

Sharing data and knowledge in the Greater North Sea Basin Initiative

Sharon Tatman - Deltares

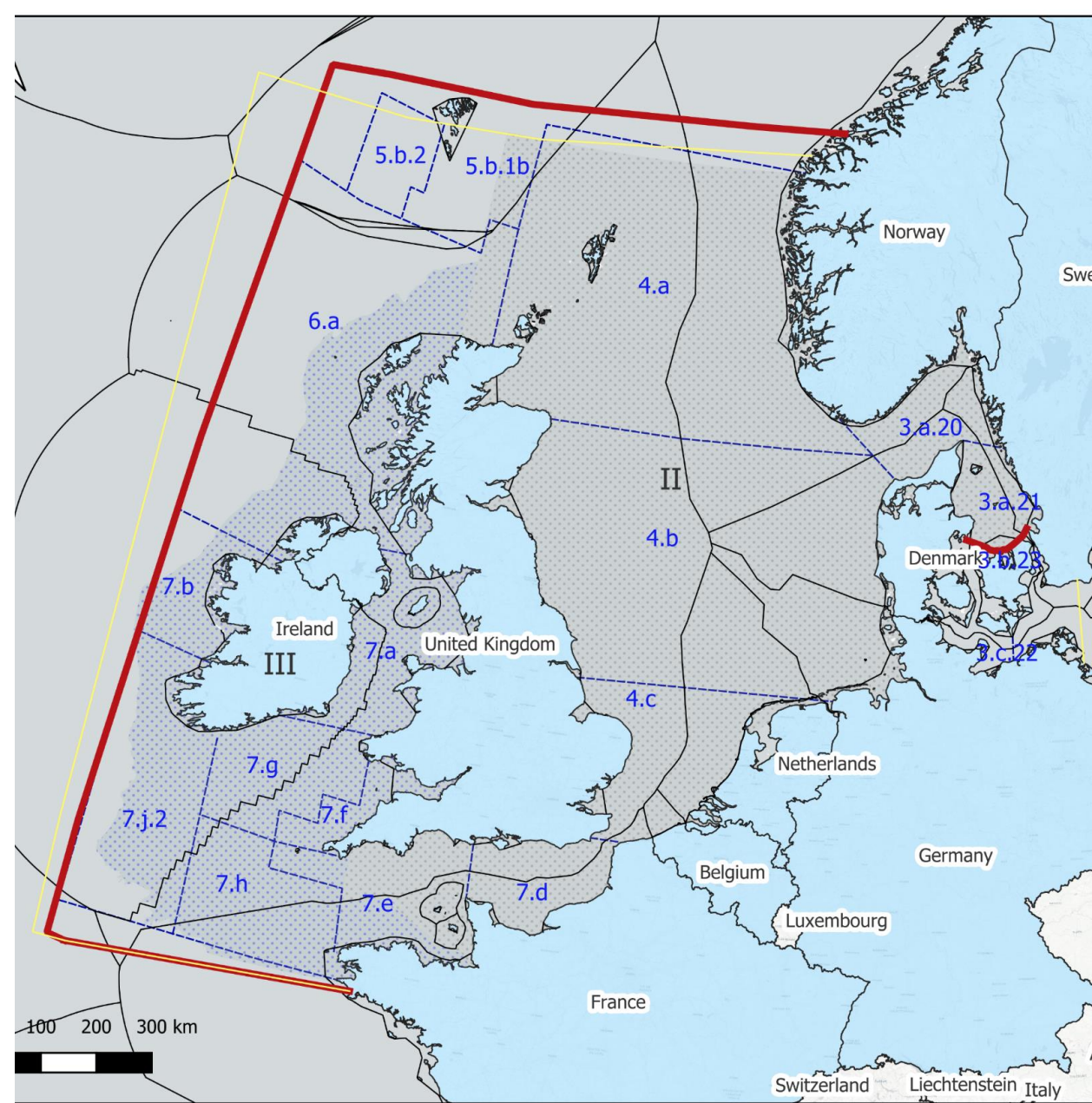


Greater North Sea Basin Initiative



NESBp
Northern European Sea Basins project

Deltares



- OSPAR Region II
- OSPAR Region III
- GNSBI Member States
- ICES areas
- Exclusive Economic Zones
- NSEC Boundaries
- Proposed GNSBI

ces: OSPAR Regions: OSPAR Comission, OSPAR Maritime Area and its Regions. Economic Exclusive Zones: Marineregions.org, ICES Areas: ICES, ICES statistical rectangles. NSI HaskoningDHV, Spatial study North Seas 2030 - offshore wind development, 2022. Reference: RHDHV-BI4271

What is the Greater North Sea Basin Initiative (GNSBI)?



What is the GNSBI?

