

Multilateral Environmental Agreement Indicators

Provides guidance on deriving multilateral environmental agreement (MEA) indicators from ocean accounts.

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OUTCOME

This Circular provides guidance on deriving multilateral environmental agreement (MEA) indicators from ocean accounts, enabling countries to report against international commitments through a unified data infrastructure. Readers will understand how ocean accounts support indicator compilation for Sustainable Development Goal 14 (Life Below Water), the Kunming-Montreal Global Biodiversity Framework (GBF), the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), and the Agreement on Biodiversity Beyond National Jurisdiction (BBNJ).

Decision-makers will be equipped to use ocean accounts for tracking progress against GBF Target 3 (30x30 protection), SDG 14 targets on marine pollution and fish stocks, Paris Agreement nationally determined contributions (NDCs) for blue carbon and ocean-climate linkages, and emerging BBNJ requirements for areas beyond national jurisdiction.

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ABOUT THIS CIRCULAR

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DRAFT

1. Outcome

¶1 This Circular provides guidance on deriving multilateral environmental agreement (MEA) indicators from ocean accounts, enabling countries to report against international commitments through a unified data infrastructure. Readers will understand how ocean accounts support indicator compilation for Sustainable Development Goal 14 (Life Below Water), the Kunming-Montreal Global Biodiversity Framework (GBF), the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), and the Agreement on Biodiversity Beyond National Jurisdiction (BBNJ).

¶2 Decision-makers will be equipped to use ocean accounts for tracking progress against GBF Target 3 (30x30 protection), SDG 14 targets on marine pollution and fish stocks, Paris Agreement nationally determined contributions (NDCs) for blue carbon and ocean-climate linkages, and emerging BBNJ requirements for areas beyond national jurisdiction.

2. Requirements

¶1 This Circular requires familiarity with:

- ¶2 **TG-0.1 General Introduction to Ocean Accounts** – for the conceptual framework and key components of Ocean Accounts
- ¶3 **TG-0.2 Overview of Relevant Statistical Standards** – for the methodological foundations provided by SNA 2025, SEEA CF, and SEEA EA
- ¶4 **TG-2.1 Aggregate Biophysical Indicators** – for the biophysical indicator derivation framework referenced throughout this Circular

¶5 Related Circulars that provide supporting guidance:

- ¶6 **TG-2.5 Ocean Economy Structure** – for ocean economy measurement relevant to SDG 14.7.1
- ¶7 **TG-2.7 Pollution Flows** – for pollution flow accounting relevant to SDG 14.1.1
- ¶8 **TG-2.8 Climate Indicators** – for climate-related indicators relevant to UNFCCC/Paris Agreement
- ¶9 **TG-2.9 Disaster Risk and Resilience** – for ecosystem-based adaptation indicators
- ¶10 **TG-3.1 Asset Accounts** – for guidance on compiling physical and monetary asset accounts for marine ecosystems
- ¶11 **TG-3.1 Asset Accounts** Section 3.4.2 – for ecosystem condition accounting methodology that underpins GBF and SDG indicators
- ¶12 **TG-3.7 Governance Accounts** – for information on marine protected areas and governance arrangements relevant to MEA reporting
- ¶13 **TG-3.8 Combined Presentations** – for practical methods of integrating data from multiple accounts to derive MEA indicators

3. Guidance Material

¶1 The ocean domain is addressed by multiple overlapping MEAs. The overlap risks fragmented and duplicative reporting where each agreement is served by a separate data exercise, but it also allows a single account to satisfy several reporting obligations at once. SEEA Ecosystem Accounting (SEEA EA) was adopted by the United Nations Statistical Commission in March 2021 as the international statistical standard for ecosystem accounting. The preface explicitly recognises that the framework will “inform international initiatives and global reporting frameworks, including the Sustainable Development Goals, the Kunming-Montreal Global Biodiversity Framework...and the

measurement of GHG emissions and removals by land use, land-use change and forestry (LULUCF) under the United Nations Framework Convention on Climate Change”¹.

¶2 This section examines how ocean accounts can support indicator derivation for the major MEAs relevant to marine ecosystems. Section 3.1 provides an overview of the MEA indicator framework and SEEA’s role. Sections 3.2 through 3.5 address specific agreements: SDG 14, CBD/GBF, UNFCCC/Paris Agreement, and the BBNJ Agreement. Section 3.6 presents an expanded worked example demonstrating the compilation procedure for deriving MEA indicators from ocean account data. Section 3.7 provides a reporting frequency harmonisation note.

3.1 MEA Indicator Framework

¶1 Indicators are essential tools for monitoring progress toward environmental goals. The SEEA EA describes indicators as “summary measures related to a key issue or phenomenon and derived from a series of observed facts”². Indicators derived from accounting frameworks benefit from the coherence and consistency that accounts provide, as the underlying data have been reconciled and harmonised across multiple sources. Figure 2.10.1 illustrates how a single SEEA-based ocean account, compiled once, can serve multiple multilateral instruments simultaneously.

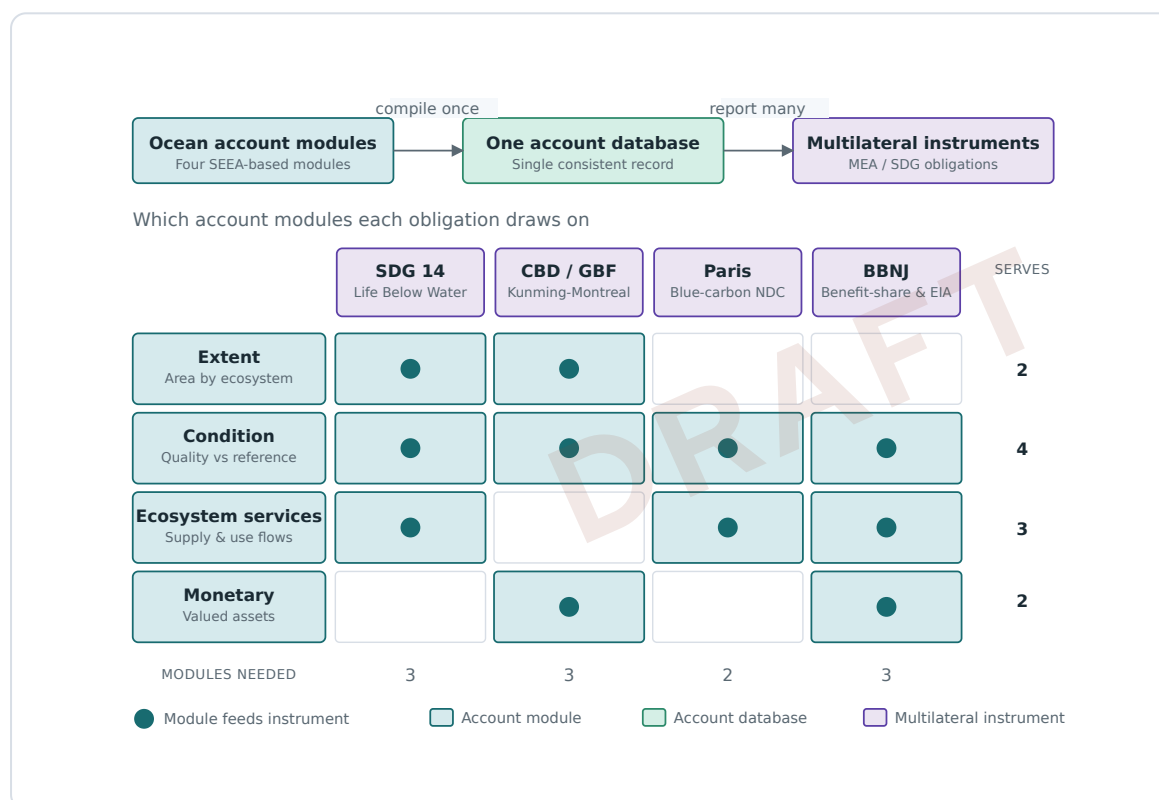


Figure 2.10.1 One SEEA-based ocean account compilation feeds multiple multilateral reporting obligations through a module-by-instrument matrix. Filled cells mark modules that feed an instrument; Condition supports all four instruments shown.

