DANISH MARITIME AUTHORITY

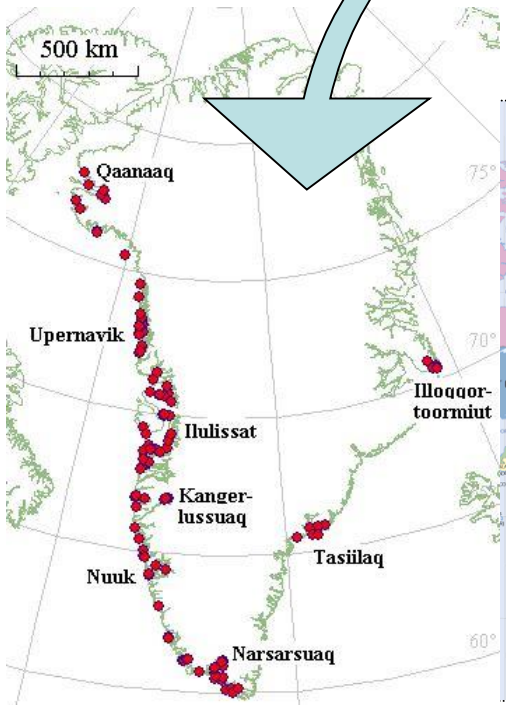
New Challenges and Opportunities for Coastal States in Strait regimes

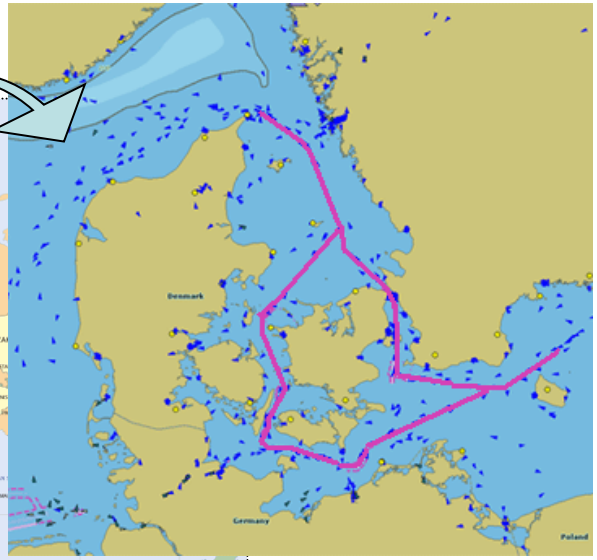
Director Per Soenderstrup, Maritime Regulations and Legal Affairs
Danish Maritime Authority

12th Cooperation Forum
30 September 2019

The Coastal State Denmark

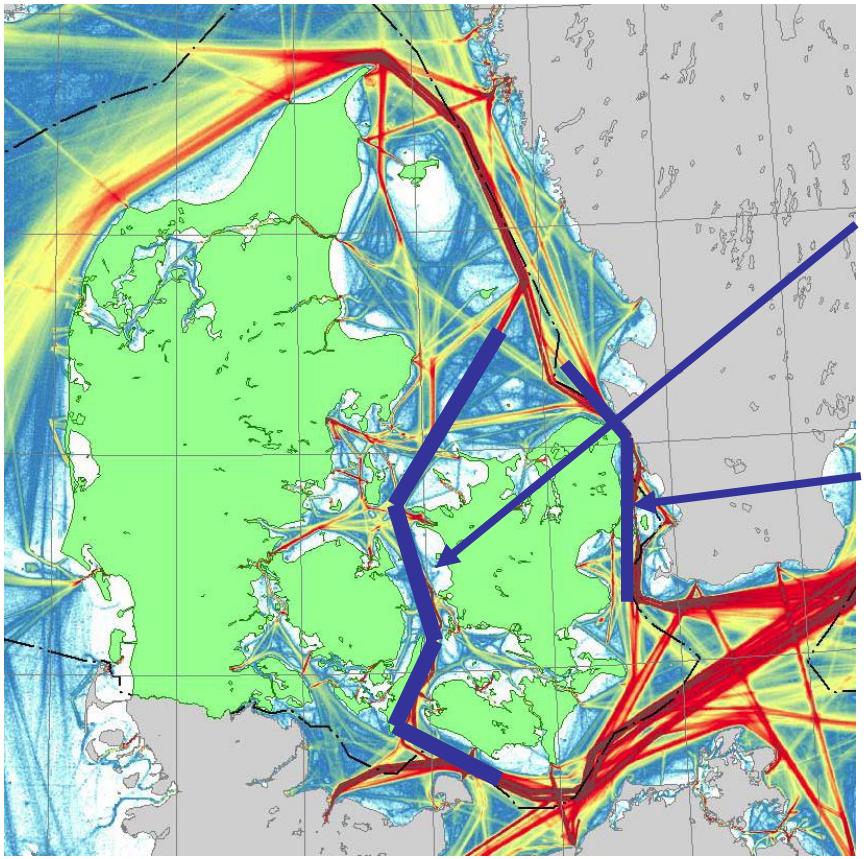
The entrances to the Baltic Sea





39.000 km Arctic coastline

Two narrow straits difficult to navigate



The Great Belt – Route T:

Distance (Skaw – Bornholm): 390 nautical miles

Max recommended draft: 14.5 meters

The Sound

Distance (Skaw – Bornholm): 250 nautical miles

Max recommended draft: 7.7 meters

OUR PHILOSOPHY TOWARDS RISK HANDLING

Proper voyage planning, Competent crews,
Ships systems and equipment

Quality ships

Seamarks, light houses, Routes, Charts, Pilots
VTS

Aids to navigation

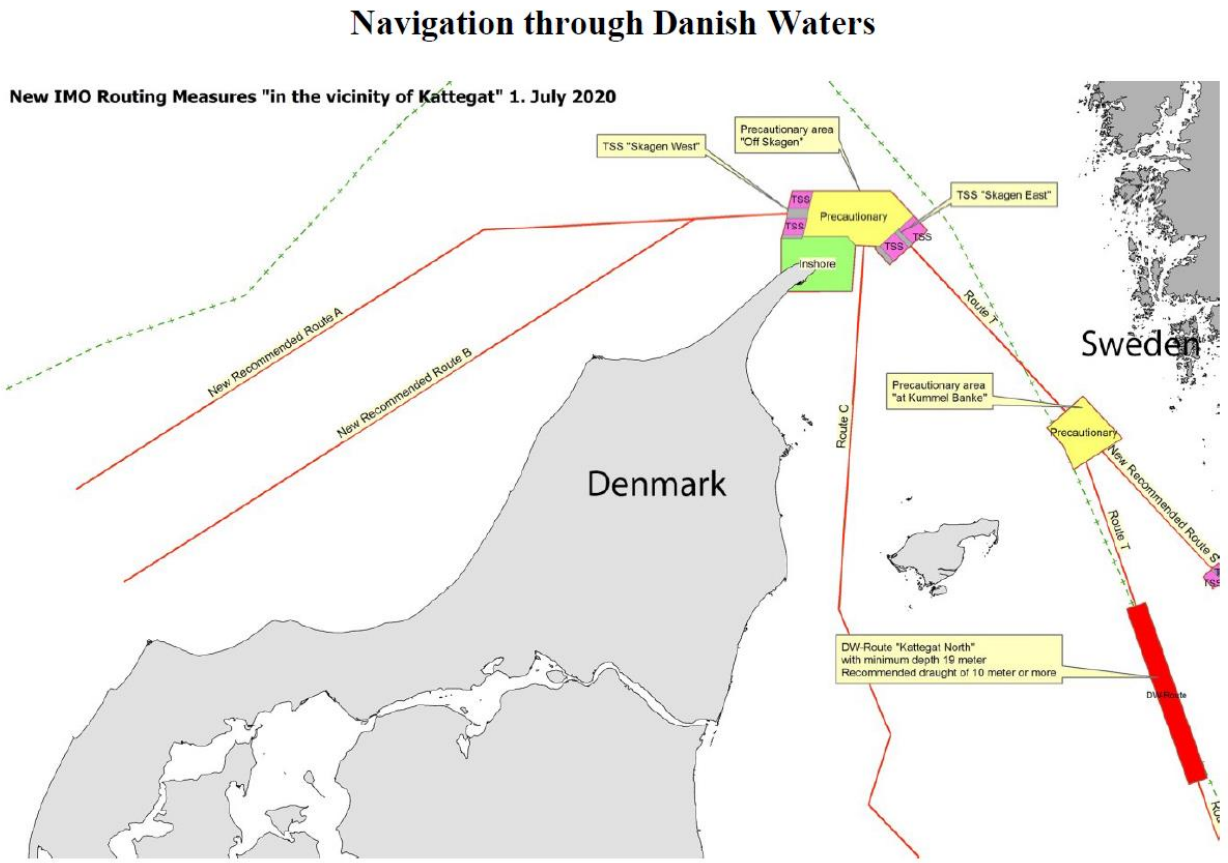
Port State Control
Vessel Traffic Services
Flag State inspections

Enforcement and surveillance

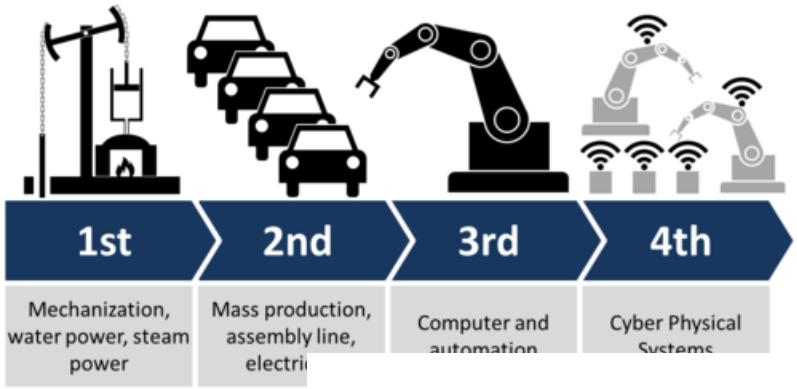
Development of standards and regulations

