

Enhancing public values & biodiversity in disconnected estuaries with Nature based Solutions

Lessons learned from project Marker Wadden and IJssel lake region

22 June 2023, Meeting Partners for Water, Jeroen Veraart



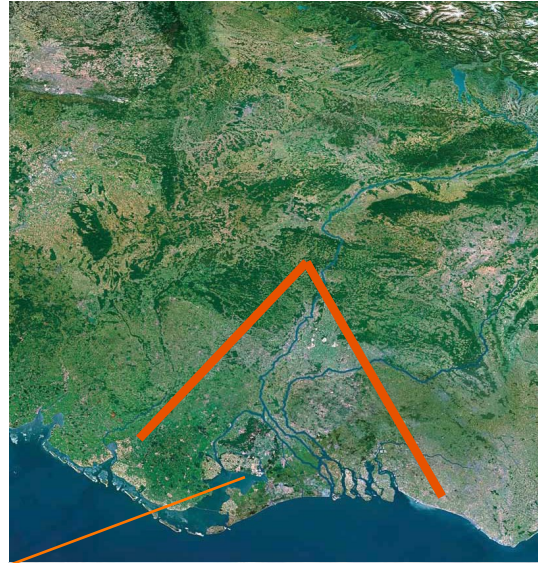
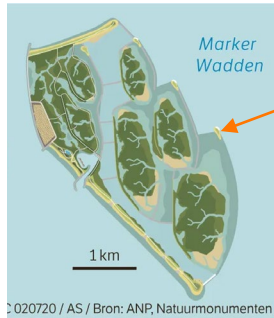
The storyline of the presentation

- Disconnected estuaries
- Project Marker Wadden in a disconnected estuary
- Other NbS in lake IJssel region: inland shorelands, PWN climate buffer
- Long-term developments i.r.t. public value and Biodiversity of NbS
- NbS solutions for 2120 in disconnected estuaries
- International implementation