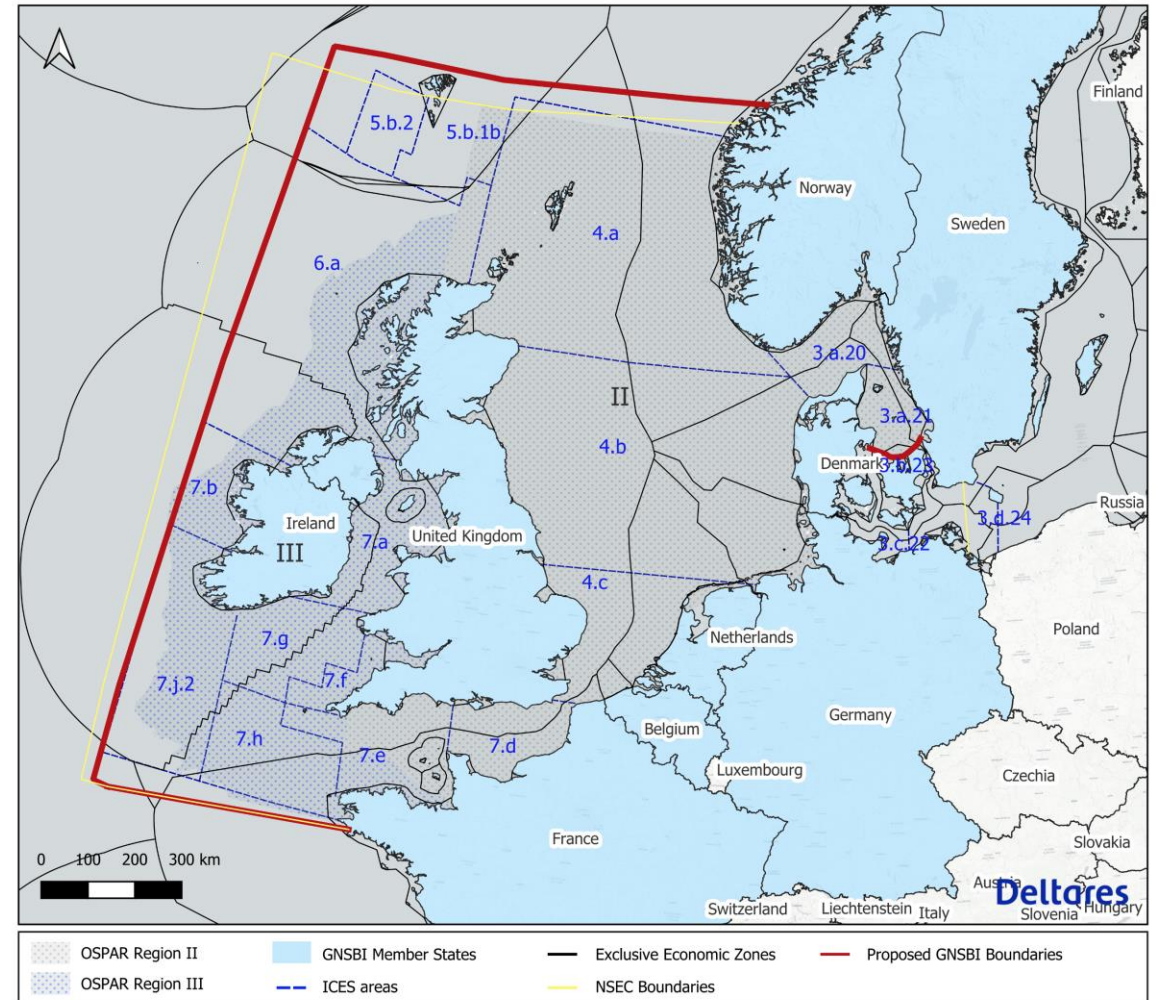


- An initiative of 9 Greater North Sea countries and the European Commission;
- Participating countries: Belgium, Denmark, France, Germany, Ireland, Netherlands, Norway, Sweden, United Kingdom
- Started in 2022

Current GNSBI Governance



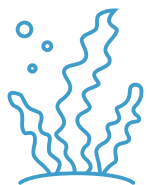
- Antwerp Declaration 2024
 - Ministers' Conference
- Non-binding and voluntary
- Decisions established within national legislations and international treaties



References: OSPAR Regions: OSPAR Commission, OSPAR Maritime Area and its Regions. Economic Exclusive Zones: Marineregions.org. ICES Areas: ICES, ICES statistical rectangles. NSEC Boundaries: Royal HaskoningDHV, Spatial study North Seas 2030 - offshore wind development, 2022. Reference: RHDHV-BI4271



Five integrated Working Tracks*



Nature restoration and conservation (NAT)

Set-up a programme for cooperation regarding conservation, enhancement and restoration of nature.



Cumulative impacts (CIA)

Find a common approach on cumulative impact assessments based on existing work to identify ecological tensions.



Multiple use of space (MUL)

Set-up criteria and sharing best practices on co-use.



Long-term perspective of fisheries (LTPF)

Create insight in key fisheries areas and socioeconomic/food impacts of spatial developments at North Sea scale.

