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# Key Takeaways

- Ocean accounts are integrated records of regularly compiled and comparable data concerning ocean environmental conditions, economic activity, social conditions, and governance context. They provide a comprehensive foundation for informed and strategic decision-making in sustainable ocean management.
- Sustainable Ocean Plans (SOPs) are holistic frameworks designed to guide the sustainable management of all national ocean areas. They integrate economic, environmental, and social considerations to ensure balanced and sustainable use of ocean resources while protecting marine ecosystems.
- Ocean accounts offer a structured and standardised data foundation essential for policy and plan formulation and adaptation. They support the creation of clear indicators to monitor the effectiveness and progress of ocean management strategies, enabling policymakers to adjust based on available evidence and changing conditions.
- Ocean accounts act as a catalyst for fostering cross-sectoral dialogues and initiatives. They provide a robust framework for sharing data, information, and knowledge, enhancing cooperation and collaboration among institutions across various sectors, and promoting a more integrated approach to ocean management.
- The integration of ocean accounts into SOPs enhances the capacity to manage ocean resources holistically and aligns with strategic national and international environmental, economic and social goals. By offering detailed insights into marine resource distribution and condition, ocean accounts facilitate sustainable use. This capability is

crucial for sustaining marine biodiversity and ecosystem services, ensuring long-term ecological, economic and social benefits.

- Ocean accounts can activate and guide financial mechanisms within SOPs by providing a clear, robust and transparent quantifiable basis for investment in marine and coastal resources. This supports the development of economic incentives and funding strategies that further conservation, restoration and sustainable, equitable use of ocean resources.
- Ocean accounts can integrate various types of knowledge, including Indigenous and Local Knowledge (ILK), into decision-making processes. By accommodating diverse data sources and knowledge systems, ocean accounts enrich the indicators used in SOPs, fostering decisions that are inclusive and representative of multiple stakeholder perspectives.
- Establishing or integrating national ocean accounts with SOPs creates a comprehensive toolset for sustainable ocean management. Acknowledging the interconnectedness of these frameworks early on reduces the risk of process duplication and knowledge fragmentation. Integrating ocean accounts within SOPs can close gaps in understanding across institutions, establishing a unified and standardised approach to data analysis and plan formulation.
- The information collected and organised in a national ocean account can directly support countries in monitoring and reporting on international commitments such as the Sustainable Development Goals under the 2030 Agenda for Sustainable Development and the Global Biodiversity Framework under the Convention on Biological Diversity.

## Introduction

The ocean economy is complex and multifaceted, with numerous and diverse users engaging in a variety of activities that may often be conflicting. This complexity presents a significant challenge for governance and management working to ensure a sustainable ocean economy while preserving the resilience of marine and coastal ecosystems. Additionally, to achieve the sustainable use of marine resources, governance must balance not only development and conservation but also the interests and priorities of various stakeholders. To achieve this, an integrated and cross-sectoral approach is essential to account for the interdependence and interconnectivity of various ocean uses and their impacts on the environment and each other.

To respond to this challenge, the High Level Panel for a Sustainable Ocean Economy (Ocean Panel) has proposed the development of Sustainable Ocean Plans (SOPs) to support the comprehensive and holistic management of all ocean areas under national jurisdiction. These SOPs serve as an umbrella framework that extends beyond traditional management plans, guiding both public and private sector decision-makers on how to sustainably manage all of a nation's ocean area. For the 18 members of the Ocean Panel, SOPs are also the guiding framework to deliver on their commitment to sustainably manage 100% of their ocean areas under national jurisdiction<sup>1</sup>. An SOP incorporates and leverages various governance tools tailored to achieve specific objectives, all while safeguarding the natural marine ecosystems vital for sustainable development. Rather than offering a one-size-fits-all solution, an SOP is designed to be adaptable, varying according to national needs.

Robust data on the environmental, economic and social aspects of the ocean economy forms the foundation for knowledge-based decision-making, allowing policymakers to evaluate consequences, assess risks and benefits, and identify sustainable development pathways that ensure ecological integrity, social well-being, and economic prosperity. A number of global policies and regulatory frameworks have been established which underscore the importance of data to measure, assess, and value the economic, environmental, and social impacts of ocean usage thereby fostering more comprehensive governance. This includes key global commitments outlined in the United Nations Sustainable Development Goals (SDGs) and the Kunming-Montreal Global Biodiversity Framework (GBF) under the Convention on Biological Diversity (CBD), as well as outcomes from significant global forums like the UN Ocean Conference.

However, access to comprehensive, high-quality ocean data is often hindered by limitations and gaps from fragmented, ad-hoc data collection efforts, rather than a coordinated, long-term approach to gathering and maintaining relevant information across various government agencies and international repositories. Ocean accounts address siloed data storage and access by incorporating economic, environmental, and social data, providing decision-makers with a comprehensive overview of the interplay between environment, economy, and society in the national ocean space. They compile structured statistical datasets across spatial scales which can then inform decisions related to natural assets, economic planning and social development. They provide essential information, including the extent and condition of these assets, their economic significance, and the associated benefits they offer to society. Ocean accounts extend existing national accounts (used to track macro-economic indicators like GDP) to provide specific information on the ocean economy, forming a necessary foundation for holistic policy and decision-making.

As countries begin to develop national ocean plans and strategies, creating national ocean accounts that include social, economic, and environmental data relevant to a nation's ocean area can enable decision-makers to measure progress towards equitable economic development and monitor the state of marine and coastal assets that underpin such development.

This guide outlines how ocean accounts can be leveraged not only as a component of SOPs or any comprehensive and holistic national strategies for the use of ocean space but also as a means to anchor SOPs to relevant policies and institutions. Ocean accounts can be closely integrated into the development

<sup>&</sup>lt;sup>1</sup> Ocean Panel, "Transformations for a Sustainable Ocean Economy: A Vision for Protection, Production and Prosperity": The Ocean Panel countries have committed to sustainably manage 100% of the ocean areas under their national jurisdictions, guided by Sustainable Ocean Plans, by 2025. Countries joining the Ocean Panel after 2020 may commit to develop and be guided by Sustainable Ocean Plans within 5 years of joining.

and implementation of these broader ocean management approaches. It also provides a clear path forward for those seeking to make progress on commitments outlined in global frameworks such as the Sustainable Development Goals (SDGs) or the Kunming-Montreal Global Biodiversity Framework (GBF).

### What is a Sustainable Ocean Plan?

An SOP provides a unifying 'umbrella' for ocean-related governance, bringing together existing and new plans, processes and policies into a comprehensive, coherent, and integrated whole. This includes comprehensively outlined policies and mechanisms to promote the sustainable use of the ocean and maximise benefits and value creation for current and future generations. They lay the foundation for the implementation of *Transformations for a Sustainable Ocean Economy: A Vision for Protection, Production and Prosperity* produced by the Ocean Panel which outlines the priority outcomes to achieve 100% sustainable management of the ocean area under national jurisdiction. Implementation of an SOP will provide a myriad of economic, social, and environmental benefits across governments, businesses, coastal communities, Indigenous Peoples, and other stakeholders.

SOPs should reflect the nine key attributes outlined in the Ocean Panel Guide 100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans. These attributes are:

- The **process** should be **inclusive**, **integrative**, and **iterative**.
- The content should be place-based, ecosystem-based, and knowledge-based.
- The impact should be endorsed, financed, and capacitated.

SOPs are country specific, and will vary given different country contexts, starting conditions, and resources, but all SOPs will chart a country's course towards 100% sustainable ocean management, and will evolve over time through the iterative cycles of an SOP development.

Box 1: Additional Resources for Sustainable Ocean Plans

For more detailed guidance related to SOPs, please see:

- '100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans', for a more detailed overview and introduction to SOPs<sup>2</sup>.
- Ocean Action 2030 Coalition, for technical and financial assistance in developing and implementing SOPs<sup>3</sup>
- Tracking Blue: From Ambition to Action for a Sustainable Ocean Economy, for further information on the progress, challenges, and solutions in achieving SOPs<sup>4</sup>
- The Ocean Panel webpage, which houses the existing published SOPs.<sup>5</sup>

### What are Ocean Accounts?

Ocean accounts are integrated records of regularly compiled and comparable data concerning ocean environmental conditions (e.g., extent/condition of mangroves), economic activity (e.g., sale of fish, marine transport) and social conditions (e.g., employment, dependency)<sup>6</sup>. They are structured like existing national accounts maintained by National Statistical Offices or Finance Ministries and are compatible with the System

<sup>&</sup>lt;sup>2</sup> https://oceanpanel.org/publication/100-sustainable-ocean-management-an-introduction-to-sustainable-ocean-plans/

<sup>&</sup>lt;sup>3</sup> https://oceanpanel.org/ocean-action-2030/

<sup>&</sup>lt;sup>4</sup> https://oceanpanel.org/publication/tracking-blue/

<sup>&</sup>lt;sup>5</sup> https://oceanpanel.org/sustainable-ocean-plans/

<sup>&</sup>lt;sup>6</sup> See the glossary for relevant definitions

of National Accounts (SNA), the System of Environmental-Economic Accounting (SEEA), the Framework for Development of Environment Statistics and the ten Fundamental Principles of Official Statistics<sup>7</sup>.

Extending on the economic information supplied in national accounts, ocean accounts provide specific information relevant to the ocean economy as a whole, including environmental and social dimensions. Therefore, providing a necessary foundation of information to inform holistic and comprehensive policy and decision-making for investment in the ocean economy. A holistic ocean account integrates four key components:

- Macro-economic accounts from which economic measures such as GDP are derived and from which legal, illegal, unreported, and unregulated activities can be accounted for.
- Environmental-economic accounts that explain relevant assets and flows, wastes, expenditures, taxes, and subsidies.
- Ecosystem accounts which describe a spatial framework or the extent, condition, biodiversity, services, and value of ecosystems.
- Structured data on ocean beneficiaries, technology, governance, and management.



Figure 1: Ocean Accounts Framework

Ocean accounts are fundamentally a collection of tables, organised under a common conceptual framework (Figure 1). The framework aligns and extends on existing definitions and concepts within SNA and SEEA and includes five table groups: (1) Environmental assets (as defined by SEEA) (2) Flows to economy (ecosystem services), (3) Flows to the environment (4) Ocean economy (as defined by SNA) and (5) Governance. Each table group records quantitative data (such as monetary value or physical status) or qualitative descriptors (for example, names of relevant laws and regulations) or a combination of these, Table 1 outlines these groups as well as description and example of each.

https://seea.un.org/

<sup>&</sup>lt;sup>7</sup> https://unstats.un.org/unsd/nationalaccount/sna.asp

https://unstats.un.org/unsd/envstats/fdes.cshtml

https://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx

#### Table 1: Ocean Accounts Framework Table Groups and Descriptions

Groups	Description	Examples
Environmental assets	Stocks of abiotic (i.e., non-living) and biotic (i.e., living) assets	Coral reefs, forests, minerals, timber
Flows to economy	The supply and use of ecosystem services and natural inputs	Food provisioning, water quality regulation
The Economy	Disaggregation of ocean-related stocks of financial and non-financial assets, their goods and services	Shipping sector, boat building, fisheries etc.
National Wealth	Balance sheets on environment and economy related to the ocean	Change in stock of marine ecosystems and services
Flows to the environment	Solid waste emissions and water emissions related to the ocean	Plastics, sewage, nutrient run-off
Governance	Layers of policy, legislation, and other governance within a spatial area. Includes goods and services, taxes and subsidies related to the management of the ocean.	Ocean policy, strategies, and plans. Environmental activity accounts.

