



INTEGRATED COASTAL ZONE & COASTAL SEAS MANAGEMENT: VIEWS AND PLEAS BY DREDGING CONTRACTORS

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Dredging Contractors are marine earth-movers, land-builders, port constructors, general contractors for marine and green/blue-energy units.

In Europe's coastal zones and coastal seas alone, dredging contractors moved more than 100 Mm³ of sediments and rocks during 2014. And worldwide, more than 800 Mm³!

Brisbane Airport, Australia



Suez Canal Expansion, Egypt



Zeebrugge W Havenareaal



Palm Island & Dubai Waterfront

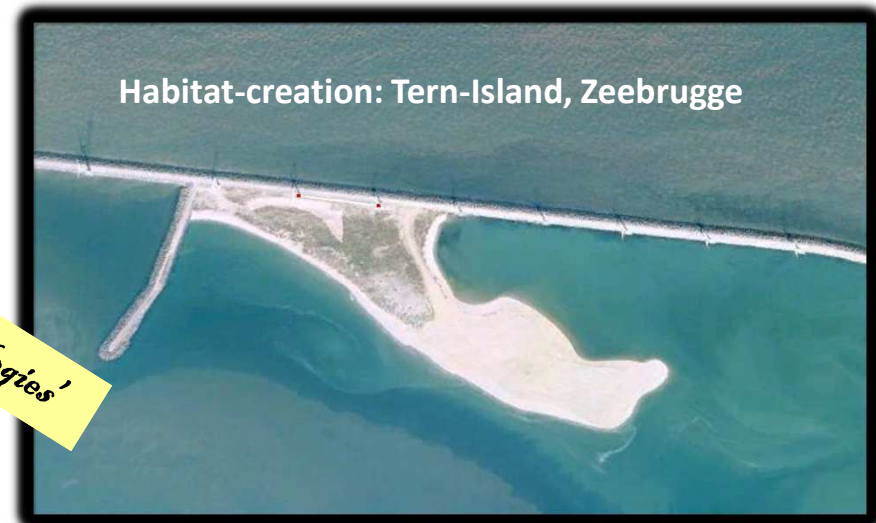


Dredging Contractor's View: sustainable beneficial use of dredged material

Securing the nautical accessibility of ports require the dredging in maritime access-channels & fairways of approx. 7 to 8 Mm³/year of sand and muddy sediments (10 Mtds/year).

Instead of a mere dumping of these materials at sea, dredging contractors plead for a smart re-use of these valuable resources for, e.g.:

- Land or habitat creation
- Beach-nourishment for sustainable coastal protection



'Proven technologies'



Europe calls for a structured approach of integrated coastal zone management under the Marine Strategy Framework Directive

28.8.2014

EN

Official Journal of the European Union

L 257/135

DIRECTIVES

**DIRECTIVE 2014/89/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 23 July 2014
establishing a framework for maritime spatial planning**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,



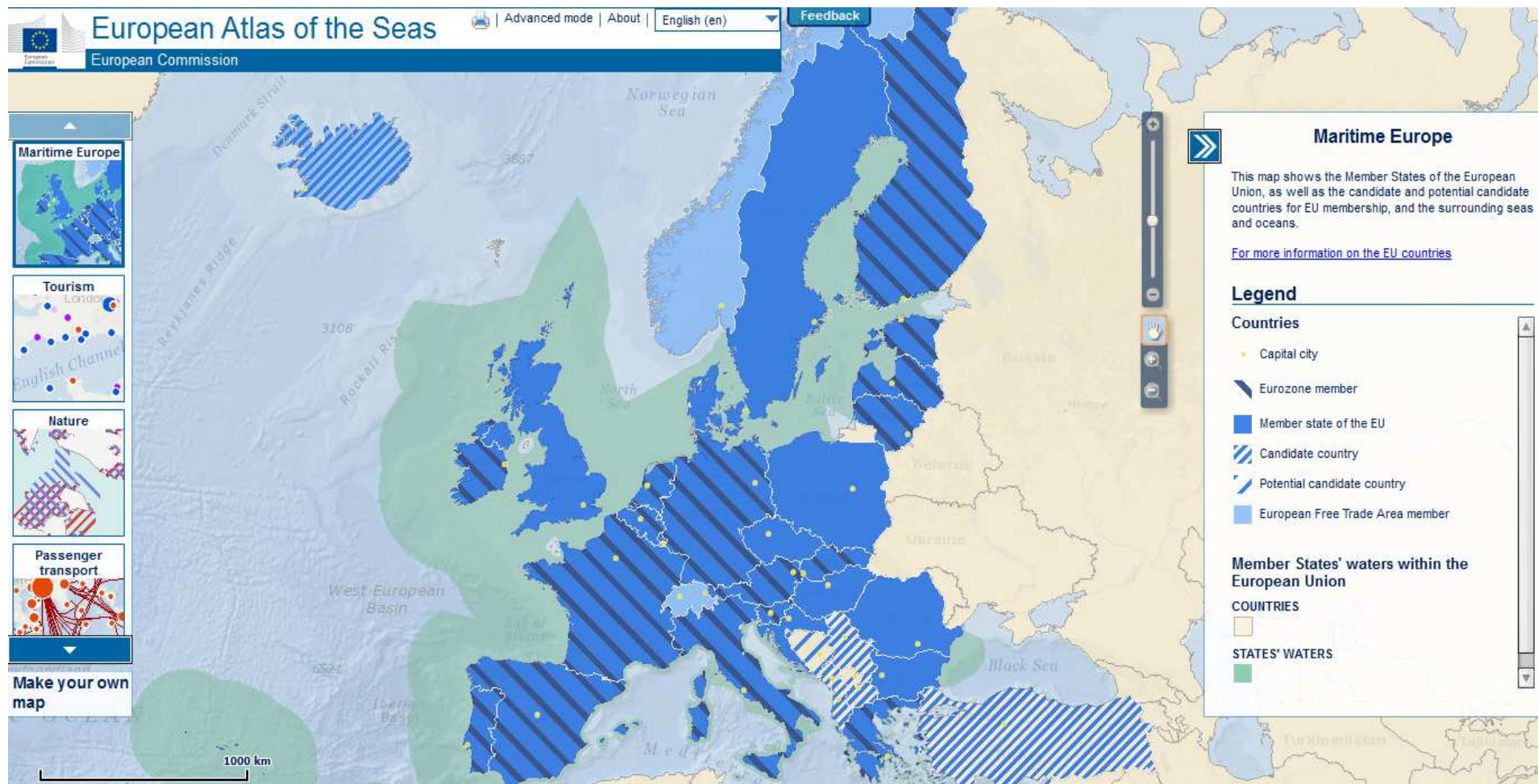
EUR-Lex

Access to European Union law

Other EU-initiatives pave the way to a sustainable development of our coastal zones and coastal seas, based on knowledge and expertise

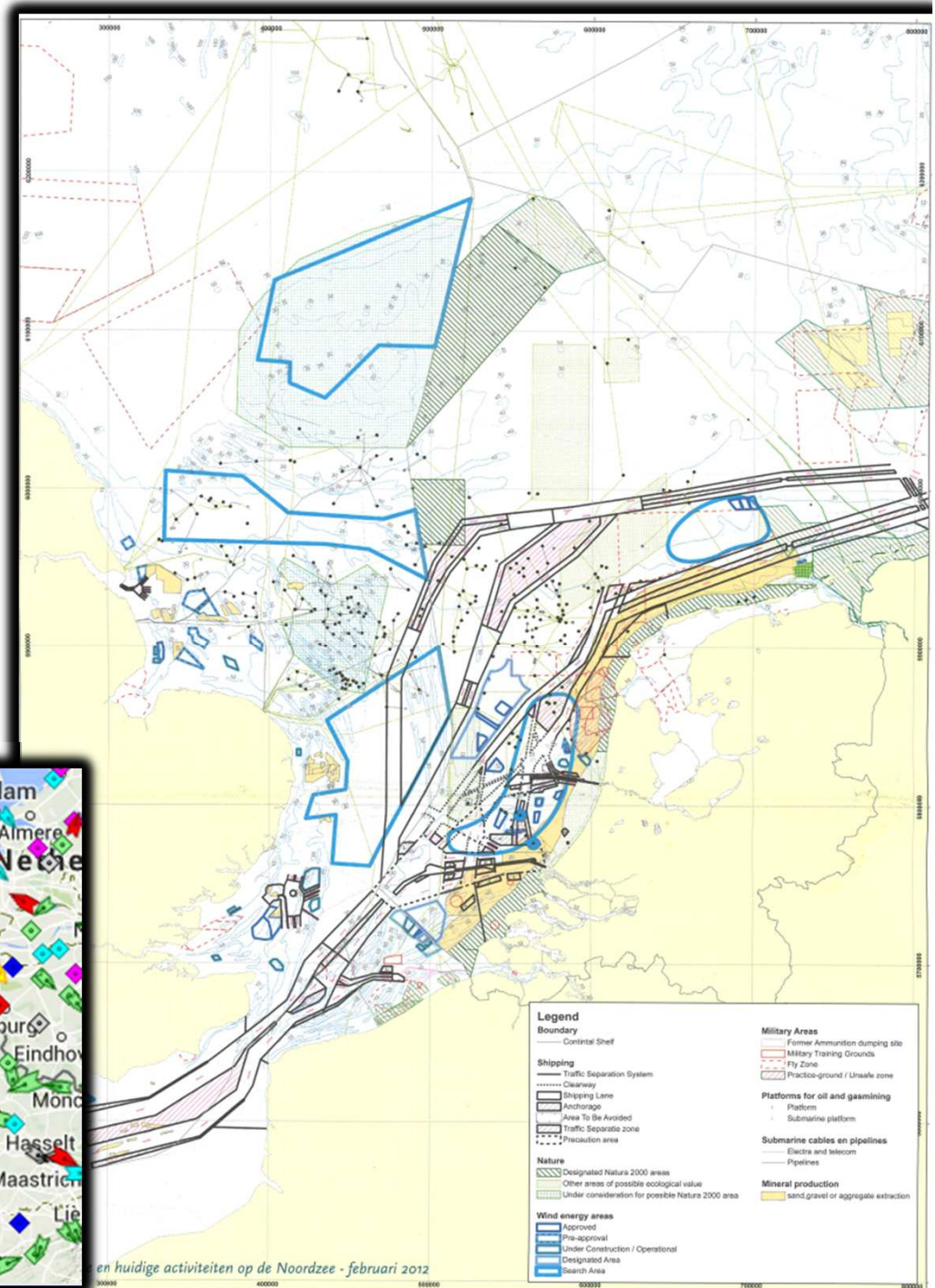
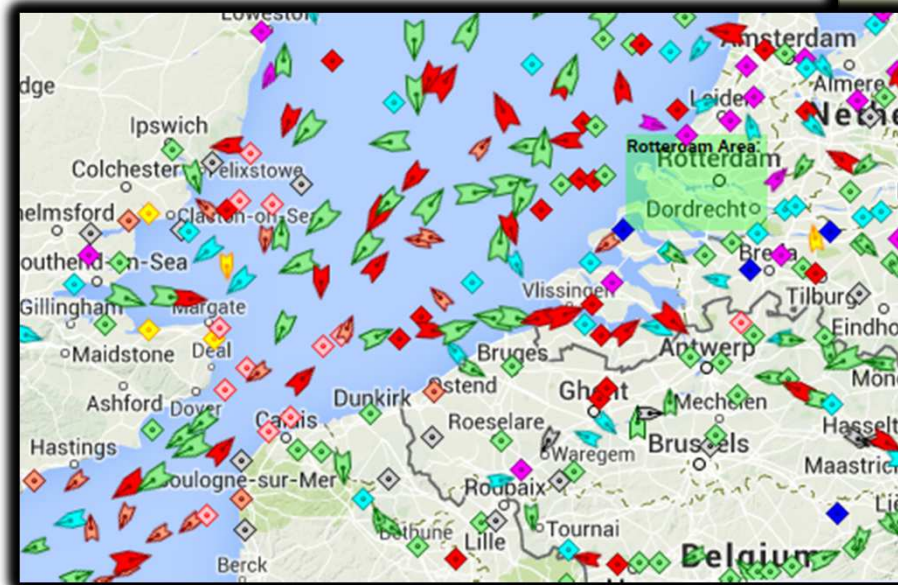