Before

Navigation through Danish Waters



Digitaziation a game changer



The autonomous ship

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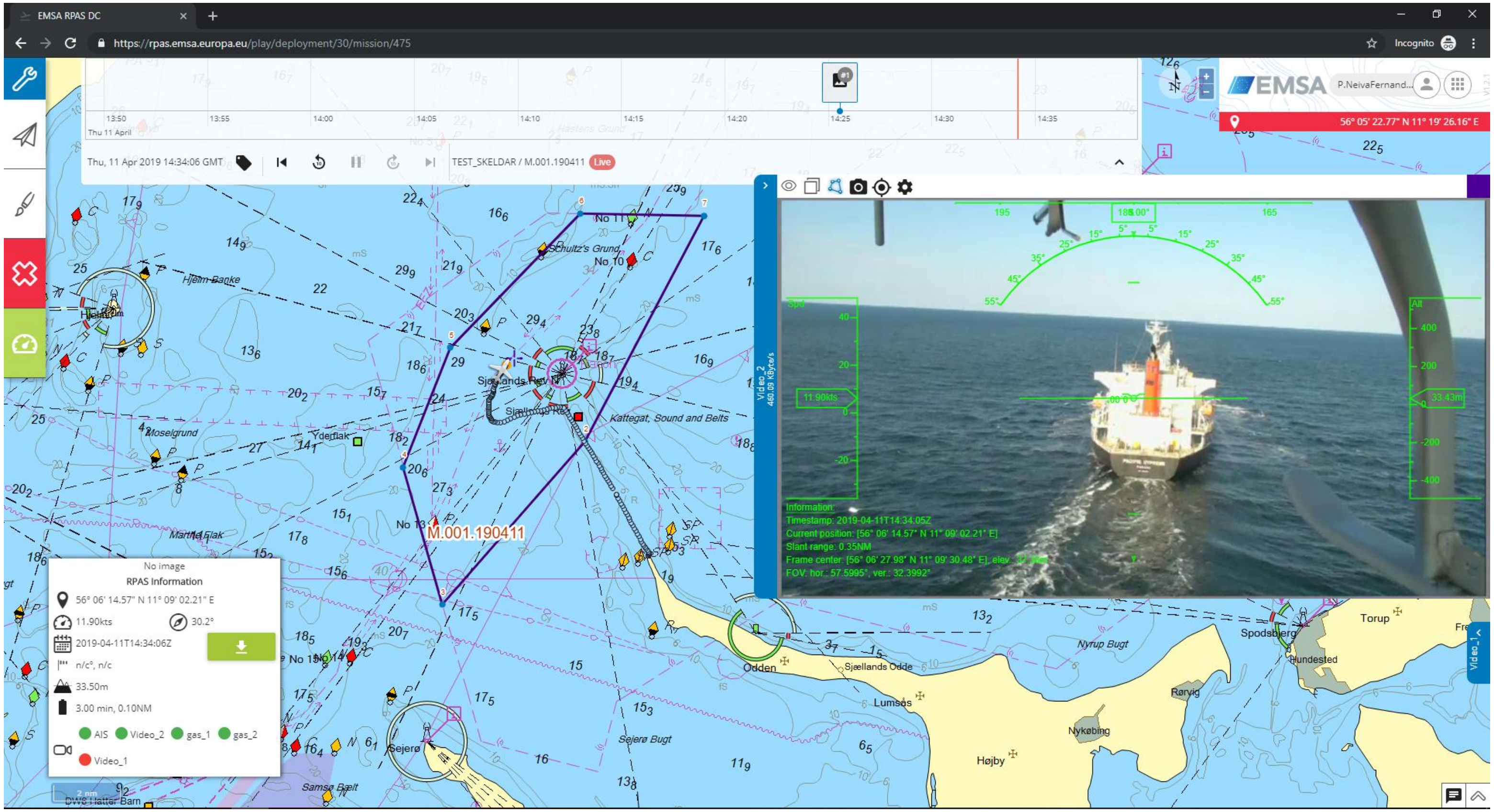
Effective enforcement in Danish waters

