Lessons from three years in the field

Nature enhancement in offshore wind farms

The Rich North Sea

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Who?

→ Started in 2019

→ 5 year programme

NATUUR & MILIEU

The North Sea Foundation

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Exponential growth offshore wind

2022 - 50 GW

2031 - 370 GW

2050 - 2000 GW

GWEC 2021, 2022

The scenery is changing (2019 – now)

- → Upscaling of offshore wind ambitions
- → Launch of the Coalition for Offshore Energy and Nature (OCEaN)
- → EU biodiversity strategy and Nature Restoration regulation
- → 1st “nature inclusive tendering procedure” in the Netherlands (HKW VI)
- → North Sea Agreement (NL)
- → Focus on nature and offshore wind in science, press, NGOs, industry and governments
- → Pilot projects for nature restoration

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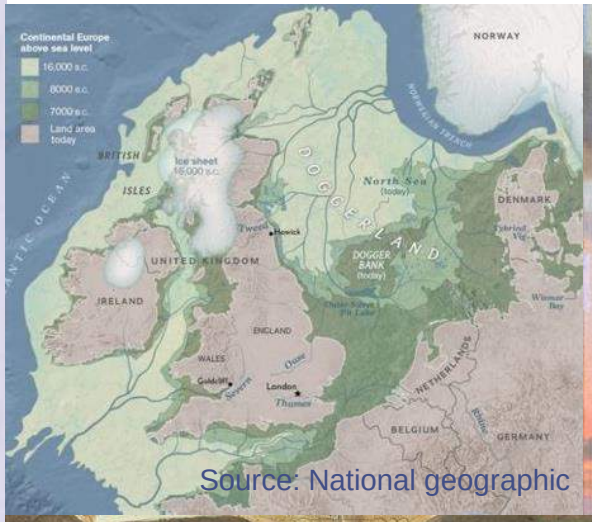
But where did we come from?



Source: National geographic


Walvisvangst (Whaling), Abraham Storck, tussen 1654 en 1708

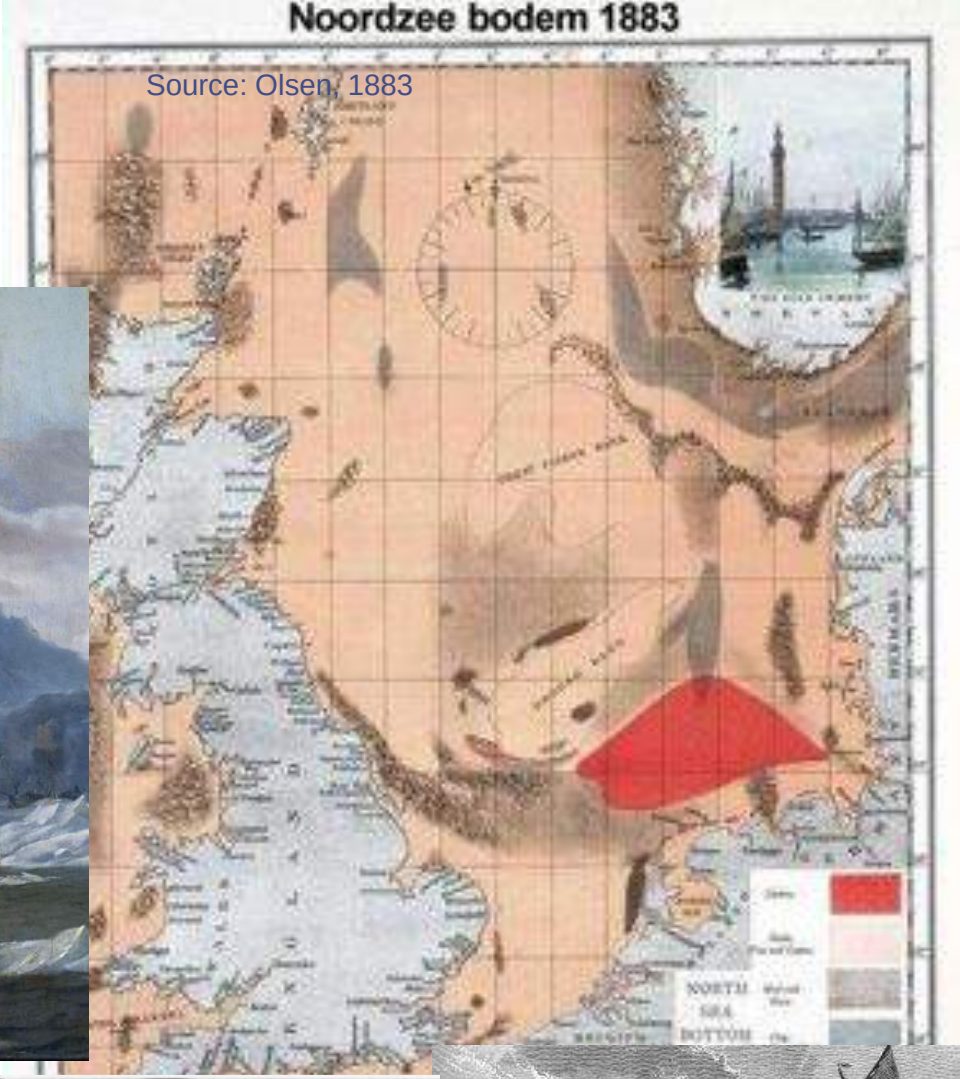
Source: “Het Visboeck”, Adriaen Coenen (16th century)


