Summary of the OSPAR Special Meeting on Marine Natural Capital Accounting: 13th July 2021

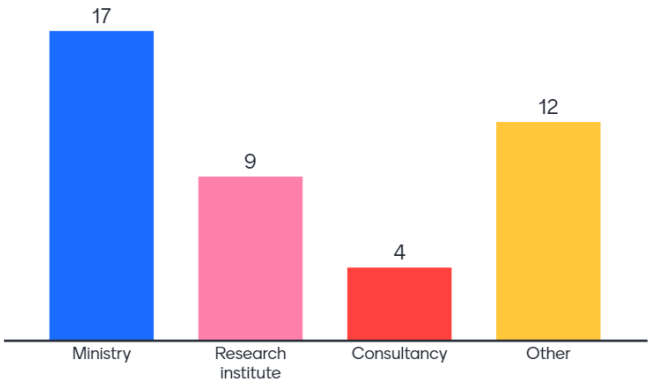
OSPAR held on 13 July 2021 a special meeting on Marine Natural Capital Accounting. More than 60 participants joined the meeting, including economists, statisticians, and environmental scientists and policy makers from across the globe. This document summarizes the most important points discussed during this meeting. The presentations can be found here https://drive.google.com/drive/folders/1OHW5OCIhy_JXyBVwEiPkbuwLVOn09S5R?usp=sharing, and a list of participants can be found in the Annex.

1.) Welcome and adoption of the agenda *(Philip James, Marine Economist, Defra, and OSPAR ICG ESA Co-Convener)*

Philip James welcomed the audience and thanked everyone for taking the time to participate. The agenda for the meeting was explained and the meeting proceeded directly with a poll section as an alternative round of introduction.

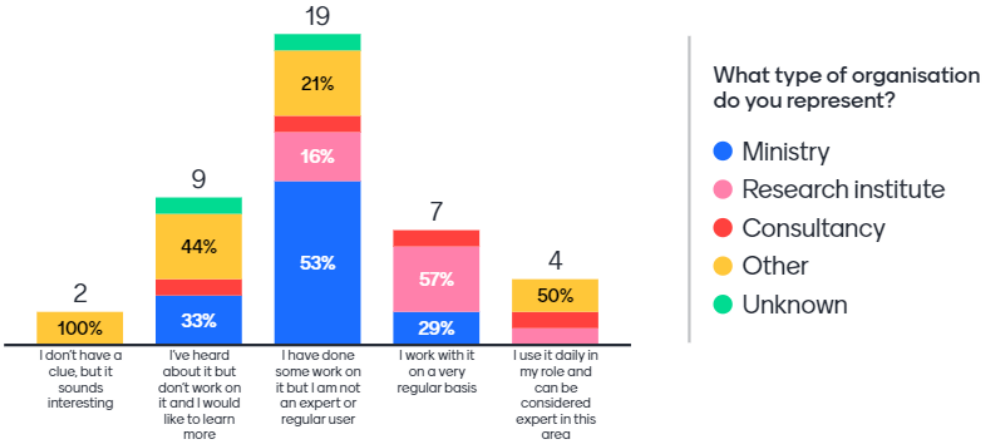
2.) Short poll on the attendees' background and experience in the field of natural capital accounting (NCA)

What type of organisation do you represent?



The audience represented a diverse range of organisations across ministry, research institute and consultancy backgrounds. There were also a number of attendees from other organisations, such as national statistical institutes, the European Commission as well as independent experts.

What do you know about natural capital accounting?



The audience consisted of a wide range of people with varying levels of experience and knowledge about natural capital accounting. The diagram above shows a bell-shaped distribution, with most people having done some work on NCA, alongside a few experts in the area and also some people very new to it.

