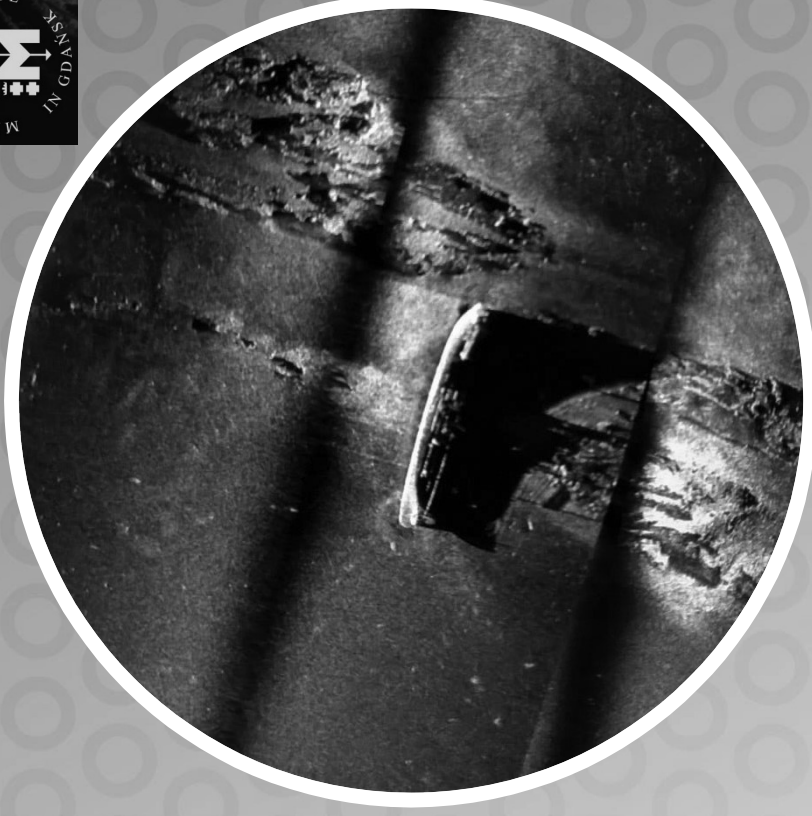


# **INTERNATIONAL BALTIC SHIPWRECKS CONFERENCE**

**27th February, 2019 in Warsaw,  
Poland**

Jorma Rytönen  
Finnish Environment Institute (SYKE)



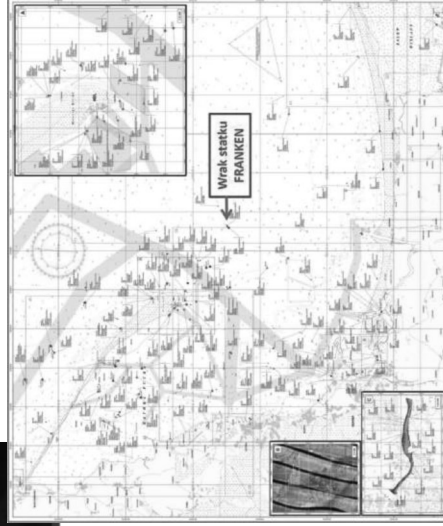


**INTERNATIONAL BALTIC SHIPWRECKS CONFERENCE**  
 27th February, 2019 in Warsaw, Poland  
 Venue: The Centre for Innovation and Technology Transfer Management of Warsaw University of Technology (Ełkarska 4, 00-614 Warszawa)  
 meeting moderator: **Jorma Rytönen**

Conference organized by the MARE Foundation in partnership with the Maritime Institute in Gdańsk as part of the project "Reduction of the negative impact of oil spills from the *Franken shipwreck*" financed by the Baltic Sea Conservation Foundation (baltcf).

**DRAFT CONFERENCE AGENDA**  
*(changes to the final agenda may be introduced)*

- 8:30-9:00 Registration and welcome coffee
- 9:00-9:30 Welcome speech and overview of the project *Reduction of the negative impact of oil spills from the Franken shipwreck*.  
Olga Sarma, The MARE Foundation
- 9:30-9:45 Setting the scene: polluting wrecks in the Baltic - the overall situation based on HELCOM SUBMERGED research  
Jorma Rytönen, Finnish Environment Institute
- Session 1: POLLUTING WRECKS IN THE BALTIC SEA
- 9:45-10:05 The threat to the marine environment resulting from the presence of World War II shipwrecks, on the example of the s/s Stuttgart.  
Justyna Rogowska/Lidia Wólka, Medical University of Gdańsk
- 10:05-10:35 Dangerous wrecks of the Gulf of Gdansk  
Benedykt Hąc, The Maritime Institute in Gdańsk
- 10:35-11:00 Dumped munitions and warfare material in wrecks as a threat to the ecosystem  
Miłosz Grabowski/Jacek Bekdowski, The Institute of Oceanology of the Polish Academy of Sciences (IO PAN) (to be confirmed)
- 11:00-11:30 Coffee Break



Location of T/S Franken, B. Hac

- 11:30-11:55 Possible scenarios for marine pollution in the case of shipwreck collapse prior to the removal of fuel or oil cargo stored in the wreck.  
Marek Reszko, Maritime Search and Rescue Service (SAR)
- 11:55-12:30 Q&A / Discussion
- 12:30-13:30 Lunch
- Session 2: SHIPWRECK RISK ASSESSMENT PROJECTS IN THE BALTIC REGION
- 13:30-13:55 The Swedish model for prioritization and remediation of environmentally hazardous shipwrecks.  
Frida Åberg, Swedish Agency for Marine and Water Management (to be confirmed)
- 13:55-14:20 Jorma Rytönen, Finnish Environment Institute
- 14:20-14:45 Aranda's use in the study of harmful substances on shipwrecks, and the co-operation of MRC and Bodevarne  
Julia Flinckman, Finnish Environment Institute/Marine Research Center (MRC).
- 14:45-15:00 Q&A / Discussion
- Session 3: POLICY AND LEGISLATION
- 15:00-15:25 Shipwrecks in Legal Frameworks: the international perspective  
Ville Peltokeppi, Finnish Scientific Diving Steering Association
- 15:25-15:50 (to be confirmed)
- 15:50-16:10 Q&A / Discussion
- Session 4: SALVAGE TECHNOLOGIES AND CASE STUDIES
- 16:10-16:30 Overview of the available technologies and case studies for oil recovery from shipwrecks  
Kari Kanne, Innovator and Entrepreneur at Karmine Ltd
- 16:30-16:45 (to be confirmed)  
Jacek Liberak, Ardent – Global Marine Services
- 16:45-17:05 Securing the oil-removal operation by the Maritime Search and Rescue Service and possible co-operating forces.  
Marek Reszko, Maritime Search and Rescue Service (SAR)
- 17:05-17:30 Q&A / Discussion and final remarks



The project "Reduction of the negative impact of oil spills from the *Franken shipwreck*" is financed by the Baltic Sea Conservation Foundation (baltcf).



