



Offshore wind and MSP - Denmark

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26. juni 2025



Danish Energy Agency

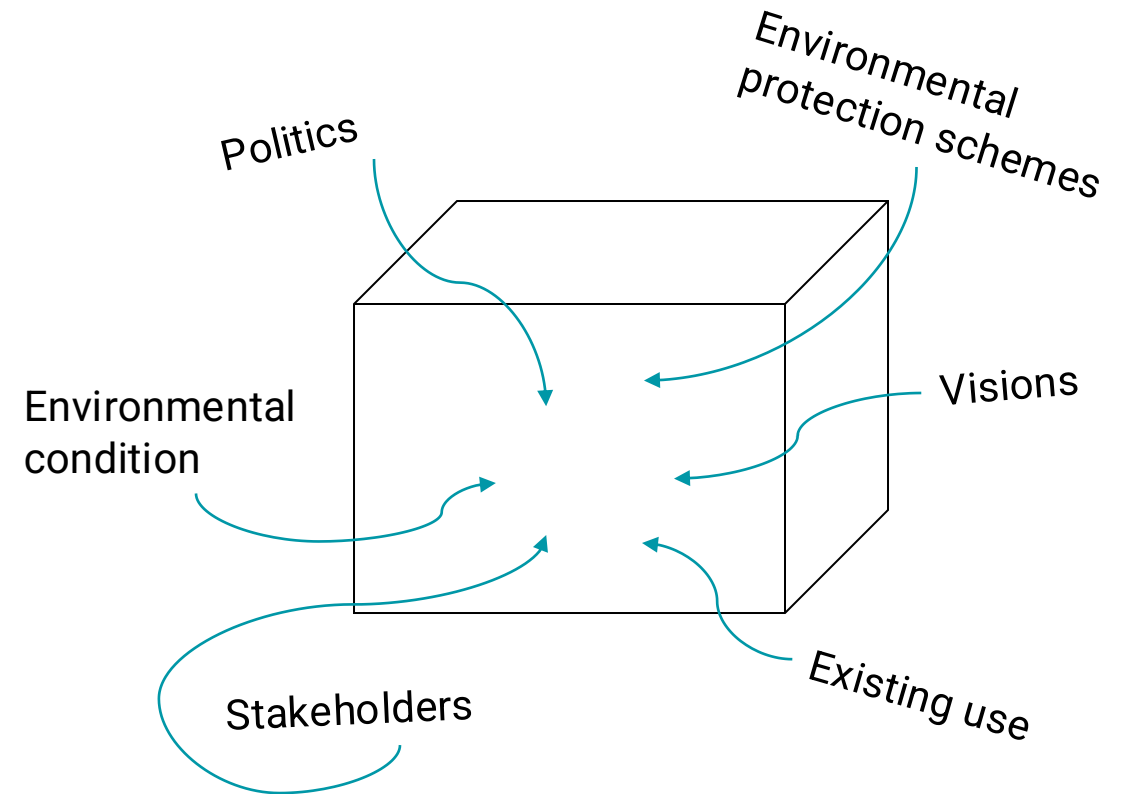
A galaxy perspective on spatial planning

