

# Fatalities and injuries among seafarers in the period 2000-2016



Helen Sampson & Neil Ellis

Feb 2019

# Fatalities and injuries among seafarers in the period 2000-2016

Helen Sampson and Neil Ellis



Seafarers International Research Centre (SIRC)  
Cardiff University  
52 Park Place  
Cardiff CF10 3AT

Tel: +44 (0)29 2087 4620

[sirc@cf.ac.uk](mailto:sirc@cf.ac.uk)  
[www.sirc.cf.ac.uk](http://www.sirc.cf.ac.uk)

February 2019

ISBN: 1-900174-52-9

## Contents

Background .....	1
Method .....	1
Fatalities excluding suicides .....	2
Figure 1: Total fatalities by year.....	3
Figure 2: Fatalities by year and administration .....	4
Figure 3: Fatalities - Electra and Diadem combined .....	5
Suicides .....	5
Figure 4: Annual recorded suicides as a percentage of all fatalities.....	6
Injuries .....	7
Conclusion.....	8
References .....	9
Appendix 1 – Top 30 Maritime Administration by Gross Tonnage as Listed in Lloyd’s Register Fairplay World Fleet Statistics 2005, and IHS Fairplay World Fleet Statistics 2010.....	10

## Background

Numerous reports and academic papers describe the shipping industry as a relatively dangerous occupation (Hansen 1996, Larsson and Lindquist 1992) with many identifying it as amongst the most dangerous of all occupations (Roberts and Marlow 2005). However, studies endeavouring to establish and compare national and international occupational mortality rates in shipping are plagued with difficulties, not the least of which are, related to the lack of available data concerning both mortality and seafarer populations (Nielsen and Roberts 1999, Roberts and Marlow 2005). As the world fleet has flagged out to 'open' registers, the problem has been exacerbated as open registers have been identified as particularly problematic with regard to the collection of data and the provision of access to it (Nielsen 2001).

Within the Seafarers International Research Centre (SIRC) this problem has been a concern from the moment when the Centre was established. However in 2005, ten years after SIRC's inception, maritime statisticians were not very much further forward in terms of solving these intractable difficulties. We therefore began a long-term initiative to persuade Maritime Administrations to collect and share accident and injury data with us. We collated and combined these data, distinguishing between ship data and personnel data, and within this report we reflect on our findings relating to personnel. In particular, we consider evidence of seafarer fatalities, suicides, and injuries.

## Method

We initially approached the top 30 maritime administrations (as defined by the volume of gross tonnage recorded in Lloyd's Register Fairplay World Fleet Statistics 2005, and IHS Fairplay World Fleet Statistics 2010) and we asked them if they collected data on accidents involving vessels under their flag and/or occurring in their national waters (see Appendix 1). Twenty six administrations responded to our query and 25 indicated that they did collect such data. These administrations were then asked if they would be willing to share their data for the period of 2000 to 2005 for academic research purposes. After lengthy negotiations, sixteen administrations provided accident data, with seven of the datasets including information on accidents that involved personnel on-board. Having collected data for the period 2000-2005, and notwithstanding the patchy nature of the response from Maritime Administrations we persisted with our efforts to gather data at further regular intervals. As a result, we have been able to collate data for the period 2000-2016 inclusive and have compiled a dataset

detailing injuries to seafarers and seafarer fatalities relating to those working on board commercial cargo/passenger vessels. We have excluded fishing vessels and injuries to, or fatalities amongst, passengers. We have also checked the dataset to ensure that reports of the same event which are made by two (or theoretically more) administrations are only counted once.

All Maritime Administrations provided data on the basis that it would be reported anonymously and kept confidential. We have therefore provided the Maritime Administrations in this report with pseudonyms. These have been selected by labelling Administrations as A,B,C,D,E,F,G in the first instance and then selecting the names of stars beginning with the same letters and substituting these for the letters - such that A becomes 'Atlas', for example.

