Human factor: the key element of maritime accidents

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Maritime Accident analysis in Atlantic Europe and Canada from 2012 to 2015

Is it really the weakest link human?

Objectives

1. Accident analysis from 2012 to most recent in Atlantic EU and Canada.
2. Find precise causes.
3. Determine the reasons to fail, from an integrated perspective.
4. Research is carried out by a team made up of psychologist and seafarers.
5. Make suggestions to improve security.

INFORMATION SOURCES

Maritime Safety Agencies:

- Marine Accident Investigation Branch (UK)
- Le Bureau d'enquêtes sur les événements de mer (France)
- Danish Maritime Accident Investigation Board
- The Safety Investigation Authority (Finland)
- Federal Bureau of Maritime Casualty Investigation (Germany)
- Federal Bureau of Maritime Casualty Investigation (Ireland)
- Dutch Safety Board
- Accident Investigation Board Norway
- Gabinete de Prevenção e de Investigação de Acidentes Marítimos
- Transportation Safety Board of Canada
- Swedish Accident investigation Authority
- Comisión Permanente de Investigación de Accidentes e Incidentes Marítimos

Materials and Method

- Atlas.ti 7.5 software to perform a qualitative/quantitative analysis.
- A total of 65 out of 93 reports were selected.
- Reasons to put aside: irrelevance, very small crafts, being incomplete or not finished.
- Coding process of every report manually.
- Analysis.

