

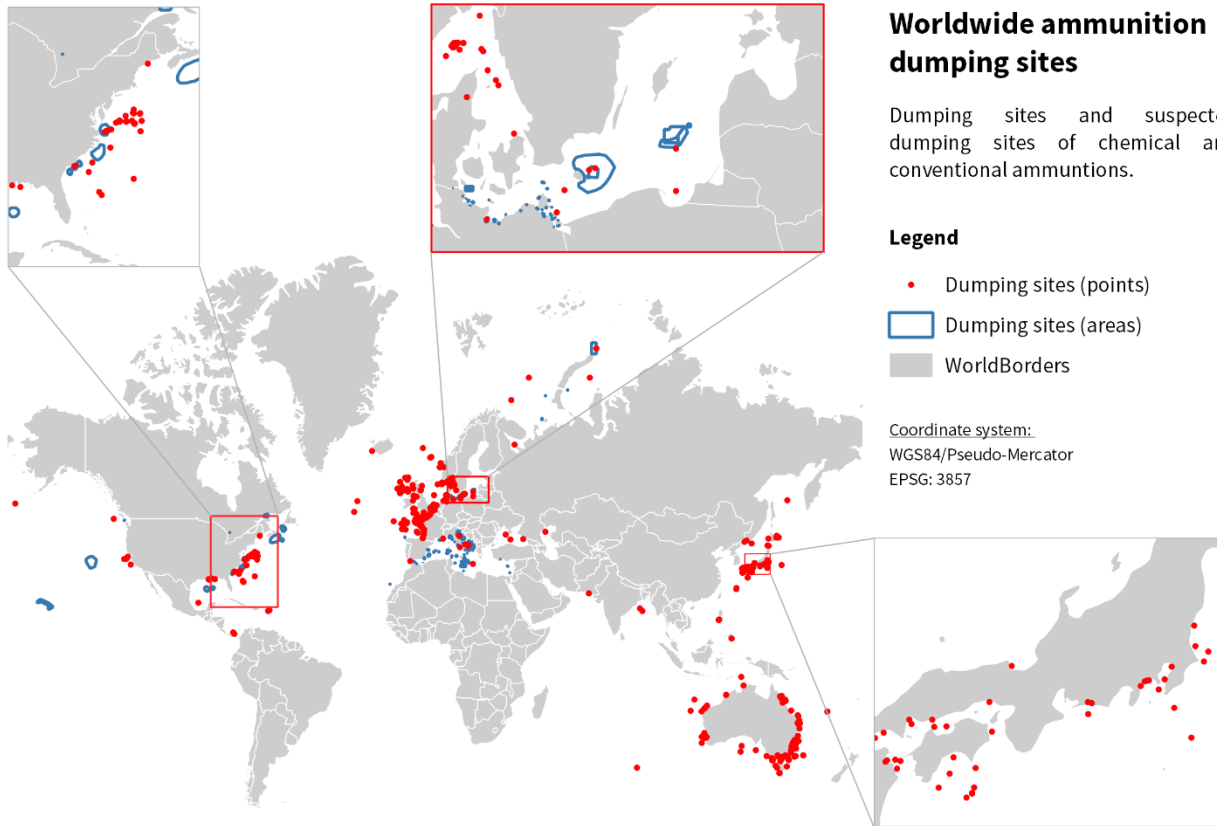
Dumped munitions

Historical contamination

Jacek Bełdowski, IOPAN



Global Problem



- Regional studies
- No integration
- No calls in HORIZON
- Technology not ready

Source: www.AMUCAD.org (2020-01-03)