3.) Introduction to NCA *(Prof. Ken Findlay, CPUT Research Chair: Oceans Economy, Cape Peninsula University of Technology)*

Prof. Findlay opened his presentation with an overview of the role the ocean plays in the provision of goods and services, as a supply of Natural Capital (ecosystem services and abiotic goods and services) and a description of the differences between an Ocean Economy and Blue Economy:

Ocean Economy was defined as:

- Economic activities that take place at, on or under the sea
- Economic activities elsewhere but dependent on sea or linked to sea
- Non-commercial maritime services
- Indirect contribution (aesthetics, property prices for example)

Blue Economy was defined as:

- Resource production or mobilisation. Focuses on the production of opportunities today
- Well-being and distribution of income. Focuses on the distribution of opportunities today
- Future opportunities for use of / sustainability of ocean wealth. Focuses on allocating opportunities between different time periods.

Prof. Findlay also highlighted the difference between ocean accounting and natural capital accounting (NCA), with NCA being the process of calculating the total stocks and flows of natural resources and services in a given ecosystem or region, and ocean accounting being an approach of integrating records of economic activities, social conditions, and environmental characteristics relating to ocean, ocean resource-uses and the marine and maritime domains on a regular basis using both international statistical standards and novel approaches. He also mentioned that accounts for the marine environment are more complex than for terrestrial ecosystems, as a result of ecological processes being more dynamic than on land, and oceans being three-dimensional.

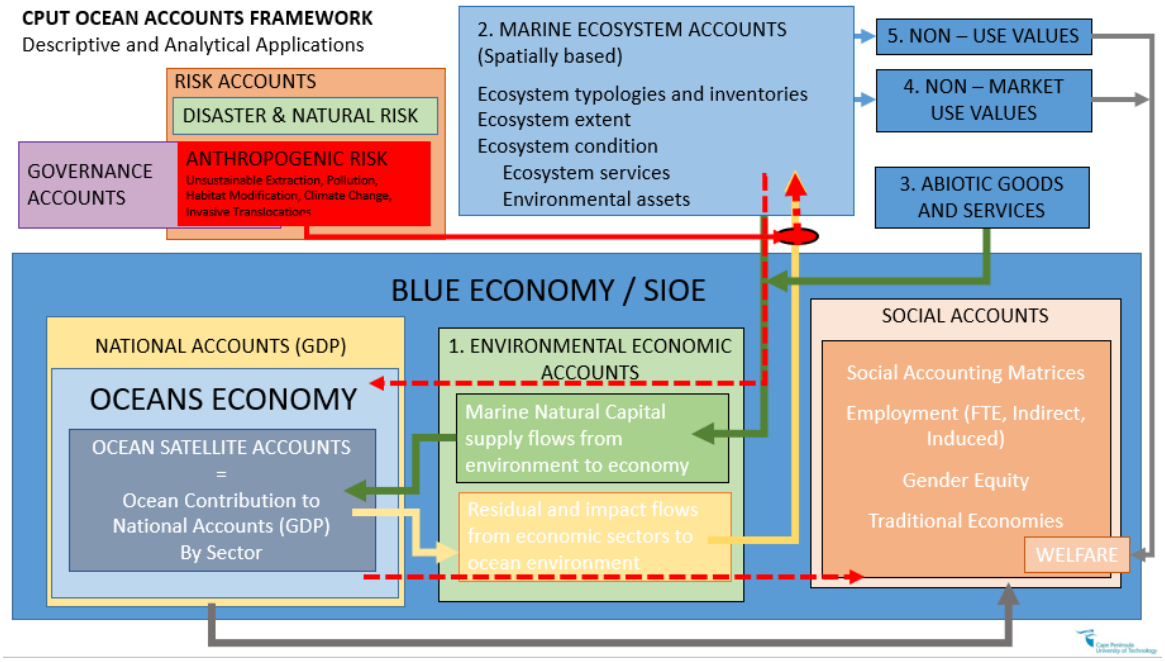


Figure 1: CPUT Ocean Accounts Framework, as discussed by Prof. Findlay

He gave a general background on the concept of the various accounts, by explaining how they measure stocks and flows in a consistent and standardised way. These basic definitions were then explained in the context of Natural Capital Accounting and the ocean as well as through the environmental, social, and economic elements too.

Some examples of existing guidance documents and frameworks were presented, including those by the Global Ocean Accounts Partnership (GOAP), Cape Peninsula University of Technology (CPUT) Ocean Accounts Framework, System of Environmental Economic Accounting (SEEA) and the Ocean Energy Scale-Up Alliance (OESA).

