



Ministry of Infrastructure
and Water Management



<https://www.ospar.org/convention/the-north-east-atlantic>

Natural capital accounting in the marine environment in The Netherlands and the North East Atlantic

Why are we interested?

What has been done?

Work in progress

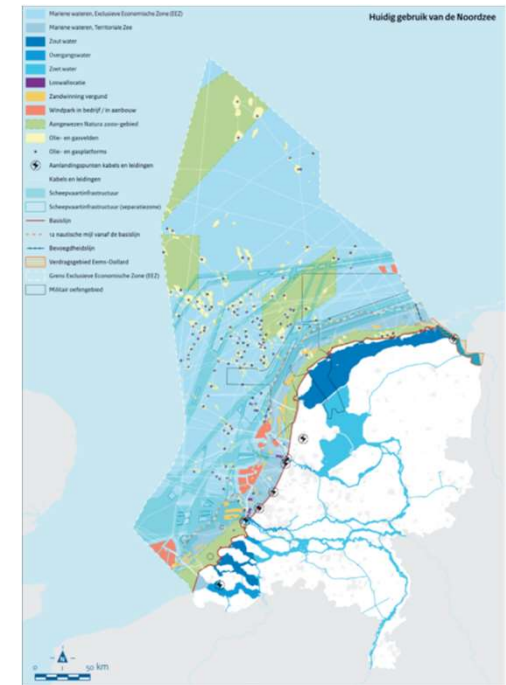
Rob van der Veeren

Netherlands, and cochair of OSPAR ICG ESA



Why is the Netherlands interested in natural capital accounts for the Dutch part of the North Sea?

- > Dutch part of the North Sea is one of the most intensively used parts of the world's oceans
- > European Marine Strategy Framework Directive requires sustainable use of the marine environment. What does that mean? How do you measure that?
- > In the next decades, we plan to build many offshore windfarms. What are the impacts? And how can we best mitigate them?



Current use of the North Sea
[Ontwerp Programma Noordzee](https://www.ontwerp-programma-noordzee.nl/)
[2022-2027 \(platformparticipatie.nl\)](https://platformparticipatie.nl/)



Why is the Netherlands interested in natural capital accounts for the Dutch part of the North Sea?

- > The Dutch 'Monitor Brede Welvaart' is the reporting tool on our performance on the Sustainability Development Goals.
- > The marine natural capital accounts should provide us with data and indicators for SDG 14 'Life below water'



<https://www.un.org/sustainabledevelopment/news/communications-material/>

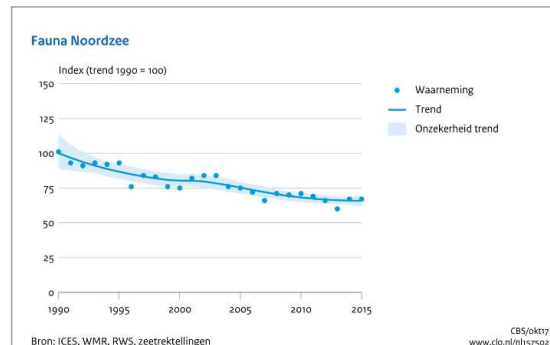


https://www.cbs.nl/-/media/pdf/2022/20/2022II11_mbw_2022.pdf



Why is the Netherlands interested in natural capital accounts for the Dutch part of the North Sea?

- › In addition to 'standard' natural capital accounts, we will also work on biodiversity accounts
- › They will give us an update of the Living Planet Index
- › Overall assessment for marine fauna, with disaggregation to:
 - Fish
 - Benthic habitats
 - Marine birds
 - Harbor porpoise




<https://www.clo.nl/indicatoren/nl1569-living-planet-index>



<http://www.panda.org/lpr>

Pictures: CBS, 2019



 **Natural capital accounts for the North Sea: The physical SEEA EEA accounts Final report**

20-12-2019

Sjoerd Schenau, Hermanus Rietveld en Deirdre Bosch

CBS, 2019
<https://www.cbs.nl/-/media/pdf/2019/51/physical-nca-for-the-dutch-north-sea-2019.pdf>