## Fatalities excluding suicides

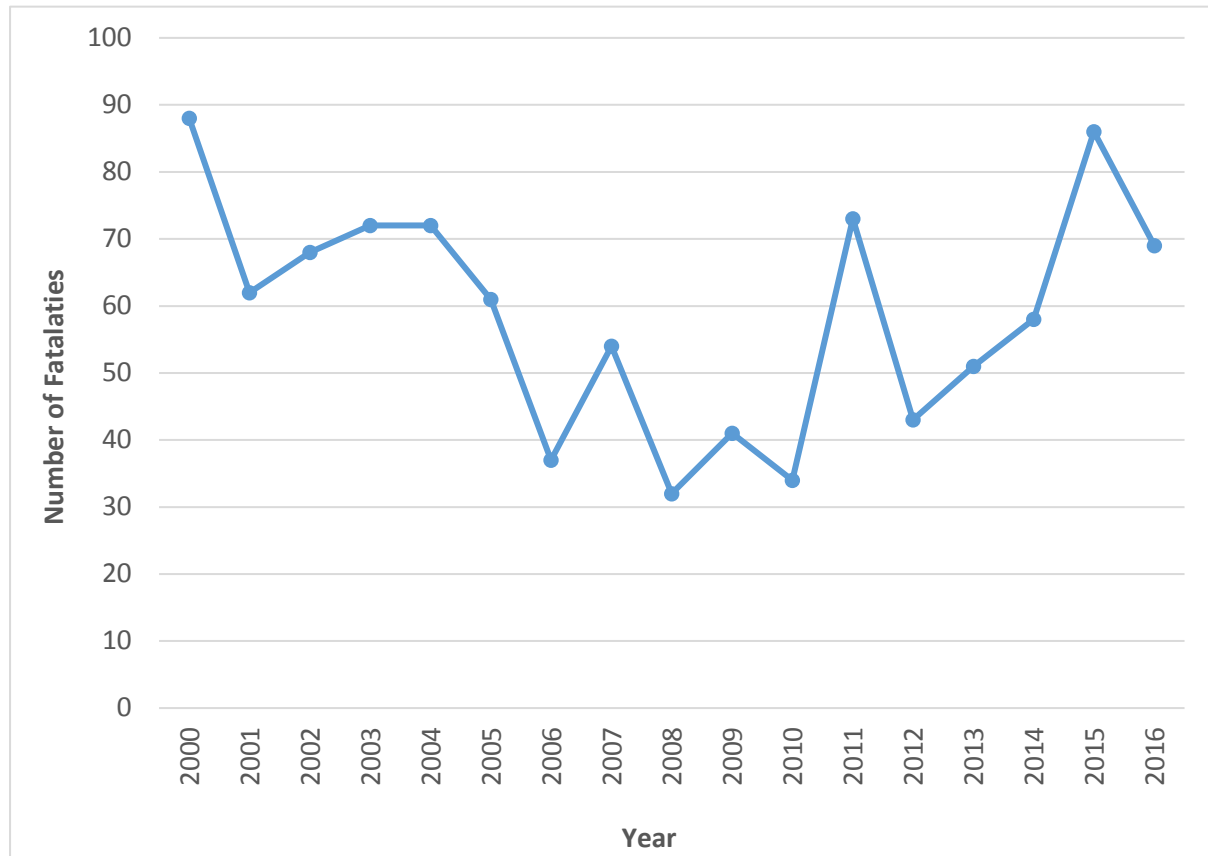
For all fatalities excluding suicides (i.e. natural causes and accidental death) the trend is broadly downwards from the year 2000 to the year 2008. In 2000, there were 88 fatalities (excluding suicides) recorded by four Maritime Administrations (Atlas, Electra, Diadem, Gomeisa) which returned data to us, and in 2008 this number had fallen to 32 fatalities recorded by four Maritime Administrations (Capella, Electra, Diadem, Gomeisa) which returned data to us in that year (see Figure 1). It is evident that the lack of data from Atlas in 2008 has necessarily had a significant impact on the decrease in fatalities reported in these two single years. However, if we add the average number of fatalities recorded by Atlas in the period 2000-2005 inclusive (which stood at 32.3) we still see a decline in fatalities suggesting that the downward trend reflects a genuine decline for the period 2000-2008.