Maritime Europe: a diversified ecosystem-service area of more than 3 M km²



Marine Spatial Planning in the North Sea, considering the various services at stake:

- Merchant shipping
- Oil & Gas exploitation + transport
- Fisheries
- Transportation
- Valuable ecological areas (Natura 2000,...)
- “Green” (wind) and “Blue” (tides, waves,...) energy production
- Mineral resource extraction
- Recreation
- Military training areas
- Others...



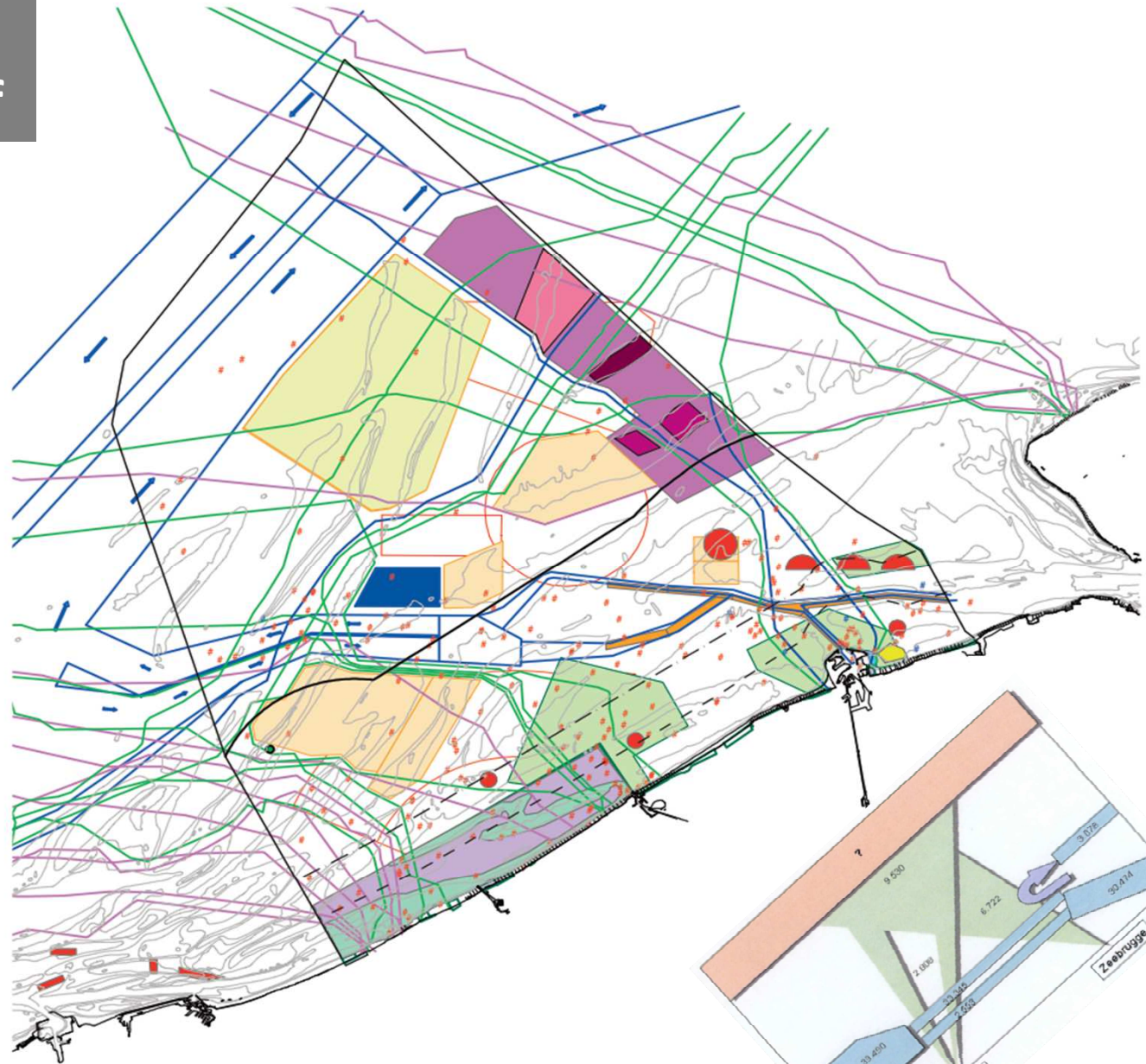
Focus on Belgian Continental Shelf

LEGENDE

- Grens Belgisch Continentaal Plat
- ~ 12 mijlszone
- Ankergebied
- Meteomast
- Radar
- Wrakken
- Pijpleidingen
- Kabels (in gebruik)
- Kabels (niet in gebruik)
- Baggerzones
- Stortzones
- Controlezones
- Exploratiezones
- Munitiedepositie
- Militaire oefenzones
- Windconcessiezones
- Eldepasco
- C-power
- Belwind
- Natura 2000
- Ramsar
- SBZ (speciale beschermingszones):
VRL EN HRL (=Habitat richtlijngebied)
- Marien reservaat
- Scheepvaartroutes



