

Results of the BeAware I project

BEAWARE

PROJECT WORKSHOP, Trondheim, NO

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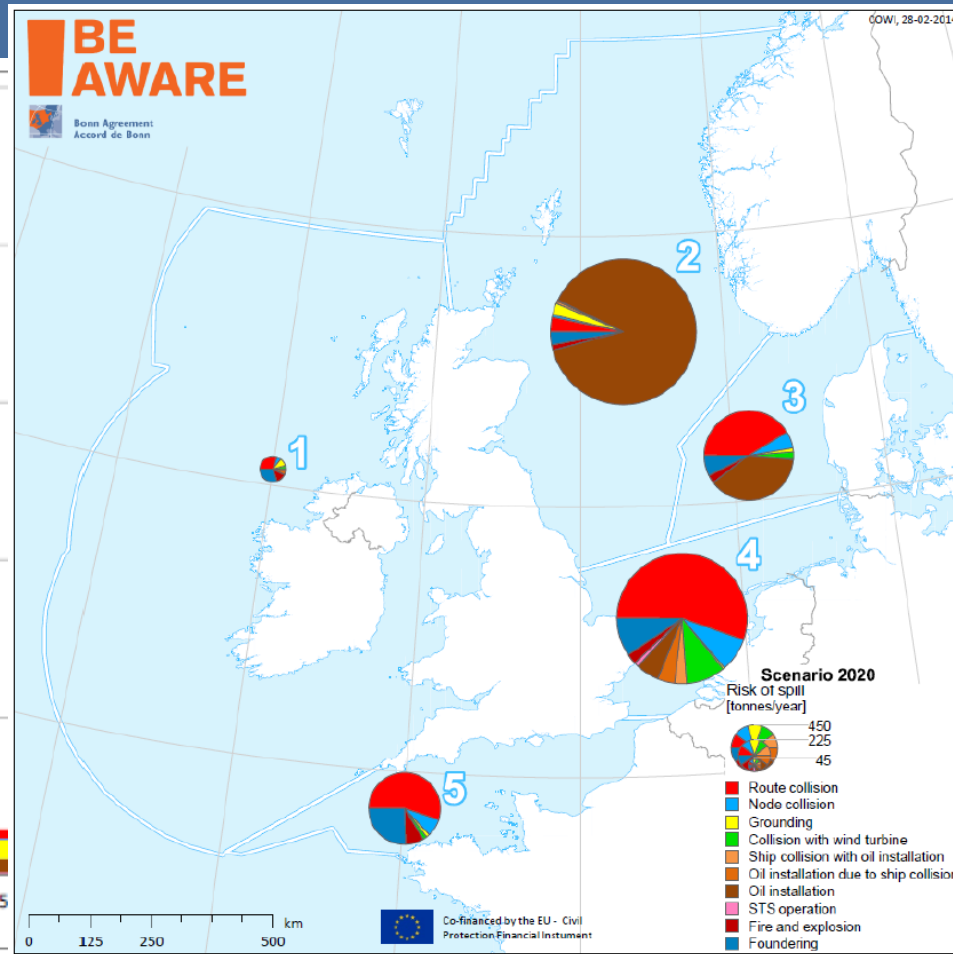
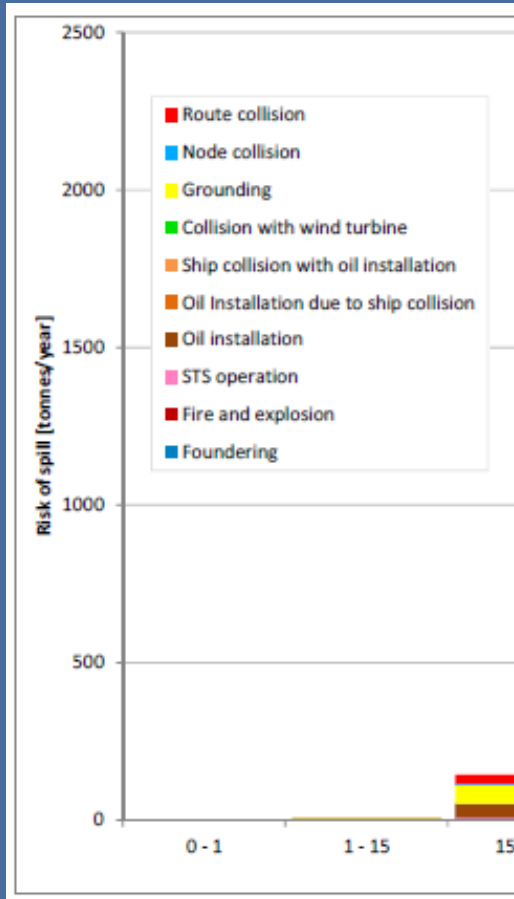
Risk Assessment



