



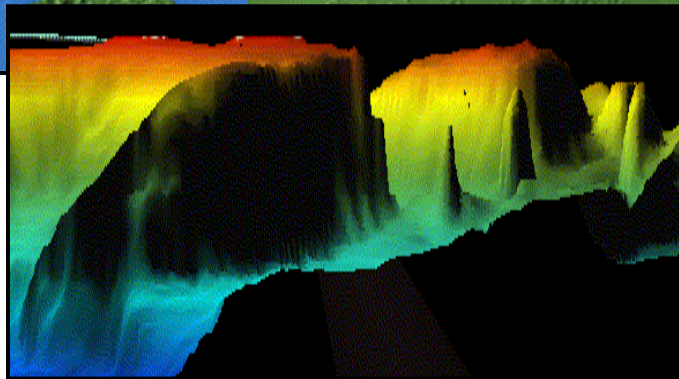
Cdr Jonas Hård af Segerstad
COM 42. MCM SQN



Underwater operations in the littorals – considerations for Mine Warfare

- The environment
- The threat
- Own assets and concept
- Why is the littoral area different? Or is it?

Geographical outlines of the Baltic Sea

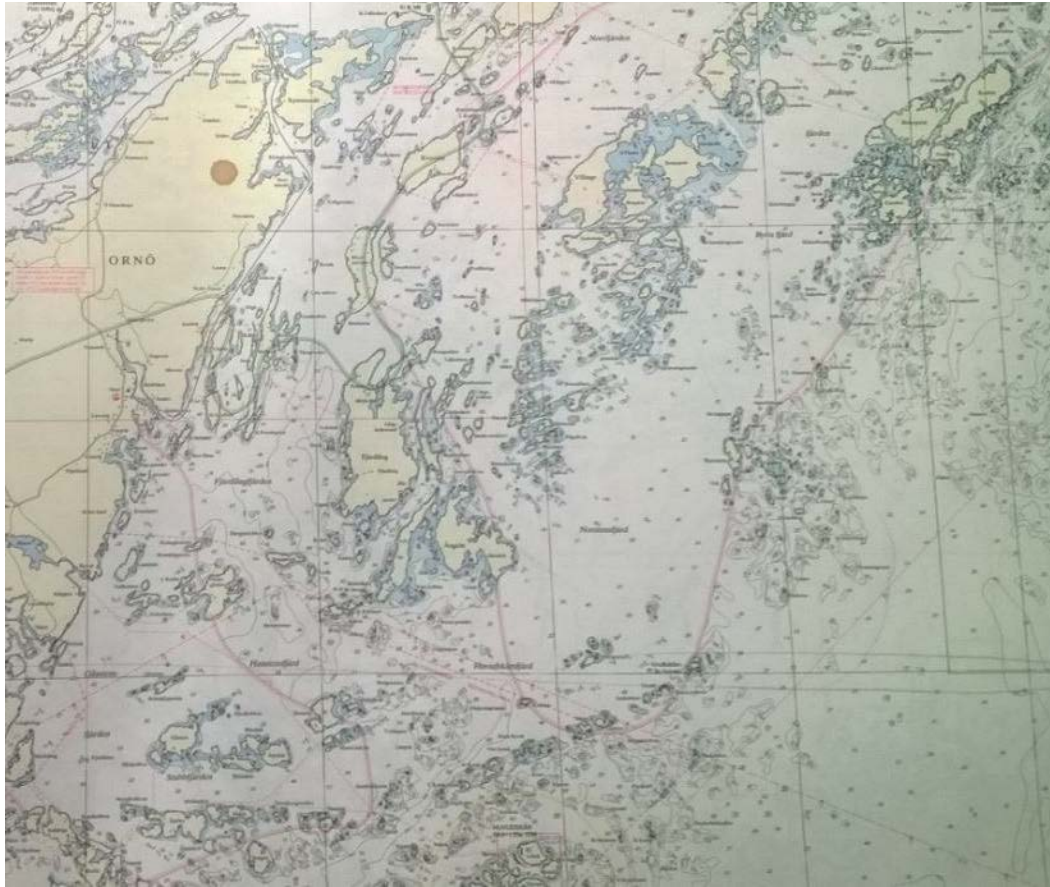


- Sweden has a 2 700 kilometer long coastline
- Average depth of the Baltic Sea is 60 meters
- Topographic variations
- Bottom composition variations
- Hydrographic variations
- Magnetic variation variations
- Ice during winter