Estuaries and delta's

- Low-lying areas
- alluvial deposits
- Fertile soils
- Urban Settlements

*A novel ecosystem
in a disconnected
Estuary*



Picture: © Port of Amsterdam

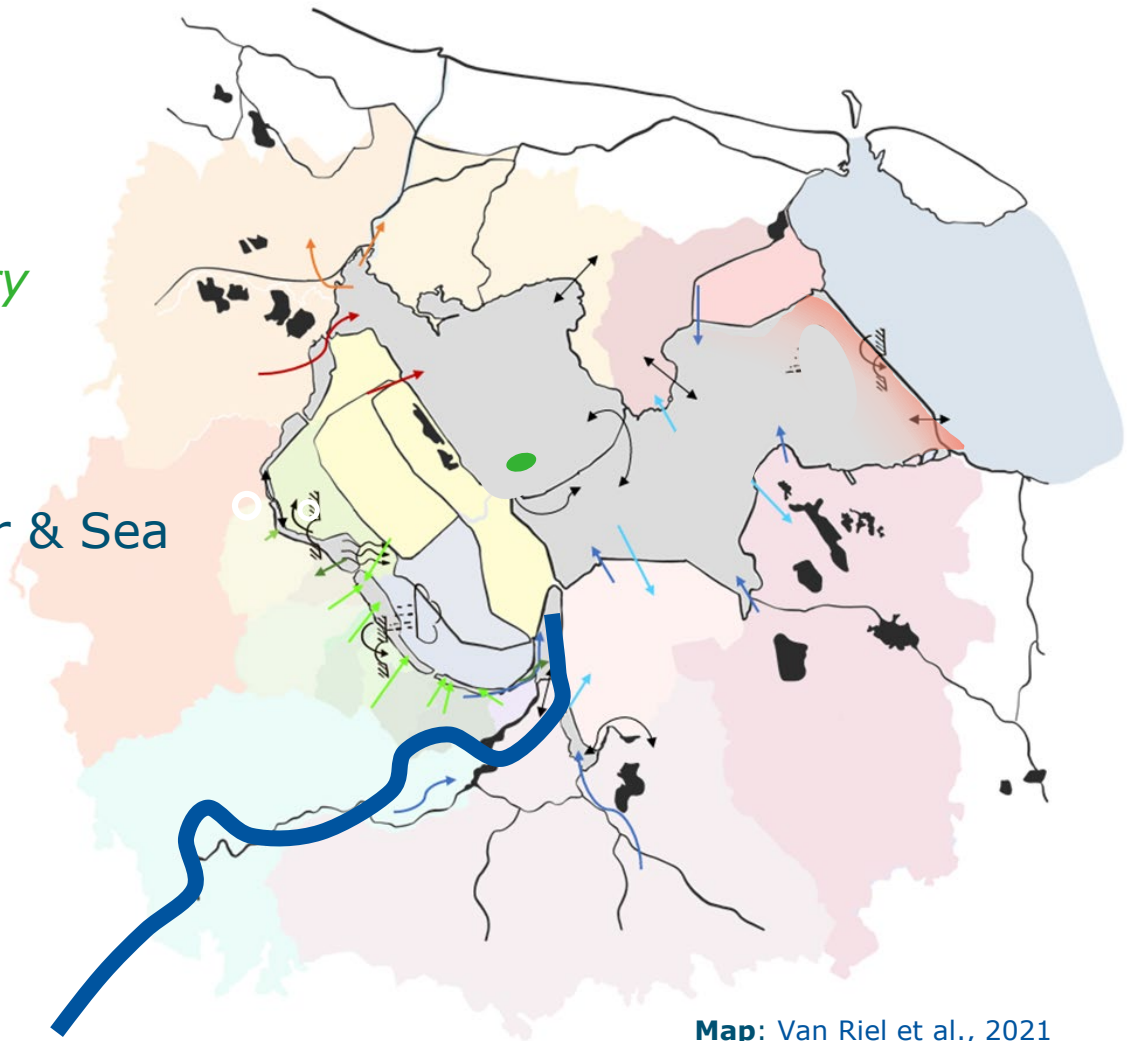


Picture: [Britannica](#)

Marker Wadden

A **novel** ecosystem
in a **disconnected** estuary
because:

- Lake water levels
- Connectivity Land, River & Sea
- Economic development
- Nature?



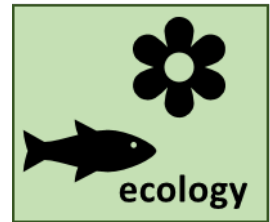
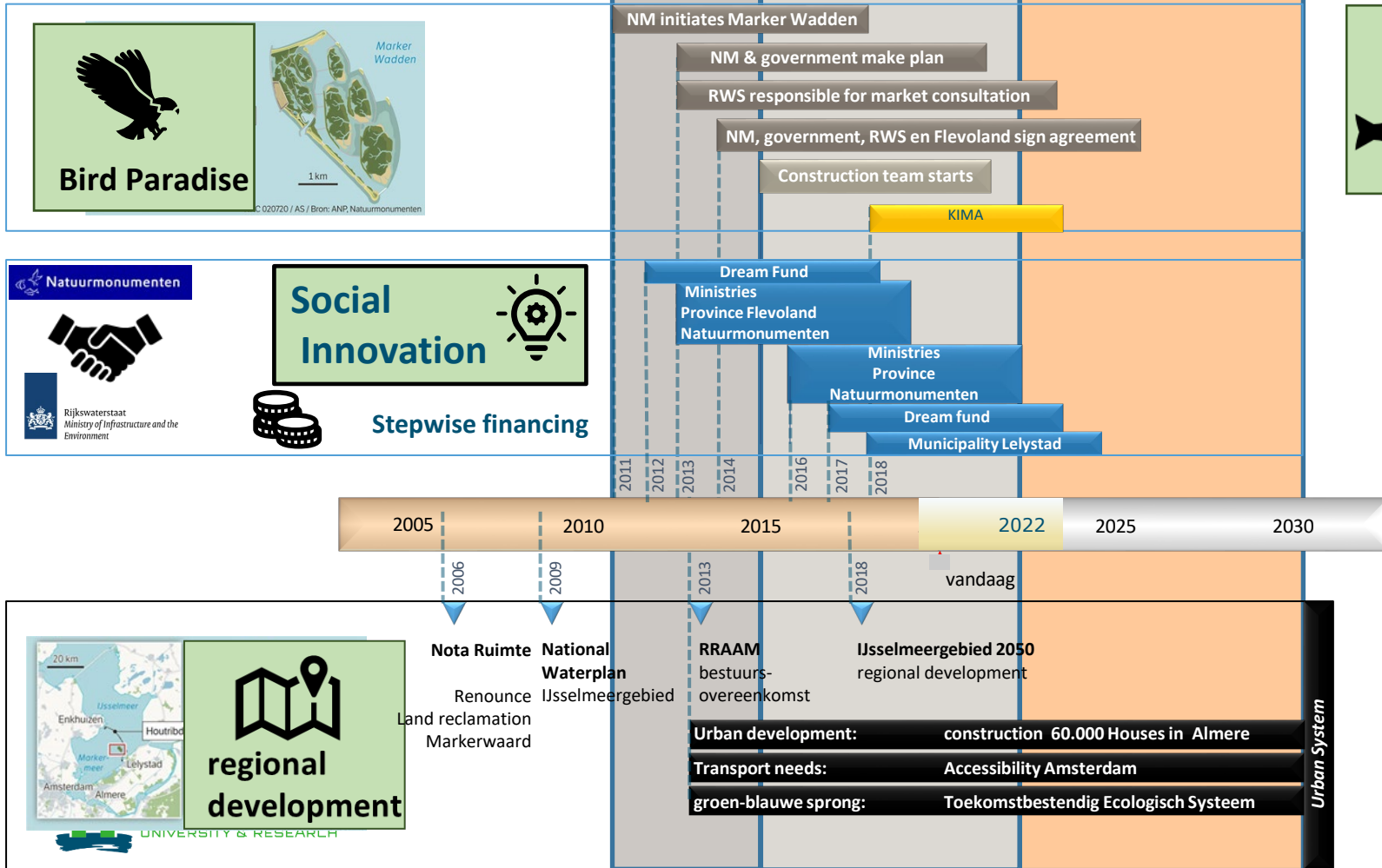
Marker Wadden