Results of the QRA for Oil

Results of the BeAware I project

Results



Results of the BeAware I project

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

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

Results of the BeAware I project

Background

Accidents covered

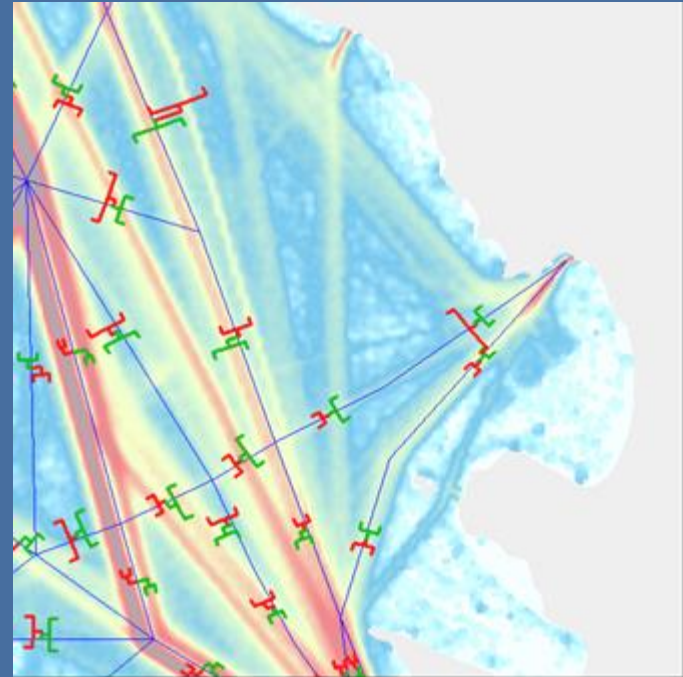
- Ship-ship collision model
 - Node collisions
 - Route collisions
- Groundings
- STS/bunkering operations/loading buoy/FSPO
- Offshore installations
 - Operational spills
 - Spills from collisions
- Fire and explosions
- Foundering
- Wind parks

Results of the BeAware I project

Basis: Idealised traffic

For every route

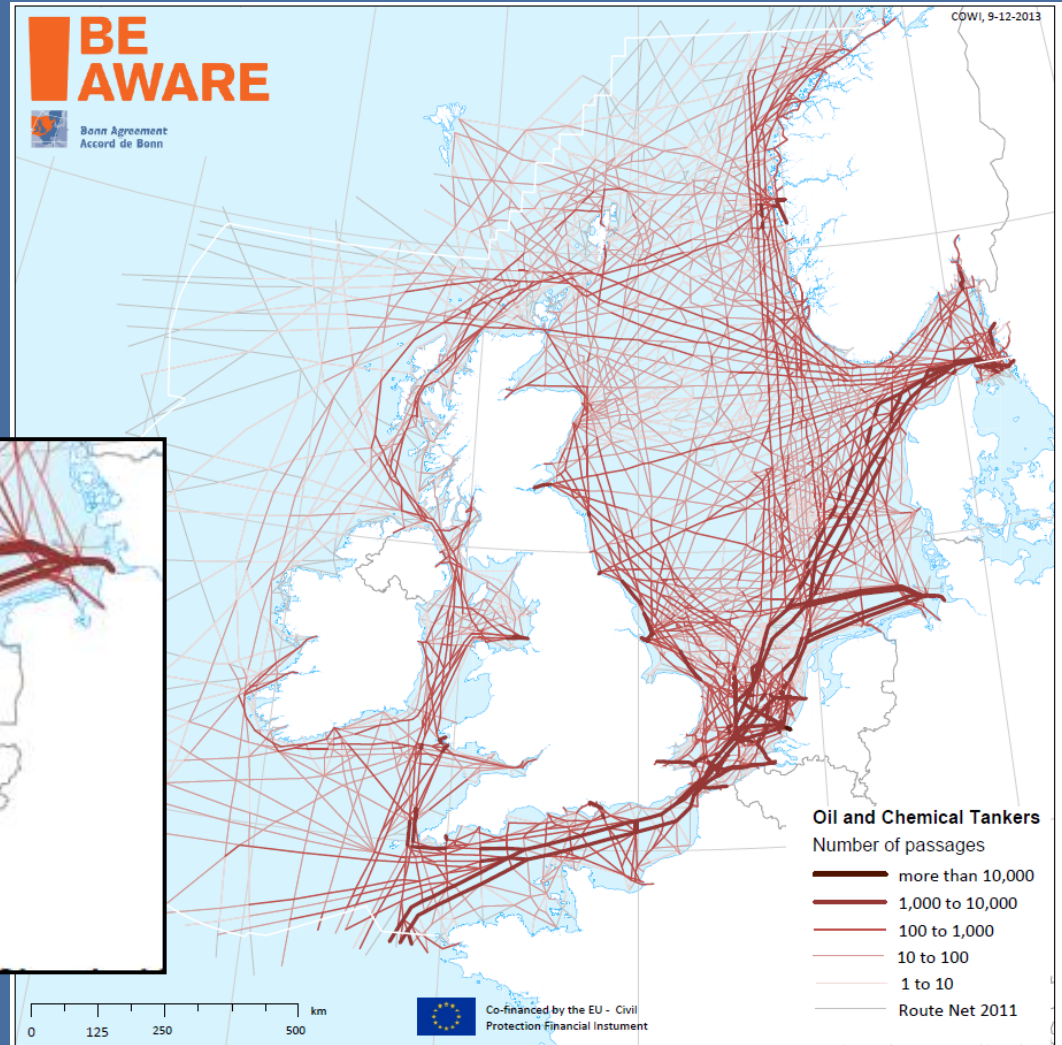
- Representative vessels using route
- Mean value
- Standard deviation