*”Dangerous Shipwrecks of the Gdansk Bay by Benedykt Hac”*

## **Setting the scene: polluting wrecks in the Baltic - the overall situation based on HELCOM SUBMERGED research**

- Definition of wreck(s)
- Risk for pollution –  
chronical of accidental ?
- Over view of wreck  
situation
- Helcom Submerged  
work – how to get  
ahead ?



4

Black ROLS device in operation during Runner-4 oil removal operation



S Y K E

# Definition of Wreck ??

A shipwreck is the remains of a ship that has wrecked, which are found either beached on land or sunken to the bottom of a body of water. Shipwrecking may be deliberate or accidental. In January 1999, Angela Croome estimated that there have been about three million shipwrecks worldwide<sup>[1]</sup> (an estimate rapidly endorsed by UNESCO<sup>[2][3]</sup> and other organizations(Wikipedia)



Courtesy: Badevanne – German  
destroyer "Z36"

## Wreck Definition – Nairobi Convention

- 4. “Wreck”, following upon a maritime casualty, means:
- (a) a sunken or stranded ship; or
- (b) any part of a sunken or stranded ship, including any object that is or has been on board such a ship; or
- (c) any object that is lost at sea from a ship and that is stranded, sunken or adrift at sea; or
- (d) a ship that is about, or may reasonably be expected, to sink or to strand, where effective measures to assist the ship or any property in danger are not already being taken.

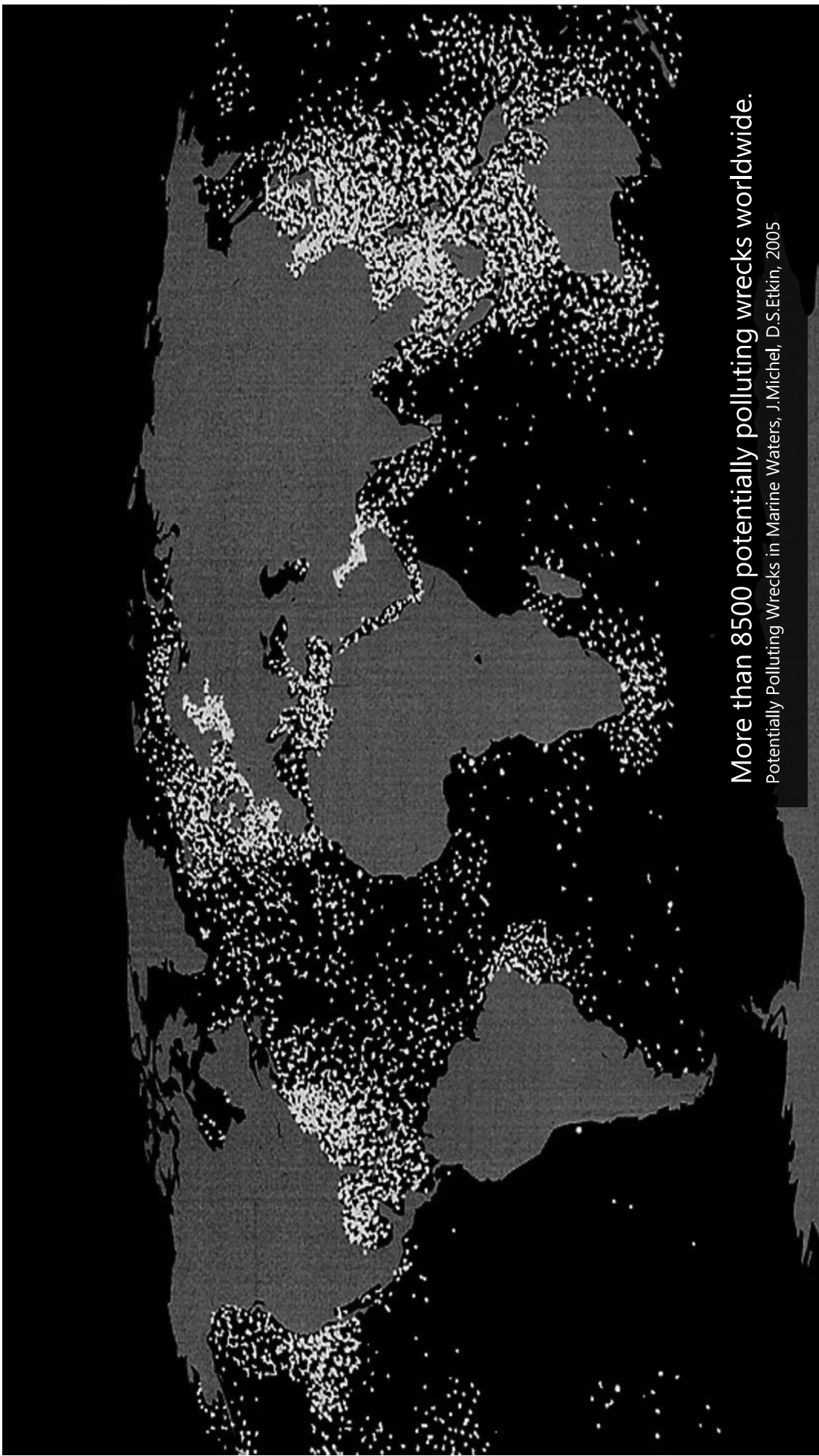


- Please note: wrecks – hazards – related interests.....

# Wrecks – risk for oil pollution ?



Courtesy: WWF



**More than 8500 potentially polluting wrecks worldwide.**

Potentially Polluting Wrecks in Marine Waters, J.Michel, D.S.Etkin, 2005



# USA

The NOAA Resources and Under Sea Threats (RUST) database has over 30,000 targets, including 20,000 vessels.