However, from 2008 to 2016 we see a broadly rising trend (strongest from 2011 onwards) such that in 2016 there were 69 fatalities reported to us by three Maritime Administrations (Atlas, Electra Diadem). In the eight-year period 2000-2007 (inclusive) we can calculate an average annual fatality figure of 64.3 and in the eight-year period 2009-2016 (inclusive) we observe an average annual fatality figure of 56.9<sup>1</sup>. In the period 2000-2007 we received data from an average of 4.625 Maritime administrations. In the period 2009-2016 we received data from an average of 4.875 administrations (slightly more). However, the picture is further complicated by the fact that in the period 2006-2014 inclusive we did not receive any data on fatalities from Atlas which in other years (all other years except 2004 when Electra exceeded it by one) is the largest contributor to fatalities along with Electra (cumulatively Atlas records 250 fatalities and Electra documents 251 fatalities across the whole period

<sup>1</sup> Adjusted to one decimal place.

although, as noted, Electra has provided data for all years whilst Atlas has only provided data for eight of the 17 years covered). It is therefore very likely that the increase in fatalities in the period 2009-2016 is genuine and given the absence of data from Atlas for six of the eight years covered, that (even for these seven administrations) fatalities are significantly under-represented in the current data.

Figure 1: Total fatalities by year



As we have indicated, the interpretation of the data is extremely difficult as a consequence of the erratic provision of data from the seven administrations which assisted us with data relating to personal injury (see Figure 2). In one very good year (2015) we received data from six of the seven administrations from which we collected figures. In eleven of the seventeen years over which we collected data, we received figures from five Maritime Administrations. However, these were not consistently the same five administrations. In four years, we received figures from four administrations and in one year we received data from just three administrations. In considering these data it is important to note that it is only Electra and Diadem which have provided us with personal injury and fatality data for the complete period 2000-2016 (see Figure 2). It is therefore worth considering the picture when data for these two administrations are isolated and combined (see Figure 3).

