

2. Statistics

Breakdown by cause category and by the type of accident

Most of the accidents were due to “failure to measure oxygen or gas concentration”

According to marine accident investigation reports by the Japan Transport Safety Board and judgments by the former Marine Accident Inquiry Agency, the number of fatal and injury accidents which were caused by oxygen deficiency or gas poisoning occurring on chemical tankers or other types of vessel was 18 (involving 18 vessels) since 1989 (or 2008 in the case of the Board’s reports).

The breakdown by cause category is as follows.

- (1) Failure to measure oxygen or gas concentration (15 cases)
- (2) Failure to maintain pump shaft sealing, wear a breathing device and station an attendant (1 case)
- (3) Chemical reaction caused by mixing different types of cargo tank washing water (1 case)
- (4) Leakage of a toxic gas from a cargo hold to each crew cabin, which was caused by the removal of a cargo hold air duct, and the failure of a shipper to inform an operation manager that the cargo was a dangerous good, which as a result prevented the operation manager from checking whether any dangerous good was on board (1 case)

This breakdown clearly shows that most of the accidents were caused by “failure to measure oxygen or gas concentration.” (See Figure 1)

According to the breakdown by the type of accident, the number of fatal accidents was 16 (88.9% of the total) while the number of injury accidents was 2 (11.1%). (See Figure 2)

* Fatal accidents cover accidents involving both fatalities and the injured.

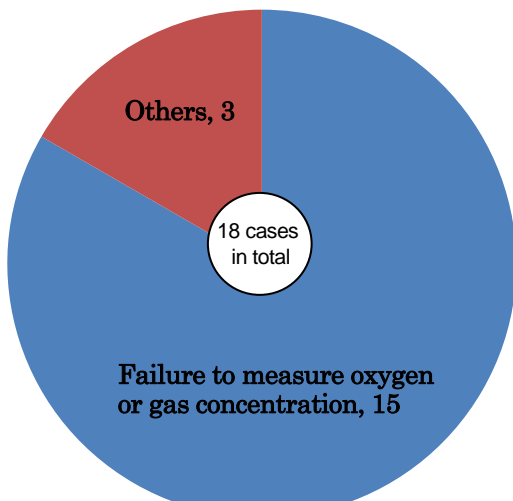


Figure 1: By cause category

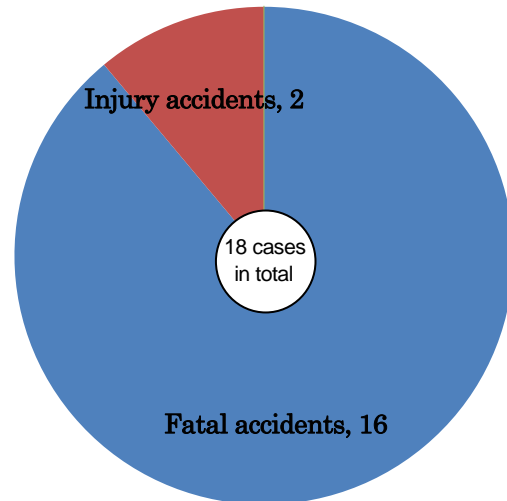


Figure 2: By the type of accident

Breakdown of the fatalities and injured

The number of the fatalities and injured involved in the 18 accident cases was 41. The breakdown is 24 fatalities (58.4%) and 17 injured (41.5%). The fact that the number of the fatalities accounted for a majority indicates that they contain a high fatality risk once they have occurred. (See Figure 3)

The breakdown by occupational category is 38 crew members (92.7%) and 3 workers (7.3%). (See Figure 4)

