

# Characteristics of fatal marine accidents

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## Introduction

- Commercial fishing has one of the highest occupational injury and mortality rates<sup>1,2</sup>
- Merchant shipping is also risky<sup>3</sup>
- There is little data on characteristics of accidents involving vessels in the water
- The goal of this study was to determine such characteristics in order to identify areas for improvement to reduce marine fatalities

## Methods

- Data obtained from Marine Accident Reports issued by the National Transportation Safety Board
- Inclusion criteria:
  - PDF copy of report available
  - Accident involved a fatality
  - Accident occurred while vessel was moored or moving in the water
- Exclusion criteria:
  - Vessel was docked at the time of the accident
  - Fatality was located on the shore
- Data collected:
  - Accident date, time, location, nature
  - People involved
  - Fatality number, location, and cause
- Classification of fatalities:
  - “Definitely” on vessel if the body was found onboard
  - “Probably” on vessel if the individual was last seen on the vessel
  - “Water” if the body was found in the water and they were not seen on the vessel during the accident
  - “Unknown” if the body was not found
- Cause of death as “unknown” if the body was not found or cause of death not given in report
- Data analyzed using Microsoft Excel

## Results

- 52 accidents from 1972-2019 included
- July (13.5%), October (13.5%) and December (11.5%) were the most common months for accidents
- 57.7% of accidents started during nighttime hours (7pm-7am)
- Average duration of accidents was 113 minutes (range 0 - 1195)
- Accident causes:
  - Sinking (63.5%)
  - Capsizing (40.4%)
  - Collision with another ship (17.3%)
- 5045 people involved, 468 fatalities
- Fatalities:
  - 33.1% were definitely on the vessel
  - 10.5% were probably on the vessel
  - 13.9% were definitely or probably in the water
  - Location of 42.5% was unknown
- Causes of death:
  - Drowning 18.8%
  - Burns or smoke inhalation 9.4%
  - Trauma 4.3%
  - Hypothermia 4.3%
  - Unknown 63.2%