Vlaggeschip in het IJ, Willem van de Velde II, 1886


Bomschuiten, H.W. Mesdag, 1876


Bluefin tuna, Hamburg ca 1930


Atlantic halibut



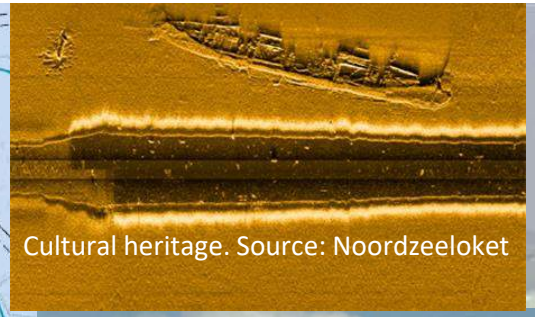
Source: Olsen, 1883

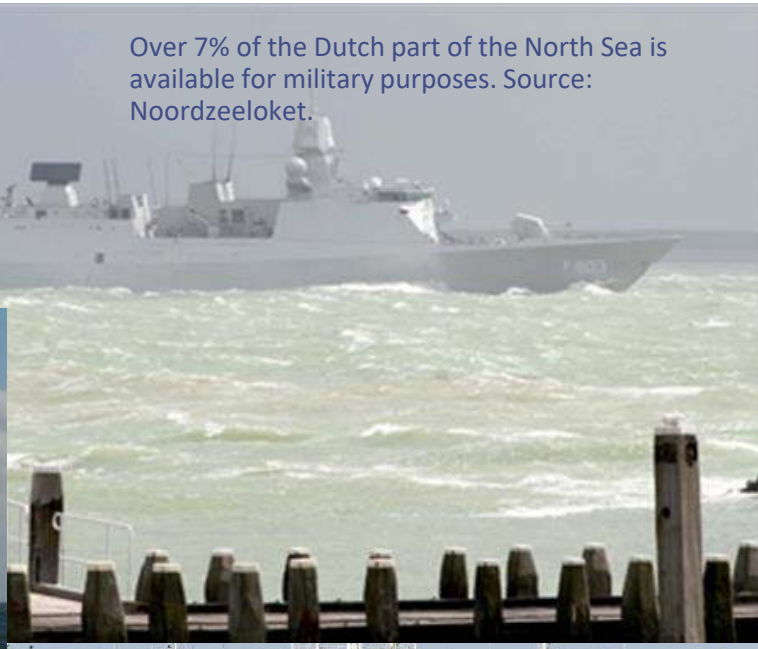

Oyster fishing, North Sea, ca 1850

What are we working with?


Oil and gas extraction. Source: Noordzeeloket.

Cables and pipelines in the Dutch North Sea. Source: Noordzeelok


Cultural heritage. Source: Noordzeeloket


Over 7% of the Dutch part of the North Sea is available for military purposes. Source: Noordzeeloket.