#### Box 2: Additional resources for ocean accounts

For more detailed guidance related to ocean accounts, please see:

<ul> <li>Technical Guidance on Ocean Accounting<sup>8</sup></li> </ul>	A comprehensive framework and methodology for developing OA, providing detailed instructions on data collection, analysis, and integration
<ul> <li>Summary Guidance for Account Compilers and Data Providers<sup>9</sup></li> </ul>	A concise guide aimed at individuals and organisations responsible for compiling and providing data for OA, outlining key principles, data requirements, and compilation steps.
<ul> <li>Summary Guidance for Decision Makers<sup>10</sup></li> </ul>	A summary document providing decision-makers with an overview of OA, emphasising how they can be utilised to inform policy, enhance sustainable ocean governance, and support economic planning.
<ul> <li>Ocean Accounts Diagnostic Tool<sup>11</sup></li> </ul>	A diagnostic reference sheet outlining a systematic process for evaluating the current status and identifying the steps required to implement OA effectively, serving as a quick guide for organisations to understand and navigate the process efficiently.
<ul> <li>A Guide to Creating Core Ocean GDP Accounts<sup>12</sup></li> </ul>	A step-by-step approach to developing Ocean GDP Accounts, which quantify the economic value of ocean-related activities, aiding in the economic analysis of ocean resources and their contribution to national economies.

#### Indonesia's Pilot Ocean Account

Over the past two decades, Indonesia has progressed environmental accounting nationally, implementing natural capital accounting to meet national and global commitments as mandated by its laws and regulations. Since 2014, under the leadership of Statistics Indonesia, the country has incorporated various natural resource components into its national assets accounts. Building on its existing work, Indonesia opted to develop ocean accounts with the strategic aim to enhance sustainable ocean development, in line with the country's laws, regulations, and development planning. The development of ocean accounts began in 2021, led by the Ministry of Marine Affairs and Fisheries, with a pilot project launched in the Gili Matra Marine Protected Area. Gili Matra was selected due to its significant ecological and economic value and the need to align conservation efforts with human activities. Four accounts were prioritised for development: ecosystem assets, flows to the economy, flows to the environment, and ocean governance.

#### Results

- Ecosystem Assets Account: Changes in ecosystem extent were identified by comparing the opening stock in 2015 with the closing stock in 2021 and assessing the implications for economic value. In 2015, the total economic value of coral reefs, seagrass, and mangroves in Gili Matra was estimated at IDR 45.24 billion/year. While ecosystem areas changed, the economic value increased to IDR 64.17 billion/year in 2021 due to higher inflation and real interest rates compared to 2015.
- Flows to the Economy Account: An assessment of the monetary value generated by the roles and functions of these ecosystems was conducted. Of the total monetary value of IDR 33.05 billion/year, over 90% came from tourism activities. This figure, however, was significantly lower than the estimated value before the COVID-19 pandemic, which was around IDR 1.04 trillion/year.
- Flows to the Environment Account: To assess the flows to the environment accounts, residual waste resulting from economic activities in the area was calculated. Both solid and liquid waste were mainly sourced from tourism activities. The majority of solid waste (2,017 tonnes or 70.4%) was disposed of in landfills, while 330,624 m3 of liquid waste was managed by waste companies.
- Ocean Governance Account: For the ocean governance account, the Management and Zoning Plan of Gili Matra Marine Protected Area (MPA) 2014-2034 was used to assess the current spatial use, arrangements, and management measures undertaken by a designated working unit (Satker). Alongside Satker, the management of Gili Matra MPA involves officials from Gili Indah Village, North Lombok Regency, and the West Nusa Tenggara Provincial government.

Following the Gili Matra pilot, Indonesia expanded its OA initiative in 2022 with additional pilots in Raja Ampat, West Waigeo, Banda, Padaido, Aru, Anambas, Pieh, Savu Sea, and Kapoposang MPAs, as well as fisheries accounts in Saleh Bay, West Nusa Tenggara, and the North Coast of Central Java Province. Currently, the country is developing a national dashboard to showcase all seven accounts, enhancing transparency and accessibility of ocean data for informed policy-making and sustainable marine management.

See: Ministry of Marine Affairs and Fisheries (MMAF). 2022. Ocean Accounts of Indonesia -Pilot Study: Accounts of Gili Ayer, Gili Meno, and Gili Trawangan (Gili Matra) Marine Protected Area. Jakarta. Indonesia



# Why are Ocean Accounts Relevant to SOPs and the Commitment to 100% Sustainable Management?

Ocean-related policy often falls short due to isolated and incomplete information, hampering the effective management of critical issues such as climate resilience, biodiversity loss, and sustainable fisheries. Ocean accounts can address these challenges by compiling and providing a coherent structure for standardising often-fragmented data, producing reliable integrated indicators that are essential for informed decision-making (Figure 2). These indicators, crucial for tracking the health of marine ecosystems and the sustainability of economic activities, can then be disseminated through national reports, nationally managed websites, or interactive "dashboards" which allow policymakers and decision-makers to query and utilise data effectively.

Rather than generating new data, ocean accounts primarily focus on compiling and integrating existing information, highlighting critical data gaps in the process. This strategic approach not only brings coherence to previously fragmented data but also directs limited resources toward areas where they can generate the most significant impact, ensuring optimal value for money. Enhancing data accessibility and usability, ocean accounts equip policymakers to assess impacts, plan mitigation strategies, and ensure sustainable ocean governance.



Figure 2: Foundation for Ocean Accounts

Ocean accounts not only provide fundamental data but also empower countries to go beyond traditional economic metrics like GDP to ensure a more nuanced understanding of the implications of policy making and investment in the ocean space.

For example, a national ocean account can provide the data relevant to:

- Support analyses that quantify the economic benefits of ecosystem restoration (Invest \$X to restore ocean condition Y to achieve benefit Z). It provides a clear foundation for policy decisions.
- Enable ongoing monitoring of ocean wealth, including both economic assets and natural resources such as ports and mangroves, alongside tracking economic outputs like local community incomes and sector-specific GDP contributions.
- Track the value and impact of marine investments over time, supporting comparisons between nature-based solutions and traditional hard-infrastructure approaches. This longitudinal data helps determine the most effective strategies for protecting marine environments.
- Marine Spatial Planning to inform the strategic allocation of marine space, enhancing the efficacy and sustainability of ocean use based on national policy priorities (e.g. for MPAs, ocean-based energy zones and fishing zones); and
- Fulfil reporting obligations under international agreements like the SDGs, Paris Agreement, and the GBF, offering a standardised approach to measure conservation success and policy impact. (see Box 3).

Ocean accounts support countries in fulfilling the nine attributes of an SOP by providing the necessary data and insights to support informed decision-making and comprehensive planning (Figure 3).



*Figure 3: Attributes of Sustainable Ocean Plans (Source: 100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans)* 

- Inclusive, Integrative, Iterative Processes: ocean accounts facilitate participatory, transparent, and equitable processes by engaging stakeholders and integrating cross-sectoral data in an iterative manner. This ensures that the SOP development process includes diverse perspectives and adapts to new information over time.
- Place-based, Ecosystem-based, Knowledge-based Content: ocean accounts provide detailed spatial, ecological, social and economic data that helps ground SOPs in the realities of specific locations. This data supports ecosystem-based management and incorporates the best available science and local knowledge.
- Endorsed, Financed, Capacitated for Impact: ocean accounts offer the empirical data needed to secure high-level political support, attract financing, and build institutional capacity. This ensures that SOPs are not only planned but also effectively implemented and sustained.

The global momentum for ocean accounts is rapidly increasing, underscoring their critical role in achieving sustainable ocean governance and development. By providing essential data structures and statistical information, ocean accounts enhance the capacity of nations to meet international commitments effectively, facilitating evidence-based policies that protect marine environments while promoting sustainable economic development. Additionally, the financing of nature-positive interventions will likely depend on these common metrics, making ocean accounts central to these efforts. These accounts support various international commitments and initiatives across environmental, social, and economic domains:

- 2030 Sustainable Development Agenda: Ocean accounts help measure progress against targets under SDG 14 (Life Below Water), SDG 15.9 (Valuing Nature in Decision-Making), and SDG 17.19 (Measurement of Progress Complementing GDP) by providing comprehensive data.
- Kunming-Montreal Global Biodiversity Framework: Ocean accounts validate the need for robust natural capital accounting and encourage efforts to include the economic valuation of marine and coastal biodiversity in decision-making frameworks, aligning with the UN System of Environmental-Economic Accounting (See Box 4).
- United Nations Framework Convention on Climate Change: Ocean accounts support commitments under the UNFCCC by providing standardised data and metrics that enable tracking and evaluation of blue carbon ecosystems' impact on carbon sequestration and climate mitigation, ensuring the integrity and transparency of blue carbon credits within the carbon market.

Box 4: GBF Implementation and Reporting

#### Global Biodiversity Framework Implementation and Reporting

The Kunming-Montreal Global Biodiversity Framework (GBF) sets ambitious targets to protect biodiversity, including the "30x30" goal of conserving at least 30% of the planet's land and sea areas by 2030. National ocean accounts, aligned with the System of Environmental-Economic Accounting (SEEA), can provide countries with the data required to inform effective implementation of the GBF (e.g. informing the most impactful siting of MPAs to maximise conservation outcomes and minimise adverse economic or social impacts) and reporting on national progress towards these targets (e.g. extent of ecosystem restoration and improvement in ecosystem services over time). National ocean accounts provide the data infrastructure needed to identify priority conservation areas, monitor ecosystem service changes, and assess conservation measures' effectiveness. The standardised framework of ocean accounts facilitates transparent and consistent reporting on GBF targets. This transparency enhances accountability and allows for better comparison and collaboration across countries. Ocean accounts help engage a wide range of stakeholders, including local communities, indigenous peoples, and the private sector, in biodiversity conservation efforts. This inclusive approach ensures that diverse perspectives are considered in planning and implementation.

The table in Appendix 1 outlines how national ocean accounts can inform each GBF Target.

