Challenges to be met in the oil spill countermeasures onshore in the Baltic

Seminar State-of-the-art technologies and oil spill response in the Baltic Sea Region

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Contents

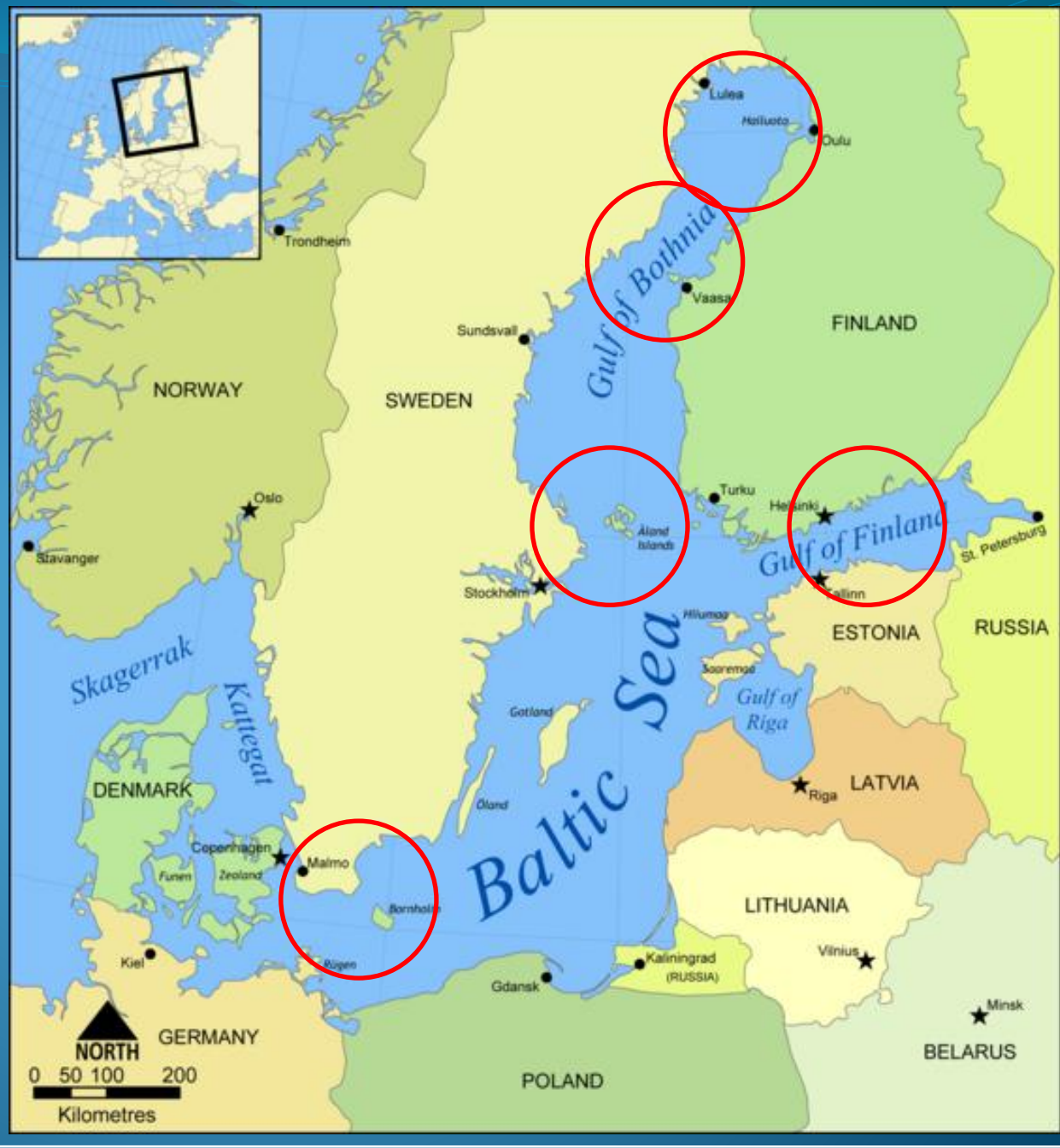
- This presentation covers some key background elements affecting the onshore OSR work in the Baltic
- The observations made in the OILSPILL project will be presented in the Final OILSPILL Seminar in 24th November https://blogit.utu.fi/oilspill/2021/11/03/join-the-oil-spill-final-conference-online-on-24-november-2021/

- Main shipping routes
- Accidents
- Illegal spills
- Other releases
- FSA/BRISK – case studies
- HELCOM co op
- General preparedness
- Conclusions

Baltic Sea

Nine countries,
nine languages.

Connected to North Sea/Atlantic Ocean through narrow Danish straits

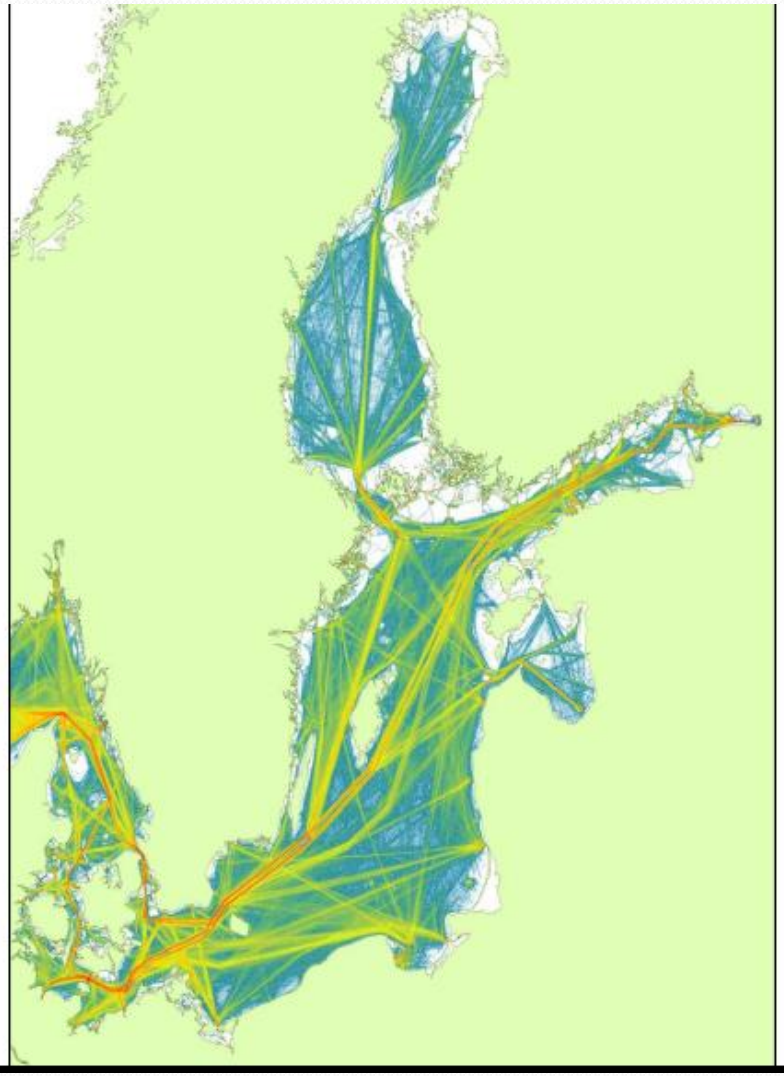


The past ”BRISK”-risk analyses

Ship Traffic

- Baltic Sea is one of the heavily trafficked seas in the world
- Around 2,000 ships at sea at any given time
- High traffic intensity in the Gulf of Finland and on the main route towards the North Sea
- AIS information 2008 - 2009