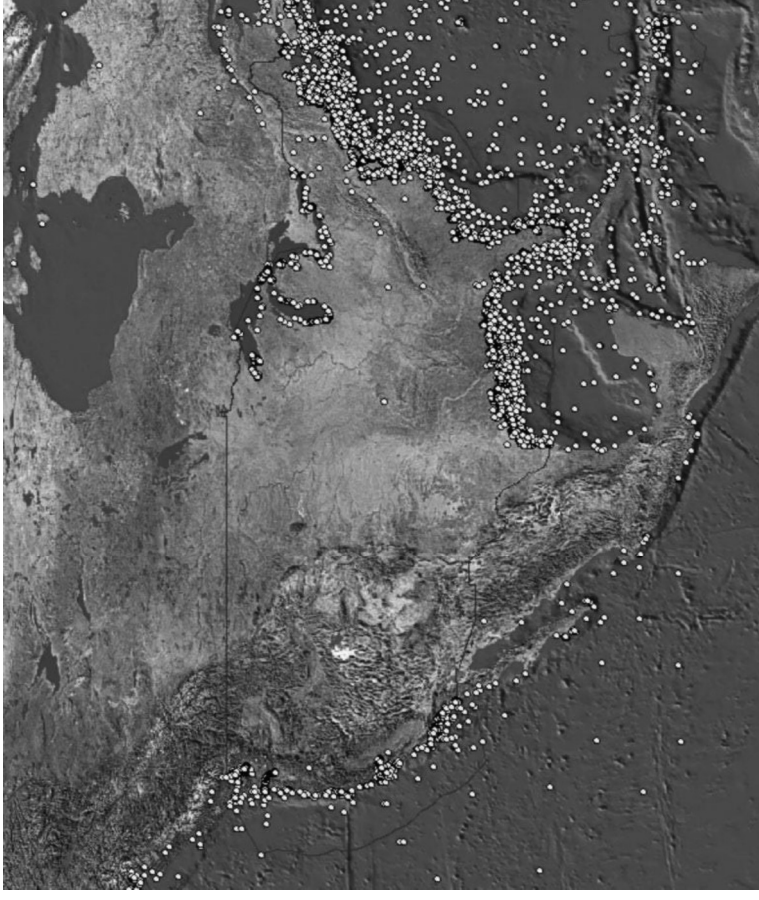
**573 with oil pollution risk**

U.S. Coast Guard 2013:

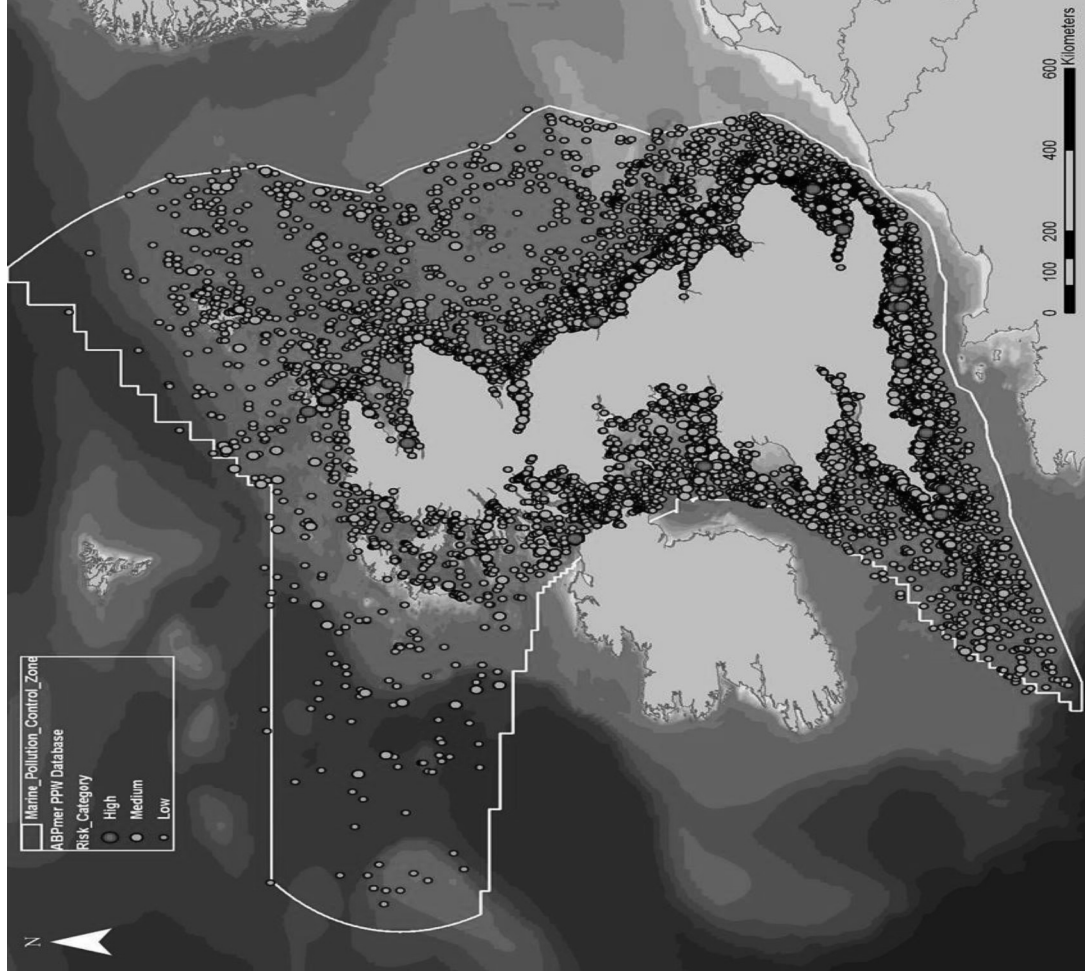
\* **Low Priority 11-45 wrecks**

\* **Medium Priority 36-40 wrecks**

\* **High Risk 6-36 wrecks**

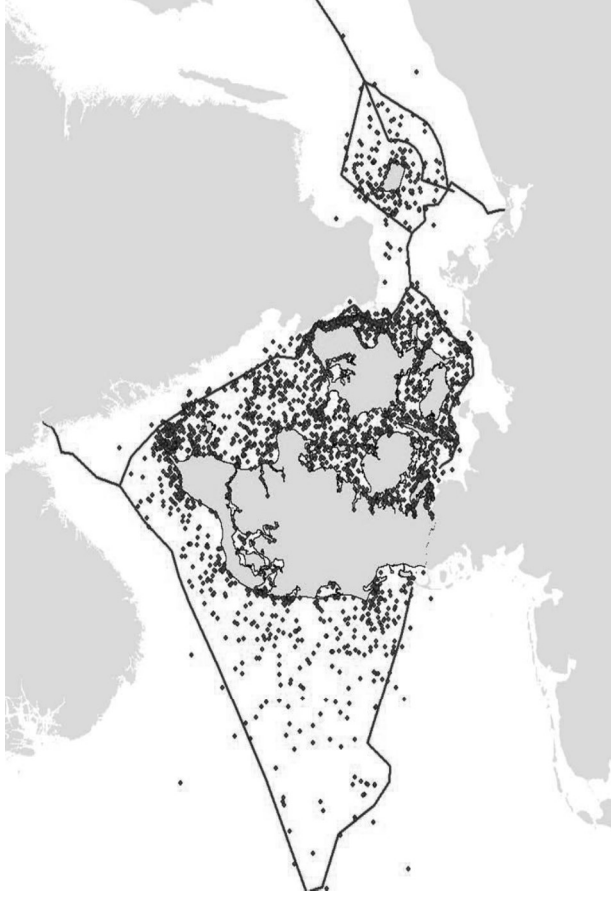


**UK**



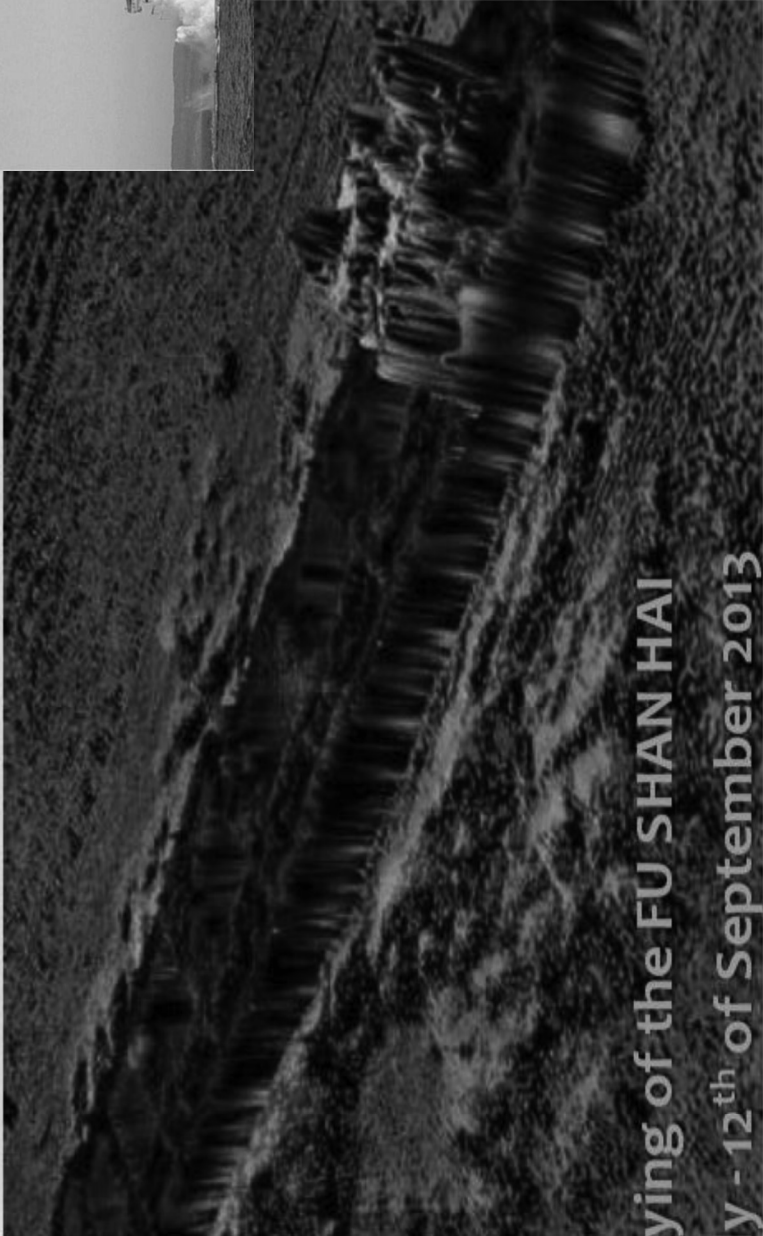
## Danish Wreck Register

- Wreck register for the Danish Waters, the Danish EEZ, and a small number of wreck just outside the EEZ. The register does not cover Faroe or Greenland Waters.
- There are 2518 wrecks in the register from which 221 have been removed.
- The data of Wreck Register is placed in a single feature class in an ESRI ArcGIS geodatabase
- Data and documentation is written in Danish

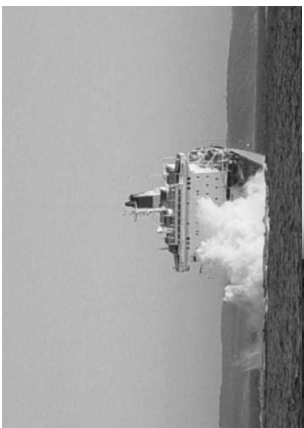




# FU SHAN HAI



The emptying of the FU SHAN HAI  
24<sup>th</sup> of July - 12<sup>th</sup> of September 2013

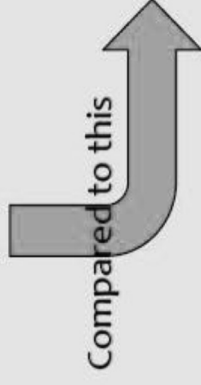




# THE RESULT



Dirty water recovered 620 m<sup>3</sup>  
Oil recovered 251 m<sup>3</sup> = 249 ts.



Missing  
335 tonnes

Operation lasted 50 days

DK government pays the bill.