Ambitions

- Create a Bird paradise
- Improve Ecosystem Lake Marken
- Realize Knowledge & Innovation
- Regional Development



Time line



INITIATION **CONSTRUCTION** **MAINTENANCE**

2005 2010 2015 2022 2025 2030



Nota Ruimte
Renounce Land reclamation Markerwaard

National Waterplan
IJsselmeergebied

RRAAM
bestuurs-overeenkomst

IJsselmeergebied 2050
regional development

Urban development: construction 60.000 Houses in Almere

Transport needs: Accessibility Amsterdam

groen-blaue sprong: Toekomstbestendig Ecologisch Systeem

Urban System

Added value, a bird paradise: island, lake & estuary

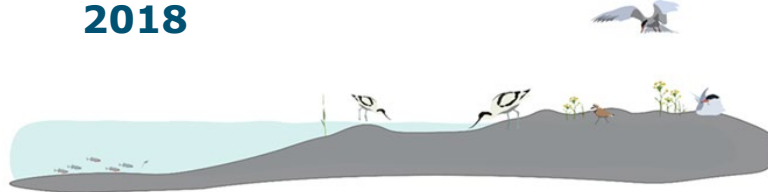


Avocet breeding and feeding in the bird paradise

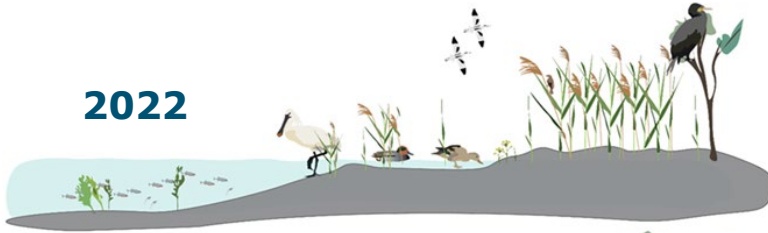
(Pictures: Joep de Leeuw, WMR)



2018



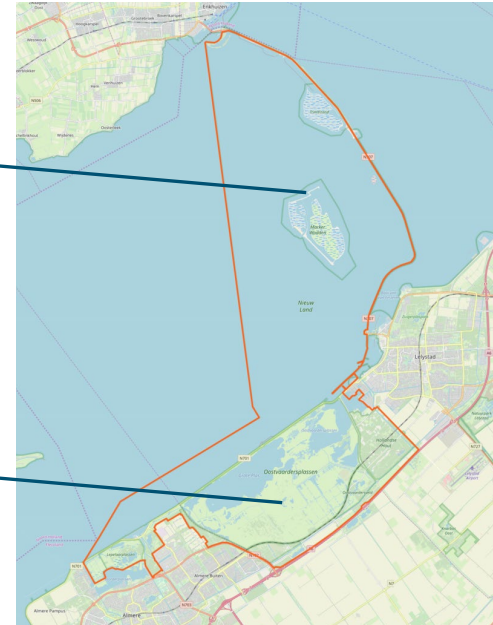
2022



Future?