0 5 10 20
Km

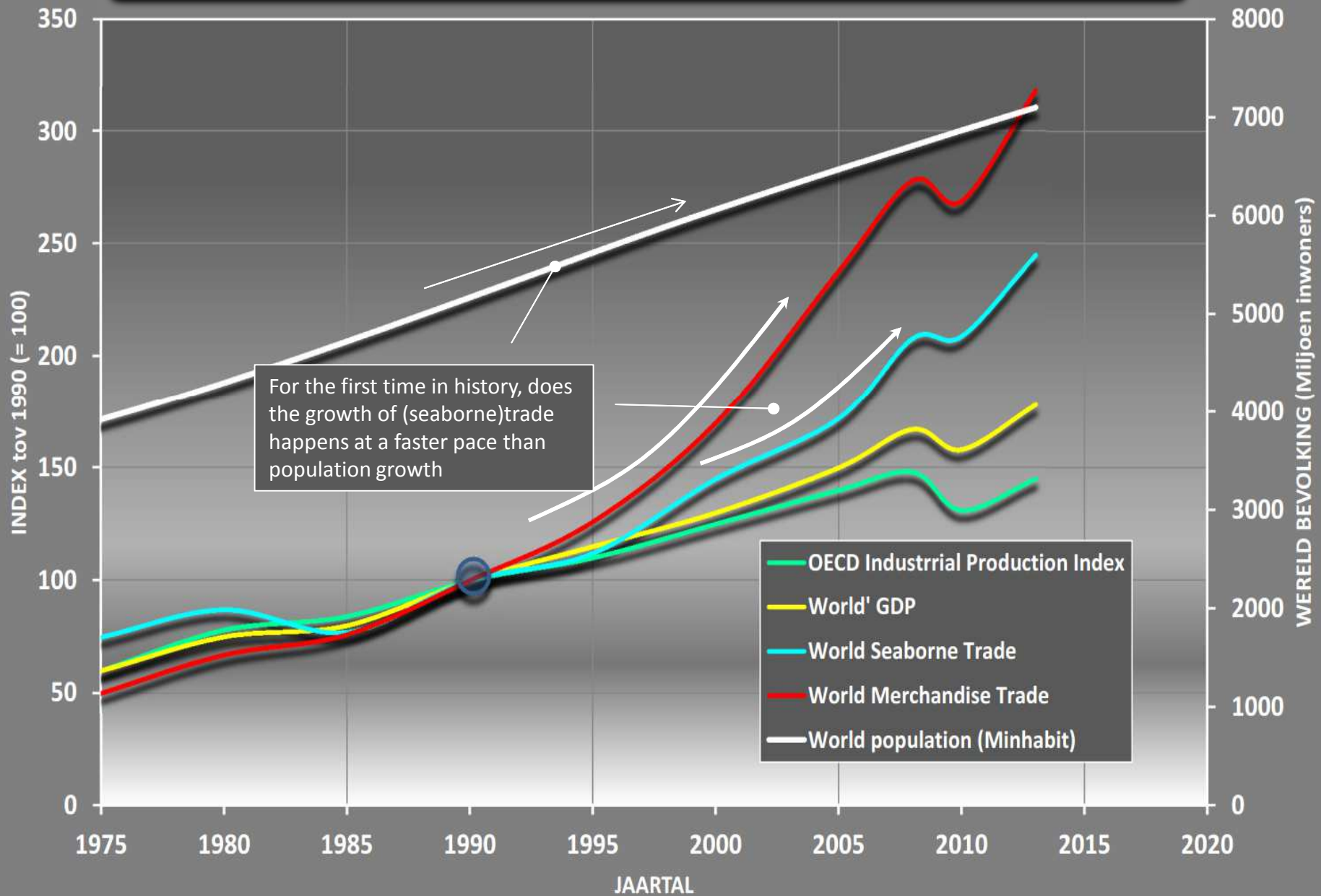


Kaart van het gebruik en de functies van de Noordzee in het Belgische Continentaal Plat vandaag.

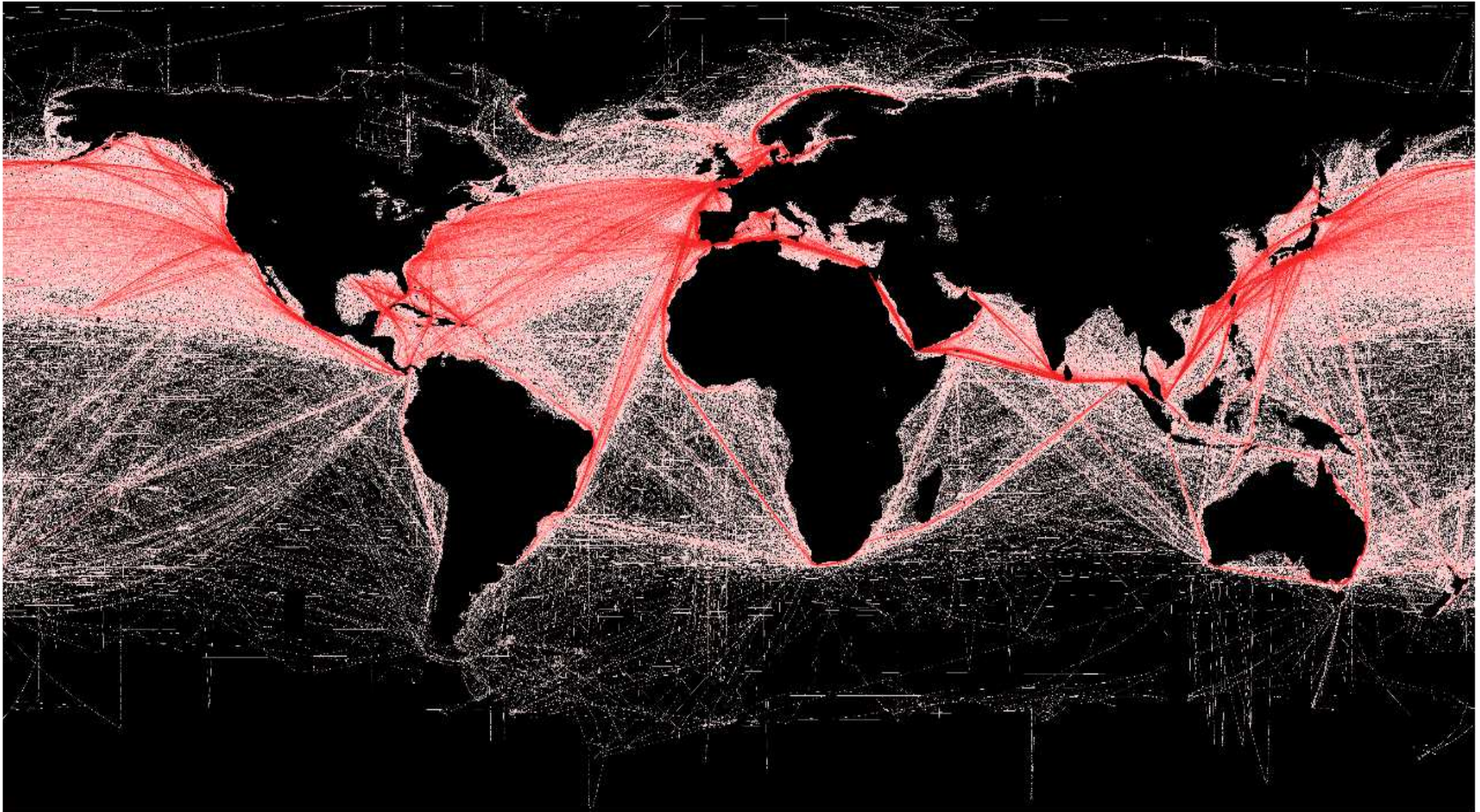
Merchant shipping and Maritime Traffic



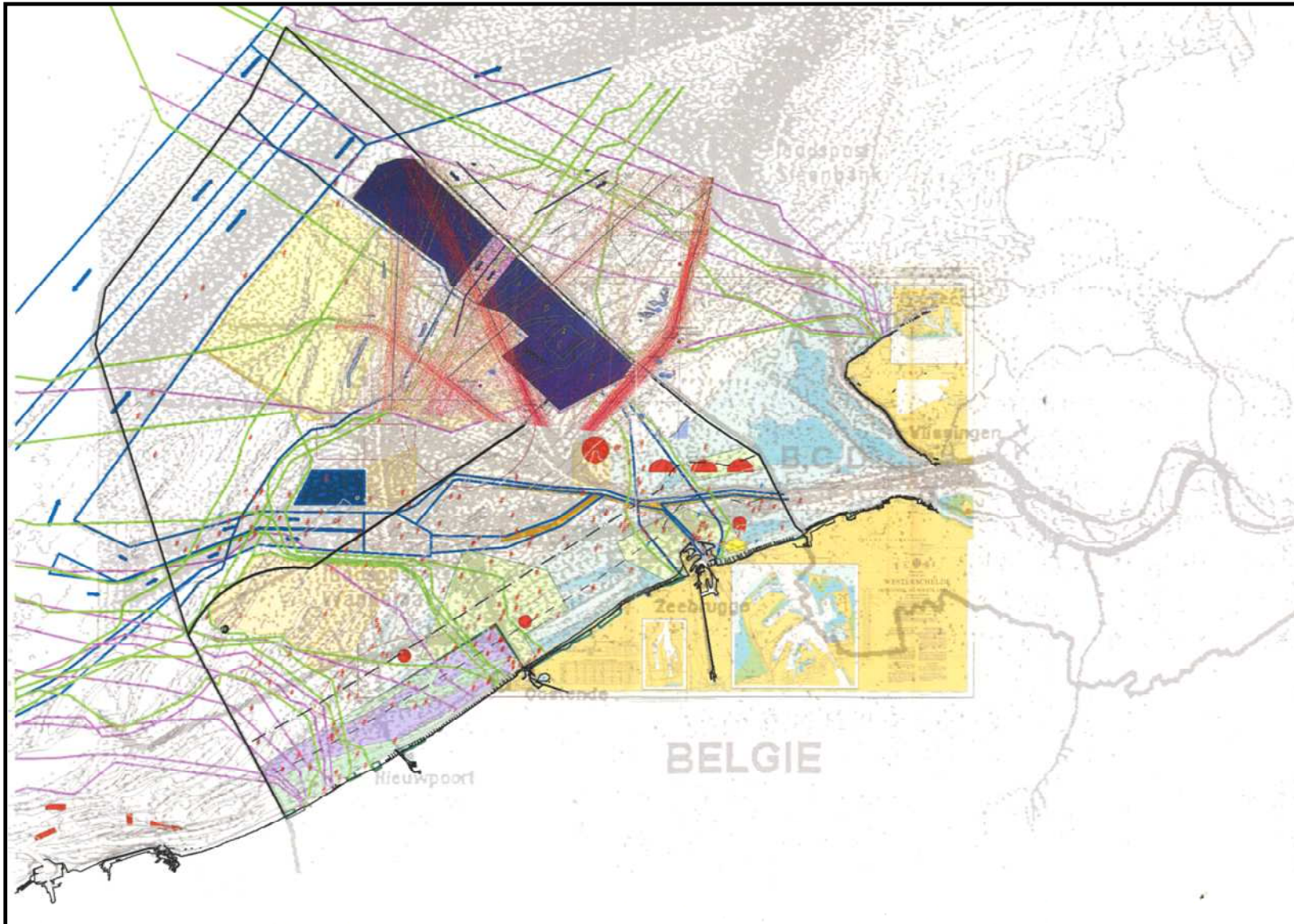
WORLD POPULATION? TRADE AND GDP RELATED TO SEABORNE TRADE (Sources: UNCTAD, OECD reports,...)