## NORWAY

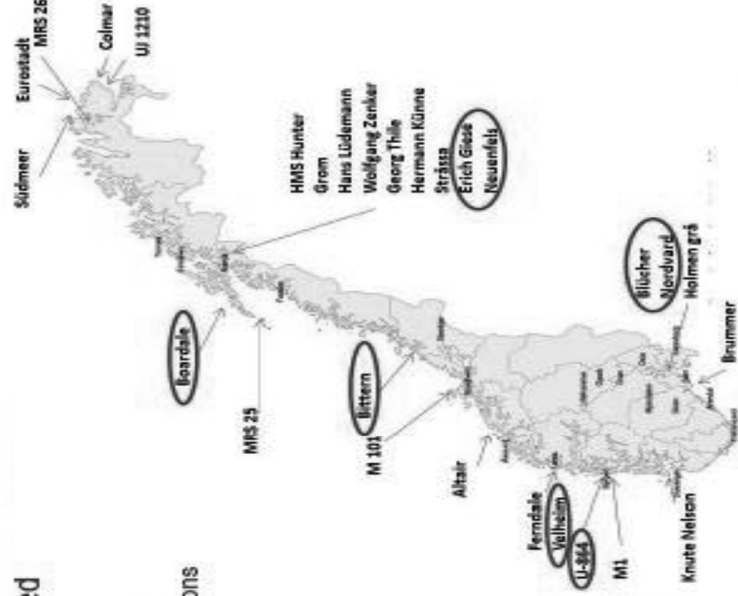
- **Low Risk wrecks 1700**
- **Moderate Risk 350 wrecks 350**
- **High Risk wrecks 30**



S Y K E

## Inventory of more than 2000 wrecks registered in the 1990s ("Wreck Program")

- 30 shipwrecks prioritized
  - 9 wrecks empty
  - 3 wrecks not found
  - 18 wrecks assumed to contain from 10 to 300 tons of oil
- Wrecks drained
  - 1994
    - Blücher (Ger)
  - 2007-2008
    - Velheim (Ger)
    - Nordvard (Ger)
  - 2011-2013
    - HMS Bittern (UK)
    - RFA Boardale (UK)
    - Erich Giese (Ger)
    - Neuenfels (Ger)
    - U-864 (Ger)



os/kystverket/11203866563/in/ U864\_DTM\_overview... x

Secure User SSL VPN Site Map Valtion öljynto

AIS - Alusten l... eu.baltic.net-Extension\_sta... Extension stage - The Balt...

Explore Create Get Pro

# U 864 in Norway – sunk down 1945

Depth (meters)

138.00
140.50
143.00
145.50
148.00
150.50
153.00
155.50
158.00
160.50
163.00
165.50
168.00
170.50

## U-864 TIMELINE:

**2003** The Ministry of Fisheries and Coastal Affairs receives a letter from Wolfgang Lausten with information for a public inquiry regarding the location of the U-864 wreck, approximately 2 nautical miles west of the island Fedje, about outside the island Fedje.

**2004** Sampling of sediments surrounding the U864 wreck parts verifies higher concentration of mercury than the normal background.

**2005** The Norwegian Food Safety Authority recommends pregnant and children to avoid consuming seafood caught in the area as a precautionary principle.

**2006** A second survey of the wreck and surrounding seabed is granted for new surveys. Use of fishing gear and underwater equipment banned in the wreck position. The NCA recommends capping the wreck parts.

**2007** In February, the Ministry of Fisheries and Coastal Affairs decides to cap the wreck and sea bed with sand and gravel but reverses the decision following a public inquiry. A new study on salvaging the wreck is initiated. Funds are granted for a new study.

**2008** The NCA and DNW recommend capping the wreck parts, as the best environmental measure but also concludes that salvage is technical possible.

**2009** The government decides to salvage the wreck parts and cap the contaminated seabed, and commissions a quality assurance report.

**2003** The naval vessel HINDMS Ty locates the wreck parts from the U-864 approximately 2 nautical miles west of the island Fedje.

**2004** Annual sampling program of fish and shellfish is initiated.

**2005** Survey of wreck sections along with extensive soil sampling to establish the scale of the affected seabed.

**2006** New budgetary funds are granted for new surveys. Use of fishing gear and underwater equipment banned in the wreck position. The NCA recommends capping the wreck parts.

**2007** Summer 2007-2008: Competition to develop innovative solutions to control mercury pollution during salvage. Competition for salvage companies to propose specific environmental salvage for the wreck parts. Evaluation of proposals by DNW and recommendation on competition salvage vs capping.

**2008** The contract for salvage is awarded a Dutch salvage company which won the public procurement.

**2009** DNV's quality assurance report advises against implementing the contract to salvage the wreck part mainly because of the cost risks.

**2010** The Parliament votes to act in line with the Ministry of Finance's quality assurance system. The contract with the Dutch salvage company is cancelled.

**2011** The NCA's concept study is submitted in January but in April the external quality assurer recommends an additional study: dredging instead of capping the seabed for the contaminated seabed.

**2012** The external quality assurer (Meter AS) concludes that sufficient information on the seabed is available. The government narrows the choice to two alternatives: 1. Capping the wreck parts and seabed. 2. Salvaging the wreck parts and seabed. The external quality assurer (Meter AS) concludes that sufficient information on the seabed is available. The government narrows the choice to two alternatives: 1. Capping the wreck parts and seabed. 2. Salvaging the wreck parts and seabed.

**2013** The NCA conducts new surveys of the wreck and the surrounding seabed. The midships sections of the U-boat wreck are identified.

