MSC-FAL.1/Circ.3)<sup>13</sup> Guidelines on the maritime cyber risk management. These Guidelines provide recommendations for effective cyber risk management and supersede earlier Guidelines (MSC.1/Circ.1526) though they remain non-mandatory.

This paper analyses the limitations of the MSC-FAL.1/Circ.3 Guidelines, MSC.428(98) Resolution and the ISM Code provisions on maritime cyber risk management.<sup>14</sup> Therefore, the study seeks to answer the following questions:

- i) What are the limitations of the IMO current legal framework on cyber risk management?
- ii) Could a stand-alone Cyber Code address the limitations of the IMO's legal framework on cyber risk management?

5 Kala Baskar and Mahesh Balakrishnan, 'Cyber Preparedness in Maritime Industry' (2019) 5(2) IJSTA 19.

6 Global Maritime Issues Monitor 2020 is based on research among senior leaders around the world, it explores the impact, likelihood, and preparedness of 19 global issues potentially affecting the maritime industry in the coming decade.

7 Global Maritime Form, MARSH and International Union of Marine Insurance, 'Global Maritime issue Monitor 2020' (2020) <[www.maritimeissues.org/#overview](http://www.maritimeissues.org/#overview)> accessed 27 October 2020.

8 SAFETY4SEA, 'How IMO Addresses Cyber Risk: An Overview' (2020) <<https://safety4sea.com/cmhow-imo-addresses-cyber-risk-an-overview/>> accessed 27 October 2020.

9 IMO is a specialised agency of the United Nations (UN) and a competent international organisation, which according to the United Nations Convention on the Law of the Sea (UNCLOS), has the mandate to regulate international trade and voyage by sea as safe and secure as possible.

10 IMO, 'Interim Guidelines on Maritime Cyber Risk Management' (1 June 2016) MSC. 1/Circ.1526(E).

11 IMO 'Maritime Cyber Risk Management in Safety Management Systems' (16 June 2017) Resolution MSC.428 (98), MSC 98/23/Annex 10.

12 IMO, 'Maritime Cyber Risk' (2018) <[www.imo.org/en/OurWork/Security/Guide\\_to\\_Maritime\\_Security/Pages/Cyber-security.aspx](http://www.imo.org/en/OurWork/Security/Guide_to_Maritime_Security/Pages/Cyber-security.aspx)> accessed 27 October 2020.

13 IMO 'Guidelines on Maritime Cyber Risk Management' (5 July 2017) MSC-FAL.1/Circ.3, para 1.

14 IMO 'International Safety Management Code (ISM) Code) International Management Code for the Safe Operation of Ships and for Pollution Prevention' (amended by Resolution MSC.353(92), entered into force 1 January 2015).



### 1.1 Aim / literature review

Cyber-attacks in the maritime industry are a recognised problem. Chalermpong Senerak,<sup>15</sup> using Leam Chabang Port as a case study, established through a questionnaire that ports are attractive to cyber-attacks because they are the key nodes of global trade and hold a lot of data. According to Juan Ignacio and Ruth Garcia,<sup>16</sup> cyber incidents can cause major environmental and economic disasters, and loss of human life. David Silgado<sup>17</sup> emphasised that the economic consequence of cyber-attacks on the maritime industry is the loss of intellectual property, the biggest threat to business.

William Stahl<sup>18</sup> canvassed for the adoption of the principle of universal jurisdiction embedded in UNCLOS to solve the problem of cybercrime.<sup>19</sup>

In response, the IMO adopted the Guidelines on Maritime Cyber Risk Management (MSC-FAL.1/Circ.3) and Maritime Cyber Risk Management in Safety Management Systems Resolution, MSC.428(98). Researchers have commented on the response of the IMO to cybersecurity threats. Oliver Daum<sup>20</sup> called for sanctions embedded in the ISM Code to apply for breach of the IMO's cybersecurity standards after examining how cyber-attacks could impede the safe operation of ships. Rory Hopcraft and Keith Martin,<sup>21</sup> called for the creation of a cyber code on cyber risk management in the manner of the Polar Code.<sup>22</sup> They concluded that a single benchmark code would be easier to update and enforce. The Polar Code is discussed in more detail in part four of this paper.

The approach in this paper is to argue for the strengthening of the ISM Code in the short term, since it is the basis on which the IMO seeks to repel cyber-attacks and the industry is not yet receptive to the idea of a cyber code.<sup>23</sup>

### 1.2 Structure

The paper is structured in three subsequent parts. Part Two details the cybersecurity landscape. Part Three discusses the role of IMO as a norm-maker in the maritime industry and argues that the IMO's regulatory framework on cyber risk management is an example of this. This part also analyses the legal status / effect of the framework.

15 Chalermpong Senerak, 'Port Cybersecurity and Threat: A Structural Model for Prevention and Policy Development' (2020) 247 AJSL 17.

16 Juan Ignacio Alcaide and Ruth Garcia Llave, 'Critical Infrastructure Cybersecurity and the Maritime Sector' (2020) 45 TRP 547.

17 Silgado (n 2) 26.

18 William Stahl, 'The Uncharted Waters of Cyberspace- Applying the Principles of International Maritime Law to the Problem of Cyber Security' (2011) 40(1) GJICLL 273.

19 *ibid.*

20 Oliver Daum, 'Cybersecurity in the Maritime Sector' (2019) 50(1) J Mar. L Com 19.

21 Rory Hopcraft and Keith Martin 'Effective Maritime Cybersecurity Regulation - The Case for a Cyber Code' (2018) 14(3) JIOR.

22 International Code for Ships Operating in Polar Waters (Polar Code) was developed to supplement existing IMO instruments such as the International Convention for Safety of Life at Sea (SOLAS) 1974 and the International Convention for the Prevention of Pollution from Ships 1973, to increase the safety of ships operating in polar waters and to mitigate the impact on the people and the environment close to the polar waters. See the preamble to the Polar Code.

23 Stahl (n 18) 273.



Part Four analyses the limitations of IMO's regulatory framework and argues for a stand-alone cyber code in the future and immediate stronger enforcement of the ISM Code.

## 2. Maritime cybersecurity and entities responsible for cyber-attacks

### 2.1 Definitions

Although there is no universally agreed definition, the term maritime cyber security has been used to describe measures taken to protect networks and computer assets both on ships, in terminals, at ports, and equipment supporting maritime operations.<sup>24</sup> A cyber-attack is an offensive exercise initiated by cybercriminals/attackers using one or more computer against multiple computers or networks on ships, in terminals, at ports, and all computerised equipment supporting maritime operations.<sup>25</sup>

Due to the nature of its operations, the maritime industry is highly vulnerable to cyber-attacks. As illustrated by Jensen,<sup>26</sup> a large shipping line would typically be operating a fleet of 300 vessels of which they own 150 and the other 150 chartered from a wide range of vessel-owning companies for a period of time. In this scenario, the shipping line will not have the capacity to control the IT-structure onboard chartered vessels, instead relying upon the defences put in place by the charter vessel owners.<sup>27</sup>

In addition, due to reduced access costs and anonymous global access, there is ever greater internet access.<sup>28</sup> Individual internet usage is difficult to trace as the internet was designed to facilitate information flow and collaboration. Thus, cyber attackers can operate free from scrutiny of their internet use and behaviour.<sup>29</sup>

Cyber-attacks can be classified into three major categories: (a) Automated malicious software delivered over the internet (b) Denial of service attacks (DOS) and (c) Unauthorised remote intrusions into a computer system (hacking).<sup>30</sup>

The first type utilises malware, which is classified as either a virus or worm.<sup>31</sup> Malware usually in-

24 Christopher Hayes, 'Maritime Cybersecurity: The Future of the National Security' (Dudley Knox Library, June 2016) <<https://calhoun.nps.edu/handle/10945/49484>> accessed 8 November 2020.

25 Josh Fruhlinger, 'What is a Cyber Attack? Recent Examples Show Disturbing Trends' (CSO, 27 February 2020) <[www.csoonline.com/article/3237324/what-is-a-cyber-attack-recent-examples-showdisturbing-trends.html](http://www.csoonline.com/article/3237324/what-is-a-cyber-attack-recent-examples-showdisturbing-trends.html)> accessed 7 November 2020.

26 Lars Jensen, 'Challenges in Maritime Cyber-Resilience' (Technology Innovation Management Review, April 2015) <<https://timreview.ca/article/889>> accessed 8 November 2020.

27 *ibid.*

28 Stahl (n 23) 254.

29 Sharon Stevens, 'Internet War Crimes Tribunals and Security in an Interconnected World' (2009) 18 *Transnat'l L. & Contemp. Probs.* 657.

30 Stahl (n 28) 254.

31 *ibid* 255.



fects a computer system through email or when a user visits an infected site.<sup>32</sup> A DOS attack is initiated from a single computer and overwhelms a target system with requests until the system can no longer function properly, denying users access to and use of the targeted system or site.<sup>33</sup> Hacking is the process of gaining unauthorised access into a computer system or group of computer systems, usually through the cracking of passwords to access systems.<sup>34</sup>

## 2.2 Cybercriminals / attackers and their motivation

Cybercriminals / attackers are those who attempt to gain unauthorised access to data, functions, or other restricted areas of the system (perhaps for malicious purpose).<sup>35</sup>

Baskar and Balakrishnan<sup>36</sup> divide cybercriminals into two categories: 'outsiders' and 'insiders.' Outsiders include hacktivist, state-sponsored groups, criminal groups, and terrorist organisations. Insiders are those interested in espionage, or disgruntled employees.

The third category is criminal groups, either individuals or criminal organisations that carry out cyber-attacks on interconnected systems and networks. Their intention is to carry out criminal activities, focusing on fraudulent operations, extortion, or misappropriation of intellectual property rights. These groups are mainly financially motivated. Finally, terrorist organisations are motivated by ideology or religion, or they have political interests in carrying out attacks on countries and companies to gain access to confidential data, spread malware and interrupt the operating system. Insider attacks are mostly perpetrated through espionage with the main objective of obtaining access to confidential information in order to use that information for competitive advantage or to disrupt business operations.<sup>37</sup>

## 2.3 Cybersecurity vulnerabilities in maritime infrastructure

The maritime industry has embraced digitalisation in all its operations. According to Professor Forbes, maritime companies are now exploring the opportunities presented by the 'Internet of Things' and artificial intelligence to boost their performance and cut costs.<sup>38</sup>

The number of maritime cyber-attacks is unknown, because reports are often ignored or not re-

<sup>32</sup> *ibid.*

<sup>33</sup> *ibid.*

<sup>34</sup> Noam Judah, 'What is Hacking? Common Objectives, Types, and How to Guard Against It' (The Hacker Noon Newsletter, 4 March 2019) <<https://hackernoon.com/what-is-hacking-common-objectives-types-and-how-to-guard-against-it-ab99897ff00b>> accessed 20 August 2020.

<sup>35</sup> Baskar and Balakrishnan (n 5) 19.

<sup>36</sup> *ibid.* 9.

<sup>37</sup> Danish Defence Intelligence Service, 'Threat assessment: The cyber threat against the Danish maritime industry and ports' (Center for Cybersecurity, October 2020) <<https://cfcs.dk/globalassets/cfcs/dokumenter/trusselsvurderinger/en/cfcs-cyber-threat-danish-maritimeindustry-and-ports-.pdf>> accessed 8 November 2020.

<sup>38</sup> Forbes (n 1) 5.



ported due to reputational implications.<sup>39</sup> Vulnerable maritime infrastructure subject to cyber-attacks are addressed below.

### 2.3.1 Ship-based cyber vulnerabilities

Ships navigation aids include but are not limited to the Global Positioning System (GPS), the Automatic Identification System (AIS), and the Electronic Chart Display Information System (ECDIS). These navigation aids are part of the maritime operational technology (OT). GPS is important to maintain safety at sea and for efficient navigation. However, this system is vulnerable to techniques such as spoofing and jamming, which cause a breakdown if used successfully by the hackers. AIS allows ships to obtain necessary data about other ships in transit. It is used for ship positioning and tracking.<sup>40</sup> However, AIS is not protected by complex encryption or authentication. Therefore, spoofed AIS signals may be used by ship operators to conceal their location or used to create a false navigation obstacle. Finally, ECDIS is a computer based navigational chart that displays nautical charts and the precise location and tracking information of ships.<sup>41</sup> It works by receiving information from AIS and GPS data, speed, course, and radar. Since the ECDIS receives information, it is potentially susceptible to cyber-attack as it is vulnerable to malware. In addition, the ECDIS navigation charts are updated through removable media, which can be easily infected by viruses.

In July 2013, a radio navigation research team from the University of Texas successfully proved the weaknesses and imperfections of GPS as they hacked the GPS signal of an US\$80 million, 210-foot yacht in the Mediterranean taking control of the ship's navigation system, which enabled them to steer the vessel as they saw fit.<sup>42</sup> The purpose of the experiment was to expose the weaknesses of GPS.

### 2.3.2 The threat to ports

Ports are critical to maritime operations, and digitalisation has been integrated into port activity for many years.<sup>43</sup> Unfortunately, this digitalisation has become a major vulnerability, as cyber-attacks on ports can have negative impacts on the maritime supply chain. This was demonstrated by an incident at the port of Antwerp (Belgium). In the period 2011 to 2013, the computerised cargo tracking system at the port was hacked by hackers working with drug smuggling gangs. Hackers sought to breach IT systems that control the movement and location of containers to identify the shipping containers in which consignments of drugs were hidden. Then the gang stole the compromised containers to re-

39 Ivan Mrakovic and Ranko Vojinovic, 'Maritime Cybersecurity Analysis – How to Reduce Threats?' (2019) 8(1) TOMS 132.

40 Singh Hansdeep, 'Cyber Security in Maritime Industry: The Exposure, Risks, Prevention and Legal Scenario' (UIO DUO Research Achieve, 1 December 2019) <[www.duo.uio.no/handle/10852/73742](http://www.duo.uio.no/handle/10852/73742)> accessed 10 November 2020.

41 Lagouvardou Sotiria, 'Maritime Cybersecurity: Concepts, Problems and Models' (Technical University of Denmark, 5 July 2018) <<https://seatracker.ru/viewtopic.php?t=38182>> accessed 8 November 2020.

42 Bob Brewin, 'Grad Students Gain Control of Navigation System to Veer Ship Off Course' (Nextgov, 29 July 2020) <[www.nextgov.com/cio-briefing/2013/07/university-texas-team-hijacks-80-million-yachtcheap-gps-spoofing-gear/67625/](http://www.nextgov.com/cio-briefing/2013/07/university-texas-team-hijacks-80-million-yachtcheap-gps-spoofing-gear/67625/)> accessed 13 November 2020.

43 Senerak Chalermpong, 'Port Cybersecurity and Threat: A Structural Model for Prevention and Policy Development' (2020) 37(1) AJSL 20.



trieve the drugs.<sup>44</sup> The hackers obtained remote access through phishing emails sent to port employees. This breach was discovered after an entire container disappeared, resulting in a firewall being installed in the system. The hackers then broke into the port office and installed key logging software on a legitimate computer to intercept data from the system.

### 2.3.3 The threat to maritime companies

Cyber-attacks affect maritime companies. A.P. Moller –Maersk, the world's largest shipping firm is one of the many international companies that were hit by the ransomware malware 'NotPetya' on 27 June 2017. This ransomware affected all Maersk business units.<sup>45</sup> The company was forced to shut down all systems in order to contain the cyber incident. The NotPetya incident triggered the need to rebuild the entire network of 4,000 servers and 45,000 PCs. This attack cost the company approximately US\$300 million.<sup>46</sup> Security specialist Ken Munro<sup>47</sup> opined that the attack may draw the attention of more cybercriminals, who realise that the maritime industry is acutely exposed.<sup>48</sup>

Also, in 2020, the Mediterranean Shipping Company suffered an attack that caused its data centre to close for several days.<sup>49</sup>

The above highlights that the maritime industry is heavily dependent on technology. Since the maritime industry is not immune to cyber-attacks, the steps the IMO takes to respond to cyber-attacks are crucial.

