

# Analysis of Sea Accidents in 2006

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**ABSTRACT:** There are less than a hundred accidents and incidents reported in 2006. The information about accidents was logged on to Centre of Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE) and International Maritime Organization websites.

Types of ships involved in accidents, location of casualties, types of initial events, consequences and seasons of sea accident were analysed.

## 1 INSTRUCTION

Accidents on the sea waters have involved passengers and cargo vessels. Sometimes sea transport of dangerous goods can become dangerous because of accidents and may generate marine environment threats. Unexpected releases of toxic, flammable, explosive, carcinogenic and other substances into the sea environment as the result of dangerous accidents are often inevitable.

## 2 SEA ACCIDENTS CASES

There were 86 accidents reported in 2006 in IMO and CEDRE databases. A lot of described accidents involved ship damages without any pollution and lost of life. There were few accidents with huge amounts of pollution (Dewi Parwati and Shinfutaba, Solar 1, Global Peace and Tom Tough) and some of them took a heavy toll on human life (Al Salam Boccaccio, Al-Dana, Heng Da 1).

### 2.1 *Al Salam Boccaccio 98 accident (February 3)*

Al Salam Boccaccio 98 was registered as Ro-Ro/passenger vessel. While the ship was sailing to the port of destination of Safaga (Egypt), the fire was

detected. The Master and the crew of the vessel battled the fire for around 4 hours without any success. It caused the vessel to list excessively to starboard side, as the water accumulated on the deck because the scuppers were blocked with cargo (cars, trailers, containers). The ship sank in the Red Sea, 57 miles from the coast. There were 1031 lives lost and 387 people, including 24 (of 97) crew members were rescued in this accident.

### 2.2 *Al-Dana accident (March 30)*

The passenger ship Al-Dana was cruising in the south area of Sh. Khalifa Bin Sulman Al-Khalifah (Persian Gulf), with 131 passengers and crew on board. The vessel capsized in fair weather conditions resulting in the loss of 58 lives.

### 2.3 *Heng Da 1 accident (February 16)*

*Heng Da 1* – refrigerated cargo ship ran aground and broke up 2 miles East of Dongshen Island, Fujian (China). The hull cracked into two parts. After an emergency search, only 1 seafarer survived, 3 were dead and 33 were missing.

## 2.4 Dewi Parwati with Shinfutaba accident (August 10)

The 499-ton Shinfutaba, with 5 crew members, was loaded with sand when it hit the 6,306-ton general cargo ship Dewi Parwati, with 19 crew members in a dense fog. Shinfutaba sank. In this area 24 tons of oil was spilled as a result of the collision. All 5 crew members of Shinfutaba were rescued by the Dewi Parwati, and one slight injury was reported among the crew.

## 2.5 Solar 1 accident (August 11)

Oil tanker *Solar 1* was en route in the southern island of Mindanao (South China Sea). Because of rough seas, *Solar 1* sunk at about 500 km southeast of Manila. 18 people of the 20 on board were rescued. Two have been missing since the accident. The sunken *Solar 1* tanker spilled oil in a 15 square nautical miles.

## 2.6 Global Peace with Tom Tough accident (January 24)

The accident happened at Gladstone harbour (Coral Sea, Australia) during a tugging operation. One of the tug's engines failed and the tug (Tom Tough) collided with the ship – Global Peace, penetrating its hull. Heavy fuel oil had been flowing from the hole in the side of the Global Peace into the harbour for about 45 minutes. It was estimated that 25 m<sup>3</sup> of heavy fuel oil escaped from the ship into Gladstone harbour. The port's emergency response was initiated immediately and the ensuing clean up was started the next morning, and had continued for 7 days.

# 3 SHIP ACCIDENT ANALYSIS

## 3.1 Casualty classes of ship accidents

Ship casualties are classified, according to the MSC-MEPC.3/Circ. 1, (International Maritime Organization 2005), as:

- very serious casualties (total loss of the ship, loss of life, or severe pollution),
- serious casualties (involve a fire, explosion, collision, grounding, contact, heavy weather damage, ice damage, hull cracking, or suspected hull defect resulting in immobilization of main engines, extensive accommodation damage, severe structural damage, rendering the ship unfit to proceed, or regardless pollution or a breakdown necessitating towage or shore assistance),
- less serious casualties,
- marine incidents.

Only very serious, serious and less serious casualties are essential in the analysis because show real threats for the human life and the environment. Then marine incidents are omitted in the analysis.