The final part of the presentation showed how Ocean Accounts are used to support decision making. For example, Ocean Accounts are used in making strategic and planning decisions, regulatory decisions, operational and management decisions, and finance and investment decisions.

<u>Questions Raised:</u>

What are the mechanics to measure and estimate the differences between natural impacts and anthropogenic impacts on oceans?

If you look at the SEEA central framework and how it looks at impacts of ocean sectors on the environment, it really talks about measuring the positive contribution of externalities or negative impacts. Those are measurements of things like nutrient or pollutant levels. It doesn't capture the full range of impacts; some are in fact negative. For example, unsustainable extraction, or loss of habitat, ecosystem structure. It isn't as adequately captured in the central framework as it should be. You can't differentiate these in the ocean accounts. You also need to link back to the sectoral impacts. The bottom line is that you can't differentiate between these impacts in the ocean accounts.

In your experience of practical applications of NCA, to what extent have you been able to work with existing datasets and/or what new data have had to be collected?

The framework allows you to identify where you have data, along with allowing you to identify where you need to improve your data sourcing processes. In many cases, many data are available, but across many different departments, for example. An integrated framework gives you leverage to access different datasets that are currently highly siloed and stored in different departments. One of the aspects of ocean accounting is that it requires different expert groups. It is really important to understand there is a common framework. Another barrier is the type of data available. There is often a lot of data that may not fit directly into the accounts.

What are the practical implementations of the mentioned accounts worldwide?

They provide us with indicators that can be used on different spatial scales. From country contributions through to international agreements and the meeting of targets (for example, SDG's), and also how we make decisions in the marine planning processes.

4.) Experiences across Europe:

France *(Adrien Comte, Postdoctoral researcher, AgroParisTech):*

Most of what France is doing with respect to natural capital accounting falls under the Mapping and Assessment for Integrated Ecosystem Accounting (MAIA) project. France does not have official ecosystem accounts to date, but there is a history of environmental accounting. There are reports on new indicators of wealth, specifically 'Stiglitz, Sen, Fitoussi (2009)' and the SDES department is also responsible for looking at the economy of the environment accounts.

France has scientific reports on biophysical aspects and economic aspects of the cost of degradation of the marine environment. They also have reports on mapping of ecosystem and ecosystem services (EFESE) as well as research reports on non-market ecosystem services and restoration.

They have produced and attached a conceptual framework of ecosystem accounts within the SEEA framework.

At the moment, the French biodiversity office is mapping different habitats within the French economic zones. They are also working on producing indicators for marine ecosystem condition. So far, there are three different dimensions of ecosystem conditions that have been identified: heritage, capacity, and functionality.

Finally, they are also working on setting reference levels of good ecological status for the conceptual framework and are looking at different aspects of monitoring costs.

Netherlands *(Dr. Patrick Bogaart, Statistical Researcher, Statistics Netherlands):*

The Netherlands have been working on developing marine ecosystem accounts using the SEEA framework by means of a pilot study for the Dutch North Sea[1]. This pilot study is currently being extended.

Several improvements and additions will be made in the next two years:

- More attention will be paid to biotic aspects in the ecosystem type map;

[1] https://www.noordzeeloket.nl/beleid/europese/achtergrond/economische-analyses/sociaal-economische-analyses-2019/physical-natural-capital-accounts-for-the-dutch/

- Expanding the condition framework to include environmental pressure indicators;
- Expanding the number of ecosystem services;
- Monetary valuation of ecosystem services;
- Drawing up a biodiversity account;
- Greater focus on spatial patterns and interrelationships;
- More attention to trends and time series.

Specific attention will also be given to issues such as:

- How to deal with the interaction between economic use and biodiversity.
- How can we operationalise the concept of sustainable use?

Netherlands *(Wouter van Broekhoven, Marine Ecologist, Witteveen+Bos)*:

Mr van Broekhoven gave a presentation that was not directly related to natural capital accounting, but instead looked at Cost-Benefit Analysis (CBA) for nature inclusive offshore windfarms. Given the expected increase in offshore windfarms in the OSPAR area in the next few decades, this is a potentially very relevant topic.