### Utilising Ocean Accounts to Develop and Implement Sustainable Ocean Plans

Ocean accounts can support throughout the various stages of SOP development (or the development of any strategic and holistic national ocean policy) but are particularly useful in the following three stages of policy development:

- Knowledge gathering: ocean accounts can provide sources of valuable information while reducing reliance on ad hoc and segregated data. In addition, they can identify knowledge gaps, and enable prioritisation to close those gaps. It is important to include traditional and local knowledge in ocean accounts to enhance the sustainability and resilience of environmental management strategies. This may involve collaboration with indigenous communities to incorporate their perspectives, values, and practices into accounting frameworks. This may include ecological, economic, social and cultural data.
- Stakeholder engagement: ocean accounts can underpin stakeholder engagement as a multi-purpose tool which can facilitate a structured conversation among stakeholders, identifying their concerns, and assessing relevant data. When developing an SOP, governments could utilise the existing Ocean Accounts Diagnostic Tool (Appendix 2) as an engagement mechanism.
- Monitoring and evaluation: ocean accounts support the centralisation and standardisation of information when assessing existing ocean-related plans and processes across national waters. As part of an SOP, ocean accounting mechanisms facilitate the setting and monitoring of measurable goals and indicators.

The following sections unpack how a national ocean account can support each of the key components of an SOP as articulated by the guide on SOPs *100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans*.

These key components include, but are not limited to:

- Social and cultural considerations for equitable resource use and access
- Economic development strategies for sustainable development
- Area-based plans to map and manage activities
- Environmental protection measures to conserve ecosystems
- Enabling policies for governance
- Financial mechanisms to support the transition to a sustainable ocean economy.



*Figure 4: Key Components of SOP (Adapted from Figure 2. 100% Sustainable Ocean Management: An Introduction to Sustainable Ocean Plans, Ocean Panel)* 

### Social and Cultural Considerations

Social and cultural considerations are a vital component of an effective SOP. The Ocean Panel defined social and cultural considerations as including, but not being limited to: *"...participation in planning and management processes, access to and benefits from marine resources, equitable roles for Indigenous Peoples and local coastal communities and the protection of the most vulnerable from the risk of harm"*<sup>13</sup> (p9).

The definition of social and cultural considerations in SOPs overlaps with how social and cultural considerations are conceptualised in the context of ocean accounts. Social and cultural considerations are central to ocean accounting to ensure a more holistic understanding of the contribution of oceans to societal well-being than current GDP metrics. The consideration of social, equity and cultural factors in ocean accounting has been termed "Social Accounting".

Social accounts are still in their early stages of development, hence, there is still work to be done to explore how social accounting can be conceptualised, measured and incorporated into ocean accounts. Social accounting has been conceptualised differently across the field<sup>14, 15, 16</sup>. However, this presents an opportunity for the ocean community to develop this area, drawing on best practice from broader fields and integrate a diversity of perspectives, values, knowledge types and disciplines into its development.

Here, we define social accounting as the process of capturing, analysing, and reporting data related to the social, cultural and equity dimensions of the human-ocean relationship. These accounts aim to:

 Examine information on people's dependency on the ocean for the provision of services which support livelihoods, income, wellbeing, food security and basic needs. Dependencies can occur

<sup>&</sup>lt;sup>13</sup> Ocean Panel, 2022. https://oceanpanel.org/publication/100-sustainable-ocean-management-an-introduction-to-sustainable-ocean-plans/

<sup>&</sup>lt;sup>14</sup> Loureiro et al., 2023. <u>https://doi.org/10.1016/j.marpol.2023.105668</u>

<sup>&</sup>lt;sup>15</sup> Perkiss et al., 2022. <u>http://dx.doi.org/10.1016/j.marpol.2021.104901</u>

<sup>&</sup>lt;sup>16</sup> GOAP, 2022. <u>https://www.oceanaccounts.org/technical-guidance-on-ocean-accounting-2</u>

through: (i) direct use of ecosystem services (e.g. fish nurseries that support wild-catch fisheries) or (ii) non-use of ecosystem services (e.g. regulation of hazards such as fires and floods).

- Evaluate how economic, social and environmental aspects affect and are affected by various social factors, including demographic trends, socioeconomic conditions, cultural practices, health and well-being, equity, and governance.
- Evaluate the inclusivity and equitability aspects of ocean resource-use activities and considers "ocean accessibility, employment opportunities, resource-use ownership, the contribution of the ocean to the welfare, markets, societal interaction, education, services for nationals and the identification of ocean-related risk to groups arising from marine activities or system shocking events" <sup>12</sup>.

Primary and secondary data can be used in social accounting and the far-reaching interests necessitate the combination of multiple formal and informal datasets. This data can capture social and cultural considerations at the micro-level (i.e. social and cultural factors associated with individuals, households, sectors, communities, organisations) and macro-level (i.e. social and cultural factors at a larger scale, including regional, national or global populations). We have presented examples of social accounting data for the following ecosystem service categories: (i) food provision, (ii) disturbance prevention or moderation and (iii) coastal erosion prevention (Table 2). This data could be collected at both macro and micro levels.

Table 2: Examples of social accounting data for three ecosystem services (food provision,

disturbance prevention or moderation, coastal erosion prevention).

Type of service	Example data
Provisioning	<ul> <li>Contribution of fish and seafood to total animal protein supply<sup>17</sup>.</li> <li>Percentage of marine dietary protein to animal protein.</li> <li>% of fisheries jobs to total jobs<sup>11</sup>.</li> <li>Coral reef fishers as a proportion of a population or community<sup>18</sup>.</li> <li>Livelihood dependency on extraction of wood, crab, fish, honey, fruits and herbs from mangroves (%)<sup>19</sup>.</li> </ul>
Regulating	<ul> <li>Numbers of houses and infrastructure protected from coastal flooding and erosion by mangroves<sup>20</sup>.</li> <li>Number of houses and infrastructure experiencing reduced exposure to storms and sea-level rise due to coral reefs <sup>21</sup>.</li> </ul>
Cultural	<ul> <li>Indigenous access to place-specific practices associated with storied landscapes<sup>18</sup>.</li> <li>Extent of multigenerational indigenous access to marine areas that foster security and sense of place (e.g. lease, ownership and occupation<sup>18</sup>).</li> </ul>

Overall, the use of Ocean Accounts could help to better include social and cultural factors into SOPs. This would have the following benefits:

- Integrate understanding of how ecosystems are linked to changes in relationships and dependencies with society and the economy<sup>22</sup>.
- Increase consideration of diversity, equity, inclusion, and justice into SOPs.

<sup>&</sup>lt;sup>17</sup> Tacon and Metian, 2017. <u>https://doi.org/10.1080/23308249.2017.1328659</u>

<sup>&</sup>lt;sup>18</sup> Teh et al., 2024. <u>https://doi.org/10.1038/s44183-024-00049-7</u>

<sup>&</sup>lt;sup>19</sup> Mallick et al., 2021. <u>https://doi.org/10.1016/j.crsust.2021.100077</u>

<sup>&</sup>lt;sup>20</sup> Menéndez et al., 2020. <u>https://doi.org/10.1038/s41598-020-61136-6</u>

<sup>&</sup>lt;sup>21</sup> Selig et al., 2019. <u>https://doi.org/10.1111/conl.12617</u>

<sup>&</sup>lt;sup>22</sup> Gacutan et al., 2022. <u>https://doi.org/10.3897/oneeco.7.e81855</u>

- Increase the legitimacy of SOPs, as it can aid the recognition and inclusion of the lived experiences, values, and stories of individuals, groups, communities, populations and sectors into SOPs (including marginalised communities such as indigenous groups)<sup>23</sup>.
- Incorporate different types of knowledge into SOPs (scientific, traditional and local knowledge)

### **Economic Development Strategies**

Economic development strategies encompass various plans and policies to manage and use resources to achieve specific economic objectives. Ocean economic development strategies set out how ocean industries should develop and consider the practicalities of doing so. They should consider current industries like marine shipping and fishing, as well as emerging ones like marine biotechnology and carbon storage<sup>24</sup>. Although, the exact inclusion of industries will depend on technical ocean economy definitions within a country or region. The Ocean Panel highlights the importance of these economic strategies where they *"provide businesses, investors, governments, and communities and Indigenous Peoples with clear guidance for sustainable economic planning and implementation"*.<sup>25</sup>

In the ocean context, there are two main types of economic strategies: the first is focused solely on economic objectives and the activities that realise these, and the second is focused on achieving sustainable economic objectives through balancing economic with social and environmental considerations. The first type of strategy is the product of "traditional" economics where the environment is viewed as separate from the economy or as a constraint to production. It is often measured using Gross Domestic Product (GDP) which is a monetary measure valuing all final market goods and services. However, these strategies do not consider the environment, social factors or other non-market goods and services.

The more holistic type of strategy aligns with internationally used terms such as the "blue economy", "sustainable ocean economy" or "sustainable blue economy". The concept of sustainable economic growth in the ocean originated at the United Nations Conference on Sustainable Development, following coastal countries challenging the applicability of the 'green economy' concept<sup>26</sup> to them and putting forward a strong case for a "blue economy" equivalent.<sup>27</sup> Since then, the sustainable development agenda and the critical role the ocean plays in this has continued to gain momentum.

This trend towards sustainability in ocean economic strategies has highlighted the need for data that goes Beyond GDP to create, monitor, and evaluate these strategies and the policies that sit below these. Ocean accounts equip countries with the necessary tools to go Beyond GDP in measuring and managing progress towards sustainable ocean economic development. For example, it brings the following benefits to ocean economy strategies:

- The integration of environmental, social, and economic data into a common framework, allowing the comparison of sustainable ocean economic development across and between countries and over time.
- Environmental-economic accounts allow decision makers to understand the economic and social value of ecosystem services. This allows the creation of economic policies that prioritise ecosystem protection or restoration of those ecosystems that provide high-value services, enabling more holistic economic planning that incorporates natural capital into national accounts. These accounts also identify sources and magnitude of environmental impacts from economic activities. This understanding can guide economic development in a way that mitigates negative impacts, ensuring economic activities are conducted within the carrying capacity of ecosystems.
- Ocean economy satellite, or thematic, accounts enable decision makers to understand the economic contributions of different sectors and their interdependence. This can support economic diversification strategies and help target investment into high potential sectors.

<sup>&</sup>lt;sup>23</sup> Killian and O'Regan, 2016. <u>https://doi.org/10.1016/j.aos.2016.02.004</u>

<sup>&</sup>lt;sup>24</sup> Merayo et al., 2023. <u>https://hub.jncc.gov.uk/assets/c90a1f50-2f1a-4ad3-94fc-c1fa39f61289</u>

<sup>&</sup>lt;sup>25</sup> Ocean Panel, 2022 https://oceanpanel.org/publication/100-sustainable-ocean-management-an-introduction-to-sustainable-ocean-plans/

<sup>&</sup>lt;sup>26</sup> Here the 'green economy' concept was based in the context of sustainable development.

<sup>&</sup>lt;sup>27</sup> UNEP, 2016 . <u>https://www.unep.org/resources/report/blue-economy-concept-paper</u>

 Ocean accounts can track changes in ocean asset health and how these changes affect the economy, highlighting impacts on specific sectors and segments of society. This detailed tracking supports the development of targeted interventions to mitigate adverse effects and enhance positive outcomes.