Situation of Baltic Sea dumped munitions



CHEMSEA
CHEMICAL MUNITIONS
SEARCH & ASSESSMENT

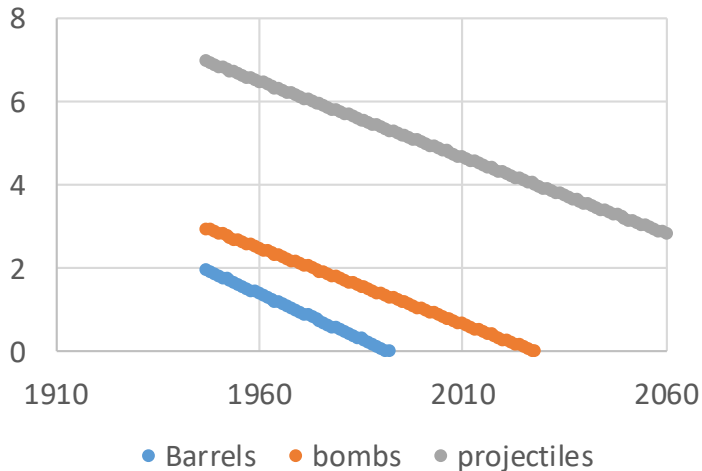


MODUM
TOWARDS THE MONITORING
OF DUMPED MUNITIONS THREAT

daimon

Decision Aid for Marine Munitions

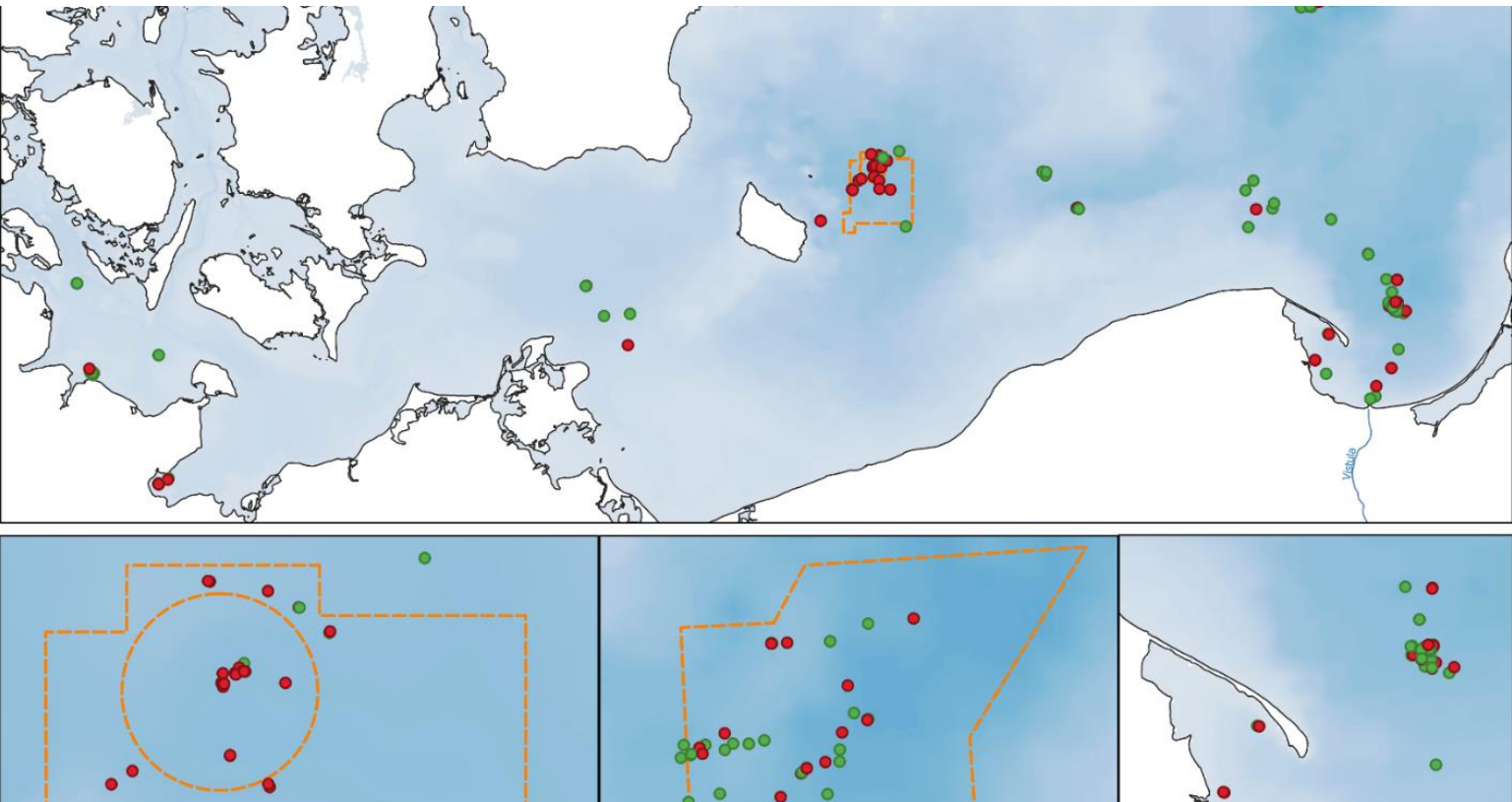
Corrosion



Barrels $V_k=0,0434$ mm/rok
 Bombs $V_k=0,0365$ mm/rok
 In sediments $V_k=0,0313$ mm/rok