Source: TG-2.10 draft §3.1 (MEA reporting matrix) and §3.5 (BBNJ condition- and service-based environmental impact assessment); SEEA EA §3.30-3.54 (extent), §3.55-3.78 (condition).

The role of accounting in indicator derivation

¶1 Chapter 14 of SEEA EA identifies three main types of indicators that can be derived from ecosystem accounts, as summarised in Table 3.1.1 below.³

Type	Description
Aggregates	Statistics grouped together to provide a broader picture, such as total marine protected area coverage or total ecosystem service value.
Composite indices	Indicators combining different variables using weighting patterns, such as ecosystem condition indices aggregated from multiple condition variables.
Ratio indicators	Indicators derived by combining data from different accounts, such as ecosystem services per hectare by ecosystem type.

¶2 The SEEA EA notes that indicators derived from accounting frameworks offer several advantages⁴:

- ¶3 A stable conceptual framework allowing new indicators to be developed as policy demands evolve
- ¶4 A broad framework enabling different indicators to be understood in context
- ¶5 Support for analysis, forecasting, and projections using the same coherent data source
- ¶6 Capacity for early estimates based on benchmark data

¶7 The combined presentations approach described in **TG-3.8 Combined Presentations** provides practical methods for integrating data from multiple accounts to derive MEA indicators.

SEEA and global monitoring frameworks

¶1 The UN Statistical Commission has recognised the importance of SEEA for monitoring the Sustainable Development Goals, welcoming the work on interlinkages between SEEA and SDG indicators⁵. Similarly, the monitoring framework for the Kunming-Montreal Global Biodiversity Framework draws directly on SEEA EA for several headline indicators, including those under Goals A and B⁶.

¶2 The SEEA EA provides two general advantages for MEA monitoring⁷:

1. ¶3 **Broad coverage** of environmental and economic topics, with inherent connections between stocks and flows and use of both physical and monetary data
2. ¶4 **Single coherent database** enabling countries to report to multiple monitoring frameworks from a unified data infrastructure⁸

Decision use cases for MEA indicators

¶1 Ocean account-derived MEA indicators support specific policy and management decisions across multiple governance levels:

¶2 **National policy planning:** Governments use MEA indicators to assess progress toward international commitments and to identify priority areas for policy intervention. SDG 14.5.1 (marine protected area coverage) informs national spatial planning decisions, whilst SDG 14.4.1 (fish stocks within sustainable levels) guides fisheries policy reform. The integrated nature of ocean accounts enables assessment of trade-offs between conservation and sustainable use objectives, supporting evidence-based policy design.

¶3 **International reporting:** Multilateral environmental agreements require periodic national reports demonstrating implementation progress. Ocean accounts provide the data foundation for GBF National Reports, Voluntary National Reviews on SDG progress, and UNFCCC National Communications and Biennial Reports. By deriving multiple indicators from a single accounting framework, countries ensure consistency across reporting obligations and reduce the administrative burden of fragmented reporting systems.

¶4 **Sub-national management:** Regional and local authorities responsible for marine spatial management use MEA indicators to track ecosystem condition and management effectiveness within their jurisdictions. Protected area managers assess condition indicators to evaluate whether con-

servation measures are achieving desired outcomes, whilst coastal development authorities use pollution indicators to monitor land-sea interactions.

¶5 **Private sector disclosure:** The Taskforce on Nature-related Financial Disclosures (TNFD) framework, aligned with GBF Target 15, encourages businesses to assess and disclose nature-related dependencies, impacts, risks and opportunities. Ocean accounts provide standardised metrics that companies operating in marine sectors can use for TNFD-aligned disclosure, connecting corporate sustainability reporting with national environmental accounting⁹. Practical application at project or operational scale requires spatial disaggregation of national-scale account data. Section 3.3 (Target 15) discusses the scale mismatch further.

¶6 **Investment screening (medium-term aspiration):** Development finance institutions and private investors increasingly use environmental indicators for investment screening and portfolio risk assessment. MEA indicators derived from ocean accounts can in principle provide decision-useful information on ecosystem condition trends, regulatory risks associated with environmental degradation, and opportunities in nature-positive sectors such as sustainable aquaculture and marine renewable energy. Operationalising this use case is, however, contingent on the development of open data infrastructure that connects NSO-published accounts to DFI and investor workflows. This requires dissemination in machine-readable formats (e.g., SDMX for environmental statistics, open government data portals) and alignment with emerging market data exchange standards such as those being developed by TNFD. The GOAP data standards initiative provides the appropriate forum for advancing this infrastructure. Until it matures, the investment screening use case should be treated as a medium-term aspiration rather than an operational service from current national ocean accounts.

3.2 SDG 14 Indicators (Life Below Water)

¶1 Sustainable Development Goal 14 aims to “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”¹⁰. It comprises ten targets addressing marine pollution, ecosystem management, ocean acidification, fisheries, marine protected areas, fisheries subsidies, economic benefits for SIDS and LDCs, marine research, small-scale fisheries, and implementation of international ocean law, each with its own official indicators¹¹.

Overview of SDG 14 targets and indicators

Target	Focus area
14.1	Coastal eutrophication and marine pollution
14.2	Ecosystem-based management of marine areas
14.3	Ocean acidification
14.4	Sustainable fish stocks
14.5	Marine protected areas
14.6	Illegal, unreported and unregulated fishing
14.7	Sustainable fisheries as proportion of GDP
14.a	Marine technology research investment
14.b	Small-scale fisheries access rights
14.c	Ocean-related international law implementation

¶1 *Table 1: SDG 14 targets overview*¹². Per-indicator compilation guidance is provided in Section 3.2.

Ocean accounts contribution to SDG 14 indicators

¶1 A general note applies throughout this subsection: for indicators with designated UN custodian agencies, the official indicator value submitted to the global SDG database must be compiled in

accordance with the custodian methodology. Ocean account-derived values that do not match the custodian formula should be positioned as supplementary national indicators or as inputs to the official compilation process, not as substitutes for the custodian-aligned submission.

¶12 **Indicator 14.1.1 (Coastal eutrophication and plastic debris):** Physical flow accounts for residuals (pollutants) can record nutrient loadings and plastic debris entering marine ecosystems from land-based sources. The SEEA Central Framework physical flow accounts provide the methodology for tracking pollutant flows from economic activities to the environment¹³. For guidance on pollution flow accounting, see **TG-2.7 Pollution Flows**.