Box 5: Beyond GDP in Australia's Ocean Account Pilot

#### Beyond GDP in Geographe Marine Park

Australia conducted a pilot study valuing the ecosystems of Geographe Marine Park off Western Australia's coast. The study quantified the economic benefits provided by the park's seagrass meadows to fisheries, recreation, carbon storage, and other sectors. Findings showed:

- One hectare of seagrass nursed over 10,000 kg of commercially valuable fish species.
- Of boats lingering over 4 hours in the park from 2012-2020, most appeared to be in the seagrass areas.
- In 2019 alone, the park's ecosystems contributed around \$316,000 to the local economy via whale watching and fishing.
- Over 12,000 recreational fishing trips in 2018 were valued at \$2.2 million.
- The seagrass meadows stored 6.2 million tonnes of carbon in soils, sequestering an additional 27,569 tonnes per year - offsetting 1,500 households' emissions worth \$443,865 annually.

Such ocean accounting reveals the true value oceans provide beyond traditional GDP metrics.

*See: IDEEA Group (2020) Synthesis report, Ocean accounting pilot for Geographe Marine Park. Institute for the Development of Environmental-Economic Accounting, Victoria, Australia.* 

### Area-based Plans

Area-based plans, and their subsequent implementation, focus on the governance, conservation, and development of specific geographic areas. These plans can include strategies such as Marine Spatial Planning (MSP), Integrated Coastal Zone Management (ICZM), Marine Protected Areas (MPAs) and other effective area-based conservation measures (OECMs). These strategies outline the distribution and intensity of human activities, aiming to reduce conflict and potentially the impact on ecosystems which enable economic activity (through the provision of goods and services). The resulting maps serve as important foundational components of SOPs, that support progress towards other attributes and components<sup>28</sup>.

Area-based management strategies can be enhanced through the integration of ocean accounts. Ocean accounts organise the relevant ocean information, such as its contribution to the economy, or a monitoring mechanism of conditions, providing an overview with the interlinkages. Integrating ocean accounts with area-based management strategies like MSP, ICZM, MPAs, and OECMs offers a multidimensional perspective that can inform more nuanced and effective governance decisions. Furthermore, involving stakeholders in the design of these area-based measures and in identifying areas of interest helps to balance governance, conservation, and development objectives, ensuring that the strategies are comprehensive and inclusive.

#### **Marine Spatial Planning**

In MSP, ocean accounts can provide insights into sectoral dependencies and impacts on marine resources, guiding spatial allocations for long-term ecological and economic benefits (Figure 4). Ocean economy satellite accounts within ocean accounts can provide relevant information on the economic growth of ocean-related sectors (or sub-components of sectors), while ecosystem accounts can showcase natural capital and ecosystem services for relevant habitats. Additionally, ocean accounts offer standardised, consistent, and coherent information as a baseline for collaboration across borders and provide vertical integration through comparable and scalable information and frameworks from local to national government levels.

<sup>&</sup>lt;sup>28</sup> Ocean Panel, 2022 https://oceanpanel.org/publication/100-sustainable-ocean-management-an-introduction-to-sustainable-ocean-plans/



Figure 5: Overlap between ocean accounts and spatial plans (Gacutan et al 2022)

#### **Integrated Coastal Zone Management**

In ICZM, the accounts can track coastal zone changes, aiding adaptive management aligned with longterm sustainability goals and provide holistic progress monitoring. They can also enable data sharing and coherence between different institutions responsible for ICZM, facilitating more integrated and effective management of coastal zones.

#### **Marine Protected Areas**

Within MPAs, ocean accounts enable holistic tracking and reporting of environmental status, human pressures, and values of flows of goods and services associated with environmental assets. Ocean accounts can in identifying candidate areas for protection based on ecological condition, goods and services flows, human interactions, and economic values.

#### **Other Effective Area-Based Conservation Methods**

In OECMs, ocean accounts enhance reporting and monitoring by integrating comprehensive data on biodiversity, ecosystem services, and socio-economic factors, ensuring alignment with OECM criteria<sup>29</sup>. They support sustainable management by providing crucial data on fish stocks, habitat conditions, and human activities, informing management decisions. Ocean accounts also facilitate multi-sectoral collaboration by promoting data sharing among stakeholders, ensuring coordinated efforts towards biodiversity conservation. Additionally, they enhance accountability and compliance by tracking the effectiveness of conservation measures and their socio-economic impacts, ensuring OECMs deliver long-term biodiversity and socio-economic benefits.

Furthermore, ocean accounts can serve as a robust monitoring tool, assessing the progress of area-based management strategies against their objectives. They can identify shifts in marine ecosystems' health or economic output, enabling timely adjustments to management approaches. In essence, the synergy between ocean accounts and area-based management strategies enriches the decision-making process, ensuring that area-based plans are grounded in comprehensive, up-to-date data.

### **Environmental Protection Approaches**

Environmental protection approaches within SOPs encompass a broad range of strategies aimed at safeguarding marine and coastal environments. These approaches could include efforts to avoid or reduce pollution from both land- and sea-based sources, mitigation of the negative impacts of land-based activities on coastal and marine areas, conservation and restoration of marine ecosystems (including marine protected areas and other effective area-based conservation measures), mitigation of climate change, and efforts to increase resiliency to climate change through measures such as disaster-risk reduction and

<sup>&</sup>lt;sup>29</sup> Himes-Cornell et al., 2022. <u>https://doi.org/10.3389/fmars.2022.932283</u>

vulnerability reduction<sup>30</sup>. Ocean accounts significantly enhance these approaches by providing comprehensive and integrated data that informs and supports environmental protection measures.

#### Addressing pollution

Ocean accounts can gather measures on various pollutants and their impacts, enabling targeted actions to address environmental concerns:

- Air emissions (GHGs and others): Ocean accounts could include national air emissions allocated to ocean economic activities.
- Effluents and solid wastes: By monitoring effluent discharge, solid waste generation, and plastic debris density, ocean accounts help identify and mitigate pollution sources. For example, the index of coastal eutrophication and floating plastic debris density.
- Hazardous waste: Ocean accounts can identify the most significant locations and industries contributing to hazardous waste, facilitating targeted interventions.

#### Mitigating impacts of land-based activities

Land-based activities such as agriculture, forestry, and fisheries have profound impacts on coastal and marine environments. Ocean accounts can:

- Monitor wastewater discharge: Provide data on the total volume of untreated wastewater discharged, informing efforts to improve water quality.
- Assess development and industry impact: Evaluate the impact of urban or industrial activities on coastal and marine ecosystems. For example, the impact of agricultural and aquacultural practices on marine ecosystems, providing insight into upstream and coastal land-use practices.
- Track nutrient runoff: Monitor the concentration levels of nitrogen and other nutrients, helping to manage and reduce coastal eutrophication.

#### Conserving and restoring marine ecosystems

Ocean accounts play a crucial role in conserving and restoring marine ecosystems by providing detailed information on ecosystem conditions and the effectiveness of conservation measures:

- Ecosystem condition: Measure indicators of ecosystem health, such as mean age of mangroves and coral length.
- Protected and conserved areas: Track the proportion of national exclusive economic zones managed with ecosystem-based approaches and the coverage of protected areas.
- Marine species: Monitor the status of marine species and habitats, supporting efforts to conserve biodiversity.

#### Climate change mitigation and policies for adaptation and resilience

Climate change poses significant risks to marine and coastal environments. Ocean accounts help in:

- GHG emissions: Tracking greenhouse gas emissions from ocean-based industry and the carbon sequestration by marine and coastal ecosystems.
- Sea level rise: Monitoring changes in low-lying areas vulnerable to inundation and extreme weather events. This includes assessing productivity loss, forced migration, human health effects, food insecurity, and potential social conflicts related to land use changes.
- Disaster risk reduction: Providing data on coastal protection and erosion control through the monitoring of mangrove and coral reef extent and condition.

<sup>&</sup>lt;sup>30</sup> Ocean Panel, 2022 https://oceanpanel.org/publication/100-sustainable-ocean-management-an-introduction-to-sustainable-ocean-plans/

### **Enabling Policies**

Enabling policies provide the framework within which various ocean-related strategies and actions are developed and implemented. These policies encompass legislation, regulatory instruments, national standards, and other governance mechanisms that shape the objectives and focus of ocean management.

Ocean accounts enhance the effectiveness of enabling policies by providing a structured, integrated data foundation with comparable statistics and indicators. This facilitates policy integration, ensuring consistency and mutual reinforcement. By organising comprehensive and accessible data, ocean accounts support various policy focuses. Ocean accounts also assist in cost-benefit analyses by providing social, environmental, and economic values, helping policymakers balance economic development with environmental protection. They supply detailed data that highlights the long-term impacts of policy choices, supporting sustainable decision-making. Maintained over time, ocean accounts allow for the evaluation of plans and progress towards objectives. They provide standardised, coherent information, enabling vertical integration of data from local to national levels. Continuous monitoring ensures policies remain effective and adaptive to changing conditions and new knowledge. Table 3 below outlines key policy focuses, relevant table groups from ocean accounts, and examples of their utilisation.

Table 3: Policy focus	and relevant oced	an account example
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Policy focus	Table groups	Examples
Ocean-related economic growth	Ocean economy governance	<ul> <li>Measure production and employment within developing sectors (e.g., aquaculture, marine tourism).</li> <li>Determine impacts of spatial planning on economic performance.</li> </ul>
Environmental impact monitoring	Flows to the environment	<ul> <li>Link pollutants to their impacts to ecosystems (e.g., solid wastes, plastics).</li> <li>Identify compliance with environmental standards by economic sectors.</li> </ul>
Natural resource management and conservation	Environmental assets, flows to the economy	<ul> <li>Determine impacts on 'ocean wealth' (i.e., stocks of ecosystems and natural resources).</li> <li>Identify contributions to society and the economy through ecosystem goods and services.</li> </ul>

To illustrate the practical application of ocean accounts, they can be integrated within various national plans, such as the National Biodiversity Strategy and Action Plan (NBSAP), National Adaptation Plan (NAP), and Nationally Determined Contributions (NDC), to support their development and implementation.

- For the NBSAP, ocean accounts can provide detailed data on marine biodiversity, ecosystem conditions, and trends, which are essential for formulating effective biodiversity strategies and action plans. They also enable the monitoring and reporting of progress towards biodiversity targets, ensuring data-driven adjustments and improvements in conservation efforts.
- In the context of the NAP, ocean accounts can track changes in marine environments due to climate change, aiding in the assessment of the vulnerability and resilience of coastal and marine ecosystems as well as human systems. This data foundation allows for the development of informed adaptation strategies by highlighting areas most at risk and the benefits of nature-based solutions, such as mangrove restoration.
- For the NDC, ocean accounts are crucial for measuring and monitoring blue carbon ecosystems (e.g., mangroves, seagrasses) and their contributions to national carbon budgets.