Wall thickness:
 Barrels 1.5 do 2 mm
 Bombs 3 mm
 Projectiles 5-7 mm

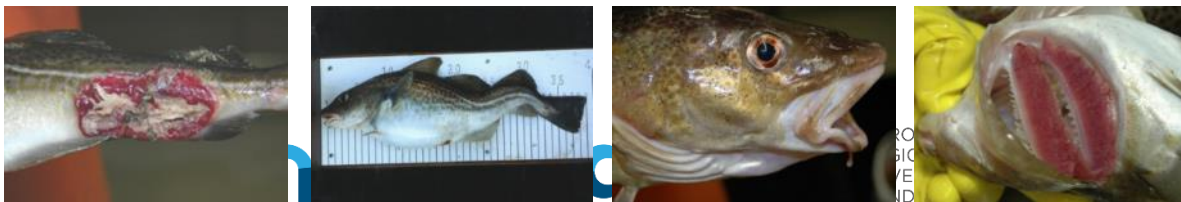
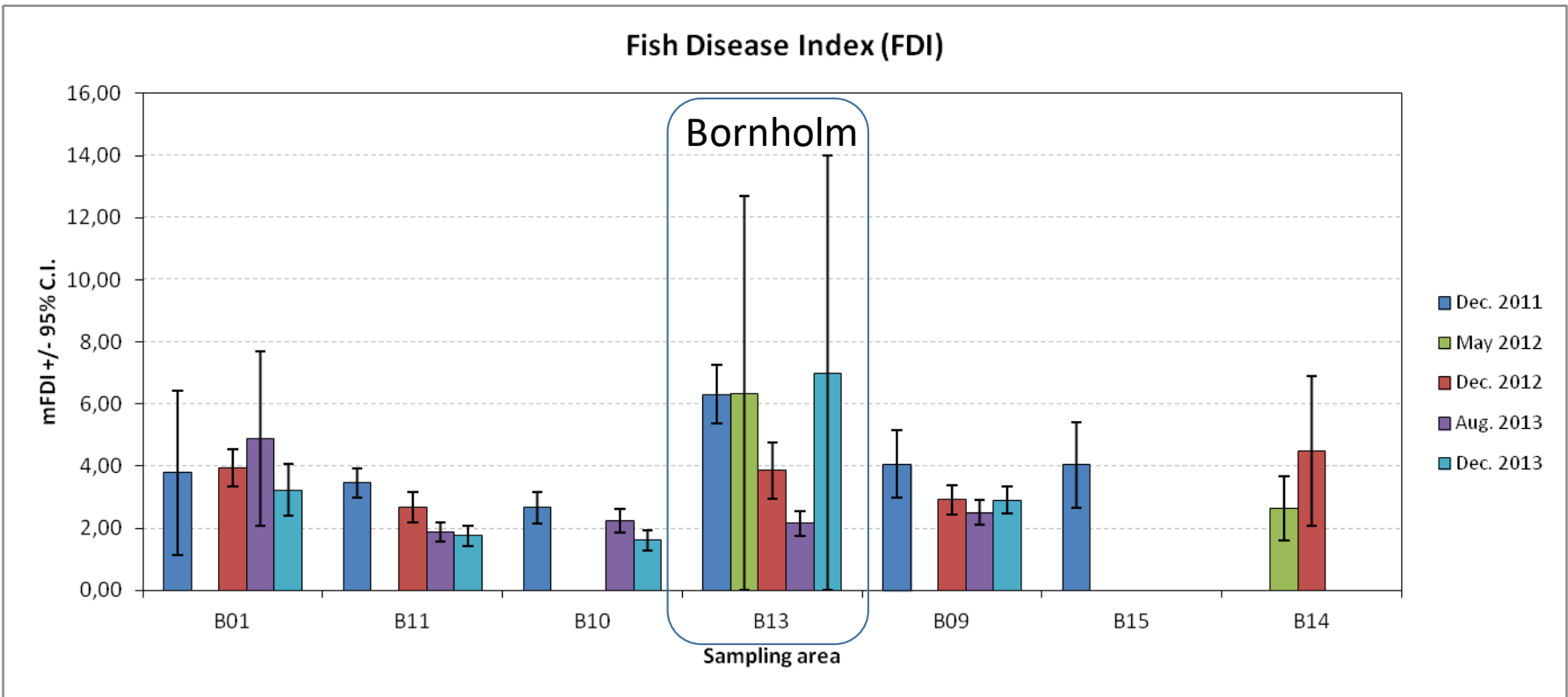
Contamination of sediments