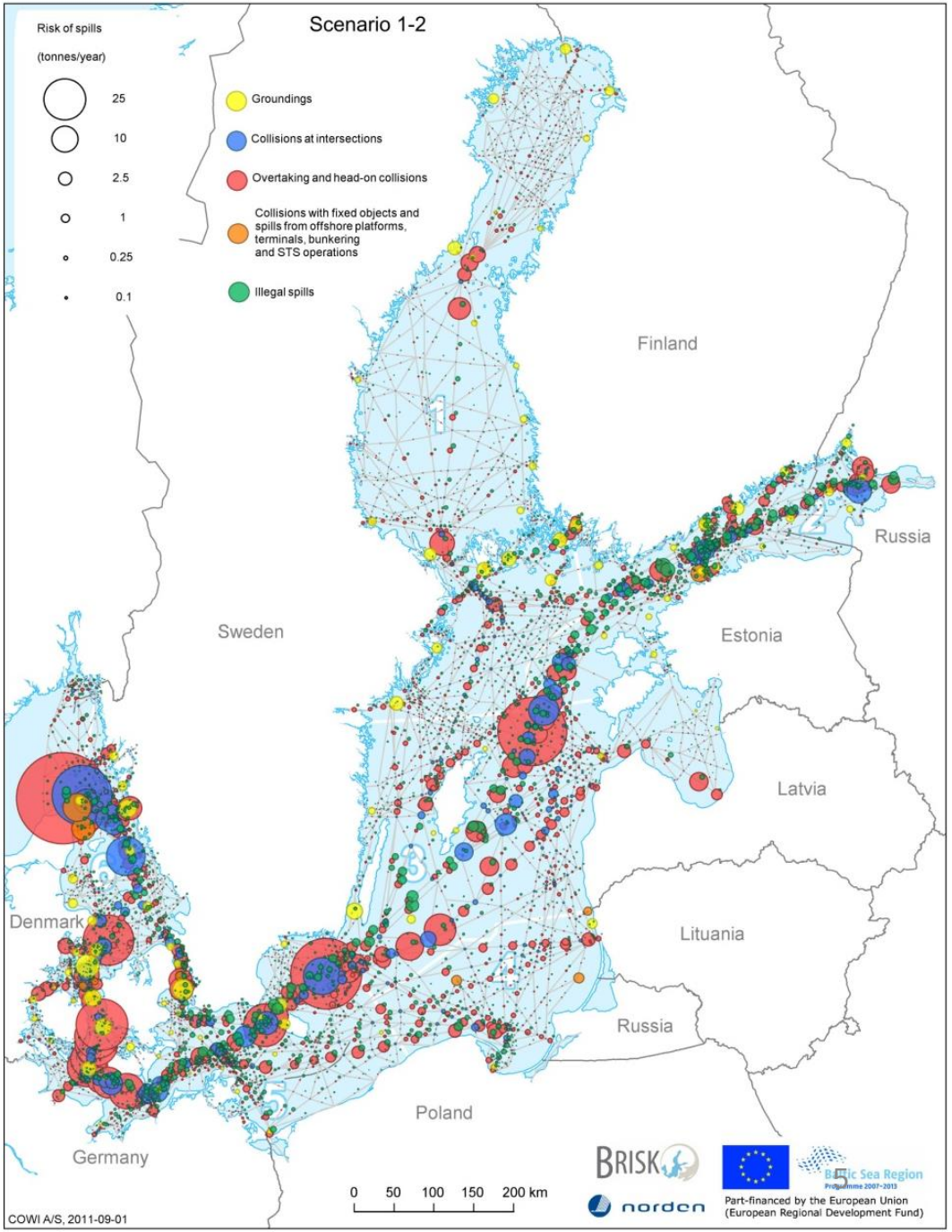
PART FINANCED BY THE EUROPEAN UNION (EUROPEAN REGIONAL DEVELOPMENT FUND)



Scenario Results

All spills

- **Existing Ship Traffic**
- **Existing Response Capacities**
- **Existing Navigational Aid**