Dredging and depositioning. Source: Noordzeeloket


Sand extraction (and shell mining). Source: Noordzeeloket


Fishing. Source: Noordzeeloket

Recreation and tourism. Source: Noordzeeloket


Shipping. Source: Nu.nl

And nature?

→Degraded ecosystems

→In most cases GES of MSFD is not reached

GES Descriptors		Features	GES achieved
Pressure-based descriptors	D2 Non-indigenous species	Newly-introduced non-indigenous species	GES achieved by 2018
	D5 Eutrophication	Eutrophication	GES expected to be achieved later than 2020, Article 14 exception reported
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	D7 Hydrographical changes	Benthic broad habitats	GES achieved by 2018
		Hydrographical changes	GES achieved by 2018
	D8 Contaminants	Acute pollution events	GES expected to be achieved later than 2020, no Article 14 exception reported
		Contaminants - non UPBT substances	GES expected to be achieved later than 2020, Article 14 exception reported
		Contaminants - non UPBT substances	GES expected to be achieved later than 2020, Article 14 exception reported
		Contaminants - UPBT substances	GES expected to be achieved later than 2020, Article 14 exception reported
		Contaminants - UPBT substances	GES expected to be achieved later than 2020, Article 14 exception reported
		Marine species	GES expected to be achieved later than 2020, Article 14 exception reported
	D9 Contaminants in seafood	Contaminants - in seafood	GES achieved by 2018
	D10 Litter	Litter in the environment	GES expected to be achieved later than 2020, no Article 14 exception reported
	D11 Energy, incl. underwater noise	Impulsive sound in water	Unknown
State-based descriptors	D1 Birds	Benthic-feeding birds	GES expected to be achieved later than 2020, no Article 14 exception reported
		Grazing birds	GES expected to be achieved later than 2020, no Article 14 exception reported
		Pelagic-feeding birds	GES expected to be achieved by 2020
		Pelagic-feeding birds	GES expected to be achieved later than 2020, no Article 14 exception reported
		Surface-feeding birds	GES expected to be achieved later than 2020, no Article 14 exception reported
		Surface-feeding birds	GES expected to be achieved later than 2020, no Article 14 exception reported
		Wading birds	GES expected to be achieved later than 2020, no Article 14 exception reported
	D1 Mammals	Small toothed cetaceans	GES expected to be achieved later than 2020, no Article 14 exception reported
		Seals	GES expected to be achieved later than 2020, no Article 14 exception reported
	D1 Reptiles	Not reported	
	D1 Fish	Demersal shelf fish	GES expected to be achieved later than 2020, no Article 14 exception reported
	D1 Cephalopods	Not reported	
	D3 Commercial fish and shellfish	Commercially exploited fish and shellfish	GES expected to be achieved by 2020
	D1 Pelagic habitats	Pelagic broad habitats	GES expected to be achieved later than 2020, no Article 14 exception reported
	D6 Sea-floor integrity/D1 Benthic habitats	Benthic broad habitats	GES expected to be achieved later than 2020, no Article 14 exception reported
		Other benthic habitats	GES expected to be achieved later than 2020, no Article 14 exception reported
		Other benthic habitats	GES expected to be achieved later than 2020, no Article 14 exception reported
		Physical disturbance to seabed	GES expected to be achieved later than 2020, no Article 14 exception reported
		Physical loss of the seabed	GES expected to be achieved later than 2020, no Article 14 exception reported
	D4 Food webs/D1 Ecosystems	Ecosystems, including food webs	Unknown

As reported in 2018 (MSFD part 1)
Source: https://water.europa.eu/marine/assessment-module/national-summaries/nl/overview#nat-overview-gesextent