Degradation Products

Impact on biota

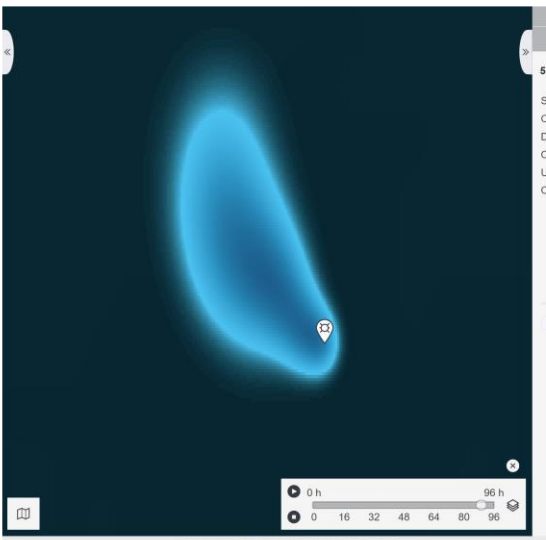
Fish Disease Index (FDI)



Baltic Sea Region

EUROPEAN UNION

Decision Support System



DECISION SUPPORT REPORT

EGEVS

DECISION SUPPORT REPORT - AMMUNITIONS

JWendt Environmental Geographic Solutions 2016-10-21, 02:00
15.4138184, 55.2744218

OVERVIEW

Coordinates
15.4138184, 55.2744218

Date, Time
2016-10-21, 02:00

Geometry type
Point

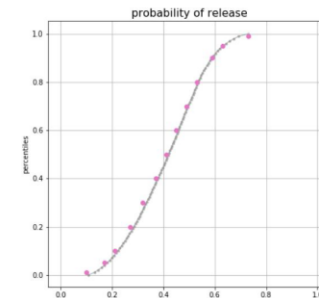
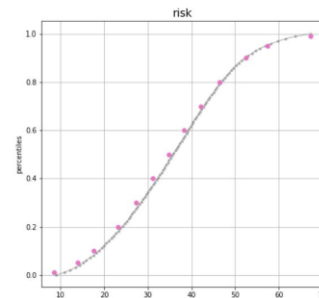
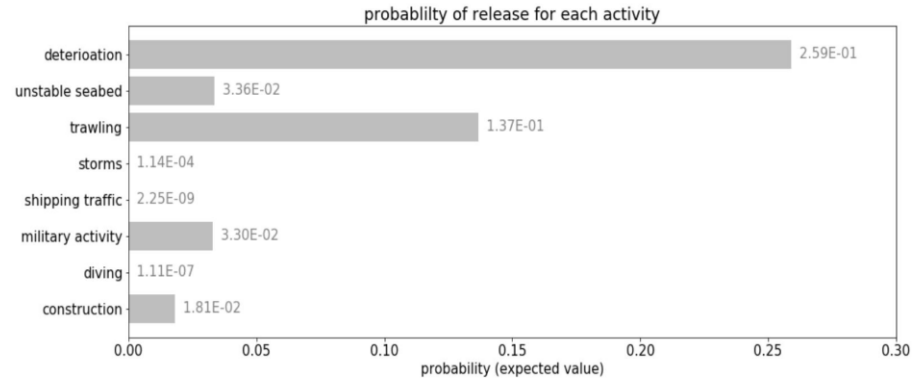
Description

TOP 5 RISKS - EXPLOSION

Protection Good	Risk	Training-Datasets
Shipping	89	27
Flora/-Fauna	58	21
Divers	52	69
Fisheries	41	93
Tourism	20	43