Land

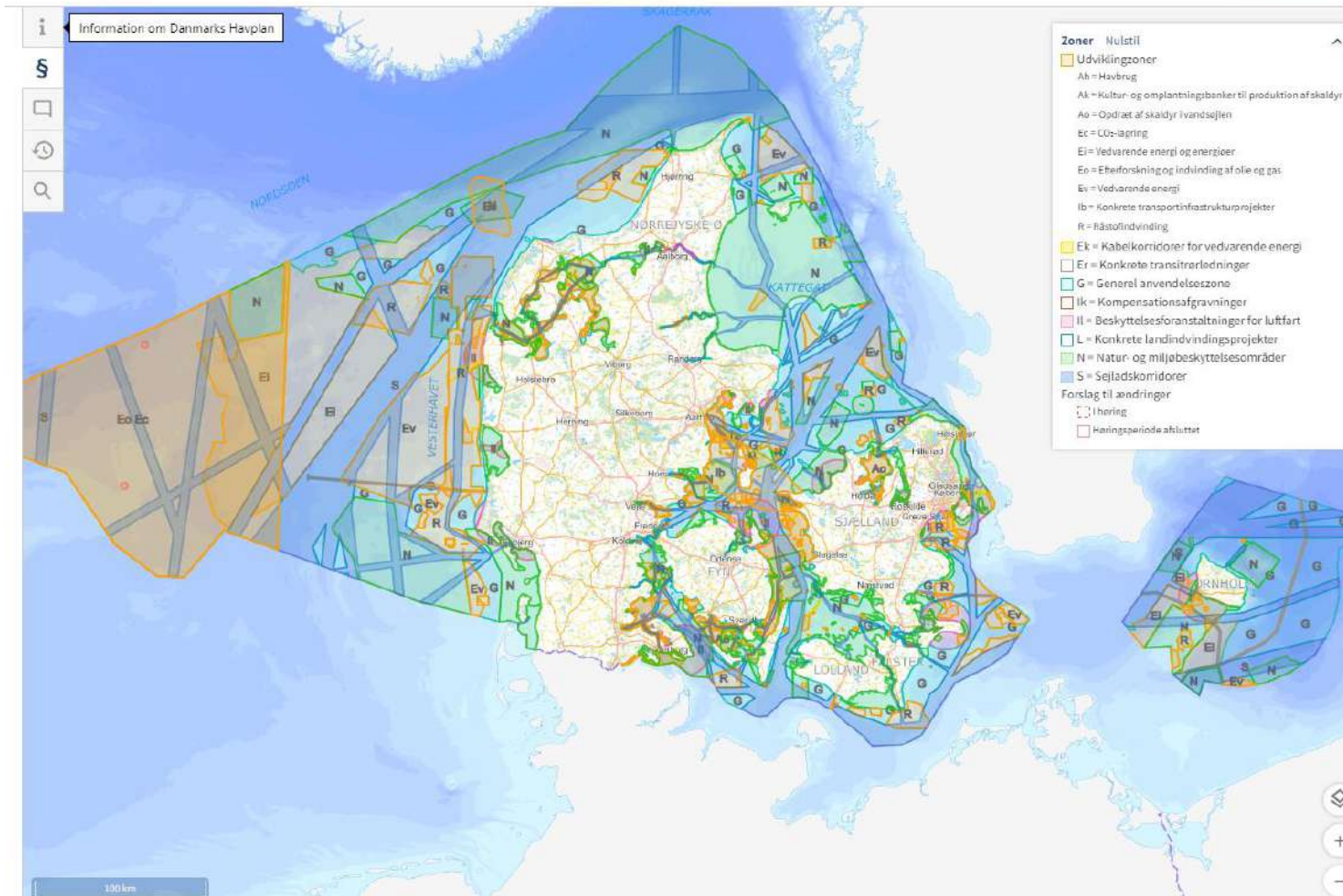
- Long tradition of spatial planning on land
- Spatial planning and environmental protection "grew up" together
- Long-time experience of coordination between spatial interests – human activities and protection

Sea

- MSP-directive from 2014
- Broader marine environmental protection has "lagged behind" protection on land
- Brief experience in systematic, centralised coordination between activities at sea



The Danish maritime spatial plan (MSP)



- Follows EU directive 2014/89/EU
- Holistic approach to MSP
- Purpose of ensuring economic growth and use of sea territory in sustainable way
- Covers activities:
 - › 1) Energy at sea
 - › 2) Maritime transport
 - › 3) Transport infrastructure
 - › 4) Fisheries and aquaculture
 - › 5) Extraction of raw materials
 - › 6) Protection and improvement of the environment