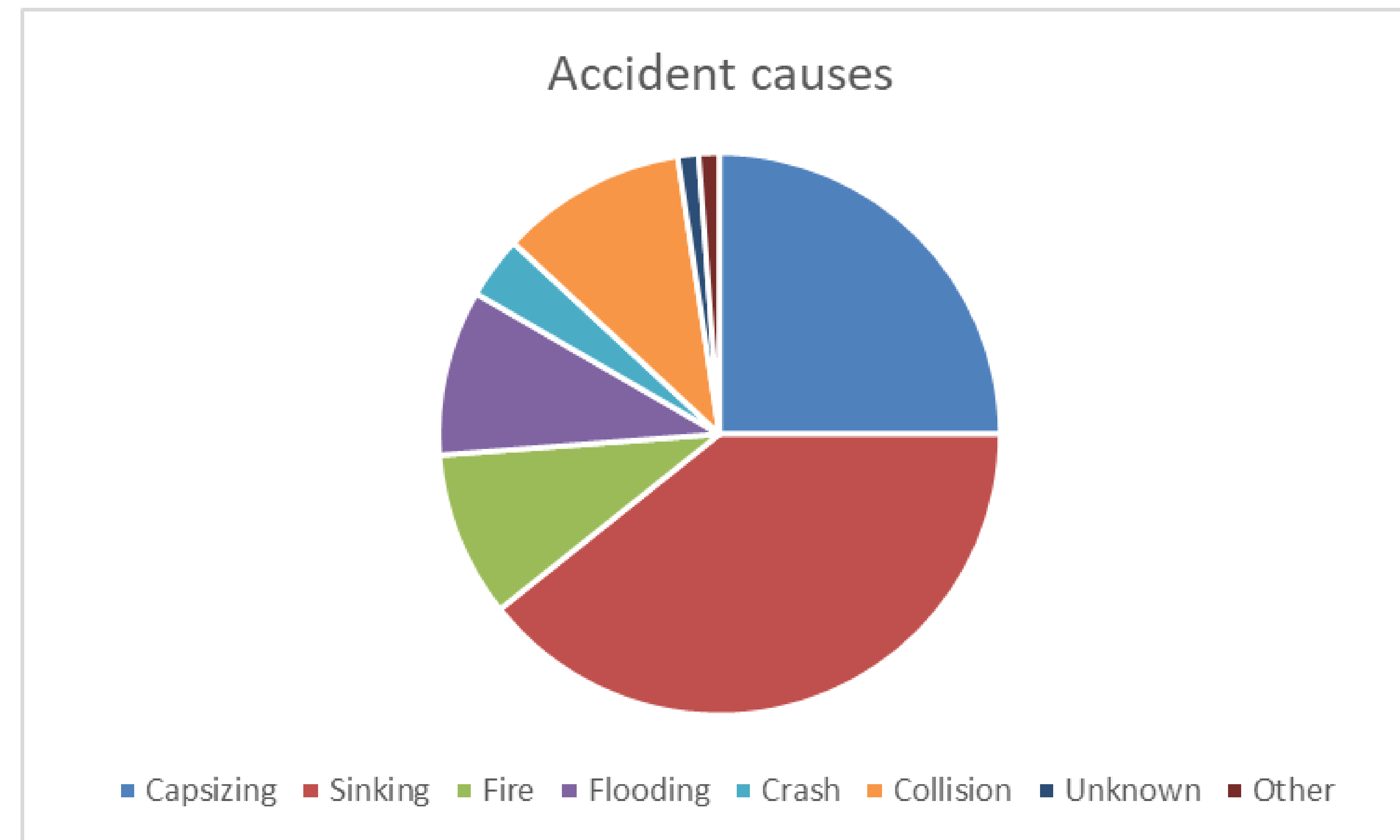


Figure 1. Accident causes

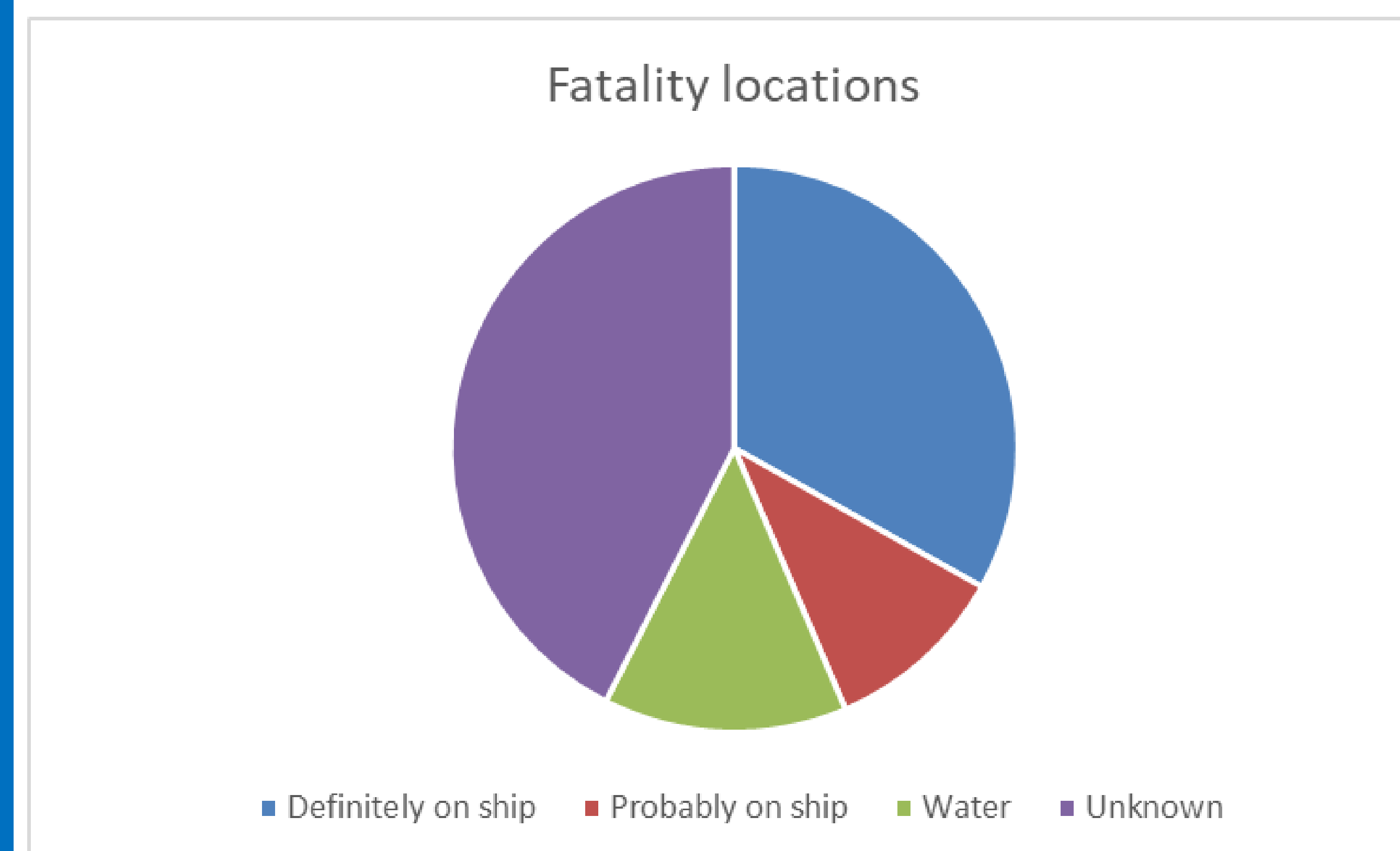


Figure 2. Fatality locations

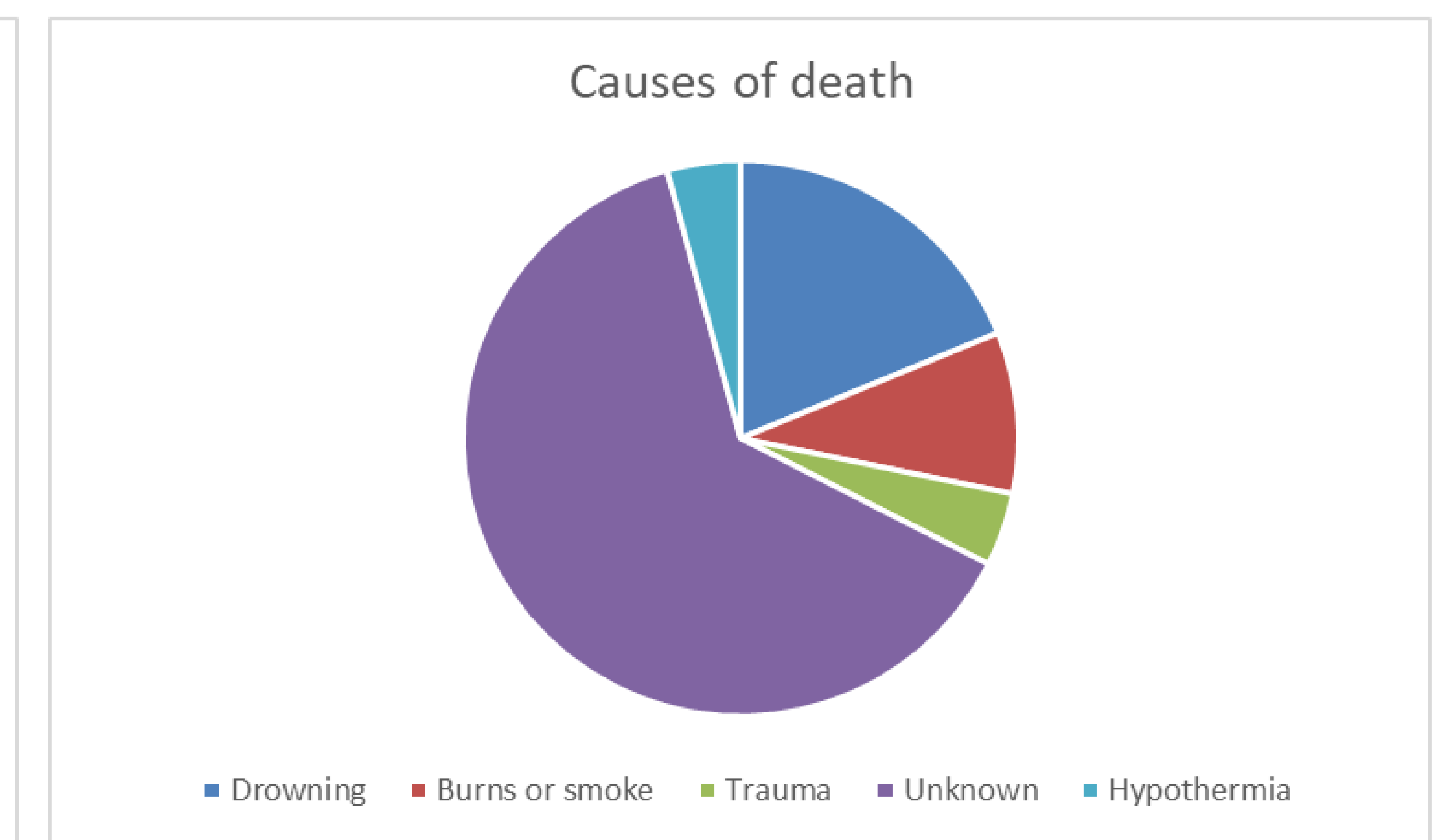


Figure 3. Causes of death

## Discussion

- Drowning is the most common cause of death, when known
- Sinking is the most common accident cause
- Many fatalities occurred, or likely occurred, on the vessel
- A study of US commercial fishing fatalities found that most occur when the crew are forced to abandon the ship<sup>2</sup>
- A study of British maritime shipping accidents found seasonal variation, with accidents and fatalities occurring more often between September and April<sup>3</sup>
- Limitations of the study include use of a single database, exclusion of reports that did not have a copy of the report available, and exclusion of marine accidents the NTSB did not investigate

## Take Home Points

- Given that, when known, many fatalities occur on the vessel, passengers and crew should be:
  - Familiar with exit routes
  - Able to exit the vessel
  - Instructed to exit in a timely manner

## References

1. Byard RW. Commercial fishing industry deaths – forensic issues. *J Forensic Leg Med.* 2013;20(3):129-32.
2. Lincoln JM, Lucas DL. Occupational fatalities in the United States commercial fishing industry, 2000-2009. *J Agromedicine.* 2010;15(4):343-50.
3. Roberts SE, Carter T. Causes and circumstances of maritime casualties and crew fatalities in British merchant shipping since 1925. *Int Marit Health.* 2018;69(2):99-109.