

Overview of Relevant Statistical Standards

Provides a reference overview of the international statistical standards that underpin Ocean Accounts: the System of National Accounts 2025 (SNA 2025).

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OUTCOME

This Circular provides a reference overview of the international statistical standards that underpin Ocean Accounts: the *System of National Accounts 2025* (SNA 2025), the *System of Environmental-Economic Accounting Central Framework* (SEEA CF), and *SEEA Ecosystem Accounting* (SEEA EA). It also covers the classification systems required for consistent and comparable ocean accounts. For the conceptual framework and key components of Ocean Accounts, see [TG-0.1 General Introduction to Ocean Accounts](#). Key terms are defined in [TG-0.6 Glossary](#).

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ABOUT THIS CIRCULAR

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DRAFT

1. Outcome

¶1 This Circular provides a reference overview of the international statistical standards that underpin Ocean Accounts: the *System of National Accounts 2025* (SNA 2025), the *System of Environmental-Economic Accounting Central Framework* (SEEA CF), and *SEEA Ecosystem Accounting* (SEEA EA). It also covers the classification systems required for consistent and comparable ocean accounts. For the conceptual framework and key components of Ocean Accounts, see **TG-0.1 General Introduction to Ocean Accounts**. Key terms are defined in **TG-0.6 Glossary**.

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, including the relationship between environmental and economic accounting frameworks and the spatial boundaries relevant to ocean accounting.

3. Guidance Material

¶1 The SNA provides the overarching framework for economic accounting. The SEEA extends this framework to measure interactions between the economy and the environment. Within the SEEA family, the Central Framework addresses individual environmental assets and physical flows, whilst SEEA Ecosystem Accounting measures ecosystems as integrated spatial units¹. Ocean Accounts build upon all three, adapting their concepts and methods to the marine and coastal domain.

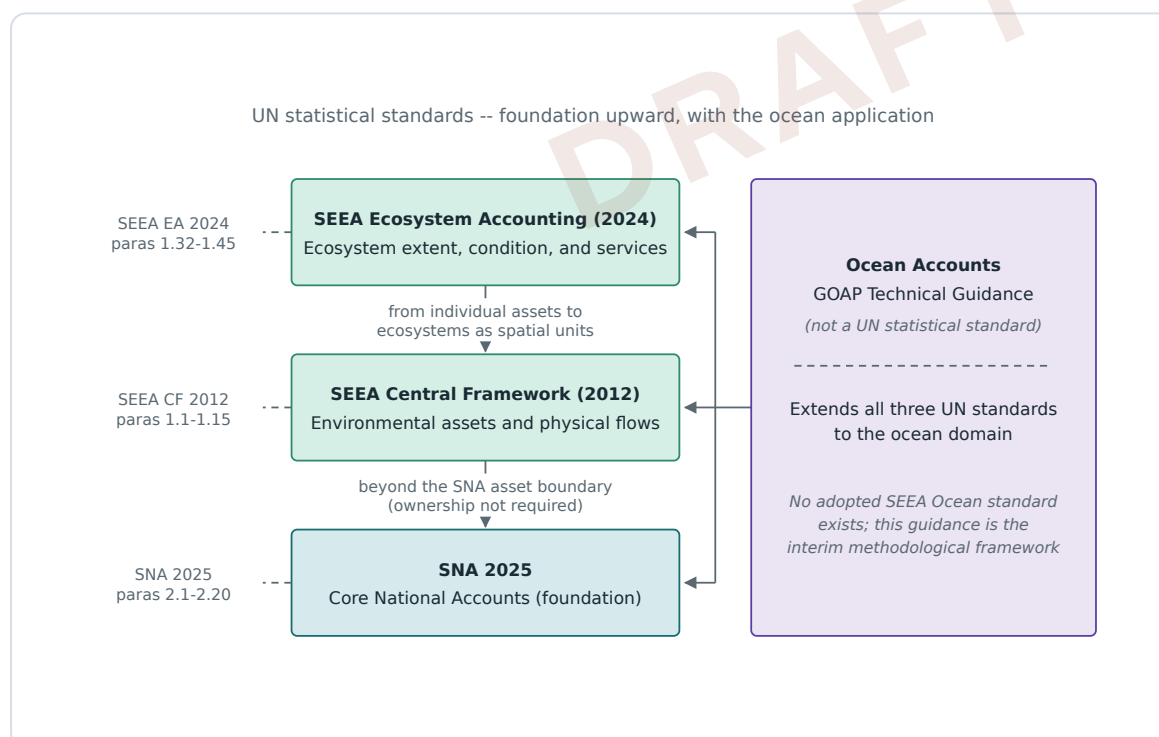


Figure 0.2.1 SNA 2025 underpins SEEA CF and SEEA EA; Ocean Accounts extends all three to the marine domain and is not itself a UN statistical standard.

Source: SNA 2025 paras 2.1-2.20 (sequence of economic accounts); SEEA CF 2012 paras 1.1-1.15 (scope and purpose); SEEA EA 2024 paras 1.32-1.45 (relationship to SNA and SEEA CF).

3.1 System of National Accounts 2025

¶1 The **System of National Accounts (SNA)** is the internationally agreed set of standards for measuring economic activity. It provides the conceptual framework, classifications, and accounting rules that countries use to compile their national accounts statistics. The 2025 SNA, adopted by the United Nations Statistical Commission at its 56th session in March 2025, strengthens linkages with environmental accounting and introduces new concepts directly relevant to ocean accounts².

¶2 The SNA defines a “whole set of standards, including extended/thematic accounts and supplementary items”³. Its integrated framework consists of the sequence of economic accounts, supply and use tables, and balance sheets³. The 2025 SNA refers to thematic and extended accounts (replacing the earlier “satellite account” terminology used in SNA 2008) to better reflect the integrated nature of these compilations.