Keys for Coding

- Key events in the accident.
- As Human factor appeared, find all relevant circumstances.
- Supporting Construct: **Situation Awareness** (Endsley, 1995)
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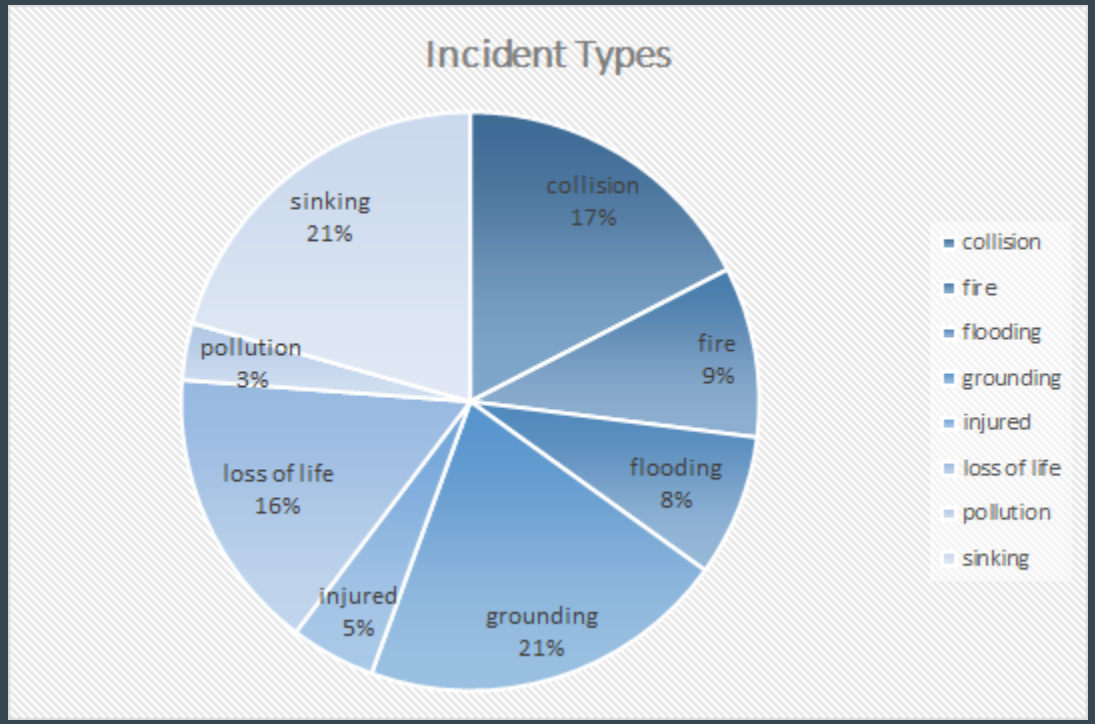
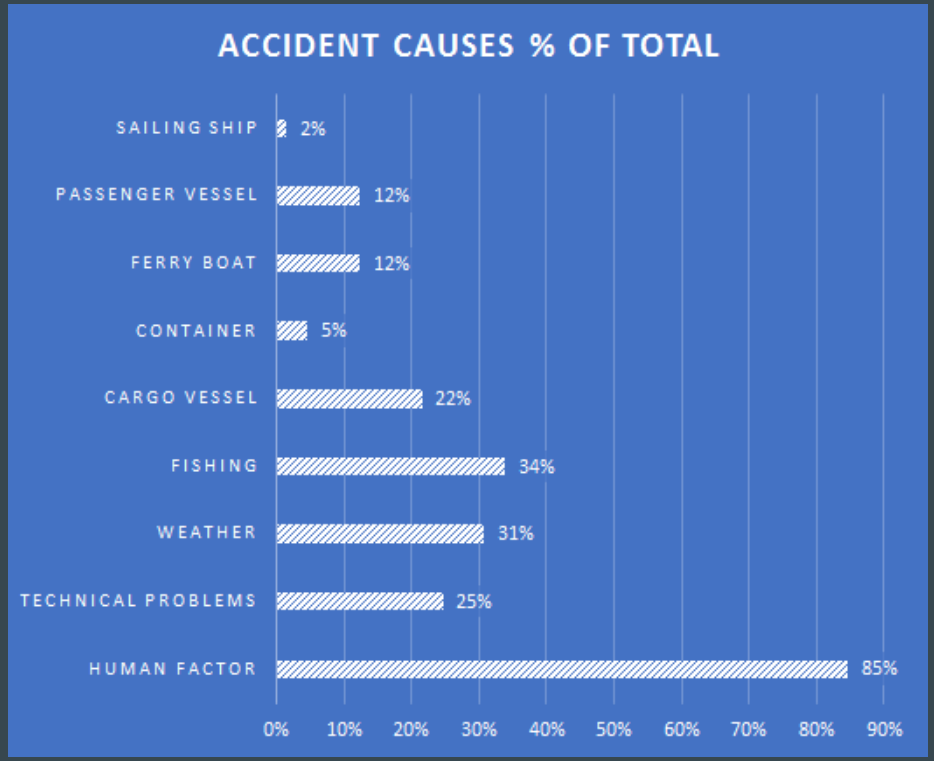
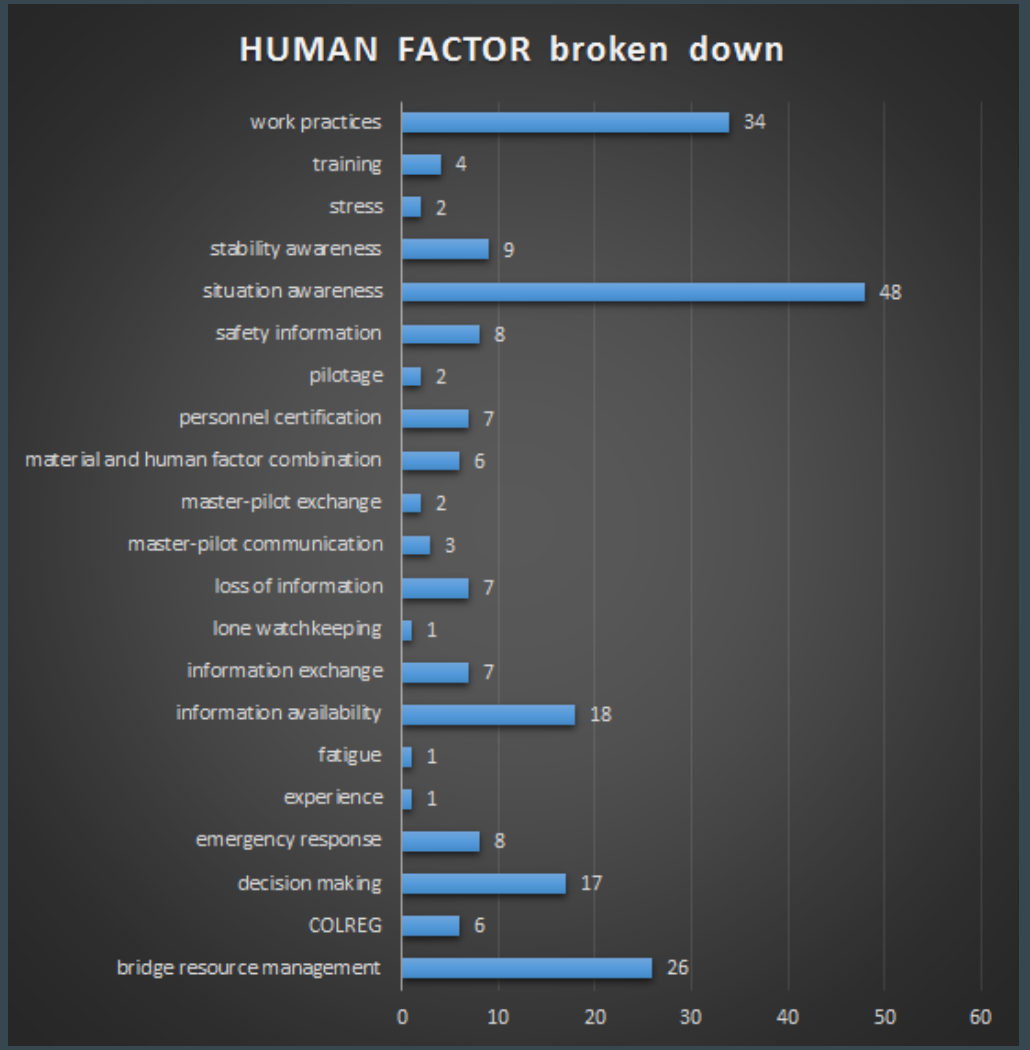
Results 1: Types of Incidents