About 87 % of World's Trade is transported by ships and 90 % of the EU's external trade is carried by sea



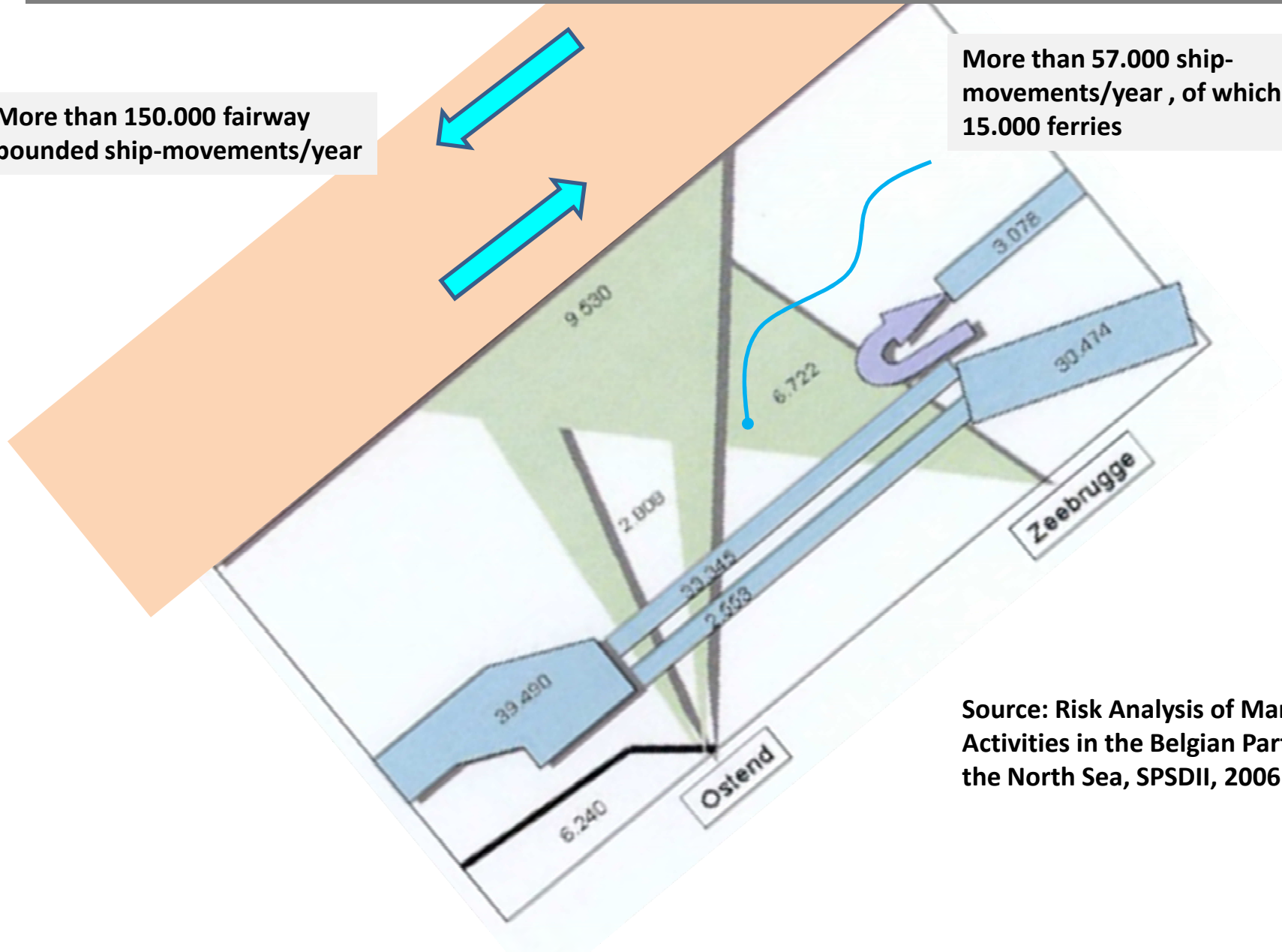
Maritime Traffic on the Belgian Continental Shelf (AIS data, 2012)



Traffic intensity on the BCS

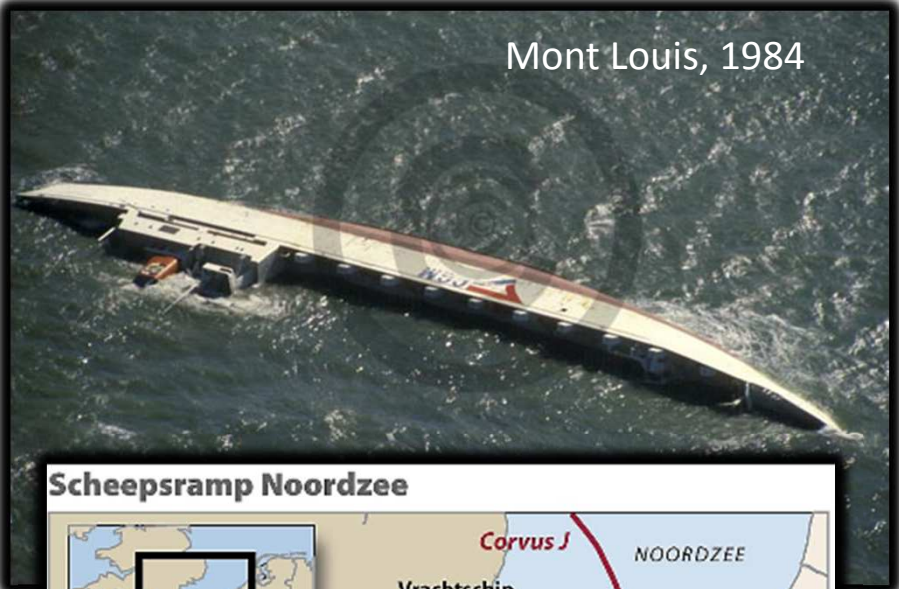
More than 150.000 fairway bounded ship-movements/year

More than 57.000 ship-movements/year , of which ca 15.000 ferries



Source: Risk Analysis of Marine Activities in the Belgian Part of the North Sea, SPSDII, 2006

Cross-roads of maritime fairways : risks of hazards



Mont Louis, 1984



Collision between the Mont Louis and the Olau Britannia
(Source: Merchant Navy)

Scheepsramp Noordzee

Vrachtschip Baltic Ace zinkt na aanvaring 5 dec. 19.15 uur

Rotterdam
NED
Antwerpen
BELGIË
FRANKRIJK
Dover
Londen
GROOT-BRITANNIË
HET KANAAL
NOORDZEE

50km

Baltic Ace (bouwjaar 2007)	Corvus J (bouwjaar 2003)
Vlag: Bahama's	Vlag: Cyprus
Bemanning: 24	Bemanning: 12
Lading: Auto's	Lading: containers
Lengte: 148m	Lengte: 135m
Breedte: 25m	Breedte: 20m
Naar: Kotka (Finland)	Naar: Antwerpen (België)
Van: Zeebrugge (België)	Van: Grangemouth (Schotland)