Figure 2: Fatalities by year and administration

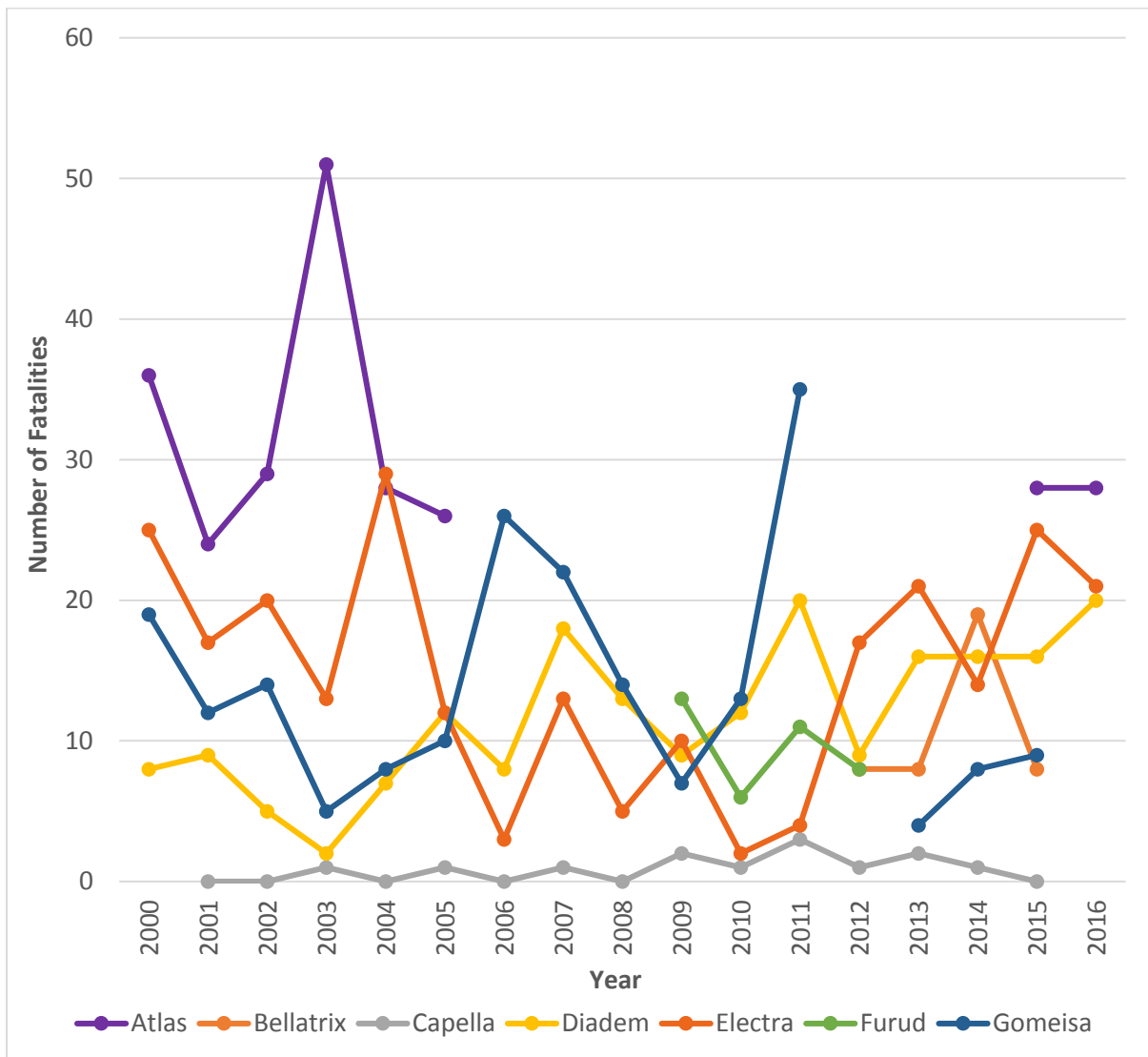
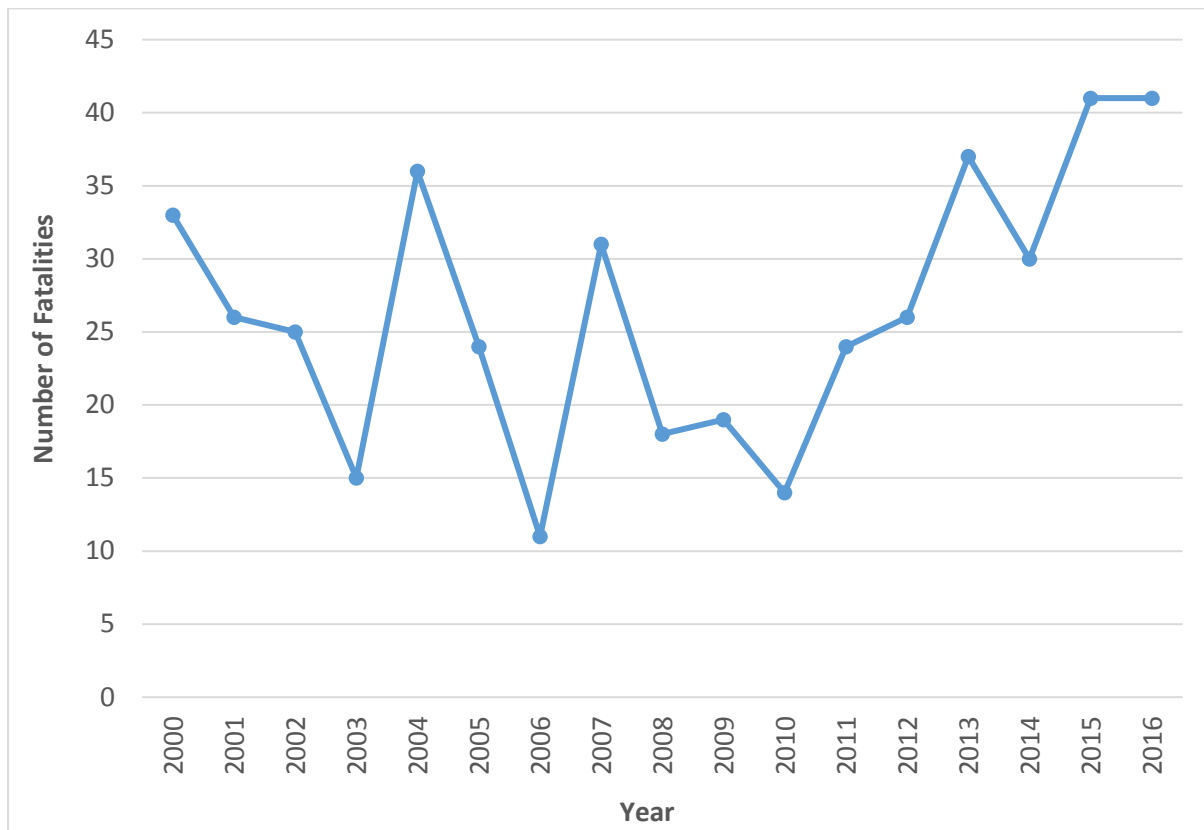