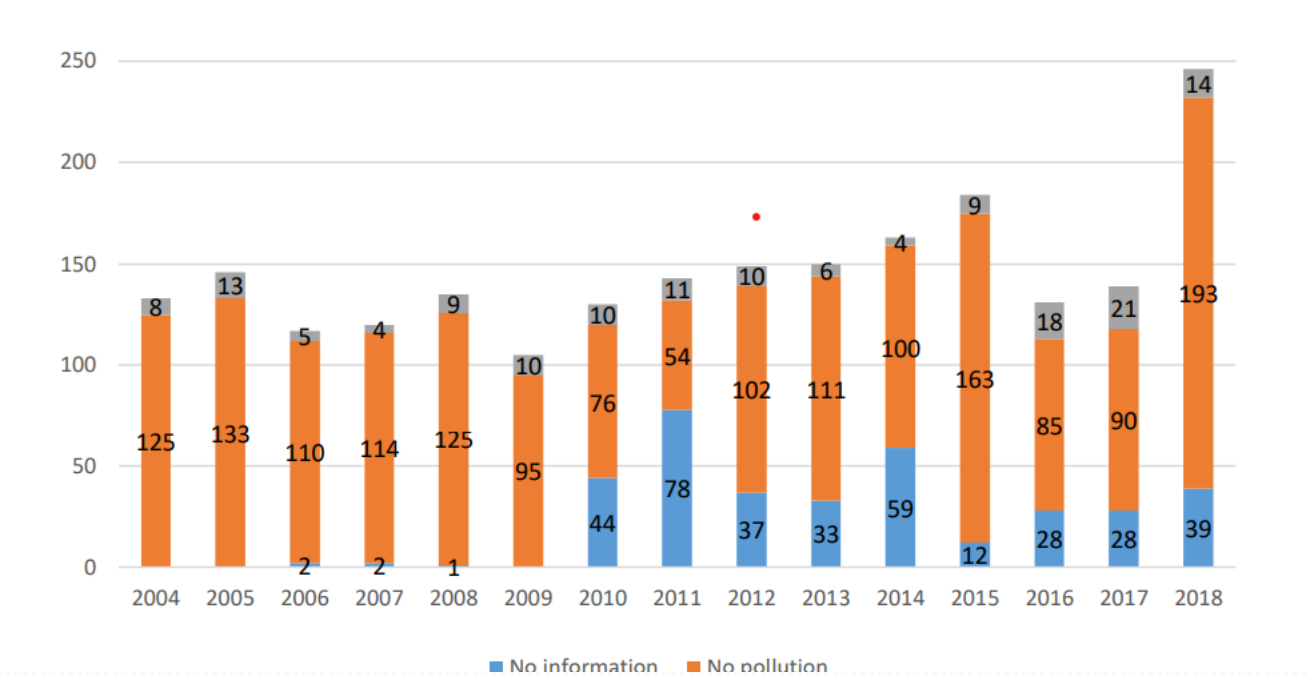
ESTIMATES OF EXPECTED INTERVALS BETWEEN SPILL EVENTS

Sub-region	*Large accidents: 300–5.000 tonnes spilt*	*Exceptional accidents: 5.000< tonnes spilt*
1. Gulf of Bothnia	36 years	600 years
2. Gulf of Finland	39 years	255 years
3. Northern part of the Baltic Proper	30 years	175 years
4. South-eastern Baltic Proper	140 years	1,060 years
5. South-western Baltic Proper	17 years	97 years
6. Sound and Kattegat	11 years	65 years
Entire Baltic Sea	4 years	26 years