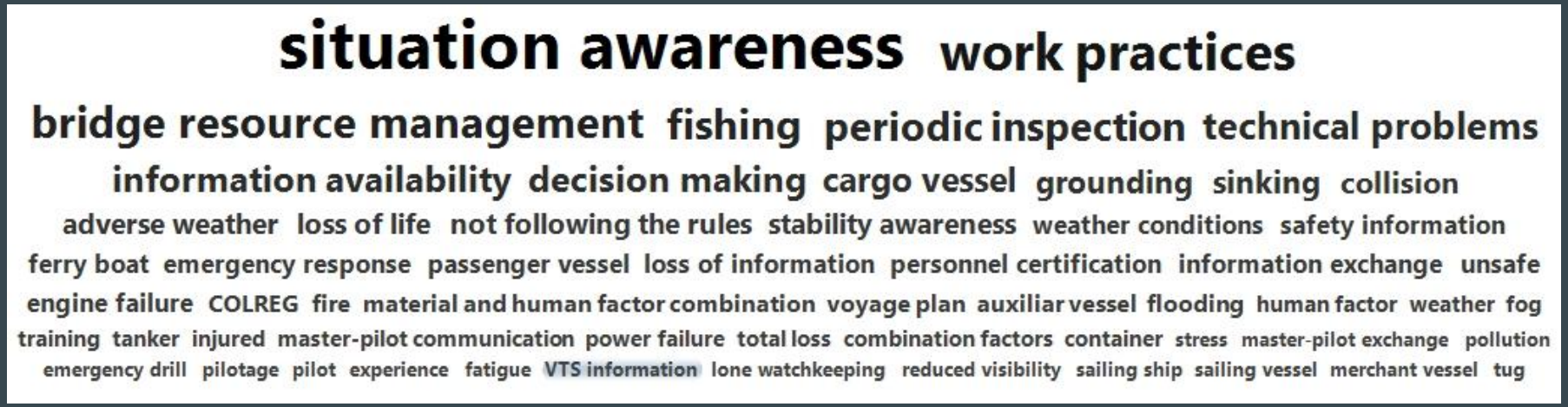
Results 2: Accident Causes and Type of Vessel