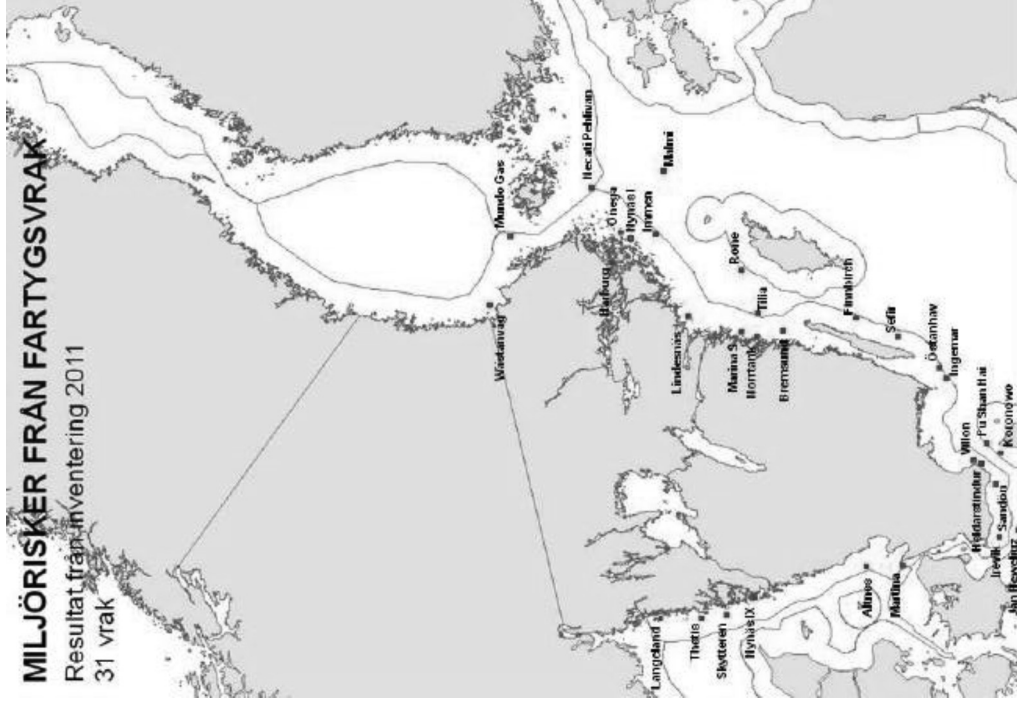
**2014** DNV Subsea Norway is awarded contract to conduct the final survey in connection with the pre-project the two alternatives from 2012. Extensive dredging work provides access to two level sections, no mercury containers are found in these compartments. The feasibility project is awarded to the joint venture of Transport and Communications and will subsequently be quality assured by an external actua so-called Q2.

**2015** The government allocates funds for establishing the counter fill intended to stabilise the seabed in the project area. The counter fill will be laid regardless of the solution chosen.

**2015** The NCA conducts a public procurement process for installing the counter fill, the seabed stabilisation, awarded in December 2015.

## Sweden

- 2700 subsea objects
- Moderate Risk 316 wrecks
- High Risk 31 wrecks





## German wreck data ( info by Mr. Thomas Dehling /BSH )

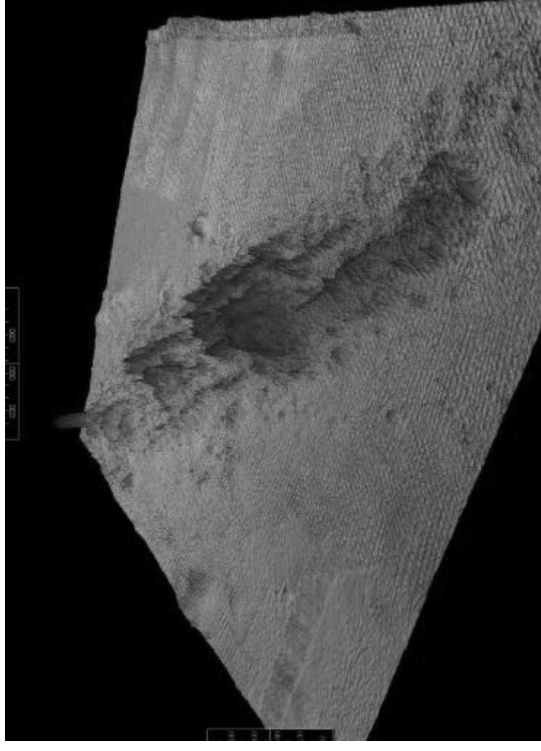
- The Hydrographic Office in Germany (BSH) is responsible for the search and investigation of wrecks and obstructions in the territorial waters and the EEZ of Germany.
- The main focus is safety of navigation. The investigations are forwarded to other relevant bodies if necessary (Navy, Water- and Shipping Administration, Archeology, Environmental Protection agencies, ...).
- They are registered in a data base with restricted access.
- The number of active objects is around 2.500, 1.000 of them in the Baltic.
- As the policy regarding wreck data in Germany is quite restrictive, there are not many publications on that issue from our office and none in English



S Y K E

## Polish wreck data

- Info paper attached by Poland (as well Komorowski's paper)
- The estimated number of wrecks found in the Polish Exclusive Economic Zone is a few hundred. Certainly, the number of unknown ones can be higher, which is confirmed by several new wrecks being found each year.
- The Maritime Institute in Gdańsk plays a significant role in this process
  - MS Stuttgart is an excellent case study !