## 3. IMO cybersecurity framework

The IMO was established by the adoption of a convention at the UN maritime Conference in 1948.<sup>50</sup> The Convention<sup>51</sup> came into force on 17 March 1958. Article 1 (a) of the Convention provides for the purpose of IMO, which is to promote cooperation among governments and ensure the highest practicable standards are met in matters pertaining to maritime safety.<sup>52</sup> Also, in order to fulfil its purpose

44 Chronis Kapalidis, '4 Cases of Cybersecurity Failures in Shipping History' (LinkedIn, 31 March 2018) <[www.linkedin.com/pulse/4-cases-cyber-security-failures-shipping-history-chronis-kapalidis](http://www.linkedin.com/pulse/4-cases-cyber-security-failures-shipping-history-chronis-kapalidis)> accessed 10 November 2020.

45 Jacob Gronholt-Pedersen, 'Maersk Says Global IT Breakdown Caused by Cyber Attack' (Thomas Reuters, 27 June 2020) <[www.reuters.com/article/us-cyber-attack-maersk-idUSKBN19I1NO](http://www.reuters.com/article/us-cyber-attack-maersk-idUSKBN19I1NO)> accessed 13 November 2020.

46 Mike Mcquade, 'The Untold Story of NotPetya, the Most Devastating Cyberattack in History' (Wired, 22 August 2018) <[www.wired.com/story/notpetya-cyberattack-ukraine-russia-Code-crashed-the-world/](http://www.wired.com/story/notpetya-cyberattack-ukraine-russia-Code-crashed-the-world/)> accessed 13 November 2020.

47 Ken Munro is a Partner and founder of Pen Test Partners. See ICCC 2022, 'Ken Munro- Founder and Partner, Pen Test Partners' (15-17 November 2022) <<https://icconference.org/?speaker=kenmunro>> accessed 1 November 2021.

48 Bloomberg, 'Cyber Pirates: Shipping Industry Under Second IT attack in a week' (Aljazeera, 2 October 2020) <[www.aljazeera.com/economy/2020/10/2/cyber-pirates-shipping-body-suffers-second-it-attack-in-a-week](http://www.aljazeera.com/economy/2020/10/2/cyber-pirates-shipping-body-suffers-second-it-attack-in-a-week)> accessed 13 November 2020.

49 *ibid.*

50 IMO, 'Brief History of IMO' <[www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx](http://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx)> accessed 28 October 2020.

51 Convention on the International Maritime Organization (adopted 6 March 1948, entered into force 17 March 1958), 289 UNTS 3, art 48.

52 *ibid* art 1(a).





as a standard-setting organisation, it provides for the drafting of agreements, conventions or other suitable instruments, and makes recommendations regarding maritime safety to governments and intergovernmental organisations.<sup>53</sup> It also provides a forum for consultation among members and exchange of information among Governments.<sup>54</sup>

The IMO's standard setting role makes it a legislative authority, but not in the traditional sense of a parliament, as the IMO does not have power to enforce its instruments but rather relies on member states for enforcement and acceptance.<sup>55</sup>

The IMO's milestones in maritime cybersecurity can be divided into four stages. First, in November 2014, the MSC supported a Canada / United States proposal on establishing voluntary Guidelines on the maritime cybersecurity practices.<sup>56</sup> Four years later, on 1 June 2016, the MSC approved the 'Interim Guidelines on Maritime Cyber Risk Management' (MSC.1/Circ.1526)<sup>57</sup> at its ninety sixth session, which put forward recommendations for protecting shipping from widespread cyber threats. The reason for releasing this interim Guidelines was due to the urgent need to raise awareness on cyber risk and vulnerabilities.<sup>58</sup>

Subsequently, in 2 June 2017, the MSC, during its ninety eighth session resolved that all companies should incorporate cyber risk management in their approved SMS in accordance to the functional requirements of the ISM Code (MSC.428 (98)).<sup>59</sup> Less than a month later, in 3 July 2017, the Guidelines (MSC-FAL.1/Cir.3) on maritime cyber risk management was approved at the ninety eighth session of the MSC.<sup>60</sup> The Guidelines are voluntary and supersedes the interim Guidelines contained in MSC. 1/Circ. 1526.<sup>61</sup> The IMO framework for cybersecurity described above, consists of the ISM Code, a Resolution and Guidelines which the research addresses in detail below.

### 3.1 Resolution MSC.428(98) and ISM Code

The IMO Resolution MSC.428(98) was adopted by the MSC on 16 June 2020.<sup>62</sup> This Resolution scaled up the level of authoritativeness of IMO measures on cybersecurity. The Resolution makes the following points regarding cyber risk management:

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53 *ibid* art 2(b).

54 *ibid* art 2(b) and (c).

55 Robert Beckman and Zhen Sun 'The Relationship between UNCLOS and IMO Instruments' (2017) 2(2) APOC.

56 SAFETY4SEA, 'Regulatory Update: Cyber security risks' (Safety4Sea, 25 May 2018), <[www.safety4sea.com/cmregulatory-update-cyber-security-risks/](http://www.safety4sea.com/cmregulatory-update-cyber-security-risks/)> accessed 28 October 2020.

57 IMO, 'Interim Guidelines on Maritime Cyber Risk Management' (1 June 2016) MSC.1/Circ. 1526(E).

58 Rachel Foote, 'Cybersecurity in the Marine Transportation Sector: Protecting Intellectual Property to Keep Our Ports, Facilities, and Vessels Safe from Cyber Threats' (2017) 8(2) *Cybaris*.

59 Resolution (n 11).

60 Guidelines (n 13).

61 *ibid* para 4.

62 Resolution (n 59) para 3.



1. The need to increase awareness of cyber risk threats in the maritime industry.<sup>63</sup>
2. The need for stakeholders to take quick actions toward safeguarding ships from current cyber threats.<sup>64</sup>
3. In respect to the 'Guidelines on maritime cyber risk management' as providing high-level recommendation for maritime cyber risk management.<sup>65</sup>
4. Recalls the goal of the ISM Code and encourage all organisations in the maritime industry to ensure that cyber risks are rightly addressed in Safety Management Systems before, the first annual verification (1 January 2021) of a company's Document of Compliance.<sup>66</sup>

As earlier noted, the Resolution MSC.428(98) encourages companies to address and incorporate cyber risk management into their Safety Management System.

The ISM Code<sup>67</sup> is a mandatory international instrument which provides standards for the management and operation of ships and for pollution prevention. The Code establishes a broad framework for managing operational risks with the aim of maintaining high standards for safety and environmental protection.

The ISM Code dates back to the 1980s, when there were rising concern regarding poor management standards in shipping.<sup>68</sup> The ISM Code is a crucial element of Chapter IX of the 1974 Convention for the Safety of Life at Sea (SOLAS),<sup>69</sup> an international maritime treaty which establishes the minimum safety measures for equipment and operation, construction, and merchant ships.<sup>70</sup>

Resolution MSC.428(98) paragraph seven affirms that the objectives and functional elements of the ISM Code must be considered in an approved SMS cyber risk management.<sup>71</sup> The approach adopted here is goal-based regulation. The following questions then become necessary: 'what is the objective of the ISM Code?' 'What is SMS?' and what are its functional requirements?'

The objectives of the ISM Code are provided in No. 1.2.1 of the Code which are: 'to ensure safety at sea, preventing human injury or loss of life, and preventing damage to the environment, specifically the marine environment'.<sup>72</sup> The regulatee of the ISM Code is a 'Company', which pursuant to provision No. 1.1.2 means 'the owner of a ship or any organisation or person who has assumed responsibility for the

63 *ibid* para 1.

64 *ibid* para 2.

65 *ibid* para 3.

66 *ibid* para 4.

67 ISM Code (n 14).

68 Vandenborn Yves, 'Twenty Years of ISM Code' (SAEFTY4SEA, 3 July 2018) <[www.safety4sea.com/twenty-years-of-the-ism-code/](http://www.safety4sea.com/twenty-years-of-the-ism-code/)> accessed 28 October 2020.

69 *ibid*.

70 Anish Wankhede, 'Safety of Life at Sea (SOLAS)- The Ultimate Guide' (Maritime Insight, 3 January 2020) <[www.marineinsight.com/maritime-law/safety-of-life-at-sea-solas-convention-for-prevention-ofmarine-pollution-marpol-a-general-overview/](http://www.marineinsight.com/maritime-law/safety-of-life-at-sea-solas-convention-for-prevention-ofmarine-pollution-marpol-a-general-overview/)> accessed 28 October 2020.

71 *ibid* para 7.

72 ISM Code (n 67) no 1.2.1.



operation of the ship.’<sup>73</sup> According to No. 1.2.3 of the Code, ‘the SMS of the shipping company must ensure safety and environmental protection through compliance with international and flag administration requirements, classification society or maritime industry organisation.’<sup>74</sup> In this regard, companies may find that the non-mandatory Guidelines of IMO MSC-FAL.1/Circ.3 nonetheless provide useful procedures for assessing risks and implementing risk mitigation measures.

Similarly, companies may find the standards established by recognised organisations and non-governmental organisations to be also helpful and are encouraged to refer to the Guidelines for the development of their SMS. The SMS is defined in the ISM Code as a ‘structured and documented system enabling company personnel to effectively implement the company safety and environmental protection policy’.<sup>75</sup> The SMS should include the following functional requirements:

1. A safety and environmental protection policy;
2. Instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag state legislation;
3. Defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel;
4. Procedures for reporting accidents and non-conformities with the provisions of the Code;
5. Procedures to prepare for and respond to emergency situations; and procedures for internal audits and management reviews.<sup>76</sup>

Therefore, in compliance with the IMO Resolution, the SMS must adequately address the ISM Code objectives and functional elements in an ongoing manner. The document used to describe and implement the SMS may be referred to as the ‘Safety Management Manual’.<sup>77</sup>

In addition, a company should periodically verify whether SMS measures put in place are effective and meet the objectives of the Code.<sup>78</sup> The verification of a company’s incorporation and implementation of cyber risk mitigation into the SMS will occur during internal and external audit in accordance with the requirements of the ISM Code.<sup>79</sup>

### 3.2 MSC-Fal.1/Circ.3 guidelines

The MSC-FAL.1/Circ.3 Guidelines propose that the best practices of cyber risk management be adopted into a company’s risk management framework while recognising that no two companies in the maritime industry are alike. It also advocates for a holistic approach to managing cyber risk by advising stakeholders to refer to specific member government and flag administrations’ require-

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<sup>73</sup> *ibid* no 1.1.2.

<sup>74</sup> *ibid* no 1.2.3.

<sup>75</sup> *ibid* no. 1.1.4.

<sup>76</sup> *ibid* no1.4.

<sup>77</sup> *ibid* no 11.3.

<sup>78</sup> *ibid* no12.2.

<sup>79</sup> *ibid* no 12.1.



ments as well as relevant international and industry standards.<sup>80</sup>

The Guidelines also reference different standards that could serve as guidance to a company on cyber risk management.<sup>81</sup> These standards are also non-binding in nature. Moreover, these standards provide a risk-based approach to detecting and solving cyber risk issues.<sup>82</sup>

The IMO MSC-FAL.1/Circ.3 Guidelines include five elements that are also identified in the NIST framework: identify, protect, detect, respond, and recover. Bobyx<sup>83</sup> stated that the IMO MSC-FAL.1/Circ.3 Guidelines are structured on the NIST cybersecurity framework because the functional elements in the IMO Guidelines are similar to that of NIST framework.<sup>84</sup>

The contents of the Guidelines are analysed under three categories: scope, intent/motive and functional elements.

### 3.2.1 Scope

The Guidelines cover high-level recommendations for functional elements to be incorporated by all stakeholders in the maritime industry. The IMO stressed that the Guidelines were complementary to safety and security management practices it had already established: the ISM Code.<sup>85</sup>

The Guidelines provide definitions of some terms: IT, OT, maritime cyber risk, and cyber risk management. The Guidelines defined 'IT' as the use of data as information,<sup>86</sup> whereas 'OT' system is defined as the use of data to control and monitor physical processes.<sup>87</sup> Also, maritime cyber risk is defined in the Guidelines as a potential circumstance or event that could threaten a technology asset, which could result in shipping-related operational, safety or security failures as a consequence of IT or OT system being corrupted, lost or compromised.<sup>88</sup> These 'circumstances' or 'events' are vulnerabilities in cyber technology (digitalisation, integration, and automation). These vulnerabilities are created by accessing, interconnecting, or networking cyber technologies, which includes and are not limited to: 'bridge systems, cargo handling and management systems, propulsion, machinery management and power control systems, access control systems, passenger servicing and management systems, passenger facing public networks, administrative and crew welfare systems and communication systems'.<sup>89</sup>

<sup>80</sup> *ibid* nos 1.3, 2.2.2 and 4.1.

<sup>81</sup> The Baltic and International Maritime Council (BIMCO), see *Guidelines* (n 60) no 1.5

<sup>82</sup> ISM Code (n 72) no 4.2.

<sup>83</sup> Max Bobyx, 'Safety4Sea: The Cyber Risk Landscape' (YouTube, 21 May 2018) at 13 minutes 12 seconds <[www.youtube.com/watch?v=cYte29pHTLE&feature=emb\\_logo](https://www.youtube.com/watch?v=cYte29pHTLE&feature=emb_logo)> accessed 27 October 2020.

<sup>84</sup> *ibid*.

<sup>85</sup> *Guidelines* (n 60), no 1.5.

<sup>86</sup> *ibid* no 21.2.

<sup>87</sup> *ibid* no 21.2.

<sup>88</sup> *ibid* no 1.1.

<sup>89</sup> *ibid* no 2.1.1.



Lastly, the Guidelines define cyber risk management as the ‘process of identifying, analysing, assessing, and communicating a cyber-related risk and accepting, avoiding, transferring, or mitigating it to an acceptable level, considering the costs and benefits of actions taken to stakeholders.’<sup>90</sup>

### 3.2.2 Intent/motive

The IMO Guidelines are intended for all shipping organisations in order to strengthen safety and security management practices in the cyber domain (digitalisation, integration, and automation), which are resilient to cyber risks.<sup>91</sup> Specifically, it emphasises the need to protect both the OT and IT on board a vessel.<sup>92</sup> The Guidelines’ main focus is on the risk management approach to cyber risks; this should be incorporated in existing industry safety and security procedures.<sup>93</sup>

### 3.2.3 Functional elements

The Guidelines outline important recommendations for cyber risk management across maritime companies. It highlights some functional elements that can be implemented concurrently on a continuing basis within an organisation’s risk management framework. These functional elements are identify, protect, detect, respond, recover.

The ‘identify’ element suggests that all personnel roles and responsibilities related to cyber risk management should be identified. Vulnerable systems, assets, data, and capabilities should also be identified.<sup>94</sup> The ‘protect’ element proposes implementing risk control processes and measures that focus on cyber-attack prevention and contingency planning that ensure continuity regardless of cyber-attack.<sup>95</sup> The ‘detect’, ‘respond’ and ‘recover’ elements are in a sense interrelated with a focus on developing and implementing operations that enable an organisation to detect cyber-attacks, timely respond and restore cyber system impaired due to cyber-attack.<sup>96</sup>

## 3.3 Legal effect of the MSC-Fal.1/Circ.3 guidelines /IMO framework

UNCLOS is the landmark law of the sea instrument. There are many references to ‘competent’ or ‘appropriate’ international organisations in UNCLOS.<sup>97</sup> It is generally understood that the various references to ‘competent international organisation’ in UNCLOS refers to the IMO.<sup>98</sup>

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<sup>90</sup> *ibid* no 3.1.

<sup>91</sup> Dromon Bureau of Shipping, ‘Guidelines on Maritime Cyber Risk Management’ (DBS, 23 October 2018) <[www.maritime-cyprus.files.wordpress.com/2018/11/dromon-Guidelines-on-maritime-cyber-riskmanagement.pdf](http://www.maritime-cyprus.files.wordpress.com/2018/11/dromon-Guidelines-on-maritime-cyber-riskmanagement.pdf)> accessed 27 October 2020.

<sup>92</sup> Guidelines (n 85) nos 2.1.2 and 2.1.5.

<sup>93</sup> *ibid* no 2.1.8.

<sup>94</sup> Guidelines (n 92), no 3.5(1).

<sup>95</sup> *ibid* no 3.5(2).

<sup>96</sup> *ibid* no 3.5(3-5).

<sup>97</sup> Beckman and Sun (n 55) 218.

<sup>98</sup> *ibid*.