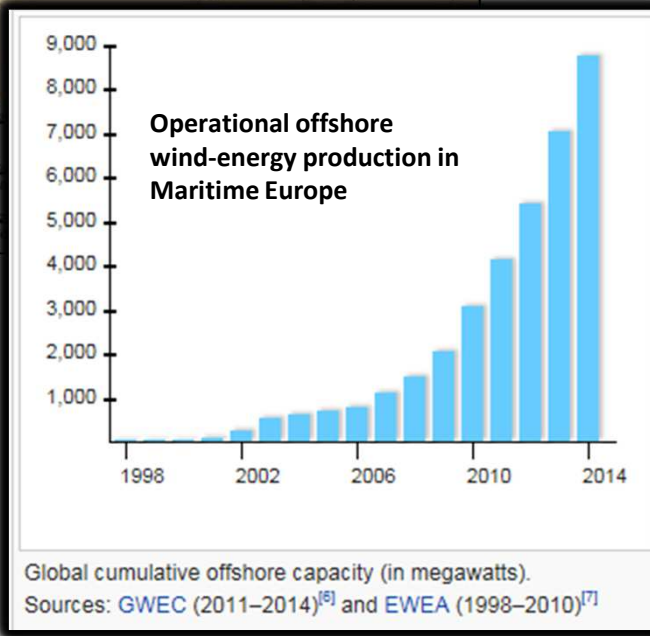
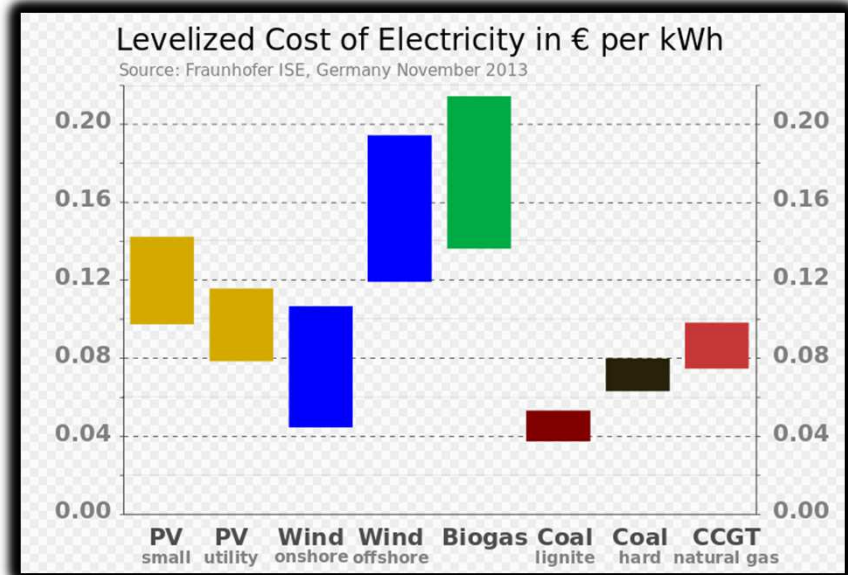
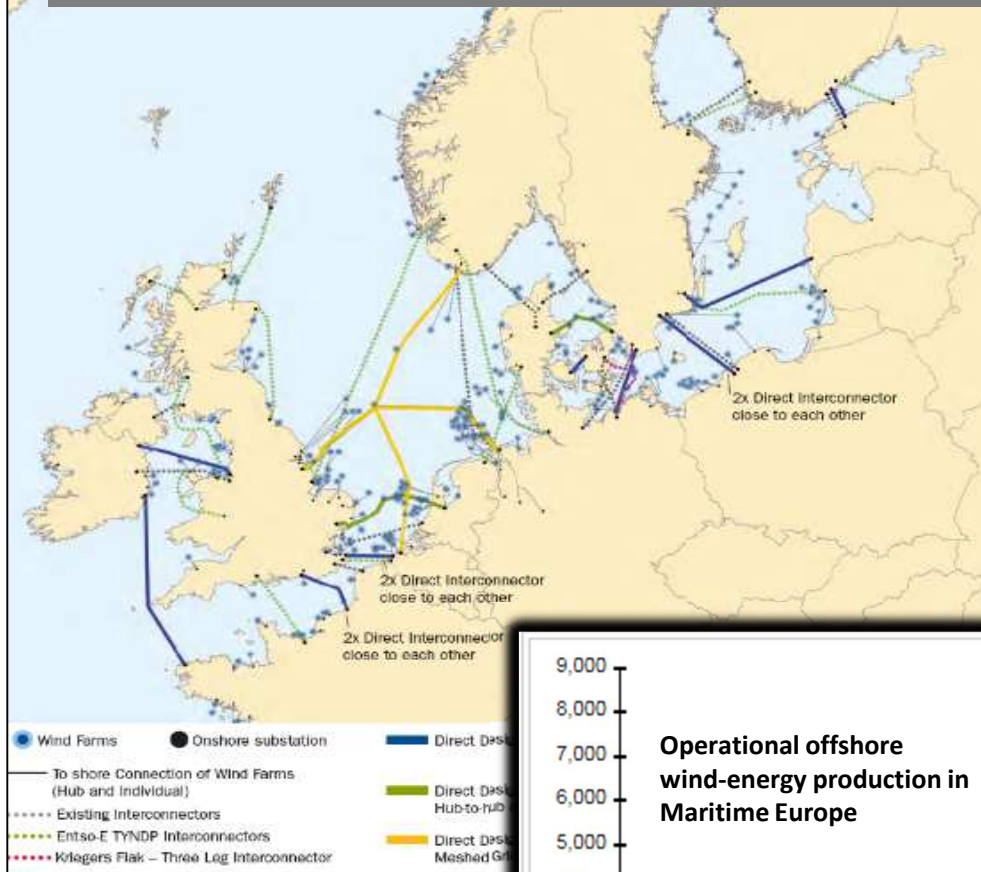
bron: marinetraffic / bbc

ANP



Tricolor, 2002

“Green” and “Blue” Energy in Maritime Europe



“...projections for 2020 calculate a wind-farm capacity of 40 GW in European waters...enough to cover 4 % of the European Union’s demand for electricity...”