¶13 The indicator comprises two components that can be derived from distinct accounting sources. The coastal eutrophication index (CEI) aggregates information on nutrient concentrations (dissolved inorganic nitrogen and phosphorus) and harmful algal bloom occurrences from condition accounts, combined with nutrient loading data from physical flow accounts. The plastic debris density component uses data on plastic accumulation rates from residual flow accounts and marine litter surveys compiled within the condition accounting framework. Both components require spatial disaggregation to the coastal zone, achievable through the spatial classification systems described in **TG-0.1 General Introduction**.

¶14 **Indicator 14.2.1 (Ecosystem-based approaches):** SDG 14.2.1 (“Number of countries using ecosystem-based approaches to managing marine areas”) is a Tier II policy survey indicator compiled by UNEP, its custodian, through a national survey instrument that asks countries whether they have adopted ecosystem-based approaches to managing marine areas¹⁴. The indicator value itself is the country’s response to that survey – it is not directly derived from quantitative ecological data. Ocean accounts cannot substitute for the survey response, but ecosystem extent and condition accounts, combined with governance accounts recording marine protected area coverage and management effectiveness, provide supporting evidence that countries can cite when completing the UNEP questionnaire. Relevant account outputs to reference include: documentation of MPA designation and management (governance accounts), condition monitoring programmes within and outside MPAs (condition accounts), and institutional arrangements for marine spatial management¹⁵. For detailed guidance on governance arrangements in ocean accounts, see **TG-3.7 Governance Accounts**.

¶15 **Indicator 14.3.1 (Ocean acidification):** Ecosystem condition accounts include chemical state variables such as pH, dissolved oxygen, and carbonate chemistry¹⁶. Systematic recording of these variables within the condition accounting framework supports trend monitoring for ocean acidification. The official SDG 14.3.1 methodology (Tier II, IOC-UNESCO as custodian) requires data from an agreed suite of representative sampling stations following GOA-ON guidance, and ocean account-derived pH series should be compiled to be consistent with that methodology. For guidance on deriving biophysical indicators from condition accounts, see **TG-2.1 Aggregate Biophysical Indicators**. Climate-related applications of ocean acidification indicators are addressed in **TG-2.8 Climate Indicators** Section 3.3.

¶16 **Indicator 14.4.1 (Fish stocks within sustainable levels):** SDG 14.4.1 is a Tier I indicator for which FAO is the designated custodian. The official methodology classifies stocks into categories (underfished, maximally sustainably fished, overfished) using national stock assessment reports, not a direct biomass-to-BMSY ratio extracted from asset accounts¹⁷. SEEA CF physical asset accounts for aquatic resources record fish stock biomass, natural growth, harvest, and depletion¹⁸, and these account data provide the physical stock input that feeds national stock assessment models. The BMSY reference points required for stock status classification are produced by those separate stock assessment modelling steps and are not, in themselves, asset account outputs (see general note above on custodian alignment). For detailed guidance on asset accounts including fish stocks, see **TG-3.1 Asset Accounts**.

¶17 **Indicator 14.5.1 (Marine protected area coverage):** Ecosystem extent accounts classified by protection status can directly provide this indicator. The SEEA EA supports disaggregation of eco-

system extent accounts by a range of spatial classifications, including protected area status¹⁹. This indicator connects directly to GBF Target 3 (30x30). A single unified accounting approach can therefore serve both reporting obligations.

¶8 **Indicator 14.7.1 (Sustainable fisheries as proportion of GDP):** SDG 14.7.1 is a Tier I indicator for which FAO is the designated custodian. The official custodian methodology uses a composite measure built from sustainability-weighted catch data and value-added information rather than a simple ratio of fisheries value added to GDP extracted from supply-use tables²⁰. Monetary flow accounts linking ecosystem services to economic output, combined with supply-use tables for the ocean economy, can provide an important input to the official compilation, but a value derived only from supply-use tables falls under the general note above on custodian alignment²¹. The supply-use methodology in **TG-2.5 Ocean Economy Structure** provides an input to, not a replacement for, the official indicator.

3.3 CBD/GBF Indicators (Targets 2, 3, 15)

¶1 The Kunming-Montreal Global Biodiversity Framework (GBF), adopted in December 2022 at the fifteenth Conference of the Parties to the Convention on Biological Diversity (COP-15), sets out ambitious goals and targets for halting and reversing biodiversity loss by 2030²². The monitoring framework for the GBF, adopted at COP-15 through Decision 15/5, comprises headline indicators, component indicators, and complementary indicators. SEEA is explicitly recognised as the methodological basis for several headline indicators.

¶2 GBF Goals A and B are particularly relevant to ocean accounting: Goal A monitors ecosystem integrity and extent (informed by ecosystem extent and condition accounts), and Goal B monitors nature's contributions to people (informed by ecosystem services flow accounts)²³. GBF-aligned biophysical indicators for ocean ecosystems are defined and compiled following **TG-2.1 Aggregate Biophysical Indicators**.

Target 2: Ecosystem restoration

¶1 Target 2 aims to "Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration"²⁴.

Account Type	Contribution
Ecosystem extent accounts	Recording changes in marine ecosystem extent, including restoration of degraded areas.
Ecosystem condition accounts	Tracking improvements in ecosystem condition following restoration interventions.
Combined presentations	Linking restoration expenditure (from environmental protection expenditure accounts) to outcomes in extent and condition.

¶2 The SEEA EA states that "Target 2, which monitors the area of degraded ecosystems under ecosystem restoration, can be informed by indicators deriving from a combination of ecosystem extent accounts and ecosystem condition accounts"²⁵.

¶3 A practical difficulty for compilers is determining which ecosystem units count as "degraded": the denominator of the Target 2 headline indicator. The GBF monitoring framework does not specify a single global threshold, and different national choices will produce non-comparable figures. The SEEA Ecosystem Condition Typology (ECT) classes can be used to operationalise this decision. Table 2A gives indicative degradation classifications and ECT class mappings.

¶4 *Table 2A: Indicative degradation classification using condition index thresholds*

Aggregate condition index (relative to reference)	Degradation class	Target 2 treatment	ECT class mapping (illustrative)
>= 0.85	Reference / near-reference	Not degraded; excluded from denominator	ECT Classes A1-A2 (abiotic physical and chemical state near reference)
0.60 to 0.85	Moderately altered	Optional inclusion; document rationale	ECT Class B1 (biotic compositional state altered)
0.40 to 0.60	Degraded	Included in degraded denominator	ECT Class B3 (functional state impaired)
< 0.40	Severely degraded	Included in degraded denominator; high restoration priority	ECT Class B3 combined with B2 structural state loss

¶5 The threshold values shown are illustrative. The GBF monitoring framework is still developing methodological guidance for Target 2, and compilers should flag the chosen thresholds, reference condition basis, and ECT mapping as an explicit assumption in compilation metadata. See **TG-3.1 Asset Accounts** Section 3.4.2 for guidance on ecosystem condition accounting methodology and ECT class definitions.

Target 3: Protected areas (30x30)

¶1 Target 3 aims to “Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas...are effectively conserved and managed”²⁶.