UNCLOS imposes a duty on states to respect and apply generally accepted international standards,<sup>99</sup> otherwise known as customary international law. According to Sohn there are different ways that customary international law is updated.<sup>100</sup> One is when an international agreement incorporates certain rules considered to be generally accepted or an agreement is considered as declaratory of certain generally accepted rules binding on all states.<sup>101</sup> It has been argued that the source of IMO instruments' legitimacy derives from UNCLOS tacit reference to IMO as a 'competent international organisation' and the duty on states to apply and respect generally accepted international standards and rules.<sup>102</sup>

It could therefore be argued that the IMO Guidelines on Maritime Cyber Risk Management derives its legitimacy from UNCLOS, and that the IMO and its instruments have been incorporated into UNCLOS by reference.<sup>103</sup> The IMO Guidelines and Resolution can be described as international soft law. Soft law has been described as an international instrument that has some attributes of a formal treaty but however falls short of the legal requirements to be one.<sup>104</sup>

The implementation of IMO circulars, guidelines, resolutions by a majority of industry actors creates a norm. This is because it is obvious that 'the accumulation of recurrent resolutions can generally contribute to the creation of such a new general customary rule'.<sup>105</sup> Soft law gives industry actors a way to be proactive and to continually improve and stay ahead of the competition.<sup>106</sup> One of the ways to achieve this is in improving safety and utilising new technologies. Compliance with the IMO Guidelines on Cyber Risk Management is a way for maritime companies to show that they take safety seriously.

### 3.4. Positive attributes of the IMO framework on cyber risk management

One of the positive attributes of the IMO's framework on cyber risk management is that it recognises the link between cybersecurity and maritime safety. It is a fact that the maritime industry relies heavily on satel-

99 Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS. 397, arts 21(2), 211(2), 211(5), 211(6) and 226(1).

100 Louis Sohn, 'Generally Accepted International Rules' (1986) 61(3) Wash L Rev.

101 Another way is when international agreements provide those rules to be adopted by an international organisation, shall be considered as generally accepted unless a state expressly opts out.

102 Beckman and Sun (n 97) 221.

103 Another rule incorporated by reference into UNCLOS is the rule that "foreign ships exercising right of innocent passage through the territorial sea shall comply with all... generally accepted international regulations relating to the prevention of collision at sea." This rule is binding on flag states of ships that did not ratify the convention to which those regulations are annexed. Louis Sohn (n 100) 1075.

104 Andrew Guzman and Timothy Meyer, 'International Soft Law' (2011) 2(1) J. Leg. Anal.

105 *ibid* 9.

106 *ibid* 10.



lite-based navigation systems, which are increasingly susceptible to spoofing.<sup>107</sup> Spoofing attacks may paralyse shipping lanes and cause collisions between ships, resulting in injury or loss of human lives and cargo.<sup>108</sup> It was in furtherance of this agenda that Resolution MSC.428(98) encouraged 'all organisations in the maritime industry to ensure that cyber risks are rightly addressed in their Safety Management Systems'.<sup>109</sup>

Another positive attribute of the IMO's regulatory framework on cyber risk management is that it has increased the awareness level of cyber vulnerabilities among the maritime industry. The key to addressing cyber vulnerabilities in the maritime industry is to first identify and acknowledge that maritime infrastructures are susceptible to cyber-attacks (the first functional element of the MSC-FAL.1/CIRC.3) and then to address it.

Maritime companies are expected to file Document of Compliance which will detail cyber awareness level, cyber vulnerabilities identified, and measures taken to build a cyber risk resilient operation. The Document of Compliance are meant to be annually verified. The Guidelines recognise that one of the vulnerable points of attack related to cybersecurity are people. Therefore, it places the responsibility of cybersecurity management on everyone in the organisation.

Incorporating the cybersecurity standards in the ISM Code will ensure that in the event of non-compliance, the appropriate sanctions in the ISM Code can be followed. There are two types of audits,<sup>110</sup> envisaged under the ISM Code: External Audit by the Class on behalf of Flag of the Ship and Internal Audit by the Company. During these audits, the auditor may find some deficiencies and shortcomings. The ISM Code categorises these shortcomings as: observation, minor non-conformity, and major non-conformity.<sup>111</sup> Under the ISM Code, ships cannot sail with a major non-conformity. It can only sail once it has been downgraded to a minor non-conformity after corrective actions must have been taken.<sup>112</sup> Another sanction in the SMS Code is that if the major non-conformity is very serious, the Safety Management Certificate of the ship may be withdrawn.<sup>113</sup> These sanctions would apply if a company breached the cybersecurity standards.<sup>114</sup>

107 Global Navigation Satellite System (GNSS) spoofing involve an actor replicating satellite navigation signals with an identical signal that is strong enough to force out the original transmission. Once the spoof signal is in place, rogue transmissions can mislead onboard navigation systems such as location, velocity and heading. See Chris Lo, 'GPS Spoofing: What's the risk for ship navigation?' (Ship Technology, 15 April 2019), <[www.ship-technology.com/features/shipnavigation-risks/?utm\\_source=Army%20Technology&utm\\_medium=website&utm\\_campaign=Must%20Read&utm\\_content=Image](http://www.ship-technology.com/features/shipnavigation-risks/?utm_source=Army%20Technology&utm_medium=website&utm_campaign=Must%20Read&utm_content=Image)> accessed 31 October 2020.

108 Resolution (n 62) para 4.

109 *ibid*.

110 ISM Code (n 82), arts 12 and 15.

111 *ibid* nos 1.1.8, 1.1.9 and 1.1.10.

112 IMO, 'Procedures Concerning Observed ISM Code Major Nonconformities' (16 December 2002) MSC/Circ 1059 and MEPC/Circ 401, Ref. T4/8.01.

113 *ibid*.

114 SAFETY4SEA, 'Failing to address cyber risk in SMS may lead to detention in US ports' (SAFETY4SEA, 25 November 2020) <<https://safety4sea.com/failing-to-address-cyber-risk-in-sms-may-lead-to-detention-in-us-ports/#:~:text=Failure%20to%20ensure%20cyber%20risk,in%20US%20port%2C%20BIMCO%20warned>> accessed 25 November 2020.



## 4. The case for a comprehensive legal framework on cyber risk management

### 4.1 A critical analysis of the IMO's regulatory framework on cybersecurity

By design, the MSC-FAL.1/CIRC.3 Guidelines, Resolution MSC.428(98), and the ISM Code are meant to be complementary. However, in practice, ship owners tend to apply only parts of the framework.<sup>115</sup> Currently, there is a lack of uniformity in the application of standards.<sup>116</sup>

Part Four critically analyses the current IMO regulatory framework. Then, it makes a case for a comprehensive legal framework on cyber risk management and discusses general recommendations for the industry.

### 4.2 Gaps / limitations in the IMO's framework

#### 4.2.1 Outdated rules

One of the criticisms of the IMO framework is that the cybersecurity rules that came into force in 2021 are outdated. MSC-FAL.1/CIRC.3 Guidelines<sup>117</sup> state as follows:

Effective cyber risk management should also consider safety and security impacts resulting from the exposure or exploitation of vulnerabilities in information technology systems. This could result from inappropriate connection to operational technology systems or from procedural lapses by operation personnel or third parties, which may compromise these systems (e.g., inappropriate use of removable media such as memory stick).

The cloud and artificial intelligence systems are now more prevalent in the maritime industry than when MSC-FAL.1/CIRC.3 was introduced, although the 'Guidelines on Cybersecurity Onboard Ships' (incorporated by reference in the MSC-FAL.1/CIRC.3)<sup>118</sup> address the cyber risk posed by cloud-based storage devices. It is possible that the national maritime administrations, while evaluating companies for compliance, will be more focused on the standards set in the MSC-FAL.1/CIRC.3 or more focused on those set out in the 'Cyber Security Onboard Ships' or other standards like the 'ISO/IEC 27001 standard on information technology-security techniques information security management systems- requirements or the standard outlined in the United States National Institute of Standards and Technology's Framework for Improving Critical Infrastructure Cybersecurity (NIST Framework), all referenced in no. 4.2 and 4.3 of the MSC-FAL.1/CIRC.3 Guidelines.

Certainly, MSC-FAL.1/CIRC.3 supersedes all the other standards referenced within it. This is made clear by the disclaimer at the end of the MSC-FAL.1/CIRC.3 Guidelines indicating that in addition

<sup>115</sup> James Rundle, 'Maritime Cyber Rules Coming in 2021 Are Outdated, Critics Say' (Wall Street Journal, 18 June 2019) <[www.google.com/amp/s/www.wsj.com/amp/articles/matitime-cyber-rules-coming-in2021-are-outdated-critics-say-11563442201](https://www.google.com/amp/s/www.wsj.com/amp/articles/matitime-cyber-rules-coming-in2021-are-outdated-critics-say-11563442201)> accessed 17 November 2020.

<sup>116</sup> *ibid.*

<sup>117</sup> Guidelines (n 94), no 2.1.6.

<sup>118</sup> Guidelines (n 117), nos 4.2 and 4.3. The MSC-FAL.1/CIRC.3 does not address the modern cybersecurity exposures created by mobility, applications, and the cloud.





to the Guidelines, companies are at liberty to adopt any of the aforementioned three standards when preparing their Document of Compliance.

#### 4.2.2 Lack of uniformity

There has been a noticeable inconsistency in the implementation of the requirements embodied in the IMO's regulatory framework on cyber risk management. National and regional institutions are necessary partners in the implementation of IMO's agenda on cyber risk management. Some national institutions, through their port authorities, prioritise the provisions of the International Ship and Port Facility Security Code (ISPS) over those of the ISM Code on cyber risk management.<sup>119</sup>

The ISPS Code requires that companies take appropriate measures on all ships to identify and assess threats and prevent and recover from security incidents.<sup>120</sup> The focus of the ISPS Code is on physical security threats and related protective measures. However, the non-mandatory part B, paragraph 8.3 of the ISPS Code refers to 'computer systems and networks' as elements on board or within the ship that should be addressed in the context of ship security assessments and safeguard against unauthorised access. The ISM Code provides a comprehensive framework for addressing cyber risks that affect the safe and environmentally sound operation of ships, while the ISPS Code focuses on dealing with external threats, malicious actions, and physical security.<sup>121</sup> The cyber risk provisions in the ISPS Code are tied to the approved ship security plan.<sup>122</sup>

In MSC/101/4/4, it was argued that for the sake of uniformity in applying cyber risk management, port authorities should adopt and prioritise the ISM Code instead of the ISPS Code.<sup>123</sup>

Yet, the fact that companies are free to adopt industry developed cybersecurity standards, such as ISO 27001/27002 and the BIMCO standard may lead to uneven application of the rules. The nature of a company's cyber vulnerabilities should determine the type of industry cybersecurity standards the company adopts, it would nonetheless be better if there were more guidance from the IMO regarding the type of cybersecurity standards that should be applied.<sup>124</sup> The BIMCO standard is more tailored towards the maritime industry while ISO 27002 takes a generic approach that can be applied to all industries.<sup>125</sup> The BIMCO standard is more focused on OT while the ISO 27002 is more focused

119 IMO, MSC 101

120 International Ship and Port Facility Security (ISPS) Code (1 July 2004) SOLAS/CONF.5/34 Annex 1, part a, Section 7-9.

121 MSC101/4/4 (n 119) para 9.

122 *ibid* para 11.

123 *ibid* para 15.

124 Matthew Allport, 'ISO 27001 vs NIST Cybersecurity Framework' (Compliance Council Blog, 21 December 2018) <<https://blog.compliancecouncil.com.au/blog/iso-27001-vs-nist-cybersecurityframework>> accessed 7 November 2021. ISO 27001 is an internationally recognised approach for establishing and maintaining an SMS and is geared towards meeting the demands of the General Data Protection Regulation (GDPR). NIST, on the other hand was created primarily to help US federal agencies and organizations better manage their cybersecurity risk, ISO 27001.

125 Stefanos Spanos, 'Cyber Security in the Maritime Industry-A Comparative Study' (Isonike, 13 January 2021) <<https://www.isonike.com/?q=node/121>> accessed 29 August 2021.



on IT and indirectly focuses on OT.<sup>126</sup> The BIMCO standard applies directly to ships, while ISO 27002 focuses on the organisation and their operating sites.<sup>127</sup>

There are common grounds between the two cybersecurity frameworks and they can be integrated.<sup>128</sup> For instance, the elements of ISO 27002 can be leveraged upon for IT vulnerabilities while the BIMCO standard can be leveraged to address OT vulnerabilities.

Permission to adopt different cyber security standards could constitute a problem if a wrong standard is applied for a particular vulnerability. The essence of the Guidelines is that the right standard is deployed for the right vulnerability. The IMO offering additional guidance or clarity on this would really help maritime companies to know what standard to deploy for a particular vulnerability. Central to the success of the framework is uniformity, in ensuring that like problems or threats are addressed in the same manner.

#### 4.2.3 Lack of crew training

Many crew members do not understand basic cybersecurity requirements or how to recognise / respond threats.<sup>129</sup> 'Without this rudimentary understanding, it is impossible to train crews or take actions to protect assets.'<sup>130</sup> The crew of a ship bears great responsibility under the ISM Code,<sup>131</sup> but the overall responsibility lies with the master.<sup>132</sup> According to the ISM Code, one of the duties of the master is to review the effectiveness of the SMS and verify compliance with specific requirements.<sup>133</sup> The master is required to report any noted deficiencies in the SMS to the shore-based management.<sup>134</sup> More training is needed for crew so they know how to comply with cybersecurity protocols through prevention, response and recovery in event of cyber disruption. Although there are now Standards of Training, Certification, and Watchkeeping (STCW) designed cybersecurity courses for crew members, a lot of companies are yet to take advantage of this, for example the Nautical Institute provides training courses.<sup>135</sup>

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<sup>126</sup> *ibid.*

<sup>127</sup> *ibid.*

<sup>128</sup> *ibid.*

<sup>129</sup> According to Andrew Kinsey, Marine consultant at Allianz, see *Rundle* (n 115) para 19.

<sup>130</sup> *ibid.*

<sup>131</sup> ISM Code (n 110) no 6.

<sup>132</sup> *ibid* no 5.

<sup>133</sup> *ibid* no 5.1.4.

<sup>134</sup> *ibid* no 5.1.5.

<sup>135</sup> The Nautical Institute, 'Cyber Security at Sea' (Institute News, 25 May 2021) <[www.nautinst.org/career-development/ni-academy/online-courses/cyber-security-at-sea.html](http://www.nautinst.org/career-development/ni-academy/online-courses/cyber-security-at-sea.html)> accessed 11 January 2021.



#### 4.2.4 Sanctions

Another criticism is the question of liability that might arise out of a company's failure to adhere to the IMO Framework. For example, ships use AIS, which means that ships are increasingly connected to each other and to port terminals.<sup>136</sup> As stated earlier in this paper,<sup>137</sup> sanctions embedded in the ISM Code such as withdrawal of SMS certificate are now applicable in the event of failure of a maritime company to comply with the framework. Suppose a chartered ship linked with the fleet of a maritime company was hacked due to the failure of the owner of the chartered ship to effectively address its cyber vulnerabilities. In this case, there are no sanctions in the ISM Code for the chartered ship. Another illustration is when a maritime company IT infrastructure was hacked but the fault is that of the IT support services provider who failed to address its cyber vulnerabilities. There are no assigned roles or sanctions for IT support service providers in the maritime industry in the IMO framework.

#### 4.2.5 The IMO framework appears very ship-focused

An integral part of the IMO framework on cyber risk management is the mandate for 'companies to address and incorporate cyber risk management into their SMS'. As stated earlier, the goal of the ISM Code is to ensure safety of life (marine and non-marine) at sea. Asking maritime companies to anchor their cyber defence on the SMS suggests that the priority of the IMO framework on cyber risk management is to prevent cyber-attacks on board a ship or when a ship is at sea. However, the most devastating cyber-attacks (NotPetya ransomware attack suffered by Maersk, data centre attack on the Mediterranean Shipping Company, COSCO and CMA CGM) so far suffered by the maritime industry have targeted shore-based systems such as offices, data centres and container booking systems.<sup>138</sup> As rightly stated by Ken Munro<sup>139</sup> 'if you can't book a container, there's no point in having the ship'. A cyber defence strategy anchored on the SMS, will ensure that prevention of cyber-attacks on board ships is prioritised more than the shore-based systems. Admittedly, a successful cyber-attack at sea, as shown later in this paper, could prove more devastating than reported attacks to date. However, equal attention must be paid to shore-based systems.