Work in progress

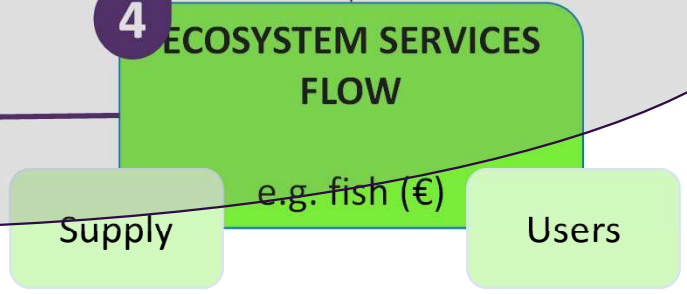
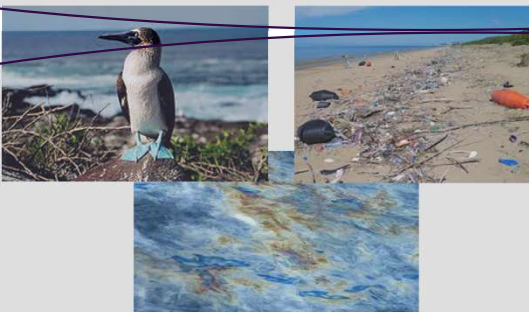
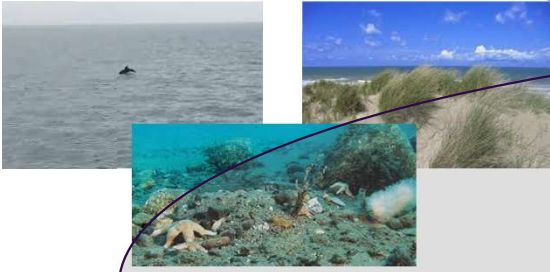
1 ECOSYSTEM EXTENT
e.g. North Sea

2 ECOSYSTEM CONDITION
e.g. fish biomass and abundance

3 ECOSYSTEM SERVICES FLOW
e.g. fish (tonnes)

4 ECOSYSTEM SERVICES FLOW
e.g. fish (€)

5 ECOSYSTEM ASSET ACCOUNT
e.g. stock (€)



Monetary value



Current work
Due in spring

First version



Meanwhile in the North East Atlantic...



What is happening in the North East Atlantic?

- › OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the NE Atlantic
- › OSPAR applies ecosystem approach to the problems addressed
- › Whereas in previous rounds of OSPAR Quality Status Reports monitoring data were presented more or less in silo's, the Quality Status Report 2023 tries to come with an integrated analysis:

DAPSIR framework

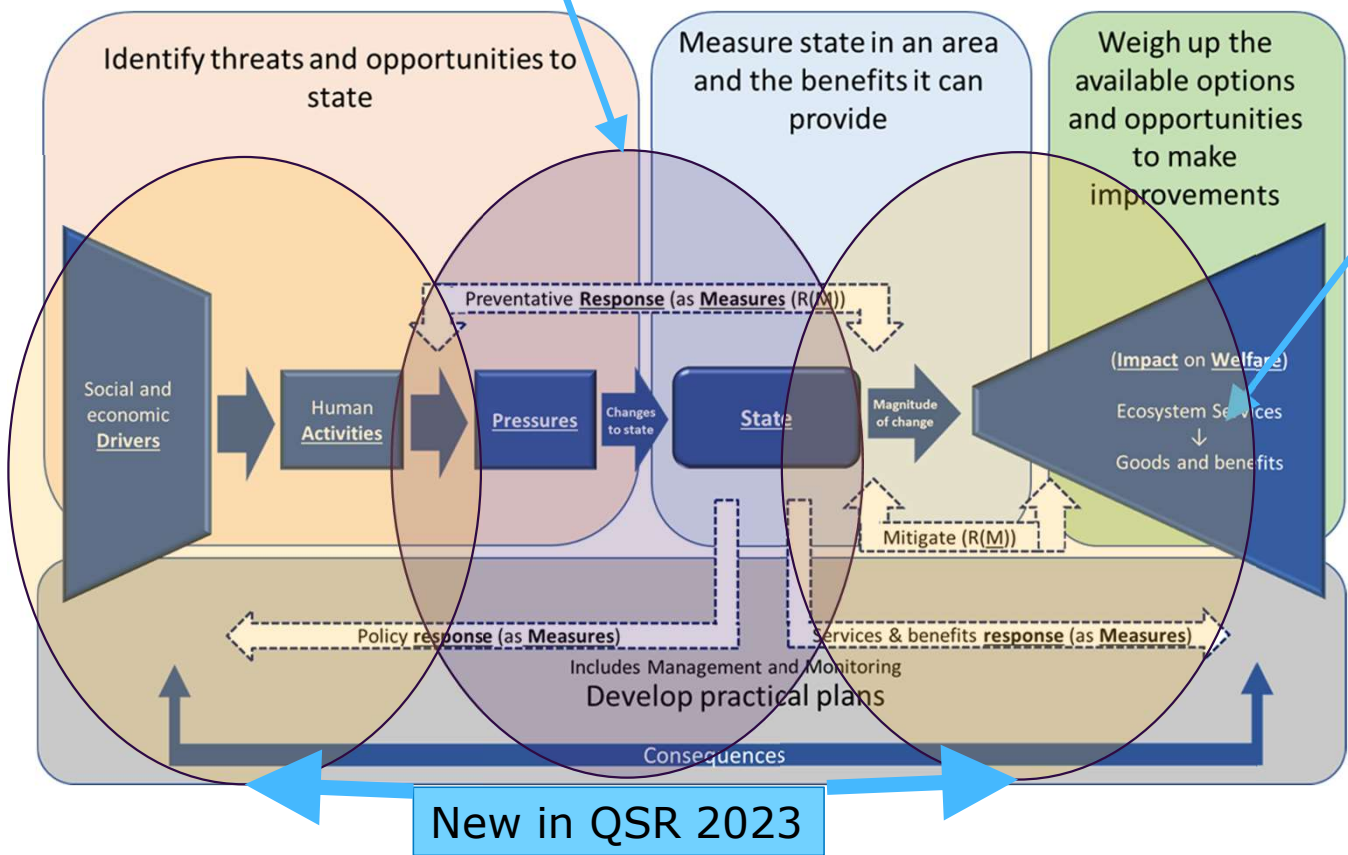




'Standard monitoring work'

DAPSIR framework

17 ecosystem services



Thematic assessments:

- Marine Birds
- Marine Mammals
- Fish
- Food Webs
- Benthic Habitats
- Pelagic Habitats
- Non Indigenous Species
- Marine Litter
- Underwater Noise
- Impact of Human Activities
- Eutrophication
- Hazardous substances
- Offshore Industries
- Radioactive Substances
- Climate Change

Why is OSPAR interested in natural capital accounting?

- On 1 October 2021 The North-East Atlantic Environmental Strategy 2030 was adopted

4 themes
 12 strategic objectives
 + Several operational objectives per strategic objective



Natural capital accounting one of the objectives of OSPAR

Theme: To achieve productive and sustainably used seas

Strategic Objective 7: Ensure that uses of the marine environment are sustainable, through the integrated management of current and emerging human activities, including addressing their cumulative impacts.

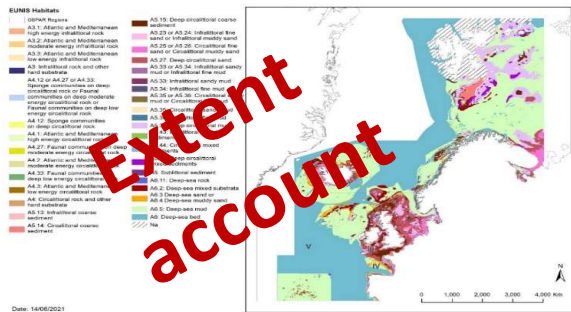
S7.03: By 2025 OSPAR will start accounting for ecosystem services and natural capital by making maximum use of existing frameworks in order to recognise, assess and consistently account for human activities and their consequences in the implementation of ecosystem-based management.

26 September 2022

<https://www.ospar.org/documents?v=46337>

What has been done?

- > In 2021 Maria Granada Alarcon Blazquez produced first version of natural capital accounts for the North East Atlantic



**Extent
account**

Thematic Assessment	Indicator	State change
A. Abiotic ecosystem characteristics		
A.1. Physical state characteristics		
A.2. Chemical state characteristics		
Benthic habitat	Condition of benthic habitat communities: the common conceptual approach (A2)	
B. Biotic ecosystem characteristics		
B.1. Compositional state characteristics		
Marine Birds	Marine bird abundance (B1)	
Pelagic habitats	Plankton biomass and/or abundance (B1)	
B.2. Structural state characteristics		
Food webs	Biomass, species composition and spatial distribution of zooplankton (FW6)	
B.3. Functional state characteristics		
Marine Mammals	Grey seal pup production (M5)	
C. Landscape level characteristics		
C.1. Landscape and seascape characteristics		

**Condition
account**

Ecosystem Services	Unit	Industry										Households	Government	Export		
		Electricity generation	Manufacturing	Construction	Transport and storage	Information communication technology	Other industries	Other industries	Other industries	Other industries	Other industries				Other industries	
PROVISIONING																
Fisheries	mt. Fish landings		8,14													
REGULATION & MAINTENANCE																
Carbon sequestration	Mt CO ₂ captured												40,31			
CULTURAL																
Outdoor recreation	No. of visits															
Abiotic flows																
Generation of electricity from wind power	MW							6,773								
Minerals extraction	mt. t		260													
Oil and gas extraction	mt. TOEQ			295,49												