Results of the BeAware I project

Basis: Idealised traffic

Oil and chemical tanker passages



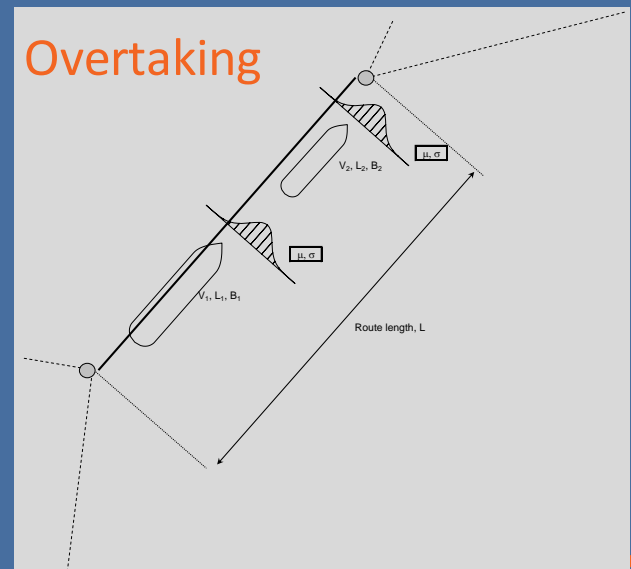
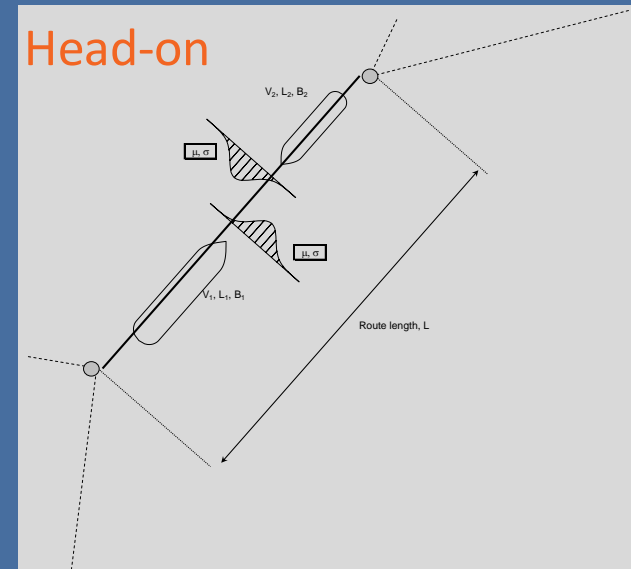
Results of the BeAware I project

Accident types Ship-Ship collisions

Route collisions

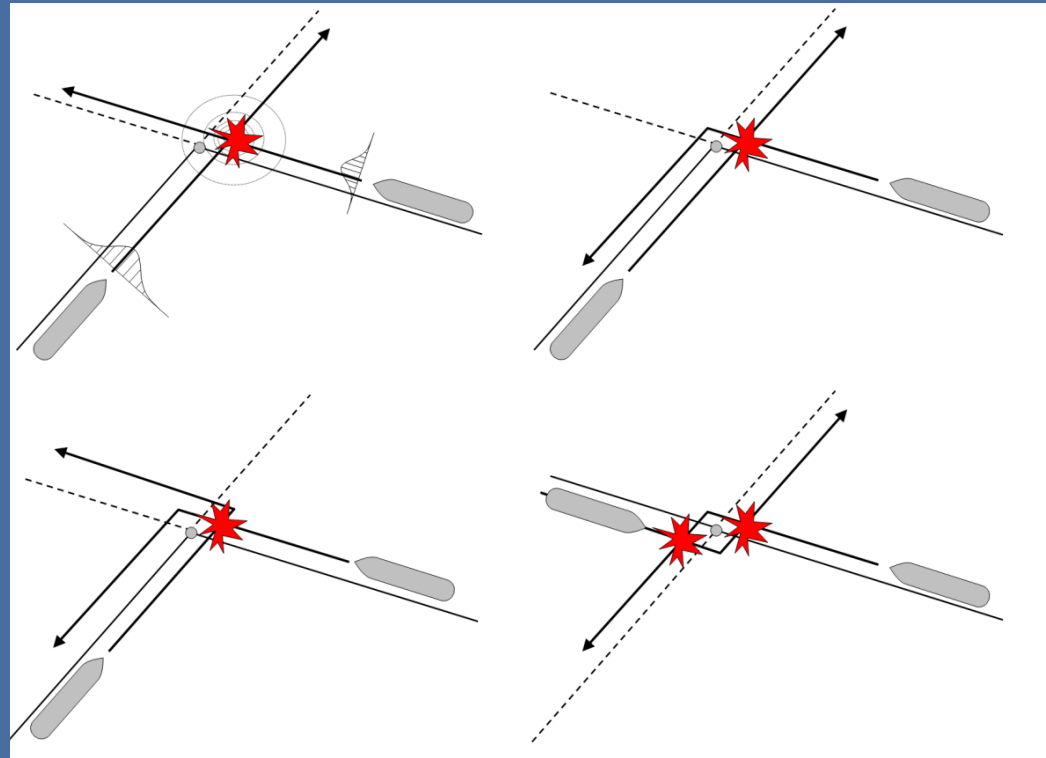
The collision frequencies depend on:

- 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 BeAware I project

Accident types Ship-Ship collisions Node collisions



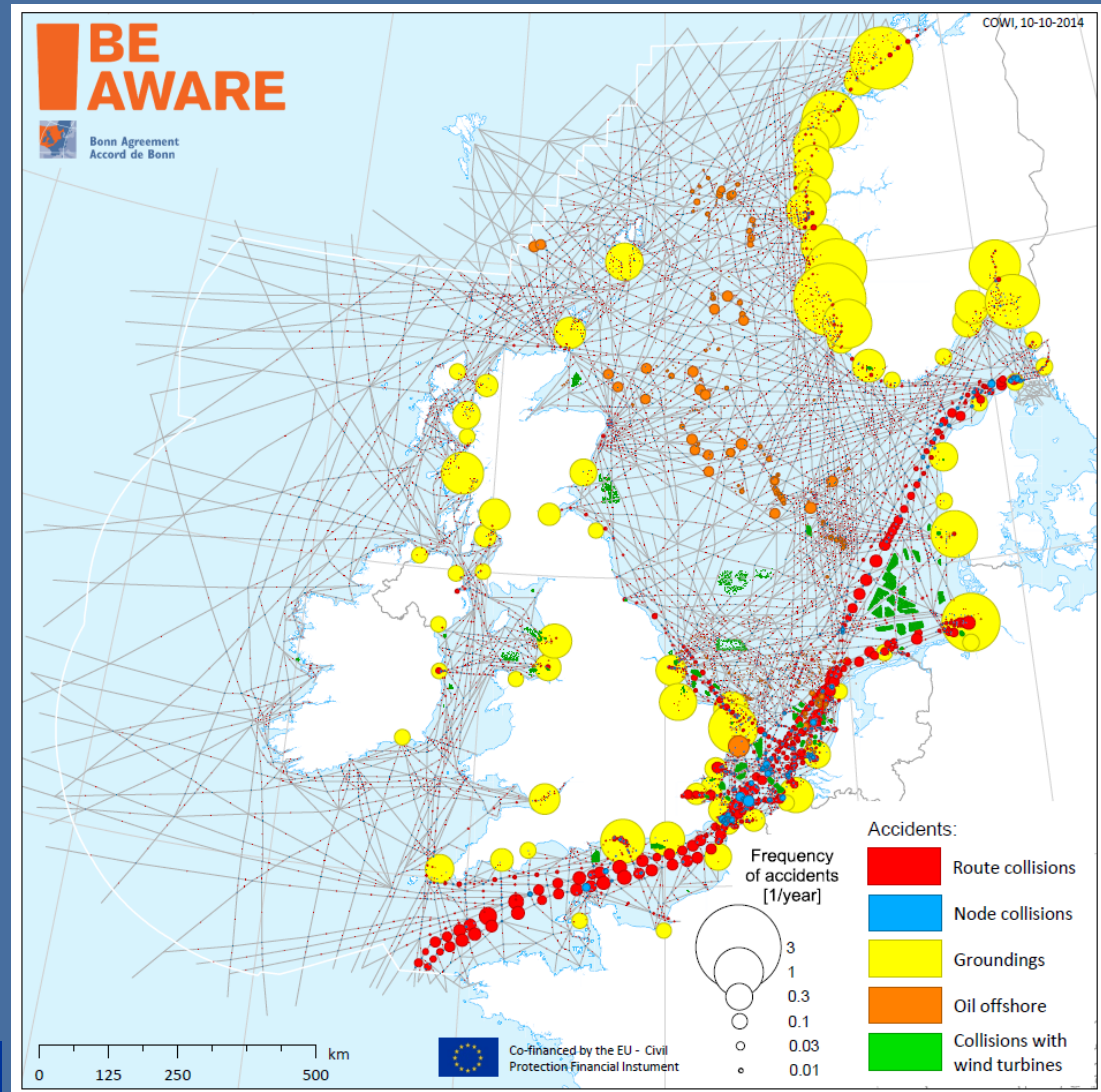
The collision frequencies depend on:

- the traffic intensity in each direction
- the length, breadth and speed of the ships
- the crossing angle
- the causation probability P_c