### 4.3 The case for a comprehensive legal framework on cyber risk management

Although progress has been made by incorporating cybersecurity into the ISM Code, some experts believe that work remains to be done to avoid catastrophic effects of cyber-attacks on the maritime industry. The maritime industry lags behind other industries in terms of cyber threat preparedness. According to Rory Hopcraft and Martin Keith, in the aviation industry, cyber threat is approached

<sup>136</sup> Hassiba Benamara, Jan Hoffman, Luisa Rodriguez and Frida Youssef, 'Container Ports: The Fastest, the Busiest, and the Best Connected' (UNCTAD, 07 August 2019) <<https://unctad.org/news/container-portsfastest-busiest-and-best-connected>> accessed 13 December 2020.

<sup>137</sup> ISM Code (n 131) no 3.4.

<sup>138</sup> Catalin Cimpanu, 'All Four of the world's largest shipping companies have now been hit by cyber-attacks' (ZDNet, 28 September 2020) <[www.zdnet.com/article/all-four-of-the-worlds-largest-shipping-companies-have-now-been-hit-by-cyber-attacks/](http://www.zdnet.com/article/all-four-of-the-worlds-largest-shipping-companies-have-now-been-hit-by-cyber-attacks/)> accessed 2 December 2020.

<sup>139</sup> A cyber security researcher at Pen Test Partners, *ibid*.



from a security perspective rather than through the lenses of insurance.<sup>140</sup> In other words, the aviation industry does not allow increased cost of insurance to influence its cyber defence or resilience strategy.

According to a survey of more than 2400 risk management experts in the maritime sector conducted in 2019 by Allianz in its Allianz Risk Barometer 2019, cyber incidents are the second most significant risk in the maritime sector.<sup>141</sup> The study estimated that a cyber-attack at sea in a worst-case scenario leading to collision and grounding of two large vessels in an environmentally sensitive location could result in the significant loss of life, untold environmental damage and financial losses totalling as much as US\$4 billion, which includes wreck removal expenses of the two ships, passenger, and crew liabilities of the two vessels, litigation costs for the two vessels, and cargo liabilities etc.<sup>142</sup>

The role for the IMO to create a comprehensive legal framework on cyber risk management is challenged by the complicated nature of cyber risk. The linkage between onboard and terrestrial systems creates problems for the IMO.<sup>143</sup> Although UNCLOS has created obligations for flag and non-flag states, much of the infrastructure that enables communication between ships and control towers is land based, which means it is outside the control of the IMO. This land-sea infrastructure interdependence makes it more challenging for the IMO to address cyber risk alone without the involvement of sovereign states which regulate and own the infrastructure. For instance, the issue of submarine cabling is often met with resistance and outright rejection within IMO discussions.<sup>144</sup> This demonstrates the fact that the cybersecurity challenge is an interdependent global challenge which requires international collaboration, coordination and communication to resolve.<sup>145</sup>

Another complexity is that many ships are equipped with specialist equipment not designed with cybersecurity in mind. The different OT found on ships has made it difficult for the IMO to formulate uniform cybersecurity Guidelines, especially since the manufacturers of the OT are also different.

The above complexities likely account for the IMO's ad hoc and perhaps soft approach to the issue

140 Hopcraft Rory and Martin Keith, 'Effective Maritime Cybersecurity Regulation - The Case for a Cyber Code' (2018) 14(3) JIOR; The One Brief, 'Finding the Weak Link in the Supply Chain: Cyber Lessons from the Aviation and Marine Industries' (2017) <<https://theonebrief.com/supply-chain-cyber-lessons-aviationmarine/>> accessed 2 December 2020. tries' (2017) <<https://theonebrief.com/supply-chain-cyber-lessons-aviationmarine/>> accessed 2 December 2020.

141 In a survey of over 2400 risk management experts in the maritime sector conducted in 2019 by Allianz in its Allianz Risk Barometer 2019, cyber-attacks were ranked second next to natural catastrophe as the most important threats to the maritime industry. See Allianz Global Corporate and Specialty, 'Safety and Shipping Review 2019' (2019) <[www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/reports/AGCS-Safety-Shipping-Review2019.pdf](http://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/reports/AGCS-Safety-Shipping-Review2019.pdf)> accessed 11 November 2020.

142 *ibid* 6.

143 Hopcraft and Martin (n 140).

144 *ibid* 3 and 9.

145 *ibid* 9.



of cybersecurity.<sup>146</sup> Legislation in this industry tends to be passed at an alarmingly slow pace.<sup>147</sup> Often, it is hardly possible to negotiate a new convention or amendment to an existing convention without running into conflicts with existing conventions.<sup>148</sup> The ‘Tacit Acceptance Procedure’ is used by the IMO to fast track the amendment of an instrument. This procedure allows an amendment to take effect on a specific date unless objections from a specified number of parties are received.<sup>149</sup> Tacit acceptance procedure has been criticised for deviating from the general principle of international law, which only allows a treaty to be binding on the States that expressly consent to it.<sup>150</sup>

In response to this bureaucratic challenge, the IMO uses codes to enforce regulations and ensure safe shipping. The IMO derives its authority from SOLAS to use codes to enforce safe shipping.<sup>151</sup> SOLAS among others<sup>152</sup> is the umbrella instrument for codes, which are adopted under its authority through a provision in the convention as amended by an MSC resolution, which provides authority for the code. These Codes are ISM Code, International Code for Ships Operating in Polar waters 2017 (this falls under both SOLAS and MARPOL) and the International Ship and Port Facility Security (ISPS) Code 2004.

Some scholars,<sup>153</sup> have called for the creation of a cyber code, a necessity in the maritime industry, which would create independent guidance and regulations to comprehensively address cyber risk management in the maritime industry in the manner of the Polar Code. The Polar Code stipulates regulations applicable to ships working in polar waters and includes mandatory provisions enforceable under the SOLAS convention and MARPOL for the Part II provisions. The goal of the Polar Code is to promote maritime safety in polar waters, preservation of marine environment and protection of local economies from potential casualties.<sup>154</sup>

146 The IMO’s legal framework on cyber risk management can be described as soft. According to Shaffer and Pollack, “the realm of soft law begins once legal arrangements are weakened... if an arrangement is formally binding but its content is vague...[and] if an agreement does not delegate authority to a third party to monitor its implementation or to interpret or enforce it”; Gregory C Shaffer and Mark A Pollack, ‘Hard vs Soft Law: Alternatives, Complements and Antagonists in International Governance’ (2010) 94 (706) MLR, 715.

147 A good example is The International Convention for Control and Management of Ships 2004.

148 Erik Rosaeg, ‘Soft Law in the Conventions of Maritime Law’ (1996-2015) Sc. St. L 270.

149 Capt Rajeev Jassal, ‘Understanding IMO Conventions, Resolutions and Circulars’ (MySeaTime, 25 January 2016) <[www.myseatime.com/blog/detail/understanding-imo-conventions-resolutions-and-circulars](http://www.myseatime.com/blog/detail/understanding-imo-conventions-resolutions-and-circulars)> accessed 3 December 2020.

150 Shi Le, ‘Successful Use of the Tacit Acceptance Procedure to Effectuate Progress in International Maritime Law’ (2016) 11(2) U.S.F MLJ.

151 The International Convention for the Safety of Life at Sea Convention (adopted 1 November 1974, entered into force 25 May 1980) 1184 UNTS 3, SOLAS vests the IMO with the authority to regulate maritime shipping to ensure safety, security, legal and efficiency standards.

152 SOLAS is not the only one; we have the STCW Convention too.

153 Hopcraft and Martin (n 143) 7.

154 Aldo Chircop, ‘Sustainable Arctic Shipping- Are Current International Rules for Polar Shipping Sufficient?’ (2016) 11(3) JOT 39-51.



#### 4.3.1 The Polar Code as a model

The Polar Code is a good example to follow because it is 'holistic, goal-oriented and risk- based'.<sup>155</sup> It is a functional based regulation model in that 'the rules are goal oriented so that ship owners are expected not to simply comply with a standard or rule but also to produce the expected safety and environmental outcomes'.<sup>156</sup>

The Polar Code is divided into two parts: maritime safety and marine environment protection. Each part has separate section of mandatory rules (Part IA and Part IB and recommendations (Part IB and IIB)).<sup>157</sup> Part I covers a broad range of matters such as design, construction, and equipping (certification and surveying, ship structure, stability and subdivision, watertight and weathertight integrity, machinery installations, fire safety, life-saving appliances and arrangements), operations (manual on board, safety of navigation, communication, voyage planning), and crewing (manning and training familiarity).<sup>158</sup> It also provides for the training of polar seafarers in accordance with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (STCW).<sup>159</sup>

#### 4.3.2 A Standalone cyber code

A standalone cyber code that provides for the phasing out of ships and ship designs incompatible with modern cyber defences, periodic mandatory training for crew on cyber security, and a forum for dispute settlement will go a long way in addressing the threat posed to global trade by cyber-attacks.

It has been argued that the use of a cyber code would allow the IMO to emphasise the long-term and specific risks of cybersecurity.<sup>160</sup> It has also been argued that a cyber code will allow for the harmonisation of the different and discrete rules that regulate shipping and the various technical councils that form the IMO. Inputs from different ship registries and administrations, local authority and expertise formed part of the making of the Polar Code. Therefore, a single standalone cyber code would allow for the harmonisation of different regulations into one benchmark document, making it easier to implement and update according to current cyber risk realities.<sup>161</sup> Creating a standalone cyber code that would create responsibilities for the International Association of Classification Societies (IACS) would assist in addressing the challenge. IACS members are engineering organisations who regulate ship design. Creating a role for classification societies in the framework would aid addressing of the problem of cyber security within the maritime industry. IACS can assist the phasing out of ships that are vulnerable to cyber-attacks and lead to the introduction of cyber resilient ships that will meet the requirements of the framework. Classification societies have been involved informally in the process of preparing the

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<sup>155</sup> *ibid* 46.

<sup>156</sup> *ibid*.

<sup>157</sup> *ibid*.

<sup>158</sup> *ibid*.

<sup>159</sup> *ibid* 47.

<sup>160</sup> Hopcraft and Martin (n 153) 7.

<sup>161</sup> *ibid* 7.



maritime industry for a cyber resilient future. For instance, Classification Society DNVGL on 1 July 2018 published its first-class notations called 'Cyber Secure', aiming to help ship owners and operators protect their assets from cyber security threats.<sup>162</sup> This informal role of classification societies could be formalised under a standalone cyber code.

The IMO drawing from the lessons learnt from the application of the ISM and ISPS Codes on cyber risk management should promote the formulation of a cyber code.<sup>163</sup> The maritime industry is not yet receptive to the idea of a cyber code. In fact, the prevailing view is that the ISM Code and SOLAS Chapter IX support effective cyber risk management, and that the ISM Code, more than the ISPS Code, should take the lead in combating cyber-attacks.<sup>164</sup>

Over the past two decades, the ISM Code has made shipping safer and cleaner. In a study commissioned by the IMO in 2005, a group of experts concluded that: 'where the Code is embraced as a positive step toward efficiency through a safety culture, tangible positive benefits are evident.'<sup>165</sup> The ISM Code is not without its critics. One of the criticisms is that the SMS documentation is too lengthy, and contains too much unnecessary text, that could be easily replaced by flow charts and diagrams.<sup>166</sup> The second criticism is that SMS documentation should be ship specific, rather than one size fits all documentation.<sup>167</sup>

An effective legal framework must have a strong enforcement regime. If a code contains sanctions and the sanctions are not enforced, the code is useless. In the maritime industry, flag administrations, classification societies and port state controls are the enforcement authorities. The ISM Code faces implementation challenges. However, if implemented effectively, it would bring many benefits.<sup>168</sup>

This implementation challenge must be addressed by the IMO since the ISM Code is a part of the ground on which the fight against cyber-attacks is based. The IMO should encourage the various port state controls to buy into the IMO's agenda on cyber risk management. Port state control provides inspection of foreign ships in national ports to verify that the condition of the ships complies with international requirements such as the ISM Code among others. The Memoranda of Understanding on Port State Control is the instrument that authorises national port authorities to enforce internation-

162 SAFETY4SEA, 'DNVGL issues cyber security class notations' (SAFETY4SEA, 8 June 2018) <<https://safety4sea.com/dnv-gl-issues-cyber-security-class-notations/>> accessed 10 December 2020.

163 *ibid* 11.

164 MSC101/4/4 (n 121). It was agreed that all aspects of cyber risk management, including physical security aspects of cybersecurity, should be addressed in Ship Security Plans under the ISPS Code. However, this should not be deemed as requiring a company to establish a separate cybersecurity management system operating in parallel with the company SMS.

165 Vandenborn (n 68).

166 *ibid*.

167 *ibid*.

168 Captain Rajeev Jassal 'Seven Important Elements of ISM Code every seafarer must know about' (Seatime Blog, 4 December 2016) <[www.myseatime.com/blog/detail/7-important-elements-of-ism-Codeevery-seafarer-must-know-about](http://www.myseatime.com/blog/detail/7-important-elements-of-ism-Codeevery-seafarer-must-know-about)> accessed 12





al maritime regulations/instruments through inspection of ships.<sup>169</sup> By establishing more consensus among IMO member states, the IMO can address the likely enforcement challenge that may beset cybersecurity standards in the ISM Code.

#### 4.4 Conclusion and recommendations

As it has been shown, the IMO needed to react to the spate of cyber-attacks by coming up with a framework on cyber risk management. The IMO's framework can be described as preliminary and evolving because it started as voluntary and eventually has an ISM Code dimension and may evolve further.

Cybersecurity in the maritime industry is very important, the IMO and the industry cannot afford to be lax about cyber defence. Though full cyber resilience is not realistic or achievable, the industry can do more to improve its cyber defences. The maritime industry continues to rely on artificial intelligence, autonomous systems, and other emerging technologies, with the ultimate goal of deploying ships that can roam the seas uncrewed.<sup>170</sup> To be able to effectively respond to cybersecurity challenge, the maritime industry needs to invest heavily in cyber defence technologies, such as anti-spoofing technology among others.

It has also been shown that the current legal framework on cyber risk management is inadequate. The maritime industry needs a strengthened comprehensive legal framework for cyber risk management. In this article, suggestions for improving the ISM Code have been proposed. However, the ideal course of action is to have a dedicated cyber code adopted to the SOLAS Convention. It is clear from the analysis in this paper, that the approach of the industry to cyber risk management is still lax and could be improved. The IMO should not wait for a major disaster to occur.<sup>171</sup> The approach to cyber risk management should be proactive not reactive.

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169 There are ten Port State Control regimes that have been signed thus far. They are: Europe and the North Atlantic (Paris Memorandum of Understanding); Asia and the Pacific (Tokyo Memorandum of Understanding); Latin America (Acuerdo de Viña del Mar); Caribbean (Caribbean Memorandum of Understanding); West and Central Africa (Abuja Memorandum of Understanding); the Black Sea region (Black Sea Memorandum of Understanding); the Mediterranean (Mediterranean Memorandum of Understanding); the Indian Ocean (Indian Ocean Memorandum of Understanding); and the Riyadh Memorandum of Understanding. The United States Coast Guard maintains the tenth PSC regime.

170 Rundle (n 115).

171 It appears that the IMO has formed the habit of waiting for a major disaster to happen before stepping up to address the problem. It was a series of serious shipping accidents in the 1980s, the worst of which was the roll-off ferry *Herald of Free Enterprise* that capsized at Zeebrugge in 1987, killing 193 of its 539 passengers and crew that led to the enactment of the ISM Code. See Vandenberg (n 165).



# The Legal Situation of the Shipwreck *Nuestra Señora del Juncal*: Ownership and Protection Under International Law

Carlos A. CRUZ CARRILLO\*

## Abstract

On 31 October 1631, the Spanish galleon *Nuestra Señora del Juncal* succumbed to a storm and sank near the coasts of Campeche (Mexico). From a legal perspective, Mexico and Spain retain a legal interest over the wreck as coastal state and flag state, respectively. This article examines the legal situation of the wreck in the light of international law and bilateral instruments between Mexico and Spain. In a first section, this article examines the issue of the ownership by considering the *Juncal* as a Spanish state vessel vested with sovereign immunity. Yet, the article also argues that Spain transferred the ownership of the wreck to Mexico during the state succession of 1836. In a second section, the article examines the general obligation to protect and preserve the *Juncal* as underwater cultural heritage pursuant the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage. This research argues that the general obligation requires from Spain and Mexico a duty to cooperate and due diligence obligations.