Account Type	Contribution
Ecosystem extent accounts	Classified by protection status, distinguishing marine protected areas (MPAs), other effective area-based conservation measures (OECMs), and unprotected areas.
Ecosystem condition accounts	Comparing condition within and outside protected areas to assess conservation effectiveness.
Governance accounts	Recording management effectiveness evaluations and enforcement capacity.

¶2 For guidance on recording marine protected areas within the ocean accounting framework, see **TG-3.7 Governance Accounts**. Marine spatial planning processes that allocate ocean space for conservation and sustainable use are addressed in **TG-1.3 Marine Spatial Management**.

Target 15: Business disclosure

¶1 Target 15 calls for action to “Encourage and enable business...to regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity”²⁷.

¶2 The Taskforce on Nature-related Financial Disclosures (TNFD) has developed a framework aligned with Target 15 requirements²⁸. The TNFD v1.0 recommendations, released in September 2023, draw on SEEA as a methodological foundation for nature-related metrics, with supplementary sector guidance (including for fishing and marine sectors) published as additional materials through 2024–2025²⁹. Ocean accounts can support corporate disclosure by:

- ¶3 Providing standardised metrics for ecosystem extent and condition that can be applied at project, operational, or portfolio scales (subject to the scale considerations discussed below)
- ¶4 Enabling consistent measurement of nature dependencies (ecosystem services used) and impacts (pressures on ecosystems)³⁰
- ¶5 Supporting alignment between corporate reporting and national accounting

¶6 **Scale mismatch between national accounts and TNFD corporate disclosure.** National ocean accounts are typically compiled at ecosystem-type and EEZ/national resolution, whereas TNFD corporate disclosure requires location-specific, asset-level assessment of dependencies and

impacts. The two scales are not directly interchangeable. Bridging them requires a spatial disaggregation (or “downscaling”) workflow in which:

- ¶7 national account values for ecosystem extent and condition by ecosystem type are intersected with the company’s operational asset footprint;
- ¶8 site-level ecosystem data (often supplied by the company) are reconciled against the corresponding national ecosystem-type baselines so that corporate disclosure is consistent with national accounts; and
- ¶9 account-derived condition references provide the comparator against which site-level impacts are interpreted.

¶10 The SEEA EA guidance on sub-national accounts (Chapter 4, Section 4.4) provides the methodological basis for this disaggregation. Detailed operational guidance for company-side TNFD compilation is beyond the scope of this Circular and is better addressed in a dedicated applied circular on corporate disclosure. The role of TG-2.10 is to clarify that national ocean accounts do not, on their own, deliver project-scale TNFD outputs.

3.4 UNFCCC/Paris Agreement Indicators (NDCs)

¶1 The Paris Agreement, adopted in 2015, aims to limit global temperature increase to well below 2 degrees Celsius, with efforts to limit to 1.5 degrees Celsius³¹. Countries submit Nationally Determined Contributions (NDCs) outlining their climate commitments, which increasingly include ocean-based mitigation and adaptation measures.

Ocean-climate linkages in NDCs

¶1 Ocean ecosystems contribute to climate regulation through:

- ¶2 Carbon sequestration by coastal and marine ecosystems (blue carbon)
- ¶3 Heat absorption moderating global temperatures
- ¶4 Providing adaptation options for coastal communities

¶5 The SEEA EA recognises global climate regulation as an ecosystem service, defined as “the regulation of the chemical composition of the atmosphere and oceans by living organisms and ecosystem processes”³². Coastal ecosystems including mangroves, salt marshes, and seagrass meadows are particularly effective at carbon sequestration and storage. These ecosystems are covered in detail in **TG-6.2 Mangrove and Coastal Wetland Accounting** and **TG-6.3 Seagrass Accounts**.

Ocean accounts for climate indicators

¶1 Ocean accounts can support UNFCCC/Paris Agreement monitoring through:

¶2 **Blue carbon accounting:** Ecosystem extent accounts for mangroves, salt marshes, and seagrass meadows record the area of these carbon-rich ecosystems. Ecosystem condition accounts can include carbon stock variables (above-ground biomass, soil carbon). Ecosystem services flow accounts can record annual carbon sequestration rates^{33, 34}. For guidance on climate-related indicators from ocean accounts, see **TG-2.8 Climate Indicators**.

¶3 **LULUCF reporting alignment:** Ecosystem extent accounts recording conversions between ecosystem types can be aligned with LULUCF activity data requirements³⁵. This is particularly relevant for coastal wetland conversions (mangrove deforestation, wetland drainage), which are major sources of emissions.

¶4 The IPCC 2013 Wetlands Supplement requires activity data structured by specific coastal wetland categories with sub-classifications by land-use change type (conversions to and from each wetland category, plus rewetting and drainage). SEEA ecosystem extent accounts are typically classified using the IUCN Global Ecosystem Typology (GET), which does not map one-to-one to the IPCC categories. To produce GHG inventory-ready data from SEEA extent accounts, compilers

need a crosswalk that identifies (a) which SEEA/IUCN-GET ecosystem types correspond to each IPCC coastal wetland category and (b) where additional conversion factors, splits, or expert judgment are required.

¶5 *Table 2B: Indicative crosswalk – IUCN GET coastal wetland types to IPCC Wetlands Supplement activity data categories*

IUCN GET ecosystem functional group	IPCC Wetlands Supplement category	SEEA extent data sufficient?	Notes / conversion factors required
MFT1.2 Intertidal forests and shrublands (mangroves)	Mangroves	Yes (extent + change)	Direct mapping; activity data = SEEA extent transitions to/from mangrove class. Emission factors from IPCC Tier 1 unless national values available.
MFT1.3 Coastal saltmarshes and reedbeds	Tidal marshes	Yes (extent + change)	Direct mapping; SEEA extent transitions populate activity data. National emission factors preferred where soil carbon data exist.
M1.1 Seagrass meadows	Seagrass meadows	Yes (extent + change)	Direct mapping; sub-classification by canopy density may require additional condition data.
MT2.1 Coastal saltflats / supratidal saltmarshes	Other coastal wetlands (saltflats)	Partial	Requires split between vegetated and unvegetated portions; expert judgment or additional remote-sensing input needed.
F2.2 Constructed lacustrine wetlands; F3.1 Large reservoirs (coastal)	Constructed / managed coastal wetlands	Partial	Coastal-versus-inland boundary needs explicit definition; conversion factor required for the coastal share.
Drained / converted former wetland (recorded in SEEA as transition to artificial cover)	Drained organic soils – coastal wetlands	Conditional	SEEA records the extent transition; emission factor for drained organic soils must be applied separately. Time-since-drainage tracking required for Tier 2/3 estimation.

¶6 This crosswalk is illustrative and should be adapted to national IUCN GET classification choices. Where SEEA extent data directly populate inventory activity data, the workflow is straightforward. Where conversion factors or splits are needed, compilers should document the assumptions and, where possible, use country-specific emission factors developed in coordination with the national greenhouse gas inventory team. For deeper guidance on the relevant blue carbon ecosystems and their accounting, see **TG-6.2 Mangrove and Coastal Wetland Accounting** and **TG-6.3 Seagrass Accounts**.