The first point raised was that ecology and nature-based solutions are becoming increasingly relevant in this area and there is a wish to quantify the ecological gains. The outcomes of this could be used to inform decision making as well as decommissioning from a natural capital perspective.

Their KOBINE[2] project was discussed, which builds on an existing project looking at nature inclusive design. The aim of KOBINE is to quantify the nature benefits (biodiversity) of different nature-inclusive designs in nature restoration projects in offshore wind farms (or test areas outside), in relation to their construction and maintenance costs. It is quantifying biodiversity gains, through innovative monitoring and then applying a CBA. Nature inclusive design focusses on scour protection, cable protection and add-on options (fish cages for example).

They have attempted to quantify ecological benefits, breaking down total value into economic, financial, and intrinsic value. The next step that they are currently working on is trying to apply findings from this project from wind farms into the marine environment.

United Kingdom *(Emily Gardner, Marine NCEA Programme Manager, DEFRA):*

Emily Gardner presented the work being undertaken by the UK's Marine Natural Capital Ecosystem Assessment (mNCEA) programme, which aims to incorporate all of nature's values into decision making. The first year of the programme was used to design a proof of concept, whilst in future years the programme plans to focus on filling the gaps that have been identified using innovative evidence and data collection, and then applying their findings to policy and decision making.

At this point in time, the focus is moving onto the foundational projects which aim to fill gaps that have been identified. The findings from this work will subsequently be applied to decision making processes.

[2] https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksprojecten-LNV/Expertisegebieden/kennisonline/Kosten-en-Biodiversiteit-Natuurinclsieve-Energie-KOBINE.htm

In the future, the programme is hoping to be more ambitious, and support in delivering the UK government's wider objectives. There is a need to demonstrate that natural capital is vital to show that decisions can be made with proper consideration to other important aspects within the marine environment, and that trade-offs are properly considered.

Norway *(Wenting Chen, Research Scientist PhD, Norwegian Institute for Water Research):*

The presentation opened with some insight into a national research collaborating project that is recently funded by the Norwegian Research Council on Marine Ecosystem Accounting for Integrated Coastal Planning in the Oslofjord (MAREA). In contrast to the other presentations, this presentation was focussed on NCA at a very local level. The main purpose of the project is to use an ecosystem accounting approach to catalyse the 'turning of the tide' of the historic deterioration of the Oslofjord and restoring the flow of ecosystem services to society and the economy.

The project will 1) demonstrate how biophysical indicators and monetary values of ES can be used for differentiated and targeted decision-support for different coastal-marine planning layers, 2) demonstrate trade-offs between coastal ecosystem services, including behavioural change in recreational fisheries.,3) test how ecosystem service trade-offs can be quantified and communicated for the main planning concerns in the Oslofjord – water pollution, benthic habitat loss and fish stock decline, recreation access limitation and shoreline property densification.

Three examples were given in the presentation on how NCA can be applied to regional planning in the Oslofjord. The first example focused on how NCA can support local municipalities and counties in regional planning on the issues such as whether the municipalities should give exemption licences for new estates within the coastal zone. It was explained that it intends to support local regional planning by highlighting the recreational values and providing information to support decision making in the region. The second example discussed was related to agricultural and coastal restoration, where it was examined whether NCA is capable of supporting impact assessments for various measures to achieve good environmental status too. Finally, the third area that was explored and discussed was around conservation and marine resource usage.

Spain *(David Álvarez García, Chief Executive Officer, ECOACSA):*

David Garcia presented a summary on what Spain is doing and what have done on NCA, with a special focus on a project in the Mediterranean area, led by the Marilles Foundation in the Balearic Islands. The overall goal of the work is to improve the natural areas in the region, with the implementation of marina protected areas (MPAs) being a key focus. In this project, by aligning with the SEEA framework, they have tried to capture the value of the different accounts. These were then used to make a CBA on the different costs of maintaining areas within the region. They have simplified the methodology and also produced a report with the baseline for 2018. Once they have the framework finalised, it could be applied to the different marine protected areas with the option to use the developed methodology.

The main report was recently finished and is currently being translated from Spanish into various other languages and is expected to be made available the week after this meeting.