#### Leveraging Accounting for Policy Development in the Philippines

The Philippines hosts 42 of the world's 65 mangrove species, which provide vital ecosystem services. However, since 1900, over 50% of these mangroves have been lost, primarily due to aquaculture expansion. Scientific findings in the 1970s led to the enactment of laws for mangrove protection and restoration. Recognising their importance, the government introduced the Mangrove Reforestation Act of 2014 and the Expanded National Greening Programme (2015-2018), both focusing on mangrove restoration as part of coastal risk reduction strategies. To further enhance policy-making, the Philippine government has renewed efforts to mainstream natural capital accounting. Key initiatives in this area include the Southern Palawan Pilot Ecosystem Account and the Valuation of the Coastal Protection Services of Mangroves.

**Valuation of the Coastal Protection Services of Mangroves:** Mangrove ecosystem accounts demonstrated that mangroves significantly reduce flooding risks. The report findings included that if all mangroves were lost, an additional 613,000 people would be flooded annually, with \$1 billion in property damage. Additionally, each hectare was found to provide over \$3,200 yearly in flood protection

**Southern Palawan Pilot Ecosystem Account:** Ecosystem accounts for Southern Palawan revealed significant trade-offs in land and resource management despite aiming for economic gains. Human activities, particularly converting forests to oil palm and coconut plantations, led to declines in various ecosystem cover. Resource rent calculations supported these claims, leading to a review of permits for new plantations.

Further driven by the insights from ecosystem accounts and success of in-country case studies, the Philippines has continued to progress efforts, including:

- Philippine Natural Capital Accounting System (PENCAS), also known as the Republic Act No. 11995 (2024), which makes PENCAS official, requires policy-makers and other decision-makers to use it for policy and strategic decisions, designates responsible institutions, and provides appropriate institutional arrangements and funding;
- 2. Roadmap to Institutionalise Natural Capital Accounting (2022 to 2040), lay outs the strategic guidance on the implementation of natural capital accounting in the country, including financing instruments; and
- 3. DENR Executive Order (DAO) No. 2021-43 sets up the Guidelines on Establishing Carbon Accounting, Verification, and Certification System (2021) through, which outlines the carbon accounting system for forest carbon projects.

Policy currently in development include:

- Climate Accountability Act, a bill seeks to ensure that the business sector is held accountable to its contributions to climate change impacts; and
- Low Carbon Economy Act, a legislation that aids the conservation of blue carbon ecosystems by institutionalisation of the carbon crediting system.

See: Pilot Ecosystem Account for Southern Palawan and Valuation of the Coastal Protection Services of Mangroves in the Philippines, Wealth Accounting and the Valuation of Ecosystem Services<sup>31</sup>

<sup>&</sup>lt;sup>31</sup> Losada et al., 2017. <u>https://doi.org/10.1596/27666</u>

Beck and Lange, 2016. http://documents.worldbank.org/curated/en/995341467995379786/Managing-coasts-with-natural-solutions-guidelines-for-measuring-and-valuing-the-coastal-protection-services-of-mangroves-and-coral-reefs

WAVES, 2016. https://www.wavespartnership.org/en/knowledge-center/pilot-ecosystem-account-southern-palawan

### **Enabling Finance**

Finance comprises various activities, ranging from capital asset (long-term assets a company uses to produce goods and services to generate revenue) money, risk, and investment management to financial analysis. All these activities have a common goal: to fulfil fiduciary duty, meaning the obligation to act in the best interest of another party through volatility reduction by assessing stability, viability, and profitability of financial transactions. Ocean accounts can help inform this assessment, particularly in the field of sustainable finance. The accounts are structured around macro-economic accounts, environmental-economic accounts, and ecosystem accounts, and they include data on ocean beneficiaries, technology, governance, and management. The compiled information can enhance financial planning, as well as financial structuring and financial management by aligning it with legal and regulatory requirements through governance accounts, accounts, accurate risk management, and data measurement over time. Ocean accounting offers a framework aligning with the overarching goals of financial stability and wealth maximisation yet introduces unique perspectives tailored to the sustainable use and conservation of marine resources.

By including the value of marine and coastal ecosystems, ocean accounts enable governments and other public institutions to adopt a more integrated approach to financial management, emphasising the balance between economic growth and environmental sustainability. It enables the targeting of fiscal policies<sup>32</sup> to support sustainable ocean development. For example, the identification of high value ecosystem services could help governments shift their financial flows to the most impactful restoration or conservation projects. The environment-economic account is also used to assess pollution flows and could therefore help governments identify the need for a new environmental tax to try and change polluters' behaviour.

This methodology extends the principles of financial management—strategic planning, budgeting, and investment—to the context of the sustainable ocean economy, allowing for the optimisation of financial performance and the safeguarding of marine biodiversity and supporting sustainable livelihoods. Connecting ocean accounts with financial management and investment ensures sufficient liquidity and effective cash management practices, reimagined to include the valuation of ecosystem services and the cost-effective allocation of resources toward marine conservation. Similarly, the management of capital structure through debt and non-debt financing is adapted to fund projects that enhance the resilience of coastal communities and promote sustainable marine industries.

Also, the private sector can integrate ocean account data into several layers of financial thinking. Whether investing in public assets, in the forms of blue bonds or portfolio analysis, in which investors need to steer decision-making, balancing associated financial risks arising from environmental degradation, ocean accounts data can be highly significant. Financial stewardship of the private sector can take on new dimensions, prioritising initiatives that offer significant social and economic returns through preserving marine environments and promoting the sustainable use of ocean resources while better anticipating risk and return profiles.

Ocean accounts facilitate a deeper understanding of the intrinsic connection between finance and the ocean, enabling a systems-thinking approach. By providing a clear picture of the economic value of marine ecosystems, ocean accounts support a strategic alignment of financial decisions with sustainability goals, ensuring that next to returns on investments they contribute to the long-term health of the ocean and the economic prosperity of communities that depend on it. Ocean accounting represents a transformative tool for achieving financial stability, growth, and long-term success, not just for individual entities but for society, by fostering a harmonious relationship between economic development and ocean conservation.

<sup>&</sup>lt;sup>32</sup> Policies on either public revenue generation or spending.



Table 4: Financial Instruments for the Ocean Economy and Relevant Accounts

Category	Instrument	Description	Roles of Ocean Accounts
Market- based	Environmental credit markets (e.g. carbon, biodiversity)	Verified environmental credits, tradable for financial compensation, incentivising conservation, and restoration.	Providing an integrated accounting structure for environmental credit systems and the social, economic and environmental impacts of managing these assets. Establishing a scalable basis as appropriate for unitisation and securitisation of environmental credit assets.
	Blue bonds	Fixed-income debt instruments specifically raising funds for sustainable ocean activities while providing investors with returns.	Providing an integrated accounting structure for the social, environmental and economic consequences of downstream bond investment. (milestones)
	Payments for Ecosystem Services (PES)	Direct payments to individuals or communities for providing ecosystem services like water quality regulation, air quality regulation, carob sequestration, etc, to incentivise sustainable management and generate local income.	Providing a standardised and comparable basis for identifying origins of ecosystem services and beneficiaries of those services. Establishing a foundation as appropriate for scalable unitisation and securitisation of ecosystem assets that provide valuable services.
Non- market based Grants and donations Grants and donations Grants and donations Grants and donations Grants and donations Grants and donations Grants and Grants and		Philanthropic or government financial support for project development, implementation, and monitoring.	Providing an integrated structure for tracking primary social, environmental and economic outcomes and impacts of grants and donations.
Blended	Public-private partnerships (PPPs)	Collaboration between governments and private entities to leverage resources and expertise, combining public funding with private investment and innovation.	Establishing a coherent multi- institutional understanding of relevant social, economic and environmental circumstances and their change over time, as a foundation for role assignment and division of responsibilities and accountabilities between public and private sector.

Box 7: Fiji Case Study

#### Economic Significance of Mangroves: Findings from the Fiji Ocean Account Pilot

Mangroves play an important role in Fiji, supporting key economic activities, such as fisheries as well as providing important services like remediation. As part of an initial pilot within Fiji, mangroves were chosen as the focus. This pilot project compiled data on the extent and condition of mangroves and linked to economic activities.

The results highlighted that mangroves support about 0.5% of Fiji's Gross Domestic Product (GDP) and Gross Value Added (GVA), equating to an estimated USD 20-30 million annually. Additionally, mangroverelated activities support around 3,500 direct jobs, representing about 2% of total employment in relevant industries. These findings underscore the essential role marine and coastal ecosystems in sustaining Fiji's economy and the livelihoods of its coastal communities.

See: GOAP (2022) Ocean Accounting for Fiji: A Focus on Mangroves. Global Ocean Accounts Partnership, Sydney, Australia. https://www.oceanaccounts.org/ocean-accounts-for-fiji-a-focus-on-mangroves/

#### Box 8: Blue Carbon Accelerator Fund

#### Delivering on Nature: Blue Carbon Accelerator Fund (BCAF)

The Blue Carbon Accelerator Fund (BCAF), a collaboration between the Department of Climate Change, Environment and Energy (DCCEEW), Government of Australia and the International Union for the Conservation of Nature (IUCN), is supporting the development of projects aimed at the restoration and conservation of blue carbon ecosystems (commonly defined as mangroves, seagrass and salt marsh), in 6 countries. These projects aim to enhance ecosystem resilience and biodiversity, provide benefits to local communities while also paving the way for private sector finance. By implementing on-the-ground projects that demonstrate measurable benefits, BCAF helps to strengthen the business case for private sector investment in coastal blue carbon ecosystems. For instance, projects in Indonesia and Papua New Guinea are leveraging community-led approaches to restore and conserve mangrove forests and seagrass, thereby building local capacity and fostering sustainable livelihoods.

One of the critical ways BCAF projects are advancing access to finance is through the application of Ocean Accounts, as a systematic framework for evaluating the economic and ecological impacts of project interventions. By producing ocean accounts, in addition to maintaining traditional financial accounts, projects can develop financial models, establish robust and transparent measurements of ecosystem services (including carbon sequestration), and integrate local and national stakeholders in conservation efforts. These projects are preparing the groundwork for scalable financial mechanisms and furthering the long-term project viability through demonstrating clear impact and returns on investment.

Further, the Australian Government, through its membership in the Global Ocean Accounts Partnership (GOAP), is providing further support to BCAF projects through the GOAP Secretariat. This assistance helps compile and report social, economic, and environmental baseline and outcome data in formats compatible with international standards. The collaboration between IUCN, GOAP, and BCAF projects facilitates the development of joint coordination plans for ocean accounting, thereby enhancing the precision and utility of the data collected.

See: https://bluenaturalcapital.org/bcaf/

# Establishing Ocean Accounts as Part of Sustainable Ocean Plans

The simultaneous establishment of ocean accounts and SOPs creates a mutually beneficial relationship, forming a comprehensive toolset that supports sustainable ocean management. Acknowledging the interconnectedness of these frameworks early on reduces the risk of process duplication and knowledge fragmentation. Integrating ocean accounts within SOPs can close gaps in understanding across institutions, establishing a unified and standardised approach to data analysis and plan formulation. This strategic integration significantly enhances governance and management of ocean resources. Developing these frameworks concurrently allows for the seamless incorporation of critical data and indicators, optimising their development process.