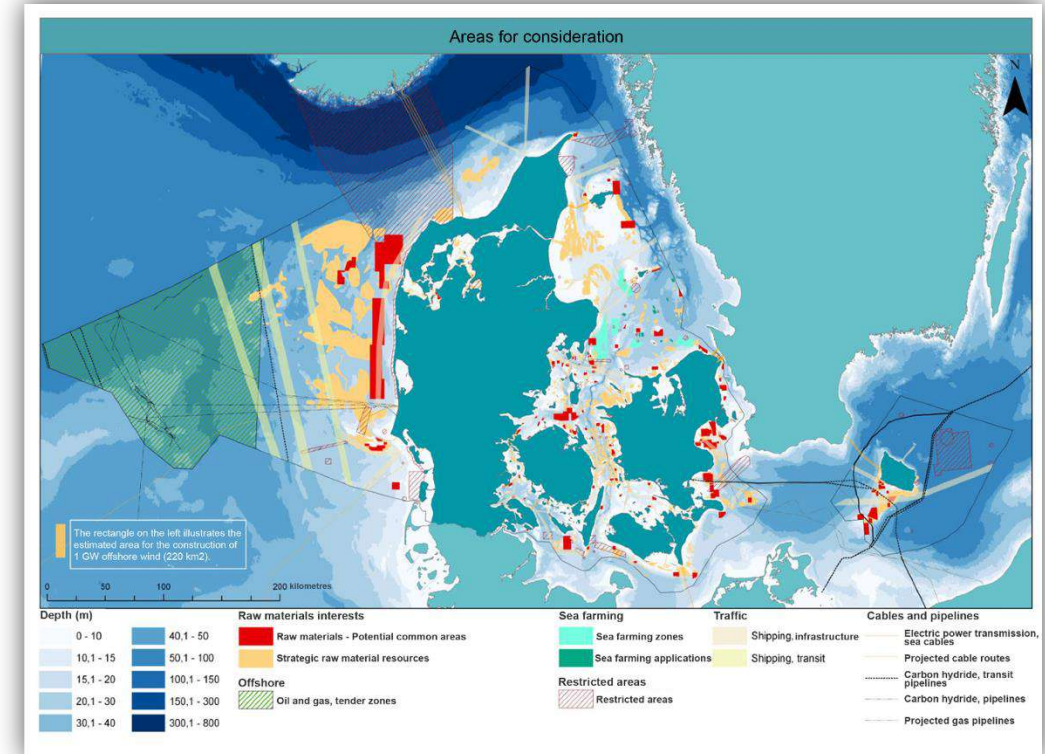
MSP – Havplan.dk

MSP and offshore wind farms

- DEA has been "MSP'ing" long before the official MSP – first planning for offshore wind sites began in late 80's and first action plan for offshore wind from 1997 (with expected 4 GW by 2030)
- Followed up by further plans and area screenings for offshore wind farms in 2011, near coast offshore wind in 2012, a rough screening for suitable areas for offshore wind in 2017 (became input to the MSP) and a screening for 12,4 GW in 2019.
- Increased complexity in spatial planning for offshore wind:
 - › Marine environmental protection as well as other pressure factors have increased, while environmental status/condition has decreased (for some factors)
 - › More and larger wind farms

Rough screening 2017 – input to MSP

Type of interests	Restriction	Consideration	Comment
Shipping lanes		X	Ferry routes and routes with less traffic
Shipping lanes	X		International shipping routes and heavy traffic
Raw materials (sand, gravel etc.)		X	Potential extraction and strategic resources
Extraction and deposit of raw materials	X		Areas with active permits and reserved areas
Defense	X		Military, restricted
Defense limited use		X	Military, less restricted
Oil- and gas installations	X		Operators of oil and gas platforms
Oil and gas tender zone		X	Concessions with use rights to be awarded
Existing offshore wind farms	X		Existing wind farms have 6 km perimeter clearance
Cables and pipes		X	Can be combined with offshore wind, but 200 m safety distance
Environment	X		Natura 2000, maritime strategy and nature conservation.