Figure 3: Fatalities - Electra and Diadem combined



When we consider the trend for Electra and Diadem combined (the administrations for which we have data for every year) we can see that there is a broadly downward trend with regard to the numbers of fatalities (excluding recorded suicides) in the period 2000-2010. Fatalities then **rise** in the period 2010-2016. The years 2015 and 2016 have the joint highest numbers of fatalities (41 in each year) for the entire period and the year 2013 has the next highest number of fatalities (37) in the overall period.

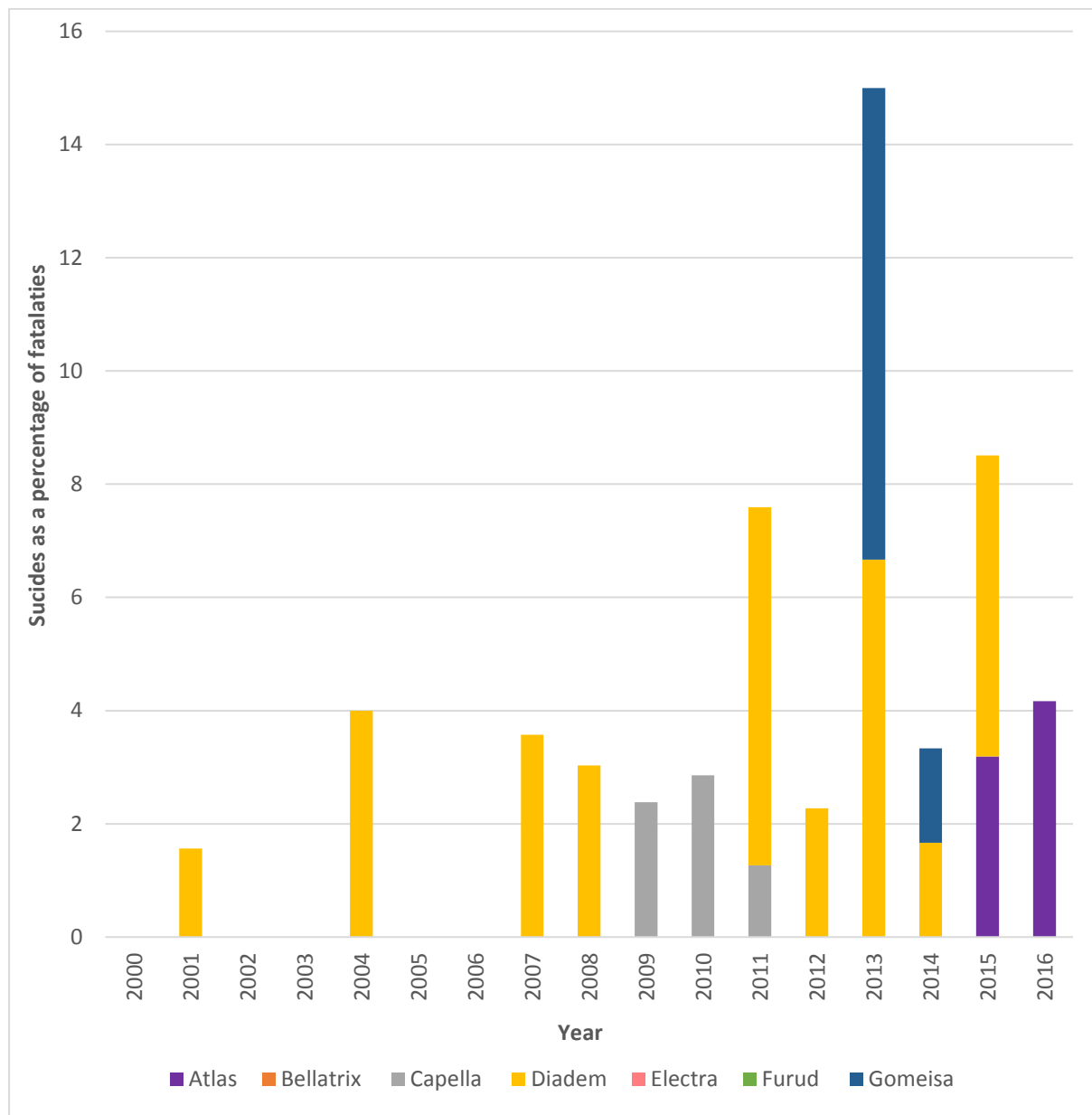
## Suicides

When we combine fatalities (natural causes and accidental death) with suicides we can observe that, overall, suicides constitute a relatively small proportion of total fatalities in the period 2000-2016. Of a total of 1039 fatalities over the seventeen years which were covered, 3.7% (i.e. 38 cases) were identified as suicides. Most of these were identified in the period 2007-2016. Only four cases of suicide were recorded in the period 2000-2006 (inclusive), one in 2001 and three in 2004. This suggests that until 2007 suicides were generally not recorded in such a way as to be identifiable – they were simply



categorised as ‘fatalities’ without further details being provided. Only one administration (Diadem) recorded any suicides prior to 2007 and only two (Diadem and Capella) recorded suicides prior to 2013. Suicides cannot be identified from our data in the whole period 2000-2016 for three administrations – Electra, Bellatrix, and Furud. In 2013, the highest number of suicides (n = 9) were recorded and these constituted 15% of recorded fatalities in that year. In 2015, eight suicides were recorded and these represented 9% of recorded fatalities (see Figure 4).