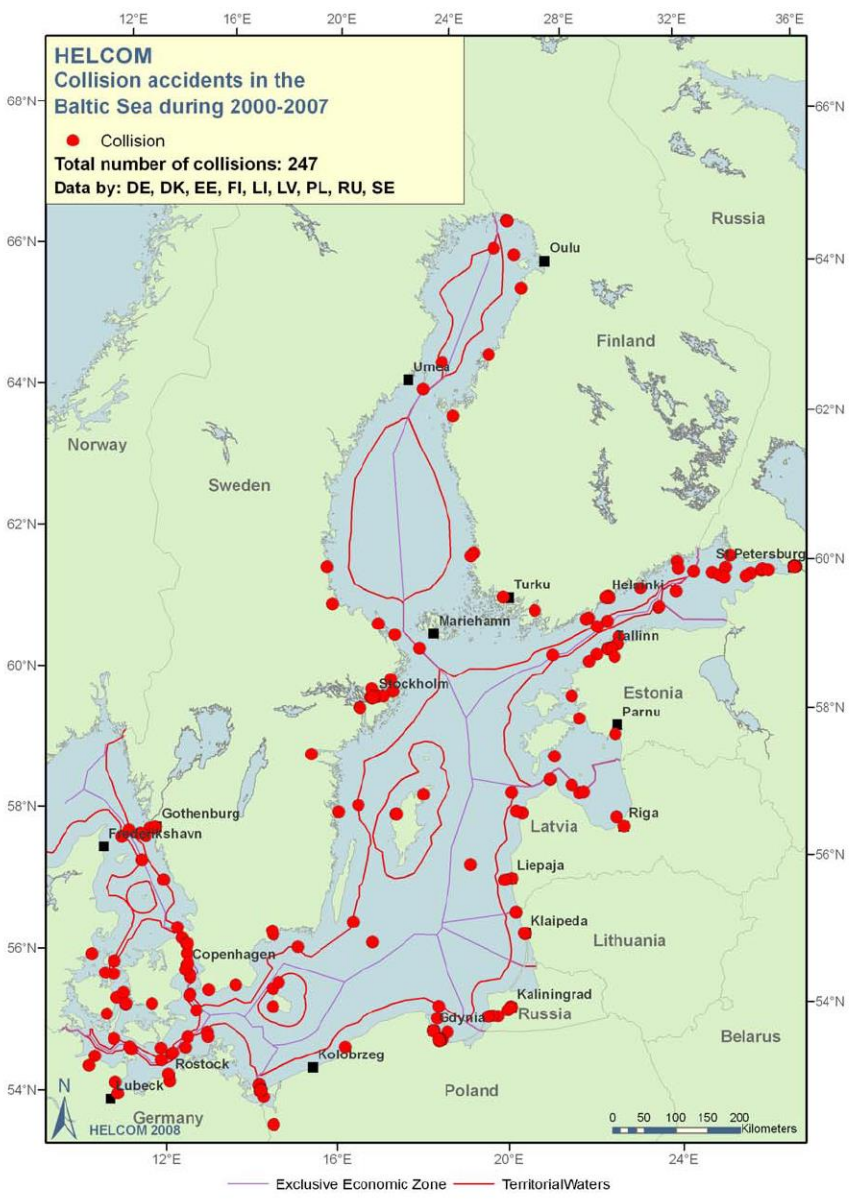
SYKE

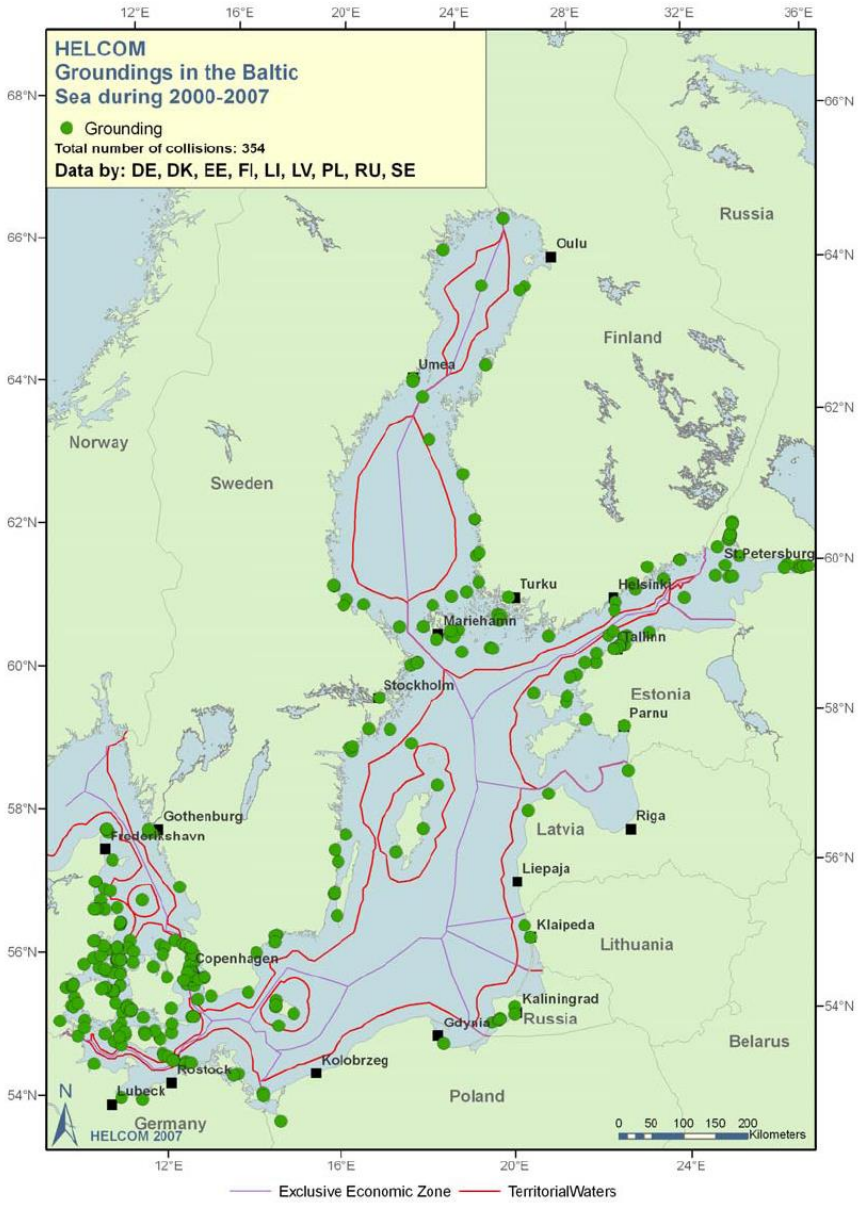
BRISK

Accident development. Helcom 2018



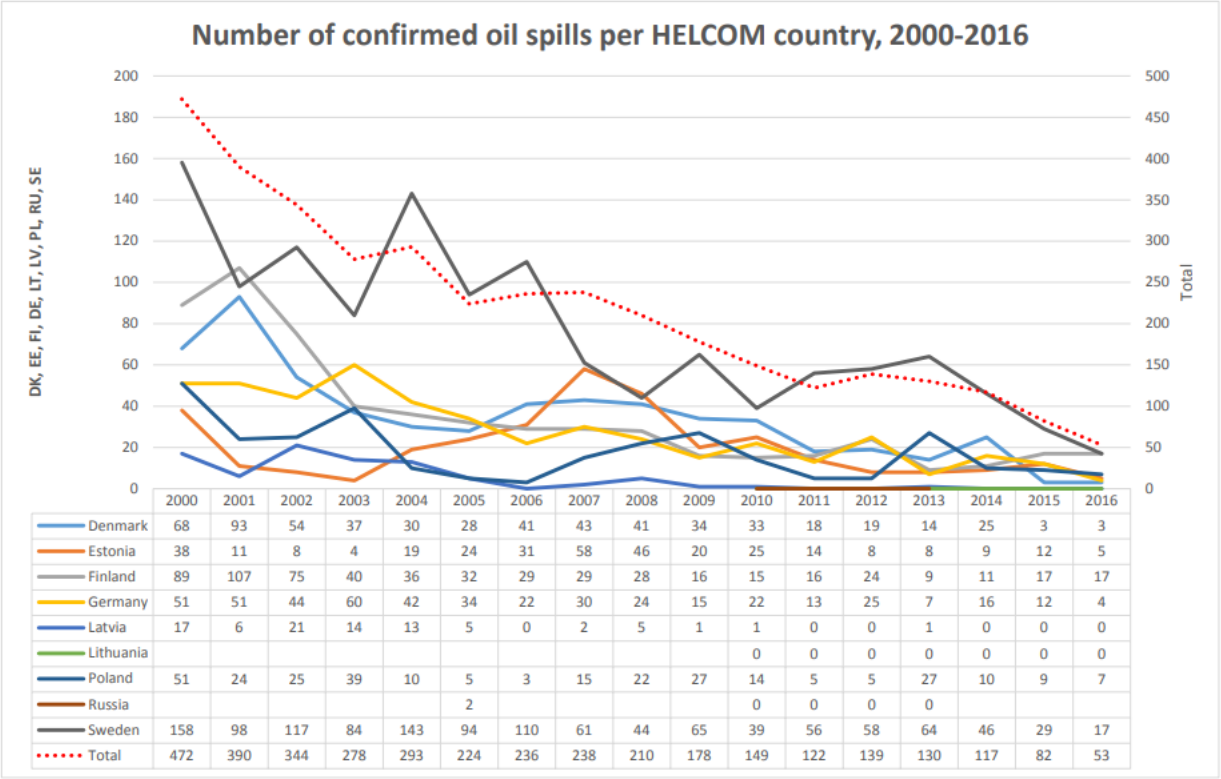
Collisions (left) and groundings (right) 2000 – 2007, by HELCOM





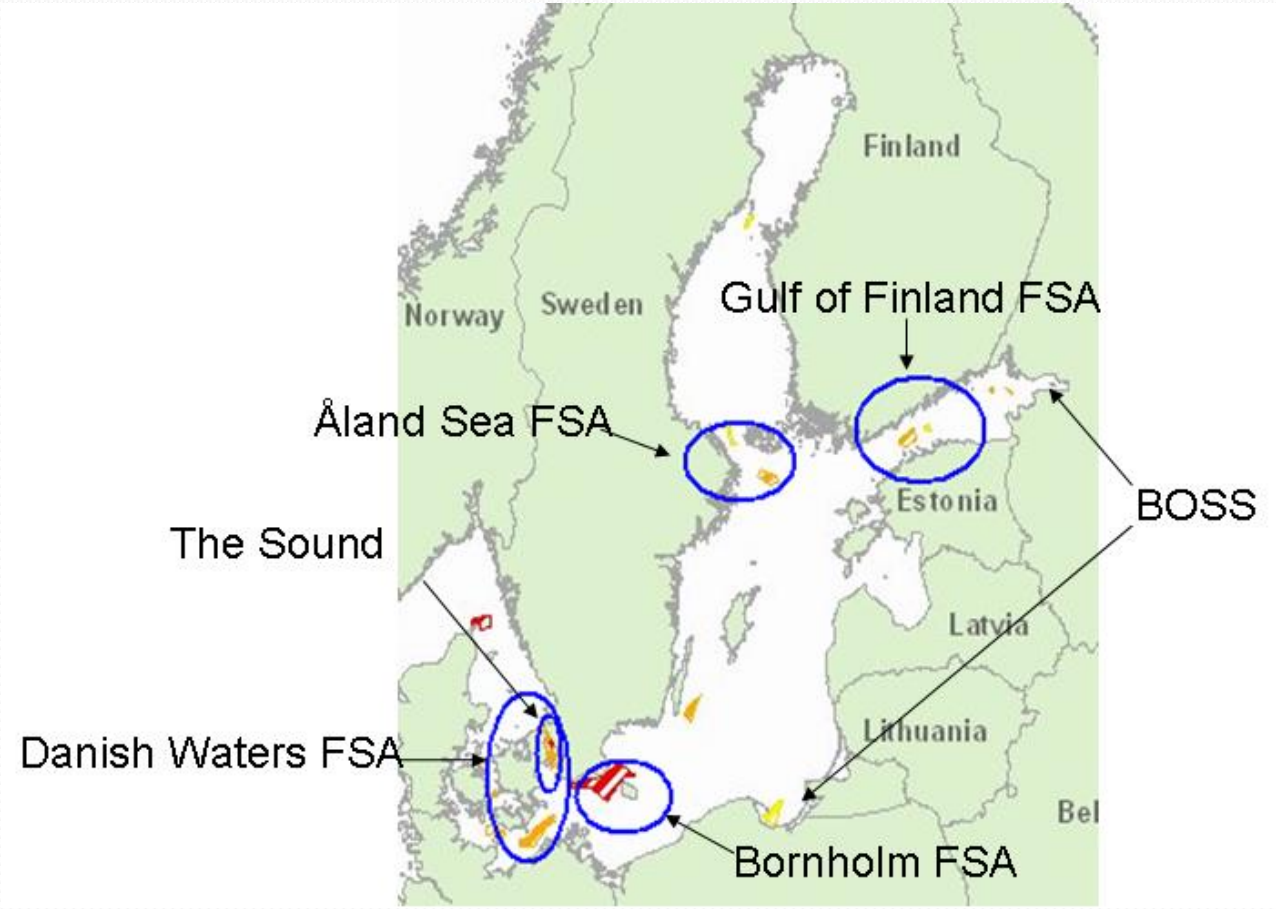
Illegal spills – decreasing….