**Supply and use
accounts
(physical and
monetary)**

**Monetary
asset value of 120.3 EUR billion, where more than 40% value comes from carbon sequestration and outdoor recreation (and these estimates are underestimated)**

OSPAR technical report
Available at:

https://puc.overheid.nl/rijkswaterstaat/doc/PUC_657623_31/



Some first lessons learned

- › Ecosystem extent account:
 - 2d maps are available, but the sea is 3d. Additional challenge!
- › Condition account:
 - Lots of data available. What to choose?
 - Most data not spatially explicit
- › Ecosystem services:
 - First version presented data for a limited number of ecosystem services (6 months student project). Need for a new student to include more ecosystem services...



Work in progress

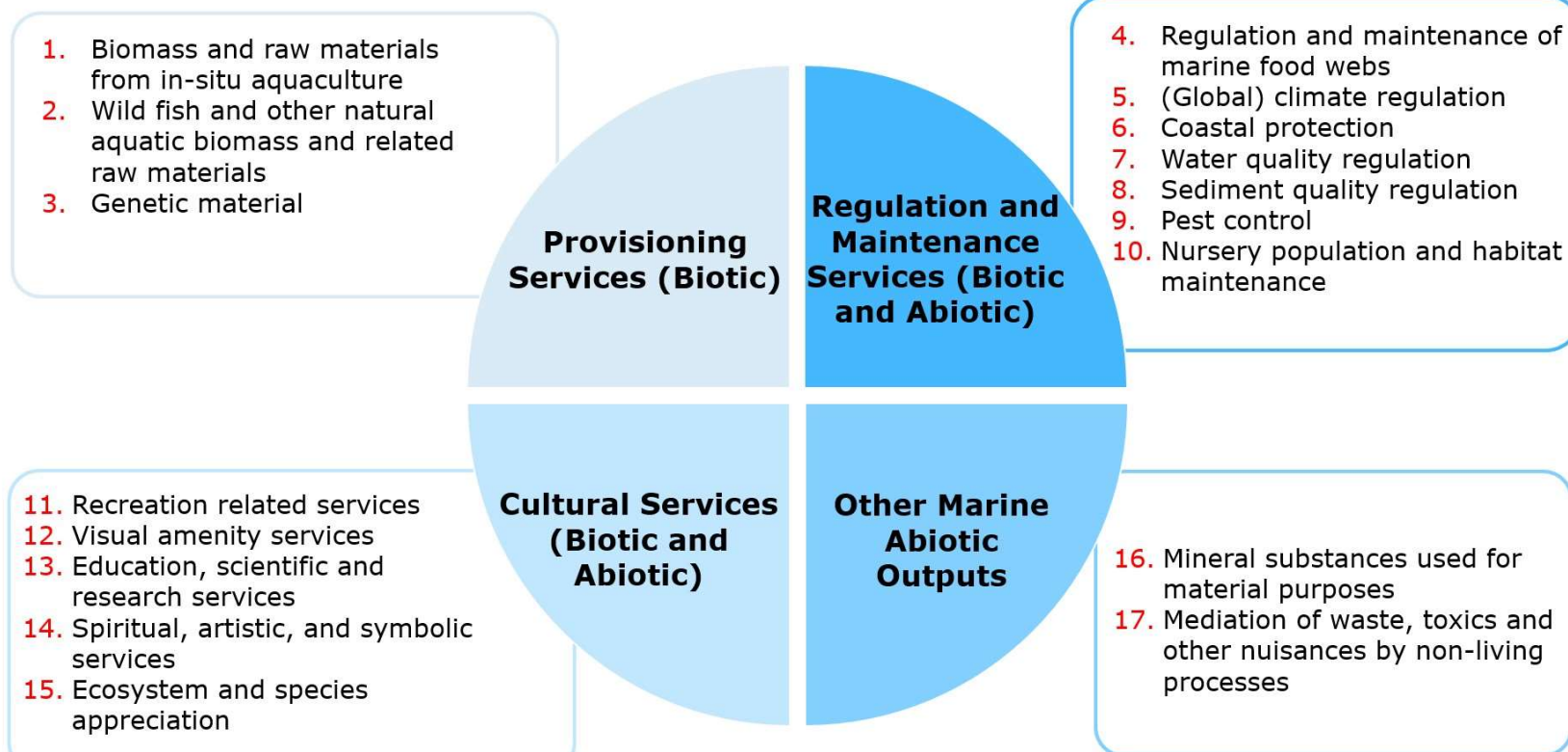
- > In the first version the following ecosystem services were included:

Fisheries, Aquaculture, Carbon Sequestration, Recreation	Generation of electricity from renewables, Oil and gas extraction, Minerals extraction
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- > Work is ongoing to include more ecosystem services
 - Link to the work done for the DAPSIR analyses (17 ecosystem services!)
 - Due in spring

OSPAR joined GOAP
Global Ocean Accounting Partnership
<https://www.oceanaccounts.org/>

17 Ecosystem Services in DAPSIR analyses



Can/should/do we want to include all of them in the natural capital accounts?