**Keywords:** UNESCO 2001, underwater cultural heritage, state succession, cooperation, due diligence

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## 1. Introduction

On 31 October 1631, the *Nuestra Señora del Juncal* (the *Juncal*), one of the flagships escorting the New Spain Fleet, sank during a storm near the coast of Campeche, Mexico<sup>1</sup>. During the second half of the twentieth century, expeditions attempted to find the wreck, although without further information about its location.<sup>2</sup> Archaeologists and historians have relied on Mexican, Spanish and Cuban archives to study *inter alia* the nature and features of the ship, the cargo, the social context of the crew, the route and the possible loca-

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1 Jorge Manuel Herrera Tovar, 'Intentando salvar la nao: decisiones náuticas y quebrantos de esperanza' in Flor Trejo Rivera (ed.), *La Flota de la Nueva España 1630-1631: Vicisitudes y Naufragios* (INAH 2003) 130-140.

2 Roberto Junco and Flor Trejo, 'The 2012 Field Season of the 1630-31 New Spain Fleet Archaeological Project in the Gulf of Mexico' in Paul Johnston (ed), *Underwater Archaeology Proceedings 2016* (Advisory Council for Underwater Archaeology 2016).



tion of the wreck.<sup>3</sup> From a legal perspective, Mexico and Spain have legal interests over the wreck as coastal state and flag state, respectively. Both are parties to the United Nations Convention on the Law of the Sea (UNCLOS),<sup>4</sup> and the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage (2001 UNESCO Convention),<sup>5</sup> which constitute the main legal framework to protect underwater cultural heritage. Furthermore, certain bilateral instruments are relevant to elucidate those legal interests, namely the 1836 Definitive Treaty of Peace and Friendship between Mexico and Spain (1836 Santa María-Calatrava Treaty)<sup>6</sup> and the 2014 Memorandum of Understanding for Cooperation in the Identification, Management, Research, Protection, Conservation and Preservation of Underwater Cultural Heritage, (2014 MoU).<sup>7</sup>

The available historical and archaeological information enables the legal analysis of at least two aspects of the wreck: the ownership, and the rights and obligations that Spain and Mexico have towards the protection of the wreck. The scholarship on the governance of underwater cultural heritage before and after the 2001 UNESCO Convention is vast.<sup>8</sup> This article contributes by examining the particularities surrounding the ownership of the *Juncal*, and the rights and obligations of each state. Concerning ownership, this article examines the rule of state property as a first argument. It builds upon the rule of state succession to argue that, after the 1836 state succession between Spain and Mexico, the former could have renounced any rights over the wreck. This argument seeks to foster an alternative to the argument of state property and immunity over warships and official vessels carrying cargo extracted from former colonies. Regarding the protection of the wreck, this article explores the obligations that Spain and Mexico should observe under international law, to protect the wreck against natural deterioration and commercial exploitation. In this regard, the paper highlights the bilateral cooperation efforts between Spain and Mexico towards the protection of underwater cultural heritage, which represents good practice.

3 Some historical and archaeological studies analysing these and other aspects are: Flor Trejo (ed), *La Flota de la Nueva España 1630-1631: vicisitudes y naufragios* (INAH 2003); Fernando Serrano Mangas, *Los tres credos de don Andrés de Aristizábal: Ensayos sobre los enigmas de los naufragios de la Capitana y la Almiranta de la Flota de la Nueva España* (Universidad Veracruzana 2012).

4 United Nations Convention on the Law of the Sea, (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 3 (UNCLOS).

5 Convention on the Protection of the Underwater Cultural Heritage, (adopted 2<sup>nd</sup> November 2001, entered into force on 2nd January 2009) 2562 UNTS 3 (2001 UNESCO Convention).

6 Tratado definitivo de paz y amistad entre la República Mexicana y su Majestad la reina gobernadora de las Españas, (Mexico-Spain) (adopted 28 December 1836, entered into force for Mexico 28 February 1838, for Spain 14 November 1837), Article 1 <[https://aplicaciones.sre.gob.mx/tratados/muestratratado\\_nva.sre?depositario=0&id\\_tratado=613](https://aplicaciones.sre.gob.mx/tratados/muestratratado_nva.sre?depositario=0&id_tratado=613)> accessed 24 November 2021.

7 Memorandum of Understanding for Cooperating in the Identification, Management, Research, Protection, Conservation and Preservation of Underwater Cultural Heritage (Mexico-Spain) (adopted in Mexico-Spain 5 and 10 June 2014) (2014 MoU).

8 Some comprehensive studies are: Roberta Garabello and Tullio Scovazzi, *The protection of the underwater cultural heritage: before and after the 2001 UNESCO Convention* (Brill 2003); Sarah Dromgoole, *Underwater Cultural Heritage and International Law* (CUP 2013); Patrick O'Keefe, *Shipwrecked heritage: a commentary on the UNESCO Convention on Underwater Cultural Heritage* (2<sup>nd</sup> edition, Institute of Art and Law 2014); Marine They, *La protection internationale du patrimoine culturel de la mer* (Brill/Nijhoff 2018); Valentina Vadi, *Cultural Heritage in International Investment Law and Arbitration* (CUP 2014) 137-160, 240-296.



This article presents four main sections. First, it provides a contextual overview of the governance of underwater cultural heritage. Second, it presents an historical and geographical factual background of the *Juncal*. Third, the article examines the arguments concerning ownership. Finally, this article elaborates on the obligations that Mexico and Spain should observe under the 2001 UNESCO Convention.

## 2. Governance of underwater cultural heritage

Technological development opened a new chapter in ocean exploration, including access to shipwrecks located on the deep sea-bed. In this context, maritime archaeology developed in the second half of the twentieth century because of this. From the use of scuba diving to the more recent LiDAR scanners<sup>9</sup> or remotely operated underwater vehicles (ROV)<sup>10</sup> powered with artificial intelligence and other features.<sup>11</sup> Unfortunately, as elsewhere, some governments and research institutions may be unable to afford the newest technologies, and they instead rely on private companies with the financial means and infrastructure to conduct underwater operations.<sup>12</sup> Issues arise when these private companies launch expeditions with commercial purposes. An example is Thomas G. Thompson, who discovered the *SS Central America* in 1988, and obtained funding from investors to bring the valuable cargo to the surface. The outcome was the loss of important cultural objects.<sup>13</sup> Another example is the British vessel *Diana*, who sank in 1817. In that case, Malaysia contracted a salvage company to search and locate the wreck; bring the cargo to the surface; restore it; and arrange for the auction of the items by the auction house Christie's.<sup>14</sup> The salvage company recovered 24,000 pieces of Chinese porcelain, from which Malaysia reserved from sale some items, leaving the rest for the auction.<sup>15</sup> As explained by Bass, treasure hunting does not equate to archaeology in societal value largely because salvage companies aim to achieve profit in order to repay the financial backers of their search and salvage operations, even those inclined to conserve the nonsalable items from their sites cannot wait for decades to repay sponsors.<sup>16</sup> It is also necessary to shift the cultural conception from shipwrecks as treasures to shipwrecks as cultural heritage.<sup>17</sup> From an archaeological perspective, shipwrecks

9 Erin Blakemore, 'Lasers are driving a revolution in archaeology' (*National Geographic*, 29 July 2019) <[www.nationalgeographic.com/culture/article/lasers-lidar-driving-revolution-archaeology](http://www.nationalgeographic.com/culture/article/lasers-lidar-driving-revolution-archaeology)> accessed 24 November 2021.

10 George Bass, 'The Development of Maritime Archaeology' in Ben Ford, Donny Hamilton, and Alexis Catsambis, *The Oxford Handbook of Maritime Archaeology* (OUP 2013), 4-10, 15-16.

11 Ocean One is the latest ROV's powered with artificial intelligence and haptic feedback systems. B. Carey, 'Maiden voyage of Stanford's humanoid robotic diver recovers treasures from King Louis XIV's wrecked flagship' (*Stanford News*, 27 April 2016) <<https://news.stanford.edu/2016/04/27/robotic-diver-recovers-treasures/>> accessed 24 November 2021.

12 Ulrike Guerin, 'La Convención de 2001 y el Desarrollo Sostenible' (2015) 13 *Cultura y Desarrollo* 10-11; Vadi (n 8) 156.

13 Concepción de Leon, 'Treasure Hunter Notches 5<sup>th</sup> Year in Prison for Refusing to Forfeit His Loot' (*The New York Times*, 19 December 2020) <[www.nytimes.com/2020/12/19/us/tommy-thompson-gold-treasure-hunter.html](http://www.nytimes.com/2020/12/19/us/tommy-thompson-gold-treasure-hunter.html)> accessed 24 November 2021.

14 *Malaysian Historical Salvors SDN BHD v The Government of Malaysia*, ICSID Case No. ARB/05/10, Award of Jurisdiction, 17 May 2007, paras 8-10.

15 *ibid*, paras 13-14.

16 Bass (n 10) 13.

17 Guerin (n 12) 11; Bass (n 10) 13-14.



are time capsules, well preserved by the ocean, which provide vast information on the social, economic, political or anthropological development of mankind in a determined period of time and region<sup>18</sup>

In international law, the conception of these objects developed to the point of considering them as cultural heritage and prohibiting their commercialisation.<sup>19</sup> A first stage of this development is the 1982 UNCLOS, which governs these objects as ‘archaeological objects’ in two provisions. Article 149 fosters the protection of shipwrecks for the benefit of mankind as a whole, and to pay due regard to preferential rights of states of historical or cultural origin.<sup>20</sup> Article 303 follows the same pattern and enables coastal states to exercise jurisdiction to this end over the contiguous zone. It also recognizes the rights of identifiable owners, the law of salvage or other rules related to cultural exchanges.<sup>21</sup> Nonetheless, the convention is silent on aspects such as the commercialisation of shipwrecks or the applicable regime to shipwrecks found between the contiguous zone of a state and its exclusive economic zone.<sup>22</sup> As an attempt to regulate this vacuum, the 2001 UNESCO Convention promotes the protection and preservation of underwater cultural heritage. The convention defines ‘underwater cultural heritage’ as all traces of human existence having a cultural, historical or archaeological character, which have been partially or totally under water, periodically or continuously, for at least 100 years, such as vessels or any part thereof, their cargo or other contents, together with their archaeological and natural context. The definition also includes sites, structures, buildings, artefacts, human remains, and objects of prehistoric character. It excludes pipelines, marine cables and other installations still in use, placed on the seabed.<sup>23</sup> As governing principles, the convention is founded on the obligation to cooperate, the obligation to preserve underwater cultural heritage for the benefit of the humanity, the prohibition of commercialising cultural heritage<sup>24</sup>, due diligence obligations aimed at protecting cultural heritage, the preference for preservation *in situ*, among others.<sup>25</sup>

For many years, treasure hunters relied on admiralty law rules such as salvage law and the law of finds for their ownership over the wreck and its cargo.<sup>26</sup> Under salvage law, a salvage operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or any other waters

18 P. Pomey, ‘Defining a Ship: Architecture, Function, and Human Space’ in B. Ford, D. L. Hamilton and A. Catsambis, *The Oxford Handbook of Maritime Archaeology*, (OUP 2013) page 25; S. Willis, *Shipwreck: A history of disasters at sea* (Quercus 2009) 12.

19 For a comprehensive overview on this development: Dromgoole (n 8) 28-64.

20 UNCLOS, Article 149, Myron Nordquist, Shabtai Rosenne (et al) *United Nations Convention on the Law of the Sea: A Commentary*, Vol. VI, (Brill 2003) 226-232; Tullio Scovazzi, ‘Article 149’ in Alexander Proelß (ed), *The United Nations Convention on the Law of the Sea: A Commentary* (C.H. Beck 2017) 1053-1058.

21 UNCLOS, Article 303, Myron Nordquist, Shabtai Rosenne (et al) *United Nations Convention on the Law of the Sea: A Commentary*, Vol. V (Brill 1989) 158-162.

22 Tullio Scovazzi, ‘The Law of the Sea Convention and Underwater Cultural Heritage’ (2012) 27 IJML 757 and 759.

23 2001 UNESCO Convention, Article 1 (a).

24 2001 UNESCO Convention, Article 2; for a comprehensive analysis on these principles: They (n 8) 358-435.

25 For a general overview of the 2001 UNESCO Convention: Dromgoole (n 8) 59-64; Markus Rau, ‘The UNESCO Convention on Underwater Cultural Heritage and the International Law of the Sea’ (2002) 6 *Max Planck Yearbook of United Nations Law* 387-472.

26 On this trend of litigation: James A.R. Nafziger, ‘The Evolving Role of Admiralty Courts in Litigation Related to Historic Wreck’ (2003) 44(1) *HarvIntLJ* 253-264.



whatsoever.<sup>27</sup> The law of finds provides that a finder of abandoned property be entitled to ownership.<sup>28</sup> On this point, two considerations are raised. First, the convention underscores the prohibition to exploit underwater cultural heritage for commercial purposes.<sup>29</sup> As will be explained in subsequent sections, this creates an umbrella framework that obliges states to adopt, *inter alia*, domestic legislation to criminalise activities incompatible with the convention.<sup>30</sup> A second consideration is the relation between the rules of admiralty law and the regime of the 2001 UNESCO Convention. In this regard, the convention limits the use of the law of salvage and law of the finds to those cases where a state authorizes it and when the operation ensures that any recovery achieves its maximum protection.<sup>31</sup> To this aim, the convention includes as an annex the Rules for Activities Directed at Underwater Cultural Heritage, which function as binding standards for the handling of underwater cultural heritage sites.<sup>32</sup> The rules are clear in prohibiting the commercialisation of underwater cultural heritage, but they allow for the use of necessary ancillary services and the deposition of underwater cultural heritage under certain parameters.<sup>33</sup> That is to say, states can request the services of salvage companies or other private entities to assist with maritime archaeology operations designed under the parameters of the convention and its rules. In fact, salvage contracts aimed at recovering underwater cultural heritage can be deemed as a foreign direct investment as long as they contribute to the development of the host state.<sup>34</sup>

Furthermore, regional or bilateral legal instruments result in an additional reference for a proper governance of underwater cultural heritage. For example, the Agreement concerning the Shipwrecked Vessel *RMS Titanic* - negotiated by the United Kingdom, the United States of America, France and Canada, but only ratified by the first two – depicts a legal framework based on UNCLOS, where the parties shall adopt substantive and procedural measures towards the conservation and curation of the *Titanic*.<sup>35</sup> Inclusively, the agreement comprises binding rules of archaeological operation, as those included in the 2001 UNESCO Convention.<sup>36</sup> Additional examples can be found in soft law instruments such as the MoU 2014 concluded between Spain and Mexico to cooperate in the protection and preservation of underwater cultural heritage.<sup>37</sup>

27 IMO, The International Convention on Salvage (adopted in London on 28 April 1989) Article 1(a); For a comprehensive analysis on salvage law: Simon Baughen, *Shipping Law*, (6<sup>th</sup> edition, Routledge 2015), 287-309 *The Blackwall*, US Supreme Court, 77 U.S. 10 Wall. 11 (1869) 77.

28 Dromgoole, (n 8) 683.

29 2001 UNESCO Convention, Article 2(7) and Rule 2 of the Annex.

30 2001 UNESCO Convention, Articles 16 and 17.

31 2001 UNESCO Convention, Article 4; Guido Cardazzi, 'The Crucial Compromise on Salvage law and the Law of Finds', in Garabello and Scovazzi (n 3) 194-195.

32 Under Article 33 of the 2001 UNESCO Convention, these Rules are an integral part of the treaty.

33 Annex to the 2001 UNESCO Convention, Rule 2 a) and b).

34 *Malaysian Historical Salvors SDN BHD v The Government of Malaysia*, ICSID Case No. ARB/05/10, Decision on the application for Annulment, 16 April 2009, para 61.

35 Agreement concerning the Shipwrecked Vessel *RMS Titanic* (entered into force on 18 November 2019) 8 UKTS 3, Preamble, Article 3 to 6 (Agreement concerning the *Titanic*).