- Number of illegal spills decreased due to the good airborne and satellite surveillance / better understanding.
- New problems tanks wash/illegal dumping
- Plastics etc….



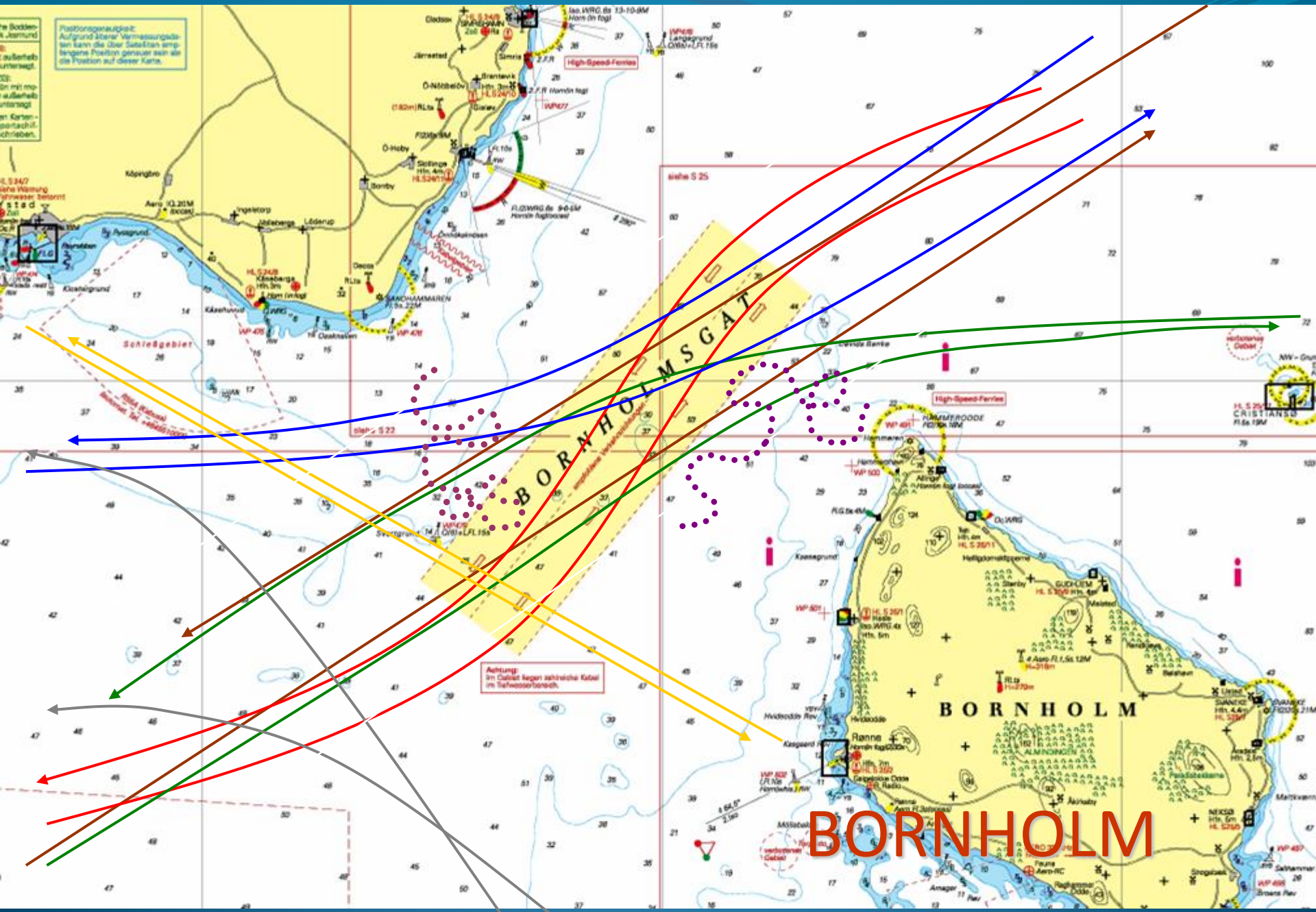
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Denmark	68	93	54	37	30	28	41	43	41	34	33	18	19	14	25	3	3
Estonia	38	11	8	4	19	24	31	58	46	20	25	14	8	8	9	12	5
Finland	89	107	75	40	36	32	29	29	28	16	15	16	24	9	11	17	17
Germany	51	51	44	60	42	34	22	30	24	15	22	13	25	7	16	12	4
Latvia	17	6	21	14	13	5	0	2	5	1	1	0	0	1	0	0	0
Lithuania											0	0	0	0	0	0	0
Poland	51	24	25	39	10	5	3	15	22	27	14	5	5	27	10	9	7
Russia						2					0	0	0	0			
Sweden	158	98	117	84	143	94	110	61	44	65	39	56	58	64	46	29	17
Total	472	390	344	278	293	224	236	238	210	178	149	122	139	130	117	82	53