TOP 5 RISKS - CORROSION

VRAKA-CWA



Other historical contaminants

Wrecks

- Examination
- Cleanup

Polluted Sediments

- Climate change
- Emission calculation

Land outflow

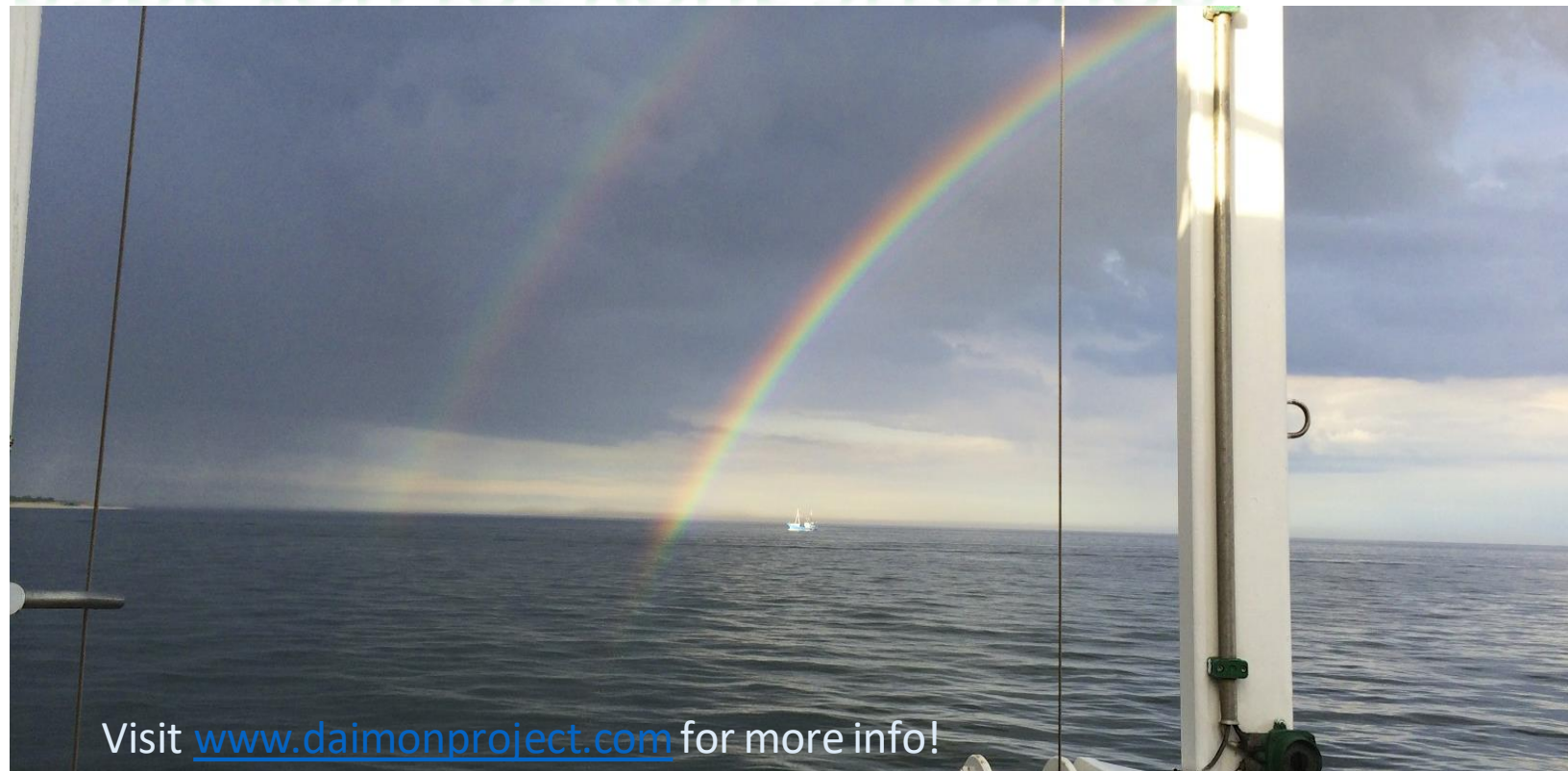
- Floods
- Erosion

European cooperation

Munitions

- Technology
- Remediation

Thank You for your attention



1) 'The research work was partly fund by the European Union (European Regional Development Fund) under the Interreg Baltic Sea Region Programme 2014-2020, project #R013 DAIMON'

2) 'The research work was partly financed by the National Center for Research and Development, Poland