Questions Raised:

Gerjan Piet raised the question: Ken Findlay showed in the first presentation one of the key characteristics of accounting is that it works with assets and input and output flows. However so far, I have mostly seen indicator-based assessments showing trends but without the option to identify the flows in any meaningful way. In fact, the very nature of those (often MSFD-based) indicators is not suited to be translated into accounts. How to address this?

It was agreed that we should look at more than MSFD indicators only, but we start with the information we have available as a first step and will add other indicators as a potential next step.

5.) **The global perspective to adopting ocean accounts towards the SEEA framework** *(Dr Ben Milligan, Secretariat Director, Global Ocean Accounts Partnership*)

Dr Milligan started by explaining the difference between ocean accounts and ocean natural capital accounts. The latter is a subset of the former; ocean accounts include economic accounts, natural capital accounts and social accounts. As a result, ocean accounts have the potential to provide aggregate and other policy-relevant indicators that can transform management towards (more) sustainable development. He emphasised how multiple indicators of progress should be used in line with SDG 14, 15.9 and 17.19 (and other international commitments). The key mindset shift is to start treating the environment and the ecology as an asset, as opposed to an externality.

He also explained how fragmentation of data was a key issue with a lack of standardisation, and that ocean accounting is about bringing different domains of data together, organised into a common framework. Ocean accounts also provide a measure that goes beyond Gross Domestic Product (GDP). A remark was made that we need to understand the ocean economy GDP as well as ecology, and that we should not try to present all in one indicator.

Policy demand has a strategic dimension and was discussed using the ideas of ocean economy development planning, spatial protection, planning and permitting, and finance and investment. Some commitments that are relevant were also explored, including Sustainable Development Goals (SDGs), the UN statistical system and a whole range of national-level commitments.

Finally, Dr Milligan spoke about the Global Ocean Accounting Partnership and some of the main things that GOAP are doing, such as measuring and managing progress towards sustainable ocean development (www.oceanaccounts.org). He also gave an insight into the types of groups that are members of GOAP (governments, research institutes, or organisations). Membership of GOAP is free of charge. What you get is entrance to an active and open network of likeminded people interested in and working on ocean accounting, who share experiences and help each other with the various challenges the members face.

6.) **Finland** *(Kaius Oljemark, Researcher, SYKE)*

In his presentation, Mr Oljemark spoke about a number of projects that are related to marine accounting that SYKE has been involved in, including the ESTAT project, the MAIA project, the MERIAVAIN project, and the MAREA project. These projects follow the SEEA ecosystem accounting framework, as the international standard adopted by the UN.

The MERIAVAIN project was examined in the greatest depth during this session. This project looked at valuing various ecosystem services based on existing data and identifying the data gaps and incompatibilities. Different valuation methods were discussed for various ecosystem services.

Recreational services valuation was also explored in further detail, along with estimates that were gathered from the pilot study. One of the key findings was that they are still lacking the knowledge of how the different habitats and ecosystems are affecting the recreational benefits that people are experiencing.

In order to value the benefits that ecosystems provide, more quantitative information is required on their extent and participation in the production of ecosystem services, and on how the production of the service depends on the condition of the ecosystem and its other characteristics.

7.) **Canada** *(Jessica Andrews, Senior Research Analyst, Statistics Canada):*

During this presentation, the Ocean Account Pilot was discussed (a partnership with Fisheries and Oceans Canada) with a breakdown of their different responsibilities and involvement so far.

The main challenges at the moment are funding and data being very siloed and difficult to gather. An important question they had to solve was 'how to deal with sea ice as part of the accounts; should it be part of the ecosystem account, or part of the condition account?' In this case, it was decided to have it in the 'condition' account, as opposed to the extent account as the SEEA EA framework suggests.

The first step they took was to build a hexagon grid which covered the Canadian EEZ. All datasets were attached to the grid to use it in a comparative way and have it very detailed. In terms of ecosystem accounts, they started by looking at depth classes and making an opening extent.

In this particular example, they managed to gather data on seagrass, coral, and sponge, to name a few. Generally speaking, it was found that there was good data on the west coast, some data from the Atlantic side, and very weak data in the Arctic. There was lots of room for expansion on this account, with several groups looking at putting together the seagrass data in Canada further.