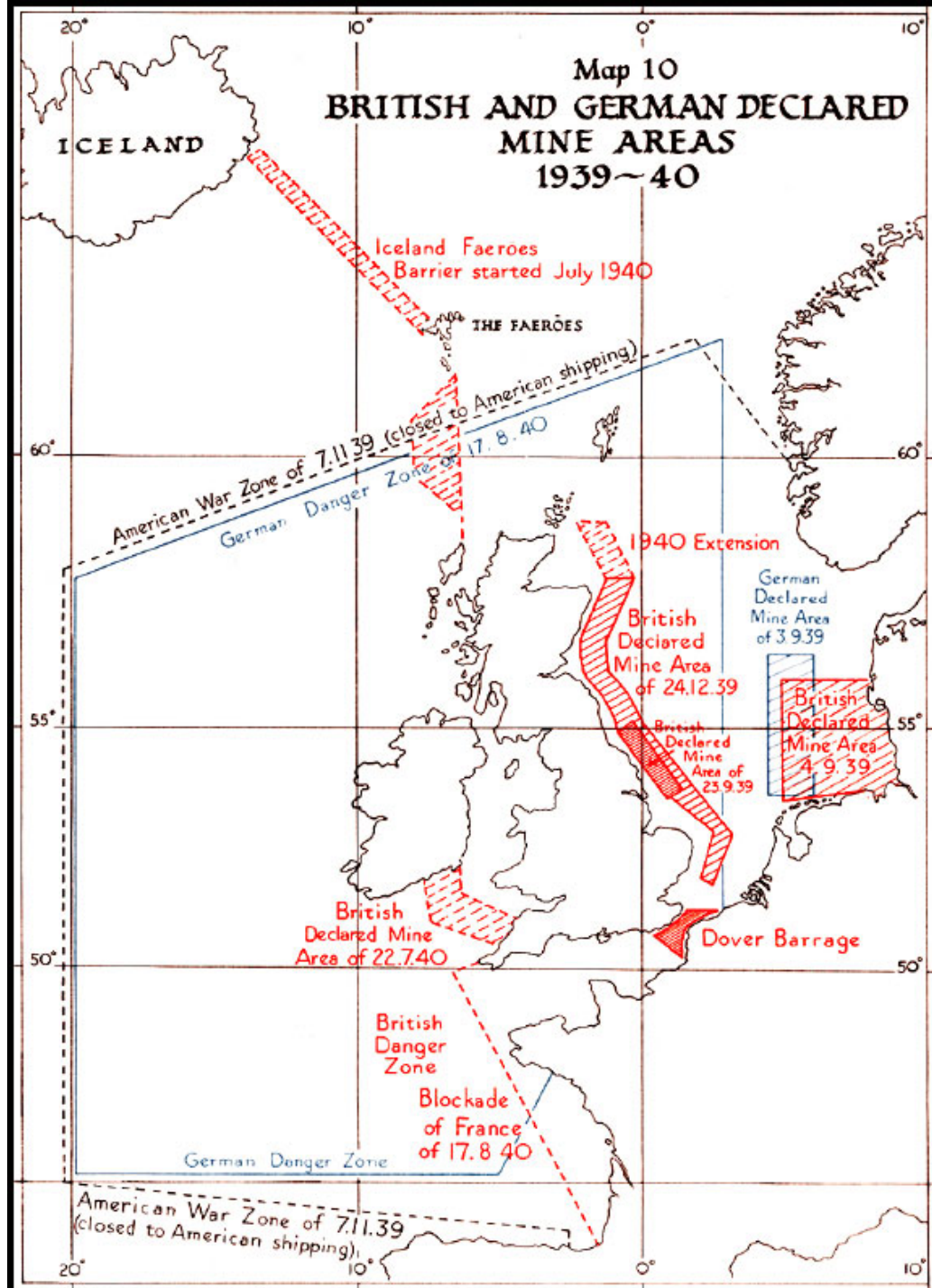
If land looks like this...



Explained on a chart



Classic Mine Warfare in the "non-littorals".



Modern Mine Warfare - Iraq 2003

A handful of mines hit directly on coalition's critical vulnerability.

Covertly laid.

Control of the sea or littoral maritime control?



