

Oil Pollution Monitoring in the Northern Baltic Sea

The World Ocean in Globalization: Challenges for Marine
Regions
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The Baltic Sea – a Sensitive Sea Area

- § 413.000 km²
- § Shoreline of 46.000 km
- § 9 countries, 90 milj. people
- § Shallow sea area
 - Average depth 50 m, maximum 459 m!
 - Average depth of Mediterranean is 2000 m!
- § Very slow exchange of water (25-30 years)
 - Very sensitive to changes in the ecosystem!
- § Almost no tide

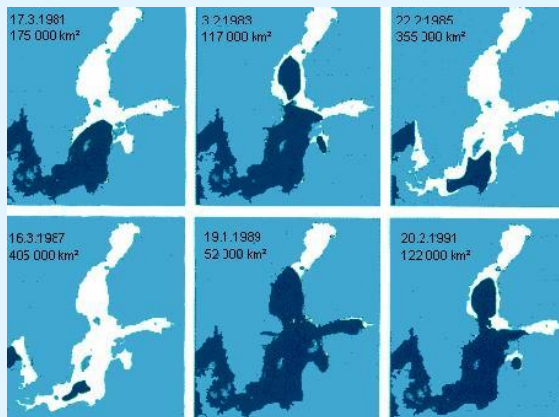


- § One of the biggest brackish water basins in the world
 - Salinity only 1/5 of the Ocean salinity
- § Diverse archipelago



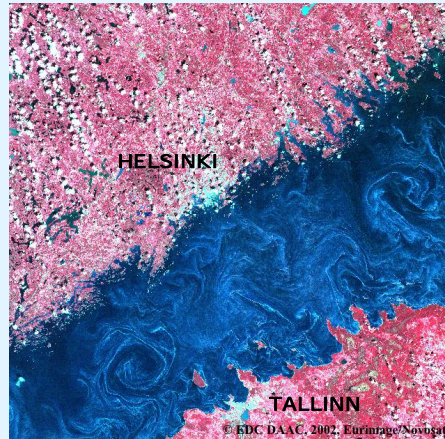
The Baltic Sea – a Sensitive Sea Area

- § Ice cover every year!
 - 12-100% of the whole area
 - December-May



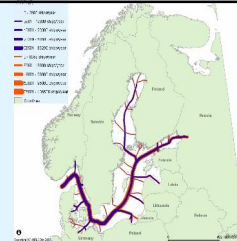
The Baltic Sea – a Sensitive Sea Area

§ Intensive algae blooming in July - August



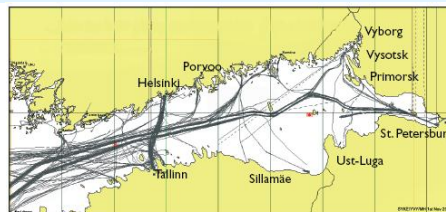
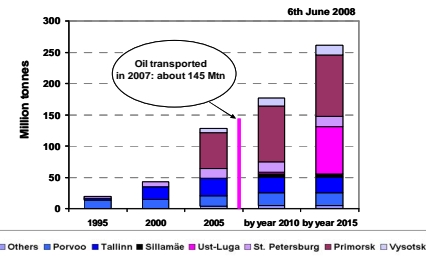
Ship Traffic in the Baltic Sea

- § 2006: 50.000 ships in the Baltic Sea
- § 400-600 ships every day in the Gulf of Finland!
 - 2006: 1/5 of the traffic oil tankers
- § 2007 145 Mtn of oil was transported via Gulf of Finland
- § More than 50% of the Russian oil is transported via the Baltic Sea



OIL TRANSPORTATION IN THE GULF OF FINLAND THROUGH MAIN OIL PORTS

Oil transportation in 1995-2005 and estimated development by year 2015



Seatrack Web



Ship Traffic Regulations in the Baltic Sea



IMO

- § **Baltic Sea is MARPOL 73/78 Special Area**
 - Not allowed to release over 15 ppm oily wastes
- § **Baltic Sea has PSSA status (Particularly Sensitive Sea Area)**
 - Possibility for tougher regulations for vessels?

HELCOM

- § **1992 Helsinki Convention (“HELCOM”) on protection of the Baltic Sea**
 - Original convention 1974
- § **HELCOM has agreed on Baltic strategy that includes among others**
 - Mandatory delivery of oily wastes
 - “No-special-fee” system to oily wastes
 - Notification of ships wastes 24 h before entering the port
- § **HELCOM BSAP 2007 (the Baltic Sea Action Plan)**
 - 2021: “no illegal discharges in the Baltic Sea”



Oil Pollution Monitoring in the Baltic

HELCOM Recommendations

- § Each country should monitor its main shipping lanes and port entries at least twice a week and other sea areas once a week
- § Aerial surveillance with remote sensing equipment
- § Co-operation



Oil Pollution Monitoring in the Baltic

§ Co-operation under HELCOM

- IWGAS (Informal Working Group of Aerial Surveillance)
 - sharing of experience
 - Improved practices for oil pollution
- CEPCO (Coordinated Extended Pollution Control Operations)
 - Flights for more than 24 h over a certain sea area

§ HELCOM AIS Network

- Tool for identifying polluters

§ Recommendation related to good co-operation in the Port State Control of suspected vessels