Air surveillance

The drone case



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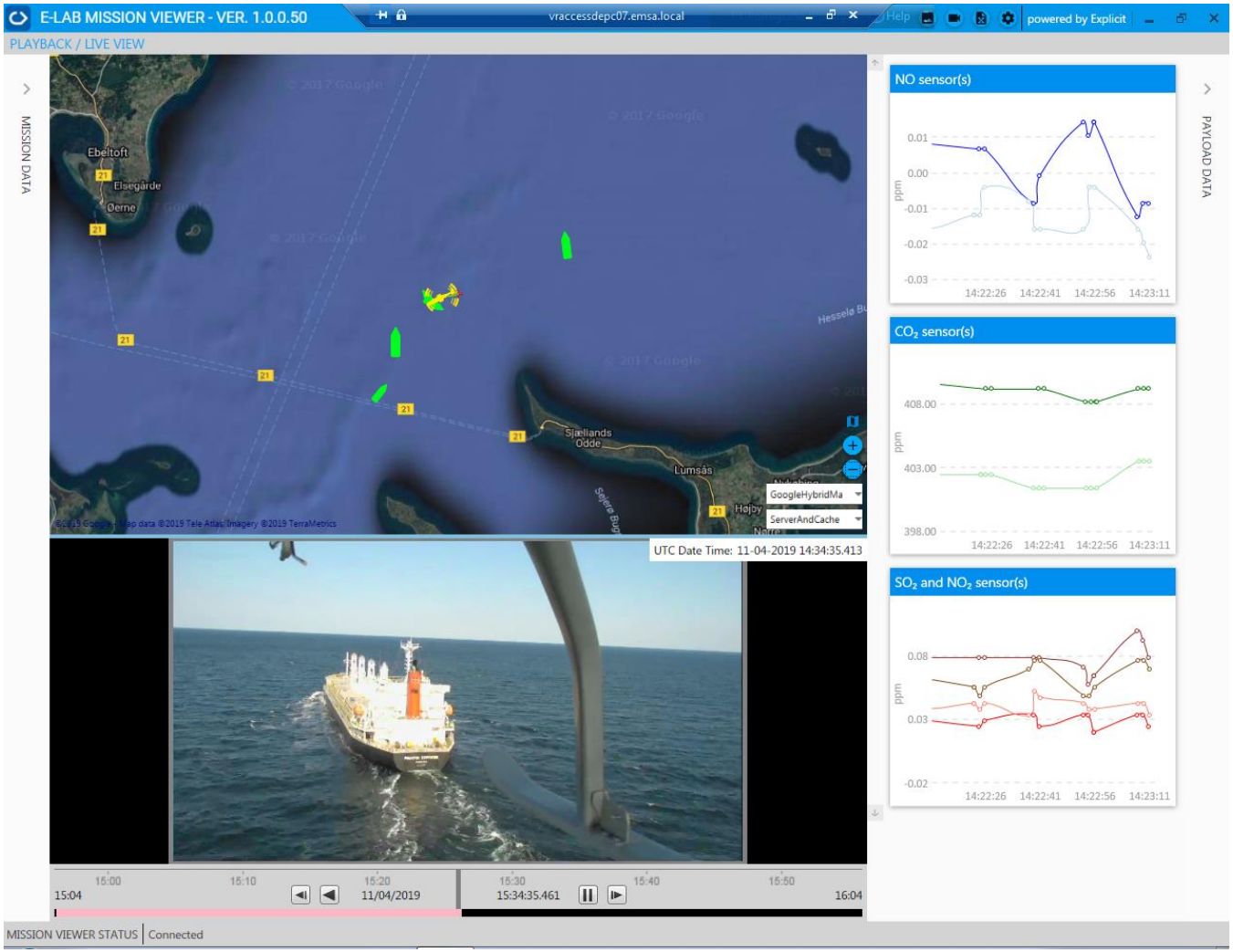
https://rpas.emsa.europa.eu/play/deployment/30/mission/475
Incognito
Thu, 11 Apr 2019 14:34:06 GMT
TEST_SKELDAR / M.001.190411
Live
EMSA
56° 05' 22.77" N 11° 19' 26.16" E
M.001.190411
No image
RPAS Information
56° 06' 14.57" N 11° 09' 02.21" E
11.90kts
30.2°
2019-04-11T14:34:06Z
n/c°, n/c
33.50m
3.00 min, 0.10NM
AIS
Video_2
gas_1
gas_2
Video_1
Information:
Timestamp: 2019-04-11T14:34:05Z
Current position: [56° 06' 14.57" N 11° 09' 02.21" E]
Slant range: 0.35NM
Kattegat, Sound and Belts
Sjællands Odde
Odden
Lumsås
Nykøbing
Højby
Rørvig
Hundested
Torup
Sejerø
Sejerø Bugt
Nyrup Bugt
Samsø Bælt
Moselgrund
Hjelm Banke
Schultz's Grund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Help
powered by Explicit
PLAYBACK / LIVE VIEW
MISSION DATA
PAYLOAD DATA
Ebeltoft
Elsegårde
Ørne
Sjællands Odde
Lumsås
Højby
GoogleHybridMa
ServerAndCache
UTC Date Time: 11-04-2019 14:34:35.413
NO sensor(s)
0.01
0.00
-0.01
-0.02
-0.03
ppm
14:22:26
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14:23:11
CO2 sensor(s)
408.00
403.00
398.00
SO2 and NO2 sensor(s)
0.08
0.03
-0.02
15:00
15:10
15:20
15:30
15:40
15:50
15:04
11/04/2019
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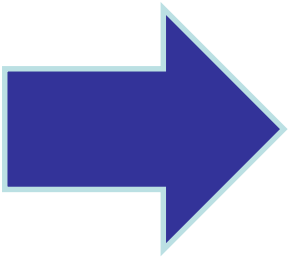
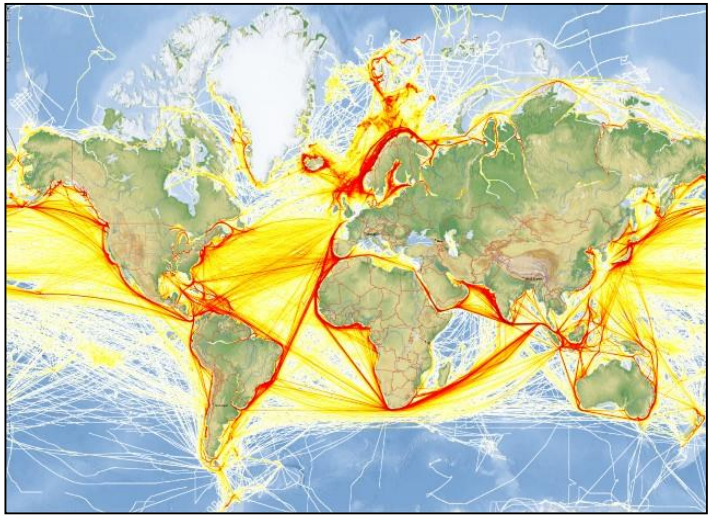
MISSION VIEWER STATUS
Connected