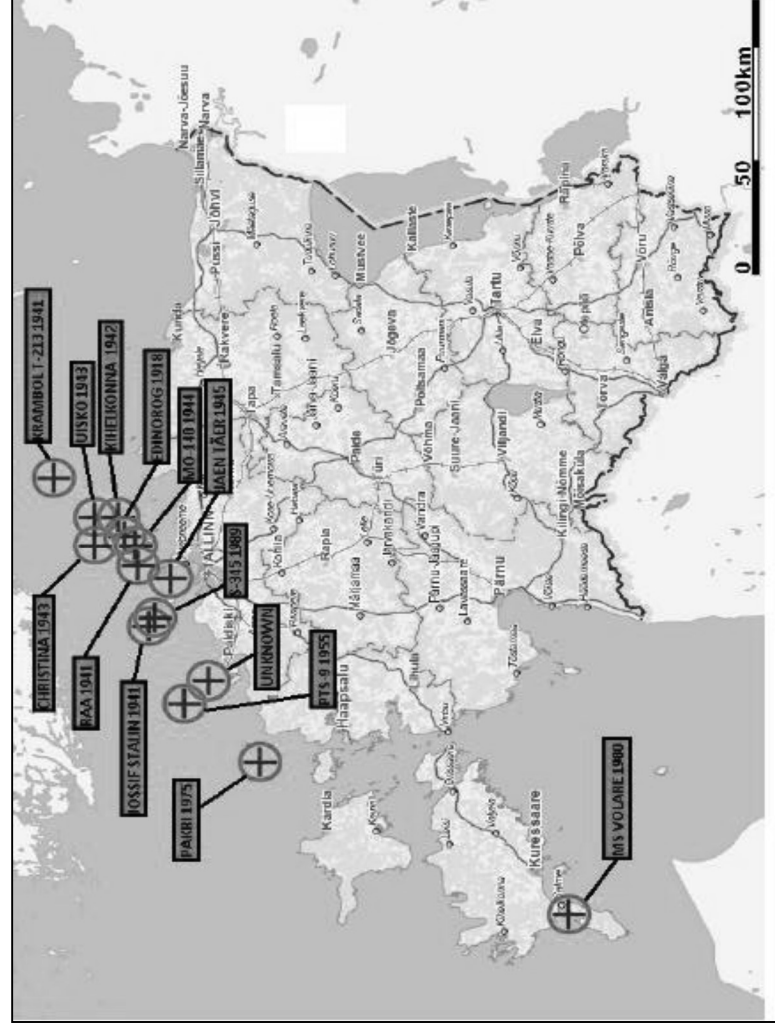


B. Hac et al. Helcom Submerged meeting  
in Szczecin October 2014

## Estonian wreck register

705 wrecks, from which 84  
found & confirmed

14 wrecks with potential oil risk !



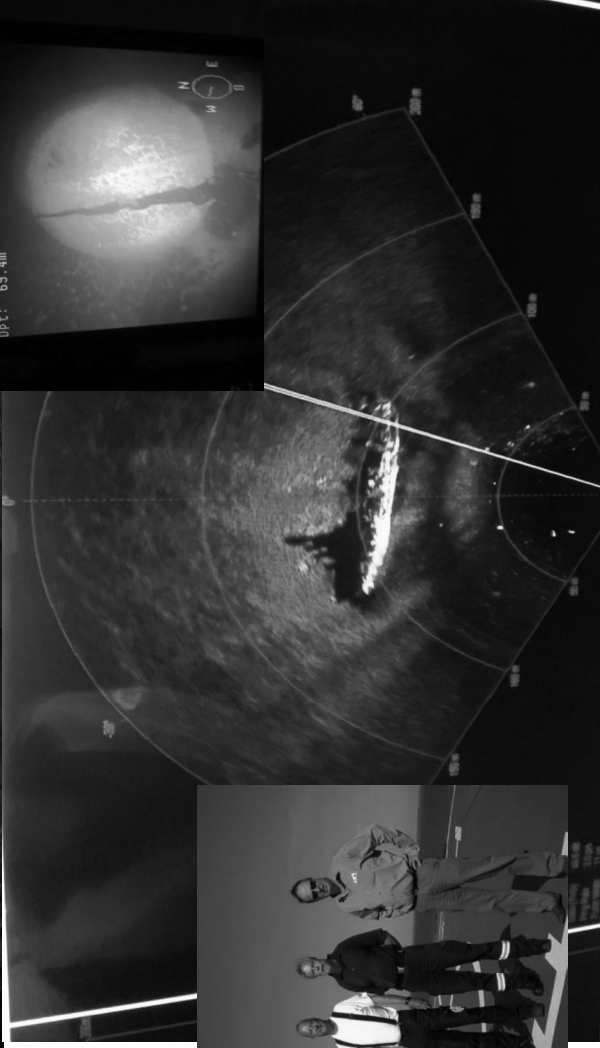
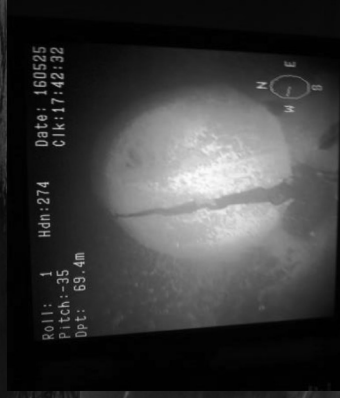


# MS VOLARE

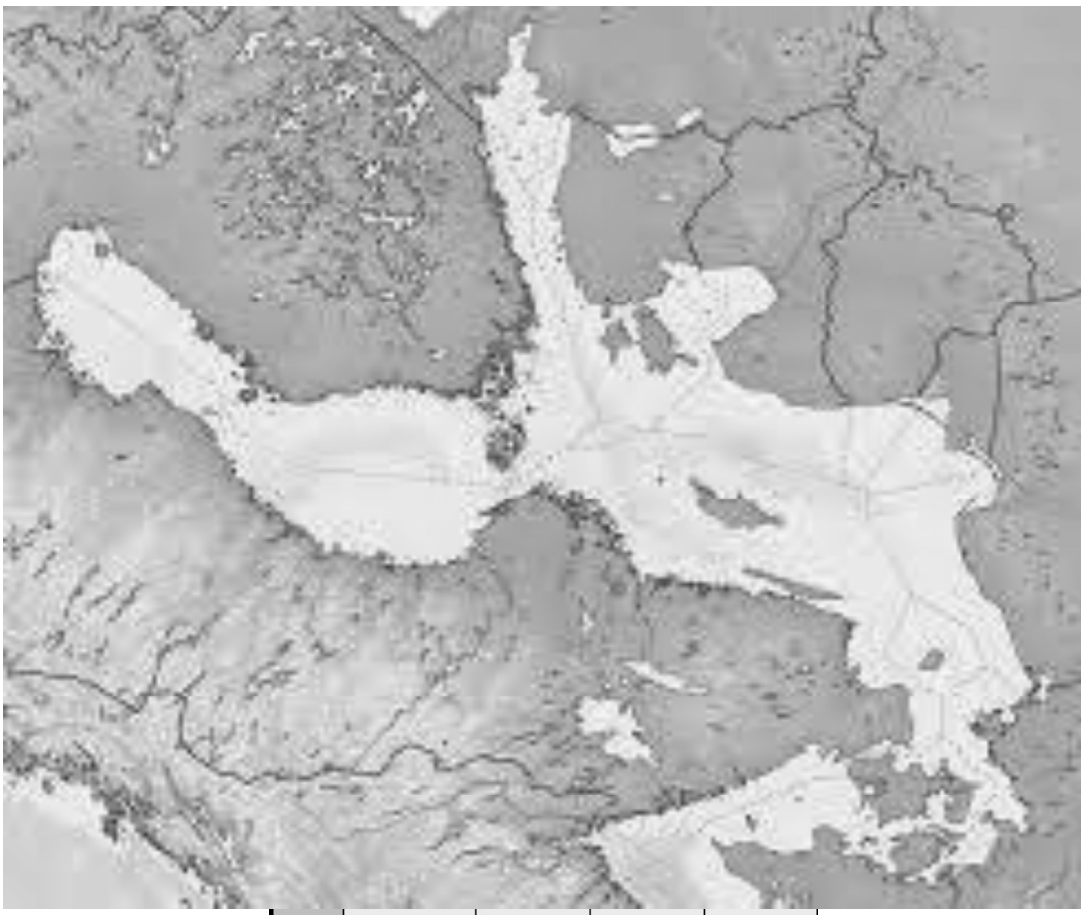
- Built 1957 in Sweden as MS ALTA
- Ore carrier
- Beached 1980 (probably the insurance fraud)