The modern mine threat

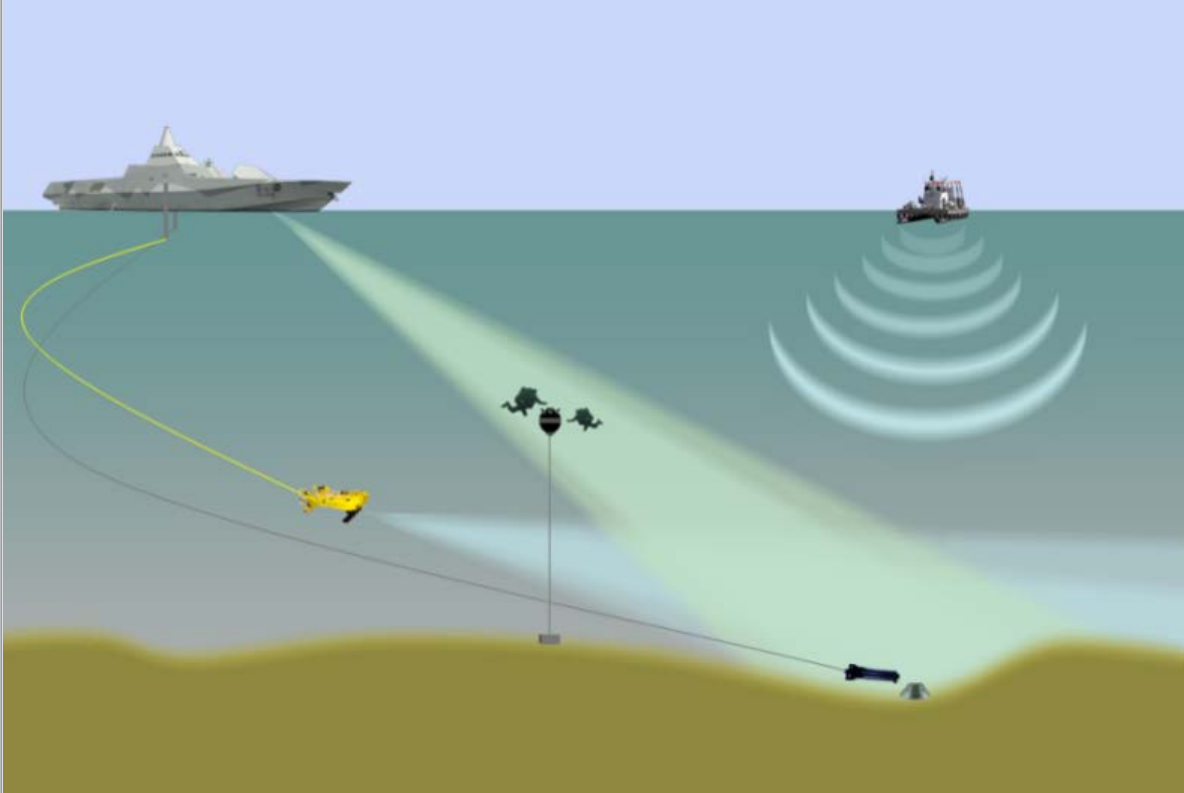


- Stealth Mines
 - Multisensor fused
 - May be laid – or placed – ideally
 - New signatures: seismic, electrical,
 - New sensors in old mines
 - Anti-sweep/anti-hunt devices
-
- In the littorals: some mines will be unhuntable or unsweepable!

Littoral difference?