Regarding the future of ocean accounts there were two key publications mentioned in this presentation. These are the 'Marine economy paper in Envirostats' (19th July) and the 'Human activity and the environment' series at the end of September. There was an announcement of the new Census of Environment being funded by the government recently, where data will be made available to the public in a useful and usable way.

Finally, the presentation concluded with an explanation that the end goal is to include these accounts into national accounts, environmental, and economic accounts too.

<u>Questions Raised:</u>

One thing that does strike me, is that we tend to have data for productive assets, but those where externalities are not managed well (benthic species) still remain somewhat invisible. There might be a concern if policy makers do not realise this.

It is a concern. When you look at the stock assessments done in Canada, they tend to assess fished stocks or sometimes the important feeder stocks for the species that you want to catch. We hope to collaborate with marine spatial planning groups which should provide a fuller structure of the biodiversity in specific places. This is a huge issue but doing these kind of surveys is really expensive

to cover all of the Canadian EEZ. It is something that we need to make clear and, in the accounts, marking what we don't know is as important as what we do know when passing data onto decision makers. Passing this as complete account, without signalling gaps, would be very misleading.

8.) **Presentation on the first results of NCA at OSPAR level** *(Maria Alarcon Blazquez, Intern, Rijkswaterstaat):*

This presentation started with a more detailed overview of the SEEA-EA framework and exploration of the various accounts in further detail. The extent account, condition account, physical supply and use accounts, monetary supply and use accounts, and the monetary asset account were all explained along with any assumptions and numerous examples.

Various indicators were explained and examined in detail, along with consideration of the limitations of some of these, and challenges that were identified. Maria's report is expected to be finalised and made available over the next month or two.

Questions Raised:

In the monetary value, the fisheries value far outweighs the recreation value. This seems surprising when compared to the mainland. Are there any ideas why it is the opposite to what Patrick Bogaart observed?

The main issue is that for fisheries, there was a lot of data available. For recreation, not all OSPAR countries were included, and the numbers presented refer only to recreational daytrips in a very small strip along the coastline. So, the numbers presented are a serious underestimation of the recreational value, but it is the best we have at this moment. Maria also pointed out that it is less crucial to assign a monetary value to nature and the oceans, but that it is more important to be able to look at trends. Numbers are an effective way to scale and give the magnitude needed, as well as give importance and highlight parts that may not currently be fully considered.

9.) **Recap and summary from breakout rooms session**

During the breakout rooms session, three key questions were discussed amongst the participants. The general theme was to discuss the use of NCA for OSPAR decision making. From the feedback from the breakout groups, it was interesting to hear that the type of discussions was sometimes very different between the various groups.

The general points from the three questions across the breakout groups are summarised below:

1.) **What type of decisions can be supported by NCA?**

- Valuation of environmental and resource costs, for comparisons among countries (as based on GDP)
- Managing marine conflicts, assisting in prioritisation by modelling trade-offs between conflicting policies. Analysis of trade-offs between different uses could be possible too.
- Improved effectiveness and efficiency on reporting the state of the marine environment
- Marine (spatial) planning decisions (e.g. Impact assessments of marine protected areas (MPAs))

2.) What type of analyses could be of relevance for OSPAR?

- Regional analyses are in particular useful for smaller countries which do not have sufficient number of researches/analysts to work on these issues or for considering ecosystem components, such as highly mobile species, or wide ranging/circulatory pressures like non-native species or marine litter
- Cross-country analyses on issues such as migratory species or network of MPAs.
- Study of how existing OSPAR biodiversity indicators can be developed to incorporate ecosystem services
- Time series analyses especially related to the quality status report.
- Assessing the potential impacts of climate change and the impact that it has on natural capital assets

3.) What are the next steps that OSPAR should take in terms of NCA?