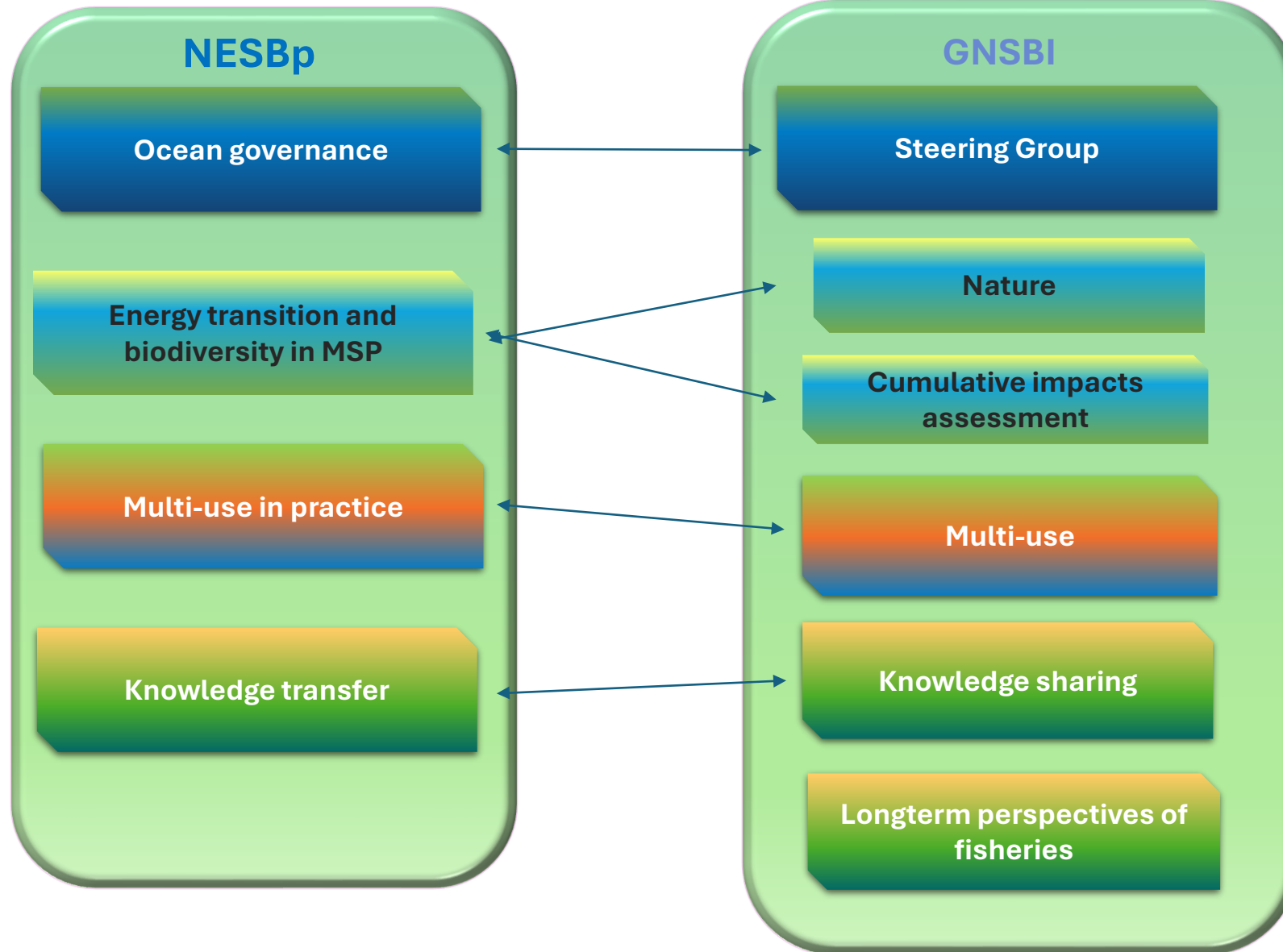


Knowledge sharing (KNOW)

Coordinate the exchange of best practices, (scientific) information, data, plans and assessments.

→ Co-lead Deltares (Sharon Tatman) & Ministry IenW (Nick Boxem)

*The four Tracks (NAT/MUL/CIA/LTPF) are output-driven and (strongly) interrelated, whereas the Knowledge Track can support parts of the mapping, data and information element.



Why a Knowledge Sharing Track?



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Objective GNSBI

→ To enhance informed national decision making and cross-border collaboration (Antwerp declaration)