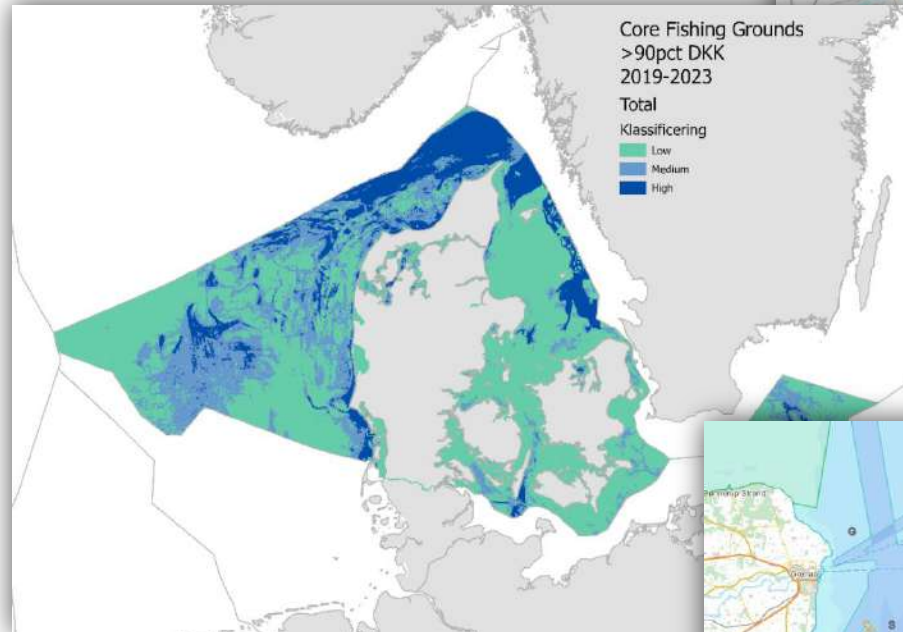
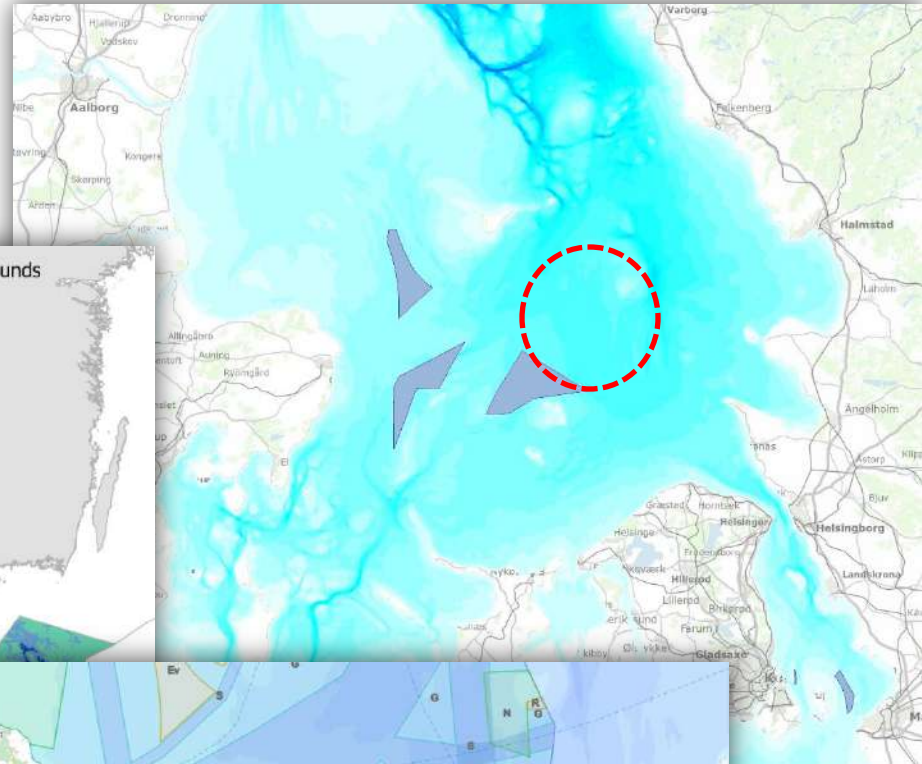
Communication is key

- Involvement of other relevant authorities from start to finish (often easier said than done)
- Remember other marine/maritime stakeholders and remember that maritime spatial planning is not only happening at sea
- Consequences of offshore wind planning for other parties are not always discernible to energy authorities
- Strong political mandate is important for planning authority in dialogue with other authorities and stakeholders

