Results of the BeAware I project

BEWARE
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Risk Assessment

Results of the QRA for Oil
Results of the BeAware I project

Results

![Map and chart showing risk of spill by scenario and cause]
Overview

- Background
- Different accident types
- Frequency of the accident types
- Spills from the different accident types
- Future scenario
- Regional differences
- Risk Reducing Measures and areas of interest
- Summary and Conclusions
Results of the BeAware I project

Background

BeAware I Results

Overall objective:

• Apply the accident model to describe the:
  – Accident type
  – Location
  – Spill size
  – Spill substance

Basis:

• Traffic model
• Cargo model
• Risk Reducing measures
• Accident statistics
• Other assessments
Background
Accidents covered

- Ship-ship collision model
  Node collisions
  Route collisions
- Groundings
- STS/bunkering operations/loading buoy/FSPO
- Offshore installations
  Operational spills
  Spills from collisions
- Fire and explosions
- Foundering
- Wind parks
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Basis: Idealised traffic

For every route
- Representative vessels using route
- Mean value
- Standard deviation
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Basis: Idealised traffic

Oil and chemical tanker passages
Accident types
Ship-Ship collisions

Route collisions

The collision frequencies depend on:

• the length of the route segment
• the traffic intensity in each direction
• the length, breadth and speed of the ships
• the deviation of the ships from the route axis
• the causation probability \( P_c \)

Results of the Quantitative Risk Analysis for Oil

\[
V_2, L_2, B_2 \quad m, s
\]
\[
V_1, L_1, B_1
\]

Route length, \( L \)
Accident types
Ship-Ship collisions
Node collisions

The collision frequencies depend on:
- the traffic intensity in each direction
- the length, breadth and speed of the ships
- the crossing angle
- the causation probability $P_c$
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Accident frequency
Ship collisions, grounding and offshore installations

[Map showing accident frequency with various colored markers and annotations]
Accident spill
Ship collisions, grounding and offshore installations

Spill overview divided into:

All locations: approx. 15000

Oil Classes,
Size of spill,
Regional results 2011

Divided into sub regions:
Regional results 2020

Divided into sub regions:
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Regional results change

Divided into sub regions:

tonnes/year

![Bar Chart]

Results of the Quantitative Risk Analysis for Oil
Results of the BeAware I project

Risk Reducing Measures and areas of interest

- TSS reduces risks significantly
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Risk Reducing Measures and areas of interest

- VTS has significant effect on ships with no pilots
Summary and conclusion

- Areas with high intensity traffic in narrow lanes gives large contributions when no TSS is applied
- Largest contributions to route collisions to do not have TSS
- Largest contributor to node collisions around Dover Straight
- Not insignificant contributions from the operational spills from platforms
- Substantial regional differences in accidents and spills
- Input to scenario selection process.
Summary and conclusion - II

- Information about location and frequency of accidents.
- Impact the spills evaluated in Be-Aware II