Depending on the needs, use and intended scale, ocean accounts can be compiled individually or as part of a set of selected accounts. Likewise, SOPs can be a single plan that addresses the entire area under national jurisdiction, or an integrated set of sub-jurisdiction plans. Linking both frameworks operationally can begin through various entry points, depending on practitioners' needs and progress status.

The following section will delve into the practical steps for co-developing ocean accounts and SOPs, as outlined in Figure 6.

Pre-planning	Setting the Scope	Assess Knowledge	Formulate		
<ul> <li>Establish a coordination mechanism</li> <li>Engage with stakeholders</li> <li>Determine priorities</li> </ul>	<ul> <li>Determine a national vision</li> <li>Determine size and scope</li> <li>Identify key industries and sectors</li> <li>Identify environmental assets</li> </ul>	<ul> <li>Collate and organise knowledge and data</li> <li>Collate and organise ocean-related plans and processes</li> <li>Ensure compatibility across data sources</li> </ul>	<ul> <li>Compile SOP</li> <li>Create ocean account and all components</li> <li>Document sources and methods</li> </ul>	<ul> <li>Pursue measures needed to implement</li> <li>Release final plans and accounts</li> </ul>	<ul> <li>Monitor progress of both SOP and ocean account</li> <li>Evaluate effectiveness</li> <li>Adapt both when and where needed</li> </ul>

Figure 6: Steps to Co-establish OA and SOPs

#### 1. Pre-planning

#### Establish a coordination mechanism

Identify relevant institutional mechanisms currently in place and establish a coordination mechanism. The coordination mechanism should be both cross-sectoral and cross-stakeholder. Both ocean accounts and SOPs apply concepts and methods from many disciplines, it is important that an interdepartmental team comprising of members with complementary knowledge, expertise and policy use perspectives be formed to collaborate. Specific skill sets and technical expertise required will be subject to the scope and focus of the accounts and SOP.

#### **Engage with stakeholders**

To effectively develop and implement both ocean accounts and SOPs, it is crucial to engage a wide array of stakeholders early in the process to promote balanced representation of social, cultural, economic, and ecological interests. Begin by identifying key stakeholders, this will include both producers and users of related information but also others that can benefit from improved information. Key stakeholders will include representatives from government, National Statistical Offices, ocean industry sectors, financial institutions, research bodies, non-governmental organisations, local communities, and Indigenous Peoples. Determine when and how they will be engaged.

Engage with the National Statistical Office to highlight the advantages of integrating information and approaches across the National Statistical System. Consider the role that international partners can play through facilitating international sharing of knowledge and supporting its development, particularly at the national level.

There are additional communities of practice, such as the Global Ocean Accounts Partnership (GOAP) (Appendix 3) and Ocean Action 2030 Coalition which provide a network of experts as well as technical assistance, policy advisory and strategic support to countries and institutions interested in developing ocean accounts or SOPs, respectively.

#### **Determine priorities**

Engage stakeholders in discussions to determine the priorities, including policy priorities and governance gaps, which serve as guiding principles for subsequent efforts for action. Prioritise the development of governance accounts, to assist in identifying additional stakeholders and relevant layers of governance, crucial for initial steps of SOP formulation.

#### 2. Setting the Scope

#### Determine national vision

Engage stakeholders in discussions to collaboratively develop a vision for the country's sustainable ocean economy. Document what the national visions and priorities related to the ocean, the environment, biodiversity, sustainable development, and ocean economy. This should include what assets are key to manage and what flows of services from them should be included in ocean accounts.

#### Determine size and scope

Set the scope of both the SOP and ocean accounts. Decide whether a single plan will address the entire area under national jurisdiction or if an integrated set of sub-jurisdictional plans will be used to cover the same scope. Likewise, determine the extent of ocean account development, choosing whether to start with a pilot ocean account or to begin with a broader approach. Ocean accounts can be developed and tailored to answer key questions or provide key indicators. Pilot accounts can provide valuable insights that inform policy decisions and have the potential to expand, incorporating a wider range of data and insights (See Box 9: Fiji Case Study).

Define the spatial boundaries that the plan will cover, including the delineation of ecosystems. Determine both the seaward and inland boundaries, which may encompass the Exclusive Economic Zone and various coastal features.

#### Identify key industries and sectors

Identify the industries and sectors that will constitute the ocean economy, considering direct industries, secondary industries, and the entire value chain. Decide whether to focus on a geographical basis and how to include these considerations. Select the economic measures to be included in the ocean account, such as output, value added, and employment.

#### Identify environmental assets

Determine the range of environmental assets to be included, such as minerals and energy resources, land and seabed, timber resources, aquatic resources, and ecosystems. Decide what condition measures will be included, such as water quality and chemistry.





Box 9: Mexico Case Study

# Mexico's Progression Towards Integrated Ocean Accounts for SOPs

Mexico is in the process of developing a national SOP that emphasises inclusivity, participation, and the integration of environmental, social, and economic aspects. The plan follows Ocean Panel guidelines, aiming for 100% sustainable ocean management through broad stakeholder participation, including indigenous and local communities.

To coordinate ocean-related activities, the Mexican government established the Inter-ministerial Commission for the Sustainable Management of Seas and Coasts (CIMARES). This Commission aims to integrate actions across government agencies for the sustainable development of coastal and marine areas. Following a participatory process involving federal government agencies, members of the Expert Group, and experts from civil society organisations and research institutes, Mexico's "Implementation Strategy for a Sustainable Ocean Economy in Mexico 2021 to 2024" (EIEOS) was published in 2022. This strategy defines a sustainable ocean economy, identifies short-term priorities, maps initiatives to accelerate the transition, and provides elements to inform their SOP. Additionally, "enabling" actions essential for implementing the identified priority actions were outlined.

A key enabling action identified was the establishment of a system of ocean accounting for Mexico. This involves developing a comprehensive sequence of national ocean accounts that are actively used to inform decision-making. It includes aligning international standards for ocean accounting and best practices for implementation to ensure interoperability, harmonisation, and consistency. Mexico aims to engage with global partnerships to share best practices and build capacity for national ocean accounting and explore a process to develop a global approach to monitoring national performance based on ocean accounts.

Mexico has a long history of natural capital accounting, having adopted both the SNA and SEEA. It was the first Latin American country to compile environmental economic accounts in 1990. Since 1994, Mexico's national institute of statistics and geography (INEGI) has published updates every five years on its System of Environmental and Economic Accounts (SCEEM), which include water, forest, fisheries, and material flow accounts. Mexico also covers mangroves in its terrestrial ecosystem accounts (SEEA EA) and has conducted preliminary studies to assess the coastal protection services provided by mangroves, supported by NCAVES.

Mexico is now working towards integrating terrestrial ecosystem services into national accounts. This includes mapping existing information and data, identifying where it is hosted, and recognising data gaps. They have also hosted workshops to gather relevant experiences from national and international ocean knowledge and information platforms. By recognising that they already have some of the infrastructure and knowledge necessary to begin developing oceanic accounting, Mexico aims to achieve a SOP supported by robust ocean accounts.

On the other hand, Mexico is working on the construction of an Ocean Knowledge Platform that gathers official data and statistics from all national institutions, which will identify the availability of information for the development of ocean accounts. To this end, during 2023, with the support of PROBLUE (World Bank), a proof of concept of the Platform was carried out and the feasibility of the economic valuation of mangroves, fishing, extension, capture and storage of blue carbon, among others was analysed. The result was that the conditions of data availability will allow starting the valuation of mangroves, on which a proof of concept was made and now simulations are being developed with the valuation methods using information from the Mexican Mangrove Monitoring System.

See: https://oceanpanel.org/sustainable-ocean-plans/mexicos-inter-ministerial-andintegrative-approach-to-sustainable-ocean-plans/ and https://seea.un.org/content/mexico-0

#### 3. Assessing Existing Knowledge and Identifying Data Gaps

#### Collate and organise knowledge and data

The collation and organisation of data is pivotal to the development of ocean accounts and SOPs. An initial step involves compiling comprehensive data inventories, which detail the existing social, economic, and environmental knowledge and data available within the defined scope, as well as defining the spatial resolution and scale of the data.

#### Collate and organise ocean-related plans and processes

Additionally gather and review existing ocean-related plans and processes in the country, such as marine spatial planning, integrated coastal zone management, Blue Economy planning, and national tourism plans.

#### Ensure compatibility across data sources

Transform lower-level specialist data into account-ready data, ensuring consistency and compatibility across datasets, such as by using common classification systems like the Global Ecosystem Typology. Identify existing knowledge and data gaps, along with the feasibility challenges related to access and collection, in order to address the key policy questions that need to be answered. Conduct or commission new research where necessary and prioritise the production of statistics and indicators that will directly inform the SOP process. Satellite imagery and other remote sensing technologies can assist the collection, harmonisation, and processing of earth observation data, particularly when relevant statistics or government-generated administrative data are not available. There are also a wide range of global ocean datasets and data products that could be utilised to fill important data gaps. Additionally, data sharing agreements, especially where data access is challenging should be explored.

Assess the progress already made in developing ocean data, statistics, and accounts, as well as other environmental statistics and accounts. Identify key national data sources that can serve as a foundation for further development. Evaluate the constraints to implementing specific ocean accounts and identify opportunities for immediate actions to address these constraints.

#### 4. Formulating Ocean Accounts and SOPs

#### **Compile SOP**

Develop a SOP relevant to national context, ensuring that the process is inclusive and integrative. Ensure the plan embodies all nine attributes of SOPs and integrates the appropriate components, such as ocean accounts. Additionally, include specific goals, indicators, and methods for ongoing monitoring and evaluation.

#### Create ocean account and all components

Compile ocean accounts by transforming account-ready data into comprehensive accounts. Ensure the information is detailed enough to establish relationships between the components. This process includes<sup>33</sup>:

- Assessing the extent and condition of ocean assets: Evaluate both biotic components (e.g., mangroves, seagrasses) and abiotic components (e.g., beaches, rocky shores) and their designated uses (e.g., marine protected areas, fishing areas).
- Assessing flows to and from ocean assets: Categorise flows from the ocean environment to the economy into materials, energy, water, and ecosystem services (provisioning, regulation and maintenance, cultural). Flows to the ocean environment include wastewater returns, air emissions (including CO2 from fossil fuels), water emissions, and solid wastes (including plastics and hazardous wastes).
- Assessing the ocean economy: Identify the proportion of economic activity attributable to
  ocean-related industries and combine the disaggregated data to provide an overall measure of
  the ocean economy. This could include reporting the value added and employment of marine
  transportation, fisheries, and tourism separately.

<sup>&</sup>lt;sup>33</sup> See more in depth steps for developing ocean accounts within: Loureiro et al., 2022. https://doi.org/10.4314/wiojms.si2022.1.11

• Assessing ocean governance: Identify and characterise zoning, decision-making institutions and associated rules, social circumstances, and risk and resilience.