¶7 **Adaptation indicators:** Ocean accounts can support monitoring of ecosystem-based adaptation by tracking:

- ¶8 Extent and condition of coastal protection ecosystems (coral reefs, mangroves, wetlands)
- ¶9 Coastal protection ecosystem services (flood mitigation, storm protection)
- ¶10 Economic dependencies on ocean ecosystem services

¶11 For guidance on disaster risk indicators derived from ocean accounts, see **TG-2.9 Disaster Risk and Resilience**. The linkage between ecosystem extent, condition, and coastal protection services provides a quantitative basis for valuing ecosystem-based adaptation investments.

3.5 BBNJ Agreement Indicators (Emerging horizon scanning)

¶1 The Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement) was adopted in June 2023 and entered into force on 17 January 2026, 120 days after the sixtieth ratification on 19 September 2025³⁶. The agreement establishes a legal framework for marine biodiversity in areas beyond national jurisdiction (ABNJ), including the high seas and the seabed beyond the continental shelf. The first Conference of the Parties is expected in 2026, at which detailed monitoring and reporting requirements will begin to be elaborated.

¶2 This section is presented as forward-looking horizon scanning rather than current operational guidance. No country currently has operational ocean accounts that extend into ABNJ, and the practical compilation of such accounts will require institutional and data-sharing arrangements that do not yet exist. The material below sets out (i) the relevant elements of the BBNJ Agreement, (ii) where ocean accounting concepts may eventually contribute, and (iii) the prerequisites that national statistics offices and partner institutions would need to address before ABNJ accounting becomes feasible.

Key elements of the BBNJ Agreement

¶1 The BBNJ Agreement addresses four main elements:

1. ¶2 Marine genetic resources and benefit-sharing
2. ¶3 Area-based management tools, including marine protected areas (Part III)
3. ¶4 Environmental impact assessments (Part IV)
4. ¶5 Capacity-building and technology transfer

Emerging indicator requirements

¶1 While the detailed monitoring framework for the BBNJ Agreement is still being developed through the Conference of the Parties process, ocean accounts can in principle contribute to:

¶2 **Marine genetic resources:** Physical flow accounts can record the extraction and use of marine genetic resources from ABNJ, including their incorporation into biotechnology and pharmaceutical products. Monetary flow accounts can track benefit-sharing arrangements³⁷. The SEEA EA ecosystem services classification includes genetic material provisioning, which provides a methodological basis for this emerging requirement.

¶3 **Area-based management in ABNJ:** Ecosystem extent accounts can be extended to cover ecosystem types in ABNJ, including deep-sea ecosystems such as abyssal plains, hydrothermal vents, and seamounts. The IUCN Global Ecosystem Typology provides classifications for deep-sea ecosystem functional groups that can support extent accounting³⁸. For guidance on deep-sea ecosystem accounting, see **TG-6.6 Deep Sea and ABNJ Accounts**.

¶4 **Environmental impact assessment:** The ecosystem condition and services accounting framework provides a structured approach to baseline assessment and impact monitoring that can inform environmental impact assessments in ABNJ. Condition reference levels can be established for minimally impacted deep-sea ecosystems against which project impacts can be assessed³⁹.

¶5 The SEEA EA acknowledges challenges for accounting in ABNJ, noting that for marine ecosystems “beyond the continental shelf...accounting may be challenging due to limited data availability and complex jurisdictional arrangements”⁴⁰.

Prerequisites for ABNJ accounting

¶1 Before national statistics offices can compile ocean accounts that extend meaningfully into ABNJ, several prerequisite arrangements need to be in place:

- ¶2 **Jurisdictional boundary protocols.** Clear delineation in the accounts between EEZ, extended continental shelf claims (where applicable), and ABNJ, using consistent maritime boundary

datasets (e.g., Marine Regions / VLIZ EEZ boundaries) and explicit treatment of overlapping or disputed claims.

- ¶3 **Institutional data access.** Data products from the International Seabed Authority (ISA) on deep-sea mining exploration contracts and environmental monitoring; data and stock-status outputs from Regional Fisheries Management Organisations (RFMOs) covering high-seas fisheries; and ocean observation products from IOC-UNESCO and the Global Ocean Observing System (GOOS).
- ¶4 **Scientific assessment inputs.** Periodic assessments from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the IOC-UNESCO World Ocean Assessment as a source of synthesised condition and pressure information for ABNJ.
- ¶5 **National mandate and inter-agency coordination.** A clear domestic mandate authorising the NSO (or a partner ocean agency) to compile statistics outside the EEZ, and inter-agency arrangements with foreign affairs, fisheries, and marine science institutions.

¶6 Until these prerequisites are in place, BBNJ-related ocean accounts should be treated as a development priority rather than a near-term reporting product. The accounting framework provides a methodological foundation that can be applied as data and governance arrangements develop.

3.6 Compilation Procedure: Worked Example

¶1 This section presents a synthetic worked example demonstrating how MEA indicators are derived from ocean account data through a step-by-step compilation procedure. The example focuses on a subset of indicators to illustrate the accounting-to-indicator workflow.

Context and scope

¶1 **Setting:** Hypothetical Coastal State (Country A) with an Exclusive Economic Zone (EEZ) of 250,000 km², including 5,000 km² of coral reef ecosystems and 12,000 km² of seagrass meadows. Country A has compiled ocean accounts for the 2024 reporting year and seeks to derive indicators for SDG 14.5.1 (MPA coverage), GBF Target 3 (protected area effectiveness), and SDG 14.3.1 (ocean acidification).

¶2 **Accounting period:** Calendar year 2024 (opening stock 1 January 2024, closing stock 31 December 2024).

¶3 **Data sources:** Ecosystem extent accounts from remote sensing analysis, ecosystem condition accounts from marine monitoring network, governance accounts from national MPA authority.

Step 1: Compile extent accounts by protection status

¶1 The first step involves compiling ecosystem extent accounts classified by IUCN protection category. Country A's extent account for coral reefs, disaggregated by protection status, appears as follows:

¶2 *Table 2: Ecosystem extent account for coral reefs by protection status (km²)*

Ecosystem type	IUCN I-II (Strict protection)	IUCN III-IV (Multiple use)	IUCN V-VI (Sustainable use)	Not protected	Total
Opening extent (1 Jan 2024)	400	800	600	3,200	5,000
Additions: New designations	50	100	0	-150	0
Reductions: De-listing	0	0	0	0	0
Closing extent (31 Dec 2024)	450	900	600	3,050	5,000

¶3 The extent account structure follows SEEA EA Table 4.1, with spatial classification disaggregated by IUCN protected area category as recommended in SEEA EA para 4.19. The “additions” and “reductions” rows record changes in protection status during the accounting period. In this example, Country A designated 150 km² of previously unprotected coral reef as protected areas during 2024 (50 km² as strict protection, 100 km² as multiple use).

Step 2: Derive SDG 14.5.1 indicator (coral subset)

¶1 SDG indicator 14.5.1 measures “Coverage of protected areas in relation to marine areas”⁴¹. The indicator is calculated as the ratio of protected area to total area:

¶2 **Formula:**

$$SDG\ 14.5.1 = (Total\ protected\ area / Total\ marine\ area) \times 100$$

¶3 Calculation for Country A (coral reefs only):

$$Protected\ coral\ reef\ area = 450 + 900 + 600 = 1,950\ km^2\ Total\ coral\ reef\ area = 5,000\ km^2$$

$$Coverage = (1,950 / 5,000) \times 100 = 39.0\%$$

¶4 This is a coral-reef-subset diagnostic measure, not the value submitted as the national SDG 14.5.1 figure, which is computed at the whole-EEZ level (see Step 2a).