Figure 4: Annual recorded suicides as a percentage of all fatalities



## Injuries

We have previously described the under-reporting of injuries (Ellis et al 2010) in the data held by Maritime Administrations and once again we have confirmation of the degree to which injuries are under-reported to, and by, Maritime Administrations. Broadly speaking the relationship between minor injuries, major injuries and fatalities in workplaces is found to be pyramidal (Heinrich 1931) with fatalities found to constitute a very small percentage of total incidents (the peak of the pyramid) and minor injuries found to constitute the majority of incidents (the base of the pyramid). In our data, fatalities (excluding suicides) constitute quite a significant proportion of incidents averaging 7.1% of all incidents<sup>2</sup> across all years. This is in itself suggestive of significant under-reporting of injuries (Ellis et al 2010). However, under-reporting becomes even more evident when comparing the percentages of injuries as a proportion of all incidents recorded by each Maritime Administration. For example, data for Diadem indicate that fatalities constitute 87.3% of all incidents in the period, and in Furud the percentage is similarly high, standing at 62.3%. At the other end of the scale, it appears that in Electra and Capella the reporting and recording of injuries is far more conscientious. In these administrations, fatalities only constitute 3.5% and 3.3% of all incidents respectively.

As a result of the evidence of significant under-reporting of injuries and the very different practices observed by the contributing Maritime Administrations we are unable to report any meaningful trends or figures concerning injuries in this period. It is particularly disappointing that notwithstanding the attention which has been, previously, drawn to this problem (Ellis et al 2009, Ellis et al 2010) under-reporting of injuries appears to be a problem of increasing, rather than diminishing, magnitude.

<sup>2</sup> Excluding suicides, attempted suicides, missing persons and illness.

## Conclusion

Considered over a very long period of time, there is little doubt that the shipping industry is generally becoming safer (Allianz 2012). However, the trends revealed by these data suggest that in relation to seafarer mortality, the industry remains exposed. Having seen a decline in the numbers of seafarer deaths reported in the first eight years of the period 2000-2016, the data indicate that seafarer fatalities have increased and for (combined) administrations where we have data for the whole seventeen-year period there were more fatalities, in numeric terms, in 2016 than there were in 2000.

In terms of suicide, the data paint a grim picture if taken at face value. However, despite the sharp increase in recorded suicides in the period 2009 onwards, the evidence strongly indicates that this reflects poor recording practices prior to 2009. There are also strong indications that within almost half of this small sample of Maritime Administrations, the recording of suicides is still not undertaken or is obscured via classification processes which merge suicides with fatalities. In numeric terms, therefore, the picture for suicides is likely to be much worse than represented in these data whilst at the same time we are unable to conclude from the information provided that suicides amongst seafarers are increasing.

The data are least conclusive with regard to injuries to seafarers and as a result we do not feel that any value is provided by reporting our findings in relation to seafarer injuries.

Ideally, to assess the risk associated with the shipping industry and/or consider whether safety is improving, we require population data as well as consistent reporting and recording of deaths and injuries to seafarers. From these we would be able to construct fatality rates, injury rates, and suicide rates which would allow for more effective data interpretation.

## References

- Allianz (2012) *Safety and Shipping 1912-2012 From Titanic to Costa Concordia An insurer's perspective from Allianz Global Corporate & Specialty* [https://www.agcs.allianz.com/assets/PDFs/Reports/AGCS\\_safety\\_and\\_shipping\\_report.pdf](https://www.agcs.allianz.com/assets/PDFs/Reports/AGCS_safety_and_shipping_report.pdf)
- Ellis, N., Bloor, M., Sampson, H. (2009) 'Patterns in Injury Reporting' *SIRC Symposium proceedings 2009* <http://www.sirc.cf.ac.uk/Uploads/Symposium/Symposium%2009.pdf> (accessed 4/1/19)
- Ellis, N., Bloor, M., Sampson, H. (2010) 'Patterns of Seafarer Injuries', *Maritime Policy & Management*, 37(2): 121-128. DOI: 10.1080/03088830903533742.
- Hansen, H. (1996) 'Surveillance of deaths on board Danish merchant ships 1986-1993: Implications for prevention' *Occupational and Environmental Medicine*, 53: 269-275.
- Heinrich, H. (1931) *Industrial accident prevention: a scientific approach* New York: McGraw-Hill, pp. 1-366.
- IHS Fairplay (2010) *World Fleet Statistics*. Redhill: IHS Fairplay.
- Larsson, T., Lindquist, C. (1992) 'Traumatic fatalities among Swedish seafarers 1984-1988' *Safety Science* 15:173-182.
- Lloyd's Register Fairplay (2005) *World Fleet Statistics*. Redhill: Lloyd's Register-Fairplay Ltd.
- Nielsen, D. (2001) 'Fatalities at sea: establishing accurate statistics' *Seaways* May: 11-15.
- Nielsen, D., Roberts, S. (1999) 'Fatalities among the world's merchant seafarers (1990-1994)' *Marine Policy*, 23(1): 71-80.
- Roberts, S., Marlow, P. (2005) 'Traumatic work-related mortality among seafarers employed in British merchant shipping 1976-2002', *Occupational and Environmental Medicine*, 62: 172-180