36 Agreement concerning the *Titanic*, Preamble and Annex: Rules concerning activities aimed at the *RMS Titanic* and/or its artefacts.

37 2014 MoU.



In sum, the rules of international law aimed at protecting underwater cultural heritage has developed to the stage of prohibiting the commercialisation of these objects and requiring states to adopt domestic measures to that end.

### 3. The fate of the *Juncal*

The story of the *Juncal* involves a series of unfortunate events derived from negligence and the urgency of the Spanish Crown to stabilise its finances with valuable cargo coming from the colonies. To contextualise this, let us remember that the Spanish Treasure Fleet was one of the main economic pillars of the Spanish Crown.<sup>38</sup> The Regulations of 1564 provided for the dispatch of two fleets: the New Spain fleet, covering Mexico, Honduras and the Greater Antilles; and the Tierra Firme fleet, covering Panama, Cartagena, Santa Maria and other south American ports.<sup>39</sup> To protect these merchant convoys against pirates, corsairs and other countries, Spain and private investors designed different navies to protect their interests. Among them, the Navy of the Oceans, which protected the Spanish coasts, escorted the merchant fleets toward and on their return from the Canaries Islands. The Royal Navy of Indies, composed by eight galleons, escorted the Tierra Firme fleet and on the return journey, transported the royal treasure and precious metals from private investors. The Navy for the New Spain fleet composed of two ships *Capitana* and *Almiranta* escorted the fleet and transported the royal treasure.<sup>40</sup> Sometimes, the fleets and navies would meet at the Greater Antilles to set sail together to Spain. The *Juncal* was part of the Navy of the New Spain fleet.

In the mid seventeenth century, the Spanish crown and investors struggled to gather ships to form the navies that would escort the fleets.<sup>41</sup> An alternative to this was the seizure of private vessels, not necessarily designed as warships and, thus, not in fulfilment with the ship construction regulations of 1618.<sup>42</sup> The *Juncal* was one of these ships seized and prepared to sail with the Navy of the New Spain fleet of 1630-1631. The ship was modified to reinforce its structure that will enable it to carry cannons and cargo.<sup>43</sup> Yet, this proved to be insufficient to carry out the functions of a flagship carrying the significant weight of the royal treasure.

#### 3.1 The sinking

The New Spain fleet of 1630-1631 sailed towards America in 1630, escorted by the *Juncal* and the

38 Patricia Meehan Hermanson, 'Criterios y procedimientos para la elección de navíos insignia: el caso de Nuestra Señora del Juncal, capitana de la Flota de la Nueva España de 1630' in F. Trejo (n 3) 80.

39 *ibid* 81.

40 For an overview on the development of the fleets and navies: José Antonio Caballero Juárez, *El régimen jurídico de las armadas de la Carrera de Indias siglos XVI y XVII*, (Instituto de Investigaciones Jurídicas –UNAM, 1997), 24-72; Meehan Hermanson (n 38) 80-85.

41 Caballero Juárez (n 40) 67-68.

42 On the naval construction requirements, Iván Valdez-Bubnov, *Poder naval y modernización del Estado política de construcción naval española (siglos XVI-XVIII)* (Instituto de Investigaciones Históricas – UNAM, 2011) p.84.

43 Meehan Hermanson (n 38) 31-32.





*Santa Teresa*, reaching the port of Veracruz without incident in October of that year. The fleet began its return journey on 14 October 1631.<sup>44</sup> The itinerary was to reach La Havana (Cuba) to meet the other fleets and sail together to Spain.<sup>45</sup> The *Juncal* and the *Santa Teresa* carried the main treasure of the fleet. Unfortunately, sailing the Gulf of Mexico in October carries the risk of storms and hurricanes, which was the case for the *Juncal* and the fleet under its watch.<sup>46</sup> Before reaching Cuba, the fleet was trapped by seasonal storms, and many ships from the fleet decided to make harbour at a safe port, yet, the *Juncal* and other ships decided to continue through the storm. On 31 October 1631, after sixteen days sailing, the stern of the *Juncal* broke in two and the ship sank in a final attempt to reach the coast of Campeche.<sup>47</sup> Only 39 people survived and later on remained as the more direct testimonies of the wreck location.<sup>48</sup>

According to the official reports of the General Archives of the Indies, the *Juncal* was carrying the equivalent to 1077840 pesos of silver bars, coins and other precious metals, in addition to silk, grana, indigo, chocolate and timber.<sup>49</sup> This number could be more considering the additional cargo exclusively destined to the Spanish Crown and the corruption surrounding the fleet. Some historians propose that the amount of silver and coins carried by the *Juncal* could increase to 2,456,922 pesos.<sup>50</sup>

### 3.2 The location of the shipwreck

Since the second half of the twentieth century, the Mexican government and private companies have been looking for the wreck of the *Juncal*. In 1983, the company Seaquest International LTD launched the first modern expedition aimed at finding the *Juncal*. It failed. The Mexican government launched an expedition in 1993, with the assistance of the *R/V Akademik Mstislav Keldysh* of the Institute of Oceanology of the Russian Academy of Sciences. In 1995, the National Institute of Anthropology and History (INAH) started the project '*Pecio Nuestra Señora del Juncal*', aimed at researching the historical, social and economic context of the *Juncal*, relying on Mexican and Spanish archives.<sup>51</sup> In 2009 the 'treasure hunters' company *Odyssey Marine Exploration* requested a permit from the Mexican government to search for the wreck with commercial purposes. Yet, the Mexican archaeologists lobbied against the grant of the permit due to the commercial nature of the expedition and the obligations of Mexico under the 2001 UNESCO Convention.<sup>52</sup> In 2012, the Mexican government, through the

44 Flore Trejo, 'Adversidades en la administración de la Carrera de Indias: el caso de la flota del general Miguel de Echazarreta' in F. Trejo (ed), *La Flota de la Nueva España 1630-1631: vicisitudes y naufragios* (INAH 2003) 49 and 51.

45 Meehan Hermanson (n 38) 79.

46 Herrera Tovar (n 1) 130-140.

47 For an account on the sink: Trejo (n 3) 117-121.

48 Serrano Mangas (n 3) 55-64.

49 Serrano Mangas (n 3) 57.

50 Serrano Mangas (n 3) 182-187.

51 Cf. Laura Carrillo Márquez, 'Arqueología Marítima en México' (2018) 12(1) *Revista de Arqueología Histórica Argentina y Latinoamericana* 40-41; Pilar Luna Erreguerena, 'Introducción', in Trejo (n 3) 13.

52 Junco and Trejo (n 2) 80; Abida Ventura 'A la caza de un navío hundido en Campeche' (*El Universal*, 12 July 2013) <<http://archivo.eluniversal.com.mx/cultura/2013/a-la-caza-de-un-navio-hundido-en-campeche-935633.html>>



National Institute of Anthropology and History (INAH) and the National Autonomous University of Mexico (UNAM), launched a new expedition to locate the shipwreck, obtaining relevant data for future prospections. Unfortunately, the lack of financial support for the project prevented the INAH and UNAM from following up on these prospection sites. In 2014, Spain and Mexico concluded the 2014 MoU to establish a cooperation framework to protect and preserve underwater cultural heritage located in maritime areas within their jurisdiction.<sup>53</sup> In 2020, Spain and Mexico announced the launching of a joint expedition but this was postponed due to the COVID-19 pandemic.<sup>54</sup>

The precise location of the wreck therefore remains unknown. Archaeologists, historians, and scientists have worked together in proposing the location of the Juncal, considering the weather and oceanographic conditions in that year.<sup>55</sup> Moreover, the testimonies of some of the 39 survivors<sup>56</sup> and rescuers are a starting point to determine the wreck's location. Among the documented testimonies are those of Francisco Granillo, boatswain of the Juncal; Francisco de Olano, master of the ship who rescued the survivors; a friar traveling on board; and Martin de Irriberi, a trader.<sup>57</sup> This and other research data have been the base for establishing potential prospection areas. For example, the historian Serrano Mangas and Loïc Menanteau proposed in 2012 the following map, setting the wreck location close to Cay Arcas, a Mexican island near the coasts of Campeche:

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<sup>53</sup> 2014 MoU accessed 25 October 2021.

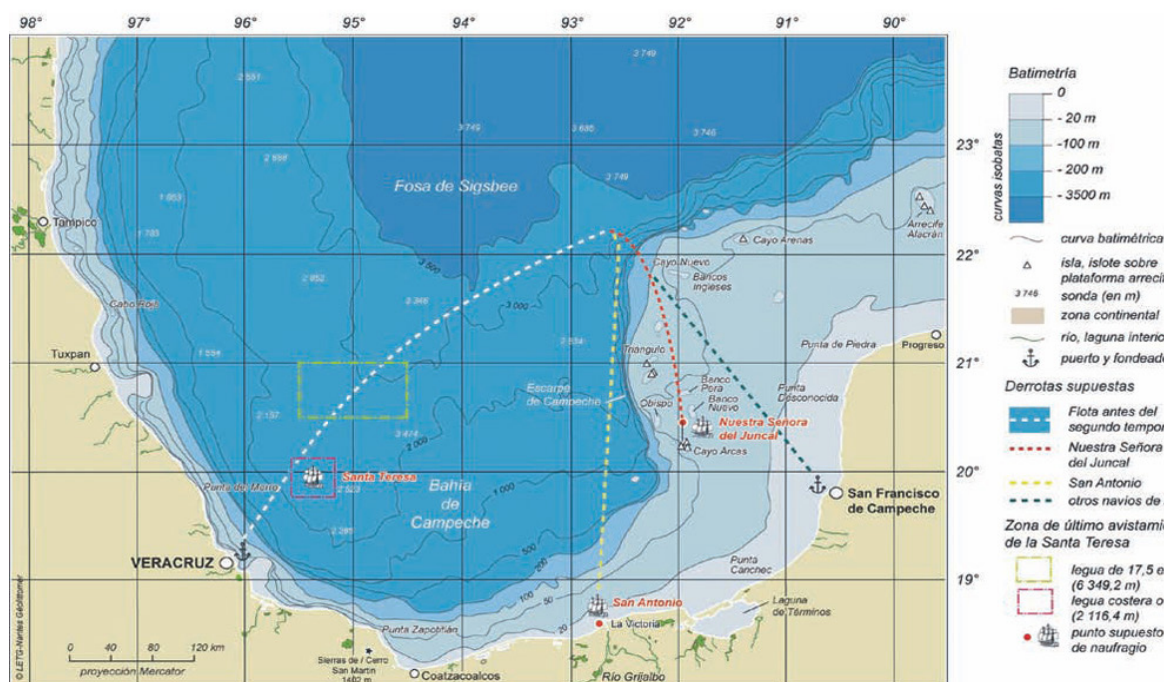
<sup>54</sup> INAH, 'Redoblan México y España los esfuerzos para encontrar vestigios del pecio de Nuestra Señora del Juncal' (INAH, 7 February 2020) <[https://www.inah.gob.mx/attachments/article/8906/20200207\\_boletin\\_036.pdf](https://www.inah.gob.mx/attachments/article/8906/20200207_boletin_036.pdf)> accessed 25 October 2021.

<sup>55</sup> Roberto Junco, 'La ruta de Veracruz a La Habana en la época colonial' in Vera Moya (ed), *Arqueología Marítima en México* (INAH 2012) 93-114.

<sup>56</sup> On the final moments of the *Juncal* and the survivors: Herrera Tovar (n 1) 139.

<sup>57</sup> Junco and Trejo (n 2) 80.





Map. 1. Source: F. Serrano Mangas (n 3) 231.

Locating the shipwreck could enhance its governance. As a first point, its location can narrow the scope of measures towards the enforcement of laws and regulations adopted by Mexico as a coastal state towards the protection of the wreck. In this regard, other measures can be adopted such as the prevention of other activities that could result in damage or loss of the wreck, for example, oil and gas operations, common in the area. Secondly, as will be exposed, its location could be determinative of the question of ownership under a state succession argument.

#### 4. Ownership

In the case of the *Juncal*, two states with a verifiable link can claim ownership. Spain, as the flag state of a ship conducting official functions during 1631. Mexico as a coastal state in whose territorial sea or area under its jurisdiction the wreck may be located. In this context, this section will examine two lines of arguments surrounding the ownership: first, the shipwreck as a state vessel with sovereign immunity; and second, the shipwreck as part of the property transferred by Spain to Mexico in the state succession of 1836.



#### 4.1 The *Juncal* as a state vessel

The *Juncal* was a merchant cargo vessel requisitioned by the Spaniard Crown and appointed as flagship to the New Spain fleet 1630-1631. The question is whether the *Juncal* continues to belong to Spain as the flag state. And if yes, how does this coexist with the sovereign rights of Mexico as the coastal state.

Under international law, a warship enjoys sovereign immunity.<sup>58</sup> In the case of shipwrecks, the practice reflected in bilateral agreements and domestic case law shows that this prerogative continues to exist over sunken warships. Conversely, some suggest that since the warship or state vessel stopped carrying out its official functions, the shipwreck loses its immunity as a warship.<sup>59</sup> Yet, the practice shows an adherence to the first position. For instance, the Institut de Droit International concluded that sunken ships remain the property of the flag State unless the flag State has clearly stated that it has abandoned the wreck, relinquished, or transferred title to it.<sup>60</sup> Moreover, the 2001 UNESCO Convention defines 'state vessels' as those warships and other vessels owned or operated by a state and used at the time of sinking for governmental non-commercial purposes. It continues by recognising the sovereign immunity conferred upon them under international law.<sup>61</sup> Spain maintains a consistent practice in protecting its sunken warships, pleading sovereign immunity over them due to their official purpose. Spain has relied on this argument to defend its rights and prerogatives over the *Nuestra Señora de las Mercedes*, *La Galga*, *Juno*, and, more recently, the galleon *San José*. In *Sea Hunt, Inc. v Unidentified Shipwrecked Vessel or Vessels*, a court recognized *La Galga* and the *Juno* as part of the Royal Spanish Navy, which requires prior authorisation from Spain to transfer or abandon the vessels.<sup>62</sup> Similarly, in *Odyssey Marine Exploration v. Unidentified Shipwrecked Vessel*, the Court recognised the *Nuestra Señora de las Mercedes* as a warship and upheld its sovereign immunity.<sup>63</sup> Judicial practice, therefore follows the trend of recognising the status of warship to sunken vessels and the attached sovereign immunity to shipwrecks. This status will be only lost if the flag state consents.<sup>64</sup>

Furthermore, the 2001 UNESCO Convention introduced a balance between the rights of the flag

58 UNCLOS, Article 95; *ARA Libertad* (Argentina v. Ghana), Provisional Measures, Order of 15 December 2012, ITLOS Reports 2012, p. 332, para 95.

59 Marlène M. Losier, 'The Conflict between Sovereign Immunity and the Cargo of Sunken Colonial Vessels' (2018) 33 IJMCL 535-536.

60 Institut de Droit International, 'The Legal Regime of Wrecks of Warships and Other State-owned Ships in International Law' (9<sup>th</sup> Commission, 29 August 2015) Article 4; Institut de Droit International, 'The Legal Regime of Wrecks of Warships and Other State-owned Ships in International Law: Travaux préparatoires' in (2015) 76 Yearbook of Institute of International Law 271-378.

61 2001 UNESCO Convention, Articles 1 (8) and 2(8).

62 *Sea Hunt, Inc. v Unidentified Shipwrecked Vessel or Vessels*, 638–639 (4th Cir.2000), 221 F.3d, p. 634.

63 *Odyssey Marine Exploration, Inc. v. Unidentified, Shipwrecked Vessel*, 675 F.Supp.2d (M.D. Fla. 2009), 1148.