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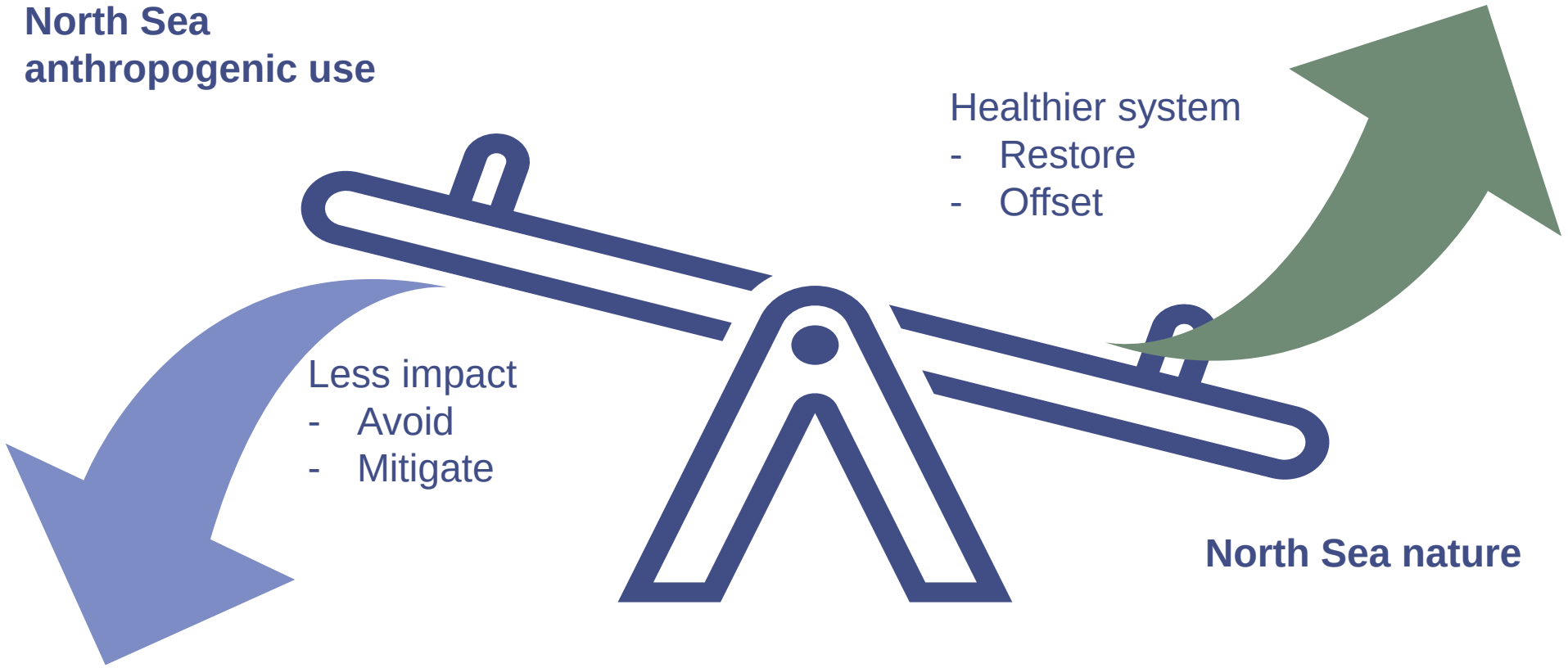
Tip the scale



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So what did we do?