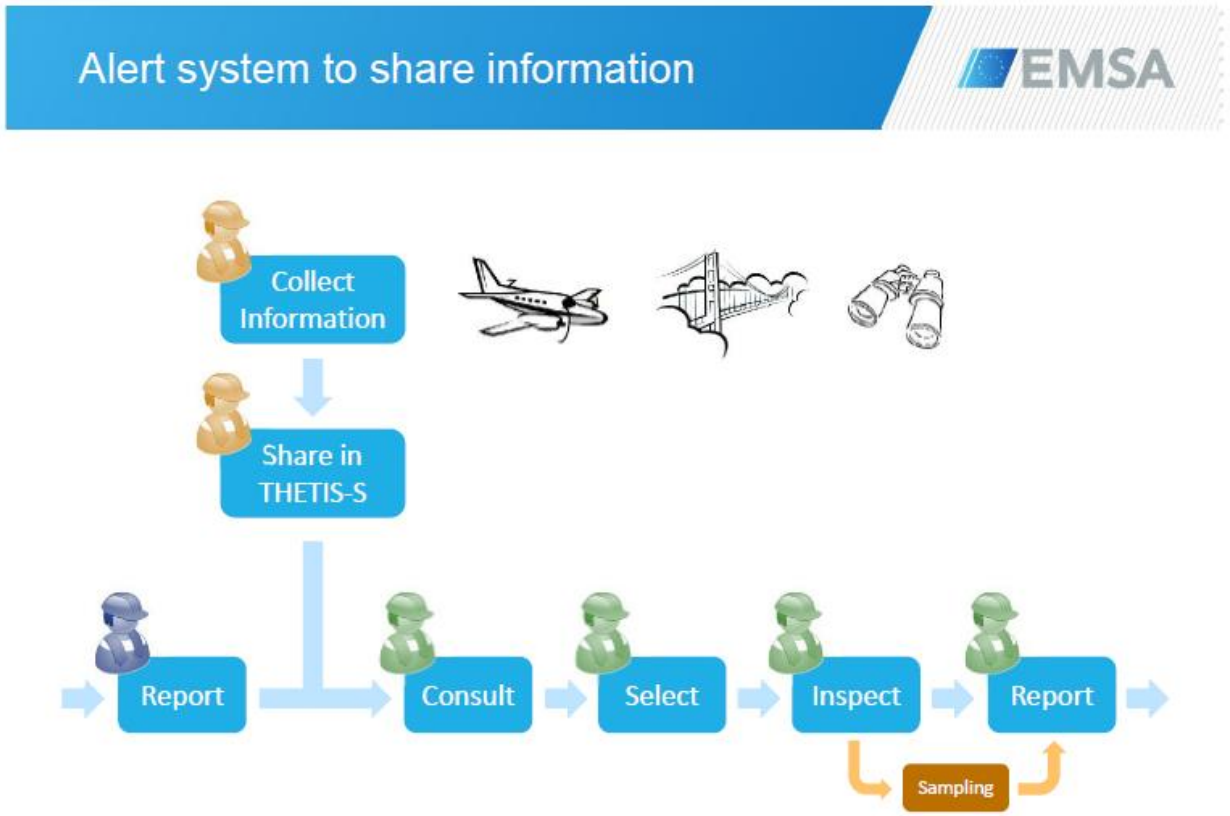
Global 0.5% SOx limit 1 January 2020

- Is everyone aware of the enforcement challenge? -



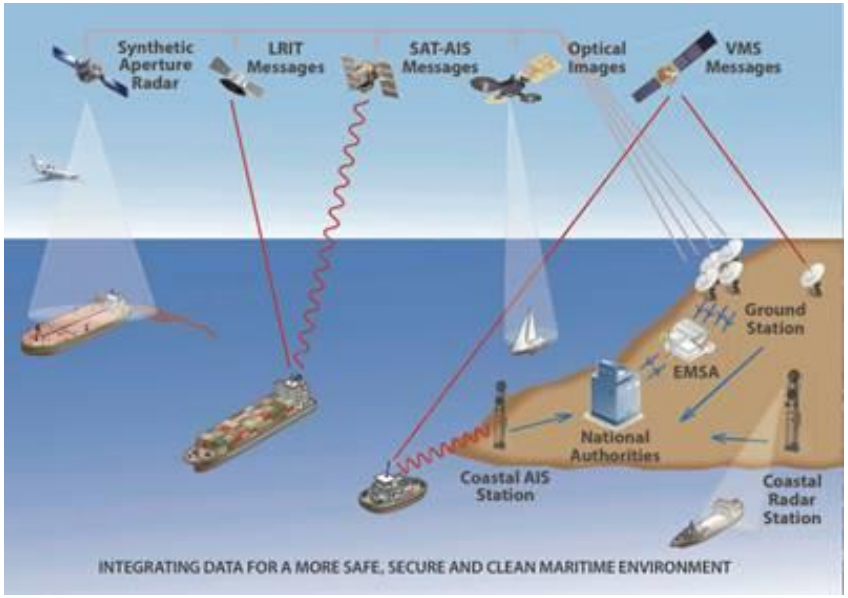


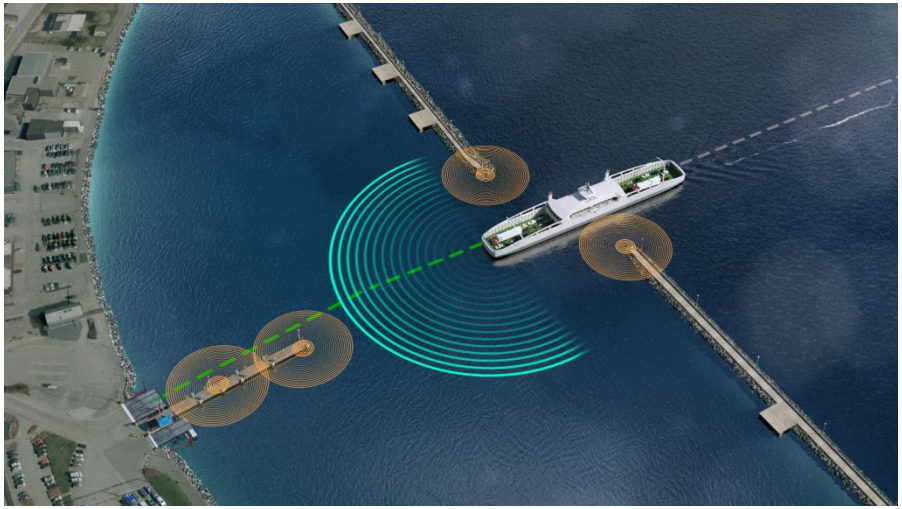
Enforcement by sharing data




here now
Autonomous ships are ~~approaching~~

Autonomous infrastructure





- Virtual lighthouses
- Intelligent buoys
- Shore based decision support

The COLREG challenge

- It is a fundamental principle of COLREG that ships are controlled by human beings and that navigational decisions are based on a seamanlike assessment
- COLREG is only decisive to who is controlling the ship and not from where it is controlled.
- It is technically possible to replace human vision and hearing with cameras, sensors, radars or other technical means (electronic lookout),