#### **Document sources and methods**

Document sources and methods to ensure transparency and understanding. Implement routines to check data accuracy, comparing ocean account data with existing data to identify and address discrepancies. It is important to bear in mind that the defined accounting systems used within the framework may need to be expanded, and other accounting systems might need to be integrated over time.

#### Box 10: Norway Case Study

#### Establishing SOPs in Norway

As a nation with deep maritime roots, Norway recognises the critical importance of sustainably managing its vast ocean resources for economic prosperity and preserving cultural identity. Since 2002, Norway has developed "Integrated Ocean Management Plans for the Norwegian Sea Areas," which provide a framework for sustainable use of marine resources while preserving ecosystems' structure, functioning, productivity, and diversity. These plans are presented as white papers to the Norwegian Parliament and are updated regularly to reflect new knowledge and challenges. In 2020, Norway consolidated its management plans for three ocean areas into a single comprehensive document aimed at achieving 100% sustainable ocean management. The latest Norwegian integrated ocean management plan was endorsed by the parliament in spring 2024 and constitute the main body of Norway's SOP, which will take an 'integrative and ecosystem-based approach' to ocean management.

Norway has a long history of compiling ocean-related data and indicators as part of the work on the Integrated Ocean Management Plans. This includes data on economic values, economic activities and their environmental pressure, environmental condition and more. Data on economic values have however only been presented for a few years at a time, as there has not been a system for updating the data regularly.

As part of the OECD project "Future of the Ocean Economy", Statistics Norway presented the first Norwegian ocean satellite accounts in 2022. These accounts aim to reveal the size and structure of ocean-linked mainland industries, providing a detailed presentation consistent with national accounts.

In line with the Ocean Panel's recommendations on ocean accounts, a national scoping assessment for thematic ocean accounts was completed in spring 2022. The assessment showed that the status for how far Norway has come in ocean accounting, varies greatly from one topic to another, which was reflected in the recommendations for further work. One of the recommendations was to use the results from the ocean satellite accounts as the basis for reporting economic values in the management plans. This was followed up in the management plan that was presented to the Norwegian Parliament in 2024. Another recommendation was to conduct a pilot for marine ecosystem accounting in line with SEEA EA standard. The pilot is planned to start in 2025.

In parallel, the research project MAREA (MARine Ecosystem Accounting) is also contributing to progress in ocean accounting by investigating how ocean accounts can be used in multilevel decision- and policymaking. MAREA's main objective is to assess and develop methods for downscaling coastal-marine thematic accounts (UN SEEA EA, Ch13) at a regional level, using the Oslofjord as a test case. This project addresses issues such as pollution, overharvesting, recreational use and habitat destruction, aiming to improve the fjord's ecosystem condition through integrated planning and science-local planning collaborations.

Norway recognises the importance of integrating ocean accounts with its SOP to ensure a comprehensive, data-informed approach to ocean management and governance. By developing these frameworks concurrently, Norway is working towards achieving a SOP that is robustly supported by detailed ocean accounts, in line with international recommendations.

#### See: https://www.marea-oslofjord.no/ and

https://www.ssb.no/en/nasjonalregnskap-og-konjunkturer/konjunkturer/artikler/ocean-satellite-account.description-of-methods-and-sources

#### 5. Implementation

#### Pursue measures needed to implement

Implement both the SOP and ocean accounts by pursuing measures needed to enable their use such as establishing or updating legislation and policies or further capacity building.

#### **Release final plans and accounts**

Release the final ocean account data through appropriate channels, such as a website or detailed report, ensuring the data is accessible and understandable to stakeholders.

#### 6. Monitoring, Evaluation and Adaptation

#### Monitor progress of both SOP and ocean account

Monitor implementation progress by establishing mechanisms to periodically assess the performance of both the SOP and ocean accounts against predetermined indicators and targets. Identify appropriate indicators from the ocean accounts that can support the evaluation of the SOP's progress towards its objectives.

#### **Evaluate effectiveness**

Evaluate the effectiveness of the implemented measures and the overall performance of the frameworks. Determine if the desired outcomes are being achieved and if any adjustments are necessary. Engage stakeholders in this evaluation process to ensure a comprehensive and inclusive assessment.

#### Adapt both when and where needed

Adapt and update the SOP and ocean accounts based on the monitoring and evaluation findings. As economic, social, and environmental conditions evolve, and as new knowledge and data become available, refine and tailor the frameworks accordingly. Ensure that the updated ocean accounts incorporate new datasets and indicators to support each stage of the SOP process effectively.

Maintain an iterative approach, continuously improving and aligning the SOP and ocean accounts based on the changing needs of decision-makers, evolving environmental conditions, and advancements in data and knowledge. Regularly communicate the updates and refinements to stakeholders to foster transparency and maintain their engagement throughout the process.

While the specific process will differ based on each country's unique context, the concurrent development of SOPs alongside ocean accounts empowers nations to safeguard and responsibly manage their ocean resources through informed decision-making. This integrated approach fosters collaboration among stakeholders, promotes transparency, and enables adaptive management strategies tailored to evolving circumstances. By aligning the information collection processes, countries can save time and money, ensuring that similar data is gathered efficiently and cohesively. By leveraging the synergies between these two complementary frameworks, countries can establish a robust foundation for sustainable ocean governance, ensuring that policies and actions are grounded in comprehensive data and analysis. Ultimately, the successful implementation of ocean accounts and SOPs equips nations with the tools necessary to drive progress towards a resilient and sustainable ocean economy.

## Conclusion

Ocean accounts are pivotal in bolstering SOPs, enabling the delivery of their full potential in economic, social, and environmental benefits. These benefits are essential for the integrated, equitable, and sustainable management of ocean resources as outlined in the Ocean Panel 2030 commitment. The synergy between ocean accounts and SOPs creates a unified framework, empowering nations to collaboratively progress towards mutual goals. Leveraging ocean accounts enhances the ability of SOPs to provide a comprehensive overview, uniting diverse sectors and industries through informed decision-making and progress monitoring.

Integrating ocean accounts with SOPs is a crucial step in achieving a holistic approach to ocean governance. This integration attracts investments from both public and private sectors in environmental conservation, encourages stakeholder engagement and provides a strong foundation to address critical challenges such as habitat degradation and unsustainable resource exploitation. Additionally, ocean accounts enhance transparency and accountability by standardising fragmented data, enabling informed and strategic decision-making. They support stakeholder engagement by offering a structured framework for dialogues and prioritising data gaps, which helps in setting measurable goals and indicators for monitoring and evaluation. Furthermore, integrating ocean accounts with area-based management strategies offers a multidimensional perspective that informs more effective governance decisions. This comprehensive data integration aids in formulating sustainable economic development strategies, assessing environmental impacts, and ensuring policy coherence, ultimately promoting a balanced and sustainable ocean economy.

Nevertheless, the integration process is not without challenges. It requires coordination across multiple fields of expertise and institutions, often complicated by varying mandates and jurisdictions. The dispersion of relevant knowledge and data across different entities necessitates a concerted effort to establish data-sharing protocols and navigate administrative hurdles. Given the multifaceted approach to both ocean accounts and SOPs, countries may encounter challenges in experience or capacity to foster such multidisciplinary partnerships. As an initial step, it is crucial to identify a lead agency capable of orchestrating this intricate process, ensuring that the initiative moves forward cohesively and effectively.

By integrating ocean accounts into SOPs, countries can enhance policy coherence, optimise resource allocation, and foster inclusive stakeholder engagement, thereby strengthening their leadership in sustainable ocean management. Ultimately, the successful integration of ocean accounts into SOPs can lead to more effective and adaptive governance, underpinned by the best knowledge, to ensure the resilience and health of marine ecosystems for future generations.

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# Glossary

Term	Definition	Example	Source
Ecosystem	A contiguous space of a specific ecosystem type characterised by a distinct set of biotic and abiotic components and their interactions.	tiguous space of a specific ecosystem characterised by a distinct set of biotic biotic components and their ctions.	
Basic Spatial Unit	The subdivision of the accounting area spatially to align data.	The present study uses a 1 km <sup>2</sup> grid	SEEA EA ( <u>UNSD 2021</u> )
Environmental asset	Environmental components that are stores of value that, in many situations, also provide inputs to society and the economy (e.g. production processes).	Abiotic and biotic environmental components	Ocean Accounts Framework ( <u>GOAP 2021b</u> )
Ecosystem extent	The range and extent of ecosystems within an accounting area.	Landcover of mangroves (in hectares). Ocean Accounts endorse the use of the IUCN Global Ecosystem Typology ( <u>Keith et al. 2020</u> ).	SEEA EA ( <u>UNSD 2021</u> )
Ecosystem condition	The quality of an ecosystem measured in abiotic and biotic characteristics.	Mangrove tree height, above ground biomass. Note that there are no standardised indicators for each ecosystem, although the SEEA-EA provides guidance for the development of condition accounts.	SEEA EA ( <u>UNSD 2021</u> )
Ecosystem services	The contributions of ecosystems to the benefits that are used in economic and other human activity. Services are categorised broadly into provisioning, regulating and cultural services. Services are measured either as a good or intangible product of the system.	Enhancement of exploited species stock (provisioning service), climate change mitigation through carbon sequestration (regulatory service), cultural significance of mangroves to traditional owners (cultural services)	SEEA EA ( <u>UNSD 2021</u> )
Natural capital	Natural assets in their role of providing natural resource inputs and environmental services for economic production	Such as plants, animals, water, soils, and minerals	( <u>United</u> <u>Nations</u> <u>Glossary of</u> <u>Environmental</u> <u>Statistics</u> 1997)
Ocean-related sectors	Sectors with spatial intersection or dependent on ocean resources, including activities that use ocean resources as an input (e.g. fishing) and produce products and services for use in the ocean environment (e.g. shipbuilding).	Coastal and marine fishing, water transport (coastal and marine), shipping and ports.	Ocean Accounts Framework ( <u>GOAP 2021b</u> )
Ocean economy satellite accounts	Accounts that measure economic activity dependent on oceans, including activities that use ocean resources as an input (e.g. fishing), produce products and services for use in the ocean environment (e.g. shipbuilding) or use ocean space due to geographic proximity (e.g. warehouses that service ports).	Production, employment accounts for ocean-related sectors.	Ocean Accounts Framework ( <u>GOAP 2021b</u> )