“Green Energy” in Maritime Europe: development of offshore wind-mill farms

Alstom 6MW WTG at Belwind wind-mill farm, Belgium



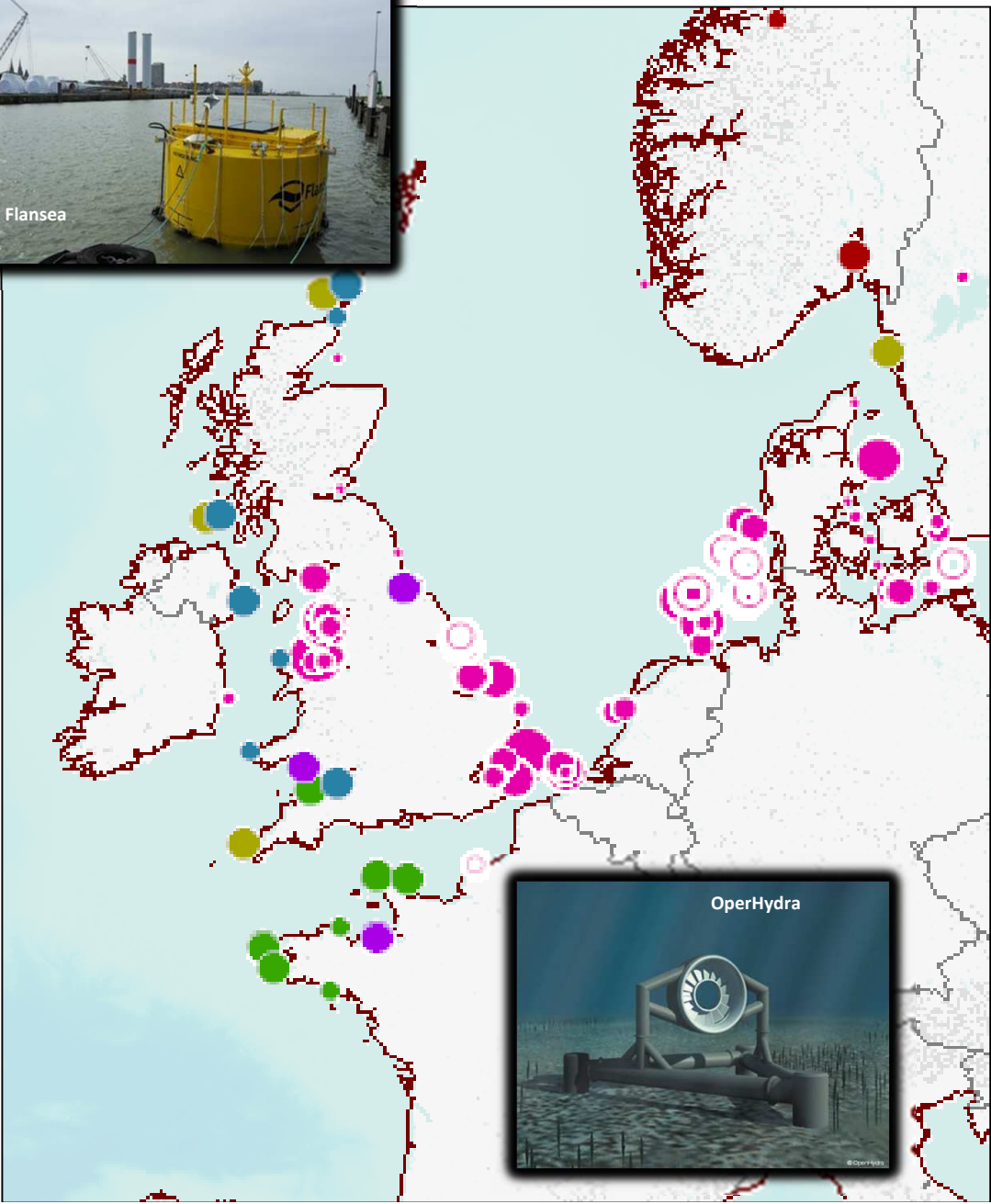
C-Power wind-mill farm, Belgium



Karehamm wind-mill farm, Sweden



"BLUE ENERGY" in Maritime Europe: realisations & projects



Legend

Marine energy production facilities

Marine energy production facilities

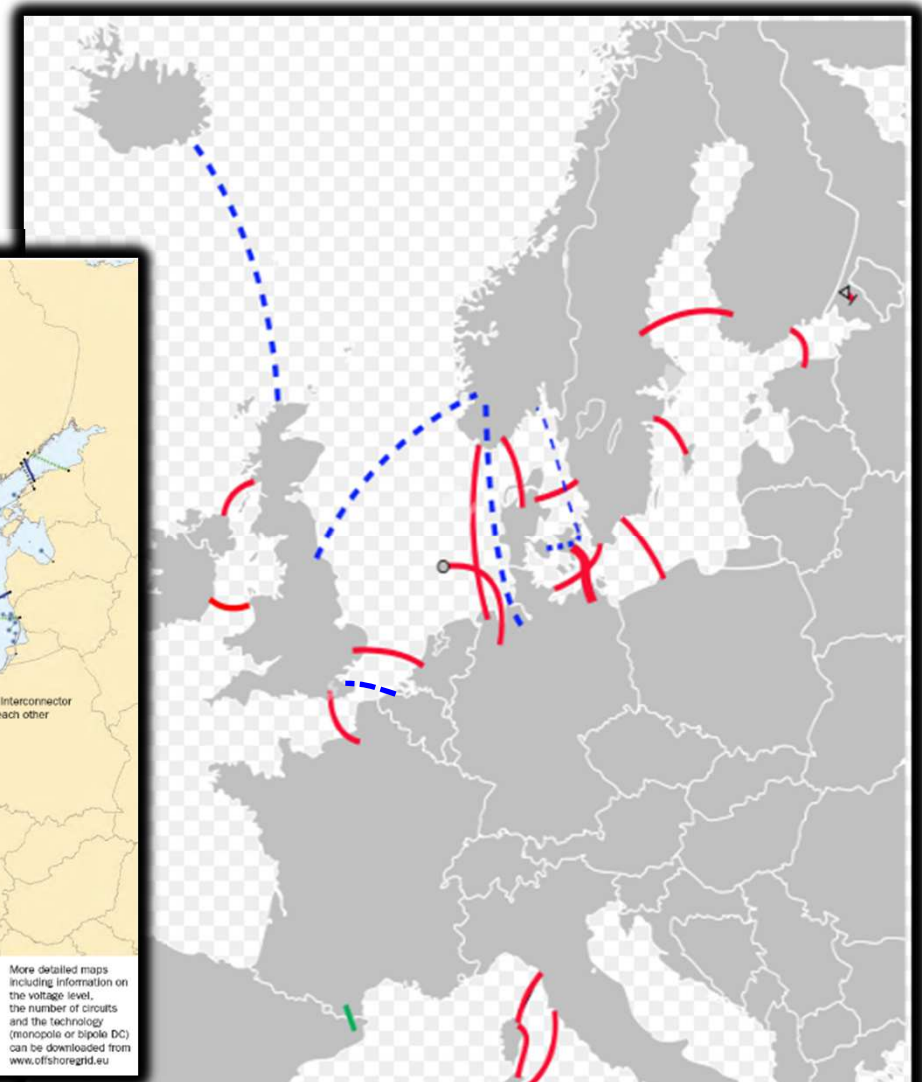
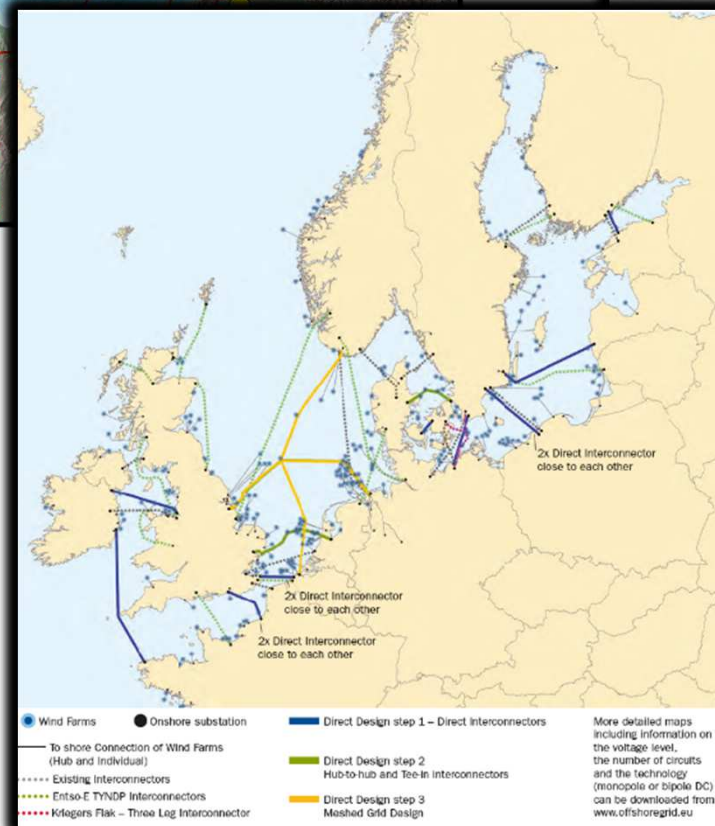
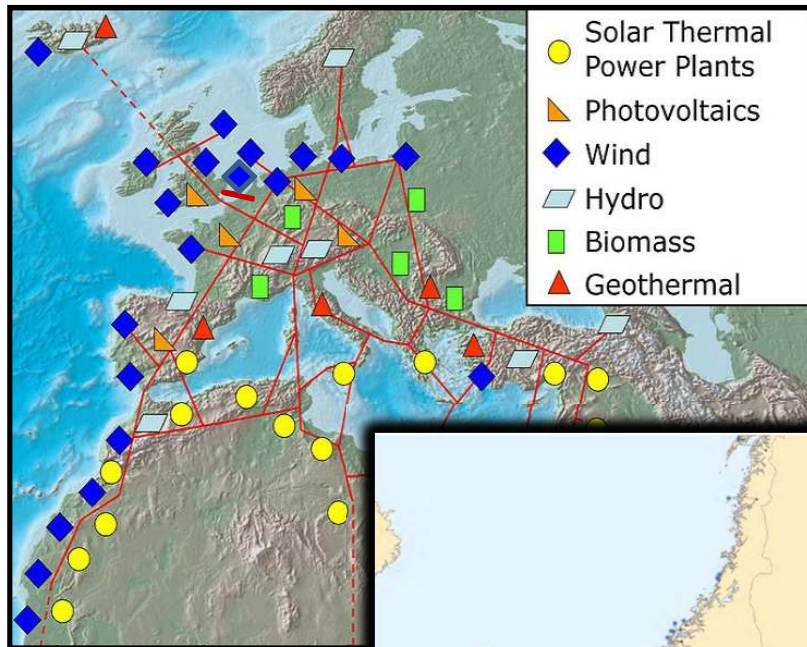
- Tidal (barrage)
- Tidal (stream)
- Stream
- Waves
- Osmotic power



Marine energy production facilities (under construction and projects)

- Tidal (barrage)
- Tidal (stream)
- Stream
- Waves
- Osmotic power

Conceptual plan of HV Supergrid linking European Grids



Sustainable and Integrated Coastal Protection: the end of an era of hard concrete structures and the eve of soft, natural and resilient coastal defense systems

The "Old-Tech"



*I don't understand! I
Always used concrete to
fight the seas!!? Why
does it repeatedly fail??*



The "New-Tech"



Profile and shoreface
nourishment at De Haan,
Vlissegem

*Easy,
grand'pa!
Just
replicate
nature: it's a
million years
old proven
technology!*



*"Climate Change Adaptation calls for
flexible and resilient solutions"*



Rainbow-nourishment of
beach shoreface

Beach nourishment at Knokke, Belgium



Beach nourishment at Malo-les-Bains, France

More than 40 years of beach-nourishment technology... and still growing stronger

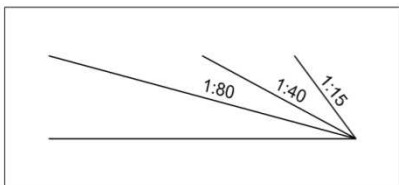
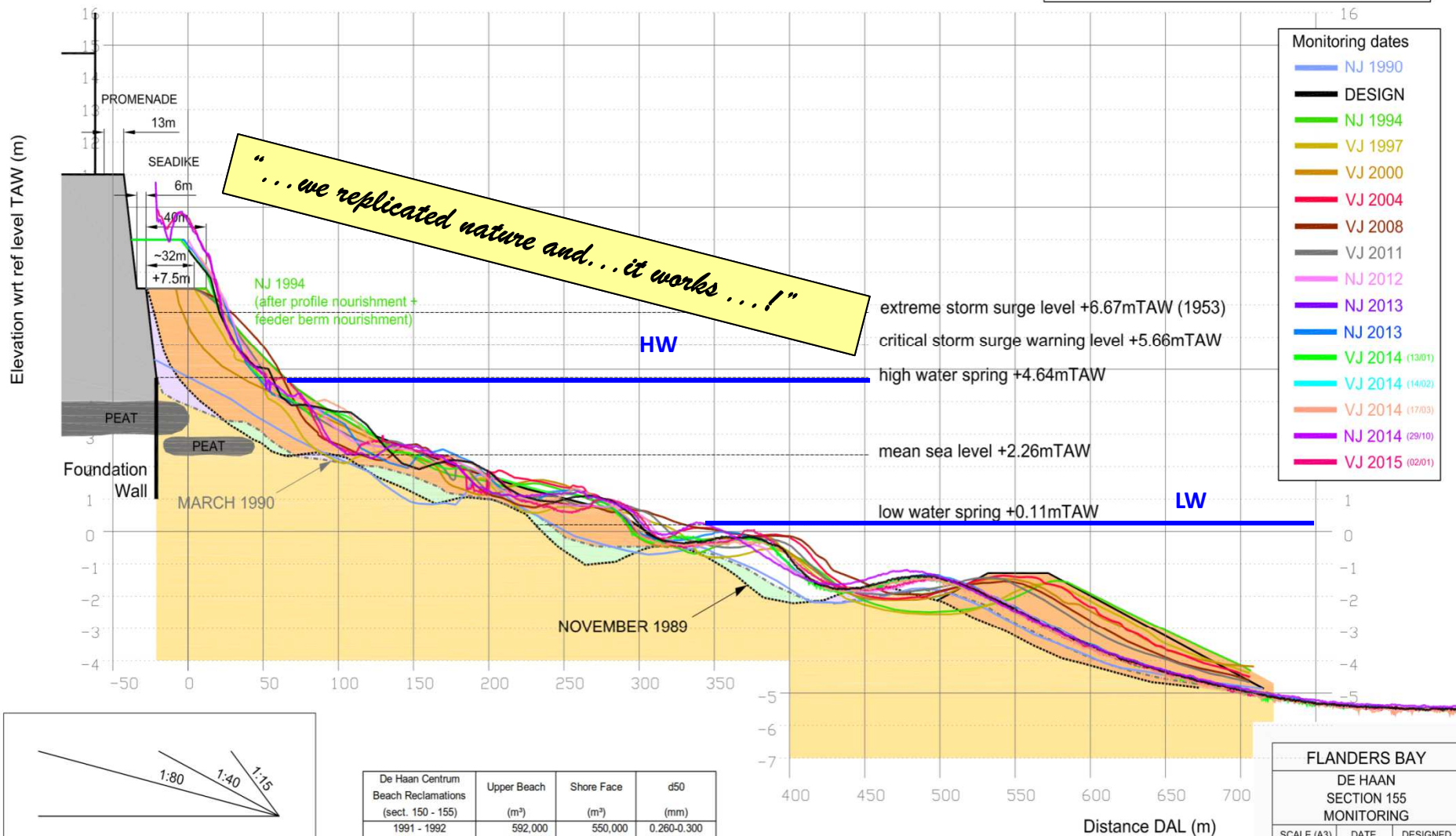
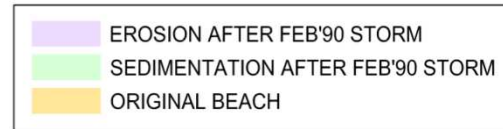
Onrustpolder, the Netherlands is getting a wide, gentle-sloped beach