4



## FINLAND, VTT 1999

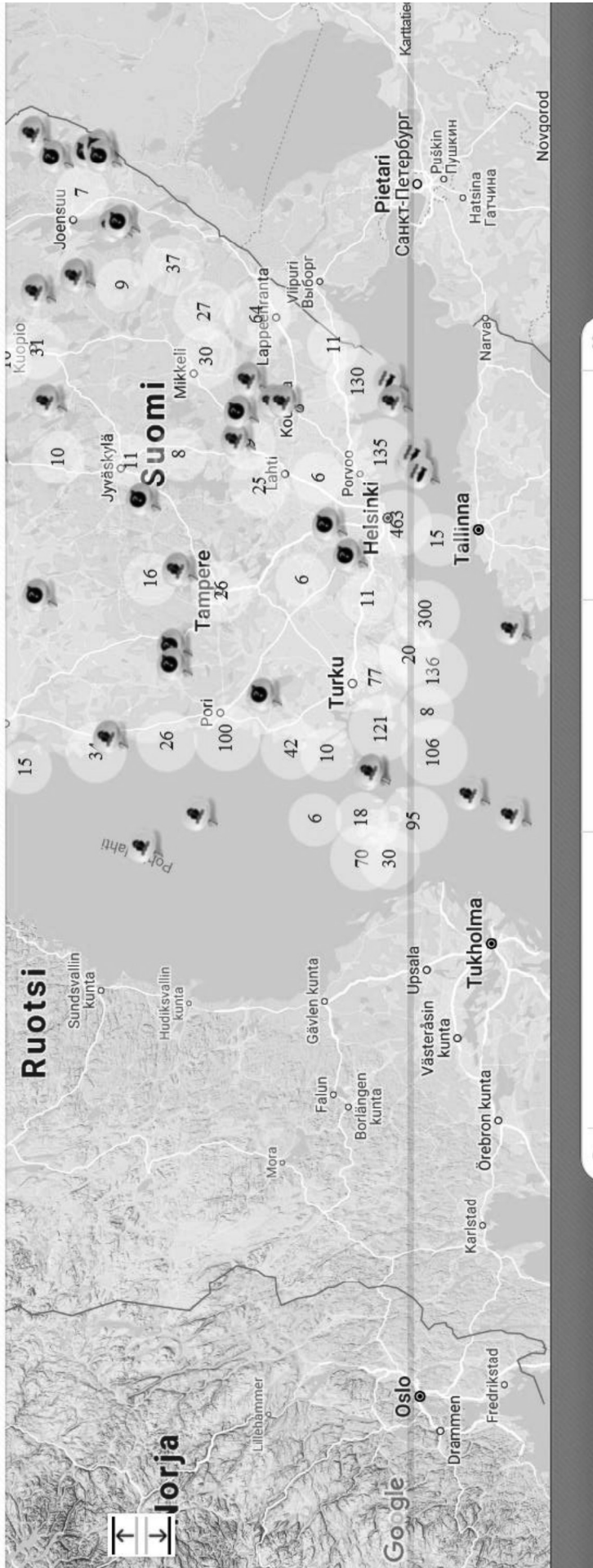


Wreck Class	Description	pcs.	Percentage of surely identified wrecks		
I	Wreck contains, with relatively high probability, over 100 tonnes of oil or it is in some other respect similarly dangerous to the environment.	22	<table border="1"> <tr> <td>32 %</td> <td>68 %</td> </tr> </table>	32 %	68 %
32 %	68 %				
II	Wreck may contain over 100 tonnes of oil because of the size, type or other structural feature of the vessel.	24	<table border="1"> <tr> <td>21 %</td> <td>79 %</td> </tr> </table>	21 %	79 %
21 %	79 %				
III	Wreck may contain 10-100 tonnes of oil.	68	n.a		
0	Wreck contains less than 10 tonnes of oil.	306	n.a		

Tervetuloa sukeltaja ja meriarkeologian ystävä!

# Hylt&net

[ETUSIVU](#)
[UUSIMMAT](#)
[OTA YHTEYTTÄ](#)
[LINKIT](#)
[SANASTO](#)



## **HELCOM Submerged working group**

- Established in 2014, first meeting in Szczecin, Poland, 29-30 October 2014
- - ToR
- - Draft Contents
- Dumped Hazardous Waste
- Polluting Wrecks
- Lost Cargo
- Warware Materials
- Work Plan & Future meetings



## HELCOM Submerged working group

- Last meeting was in Rostock-Warnemünde, Germany, 12 November 2018, 7th meeting.
- Draft Contents – ToR ok – a lot of new projects.... Plus new data...
- Polluting Wrecks
- Warware materials
- Correspondence Group – work continues
- Preliminary reporting in progress – two drafting groups
- For Wrecks: The Meeting agreed that the drafting group on wrecks would be chaired by **Mr. Jorma Rytönen** (Finland). Participants would consist of at least **Mr. Uwe Wichert** (Germany), **Mr. Ivar Treffner** (Estonia) and **Mr. Benedykt Hac** (Poland).





# HELCOM Expert Group on environmental risks of hazardous submerged objects

## Chapter Wrecks

- Wrecks in the Baltic Sea
- Former reports
- National activities
- International activities
- Limits and quality of information
- Introduction of wrecks into the Baltic Sea
- Areas of concern
- Hazards related to fuel and cargo oils
- Other hazards related to wrecks