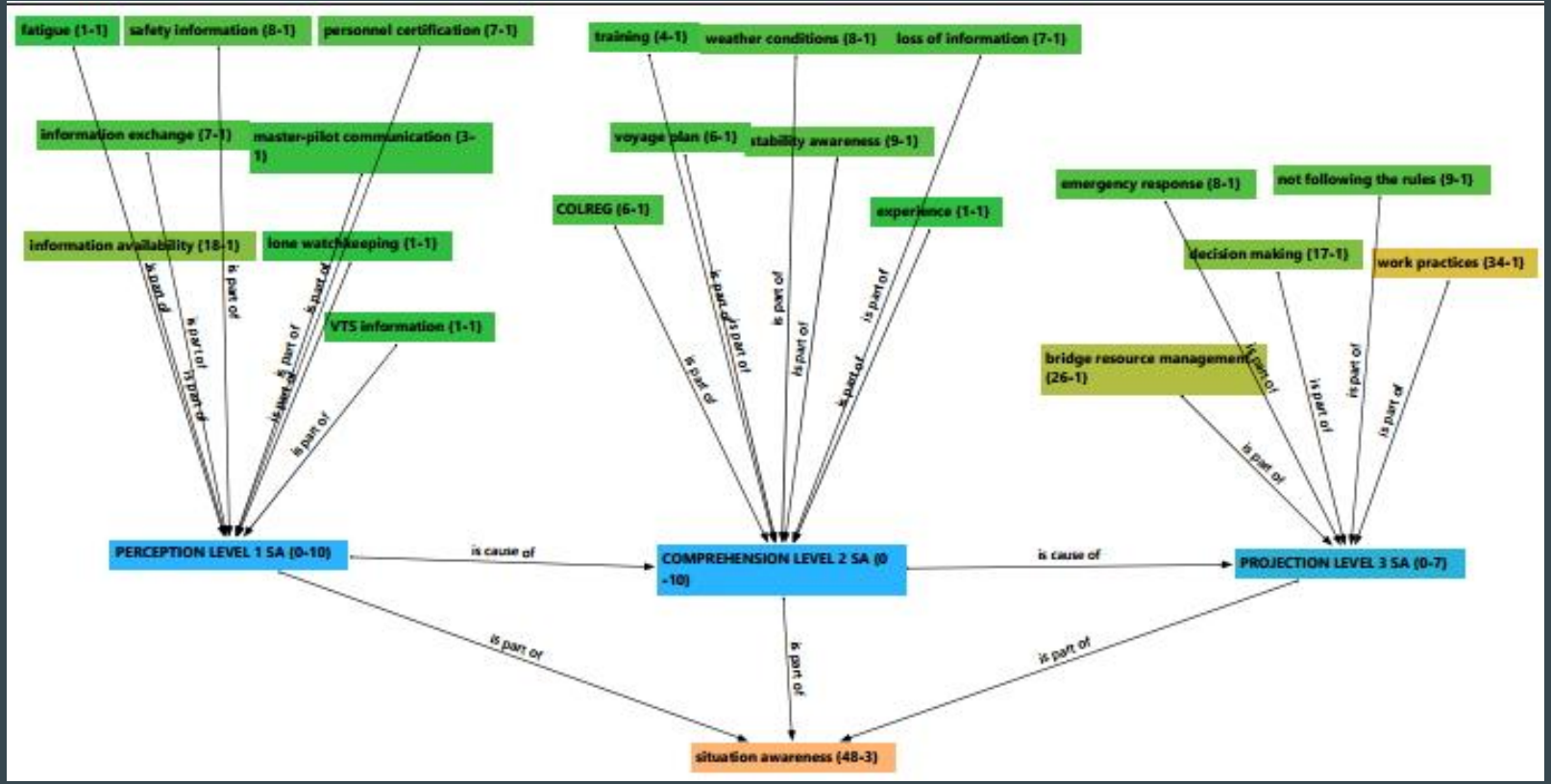
Results 3: Human Factor broken down



Results 4: Coding Word Cloud



Results 5: semantic Analysis



Conclusion

1. 85% of Sea Accidents are caused or aggravated by Human factors.
2. Loss of Situation Awareness is the leading cause.
3. Work practices and Bridge Resource Management (SA level 3) are the most influential factors.
4. Information availability is the main factor in SA level 1.
5. Fatigue or stress do not seem to be influencing factors.
6. In fishing vessels the lack of periodic inspections and work practices usually lead to accidents.

Recommendations

To Authorities:

- Implement Manila Amendments in Seafarers curricula, particularly in work organization, emergency response and bridge and time management.
- Improve security inspections in fishing vessels.
- Enforce compliance of COLREG (using VTS) mainly for small vessels.

To Shipowners:

- Promote a culture of security: it pays off.
- Invest in training of personnel on board.
- Do not allow essential or security equipment remain damaged.
- Implement effective management systems for their Officers.

The Crew

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