Artificial intelligence - modeling the brain of a navigator …

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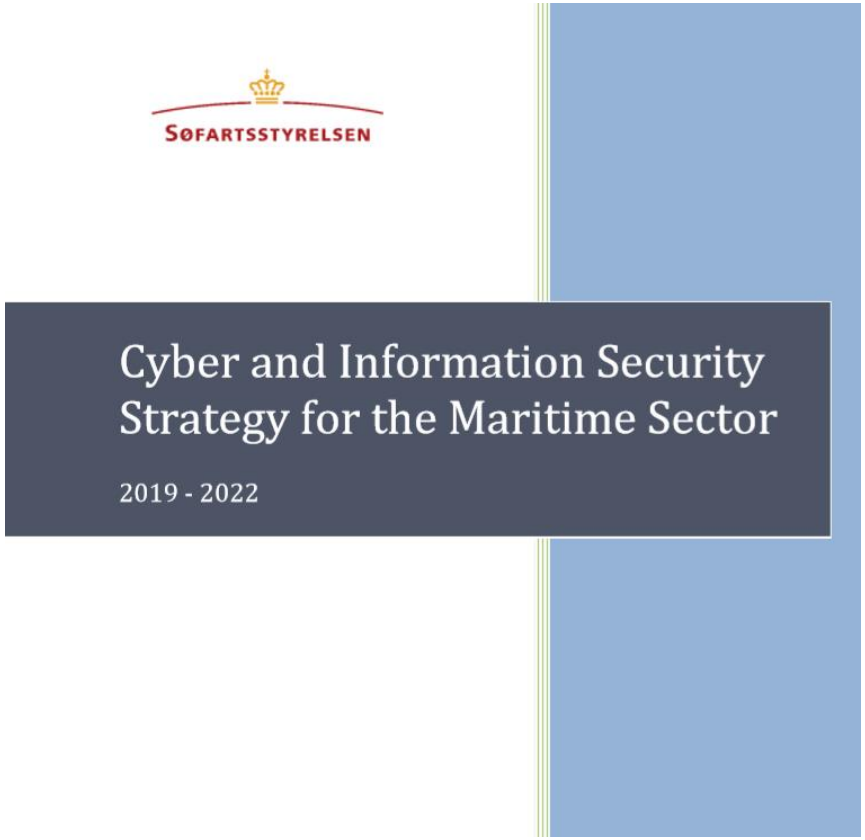
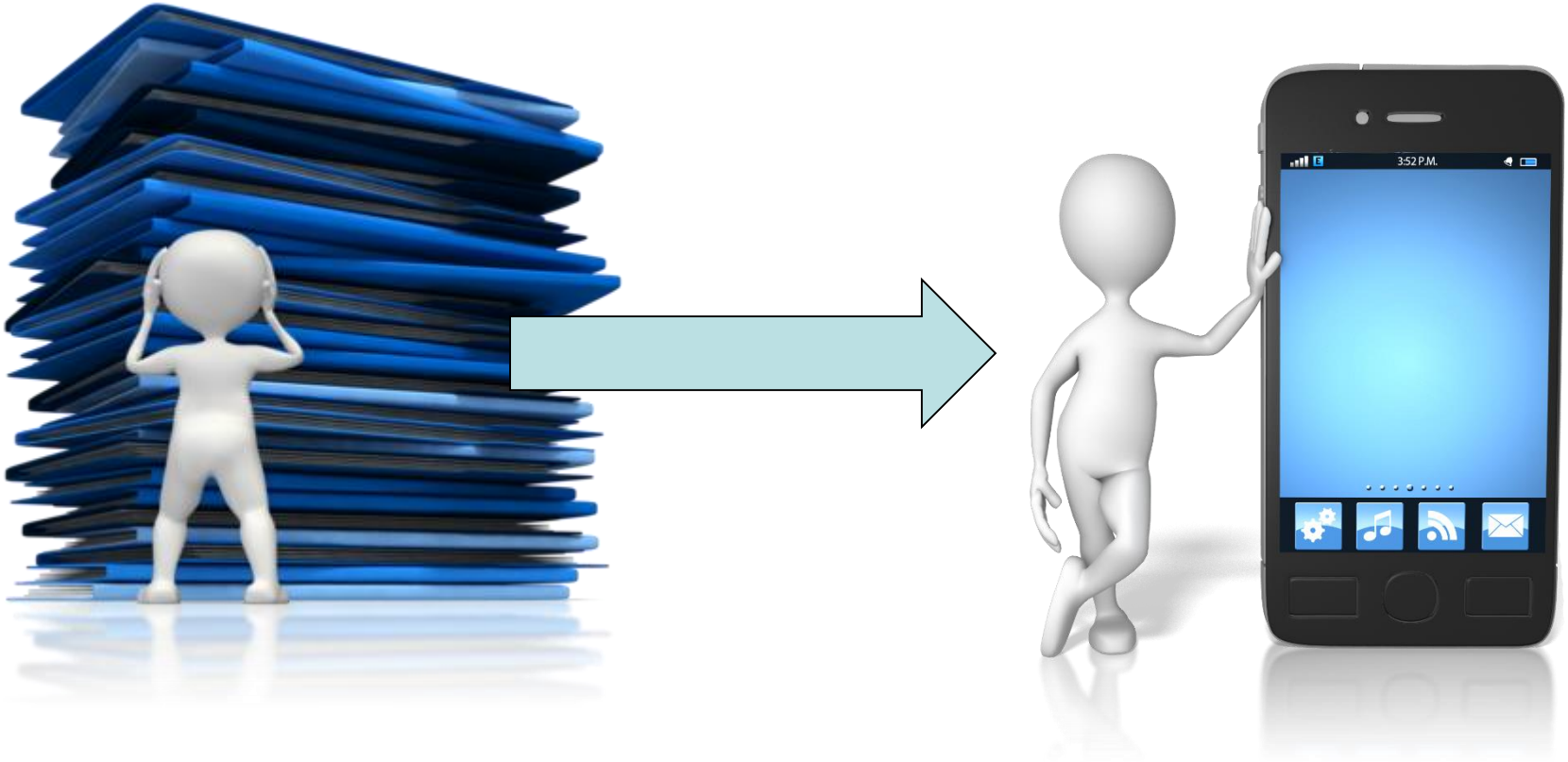
A new Danish cyberstrategy and