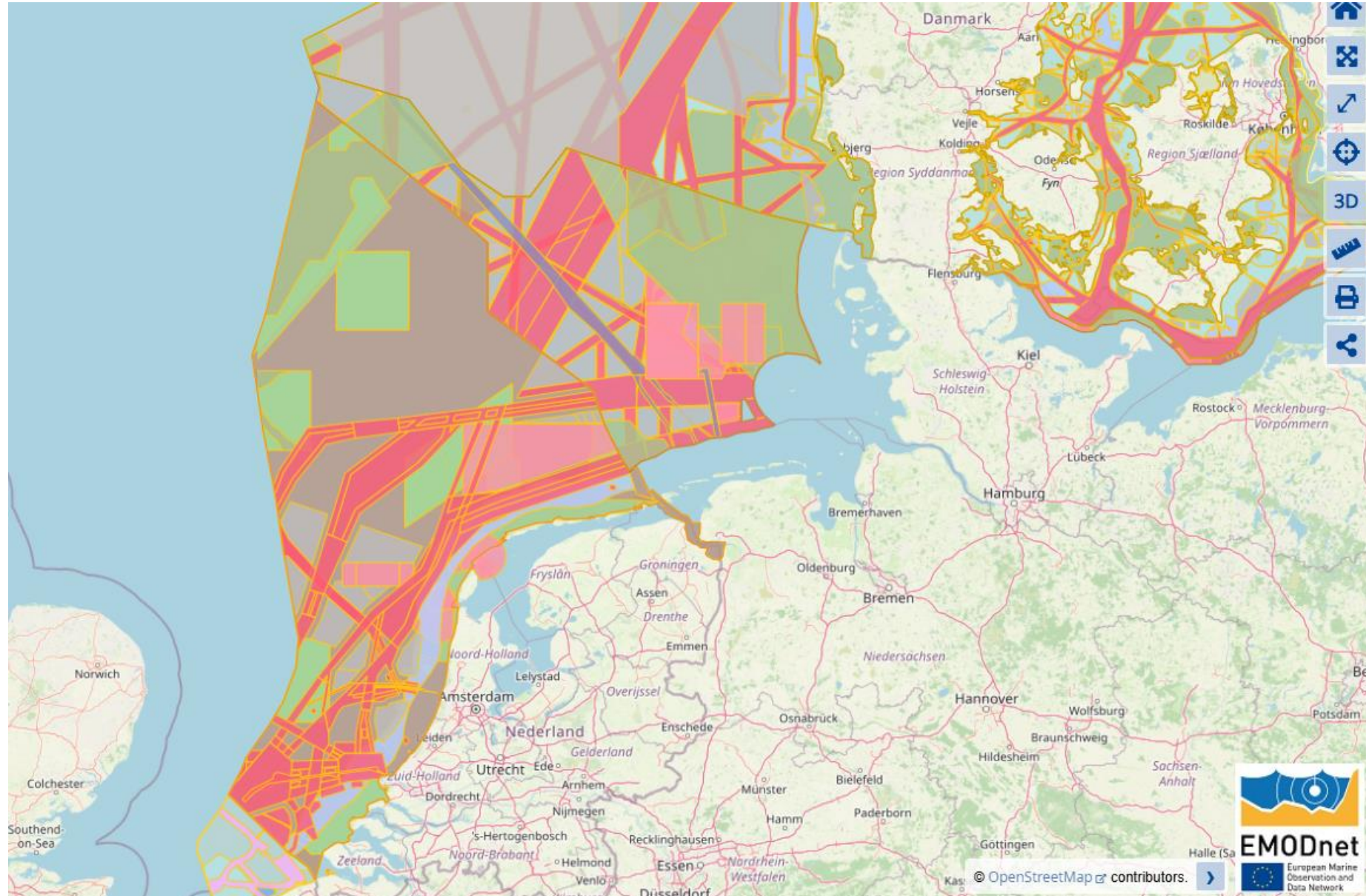
Objective Knowledge Sharing Track

→ To align data- and knowledge sharing and associated workflow procedures between GNSBI countries, with the aim **to enhance informed national decision making and cross-border, cross-sectoral collaboration and dialogue among countries** bordering the Greater North Sea Basin, in Early MSP Dialogue phase of maritime spatial planning and other effective management processes

The challenge for MSP practitioners



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<https://emodnet.ec.europa.eu/geoviewer/>

Voettekst van de presentatie

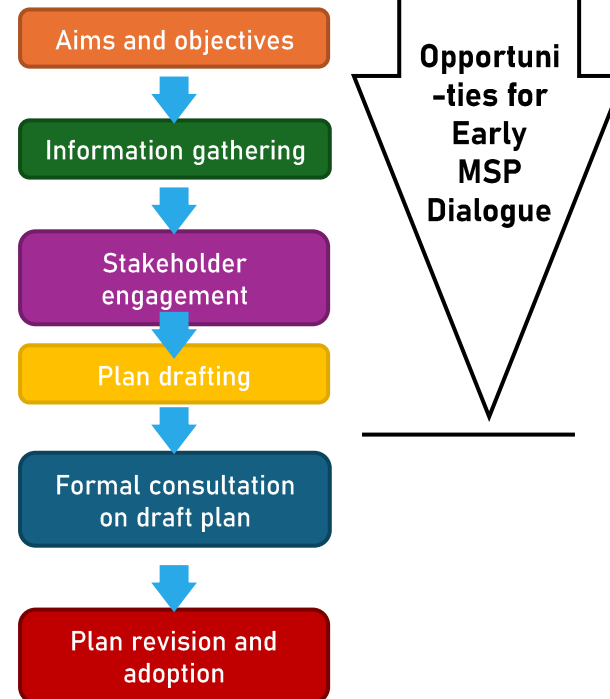
Early MSP Dialogue and the GNSBI



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- Antwerp Ministerial Declaration: '*GNSBI acts as a forum for facilitating early dialogue, and engaging early with all parties*',
- to enhance regional cross-boundary cooperation to better align maritime spatial planning,
- while respecting decisions established within national legislations and international treaties,
- in compliance with obligation from the EU Marine Spatial Planning Directive that spatial plans should be consulted and coordinated between member states as well as with third countries

*Simplified, example
marine
planning steps,
which vary between
countries*



- GNSBI provides a safe space for early MSP dialogue and opportunity to raise sensitive or emerging issues, supporting more informed national planning through regional awareness and cooperation.



What are main MSP data sharing challenges we face between countries?

Different countries have conducted their exercises at national level

Different methods

Different priorities

Different terminology

Different sets of spatial features

Different scales and complexities

Different data coverage

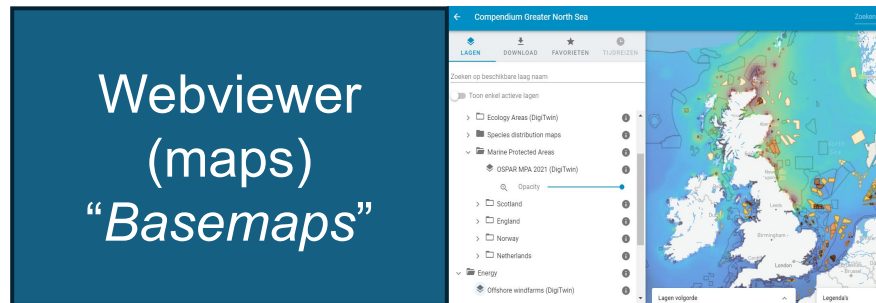
GNSBI Knowledge Sharing approach

Step 2: Provide maps tailored to end-users needs

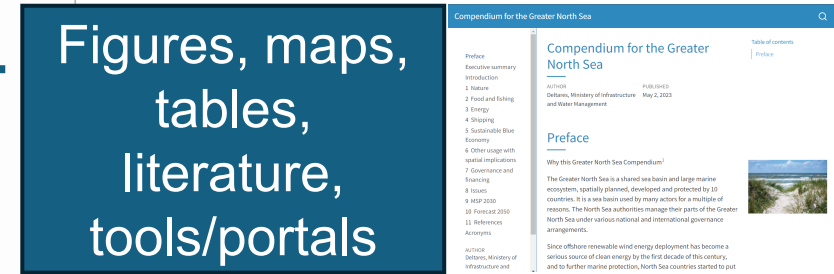
- maps e.g. from GNSBI countries and Working tracks
- additional maps (e.g. future OWF search areas)
- proof-of-concept **viewer** “the Compendium”
- Improve workflows from countries
- Etc...