Results of the BeAware I project

Accident frequency

Ship collisions, grounding and offshore installations



Results of the BeAware I project

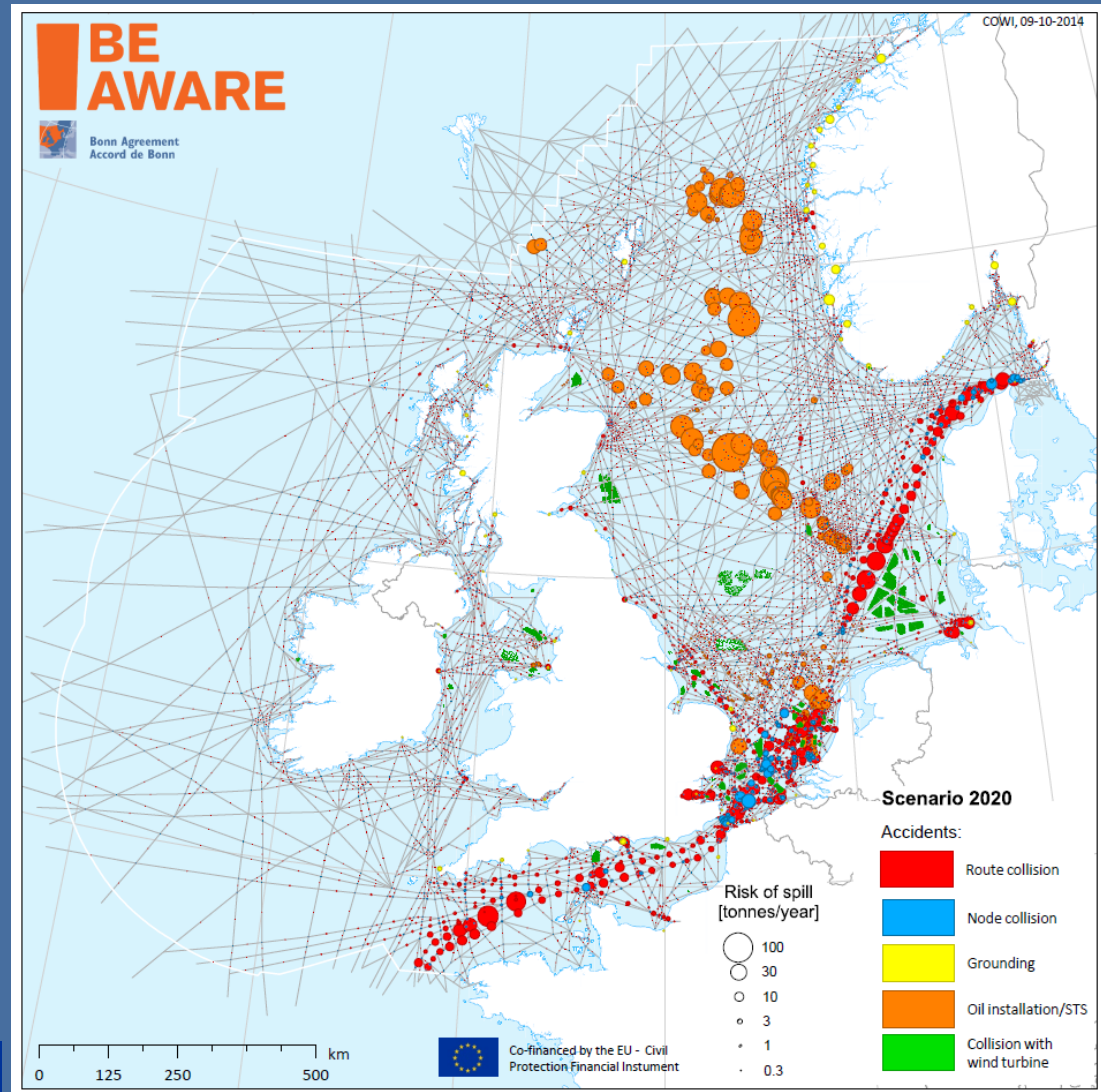
Accident spill

Ship collisions, grounding
and offshore installations

Spill overview divided into:

All locations: approx. 15000

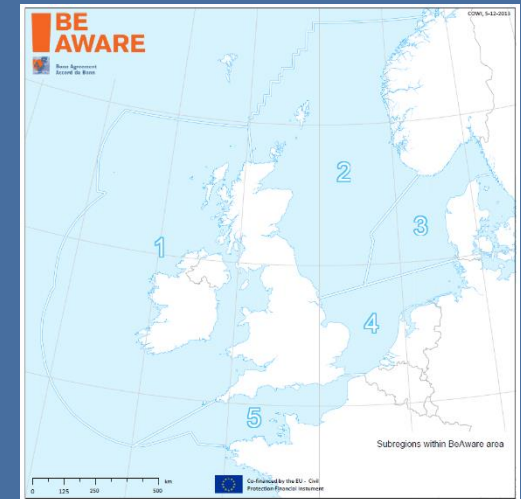
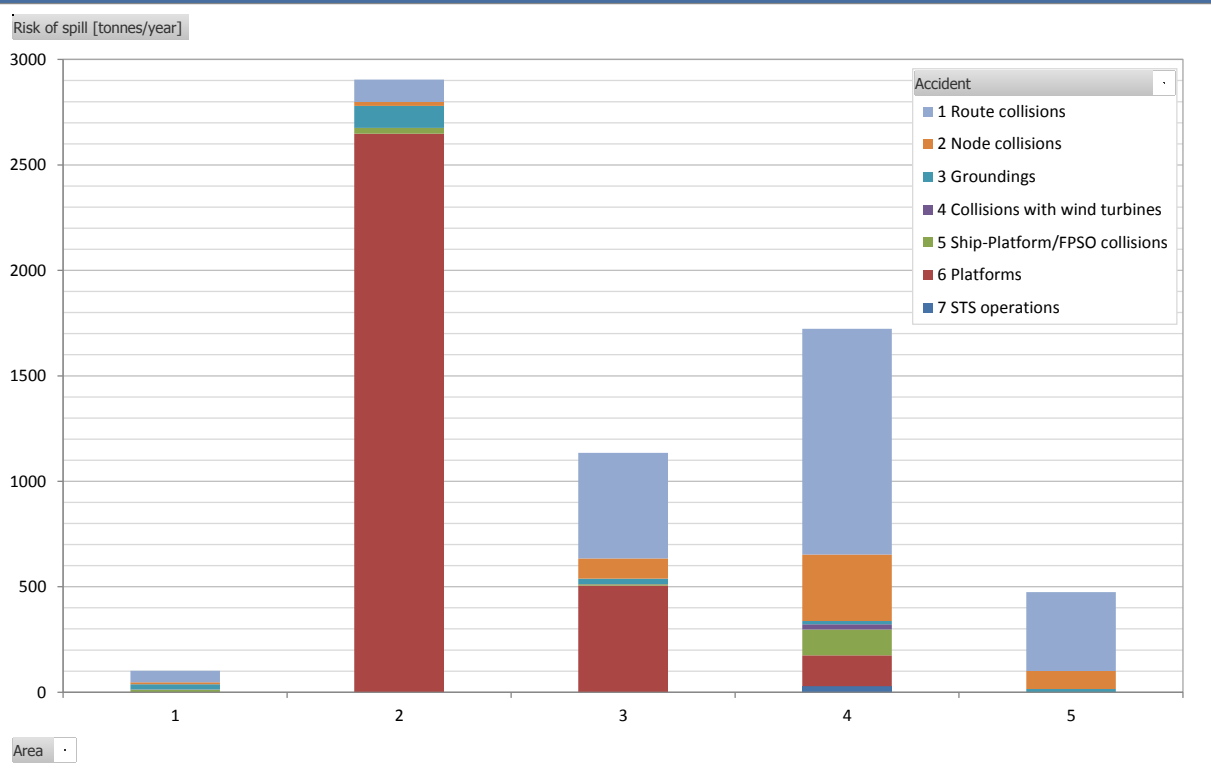
Oil Classes,
Size of spill,