*Spatial/circular
Management
of Succession*



Biodiversity & value creation – Marker Wadden

- Land reclamation with primary objective to improve nature
- Cooperation between dredgers, water managers & NGO
- New knowledge about building islands with soft sediment/mud
- Nature development in a novel ecosystem
- Research (almost) parallel to construction of the islands
 - Succession in ecosystems requires a follow-up research
 - Project monitoring <-> System monitoring

Most of the coastline along lake Marker and lake IJssel



Habitats for biodiversity in neighbourhood



Reedbeds

→ Open water

→ Inundation grasslands

Picture: Jeroen Veraart, Koopmanspolder

Managing nature based solutions?



Picture: Dion Schut (BOVISIE)



Picture: Jeroen Veraart, Koopmanspolder


Assessing public values of NbS with inhabitants



Burgerraadpleging lake IJssel Coast (June- July 2023)

<https://ijsselmeerkust.raadpleging.net/>

Potential public (economic) values



Climateproof water storage for
drinkwater production

Natural pre-purification

Biodiversity (habitats)

Drivers in (dis)connected estuaries with impact on NbS-values

Climate change

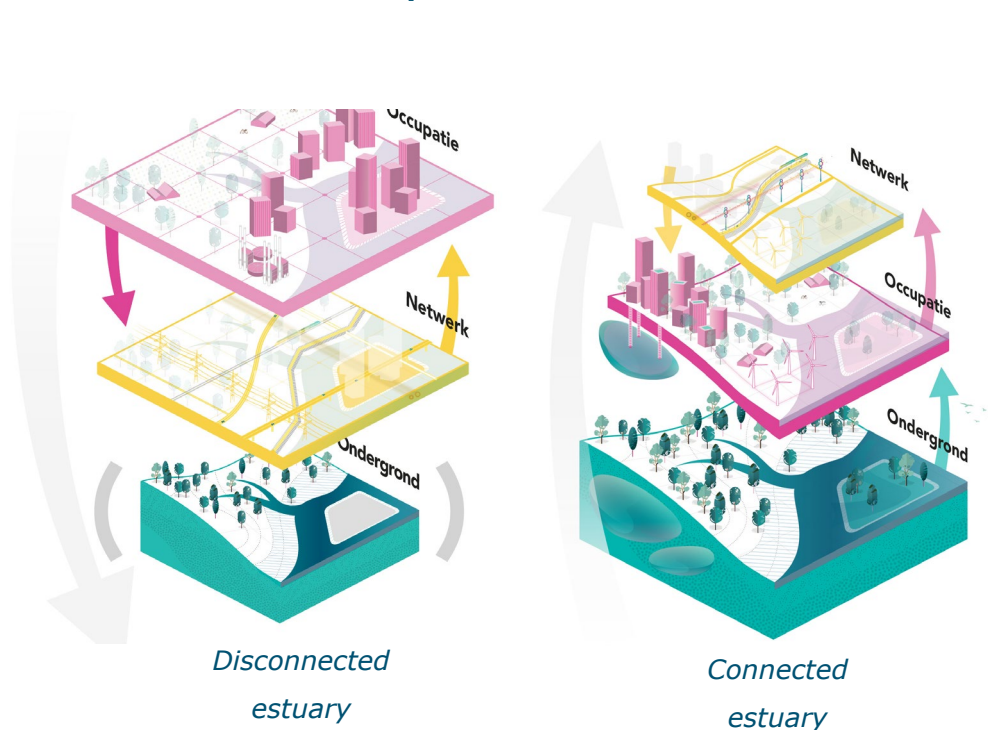
Energy transition & CO2 reduction

Biodiversity (bending the curve)

Population growth, housing

Economic development & networks

Protein transition (NL2120)



Nederland 2120 – design principles



1. Ecosystem function as basis
2. Optimal water use
3. Natuur-inclusive Society
4. Circular economy
5. Adaptive spatial planning