Step 3: Narratives (storytelling)

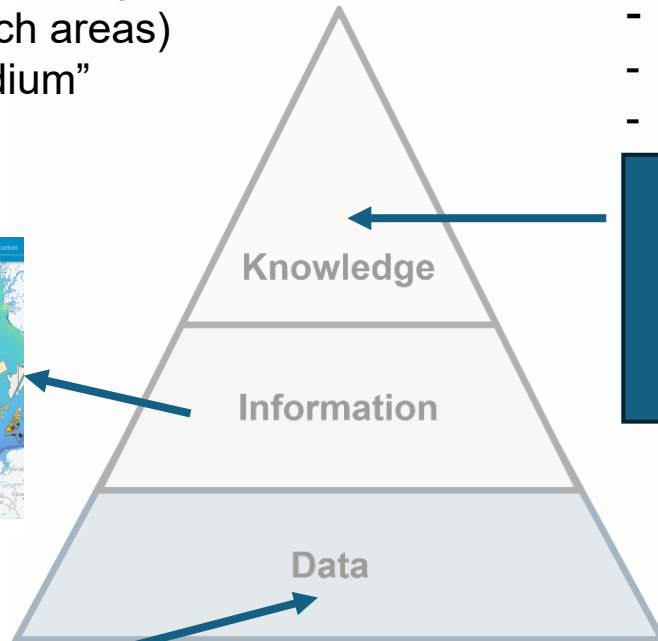
- Knowledge transfer
- Transboundary dialogue
- MSP practitioners



Webviewer (maps) “Basemaps”



Figures, maps, tables, literature, tools/portals



Data & information layers

Step 1. Data catalogue

Mainly public sources

- European (e.g. EMODnet)
- Regional (e.g. OSPAR, ICES)
- Sectoral (e.g. NSEC SG2)
- National
 - GNSBI countries (MSP input and output)

3 examples where common language plays role (and how we deal with it)



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- NSEC Timeline database layers
- Products developed in GNSBI → tension mapping
- Knowledge Sharing platform “Compendium”

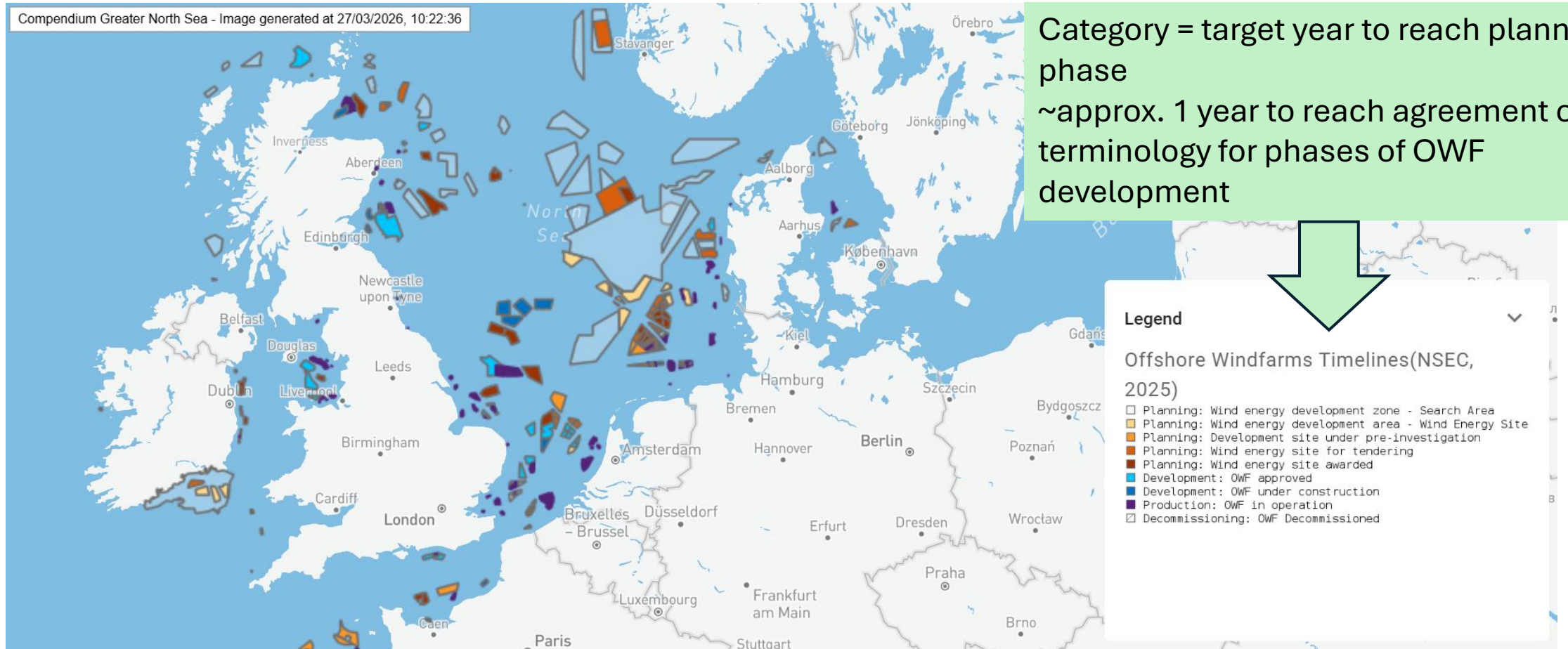
NSEC Timelines



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Compendium Greater North Sea - Image generated at 27/03/2026, 10:22:36