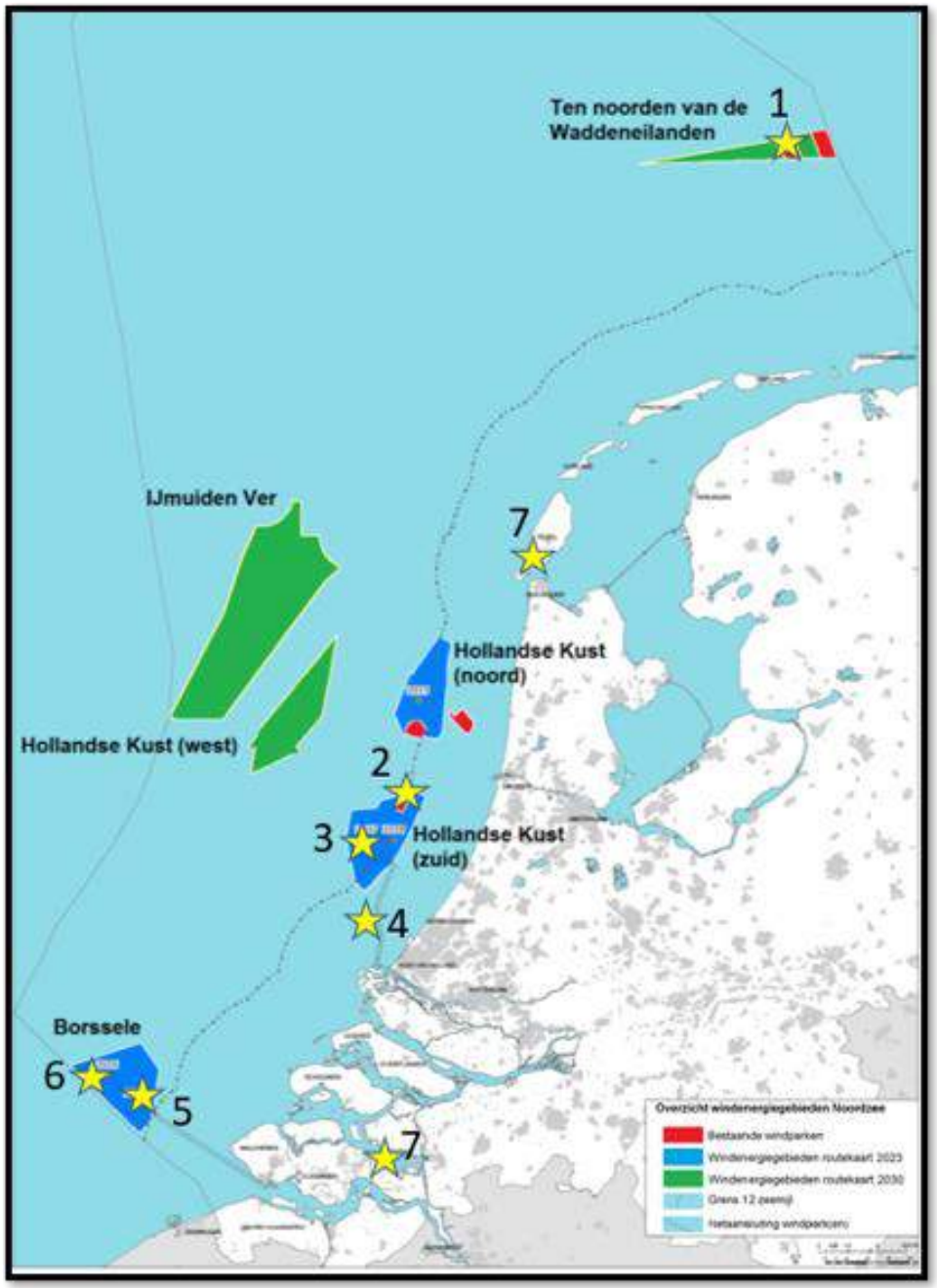
→ Nature enhancement projects in 5 different wind farms

→ Several other projects to increase scientific knowledge

→ Investigate production of parasite-free European flat oysters in hatcheries

→ Lobbying towards nature-inclusive offshore wind development

→ Toolbox (under development)



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So what did we learn?

- → Working in an offshore environment is **Hard**
  - → On paper: work method statements, cooperation agreements, licenses for entering, placing, removing, work permits, safety restriction, certifications, assessments, planning, restricting budgets, etc.
  - → In practice: bad weather, failing equipment, sea-sickness, bad communication, animals not cooperating, etc.
- → Nature enhancement projects take **Time**
  - → Planning, managing, communicating, placing, **monitoring**, analysing, removing
- → Nature enhancement, in this stage, has **High Costs**
- → **Legislation** can work against nature enhancement

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And what do we need?

- → Speed up – as **fast** as offshore wind
- → Budget – who is **responsible**?
- → **Legislation** – easy and obligatory
- → Science – **proof** of concept
- → International knowledge **sharing**
- → **Holistic** vision for North Sea nature

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What else did we learn?