FSA-related risk assessments made in the Baltic Sea area



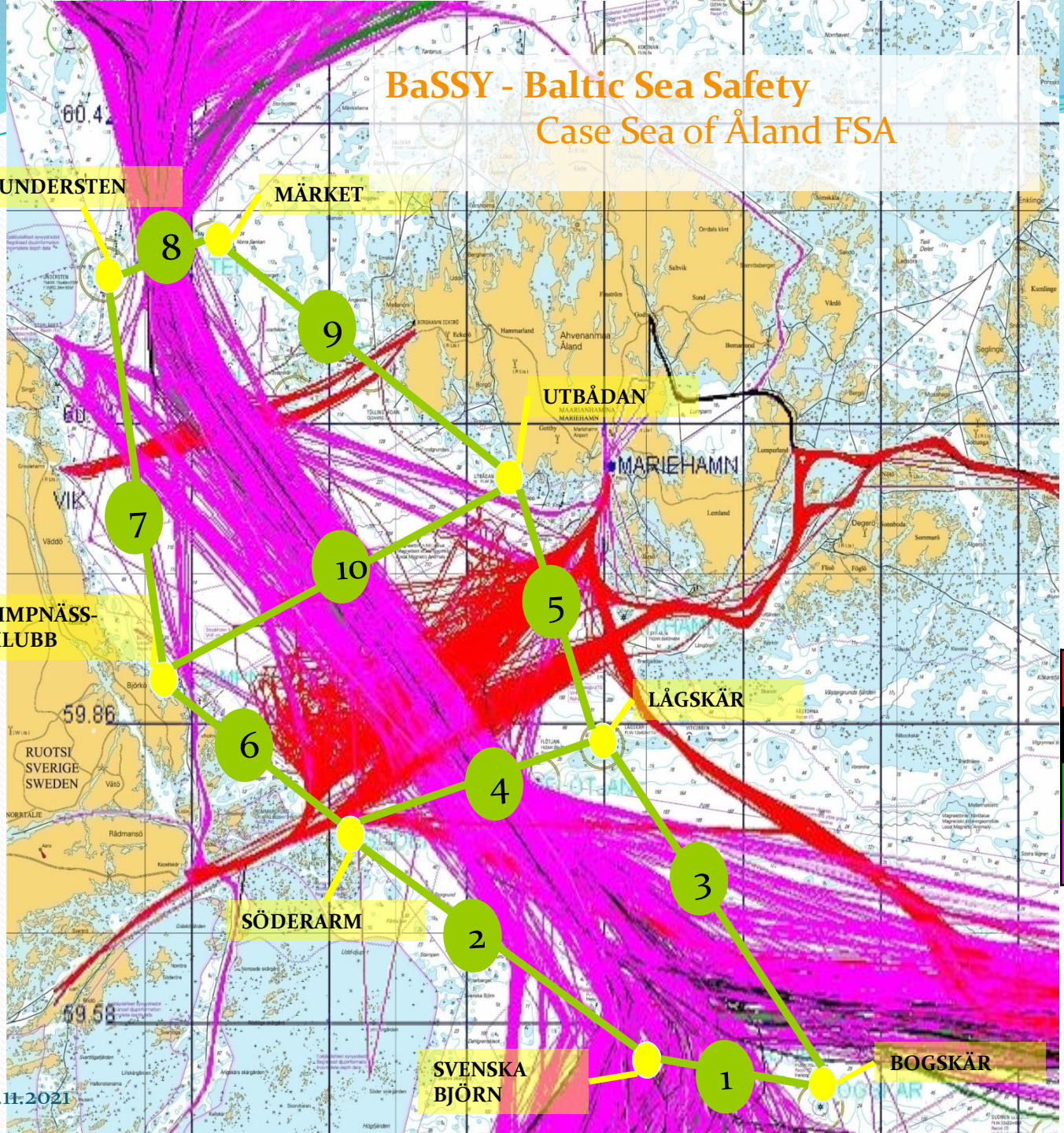
Most significant oil accidents in the Baltic Sea 1980 - 2001

Year	Name of ship	Quantity of Oil Spilled (tons)	Place of Incident
1980	Furenas	200	The Sound, Sweden
1980	Eva Oden	250	Gothenburg, Sweden
1980	Furenäs/Karnen	200	The Sound, Denmark
1980	Lloyd Bage	130	Helsinki, Finland
1981	Jose Marti	1000	Dalarö, Sweden
1981	Serif	375	Öland, Sweden
1981	Globe Asimi	16000	Klaipeda, Lithuania
1982	Sivona	800	The Sound, Sweden
1984	Eira	200	Vaasa, Finland
1984	Ibn Roch	300	Great Belt North, Denmark
1985	Sotka	350	Åland Sea, Sweden
1986	Thuntank 5	150-200	Gävle, Sweden
1986	Jan	320	Aalborg Bight, Denmark
1987	Antonio Gramsci	580	Porvoo, Finland
1987	Okba Bnou Nafia	120	Malmö, Sweden
1987	Tolmiros	250	West Coast, Sweden
1990	Volgoneft	1000	Karlskrona, Sweden
1995	Hual Trooper	180	The Sound, Sweden
1998	Nunki	100 m^3	Kalundborg Fjord, Denmark
2001	Baltic Carrier	2700	Kadetrenden, Denmark