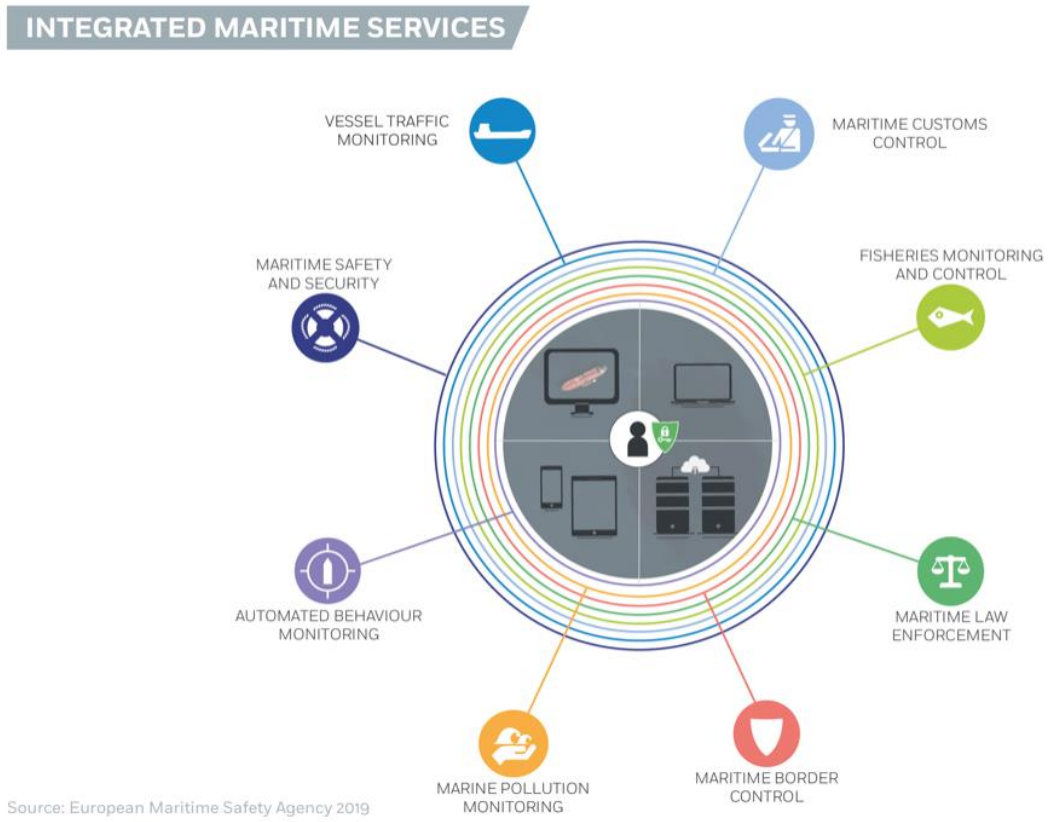


Cybersecurity is not only ships but also infrastructure

Autonomous ship/shore interface



Use data for realtime enforcement



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IMS IN USE ACROSS MULTIPLE SECTORS

Integrated Maritime Services are being used to support a range of different maritime activities. Some specific examples are provided below.

VESSEL TRAFFIC MONITORING

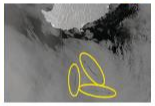
A national, regional and global view

IMS are used by the Irish Coast Guard to monitor the situation at sea and to generate enhanced SARSURPIC (search and rescue surface picture) in the event of an emergency far from the coast. The Irish authorities also use the services' Automated Behaviour Monitoring capability to oversee Traffic Separation Schemes.

MARITIME POLLUTION MONITORING

Awareness for a clean sustainable ocean

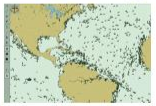
Danish organisations use the SEG graphical interface to access IMS in order to monitor vessels of interest, as well as to detect and follow up on potential cases of pollution.



SYSTEM-TO-SYSTEM

Enriching national information systems

Maritime authorities of Iceland, Italy and Poland all use the IMS system-to system capability, enabling them to have satellite AIS data streamed directly to their own national information systems for an enhanced maritime picture in the area of maritime safety and security.



MARITIME CUSTOMS CONTROL

An historical and real-time perspective

Spanish customs authorities use both the IMS historical track and Automated Behaviour Monitoring capabilities to follow vessels of interest and support relevant investigations.

FISHERIES MONITORING AND CONTROL

Supporting the fight against IUU

The European Fisheries Control Agency uses the full set of IMS services and data sets, integrated with fisheries specific information for regional fisheries monitoring and control activities. Copernicus Maritime Surveillance Earth Observation products and Automated Behaviour Monitoring capabilities are used in specific control campaigns.

MARITIME BORDER CONTROL

Supporting EU agencies and member states

IMS provide Frontex with information on vessel positions from all sources, as well as with Earth Observation data and products and Automated Behaviour Monitoring capabilities for anomaly detection.

MARITIME LAW ENFORCEMENT

Upholding national and international law

The Maritime Analysis and Operations Centre-Narcotics (MAOC–N) uses the full set of IMS services and data sets, including Automated Behaviour Monitoring capabilities and Copernicus Maritime Surveillance Earth Observation products for the detection of illicit activities.