Category = target year to reach planning phase
~approx. 1 year to reach agreement on terminology for phases of OWF development



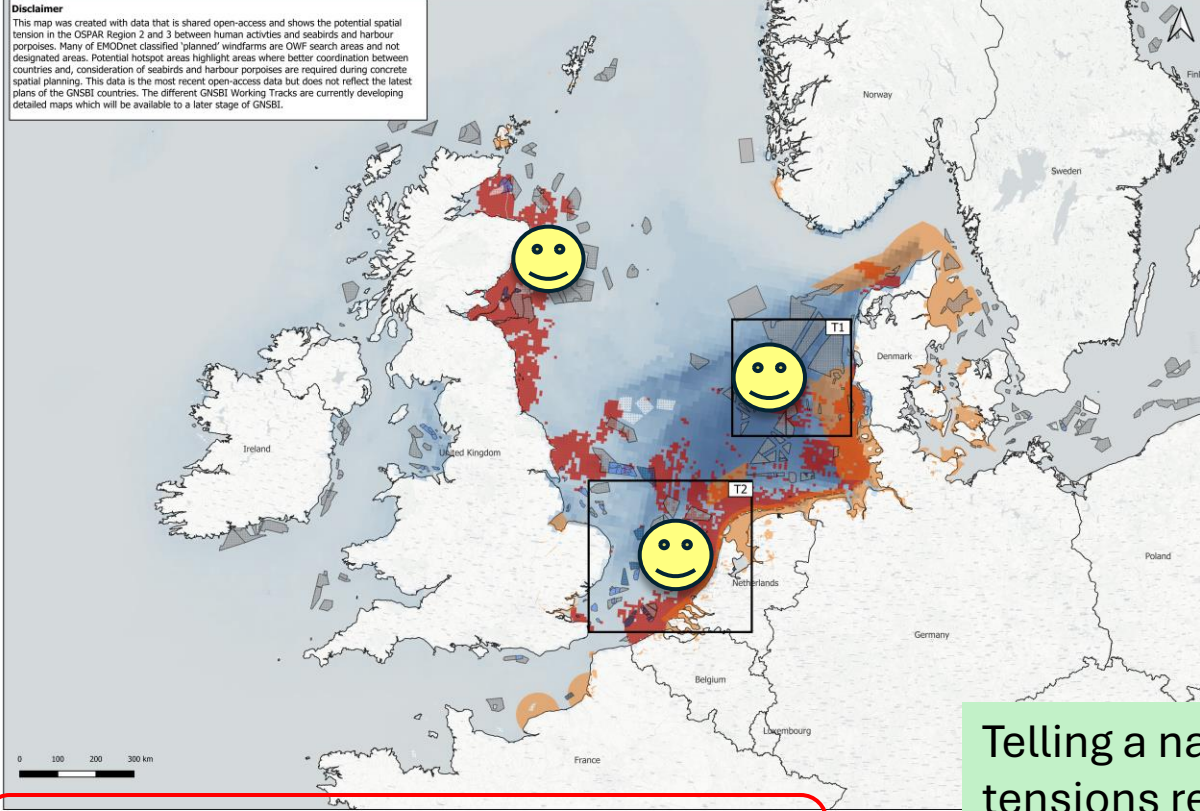
GNSBI tension mapping



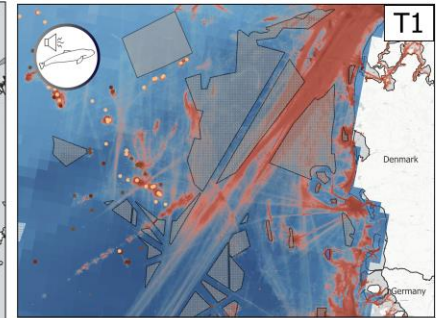
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Potential Hotspots of Tension between Human Activities, Seabirds and Harbour Porpoises

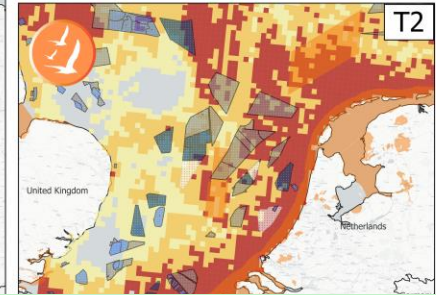
- Offshore Windfarms (OWF)**
- EMODnet
- Production
 - Approved
 - Construction
 - Planned
- Offshore Windfarm Areas 2030**
- NSEC
- Licensed wind farm
 - Other wind study area
- Annual Mean Harbour Porpoise Density**
- 1,032185 ind. per km² annual avg
 - 0,000005 ind. per km² annual avg
- Important Bird and Biodiversity Area**
- Important Bird and Biodiversity Area
- Windfarm Sensitivity Index - Seabirds**
- 0,69 - 1,02 - low concern
 - 1,02 - 1,39 - concern
 - 1,39 - 6,29 - high concern
- All Vessel Density - EMODnet**
- 0 hours per km² per month
 - 8 hours per km² per month
- Offshore Installations - EMODnet**
- Condensate
 - Crude Oil
 - Natural Gas
 - Other
- Potential Risks Harbour Porpoises - Anthropogenic Noise**
- Areas with potential risks for harbour porpoises¹
- Potential Risks Seabirds - OWF**
- Areas with potential risks for seabirds¹