Shoreface nourishment at Banjaarduin, the Netherlands



Dredging Contractors developed a new concept of "smart" geo-engineered beach-nourishment techniques with very long life-cycles



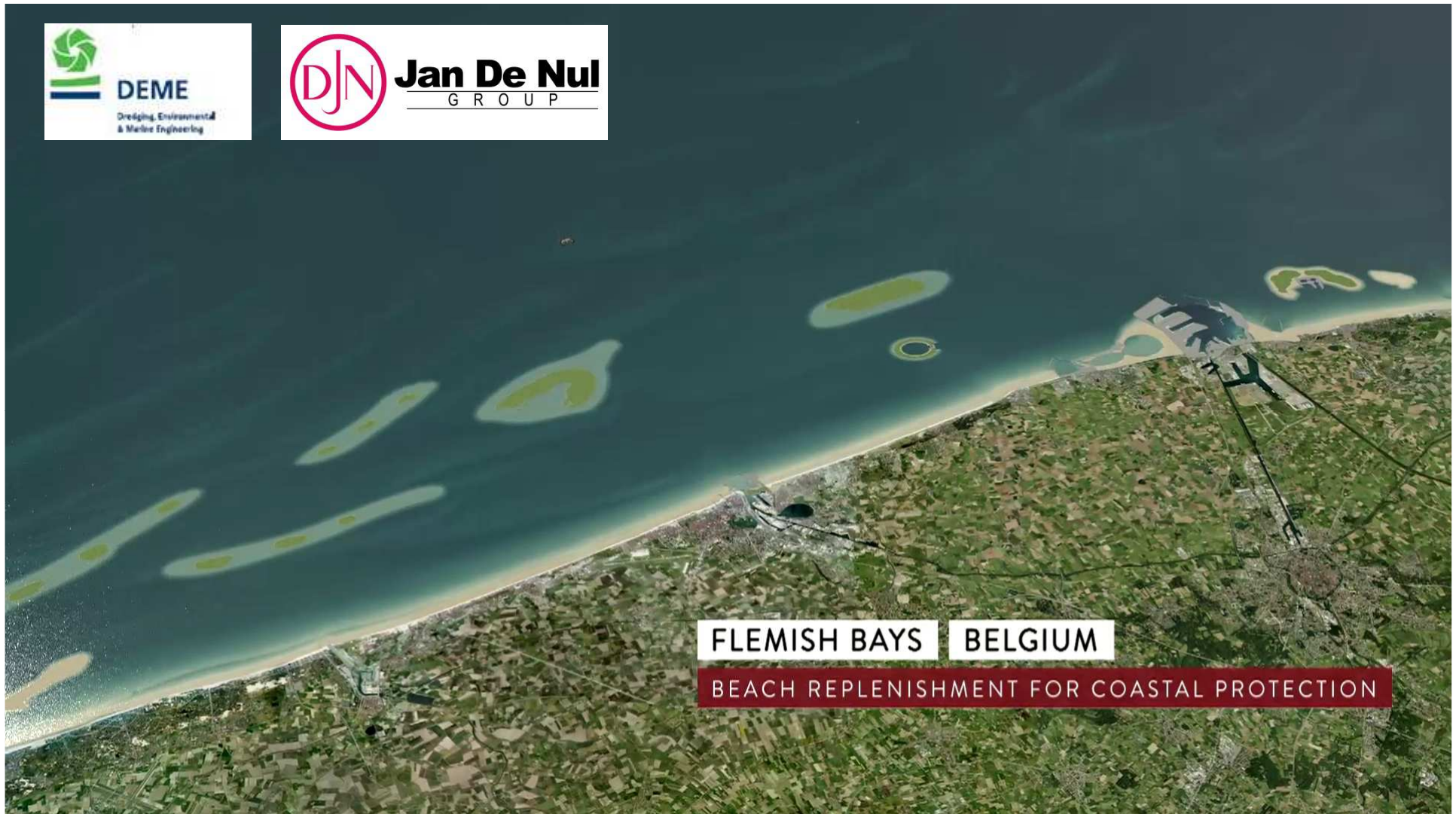
De Haan Centrum Beach Reclamations (sect. 150 - 155)	Upper Beach (m ²)	Shore Face (m ²)	d50 (mm)
1991 - 1992	592,000	550,000	0.260-0.300
2000	260,493		0.270

FLANDERS BAY

DE HAAN SECTION 155 MONITORING

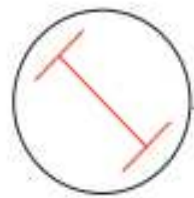
SCALE (A3)	DATE	DESIGNED
HS = 1/2500 VS = 1/125	04/03/2015	VMB
DRAWING NUMBER : DEHN-2-CS-001 REV.I		

Flanders Bays: a vision for integrated coastal zone and coastal waters



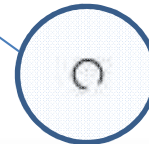
FLEMISH BAYS BELGIUM

BEACH REPLENISHMENT FOR COASTAL PROTECTION



Mogelijke getijden-
centrale bij
windmolenparken

Multipurpose
Emergency-shelter
harbour

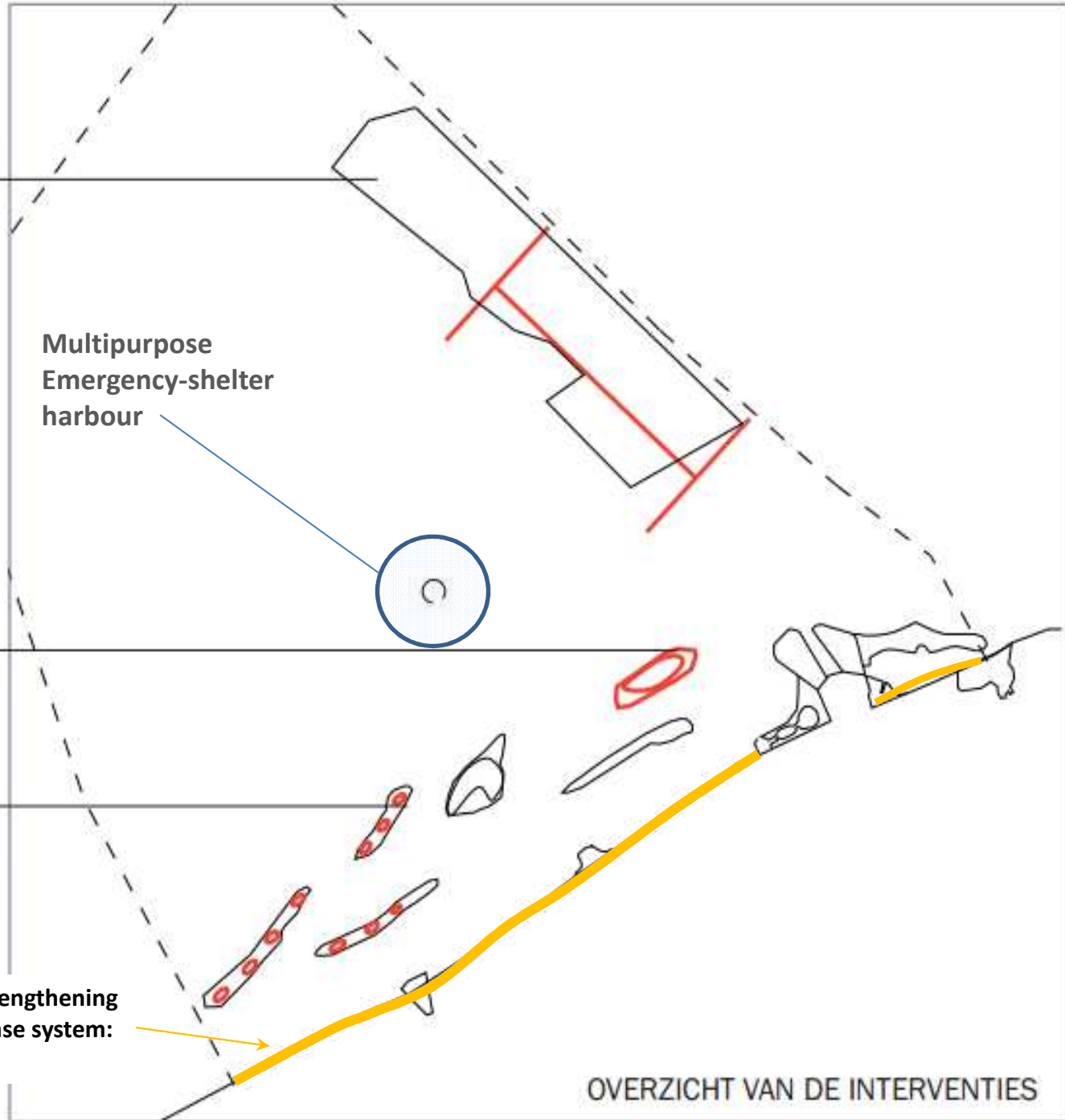


Nieuw eiland
'Wandelaar'
Or "Energy Atoll"