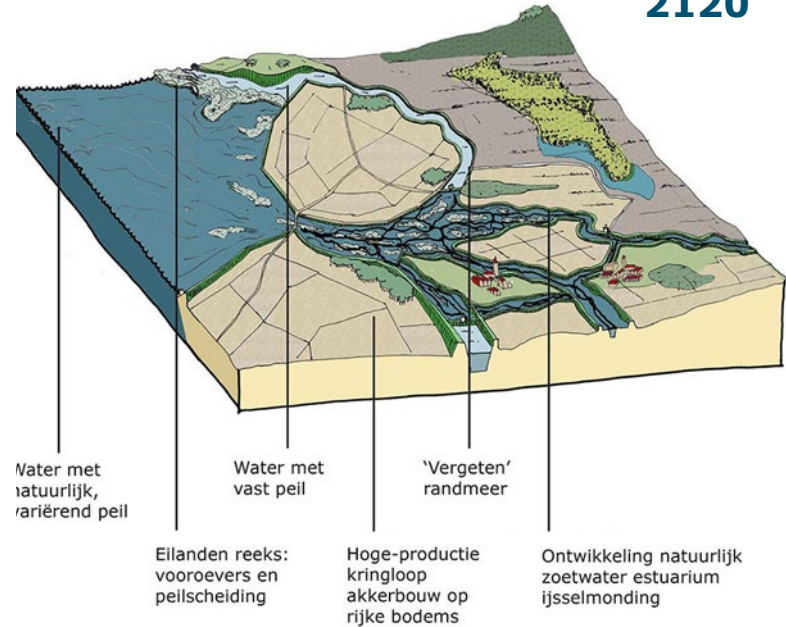
Nederland 2120 – IJssel lake region

2020



2020: Arable farming & cattle (grassland)

2120



2120: Mainly Arable farming?

Food production with nature based solutions?



Precision farming & water management

Design principle 1

*Combining
Natural Dynamics
& Technology*



De natte koolstofboerderij met veehouderij

Design principle 2

Food production
combined with other functions



De recreational farm

Design principle 3

Added value for
biodiversity

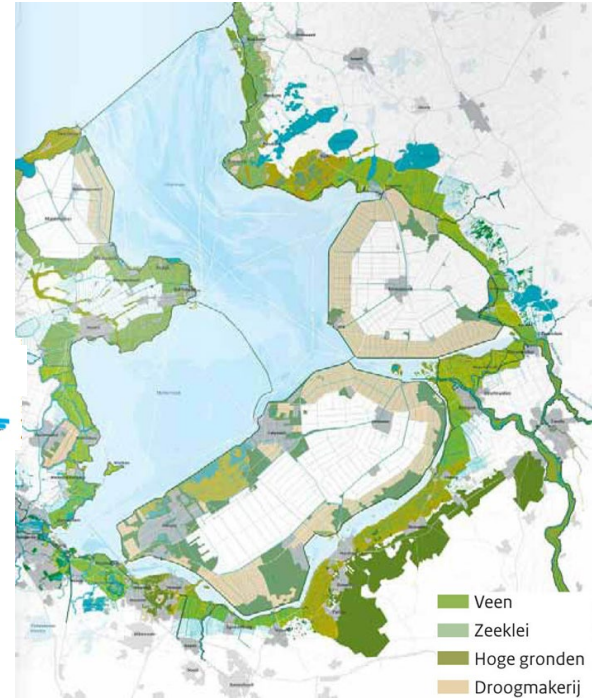


De Energieke visser

Ecologische Productiviteit as design principle?