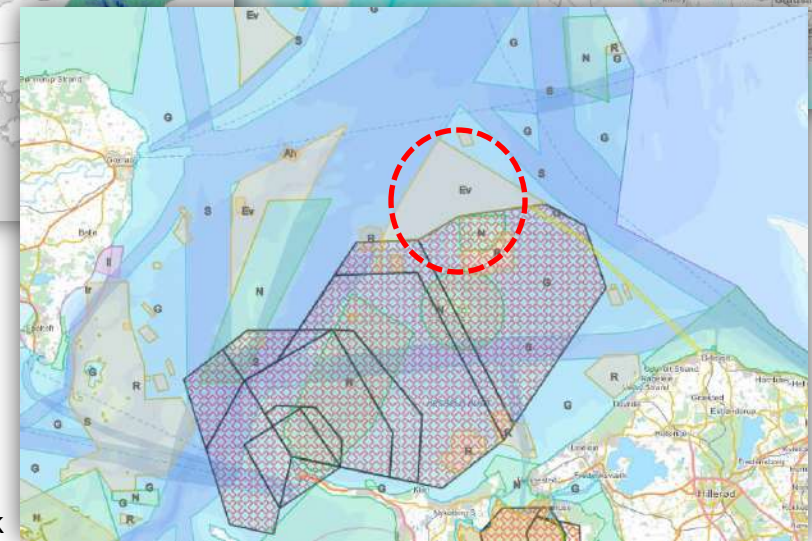
A spatial planning case: Hesselø OWF

- Tender of "Old" Hesselø site paused in 2021 because of large area with soft sediment
- Tender area moved south to area used by Danish Defence
- Also Norway lobster fishing grounds and new ferry route at old Hesselø site

Source: Danmarks
Miljøportal



Source: DTU, Egekvist
(2025)



Source: havplan.dk

Screening and environmental mapping of the offshore wind potential in Denmark

A new initiative making offshore wind planning easier



Knowledge is also key: The new screening and environmental mapping – smarter planning of offshore wind

Funds allocated for 2022-2025

- › A project aimed at establishing the essential data foundation to support offshore wind development

Objective:

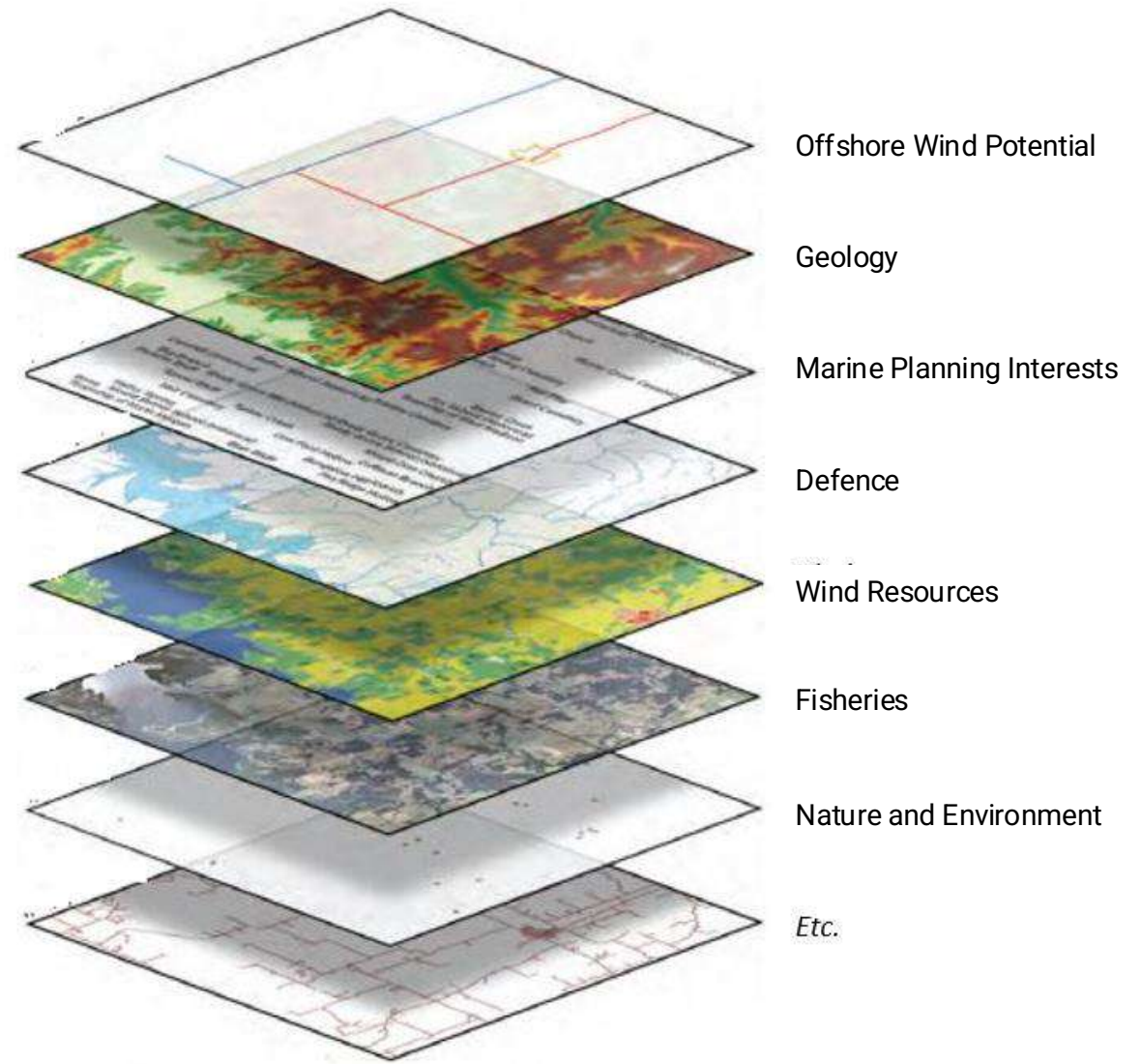
- › Support long-term planning and decision-making for the expansion of new large-scale offshore wind in Denmark.