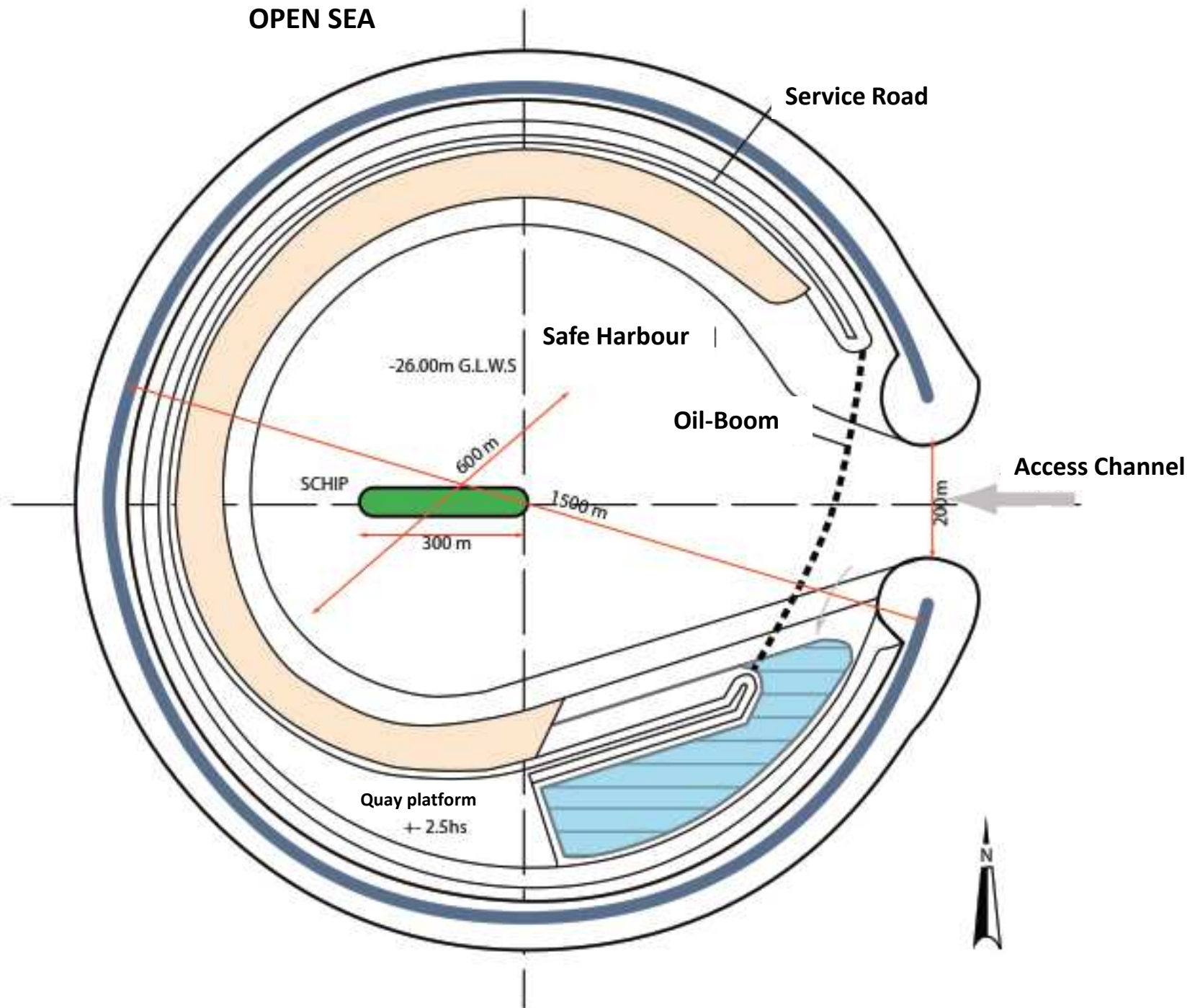


Uitbreiding/
ontwikkeling
ecologische
archipel Westkust

Integrated & sustainable strengthening
of the primary coastal defense system:
beach & dunes



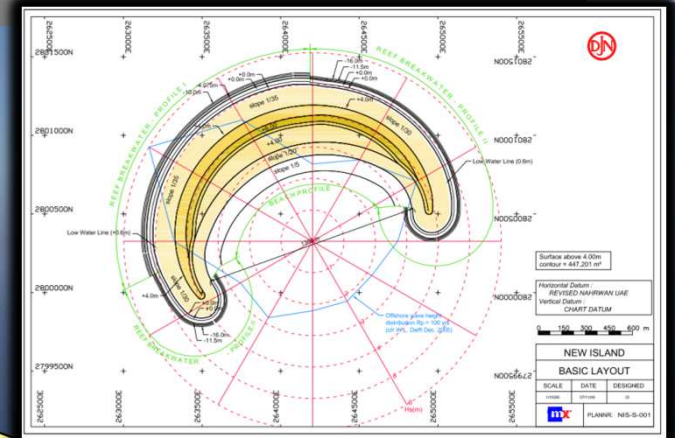
OVERZICHT VAN DE INTERVENTIES



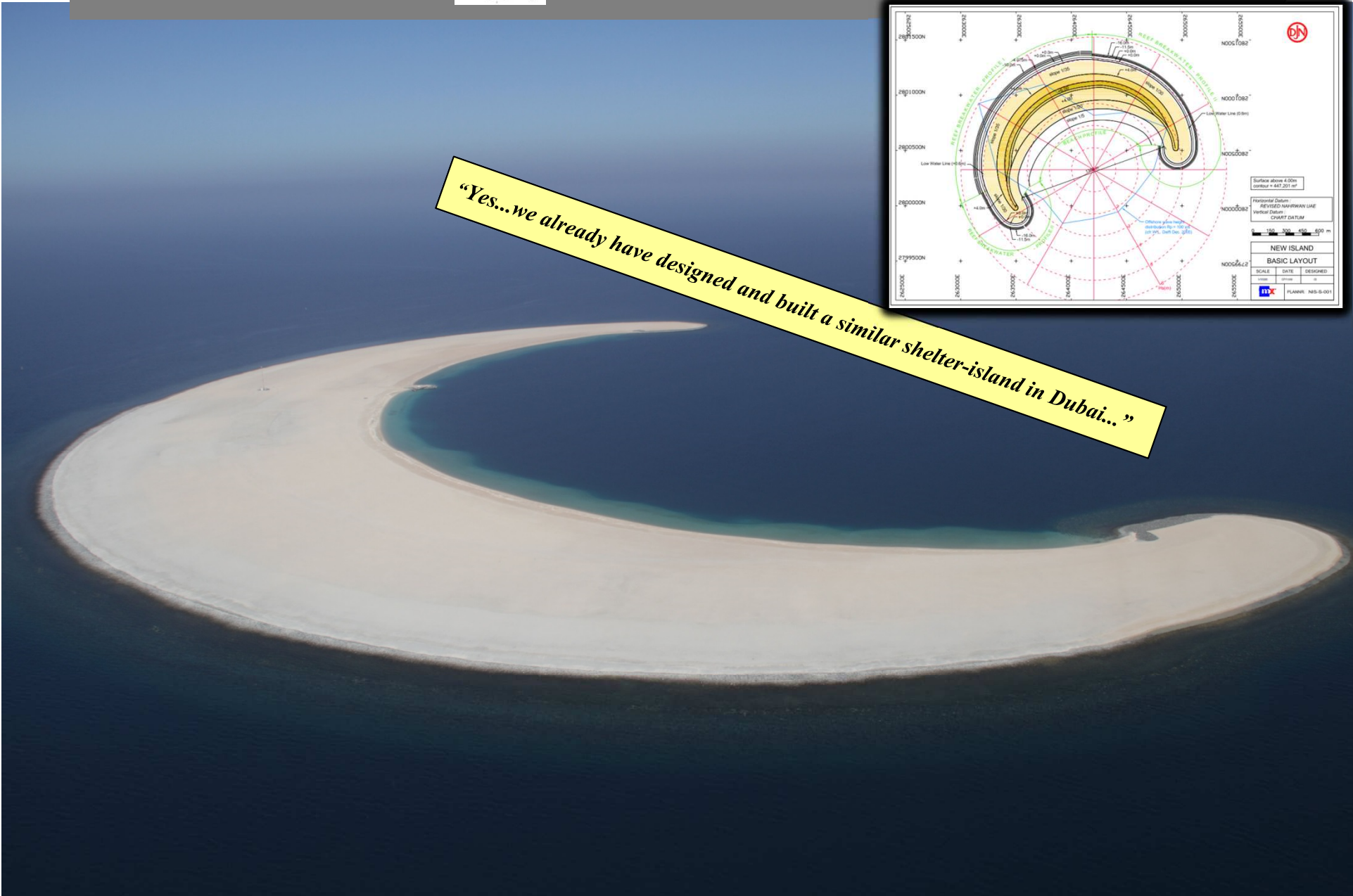
Is



feasible and realistic??



“Yes...we already have designed and built a similar shelter-island in Dubai...”



Flanders Bays presented By Minister H Crevits (November 2013) as a reference for the Master Plan of the Flemish Government



Belgian Government approved a Royal Decree (2014) for the Marine Spatial Plan



Source: Federal Authority for Welfare, safety and Environment (FOD VVVL)

Belgian Government approved a Royal Decree (2014) for the Marine Spatial Plan



Source: Federal Authority for Welfare, safety and Environment (FOD VVVL)

Integrated Coastal Zone and Coastal Seas Management

The Legal Framework is in place, the Industry is ready for implementation and the Technology is developed.

What are we waiting for?

Thank you!