Results of the BeAware I project

Regional results 2011

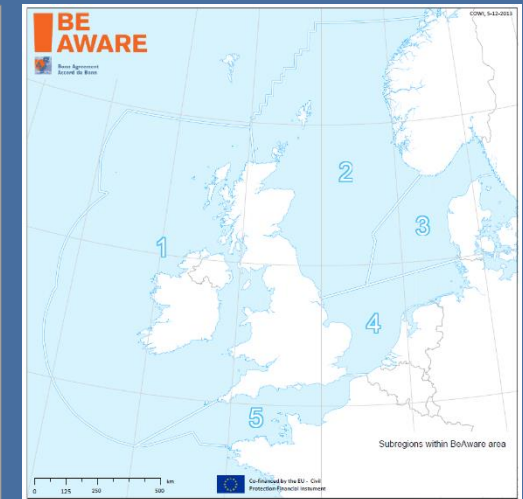
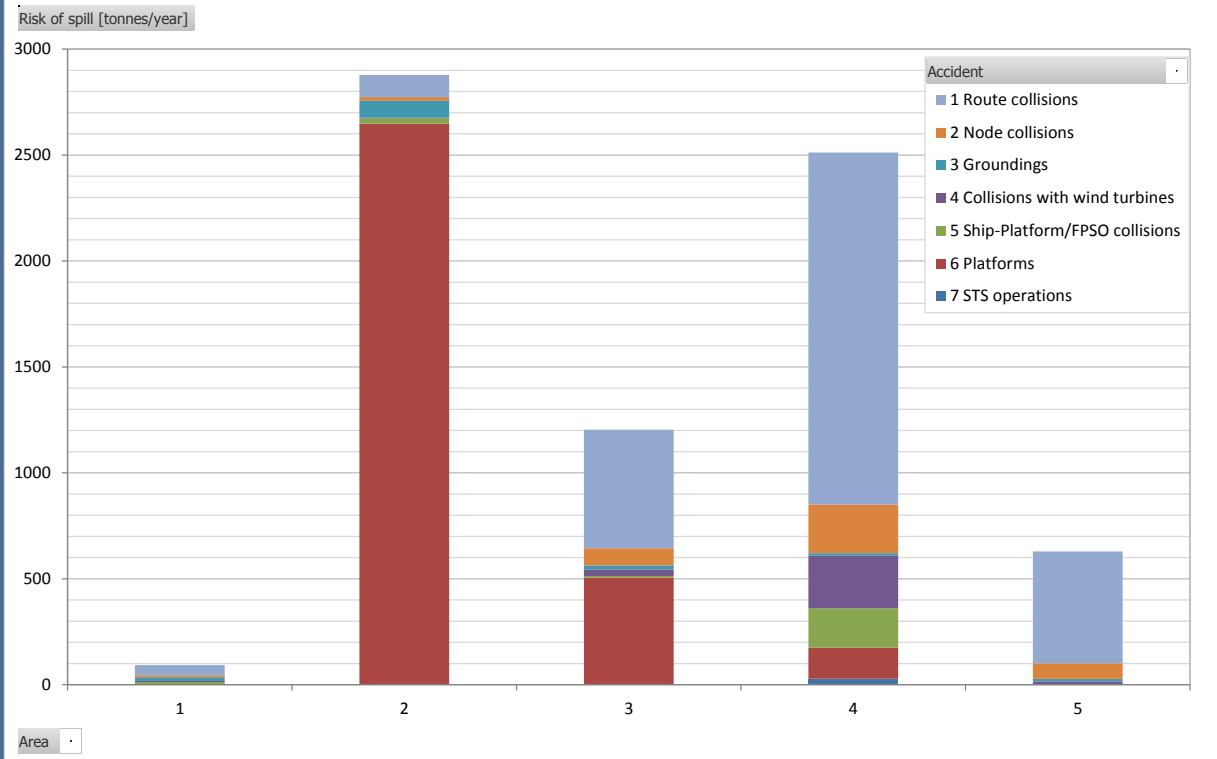
Divided into sub regions:



Results of the BeAware I project

Regional results 2020

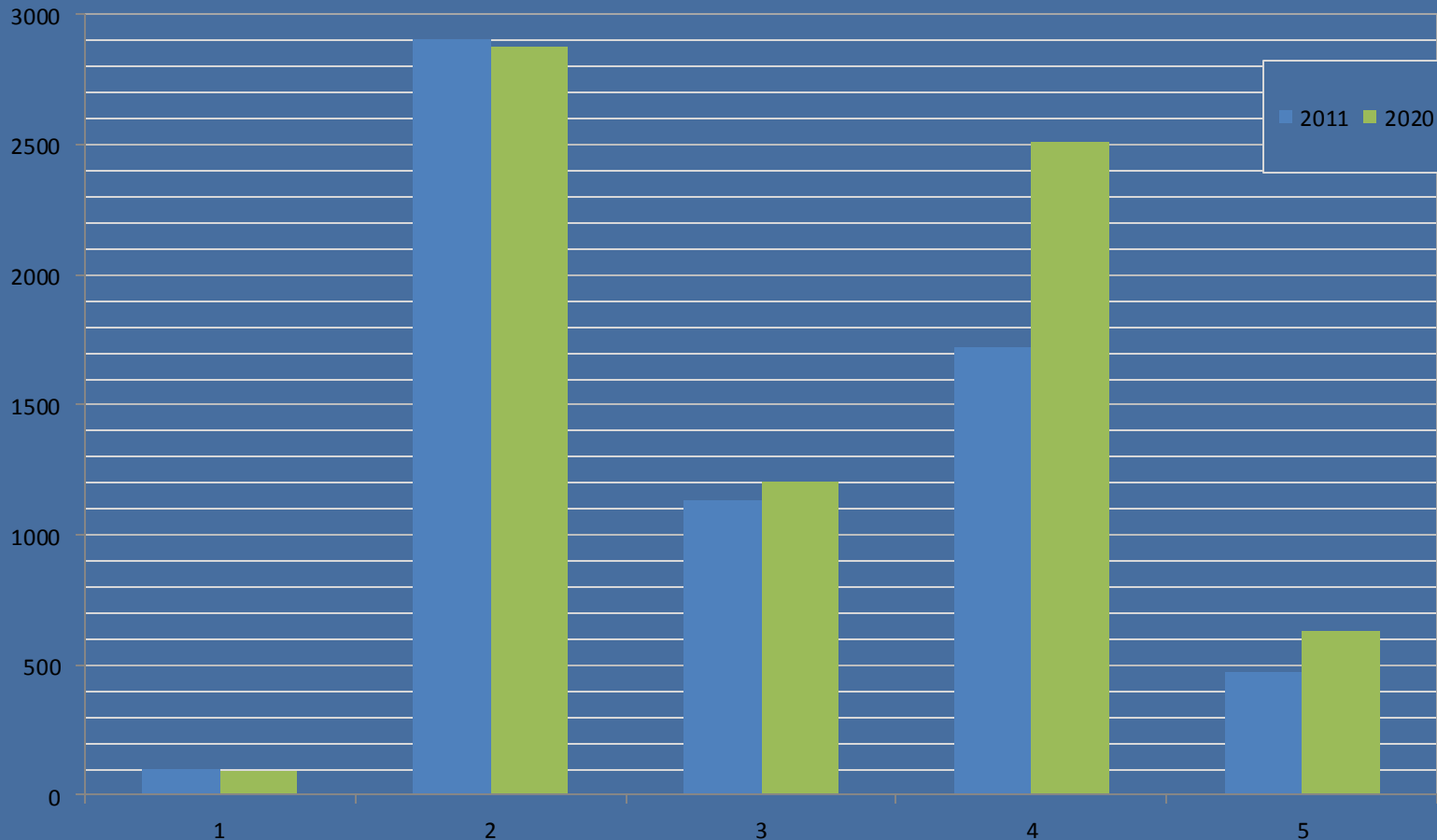
Divided into sub regions:



Results of the BeAware I project

Regional results change

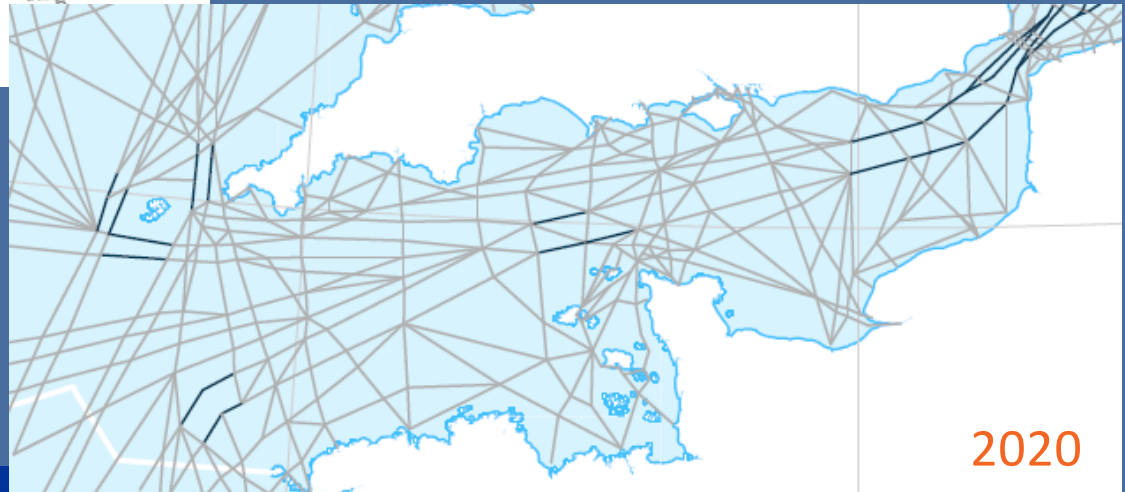
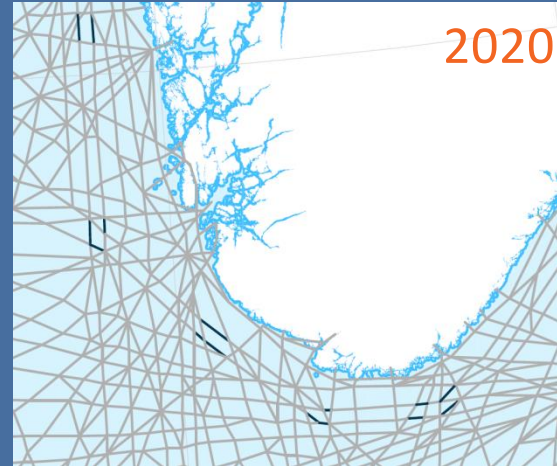
Divided into sub regions:
tonnes/year



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Risk Reducing Measures and areas of interest

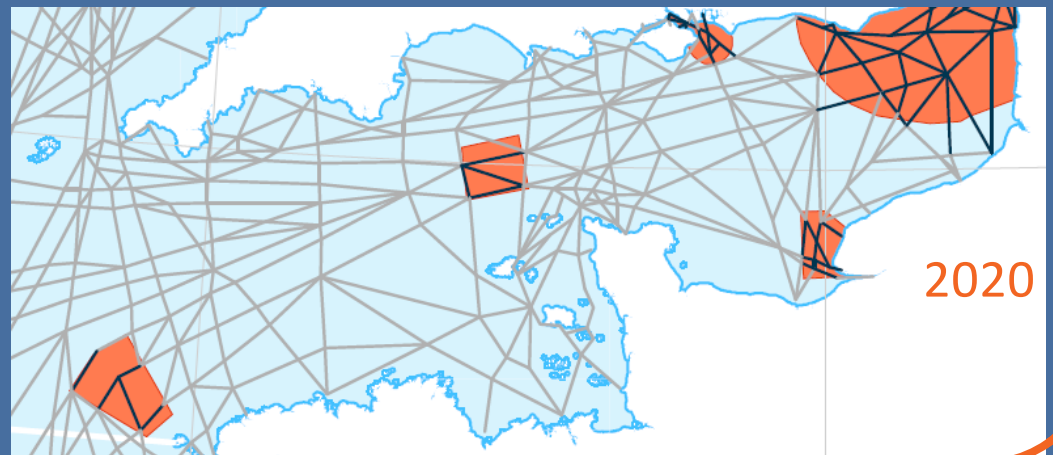
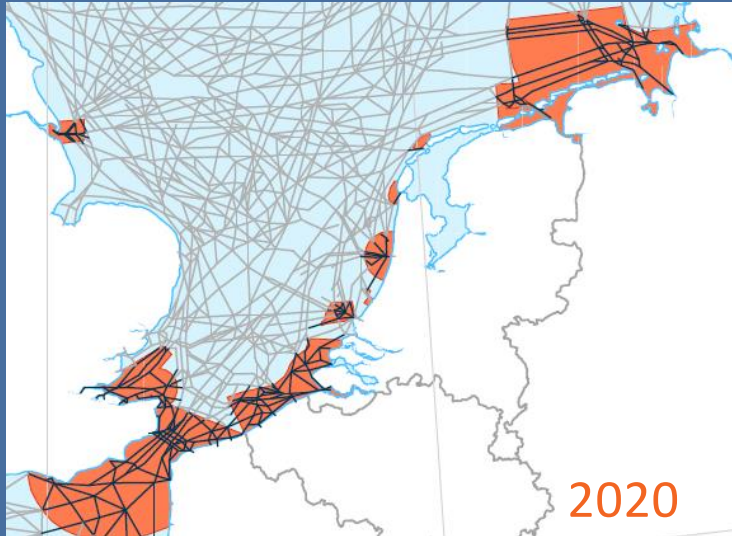
- TSS reduces risks significantly



Results of the BeAware I project

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 Strait
- 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