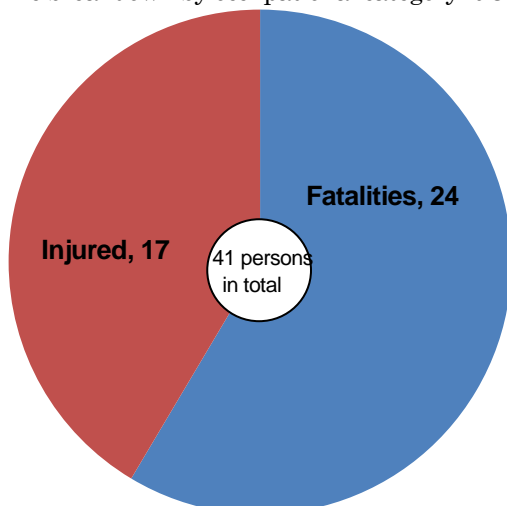


Figure 3: The number of the fatalities and injured

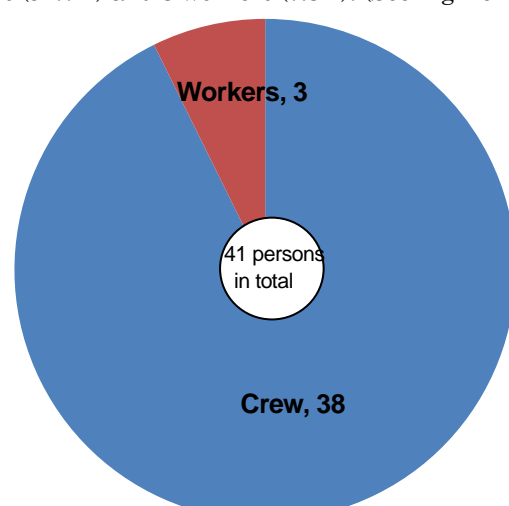


Figure 4: By occupational category

By the type and tonnage of vessel

By the type of vessel, the number of chemical tankers was 9 (50.0%), the largest among all, followed by cargo ships 5 (27.8%) and oil tankers 3 (16.7%). Our attention is drawn to the fact that the number of accidents occurring on chemical tankers, which involve working inside holds or enclosed spaces and are very likely to handle dangerous goods, accounted for a majority. (See Figure 5)

By the tonnage of vessel, the number of vessels in the range of 100 to 200 tons was 2 (11.1%), 200 to 500 tons 11 (61.1%) and 500 to 1,600 tons 3 (16.7%), showing that the number of accidents occurring on relatively small vessels with a tonnage of 100 to 500 tons accounted for more than 70% of the total. (See Figure 6)

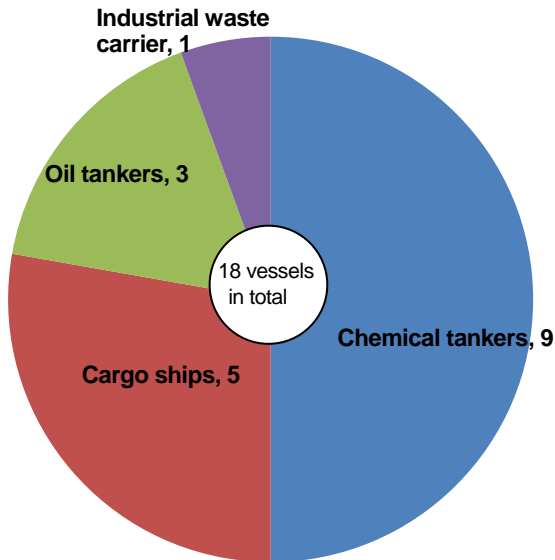


Figure 5: By the type of vessel

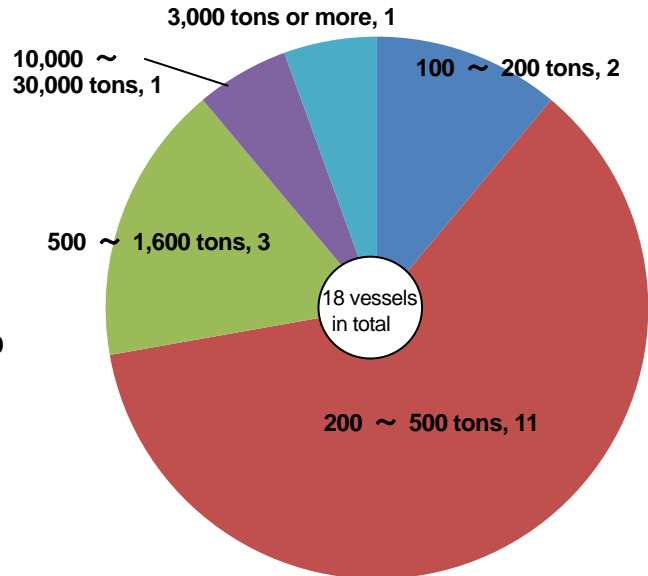


Figure 6: By the tonnage of vessel

Map showing accident sites

This map shows that 7 accidents occurred in the vicinity of Tokyo Bay, accounting for 38.9% of the total, while 3 accidents occurred in the vicinity of Kanmon Kaikyo (Strait) (16.7%).

* The Board has started providing on its website "Japan-Marine Accident Risk and Safety Information System", which allows users to search for marine accidents by area or type and displays them on a map. (URL: <http://jtsb.mlit.go.jp/hazardmap/index.en.html>)