Another ongoing project

- › How can natural capital accounts be used to support marine policies (NL and OSPAR)?
- › OSPAR
 - NEAES has 12 strategic objectives (and several operational objectives per strategic objective);
 - Works on a Regional Action Plan for Marine Litter and some other main topics (e.g. underwater noise, habitat protection)
- › The Netherlands
 - Is implementing the European Marine Strategy Framework Directive; thus performing various analyses and implementing various measures
 - With a significant increase in offshore windfarms, maritime spatial planning is becoming more important as is a thorough analysis of the consequences
 - Up until now there is limited knowledge on the benefits of marine protected areas

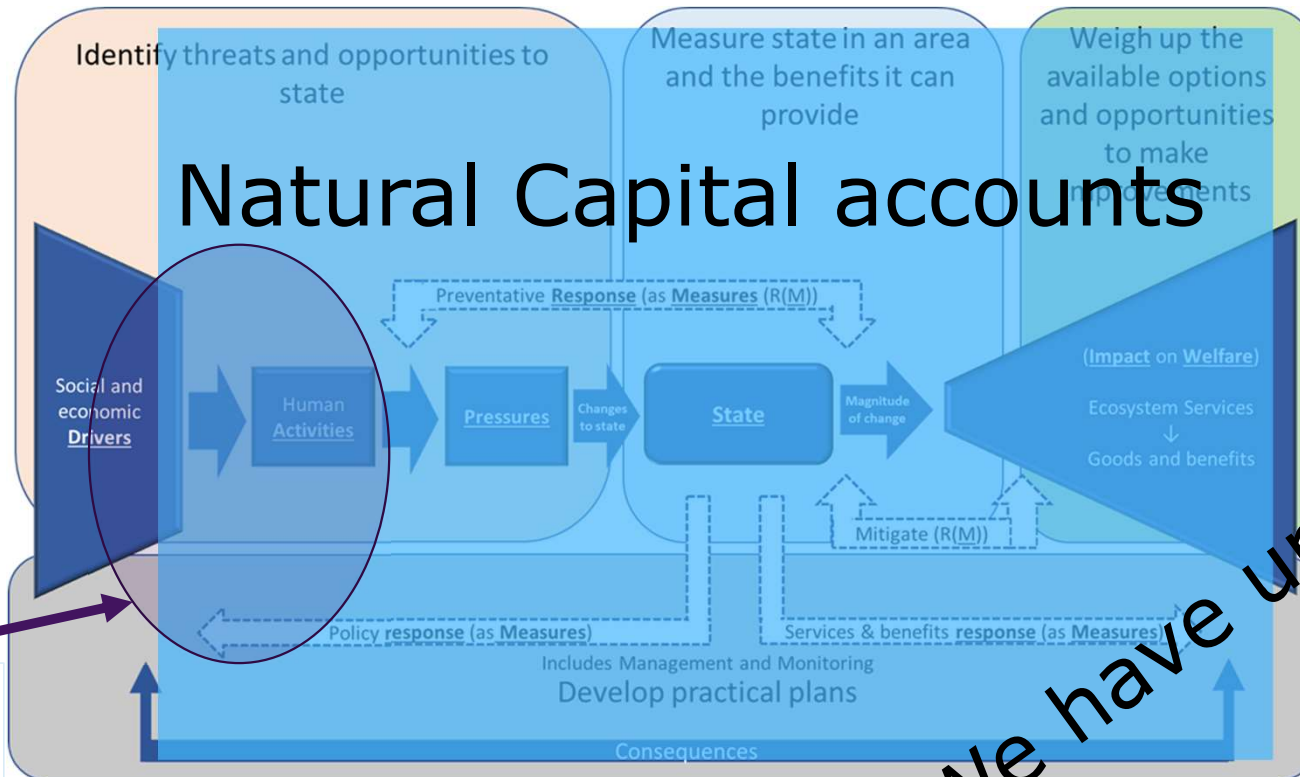
Where and how can Natural capital accounting help?



In December we will organise a (digital) workshop

And (of course) you will be invited

Just a dream....



Need to add pressure accounts

We have until 2025....