Aerial Surveillance of the Baltic Sea

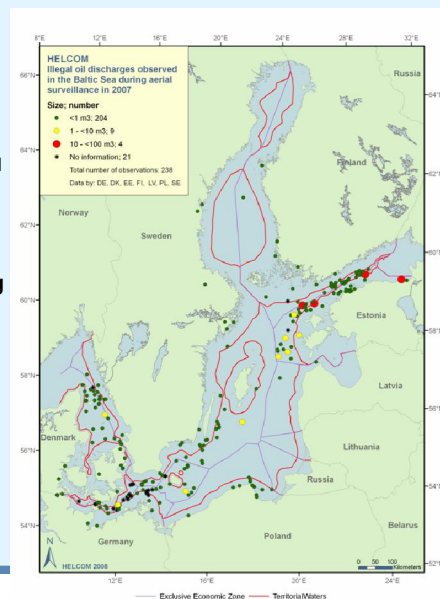
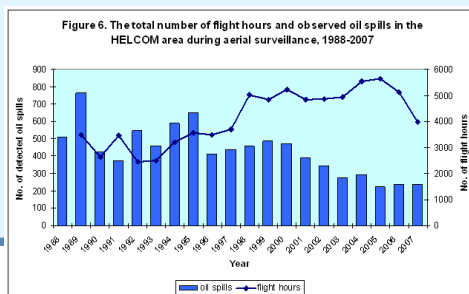
§ About 4000-5000 annual pollution surveillance flight hours are carried out in the Baltic Sea area


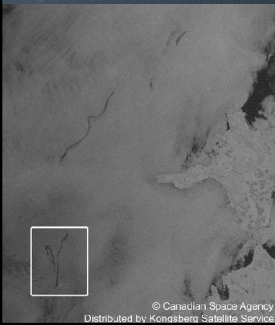
§ Around 300 oil spills are detected in the Baltic Sea every year.

- In 1995, as many as 649 slicks were detected
- 2007: 85% of the slicks were estimated to be smaller than 1 m³
- Total amount 2007: 125 m³ (5 tank trucks!)

§ Amount of oil not found?

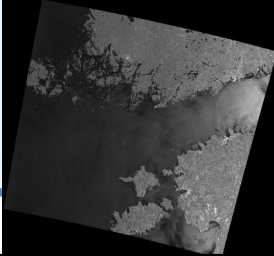
§ Most of the pollution found on the shipping lanes



Use of Satellite Imagery for Oil Spill Monitoring

- § **First experiences of the use of satellite images 1996**
- § **Benefits of using SAR (Synthetic Aperture Radar) images**
 - One image can cover 400 by 400 km area at once
 - Possibility to detect oil in the darkness and through clouds
 - Good supplementary tool for aerial surveillance
- § **All the indications has to be checked**
 - A lot of false alarms L
- § **Today, almost 1000 images annually for the Baltic Sea area**
 - European Maritime Safety Agency (EMSA)
CleanSeaNet Service
- § **2007: 65 verified oil slicks first seen from satellite images**



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Oil Spill Surveillance in Finland



- § **Finnish Environment Institute (SYKE) is the national competent pollution control authority**
 - Responsible for surveillance of illegal oil discharges
- § **Surveillance in close co-operation with Finnish Border Guard**
 - Two surveillance aircraft, Dornier 228
 - Aircraft equipped with Environmental monitoring equipment
 - 600-700 hours annually
 - Also helicopters monitor oil pollution!
 - Marine Rescue Coordination Center (MRCC) coordinates the use of resources



Administrative Pollution Fee System

- § The new law related to the pollution fee came into force **2006**
- § Effective in Finnish Exclusive Economical Zone (EEZ)
- § The fee imposed by the Finnish Border Guard
 - The ship can be stopped for max. 14 days in order to get the payment
- § Fee imposed for ship owner or to shipping company
- § The level of the fee depends on
 - The amount of oil
 - The gross tonnage of the ship
- § The lowest level of the fee is more than 4000 euros
 - No highest level!
- § The Police can make the preliminary examination of the environmental crime at the same time!



Administrative Pollution Fee System in practise

- | | |
|---|--|
| <ul style="list-style-type: none">§ 2006<ul style="list-style-type: none">• 23 investigations• 11 pollution fees imposed• 96.255 euros | <ul style="list-style-type: none">§ 2007<ul style="list-style-type: none">• 11 investigations• 4 pollution fees imposed• 42.780 euros |
|---|--|
- § **(Port) authorities are reporting pollution cases easily to FBG**
 - § **Most of the cases in or near harbors**
 - § **Challenges in catching red-handed polluters in the open sea area where the most of the pollution takes place**



Means of Reducing Oil Pollution in the Baltic Sea?

- § **Efficient Follow-up for polluters, e.g. administrative pollution fees**
- § **Better reception facilities of the wastes in the ports**
 - Full implementation of the "no-special-fee"-system
- § **Visible and efficient aerial surveillance with enough of flight hours**
 - Higher risk of getting caught red-handed
 - Preventive effect!
 - Sub-regional co-operation – good use of resources
- § **Effective use of available technique**
 - Monitoring equipment, satellites, AIS etc.
- § **Shipowners/crews change of heart**
 - Better knowledge of the "no-special-fee"-system, legislation and possible follow-up
- § **Skilled crew members onboard ships?**
 - Special regulations for the Baltic Sea?



Thank you!