Step 2a: Consolidated EEZ-level extent account and aggregated SDG 14.5.1

¶1 To produce the EEZ-level SDG 14.5.1 value, Country A consolidates its ecosystem extent accounts for all ecosystem types in the EEZ into a single multi-ecosystem extent account classified by protection status. This consolidation step follows the multi-ecosystem extent account template described in **TG-3.1 Asset Accounts** Section 3.4.2 and the spatial classification guidance in SEEA EA Chapter 4.

¶2 *Table 2B-Step2a: Consolidated EEZ-level extent account by protection status (km², closing extent 31 Dec 2024)*

Ecosystem type	IUCN I-VI (any protection)	Not protected	Total
Coral reefs (from Table 2)	1,950	3,050	5,000
Seagrass meadows	4,800	7,200	12,000
Other marine ecosystems (open water, soft sediment, pelagic)	80,000	153,000	233,000
EEZ total	86,750	163,250	250,000

¶3 The seagrass and other-ecosystem rows are produced from companion extent accounts compiled using the same protection-status classification used for coral reefs in Step 1. With the consolidated account in place, the EEZ-level SDG 14.5.1 value is:

$$Total\ protected\ marine\ area = 1,950 + 4,800 + 80,000 = 86,750\ km^2\ Total\ EEZ\ area = 250,000\ km^2$$

$$Coverage = (86,750 / 250,000) \times 100 = 34.7\%$$

¶4 The EEZ aggregate (34.7%) exceeds both the SDG 14.5 target of 10% and the GBF Target 3 goal of 30%. The coral-subset value (39.0%) and the EEZ-aggregate value (34.7%) measure different things on different denominators (5,000 km² coral reef versus 250,000 km² EEZ). Only the EEZ

aggregate is comparable with the official SDG 14.5.1 submission requirement, whilst the coral subset is a diagnostic tool for identifying within-EEZ protection gaps.

Step 3: Compile condition accounts for protected areas

¶1 To assess management effectiveness for GBF Target 3, Country A compiles ecosystem condition indicators for coral reefs, comparing protected and unprotected areas. The condition account records normalised indicators (scale 0-1) for key condition variables:

¶2 *Table 3: Ecosystem condition indicators for coral reefs by protection status (index 0-1)*

Condition variable	IUCN I-II	IUCN III-IV	IUCN V-VI	Not protected	Reference
Coral cover (structural state)	0.85	0.72	0.65	0.48	1.00
Fish biomass (compositional state)	0.80	0.68	0.60	0.42	1.00
Water quality (chemical state)	0.88	0.75	0.70	0.55	1.00
Species richness (compositional state)	0.82	0.70	0.63	0.50	1.00
Aggregate condition index (arithmetic mean)	0.84	0.71	0.65	0.49	1.00

¶3 The aggregate condition index uses an unweighted arithmetic mean of the four normalised indicators. This is a methodological choice with material consequences: arithmetic averaging implicitly assigns equal importance to each variable, treats them as substitutable, and can mask threshold breaches in any single variable (a low coral cover score may be offset by a high water quality score). Alternative aggregation methods – geometric mean (which penalises low scores more strongly), weighted arithmetic mean (which allows policy or ecological weighting), or minimum-value rules (which surface threshold breaches) – are discussed in **TG-2.1 Aggregate Biophysical Indicators** Section 3.6 and in the OECD Handbook on Constructing Composite Indicators (2008). Country A should document the chosen aggregation rule, the weighting (here, equal), and the reference condition basis as part of the metadata accompanying any cross-country comparison.

¶4 **Sensitivity check (geometric mean):** Applying a geometric mean to the four normalised indicators for the IUCN I-II column yields:

$$\text{Geometric mean} = (0.85 \times 0.80 \times 0.88 \times 0.82)^{(1/4)} = (0.49069)^{(0.25)} \approx 0.836$$

¶5 The geometric-mean condition index for IUCN I-II is 0.836 compared with the arithmetic-mean value of 0.84, close in this case because the four variables span a narrow range. The two aggregation rules would diverge more substantially in ecosystems where one variable is markedly lower than the others. This is exactly the case in which the choice of aggregation rule begins to affect policy interpretation. Countries comparing effectiveness scores across ecosystems or jurisdictions should therefore report the aggregation rule explicitly.

¶6 The reference column is 1.00 by construction. The reference condition for healthy coral reefs (based on historical data and marine reserve benchmarks, following the reference condition methodology described in **TG-2.1 Aggregate Biophysical Indicators** Section 3.4.2) is already applied when each variable is normalised, so a normalised indicator of 1 is the reference and the reference is not applied a second time.

Step 4: Derive a nationally-derived effectiveness metric (supporting GBF Target 3)

¶1 GBF Target 3 requires not only coverage but “effective” conservation. The CBD monitoring framework adopted in Decision 15/5 addresses effectiveness through a suite of headline, component, and complementary indicators drawing on the Management Effectiveness Tracking Tool (METT), the World Database on Protected Areas (WDPA), and IUCN Green List criteria, rather than

through any single ratio of condition indices. The metric computed below is therefore presented as a nationally-derived analytical metric for management assessment, not as the official GBF Target 3 effectiveness indicator submitted under the CBD monitoring framework.

¶2 Official GBF Target 3 effectiveness reporting should follow the METT-based and IUCN Green List approaches recognised in the CBD monitoring framework⁴². The account-derived condition ratio described here complements, but does not replace, those assessments.

¶3 **Formula (nationally-derived analytical metric):**

$$\text{Nationally-derived effectiveness} = (\text{Protected area condition index} / \text{Reference condition index}) \times 100$$

¶4 **Calculation for Country A:**

$$\begin{aligned} \text{IUCN I-II} &= (0.84 / 1.00) \times 100 = \mathbf{84.0\%} \quad \text{IUCN III-IV} = (0.71 / 1.00) \times 100 = \mathbf{71.0\%} \quad \text{IUCN V-VI} = \\ &= (0.65 / 1.00) \times 100 = \mathbf{65.0\%} \quad \text{Not protected} = (0.49 / 1.00) \times 100 = \mathbf{49.0\%} \end{aligned}$$

¶5 **Area-weighted average across all protected coral reefs:**

$$\text{Weighted} = [(450 \times 0.840) + (900 \times 0.710) + (600 \times 0.650)] / 1,950 = [378.0 + 639.0 + 390.0] / 1,950 = 1,407.0 / 1,950 = \mathbf{72.2\%}$$

¶6 The area-weighted figure indicates that whilst 39% of coral reefs are protected, those protected areas achieve on average 72% of reference condition, a useful internal management signal. The differential across IUCN categories (84% for strict protection, 65% for sustainable use) informs management strategy. For external reporting against GBF Target 3, however, this figure should be transmitted as supplementary national analysis alongside the METT/Green List-based information that the CBD monitoring framework expects.