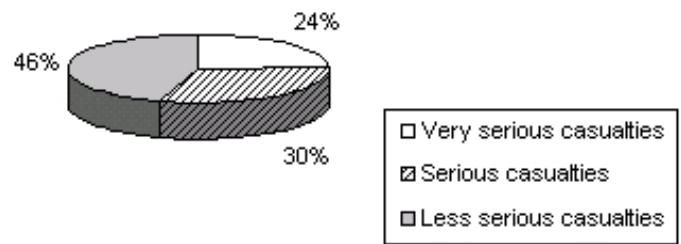


Fig. 1. Ship accidents in 2006 according to the casualty class

## 3.2 Types of ships involved in accidents

Document MSC-MEPC.3/Circ. 1 (International Maritime Organization 2005) contains and identifies 27 types of ships and ships structures: 1 – liquefied gas tanker, 2 – chemical tanker, 3 – oil tanker, 4 – other liquids (non-flammable) tanker, 5 – bulk dry (general, ore) carrier, 6 – bulk dry / oil carrier, 7 – self-discharging bulk dry carrier, 8 – other bulk dry (cement, woodchips, urea and other specialized) carrier, 9 – general cargo ship, 10 – passenger / general cargo ship, 11 – container ship, 12 – refrigerated cargo ship, 13 – Ro-Ro cargo ship, 14 – passenger / Ro-Ro cargo ship, 15 – passenger ship, 16 – high speed craft, 17 – other dry cargo (livestock, barge, heavy cargo, etc.) carrier, 18 – fish catching vessel, 19 – fish factory ship / fish carrier, 20 – offshore supply ship, 21 – other offshore ship, 22 – research ship, 23 – towing / pushing tug, 24 – dredger, 25 – other activities ship, 26 – non-propelled ships, 27 – other ships structures.

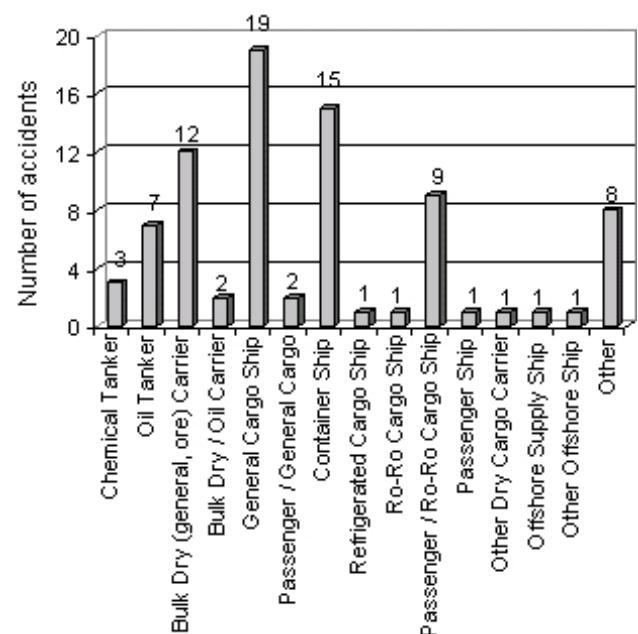


Fig. 2. Ship accidents in 2006 according to the type of ship

General cargo ships, container ships and bulk dry carriers were oftenest involved in sea accidents in 2006 (Fig. 2).

### 3.3 Location of casualties

The location of casualties are meaningful when cargo release into the sea environment and make its pollution.

The location of casualties are classified, according to the MSC-MEPC.3/Circ. 1 (International Maritime Organization 2005) as: 1 – at berth, 2 – anchorage, 3 – port, 4 – port approach, 5 – inland waters, 6 – canal, 7 – river, 8 – archipelagos, 9 – coastal waters (within 12 miles), 10 – open sea.

The most sea accidents (80%) occurred in the costal areas (Fig. 3).

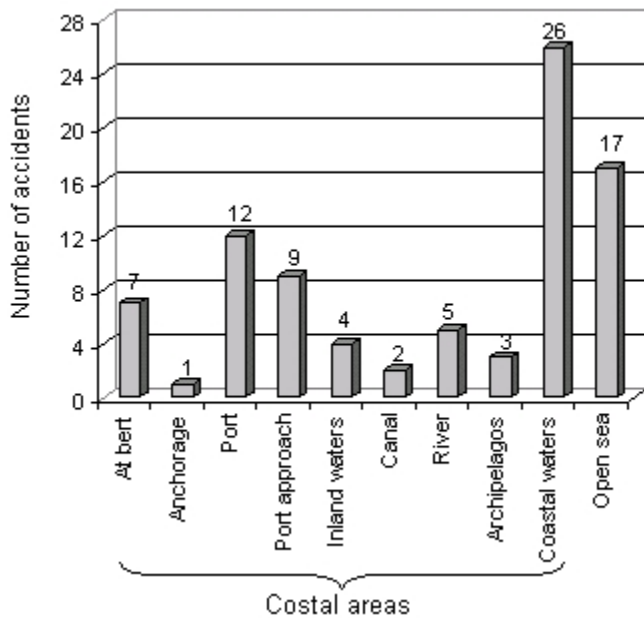


Fig. 3. Ship accidents in 2006 according to the location of casualty

### 3.4 Types of events initial sea accidents

There are 11 types of events that may initial sea accidents (International Maritime Organization 2005): 1 – collision, 2 – stranding or grounding, 3 – contact, 4 – fire or explosion, 5 – hull failure or failure of watertight doors, ports, etc., 6 – machinery damage, 7 – damages to ship or equipment, 8 – capsizing or listing, 9 – missing (assumed lost), 10 – accidents with life-saving appliances, 11 – other.

A stranding or grounding and collision were the oftenest initial event of analysed sea accidents in 2006 (Fig. 4).