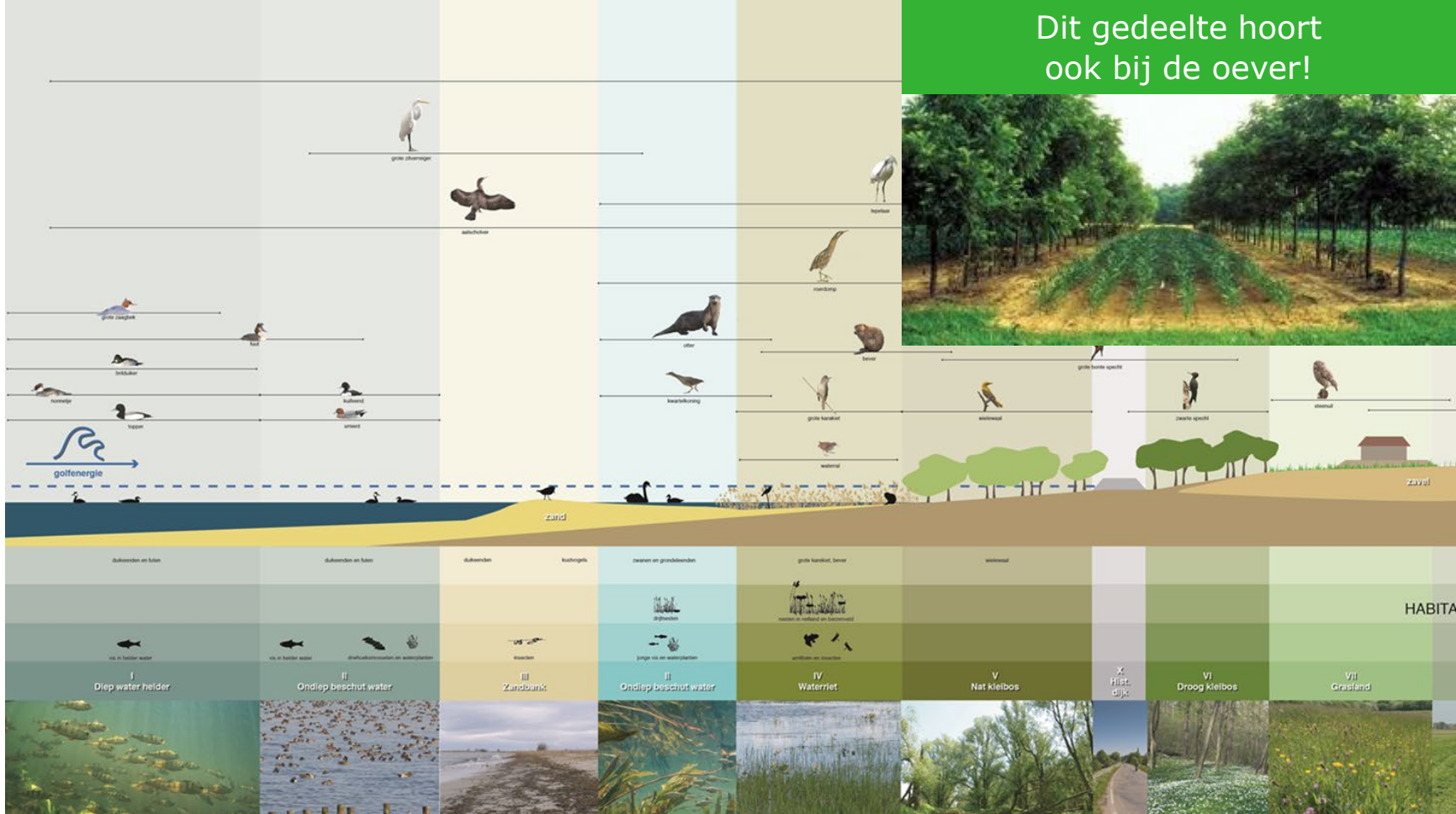
Hoge productiviteit

NET PRIMARY PRODUCTIVITY OF SELECTED ECOSYSTEMS
(g/m²/year - amount of photosynthesis)



Kaartje:
<https://www.agendajisselmeergebied2050.nl/achtergrondinformatie/landschap>

Dit gedeelte hoort ook bij de oever!



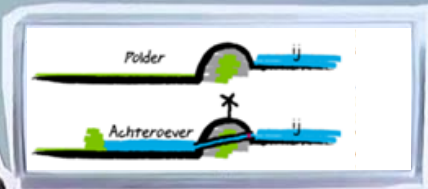
Recommendations for international implementation

Look for locations where:

- a window of opportunity for Coalition building for biodiversity and economic use
- in terms of setting, e.g. closed estuaries or novel ecosystems it might be difficult to find similar locations.
- Look for cooperation in international networks



00:41



Disconnected estuaries in 2120?



Discussion points

- Technology and nature based solutions go hand in hand in disconnected estuaries
- Each Nature based solution should have added value for biodiversity, not only public values
- What are possibilities to upscale NbS elsewhere?

Thank you!

More information

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For further reading:

Irwin, A., 2023. [Rewilding the plant – case Marker Wadden](#) (Nature)

Willems et al, 2021 [The Public Life Cycle of Marker Wadden](#). (public money and management)

IJff et al., 2021, [Innovatieve Governance voor building with Nature](#) (Tijdschrift Landschap, special issue editor J. Veraart)

Stouten et al, 2022. [Evaluating Knowledge Management Project Marker Wadden](#)

LNV/WUR Research [Ecologie Grote Rijkswateren](#)

Keesstra, S., Veraart J.A., et al., 2023. [Nature-Based Solutions as Building Blocks for the Transition towards Sustainable Climate-Resilient Food Systems](#), Sustainability.

Werken met Waterlandschappen www.waterlandschappen.nl

MMIP E3 - Duurzame rivieren, meren en intergetijdengebieden (BO-43-118-003 EN BO-43-118-001)