References
(Data source information in following order: Organisation, Catalogue, Dataset, Publication Date, Period, Licence/URL)
 All Vessel Density - EMODnet; EMOData; EMOData Human Activities, Vessel Density Map, Vessel Density Annual Averages 2017-2023 All Types, 2019-03-21, 2017-01-01 - 2023, EMOData; HK_Vessel_Density_Map_2020/004
 Annual Mean Harbour Porpoise Density: Annual Marine Density, Journal of Applied Ecology, Whittall, James J. et al., Distribution Maps of Cetacean and Seabird Populations in the North-East Atlantic, 2015, 1990 and 2016, https://doi.org/10.1111/1365-2664.13325
 Important Bird and Biodiversity Areas: BirdLife International, Important Bird and Biodiversity Areas (IBA) digital boundaries: March 2024 version, 2024, https://www.birdlife.org
 Offshore Windfarm Areas 2030: EMOData; EMOData Human Activities, Offshore Wind Development, 2024-08-01 - 2024, Revision: 2024-08-16, EMOData; IBA; Offshore Installations_2024/0216
 Offshore Windfarms (OWF) - EMOData; EMOData Human Activities, Wind Farms (Belgium), 2024-08-01 - 2024-08-01, EMOData; Human Activities, Energy, Wind Farms
 Offshore Windfarm Areas 2030: Royal Institute for Cultural Heritage, Spatial Study North Sea 2030 - offshore wind development, 2022, https://www.noodat.be/en/ibad/opens/OSMOS/overall-study-north-sea-2030-offshore-wind-development-22.pdf
 Windfarm Sensitivity Index - Seabirds: Wageningen Marine Research, Windfarms en vogelhabitat Noordzee - update 2021, Risk Map, 2021, 1991 - 2019 (ESAS)(2020) (D4W7L)
¹ Identification of hotspot zones was done during an expert workshop of GNSBI track leaders and members, based on visual inspection of data intensity and spatial overlap.



Potential Conflicts between Anthropogenic Noise Pollution - Harbour Porpoise



Telling a narrative of possible future tensions required multilateral agreement on data selection, visualisation and language (title of maps, presentation)

Parameter selection

Data source / data collection

GNSBI Compendium – mock-up platform for data & knowledge sharing

- Demonstrator
- First viable version
- Some example content

Entries for different data-info-knowledge types

Content catalogue depends on:

- User type
- DIK type

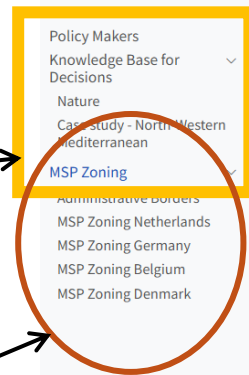
Embedded existing Compendium (narratives) with relevant chapters



Greater North Sea Basin Initiative



Entries for different users



MSP Zoning

Info on MSP zoning

Compendium for the Greater North Sea

10 MSP 2030

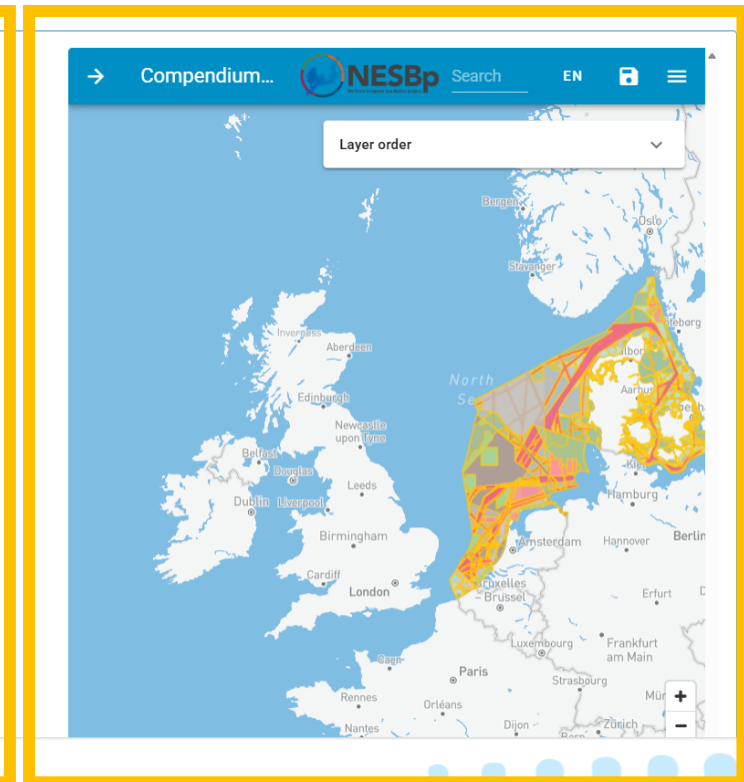
10 MSP 2030

Marine spatial planning (MSP) is the process of finding the balance between activities at sea, by developing an integrated, ecosystem-based strategic and adaptive plan, enabling a transition to a more sustainable and livable future. In literature MSP is presented as an approach or process to realise coordination of use at sea at national and supra-national level (e.g. Spijkerboer et al 2020).

In the EU member states are required to develop marine spatial plans for the management of use of their sea space according to the 2014 MSP Directive (Council Directive 2014/89/EU). MSP plans from member states for 2030 that are publicly available are shown in this section.