Purpose:

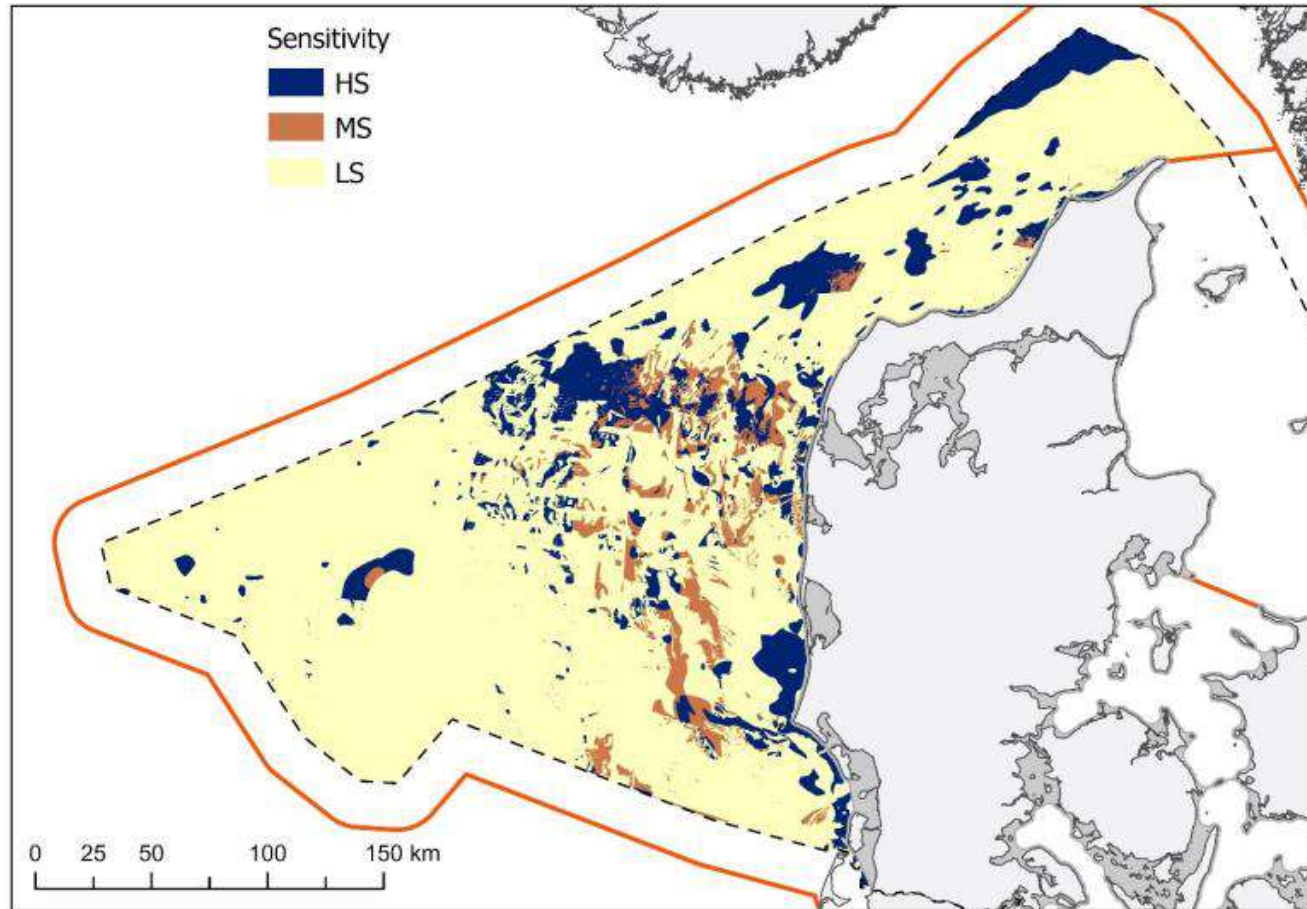
- Smart planning of offshore wind.
- Identify areas where the fewest environmental and interest conflicts are expected.
- Find the most suitable areas for offshore wind.
- Identify areas of concern where special investigations, mitigation measures, and/or project adjustments may be needed.
- Due diligence/"early warning" to avoid significant and undesirable surprises (soft seabed, important migration routes, etc.) that could increase costs or complicate the installation of offshore wind.