- Work out good methodology to disaggregate ecosystem service (value) into contributions by economy compared to by nature
- Binding and ambitious time steps for implementation
- Explore if links can be made between the OSPAR Socio-economic and biodiversity indicators
- Ensure and agree on a common and broadly based database
- Various countries are experimenting with NCA. Try to align these experiments and experiences as early as possible to support the development of a harmonized approach to develop NCA at OSPAR level
- Collect and use data for non MSFD indicators (maybe monitoring data for other EU legislation, such as the Birds and Habitats Directive?)
- Collect spatially explicit data, but be careful not to focus on very detailed data that have been collected for one year only, since this will not allow us to perform time series analyses
- Use already existing framework of system thinking in order to create synergies
- Improve communication concerning the benefits of NCA

10.)Reflection by the OSPAR secretariat regarding the potential role of NCA for OSPAR and close *(Julien Favier, Project Coordinator, OSPAR Commission):*

Julien mentioned the OSPAR North East Atlantic Environmental Strategy where NCA is being mentioned explicitly as a separate strategic objective (#7.03). Closely related to this, there is also a link with not only SDG 14 (Conserve and sustainably use the oceans, seas, and marine resources for sustainable development), but also SDG 15.9 and SDG 17.19:

- Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- Target 17.19: By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

11.)Closing words *(Rob van der Veeren, Senior advisor, Rijkswaterstaat, and OSPAR ICG ESA Co-Convener)*

On behalf of the organisation, Rob gives a short reflection on the objectives of the day: When we decided to organise today's meeting on natural capital accounting at the OSPAR level, we wanted to discuss the potential value added of this new instrument to support OSPAR decision making, not only with the OSPAR economists but with the wider OSPAR community, based on experiences from not only OSPAR countries, but all across the globe, and try to formulate some potential next steps.

Looking back at what we have done today, we have managed to do all of that.

Rob thanks the presenters for giving very insightful presentations that brought us to the same level of knowledge and understanding, but also the participants for their active contributions in the breakout groups for their valuable suggestions and ideas on potential next steps. All this information will be used by Maria to finalise her report. This autumn various OSPAR groups will discuss the results of this meeting and Maria's report to decide on potential next steps.

Annex: List of participants

Attendee Name	Country
Alice McGlashan	Australia
Ben Milligan	Australia
Crystal Bradley	Australia
Edwina Barton	Australia
Katherine Mitchell	Australia
Ana Rodriguez	Belgium
Katrien Van der Biest	Belgium
Marijn Rabaut	Belgium
Steven Vandenborre	Belgium
Herlinde Vanhoutte	Belgium
Boian Koulov	Bulgaria
Tanya Vladimirova	Bulgaria
Jessica Andrews	Canada
Eva Gelabert	Denmark
Tin-Yu Lai	Finland
Kaius Oljemark	Finland
Adrien Comte	France
Felix Evain	France
Lucie Gallegos	France
Mélina Roditis	France
Youssef Zaiter	France
Björn Bünger	Germany
Katharina Raupach	Germany
Marina Carstens	Germany
Judith Spregner	Germany
Sonja Wild-Metzko	Germany
Anna Addamo	Italy
Daiva Semėnienė	Lithuania
Paul McGinnity	Monaco
Maria Alarcon Blazquez	Netherlands
Rob Van Der Veeren	Netherlands
Mees van der Donk	Netherlands
Eduard Interwies	Germany
Saa Kabuta	Netherlands
Xander Keijser	Netherlands
Patrick Bogaart	Netherlands
Gerjan Piet	Netherlands
Maharanny Diwid Prasetyawati	Netherlands
Peter Roebeling	Netherlands
Sjoerd Schenau	Netherlands
Twan de Korte	Netherlands
Sven Weijers	Netherlands

Wouter van Broekhoven	Netherlands
Wenting Chen	Norway
Julien Favier	OSPAR Secretariat
Laura DeLaTorre	OSPAR Secretariat
Cristina Ramos	Portugal
Edward Noble	Scotland
Philip Boulcott	Scotland
Kenneth Findlay	South Africa
David Alvarez García	Spain
Philip James	UK
Oliver Fleming	UK
Adam Stackhouse	UK
Adrian Judd	UK
Frances Mynott	UK
Emily Gardner	UK
Emilie Hall	UK
Hayley Hinchen	UK
Lauren Molloy	UK
George Willmore	UK