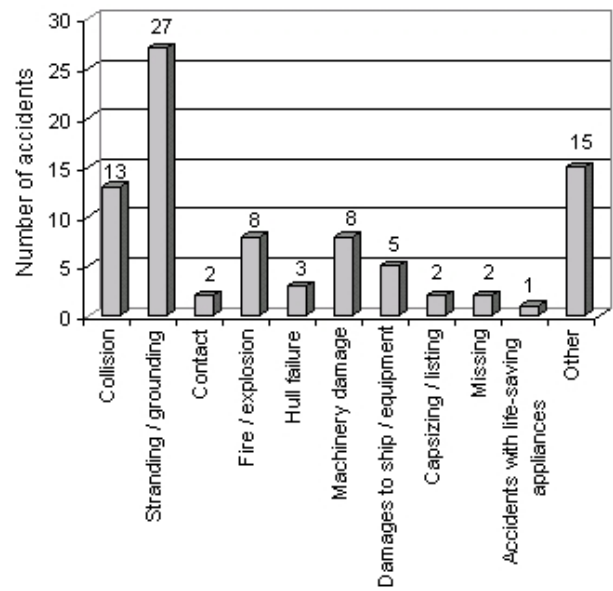


Fig. 4. Ship accidents in 2006 according to the initial event

Moreover, it was found that human violations and errors (routine, alcohol) and environmental causes (heavy sea, restricted visibility and fog) were often the primary causes of the initial events.

### 3.5 Consequences of sea accidents

There are 3 types of consequences of sea accidents corresponded to (International Maritime Organization 2005):

- the human life (loss of life, serious injuries),
- the environment (pollution make by oil in bunker, oil cargo, or other chemicals),
- the ship (total loss of the ship, ship rendered unfit to proceed, ship remains fit to proceed).

Most analysed accidents involved vessel damages (Fig. 5).

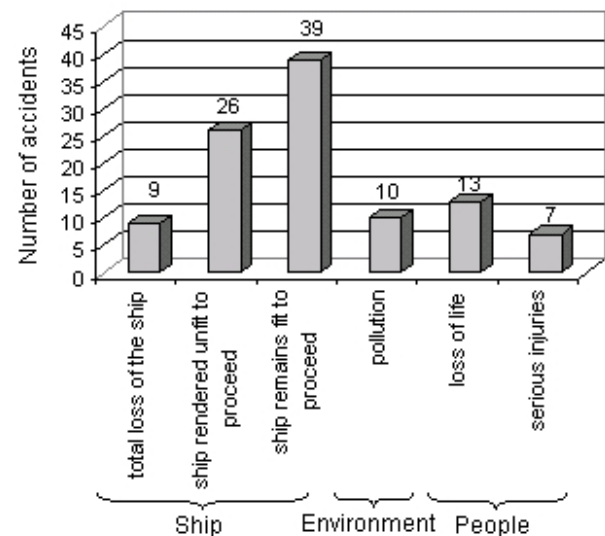


Fig. 5. Ship accidents in 2006 according to the casualty consequences

### 3.6 Seasons of sea accident

A lot of sea accident were noted in winter and early springtime (Fig. 6). Short day and bad weather during these seasons could be reason of these.

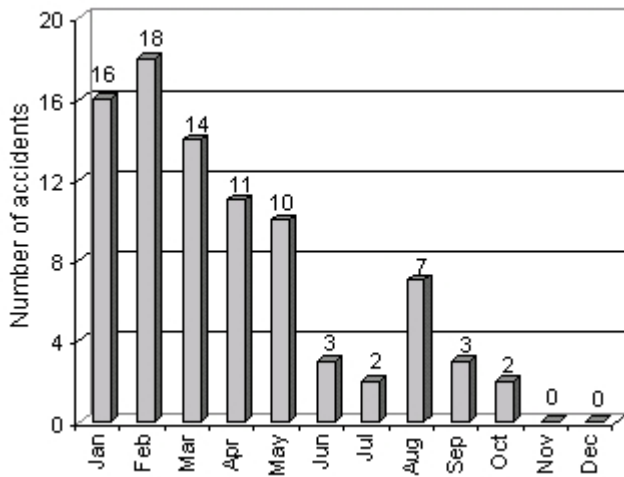


Fig. 6. Ship accidents in 2006 according to the season

## 4 CONCLUSION

There are 86 sea accidents of 2006 analysed. The analyse lets to find that:

- the most of accidents are the less serious casualties,
- the general cargo ships are involved in the most of analysed accidents,
- beaches and costs are the most threatened areas, because a lot of sea accidents occurred in the costal waters,
- damages of ship is the most common consequences of accidents,
- a lot of accident occurred in winter and earlier springtime.

## PREFERENCES

- Centre of Documentation, Research and Experimentation on Accidental Water Pollution website (<http://www.cedre.fr/>).
- International Maritime Organization 2005. Casualty-related matters reports on marine casualties and incidents. MSC-MEPC.3/Circ.1, London, 26 September.
- International Maritime Organization, Global Integrated Shipping Information System website (<http://gisis.imo.org/>).