BORNHOLMSGAT
BORNHOLM
BORNHOLM

Fu Shan Hai, 2003

Traffic analysis for FSA based on AIS-surveillance



- Passenger ships
- Tankers
- Tugs
- Other vessel types

GOFREP analyses based on traffic 2008 / VTT

Report-R-06593-09

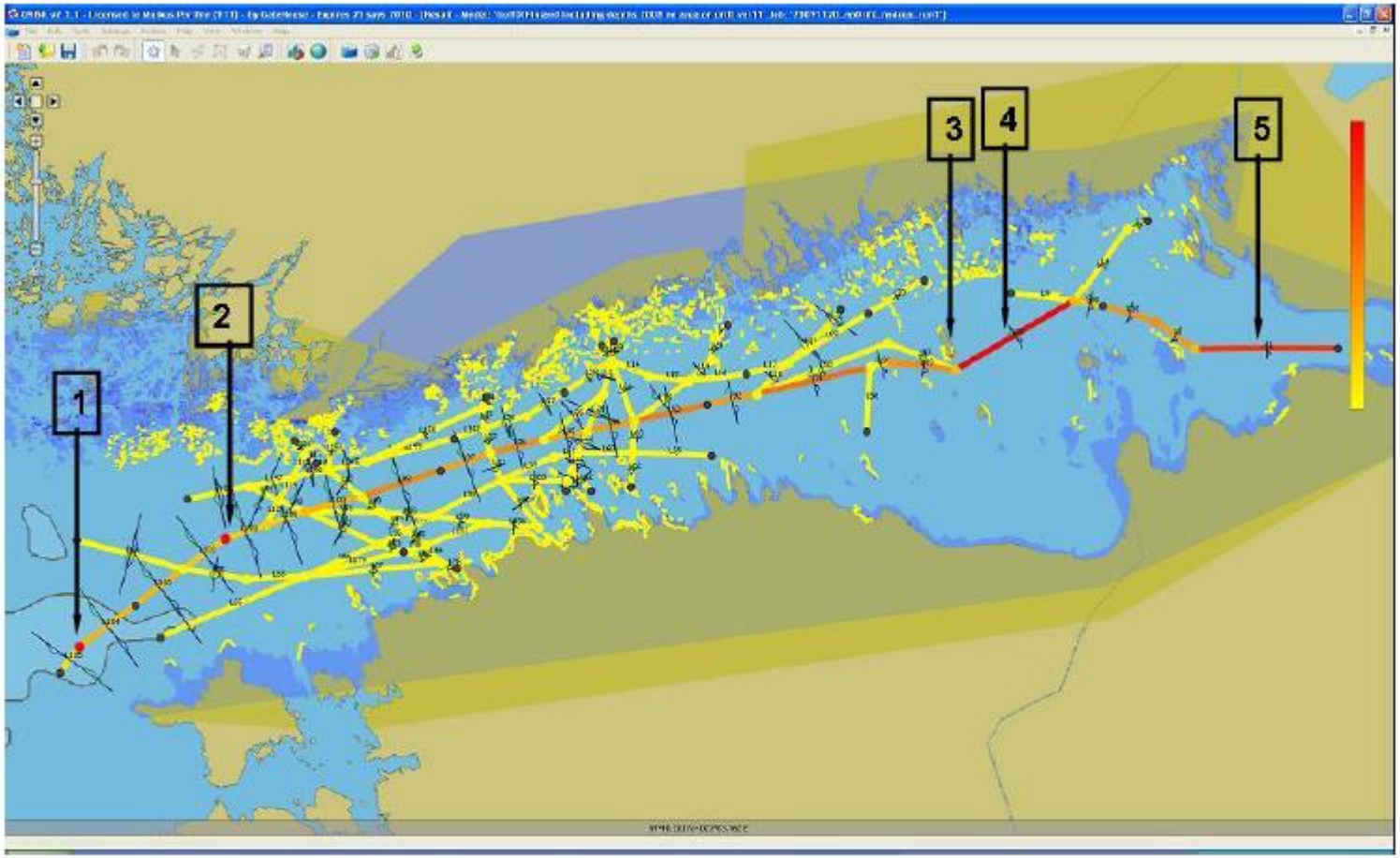
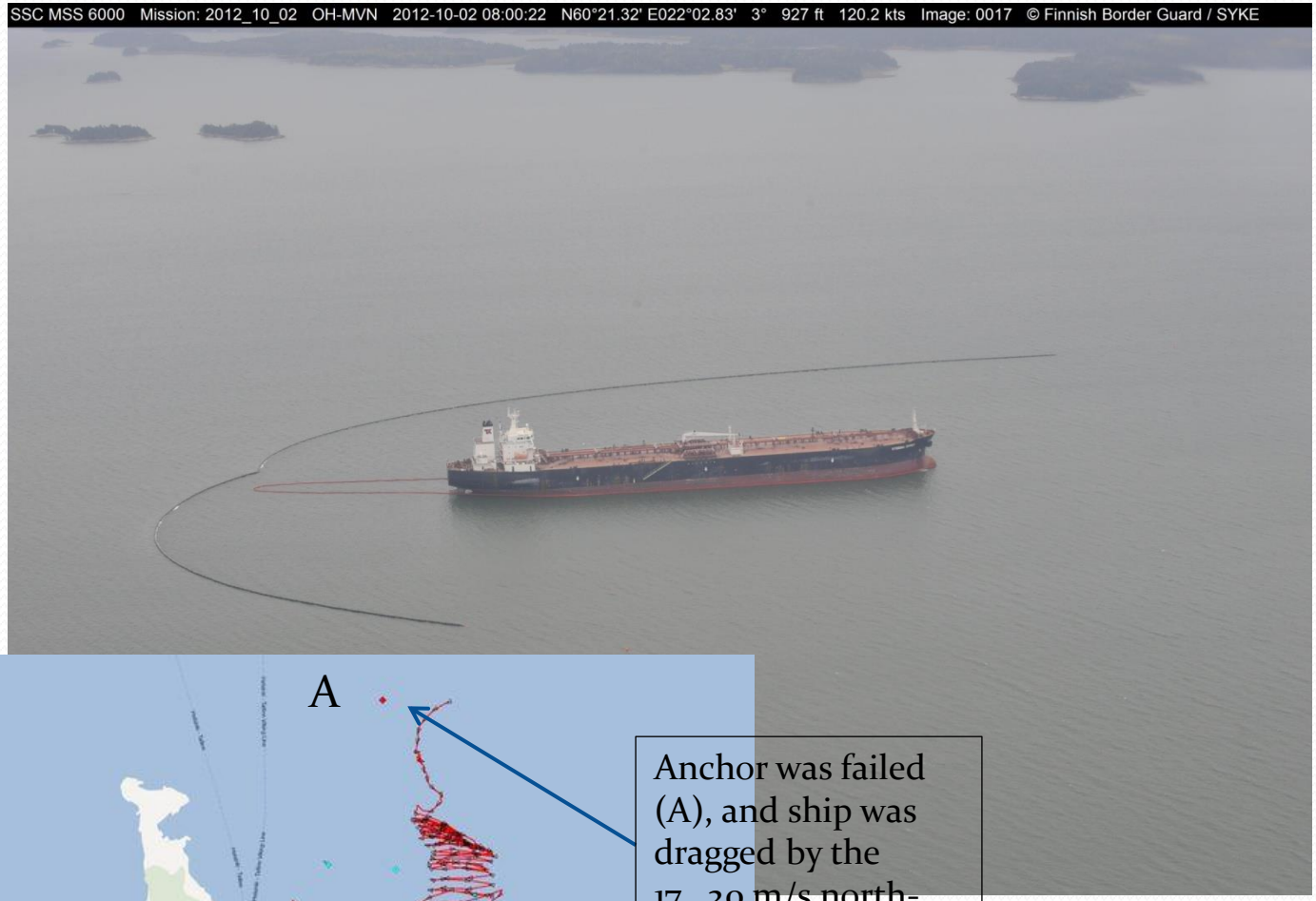


Figure 14 Results of collision and grounding frequency analysis. The legs, waypoints and shoreline areas with the highest accident frequencies are shown in red. Positions 1 and 2 are waypoints with a high frequency of bending collisions, position 3 denotes a high frequency of powered groundings, and positions 4 and 5 denote legs with a high frequency of overtaking collisions.