64 For a comprehensive account on these cases, Tullio Scovazzi, 'Sunken Spanish Ships before American Courts' (2019) 34 IJMCL 245-290; Mariano Aznar Gómez, 'Patrimonio Cultural Subacuático Español ante Tribunales Extranjeros o Internacionales: los casos de la Mercedes y del Louisa' (2015) 19 Anuario de la Facultad de Derecho de la Universidad Autónoma de Madrid 47-77.



state and those of the coastal state, depending on the maritime area where the wreck lies.<sup>65</sup> If the wreck lies within the territorial sea, the coastal state retains the exclusive rights to regulate the activities over the shipwreck without affecting the rights of the flag state. In fact, the coastal state should inform the flag state about any discovery or activity in line with a spirit of cooperation.<sup>66</sup> In the contiguous zone, the coastal state can regulate and authorise activities directed at shipwrecks taking into account the Rules of the 2001 UNESCO Convention.<sup>67</sup> In the exclusive economic zone and on the continental shelf, all states have the obligation to protect underwater cultural heritage and notify any discovery in this area. Moreover, the coastal state can prohibit or authorise any activity directed at a shipwreck to prevent interference with its sovereign rights or jurisdiction under the UNCLOS and international law.<sup>68</sup> The convention confers a logical preference to the coastal state due to its proximity to the wreck. It grants upon the coastal state the character of coordinating state to work in conjunction with interested states.<sup>69</sup> Some of these provisions of the 2001 UNESCO Convention were the basis of controversy between maritime powers and coastal states, and were among the reasons of why some maritime powers decided not to ratify the convention.<sup>70</sup>

In this context, it is unquestionable that the *Juncal* is a Spaniard state vessel for the purposes of the 2001 UNESCO Convention, and only a subsequent act from Spain could modify the ownership upon it, as will be exposed in the next section. Thus Spain would retain the ownership of the wreck. However, if the *Juncal* happens to be within Mexico's territorial sea, Mexico enjoys full sovereignty to regulate activities towards the wreck in cooperation with Spain. Even if found in its exclusive economic zone and continental shelf, Mexico would be the coordinating state of activities directed at the wreck due to its proximity to the wreck but would not retain ownership.

#### 4.2 The succession of the *Juncal* as state property

A less-explored argument regarding the ownership of underwater cultural heritage is the impact of state succession in respect of state property. What would be the effect of a state succession instrument where the flag state renounces rights to its property? Spain and Mexico did celebrate a treaty following this trend. The question is whether this instrument and international law would modify ownership over the *Juncal* and how this will affect the rights and obligations established under the 2001 UNESCO Convention.

65 Craig Forrest, 'A New International Regime for the Protection of Underwater Cultural Heritage' (2002) 51(3) The International and Comparative Law Quarterly 528-530.

66 2001 UNESCO Convention, Article 7(1) and (3).

67 2001 UNESCO Convention, Article 8.

68 2001 UNESCO Convention, Article 9 and Article 10 (2).

69 2001 UNESCO Convention, Article 9(3) (b).

70 On these debate: Sarah Dromgoole, 'Reflections on the position of the major maritime powers with respect to the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001' (2013) 38 Marine Policy 119-120 Dromgoole (n 8) 160-165.



Under international law, state succession implies *inter alia* the definitive replacement of a state by another regarding its sovereignty over a determined territory, in accordance with international law.<sup>71</sup> The creation of a new state following succession entails the obligation to respect pre-existing international frontiers, whether or not the rule is expressed in the formula *uti possidetis*.<sup>72</sup> Following the succession, the rights and obligations of a predecessor state are transferred to the successor State, who inherits the rights and obligations derived from treaties, public property and debts.<sup>73</sup> In this regard, state property passes from the predecessor to the successor state, extinguishing the rights of the former and creation of rights of the latter.<sup>74</sup>

In the case of shipwrecks, state succession includes only the property within the territory of the predecessor state, including the marine areas considered as such in the time when the succession occurred.<sup>75</sup> In *Sea Hunt v. Unidentified, Shipwrecked Vessel*, an American District Court ruled that Spain expressly abandoned any rights over the Juno; by signing the 1763 Treaty between the United Kingdom, Spain, and France. Particularly, Article XX of the treaty establishes that the Kingdom of Spain cedes the sovereignty, property, possession and all rights over the agreed countries, lands, places, and inhabitants.<sup>76</sup> The District Court considered that the rights over the June are included in this provision. Nevertheless, in a subsequent appellation, the Court of Appeals of the Fourth Circuit reversed the decision by considering that the treaty of 1763 did not mention 'vessels' or 'shipwrecks', nor property in the sea or on the seabed.<sup>77</sup> Thereby, the title over the shipwreck, in principle, remains on the flagship state, and only an express act of abandonments could modify this situation.<sup>78</sup> Yet, it is uncertain whether this is the state of customary international law.<sup>79</sup>

71 Vienna Convention on Succession of States in respect of State Property, Archives and Debts, adopted in Vienna on 8 April 1978, not yet in force, Article 2 (1) (a); Institut de Droit International 'State Succession in Matters of Property and Debts' Resolution (7<sup>th</sup> Commission, 26 August 2001) Article 1.

72 *Frontier Dispute*, Judgment, I.C.J. Reports 1986, p. 554, para 24; *Land, Island and Maritime Frontier Dispute* (El Salvador/Honduras, Nicaragua intervening), Judgment, 1992, I.C.J. 351, paras 40–43; Marcelo Kohen, 'Titles and *effectivités* in territorial disputes', in Marcelo Kohen and Mamadou Hébié, *Research Handbook on Territorial Disputes in International Law* (Edward Elgar Publishing 2018)153.

73 Daniel Patrick O'Connell, *The Law of State Succession* (CUP 1956) 6-9; *Peter Pázmány University, 1933*, PCIJ Series A/B, No. 61, p. 237; Institut de Droit International 'State Succession in Matters of Property and Debts' Resolution (7<sup>th</sup> Commission, 26 August 2001) Articles 12 and 13.

74 United Nations Tribunal in Libya, *Decision of 31 January 1953*, RIAA Volume XII, 365-366; Institut de Droit International, 'State Succession in Matters of Property and Debts' Resolution (7<sup>th</sup> Commission, 26 August 2001) Articles 12 and 13; Malcolm Shaw, 'State Succession Revisited' (1994) 5 Finnish Yearbook of International Law 85-92.

75 See for example the criteria regarding the importance to the cultural heritage of the successor state. Institut de Droit International, 'State Succession in Matters of Property and Debts' Resolution (7<sup>th</sup> Commission, 26 August 2001) Articles 16 (5).

76 *Sea Hunt, Inc. v. Unidentified, Shipwrecked Vessel or Vessels*, 47 F. Supp. 2d 678 (E.D. Va. 1999); OAS, The Definitive Treaty of and Friendship between his Britannick Majesty, and the King of Spain, concluded at Paris on 10<sup>th</sup> February 1763, Article XX.

77 *Sea Hunt, Inc. v Unidentified Shipwrecked Vessel or Vessels* ('*Sea Hunt*'), 221 F.3d 634, 638–639 (4<sup>th</sup> Cir.2000).

78 Institut de Droit International, 'The Legal Regime of Wrecks of Warships and Other State-owned Ships in International Law' Resolution (9<sup>th</sup> Commission, 29 August 2015) Article 4; Institut de Droit International, 'The Legal Regime of Wrecks of Warships and Other State-owned Ships in International Law: Travaux préparatoires'.

79 Cardazzi (n 31) 203-206.



For the *Juncal*, its nature could change in the light of subsequent acts conducted between Spain, and Mexico as an independent state. To that end, we now turn to examine two aspects: *first*, the date of the state succession and its terms; and *second*, whether the *Juncal* is included in the succession. Turning to the first aspect, the date of the succession means the date upon which the successor state replaced the predecessor state in the responsibility for the international relations of the territory to which the succession of states relates.<sup>80</sup> Let us remember that Mexico became independent on 27 September 1821, reflected in the Act of Independence of the Mexican Empire and the Treaties of Villa Córdoba between Augustin de Iturbide and the last Viceroy, Juan O'Donoju.<sup>81</sup> Nonetheless, Spain hesitated to recognise the independence until 1836, with the Definitive Treaty of Peace and Friendship between Mexico and Spain (Santa María-Calatrava Treaty). For the purposes of this research, Article 1 deserves to be reproduced:

'ARTICULO I. S. M. la reina gobernadora de las Españas, á nombre de su augusta hija Doña Isabel II, reconoce como nacion libre, soberana é independiente la república mexicana, compuesta de los estados y paises especificados en su ley constitucional, á saber: el territorio comprendido en el virreinato llamado antes Nueva España; el que se decia capitanía general de Yucatan; el de las comandancias llamadas antes de provincias internas de Oriente y Occidente; el de la baja y alta California, y los terrenos anexos é islas advacentes de que en ambos mares está actualmente en posesion la expresada república. Y S. M. renuncia, tanto por sí, como por sus herederos y sucesores, á toda pretension al gobierno, propiedad y derecho territorial de dichos estados y paises.'<sup>82</sup>

In this provision, Spain ceded the territory previously comprised by the Viceroy of New Spain, Yucatan, the west and east provinces, and the High and Low California, including islands located in the Pacific and Atlantic oceans. The second part of the provision includes a renunciation by Spain to any claim, property and territorial right over the mentioned territory. Following a broad interpretation, the scope of the provision could include the *Juncal* as part of the renounced territory and as property within it. Nevertheless, to determine whether the *Juncal* was included in the succession, we should consider some aspects of intertemporal law regarding the maritime areas that were considered as part of the territory of a state in 1836. That is, the issue should be appreciated in the light of the law contemporary to it.<sup>83</sup> Under the

80 Vienna Convention on Succession of States in respect of State Property, Archives and Debts (adopted in Vienna on 8 April 1983, not yet in force) Article 2 (1) (e).

81 Roberta Lajous, *Historia Mínima de las Relaciones Exteriores de México: 1821-2000* (El Colegio de México 2019), 25-55; Oscar Cruz Barney, *Historia del Derecho en México* (Tirant 2021) 908-917; Marco Antonio Pérez de los Reyes, *Historia del Derecho Mexicano* (OUP 2008), 422-425.

82 Tratado definitivo de paz y amistad entre la República Mexicana y su Majestad la reina gobernadora de las Españas, adopted at Madrid on 28 December 1836, Article 1, available at: <<https://aplicaciones.sre.gob.mx/tratados/ARCHIVOS/ESPANA-PAZ%20Y%20AMISTAD.pdf>>

83 *Island of Palmas case (Netherlands/USA)*, RIAA, Volume II 829-871, 845; *Land and Maritime Boundary between Cameroon and Nigeria* (Cameroon v. Nigeria: Equatorial Guinea intervening), Judgment, I. C. J. Reports 2002, p. 303, para 205; Mohamed Bennouna, *Le droit international entre la lettre et l'esprit* (Brill/Nijhoff 2017), paras 634-655; Rosalyn Higgins, 'Time and the Law: International Perspective of an Old Problem' (1997) 46(3) International and Comparative Law Quarterly 515-520.





current law of the sea, the territorial sea extends up to 12 nautical miles.<sup>84</sup> In the nineteenth century, the territorial sea as an extension of the territory was an accepted rule. However, there was no consensus on the breadth of the territorial sea. The practice from that period shows that maritime powers like the United Kingdom, United States of America or France claimed three nautical miles; whereas Spain, Portugal and Italy claimed six nautical miles.<sup>85</sup> Therefore, whether the *Juncal* was part of the state succession depends on locating the wreck within the six nautical miles of the current Mexican territorial sea, which corresponds to the length accepted under the law of the nineteenth century. This includes the territorial sea of islands or rocks include in the state succession. For example, Serrano Mangas<sup>86</sup> projected that the shipwreck lies near Cayo Arcas<sup>87</sup>, which is an island entitled to a territorial sea under UNCLOS.<sup>88</sup> Only future expeditions will tell whether wreck is within the property renounced by Spain in 1836.

Nonetheless, even if Mexico acquires the ownership through the state succession of 1836, Spain remains an interested state because of the archaeological, historical and cultural links, as recognised by the 2001 UNESCO Convention.<sup>89</sup> In a manner to reconcile the legal interests of Spain and Mexico over the wreck, an alternative could be the negotiation of a subsequent bilateral agreement, either a binding treaty or a MoU, concerning the wreck of the *Juncal*.<sup>90</sup> This practice proved to be efficient with other shipwrecks located in the a maritime jurisdictional area of a state different to the flag state.<sup>91</sup> For example, United Kingdom and Canada concluded a MoU regarding the *HMS Erebus* and *HMS Terror* before even finding the wrecks. In this instrument, the United Kingdom agreed on assigning the custody and control over the wrecks to Canada without waiving ownership. Moreover, the United Kingdom agreed on transferring the ownership of certain objects to Canada.<sup>92</sup> Considering that Mexico is proximate to the potential location of the wreck, a similar clause on custody could be a solution in addition to the cooperation framework aimed at protecting the wreck.

Recent practice follows the trend of fully recognising the rights of the flag state without accepting claims from other interested states. For example, Peru argued that the cargo of *Nuestra Señora de las Mercedes* was physically, culturally and historically originated in Peru.<sup>93</sup> In fact, Peru sought reliance on Article 149 of UN-

84 Mathias Forteau and Jean-Marc Thouvenin, *Traité de Droit International de la Mer* (Pedone 2017) 355-366.

85 Charles Henry Alexandrovic, *An Introduction to the History of the Law of Nations in the East Indies* (Clarendon Press 1967) 42-49; Víctor Luis Gutiérrez Castillo, 'La evolución de la anchura del mar territorial: perspectiva internacional y Española' (2003) 9 *Revista de Estudios de Ciencias Sociales y Humanidades* 89; Robin Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press 1999) 72; Tullio Treves, 'Historical Development of the Law of the Sea' in Donald Rothwell, Alex Oude Elferink, Karen Scott and Tim Stephens, *The Oxford Handbook of the Law of the Sea* (OUP 2015) 6.

86 Serrano Mangas (n 3) 231.

87 INEGI, *Catálogo de Territorio Insular Mexicano* (INEGI 2014) 129-131.

88 UNCLOS, Article 121.

89 2001 UNESCO Convention, Article 9(5).

90 2001 UNESCO Convention, Article 6.

91 Dromgoole (n 8) 140-146.

92 Memorandum of Understanding between the Governments of Great Britain and Canada pertaining to the shipwrecks *HMS Erebus* and *HMS Terror* (United Kingdom and Canada) (adopted 5 and 8 August 1997) paras 2 and 3.

93 *Odysey Marine Exploration, Inc. v. Unidentified, Shipwrecked Vessel*, 675 F.Supp.2d (M.D. Fla. 2009), 1129.



CLOS to support its claim. The court recognized that nor the United States of America nor Peru ratified UNCLOS, and there was not a customary law related to underwater cultural heritage discovered in international waters.<sup>94</sup> What would be the outcome of a similar case where both states are parties to UNCLOS? In an attempt to decolonising international law, the rules governing the ownership of underwater cultural heritage should consider other interests in addition to from the flag state.<sup>95</sup> In fact, denying claims of former colonies and indigenous people over underwater cultural heritage is a modern way of maintaining colonisation.

## 5. Preservation and protection of the *Juncal*

Under the 2001 UNESCO Convention, underwater cultural heritage shall be preserved for the benefit of humanity. In the present analysis, Spain and Mexico, as interested states on the *Juncal*, have this duty. To that end, the general obligation, provided by UNCLOS, establishes that states have the duty to protect objects of an archaeological and historical nature found at sea and shall cooperate for this purpose.<sup>96</sup> In a similar tone, Article 2 (2) and (3) of the 2001 UNESCO Convention comprises the general obligation for states to cooperate in the protection of the underwater cultural heritage and to take all the appropriate measures to that aim.<sup>97</sup> In subsequent provisions, the convention elaborates on this obligation with obligations of conduct. For elucidating the scope and content of the general obligation, this article approaches it by looking at two of its main components. Firstly, the obligation to cooperate as a corner stone to the whole convention Secondly, the set of due diligence obligations enlisted along the convention.

### 5.1 Duty to cooperate

International law recognises the duty to cooperate as a fundamental principle,<sup>98</sup> this is also found in the jurisprudence.<sup>99</sup> For instance, in the *Enrica Lexie* Arbitration, the Tribunal asserted that the obligation to cooperate is an obligation of conduct and not of result; and requires the enactment of domestic legislation or concluding bilateral or multilateral agreements with other interested states.<sup>100</sup> In the context of underwater cultural heritage, Article 303 (1) of UNCLOS provides that states shall cooperate in the protection of objects

94 *Odyssey Marine Exploration, Inc. v. Unidentified, Shipwrecked Vessel*, 675 F.Supp.2d (M.D. Fla. 2009), 1145,1146.

95 Chelle Haynes 'Decolonizing shipwrecks through considerations of indigeneity in Underwater Cultural Property Decisions' (2018) 30(2) *FlaJIntL* 111-166.