# Appendix 1 Linking Ocean Accounts to the Global Biodiversity Framework

GBF Target	Link to OA component	Description of how OA can support the GBF target
<b>Target 1:</b> Plan and Manage all Areas to Reduce Biodiversity Loss	Ecosystem Extent and Condition Accounts	By measuring changes in extent and condition accounts, the accounts allow users to recognise if these ecosystems have been decreasing or increasing in extent and condition. By combining critical environmental information into spatial planning and management, ocean accounts measure progress towards conservation targets and their effectiveness.
Target 2: Restore Degraded Ecosystems	Ecosystem Extent and Condition Accounts; Ecosystem Services Supply Accounts	Restoration actions could be directly supported by ecosystem extent and condition accounts, that identify habitat loss or the degradation of ecosystems over time. This provides a baseline to identify areas for restoration and track improvements over time. Ecosystem service accounts further identify the benefits of restoration to communities and economic sectors.
<b>Target 3:</b> Conserve and Manage Protected Areas	Ecosystem Extent and Condition Accounts; Ecosystem Services Accounts; Governance and social	Ecosystem extent and condition accounts could underpin the monitoring and evaluation of protection effectiveness over time. Ecosystem Service accounts also highlight the benefits provided by protected ecosystems to justify protection. Including data on the users of ecosystem services can provide insights into equitable and sustainable use within these areas. Additionally, the OA approach integrates local and indigenous knowledge into decision-making, ensuring their insights and rights are recognized and leveraged in broader policy and management strategies.
<b>Target 4:</b> Manage human-wildlife interactions to Prevent Extinction of Threatened Species	Ecosystem Extent and Condition Accounts	Biodiversity-based condition accounts can track the status and trends of species. Further, ecosystem extent and condition accounts could monitor the state of habitats critical to endangered species. By understanding the dependencies of humans with species and their habitats, integrated and equitable management plans can be implemented.
<b>Target 5:</b> Sustainable Use of Wild Species	Ecosystem Services Accounts	Physical ecosystem service accounts can measure the supply and use of services related to wild species and related ecosystems. Changes to ecosystem services over time could identify the sustainability of activities using wild species, and potential impacts to non-target species and ecosystems.
<b>Target 6:</b> Control Invasive Alien Species	Ecosystem Condition Accounts; Ecosystem service accounts	Invasive species could be tracked within ecosystem condition accounts. In measuring their potential impact using ecosystem service accounts, decision makers can understand the risks to the continued supply of services and manage these species effectively.
Target 7: Reduce Pollution	Ecosystem Extent and Condition Accounts; Residual Flow Accounts	Residual flow accounts monitor pollution (e.g., solid wastes, nutrients) and their sources by sector, providing a basis for management interventions. These actions are further supported by ecosystem extent and condition accounts that could link pollution impacts to changes in ecosystem health.
<b>Target 8:</b> Minimize Climate Change and Ocean Acidification Impact	Ecosystem Condition Accounts; Ecosystem Services Supply Accounts	Ecosystem condition accounts can track changes in ecosystem health and resilience, while physical ecosystem services flow accounts can monitor the provision of services like coastal protection, informing nature-based solutions and adaptation measures.
<b>Target 9:</b> Sustainable Use and Benefit- Sharing	Ecosystem Services Accounts; Social	By tracking who benefits from ecosystem services through supply and use accounts, it is possible to ensure equitable and sustainable use, incorporating social dimensions into ecosystem accounting.
<b>Target 10:</b> Sustainable Management of Aquaculture and Fisheries	Ecosystem Condition Accounts; Ecosystem Services Accounts	Ecosystem condition accounts and ecosystem services flow accounts can monitor the productivity, sustainability, and resilience of these managed ecosystems, supporting biodiversity-friendly practices and long-term sustainability.
<b>Target 11:</b> Restore Nature's Contributions to People	Ecosystem Services Accounts	Physical ecosystem services accounts can track the provision of these services, helping to assess and enhance the benefits provided by ecosystems to people. OA can measure the dependencies and risks of

		different economic sectors and social groups on nature, providing a comprehensive view of how society and communities rely on and benefit from healthy ecosystems.
<b>Target 12:</b> Increase Access and Quality to Green and Blue Spaces	Ecosystem Extent and Condition Accounts; Ecosystem Services Accounts	Urban ecosystem accounts, along with ecosystem condition and services flow accounts, can monitor the quality, extent, and benefits of urban green spaces, contributing to improved human health and well-being.
<b>Target 13:</b> Fair and Equitable Sharing of Benefits from Genetic Resources	Ecosystem Services Users Accounts; Social	Ocean accounts can include social-contextual information on the use of genetic resources and traditional knowledge. By integrating this information, OA can support fair and equitable benefit-sharing mechanisms in accordance with international instruments.
<b>Target 14:</b> Integrate Biodiversity into Policies and Planning	Combination of Ocean Accounts components	OA provide comprehensive data to align policies with biodiversity goals, ensuring these values are recognized and managed effectively. This enhances policy coherence and conservation efforts. Different OA components, recorded individually or combined, support this target (e.g., biodiversity-based condition accounts, ecosystem services, and flows to the environment linked to economic accounts, governance data).
<b>Target 15:</b> Encourage Business to Assess and Disclose Biodiversity Impacts	-	The LEAP (Locate, Evaluate, Assess, Prepare) approach of the Taskforce on Nature-related Financial Disclosures (TNFD) can be integrated into ocean accounts to support transparent reporting and sustainable business practices.
<b>Target 16:</b> Promote Sustainable Consumption Patterns	-	Footprint indicators derived from environmental-extended input-output analysis, using accounts data, can inform sustainable consumption policies and practices, promoting equitable resource use.
Target 17: Implement Biosafety Measures	-	While specific ocean account components are not directly linked, OA can support biosafety measures by incorporating environmental risk assessments and monitoring the impacts of biotechnology on marine and coastal ecosystems.
<b>Target 18:</b> Reform Incentives Harmful to Biodiversity	-	SEEA Environmental activity accounts provide information on transactions related to environmental protection expenditures, taxes, and subsidies, helping assess and optimize economic resources for biodiversity conservation.
<b>Target 19:</b> Increase Financial Resources for Biodiversity	-	Environmental protection expenditure accounts can monitor the financial flows and investments in biodiversity, supporting effective resource allocation and tracking progress towards funding goals. Additionally, extent and condition accounts enable tracking the social and environmental impacts of these investments, providing insights into their effectiveness and outcomes.
<b>Target 20:</b> Strengthen Capacity-Building and Technology Transfer	-	Ocean accounts can support capacity-building by fostering partnerships, workshops, and events that enhance scientific research, technology transfer, and innovation for biodiversity conservation. Incorporating local and traditional knowledge can further strengthen these efforts.
<b>Target 21:</b> Improve Access to Data and Knowledge	All accounts	By providing a framework to centralize and combine data in a standardized manner, ocean accounts assist in overcoming knowledge fragmentation and providing a common evidence-base for stakeholders. Accounts support informed decision-making, participatory management, and public awareness on biodiversity issues.
<b>Target 22:</b> Ensure Inclusive Participation and Access to Information	Social and governance accounts	Ocean accounts emphasize inclusive and equitable representation in decision-making by incorporating social and governance data. This approach facilitates the participation of indigenous peoples, local communities, women, and marginalized groups in biodiversity governance.
<b>Target 23:</b> Promote Gender Equality in Biodiversity Actions	Social accounts	The ocean accounts framework provides the means to link social equity considerations, including gender equality, with ecosystem change. They could track impacts on women's livelihoods due to habitat loss or highlight the contributions of women to biodiversity conservation.

# Appendix 2

# Ocean Accounts Diagnostic Tool

Statement of	1a. Vision	National vision for sustainable development
strategy and policy	1b. Concerns	Ocean-related problems, challenges, concerns the country faces
priorities		that prohibit/hold back the realisation of the vision
	1c. Priorities	Key national policy priorities in line with to the vision and concerns.
		Could be one or a combination of
		Economic focus (e.g., ocean economy, tourism)
		Environmental/conservation focus (e.g., protected areas and other
		protection schemes)
		Social focus (for example, the multidimensional equity aspects of
		ocean economy and ocean conservation)
	1d. Plans	Existing or planned policy tools, including Marine Spatial Planning
		(MSP), in response to the priorities
Institutions	2a. Stakeholders	May be arranged according to the priorities (plus MSP). Include
		stakeholders that should be engaged
	2b. Roles of NSO	Particularly environment statistics, SEEA and ocean accounts
		compilation
	2c. Mechanisms	That ensures integration across stakeholders, programmes, projects
		and processes (for example, senior steering committees).
Knowledge	3a. Data sources	May be arranged according to the priorities (plus MSP), including
		both official and non-official (such as academic, NGO, etc.) data and
		statistics
	3b. Other key	Other key documents relevant to ocean data and statistics as well
	documents	as ocean policy and management
Progress	4.Progress related to	Parts of SEEA and ocean accounts that have been compiled/piloted,
	ocean accounts	including efforts in harmonizing & integrating environmental data
		and statistics
		Existing or planned projects
		Types of outputs produced
Context	5a. Statistical context	Other statistical development activities, such as statistical
		legislation, adoption or revision of new standards, new data
		collection or integration initiatives.
	5b. Other international	International support for statistical development and measurement
	activities	of the ocean. May be arranged according to the priorities (plus
		MSP)
Priorities for	6.Priority ocean	What parts of ocean accounts should be prioritized for
actions	accounts	implementation/further improvement considering information
		above.
		Who could/should be engaged, both nationally and internationally.
		in the compilation?
Constraints and	7a. Constraints	Specific constraints under each priority account. Otherwise, key
opportunities		common constraints to progress the compilation/use.
	7b. Opportunities	Specific opportunities under each priority account. Otherwise
		general opportunities.
	7c. Priority actions	To overcome the constraints and take advantage of the
		opportunities to progress the compilation of priority accounts
1	1	

# Appendix 3

### **Global Ocean Accounts Partnership**

GOAP supports both members and non-members in the development of pilot ocean accounts and application of these to blue economy and sustainable marine management approaches. We work closely with countries to develop a detailed understanding of their needs to identify how and where the accounting approach might be best applied. This country-led approach is at the centre of the GOAP delivery model and therefore support is bespoke to the needs and policy objectives of each country.

A variety of support is available to countries. Below are some examples but this is far from an exhaustive list. The most powerful, impactful and sustainable package of GOAP support uses an end-to-end model which encompasses the development of pilot accounts, relevant training and support, and application of the accounts to specific issues faced by the countries with which we are working.

#### Pilots and technical support

- In-kind advisory support for countries considering ocean accounting.
- Support for ocean accounting pilot activities.
- Support to secure funding to undertake ocean accounting activities.
- Technical Guidance on Ocean Accounting and development of related international statistical standards.
- Ongoing advisory support and technical assistance matching for GOAP member countries.

#### Training

- Introduction to experts and consultants to host workshops and capacity building events to bridge. knowledge
  gaps and build technical expertise in-country.
- Collaboration on development of demand-driven technical papers related to ocean accounting.

#### Global and Regional Communities of Practice

- Participation in country-led regional Communities of Practice in Africa, Pacific, Americas and Europe.
- Opportunities to share knowledge, challenges, and best practices on ocean accounting with global stakeholders and peers.
- Collaboration with GOAP members on development and implementation of ocean accounting initiatives.

#### Policy and Advice on Sustainable Ocean Economies

- Policy development support for ocean resources and the ocean economy.
- Policy briefs and advisory support on linking ocean accounts with broader ocean policy objectives, including
  accessing sustainable finance, understanding equity implications within the ocean economy, meeting
  international commitments under the 2030 Sustainable Development Agenda, Paris Agreement and CBD.



Figure A1: Current GOAP supported pilots and members