MT Propontis accident Feb./2007

Largest Oil Combating Exercise BALEX DELTA in August 2012 – MT Kyeema Spirit grounding, Monday 8 October at 6.55am close to Muuga Port, Estonia



Anchor was failed (A), and ship was dragged by the 17...20 m/s north-east wind and grounded (B)

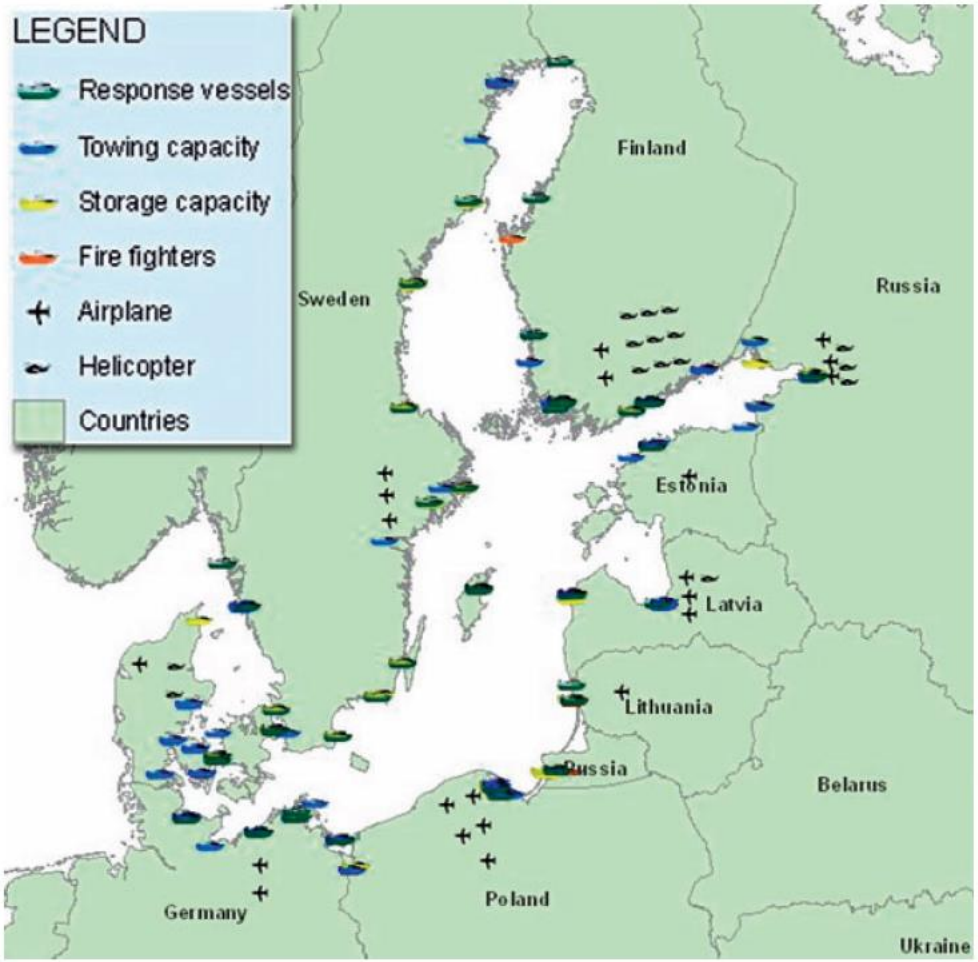
Case MT LOVINA 20.10.2012

Note: MT Propontis' accident 2/2007 !!

November 7, 2012 – Maersk Hakone arrived to Muuga Port – 330 x 60 m VLCC carrier – was idling a couple of days due to the hard wind – 12th November in port - loading (??)

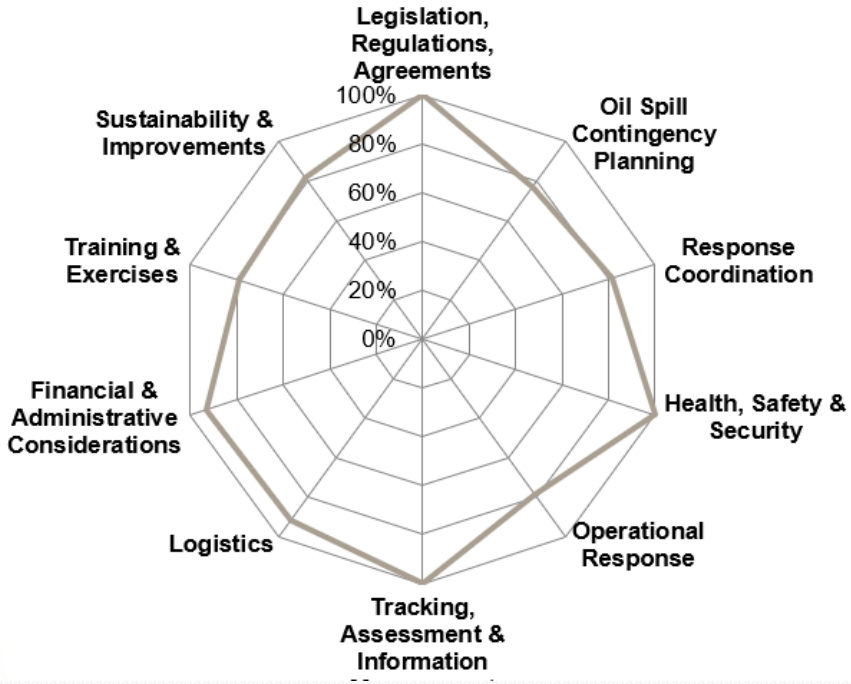
Baltic Sea Approach

- Baltic sea oil combating preparedness is co-ordinated by the help of HELCOM
- Manual 1
- Manual 2
- Manual 3
- <u>Groups:</u>
- Response
- Maritime
- Shore
- EWG's



Response capacities in the Baltic Sea area

Targeted preparedness



Example: attributes describing OSR preparedness as defined by the RETOS-tool

Conclusions / 1

- Maritime traffic is still increasing: oil and containers, larger ship sizes….
- LNG is expected to come in a longer run (?)
- Changes in oil types ? Crude oil /MDO/HFO/biofuels/ semi-products
- Several risk assessments made – need for a total safety concept/evaluation with security ? FSA/BRISK/OpenRisk
- Winter navigation and assistance – novel solutions required ?
- New RCO's available; ECDIS, AIS, VTS, GOFREP, ENSI (Enhanced Navigation Support Information)

Conclusions / 2

- Accident sites/Near-miss situations form a good database for the further analyses.....
- There are certain shortage detected among the onshore OSR work such as:
  - equipments
  - tanks for recovered oil
  - Booms for rapid deployment
  - Ice-related OCR tools in the Northern Baltic
  - better surveillance tools for drones
  - tank washes, plastics chemicals ?
  - wrecks, dumped ammo, UXOs etc (?)

More Information

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