96 Tullio Scovazzi, 'Article 303 Archaeological and historical objects found at sea' in A Proelß (ed), *United Nations Convention on the Law of the Sea: A Commentary* (C.H. Beck 2017) 1953, para 10; Tullio Scovazzi, 'The Law of the Sea Convention and Underwater Cultural Heritage' (2012) 27 *IJML* 753-761.

97 2001 UNESCO Convention, Article 2 (2) and 3.

98 Declaration on Principles of International Law, Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations, UNGA Resolution 2625 (adopted on 24 October 1970) Laurence Boisson de Chazournes and Jason Rudall, 'Co-operation', in Jorge Viñuales (ed), *The UN Friendly Relations Declaration at 50: An assessment to the Fundamental Principles of International Law* (CUP, 2020) 105-132; Rüdiger Wolfrum, 'International Law of Cooperation', *Max Planck Encyclopedia of International Law* (2010).

99 *Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, Advisory Opinion of 2 April 2015, ITLOS Reports 2015, para 140, *MOX Plant* (Ireland v. United Kingdom), Provisional Measures, Order of 3 December 2001, ITLOS Reports 2001, p. 95, para 82.

100 Cf. *The Enrica Lexie Incident Arbitration* (Italy v. India), PCA Case No. 2015-28, Award of 21 May 2020, para 723.



of archaeological and historical nature found at sea.<sup>101</sup> Yet, it is Article 19 of the 2001 UNESCO Convention which elaborates on the scope and content by providing a list of actions: collaborating in the investigation, excavation, documentation, conservation, study and presentation of such heritage; sharing information with other States Parties concerning underwater cultural heritage, including discovery of heritage, location of heritage, heritage excavated or recovered in violation of international law, scientific methodology and technology, and legal developments relating to such heritage.<sup>102</sup> Thereby the obligation to cooperate entails the adoption of measures and the engagement with interested actors to coordinate efforts.<sup>103</sup>

As discussed above, state practice shows that bilateral agreements have been among effective mechanisms to ensure cooperation and coordination mechanisms. In the context of the Juncal, Mexico and Spain concluded in 2014 a MoU on underwater cultural heritage. The instrument draws upon the 2001 UNESCO Convention and highlights the relevance of cooperation between them to protect the common underwater cultural heritage. Article Two of the MoU stands as the basis of the cooperation framework. It underscores the importance of exchanging technical, historical, and archaeological information; participation in conferences, seminars, and capacity building workshops; the loan of equipment and availability of personnel, specialists, advisers, and other resources.<sup>104</sup> The second paragraph of this article comprises a non-exhaustive list of actions included in the cooperation framework, including: the exchange and sharing of information regarding the localization of underwater cultural heritage; cooperation in the investigation and prospection towards underwater cultural heritage pursuant to the Rules of the 2001 UNESCO Convention; the notifications made under Articles 9 and 10 (3) regarding the localisation of underwater cultural heritage within the exclusive economic zone and continental shelf of one of the states;<sup>105</sup> and the sharing of information about potential unauthorised perturbation aimed at underwater cultural heritage.<sup>106</sup> Regarding the financial aspect, the MoU underscores that the cooperation framework depends on the availability of funding, personnel capacity and the domestic regulations of each party. Moreover, this instrument does not establish any mechanism of financial assistance.<sup>107</sup> In early 2020, both countries announced the launching of a prospection expedition, but due to the COVID-19 pandemic, the parties postponed it.<sup>108</sup>

Since the scope of the 2014 MoU is general, the question of ownership or custody of the *Juncal* is not addressed. A further step in the bilateral cooperation may be the adoption of a new MoU or a binding instrument pursuant to Article 6 of the 2001 UNESCO Convention. We pointed to practice

101 UNCLOS, Article 303(1).

102 2001 UNESCO Convention, Article 19.

103 Tullio Scovazzi, 'Article 303 Archaeological and historical objects found at sea' in A Proelß (ed), *United Nations Convention on the Law of the Sea: A Commentary* (C.H. Beck 2017) 1953, para 10; Michail Risvas, 'The Duty to Cooperate and the Protection of the Underwater Cultural Heritage' (2013) 2(3) CJICL 568-572.

104 2014 MoU, Article Second (2) (A-D).

105 2001 UNESCO Convention, Articles 9 and 10.

106 2014 MoU, Article Second (2) (E).

107 2014 MoU, Article Third (1) and (2).

108 INAH, 'Redoblan México y España los esfuerzos para encontrar vestigios del pecio de Nuestra Señora del Juncal' (INAH, 7 February 2020) <[www.inah.gob.mx/attachments/article/8906/20200207\\_boletin\\_036.pdf](http://www.inah.gob.mx/attachments/article/8906/20200207_boletin_036.pdf)> accessed 25 October 2021.





reflected in the MoU on the *HMS Terror* and *HMS Erebus*, or the agreement on the *RMS Titanic*, to define concrete channels of cooperation on technical and enforcement matters. In this regard, a new instrument between Spain and Mexico could include a more specific cooperation framework and the adoption of more narrowed regulations. For instance, the coordination between the parties for conducting archaeological expeditions with the intervention of private companies under the 2001 UNESCO Convention.

## 5.2 Due diligence obligations

The obligation of due diligence permeates international law as an obligation of conduct aimed at deploying all the means at the disposal of a state to prevent risk.<sup>109</sup> The conception of risk developed to reach both scientific / technical and a social / cultural dimension.<sup>110</sup> In fact, the threshold of due diligence required will depend on the level of risk and the activity being carried out.<sup>111</sup> Drawing upon the due diligence as developed in international environmental law, the due diligence obligation entails the adoption of appropriate measures, a level of vigilance and monitoring over public and private entities under the jurisdiction or effective control of a state when they are carrying out activities that entails a significant level of risk.<sup>112</sup> Regarding vigilance and monitoring, the state should take measures to enforce its laws. For example, in the *South China Sea Arbitration*, the Tribunal held China responsible for not taking necessary measures to enforce its domestic legislation aimed at protecting marine wildlife.<sup>113</sup>

Due diligence obligations likewise permeate the governance of underwater cultural heritage. The general obligation to protect and preserve underwater cultural heritage, the 2001 UNESCO Convention includes subsequent due diligence obligations to prevent activities contrary to the convention. The first is the obligation to take measures to prevent the entry into their territory, the dealing in, or the possession of underwater cultural heritage illicitly exported.<sup>114</sup> In cultural heritage law, this obligation appears in the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export

109 Samantha Besson, *Le due diligence en droit international* (Brill/Nijhoff, 2021) 72-180.

110 Heike Krieger, Anne Peters and Leonhard Kreuzer (eds), *Due Diligence in the International Legal Order* (OUP 2020) 353.

111 *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, p. 10, para 117; Leslie-Anne Duvic-Paoli and Jorge Viñuales, 'Prevention of Environmental Harm' in Jorge Viñuales (ed), *The UN Friendly Relations Declaration at 50: An assessment of the Fundamental Principles in International Law* (CUP, 2020), 283-313.

112 *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, 2 April 2015, ITLOS Reports 2015, p. 4, para 128; *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, p. 10, para 111; *Pulp Mills on the River Uruguay* (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010, p. 14, para 197.

113 *The South China Sea Arbitration* (The Republic of Philippines v. The People's Republic of China), PCA 2013-19, Award, 12 July 2016, para 964.

114 2001 UNESCO Convention, Article 14.



and Transfer of Ownership of Cultural Property.<sup>115</sup> The second requires that states shall take measures to prohibit the use of their territory and areas within its exclusive jurisdiction or control in support of activities contrary to the convention.<sup>116</sup> The design of this obligation follows the architecture of the no harm principle adopted in general international law.<sup>117</sup> A third obligation, Article 16, stipulates that states should take all practicable measures to ensure that their nationals and vessels flying their flag do not engage in activities that go against the convention.<sup>118</sup> Some scholars argue that these measures can only mean the adoption of prohibitions backed with criminal sanctions.<sup>119</sup> Others consider that in addition to civil fines or imprisonment, sanctions should include the seizure of underwater cultural heritage to deprive the offenders of the benefit derived from their activities.<sup>120</sup> Under Article 17 of the 2001 UNESCO Convention, states shall impose sanctions adequate in severity to be effective in securing compliance and discouraging violations.<sup>121</sup> Moreover, states should cooperate in ensuring enforcement of the sanctions.<sup>122</sup> Thereby, states shall adopt criminal law to prohibit any attempt of pillaging underwater cultural heritage. For example, in the *M/V Louisa* case, the ITLOS underscored that Spain detained the *M/V Louisa* for violating its laws on the protection of underwater cultural heritage, which criminalise acts against these objects, and not under its regulations on marine natural resources.<sup>123</sup>

The due diligence obligations in the context of the *Juncal* requires Mexico and Spain to adopt regulations and coordinated efforts aimed at protecting the wreck. As the coastal state proximate to the *Juncal*, Mexico already has some regulations addressing these obligations. The Federal Law on Monuments and Archaeological, Artistic and Historic Areas regulates the exploration and archaeological activities in the country. Under this law, only the INAH or authorised institutions can conduct explorations and discoveries over cultural heritage.<sup>124</sup> Moreover, whoever finds archaeological objects shall notify the closest authority, who will afterwards notify the INAH for considering subsequent steps.<sup>125</sup> This is relevant for considering underwater cultural heritage during among other activities extractive operations and fisheries. A model to improve this obligation are the rules for exploration adopted by the International Seabed Authority, which imposes an obligation upon a contractor to notify the Authority and to suspend its activities if it finds objects of archaeolog-

115 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (adopted 14 November 1970, entered into force 24 April 1972) 823 UNTS 231, Article 2; Janet Blake, *International Cultural Heritage Law* (OUP 2015) 34, 48.

116 2001 UNESCO Convention, Article 15.

117 *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1. C.J. Reports 1996, p. 226, para 29.

118 2001 UNESCO Convention, Article 16. For a comprehensive study on this provision: Anna Petrig and Maria Stemmler 'Article 16 UNESCO Convention and the Protection of Underwater Cultural Heritage' (2020) 69(2) ICLQ 397-429.

119 Petrig and Stemmler (n 118) 409-410.

120 Dromgoole (n 8) 330.

121 2001 UNESCO, Article 17(1).

122 2001 UNESCO Convention, Article 17 (3).

123 *M/V 'Louisa'* (Saint Vincent and the Grenadines v. Kingdom of Spain), Judgment, ITLOS Reports 2013, p. 4, paras 113 and 117. For a comment on the case, Aznar Gómez (n 64) 47-77.

124 Federal Law on Monuments and Archaeological, Artistic and Historic Areas (published in the Mexican Official Gazette on 6 May 1972, last amendment of 16 February 2018) Articles 29 to 32.

125 Federal Law on Monuments and Archaeological and Historic Areas, Article 29.



ical or historical nature.<sup>126</sup> A similar notification system could be introduced in the regulations of extractive sectors to ensure the protection and preservation of wrecks in coordination with the INAH. The act disposes a catalogue of administrative and criminal sanctions for those carrying out exploration and discovery activities without authorisation of the INAH.<sup>127</sup> For example, a person may be imprisoned for between three to ten years if they conduct archaeological exploration, excavation, or removal of cultural heritage, or if they took an archaeological object without informing the competent authorities.<sup>128</sup> For many years, this law remained silent regarding underwater cultural heritage. Fortunately, the INAH fostered an amendment which came into force in 2014, and included *inter alia* shipwrecks and their cargo as part of cultural heritage, excluding vessels with sovereign immunity under international law.<sup>129</sup> Regarding the enforcement, the Mexican Navy is in charge of enforcing the domestic law in Mexican waters.<sup>130</sup> Therefore, the Navy is the competent authority, in coordination with the INAH, to enforce the Federal Law on Monuments and Archaeological, Artistic and Historic Areas within Mexican maritime areas.<sup>131</sup> Nevertheless, for more effective enforcement, it is crucial to determine the location of the *Juncal*. This will allow the Navy to deploy more precise patrols, in cooperation with Spain, to prevent pillaging by treasure hunters.

## 6. Conclusion

A shipwreck is a time capsule that contain cultural objects from different social contexts.<sup>132</sup> For the purposes of international law, each shipwreck offers a case by case scenario regarding its legal nature and the way it should be protected and preserved. This article explained the legal situation of one of thousands of shipwrecks by looking at the rules established in UNCLOS, the 2001 UNESCO Convention and the applicable *lex specialis*. The research aims to be a guidance for enhancing efforts between Mexico and Spain towards the protection and preservation of the *Juncal*, and the rest of shared underwater cultural heritage.

This article underscores the importance of characterising the *Juncal* – and any shipwreck – as underwater cultural heritage. Although this is clear under international law, it is crucial to educate people to abandon the conception of shipwrecks as ‘treasures’ and promote the eradicate of their commercialisation. This can be done through expositions, conferences or any other pedagogical means.

126 ISA, ‘Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area’, (22 July 2013) ISBA/19/C/17, Rules 8 and 35; ISA, ‘Regulations on prospecting and exploration for polymetallic sulphides in the Area’ (15 November 2010) ISBA/16/A/12/Rev.1, Rules 8 and 37.

127 Federal Law on Monuments and Archaeological and Historic Areas, Articles 47 to 55.

128 Federal Law on Monuments and Archaeological and Historic Areas, Articles 47 and 51; J.E. Becerril Miró, *El Derecho del Patrimonio Histórico-Artístico en México*, (Porrua 2003), 108-176.

129 Federal Law on Monuments and Archaeological, Artistic and Historic Areas, Article 28 Ter; P. Luna Erreguerena, ‘Patrimonio Cultural Subacuático: Legislación Nacional e Internacional-Proyección de México ante el Mundo’, in Moya Sordo (n 55) 253-257.

130 Organic Law of the Mexican Navy, published in the Official Gazette on 30 December 2002, last amendment of 19 May 2017, Article 4 bis.

131 Federal Law on Monuments and Archaeological, Artistic and Historic Areas, Article 3 (VI).

132 Sam Willis, *Shipwreck: A history of disasters at sea* (Quercus 2013) 12.



For example, Mexico and Spain recently inaugurated an exposition about the *Juncal*, mainly based on the historical research conducted by Mexico since 1995.<sup>133</sup>

Regarding the ownership of the *Juncal*, this article followed a twofold analysis attending to the legal acts that occurred before and after the 1631 sinking. The first line follows Spain claiming the *Juncal* as a state vessel entitled to sovereign immunity, which only can end after an express act of abandonment or waiver. Nevertheless, Mexico as a coastal State proximate to the wreck, remains as a coordinating state to manage the joint efforts of interested states. As an alternative, this article examined the rule of state succession under which Mexico can argue that Spain ceded the property of the wreck in the Treaty of Friendship and Amity of 1836. However, following the intertemporal law, the shipwreck must be located within the territory received by Mexico in 1836, that is to say, within the six nautical miles of the Mexican territorial sea. An alternative to a costly dispute is the conclusion of an agreement to protect and preserve the shipwreck, granting to Mexico the custody of the wreck, and coordinating efforts towards its location, protections and preservation.

Finally, Spain and Mexico should observe the general obligation to protect the underwater cultural heritage as established by international law. This article discussed the architecture of this obligation as included in the 2001 UNESCO Convention. To understand the scope and content of this obligation, this paper analysed the two main components of the obligation: the obligation to cooperate and the obligation of due diligence. Under the obligation to cooperate, both states should exchange information on the progress of locating the wreck or on any attempt to pillage the wreck. Moreover, both states should adopt measures to protect the *Juncal*, including the adoption of regulations, monitoring mechanisms, and guaranteeing efficient law enforcement through sanctions. To that end, a new MoU or even a bilateral treaty between the parties, could adopt comprehensive actions in the field of technical and financial cooperation, and capacity building, as well as defining ownership and coordinating efforts towards the protection of the wreck. An agreement like this could be negotiated before the discovery of the *Juncal*.

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133 Jesús García Calero 'Así fue la agonía del Juncal, el galeón que naufragó en 1631 y que retorna hoy al Archivo de Indias' (*La Vanguardia*, 7 February 2020) <[www.abc.es/cultura/abci-agonia-juncal-galeon-naufrago-1631-y-retorna-archivo-indias-202111282318\\_noticia.html](http://www.abc.es/cultura/abci-agonia-juncal-galeon-naufrago-1631-y-retorna-archivo-indias-202111282318_noticia.html)> accessed 2 December 2021.