Appendix 1 – Top 30 Maritime Administration by Gross Tonnage as Listed in Lloyd’s Register Fairplay World Fleet Statistics 2005, and IHS Fairplay World Fleet Statistics 2010

2005			2010		
GT Order	Registration	GT	GT Order	Registration	GT
1	Panama	141,821,709	1	Panama	201,264,453
2	Liberia	59,600,240	2	Liberia	106,708,344
3	Bahamas	38,418,433	5	Bahamas	50,369,836
4	Singapore	30,989,786	6	Singapore	44,869,918
5	Greece	30,744,745	7	Greece	40,795,358
6	China - Hong Kong	29,808,870	4	China - Hong Kong	55,543,246
7	Marshall Islands	29,242,222	3	Marshall Islands	62,011,182
8	Malta	23,015,630	8	Malta	38,737,657
9	China	22,284,148	9	China	34,705,141
10	Cyprus	19,019,124	10	Cyprus	20,732,488
11	Norway -NIS	14,222,932	15	Norway -NIS	13,828,168
12	Japan	12,751,477	12	Japan	16,857,860
13	Italy	11,615,973	11	Italy	17,044,319
14	Germany	11,497,212	14	Germany	15,282,545
15	United Kingdom	11,194,019	13	United Kingdom	16,477,909
16	United States of America	11,058,361	17	United States of America	11,941,087
17	Korea, South	9,251,080	16	Korea, South	12,512,549
18	United Kingdom - Isle of Man	8,405,715	18	United Kingdom - Isle of Man	11,620,778
19	Russian	8,334,455	25	Russian	7,710,692
20	India	8,065,009	23	India	9,244,245
21	Denmark - DIS	7,790,149	19	Denmark - DIS	11,530,364
22	United Kingdom - Bermuda	7,311,933	21	United Kingdom - Bermuda	10,535,860
23	Antigua and Barbuda	7,178,542	20	Antigua and Barbuda	10,737,659
24	St Vincent and the Grenadines	5,904,826	31	St Vincent and the Grenadines <sup>3</sup>	4,707,206
25	Malaysia	5,758,729	24	Malaysia	8,073,069
26	Netherlands	5,669,041	26	Netherlands	6,737,969
27	Iran <sup>4</sup>	5,270,599			
28	Philippines	5,199,088	30	Philippines	5,256,311
29	Turkey	5,044,703	28	Turkey	5,946,844
			29	France - FIS	5,449,155
30	Indonesia	4,330,407	22	Indonesia	9,278,513
	Other	84,316,799		Other	91,471,579
	<b>Total</b>	<b>675,115,956</b>		<b>Total</b>	<b>957,982,304</b>

<sup>3</sup> In 2010 the 27<sup>th</sup> ranked maritime administration was 'unknown'. This was removed and replaced by 'St Vincent and the Grenadines' the 31<sup>st</sup> highest administration by gross tonnage.

<sup>4</sup> There was a slight change in the composition of the top 30 maritime administrations in 2010 compared to 2005 which meant Iran was replaced by France - FIS.