Step 5: Compile condition accounts for ocean acidification

¶1 For SDG indicator 14.3.1 (average marine acidity), Country A compiles pH measurements from its marine monitoring network. SDG 14.3.1 is a Tier II indicator under IOC-UNESCO custodianship and relies on data from an “agreed suite of representative sampling stations.” The Global Ocean Acidification Observing Network (GOA-ON) provides the internationally recognised methodology for station design and data reporting against this indicator⁴³. Country A’s station network is therefore designed to satisfy GOA-ON minimum design criteria:

- ¶2 **Stratification by ecosystem zone.** Stations are distributed across coastal reef, seagrass zone, mid-shelf, outer shelf, and pelagic zones to capture the main acidification gradients within the EEZ rather than concentrating in a single zone.
- ¶3 **Minimum station density and replication.** At least two stations per ecosystem zone are recommended, with sufficient temporal sampling frequency to permit annual mean calculation with quantifiable uncertainty.
- ¶4 **Carbonate-chemistry consistency.** Stations report at minimum two of the four carbonate-system parameters (pH, total alkalinity, dissolved inorganic carbon, pCO₂) under harmonised protocols, allowing cross-network comparability.

¶5 **Qualification for countries with sparse networks.** Countries that cannot currently meet GOA-ON station-density criteria can, as an interim measure, (i) participate in regional data-sharing arrangements (e.g., regional ocean acidification hubs) to pool station coverage, (ii) use spatial inter-

polation of available station data combined with remote-sensing-derived sea-surface temperature and salinity to estimate carbonate chemistry, or (iii) report the SDG 14.3.1 value with explicit meta-data flags noting the network limitations. These interim approaches should be documented clearly so that data users understand the basis of the reported value.

¶6 The condition variable account records pH at 12 representative sampling stations across the EEZ:

¶7 *Table 4: Ocean pH measurements by station (2024 annual mean)*

Station ID	Location	pH (2024)	pH (2015 baseline)	Change
AZ-01	Coastal reef	8.05	8.12	-0.07
AZ-02	Coastal reef	8.03	8.10	-0.07
AZ-03	Seagrass zone	8.07	8.14	-0.07
AZ-04	Seagrass zone	8.06	8.13	-0.07
AZ-05	Mid-shelf	8.08	8.15	-0.07
AZ-06	Mid-shelf	8.09	8.16	-0.07
AZ-07	Mid-shelf	8.08	8.15	-0.07
AZ-08	Outer shelf	8.10	8.17	-0.07
AZ-09	Outer shelf	8.11	8.18	-0.07
AZ-10	Outer shelf	8.10	8.17	-0.07
AZ-11	Pelagic zone	8.12	8.19	-0.07
AZ-12	Pelagic zone	8.13	8.20	-0.07
Mean	–	8.085	8.155	-0.07

¶8 The uniform 0.07-unit change shown across all stations is a stylised feature of this worked example. In a real GOA-ON-aligned network, spatial heterogeneity in pH change between zones would be expected and is itself diagnostically useful.

Step 6: Derive SDG 14.3.1 indicator

¶1 SDG indicator 14.3.1 measures “Average marine acidity (pH) measured at agreed suite of representative sampling stations”⁴⁴. The indicator is the arithmetic mean pH across all monitoring stations (computed in a manner consistent with the GOA-ON / IOC-UNESCO methodology referenced in Step 5):

¶2 **Calculation:**

$$SDG\ 14.3.1 = \text{Sum of pH values} / \text{Number of stations} = (8.05 + 8.03 + 8.07 + 8.06 + 8.08 + 8.09 + 8.08 + 8.10 + 8.11 + 8.10 + 8.12 + 8.13) / 12 = 97.02 / 12 = 8.085$$

¶3 The 2024 mean pH of 8.085 represents a decline of 0.07 pH units relative to the 2015 baseline of 8.155, indicating a systematic acidification trend affecting the entire EEZ.

Step 7: Integrate indicators in combined presentation

¶1 The final step integrates the three derived indicators in a combined presentation that supports cross-MEA analysis:

¶2 *Table 5: Country A MEA indicator summary (2024)*

Indicator	Spatial scope	Value	Target	Status	Account source
SDG 14.5.1 (MPA coverage, coral subset – diagnostic)	Coral reef ecosystem only (5,000 km ²)	39.0%	10% (SDG) / 30% (GBF)	Exceeds SDG, exceeds GBF (within coral subset)	Extent account (Table 2)
SDG 14.5.1 (MPA coverage, EEZ aggregate – official submission value)	Whole EEZ (250,000 km ²)	34.7%	10% (SDG) / 30% (GBF)	Exceeds both	Consolidated extent account (Step 2a)
GBF Target 3 (nationally-derived effectiveness metric; supporting evidence only)	Protected coral reefs (1,950 km ²)	72.2%	Higher effectiveness expected	Moderate; submit alongside METT / IUCN Green List information	Condition account (Table 3)
SDG 14.3.1 (Ocean pH)	EEZ-wide, 12 GOA-ON-aligned stations	8.085	Minimise decline	Declining (-0.07 since 2015)	Condition account (Table 4)

¶3 **Interpretive note on spatial scope.** Ecosystem-subset indicators (the coral-only MPA coverage figure) are diagnostic tools for identifying protection gaps within a specific ecosystem, whilst the whole-EEZ aggregate is the value comparable with the official SDG 14.5.1 submission requirement. National dashboards drawing on this table should always label the spatial scope of each indicator explicitly.

¶4 This combined presentation enables integrated analysis. Country A has met quantitative protection targets for both SDG 14.5 and GBF Target 3 at the EEZ level, but ecosystem-level analysis reveals that coral reef protection, whilst above 30%, still leaves 61% of reefs unprotected. The nationally-derived effectiveness metric of 72% suggests room for improvement in MPA management, to be reported as supporting information alongside METT or IUCN Green List assessments rather than as the official GBF Target 3 effectiveness value. Ocean acidification trends indicate a systematic pressure affecting all marine ecosystems regardless of protection status. Addressing that pressure requires climate mitigation action of the kind addressed through UNFCCC/Paris Agreement commitments.

Principle	Description
Custodian alignment and supplementary metrics	Several MEA indicators have designated custodian methodologies (FAO for 14.4.1/14.7.1, IOC-UNESCO for 14.3.1, CBD/METT for GBF Target 3 effectiveness); account-derived figures that do not match the custodian formula should be clearly positioned as nationally-derived supplementary metrics or as inputs to the official compilation, not as substitutes.
Reference conditions and aggregation choices	Condition-based indicators require documented reference levels for normalisation; composite indices require a reported aggregation rule (arithmetic mean, geometric mean, weighted, minimum) so that cross-country comparisons remain interpretable.
Combined presentations	Integrated indicator tables support cross-MEA analysis, revealing complementarities (MPA coverage supports both SDG 14.5 and GBF Target 3) and tensions (acidification affects all ecosystems regardless of protection status); spatial scope must be labelled explicitly for each indicator to avoid denominator-mismatch misinterpretation.

3.7 MEA-Account Alignment

¶1 For a structured cross-walk between MEA reporting frameworks and ocean account types, see the relevant subsection: Section 3.2 (SDG 14), Section 3.3 (GBF), Section 3.4 (Paris Agreement/NDCs), Section 3.5 (BBNJ).