MARITIME SAFETY

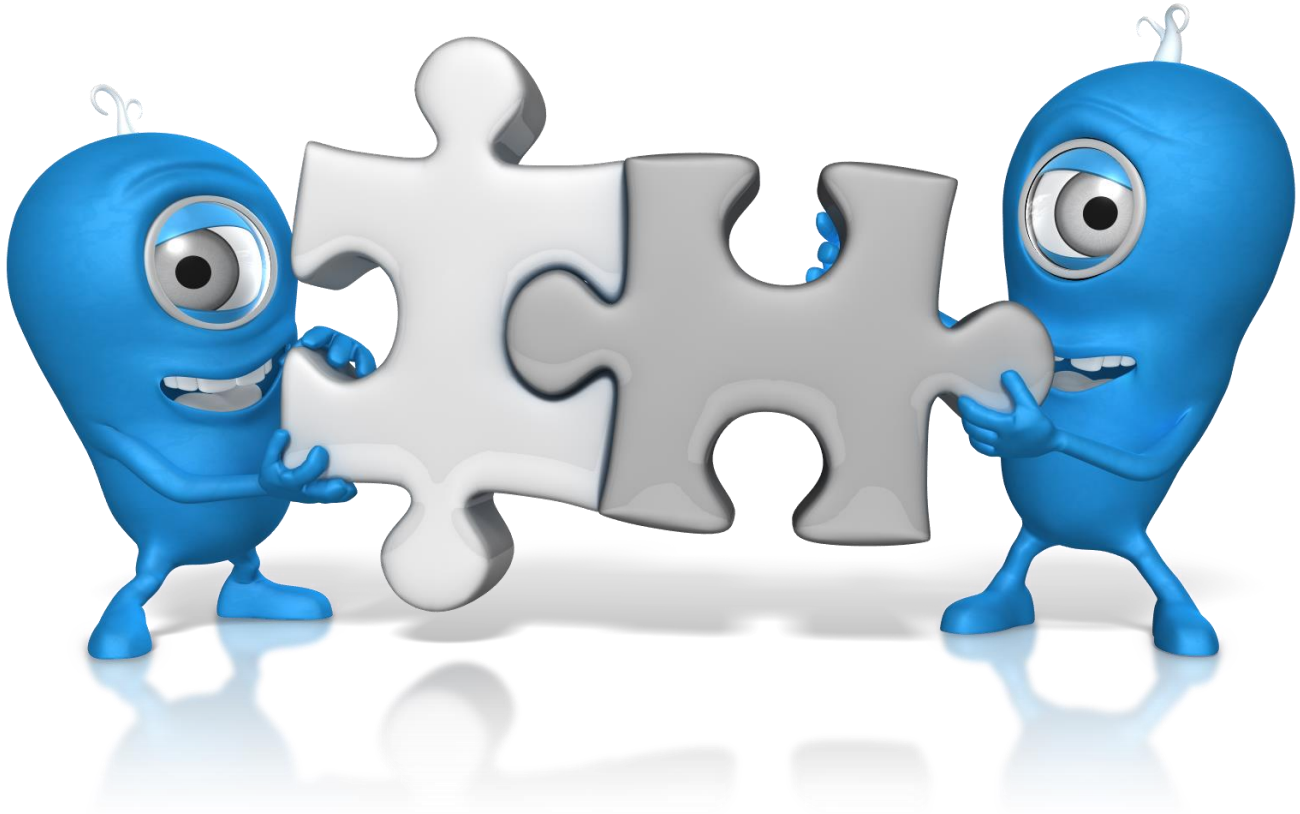
Supporting rescue operations

The Spanish Maritime Safety and Rescue Society, SASEMAR, uses the IMS services' integrated data sets and Satellite AIS to locate vessels in remote areas. Enhanced SARSURPIC capabilities make it possible for SASEMAR to locate casualties and get on-the-spot assistance for emergencies located far from the coast.

Looking forward

In an Age of Big Data, more information is available to us than ever before. We can now process, store and share this information at unprecedented volumes in a relatively seamless way. The extent to which we can harness this information to enhance maritime surveillance and use modern technology to analyse, link and extract value from big data will play a central role in determining the future of EMSA's Integrated Maritime Services. For this reason, EMSA is investing in cloud-based infrastructure, artificial intelligence and deep learning. This will help to further develop capabilities in the areas of detecting and monitoring vessel behaviour patterns, providing risk analysis, and facilitating access to historical aggregated vessel data going back five years and more. The features will bring benefits to participating member states and the European Commission as shared efforts and investments pay off by building a clear and comprehensive, common picture encompassing the full range of EU maritime interests.

Questions?



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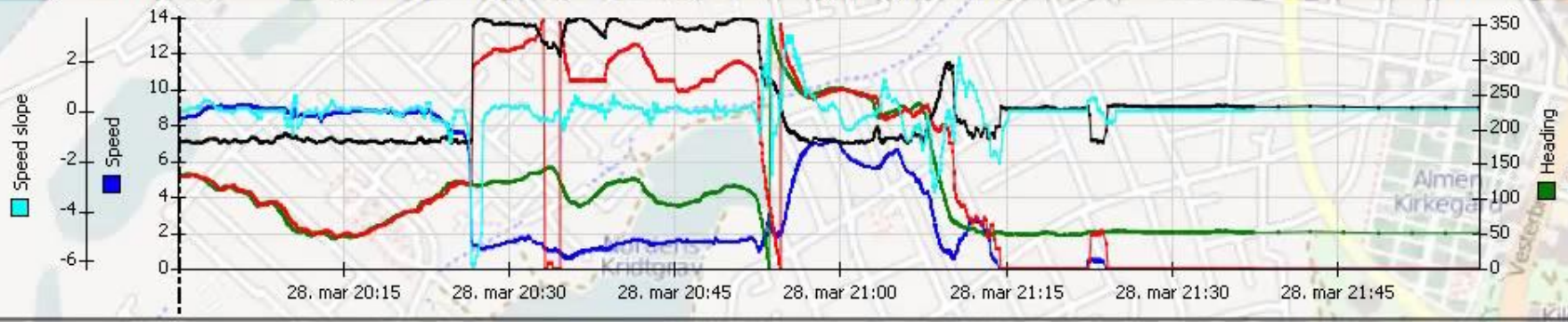
RAMONA - Cargo - 230604000 - 75m x 11m - Draught:-1m - Status:Engine - Speed:8.3kn - Avg:8.3kn - Heading:135deg - COG:135deg

28-mar-2012 20:00:02



57°03.038 N - 009°51.495 E

Questions?