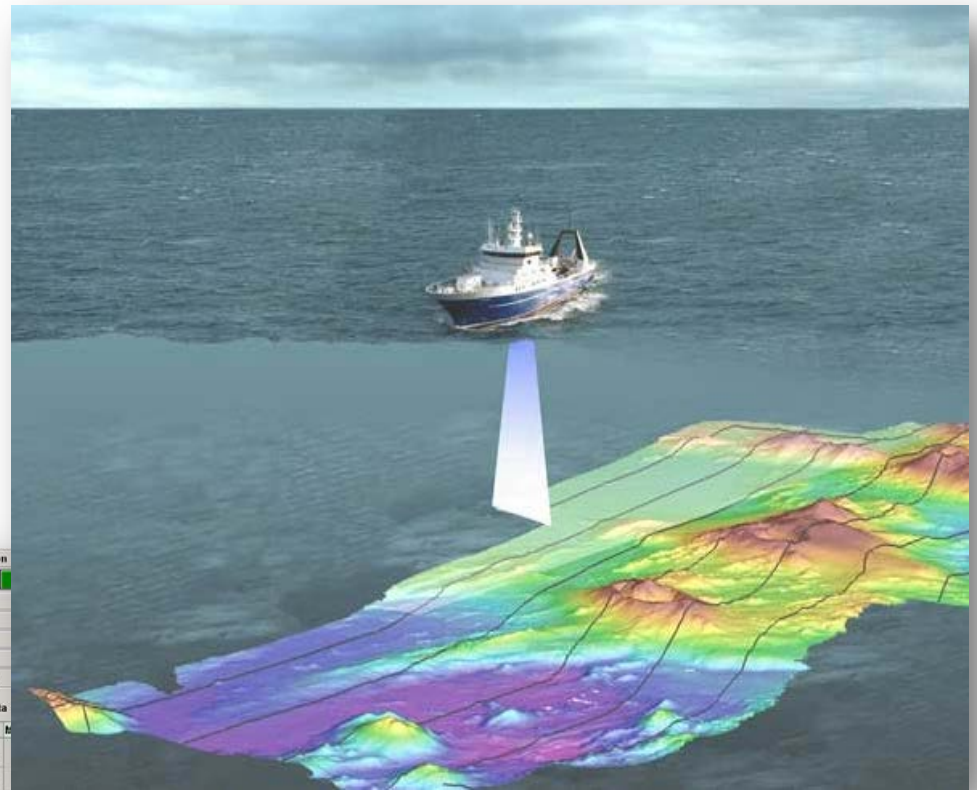
- The total threat is the environment * mines
- The same mine in two positions poses two different threats and demand different counter measures.
- Mine fields should, doctrinally, be defended. Inshore threat to MCMVs must be reduced.

RSwN MCM-concept today



SWEDISH ARMED FORCES

Tactical Survey – Terrain Awareness & Time Saver



2004.06.09 16:33:16 [MCMV: Safety distance (199m) limit violated for LW contact cnt_5615]

Simulation
User: DBO 1
Role:
Mission:
Task:
Sea area:
Vessel Data:
Hdg [deg]:
STW [kts]:
COG [deg]: 034 068 068 067 068
SOG [kts]: 2.4 5.3 5.3 5.3 5.3

Hook Data
Name: cnt_838
Type: Contact
Mine case: 1:MM
Status: Identified (Mine)
Position: 54:31.0477 N 010:22.0273 E
COG / SOG: --- deg --- kts
Brq./Rng.: 007.2 deg 3087.5 m
TCPA/CPA: 13:03 min 321.6 m
BCPA/DCPA: 091.2 deg 3070.7 m

Cursor Data
Position: 54:27.3015 N 010:21.8631 E
MCMV 1 / 17 2 / 12 3 / 11 4 / 14
Brq [deg]: 177 181
Rng [m]: 3892 6952

Display: True Motion Centre: Scale: 4 nm Geo. Datum: WGS 84 Radar SeaChart

1 \ 17 Course
 Typhoon: Tango
 Suppress hardware alarms
 Anchor
 MES
 AMR in
 AMR short + all OFF
 Damagetting Close

2 \ 12 Course
Equipment control Take out
Control mode: Waiting circle
Pos Lat: 54:26.8976 N Lon: 010:12.3214 E
Radius [m]: 300 SOG [kts]: 4.5
 Clockwise CCW Accept

3 \ 11 Course
Equipment control Take out
Control mode: Advice course
Pos ID: 2 SOG [kts]: 0.0
Generate
Adv COG [deg]: 0 Adv SOG [kts]: 0.0
Time to go: 00:00 Accept

4 \ 14 Course
Equipment control Take out
Control mode: Advice course
Pos ID: 2 SOG [kts]: 0.0
Generate
Adv COG [deg]: 0 Adv SOG [kts]: 0.0
Time to go: 00:00 Accept

Change detection for mine hunting
Choice of SLOCs / Q-routes

Self-protection

- Blue water
 - "Babysitter" concept
 - RMP/CSP
 - NCAGS
- Littorals
 - "Help yourself" concept
 - Very local situational awareness
 - Civilian traffic

Sum up – MW in the littorals

- Three-dimensional
- Environmental dimension to mine threat
- Tactical survey component
- Variety of means crucial
- Stronger reliance on organic self defence