¶2 **Reporting frequency harmonisation.** Different MEAs operate on different reporting cycles. SDG Voluntary National Reviews are typically annual or biennial, GBF national reporting is biennial, and NDC updates follow a five-year ratchet with biennial transparency reporting. Where annual compilation is not feasible, mid-cycle GBF indicators should use the most recently compiled account year, and the reference year of the underlying account data should be documented explicitly in the national metadata submitted with each report.

4. Acknowledgements

¶1 **Authors:** [To be confirmed]

¶2 **Reviewers:** [To be confirmed]

5. References

1. ¶1 SEEA EA, Preface, para 4.
2. ¶2 SEEA EA, para 14.7. "An indicator is the representation of data for a specified time, place or any other relevant characteristic, corrected for at least one dimension (usually size) so as to allow for meaningful comparisons."
3. ¶3 SEEA EA, para 14.8.
4. ¶4 SEEA EA, para 14.14.
5. ¶5 Official Records of the Economic and Social Council, 2020, Supplement No. 4 (E/2020/24), chap. I, sect. C, decision 51/101, para. (g).
6. ¶6 SEEA EA, para 14.30. "The monitoring framework for the Kunming-Montreal Global Biodiversity Framework draws directly on SEEA EA for several indicators, including the headline indicators under goals A and B."
7. ¶7 SEEA EA, para 14.28.
8. ¶8 SEEA EA, para 14.28. SEEA enables countries to use a single, coherent database for reporting to multiple monitoring frameworks.
9. ¶9 TNFD (2023). *Recommendations of the Taskforce on Nature-related Financial Disclosures*. Executive Summary, p.12. "The TNFD recommendations are designed to be aligned with the global policy goals and targets in the GBF, including Target 15 on corporate reporting of nature-related risks, dependencies and impacts."
10. ¶10 United Nations General Assembly Resolution 70/1, The 2030 Agenda for Sustainable Development, Goal 14.
11. ¶11 Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development, A/RES/71/313, Annex. Refinements adopted through annual IAEG-SDGs review process.
12. ¶12 Compiled from Global SDG Indicator Framework, Goal 14, as refined through the 2024 comprehensive review by the IAEG-SDGs.
13. ¶13 SEEA CF, Chapter III, Physical Flow Accounts. "Physical flow accounts record flows of natural inputs, products, and residuals within the economy and between the economy and the environment."
14. ¶14 UNEP, SDG indicator metadata 14.2.1 (last updated 29 July 2024), and UNEP (2021), *Understanding the State of the Ocean: A Global Manual on Measuring SDG 14.1.1, SDG 14.2.1 and SDG 14.5.1*. UNEP is the custodian; IOC-UNESCO and FAO are partner agencies (IAEG-SDGs, Tier Classification for Global SDG Indicators, 10 April 2025). The indicator value is generated through a national survey instrument administered by the custodian agency.
15. ¶15 SEEA EA, Chapter 13, Section 13.5 on Ocean Accounts.
16. ¶16 SEEA EA, para 5.14, Class B: Chemical state characteristics "including nutrient levels, carbon, pollutant concentrations, and salinity".
17. ¶17 FAO (2022), SDG Indicator 14.4.1 Metadata. The official methodology classifies stocks into status categories from national stock assessment reports rather than from a direct biomass-to-BMSY ratio.
18. ¶18 SEEA CF, para 5.393-5.458, Aquatic Resources. The SEEA CF notes that "for any given population, it is possible to calculate the number of animals or volume of plants...that may be removed from the population without affecting the capacity of the population to regenerate itself" (para 5.82).
19. ¶19 SEEA EA, Chapter 4, Section 4.2 on ecosystem extent accounts. Extent accounts can be disaggregated by spatial classifications including protected area status.
20. ¶20 FAO (2024), SDG Indicator 14.7.1 Metadata (IAEG-SDGs metadata repository, 2024 revision). The official composite uses sustainability-weighted catch and value-added information rather than a simple supply-use-derived ratio.
21. ¶21 SEEA EA, Chapter 9, Monetary Ecosystem Services Flow Accounts, and Chapter 11, Extended accounts and indicators.
22. ¶22 CBD Decision 15/4, Kunming-Montreal Global Biodiversity Framework. Adopted at COP-15, Montreal, December 2022.
23. ¶23 SEEA EA, Appendix A14.1, Table A14.1.1.
24. ¶24 Kunming-Montreal Global Biodiversity Framework, Target 2.

5. ¶25 SEEA EA, Appendix A14.1, Table A14.1.2, Target 2. “Target 2, which monitors the area of degraded ecosystems under ecosystem restoration, can be informed by indicators deriving from a combination of ecosystem extent accounts and ecosystem condition accounts of SEEA EA.”
6. ¶26 Kunming-Montreal Global Biodiversity Framework, Target 3.
7. ¶27 Kunming-Montreal Global Biodiversity Framework, Target 15. The full text states: “Encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions, regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity.”
8. ¶28 Taskforce on Nature-related Financial Disclosures, Final Recommendations, September 2023.
9. ¶29 TNFD v1.0 Technical Guidance on alignment with SEEA, September 2023; TNFD Additional Sector Guidance – Fishing (draft June 2024, updated 2025) and related supplementary materials covering marine sectors.
0. ¶30 TNFD Final Recommendations, p.12.
1. ¶31 Paris Agreement, Article 2.
2. ¶32 SEEA EA, Table 6.3 and para 13.56 on global climate regulation services.
3. ¶33 SEEA EA, para 6.43-6.52, Global climate regulation services.
4. ¶34 SEEA EA, Chapter 13, paras 13.56-13.61 on global climate regulation services. The global climate regulation service associated with carbon sequestration and storage is the annual flow of carbon sequestered by ecosystem types, measured in physical terms.
5. ¶35 SEEA EA, Preface, para 4. See also IPCC (2014), 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands, Chapter 4, on activity data requirements for coastal wetlands.
6. ¶36 Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction, adopted 19 June 2023. Entered into force 17 January 2026, 120 days after the sixtieth ratification on 19 September 2025.
7. ¶37 BBNJ Agreement, Part II, Marine Genetic Resources.
8. ¶38 IUCN Global Ecosystem Typology, Realm M (Marine), Biome M3 (Deep sea floors) including M3.1 Continental and island slopes, M3.2 Submarine canyons, M3.3 Abyssal plains, M3.4 Seamounts, ridges and plateaus, M3.5 Deepwater biogenic beds, M3.6 Hadal floors and trenches.
9. ¶39 SEEA EA, para 5.35-5.48, Reference conditions. “Reference conditions should reflect the expected condition of an ecosystem type in the absence of human-induced degradation.”
0. ¶40 SEEA EA, para 13.56.
1. ¶41 United Nations (2017). *Global Indicator Framework for the Sustainable Development Goals*. A/RES/71/313. Indicator 14.5.1.
2. ¶42 CBD Decision 15/5, Annex on the Monitoring Framework for the Kunming-Montreal Global Biodiversity Framework (2022); METT v4.0; IUCN Green List of Protected and Conserved Areas Standard.
3. ¶43 IOC-UNESCO / Global Ocean Acidification Observing Network (GOA-ON), Methodology for SDG Indicator 14.3.1 (Tier II).
4. ¶44 United Nations (2017). *Global Indicator Framework for the Sustainable Development Goals*. A/RES/71/313. Indicator 14.3.1.