Country	Plan(s) active	Revision	Foreseen time of adopting revision
Belgium	Marien plan (2020-2026)	Kick off April 2023	2025
Denmark	Maritime spatial plan (2021/2022)	Political negotiations with new government	2023

Embedded existing map viewer with selected layers



Narrative viewer



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Compendium for the Greater North Sea



- Preface
- Executive summary
- Introduction
- 1 Nature
- 2 Food and fishing
- 3 Energy
- 4 Shipping
- 5 Sustainable Blue Economy
- 6 Other usage with spatial implications
- 7 Governance and financing
- 8 Issues
- 9 MSP 2030
- 10 Forecast 2050
- 11 References
- Acronyms

AUTHOR
Deltares, Ministry of Infrastructure and

Compendium for the Greater North Sea

AUTHOR PUBLISHED
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Preface

Why this Greater North Sea Compendium¹

The Greater North Sea is a shared sea basin and large marine ecosystem, spatially planned, developed and protected by 10 countries. It is a sea basin used by many actors for a multiple of reasons. The North Sea authorities manage their parts of the Greater North Sea under various national and international governance arrangements.

Since offshore renewable wind energy deployment has become a serious source of clean energy by the first decade of this century, and to further marine protection, North Sea countries started to put

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Preface



Narrative content

- Content managed by GNSBI
- Current version is proof of concept
- Version controlled multi-user input (Github) – TBD

Web viewer



A screenshot of the "Compendium Greater North Sea" web viewer interface. The top navigation bar is blue with a back arrow, the title "Compendium Greater North Sea", and a search icon labeled "Zoeken". Below the navigation bar are four tabs: "LAGEN" (selected), "DOWNLOAD", "FAVORIETEN", and "TIJDREIZEN". A search bar contains the text "Zoeken op beschikbare laag naam". A toggle switch labeled "Toon enkel actieve lagen" is currently turned off. A list of layers is displayed on the left, including "Ecology Areas (DigiTwin)", "Species distribution maps", "Marine Protected Areas" (with sub-items "OSPAR MPA 2021 (DigiTwin)" and "Opacity"), "Scotland", "England", "Norway", "Netherlands", "Energy" (with sub-item "Offshore windfarms (DigiTwin)"), and "Offshore windfarms (DigiTwin)". Each layer has an information icon (i) to its right. The "Opacity" layer has a slider control. The main map area shows a map of the North Sea region with various colored overlays representing the selected layers. At the bottom of the map, there are two buttons: "Lagen volgorde" and "Legenda's".

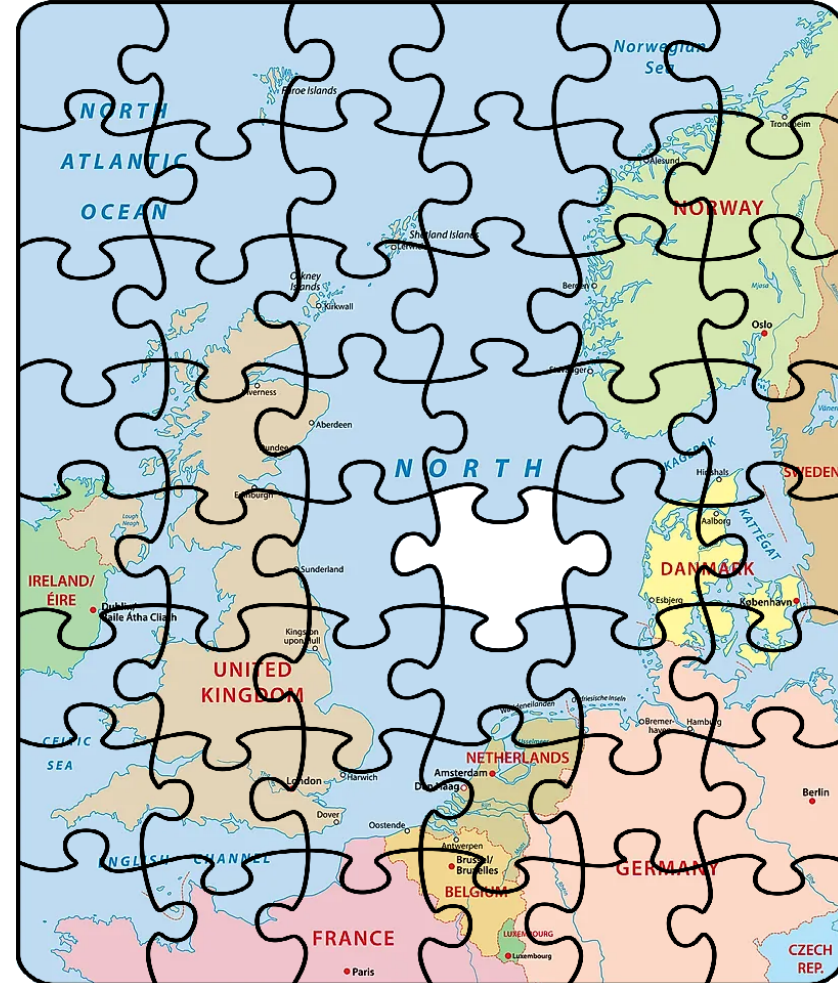
Map layers (Web services)

- Content (layers) managed by GNSBI
- Data managed at the source
- No harmonization is done
- Host data locally only if necessary

Take home message



- Informed national decision making and cross-border collaboration for GNSBI requires evidence base through sharing of evidence-based data, information & knowledge
- Speaking a common language essential in all aspects of data, information, knowledge sharing
- There is huge amount of data and national databases and tools for MSP, but
 - Data across borders not “perfectly comparable” (NSEC Timeline example) due to choices in planning, terminology
 - Impacts harmonisation & standardisation of data
- Knowledge Sharing Track vision
 - Demonstrate benefits of data sharing
 - Remove challenges
 - Platform (Compendium) tailored to end-users, including language and ease-of-use





Questions?



Suggestions? Opportunities?
Ideas?