Screening and sensitivity mapping

- A technical screening based on the results from sensitivity mapping by NIRAS and Aarhus University, geological mapping by GEUS and other relevant spatial interests (shipping lanes, defence areas etc.)
- Digital report and interactive maps in Q3 2025



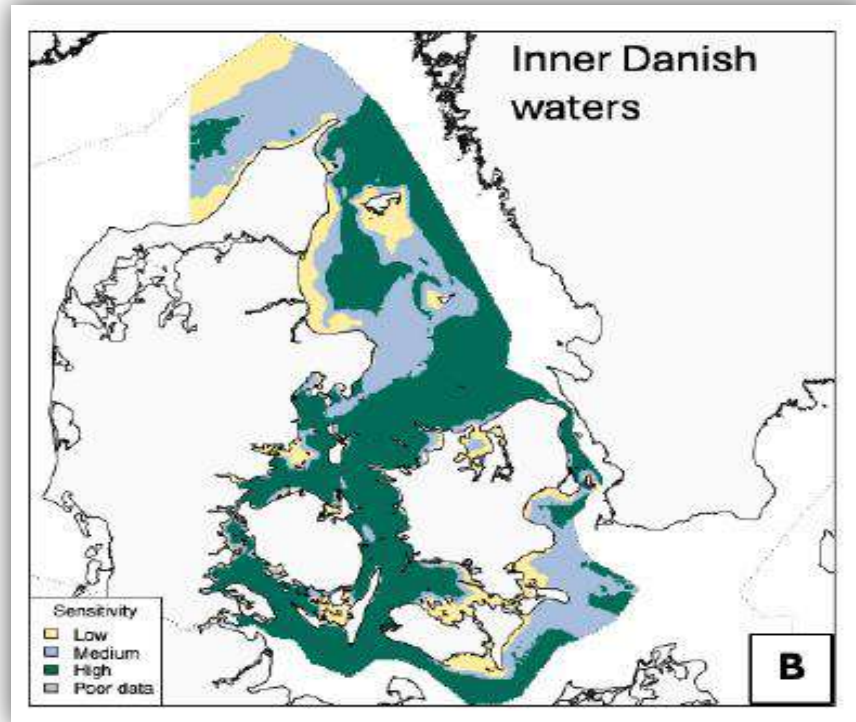
Examples of sensitivities addressed: seabed habitats