- → Nature enhancement **works**!
  - → Depending on what you want to achieve
- → Both **active** and **passive** enhancement are needed to restore North Sea nature
- → For optimal results projects need to be **large scale**, both in- and outside OWFs
- → **Learning-by-doing** and adaptive management are the way forward

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The way forward

- → The Rich North Sea **Toolbox**
  - → Stay tuned...
- → Influence **politics** and **legislation** – keep up
- → Decide on what we want – **holistic vision**
- → Keep on **learning by doing**
- → **Share** our findings – we can only do it **together**

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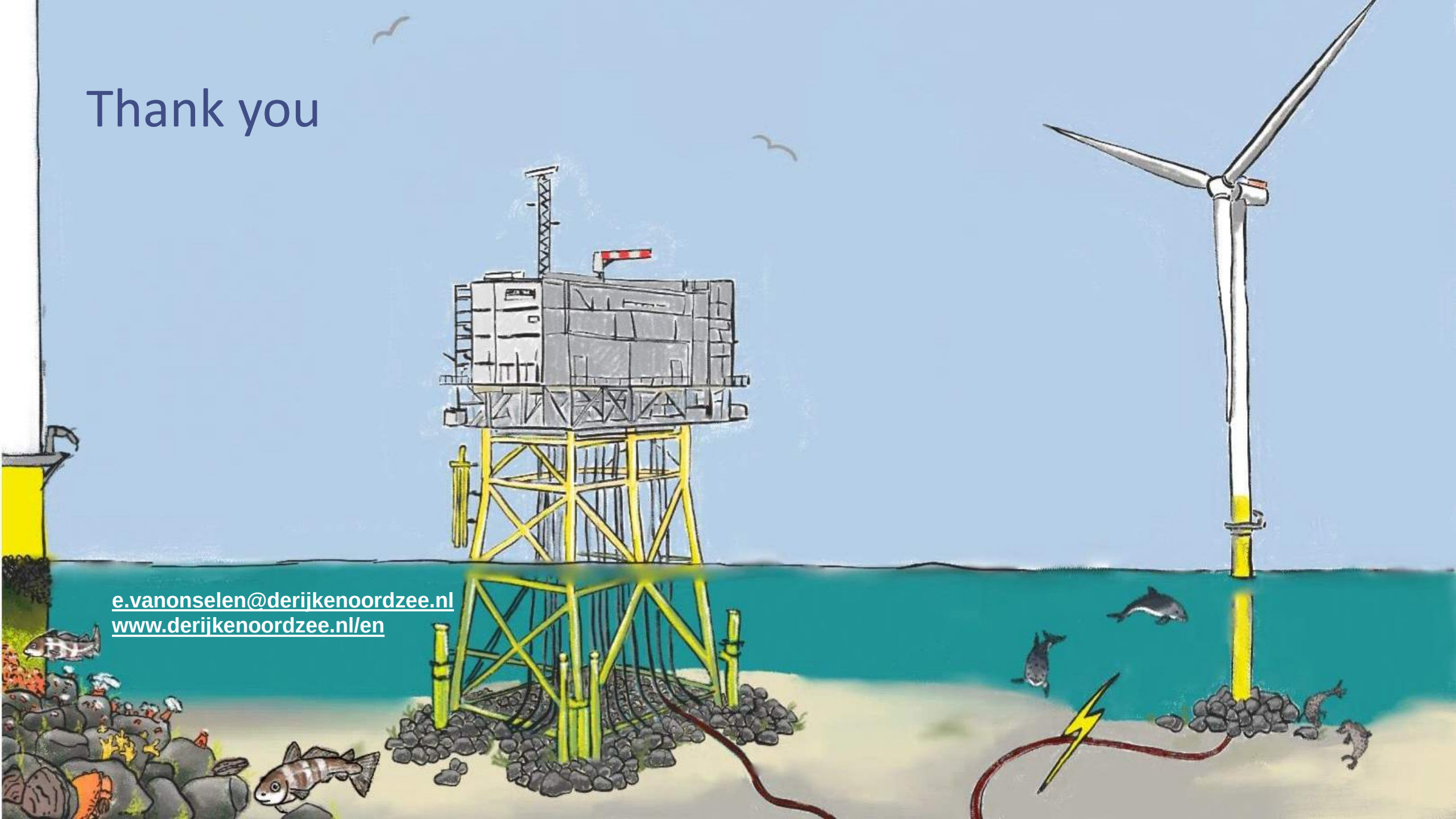
Thank you



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