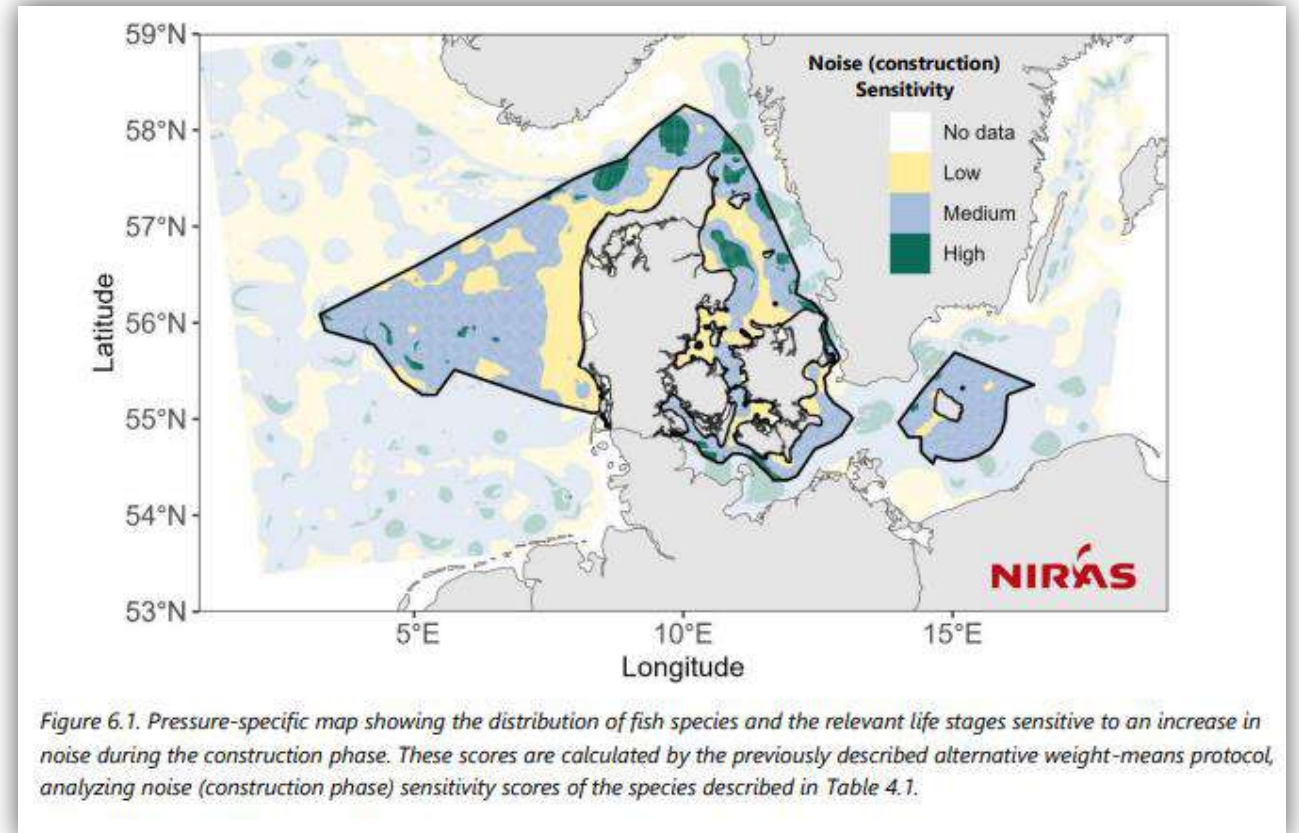
Source: Cordula Göke, Ben Jamie Owen Robinson and Karsten Dahl. 2025. Environmental mapping and screening of the offshore wind potential in Denmark. Sensitivity mapping: Benthic habitats and associated biological communities. Aarhus University, DCE – Danish Centre for Environment and Energy, 75pp. Scientific Report No. 642

Figure 4.5. Sensitivity of the broad habitats in the North Sea/Skagerrak. Blue: Higher sensitivity (HS), Red-brown: Medium sensitivity (MS), Yellow: Lower sensitivity (LS)

Examples of sensitivities addressed: harbour porpoise + fish



Source: Iben Stokholm, Floris M. van Beest, Jonas Teilmann, Signe Sveegaard, Anders Galatius, Rune Dietz, Jakob Tougaard & Jacob Nabe-Nielsen. 2024. Sensitivity mapping of harbour seals, grey seals and harbour porpoises to the construction and operation of offshore windfarms in Danish waters. Aarhus University, DCE – Danish Centre for Environment and Energy 63 pp. Scientific Report No. 644



Source: NIRAS 2025