Key concepts for ocean accounting

¶1 The **sequence of economic accounts** records production of goods and services, generation, distribution and redistribution of income, and capital accumulation, culminating in balance sheets showing stocks of assets and liabilities⁴. For the ocean economy, this sequence enables measurement of gross value added by ocean industries, income flows to households in ocean sectors, government expenditure on fisheries management, and investment in ocean infrastructure. Application to ocean economy thematic accounts is in **TG-3.3 Economic Activity Relevant to the Ocean**.

Treatment of natural resources

¶1 The 2025 SNA explicitly recognises natural resources as a separate asset category, including renewable energy resources⁵. It identifies five categories: land, mineral and energy resources, biological resources, water resources, and other natural resources². For ocean accounting, this encompasses seabed minerals, offshore energy resources (including offshore wind and tidal energy), aquatic biological resources such as fish stocks, and coastal land.

¶2 The 2025 SNA introduces **natural capital**, defined as “the combination of natural resources and ecosystem assets”⁶. This definition bridges the SNA’s treatment of individual natural resources with the ecosystem approach in SEEA Ecosystem Accounting. Asset accounting applying this concept is in **TG-3.1 Asset Accounts**.

Depletion as a cost of production

¶1 The 2025 SNA treats depletion of natural resources as a cost of production⁷. When fish stocks are harvested beyond sustainable levels, the resulting depletion is recorded as a cost reducing net measures of production. The SNA now emphasises that “the volume change of net domestic product (NDP) is identified as the conceptually preferred measure of economic growth, not replacing but to be used alongside the volume change of gross domestic product (GDP)”⁷.

¶2 ⓘ Concrete application

¶3 When compiling structural indicators for the ocean economy (**TG-2.5 Structure and Function of the Ocean Economy**), analysts calculate **Net Ocean GVA** by subtracting depletion of marine natural resources from Gross Ocean GVA. If a coastal state reports Gross Ocean GVA of USD 1,750 million but fish stock depletion of USD 35 million and offshore mineral depletion of USD 60 million, Net Ocean GVA is USD 1,655 million.

¶4 The depletion share is calculated as total depletion divided by Gross Ocean GVA:

$$\text{Depletion share (\%)} = (\sum \text{depletion items} / \text{Gross Ocean GVA}) \times 100 = (35 + 60) / 1,750 \times 100 = 5.4\%$$

¶5 Gross Ocean GVA is used as the denominator because it represents the economy’s recorded contribution before adjusting for natural capital drawdown, making it the conventional basis for sustainability indicators of this type.

¶6 **When depletion data are unavailable:** Many countries, particularly small island developing states, lack the official sustainable yield estimates required to calculate fish stock depletion. Compilers should apply the following tiered approach:

- ¶7 **Tier 1** – Where depletion data for all major marine natural resources exist, report both Gross Ocean GVA and Net Ocean GVA.
- ¶8 **Tier 2** – Where depletion data exist for some resources only, report Gross Ocean GVA with a qualitative note identifying the resources for which depletion could not be calculated and estimating the likely direction of bias.
- ¶9 **Tier 3** – Where no depletion data are available, report Gross Ocean GVA only, flag depletion data as a priority data gap, and cross-reference **TG-0.7 Quality Assurance** for data gap documentation guidance.

¶10 In all tiers, the metadata should document which depletion components are included, which are absent, and the data source used for any estimates.

Production boundary and natural processes

¶1 The SNA establishes clear criteria for what constitutes economic production. A necessary condition is that the activity “must be carried out under the instigation, control and responsibility of some institutional unit that exercises ownership rights over whatever is produced”⁸. This general condition (para 1.65) is applied in SNA 2025 para 13.20 to conclude that the natural growth of wild fish stocks under quota management is not production, because the institutional unit does not exercise direct control over the biological growth process: “the natural growth of non-cultivated biological resources, such as fish stocks under a quota regime, may take the form of fish becoming more numerous. Although these resources are economic assets, growth of this kind is not under the direct control, responsibility and management of an institutional unit and thus is not treated as production”⁹. This is not a special carve-out but a consistent application of the general production boundary rule: quota management establishes an entitlement to harvest but not direct control over the biological growth process.

¶2 Aquaculture production is included in ocean economy gross value added (ISIC Division 03) reported in **TG-3.3**. Natural growth of wild fish stocks is recorded as an addition to stock in the physical asset account in **TG-3.1** Table 7.

Asset boundary

¶1 Natural resources are included in the SNA’s balance sheets “provided that institutional units are exercising effective ownership rights over them, that is, are actually in a position to be able to benefit from them”¹⁰. Resources within a country’s Exclusive Economic Zone (EEZ) are generally within scope. High seas resources “over which no ownership rights can be exercised” are excluded¹⁰. The SNA explicitly recommends compilation of ecosystem accounts according to SEEA Ecosystem Accounting¹¹.

¶2 For resources in areas beyond national jurisdiction (ABNJ), the 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 (BBNJ Agreement), which entered into force on 17 January 2026, may provide new frameworks for accounting treatment as its governance structures develop¹². The BBNJ Agreement establishes new institutional arrangements for marine genetic resources, area-based management tools, environmental impact assessments, and capacity-building in ABNJ, which may clarify the institutional attribution of benefits from high seas resources and inform asset accounting boundaries. Guidance on deep-sea and ABNJ accounting is in **TG-6.6 Deep-Sea and ABNJ**.

Linkage with SEEA

¶1 Ecosystem services, the contributions of marine and coastal ecosystems to human welfare, largely remain outside the SNA production boundary: the natural growth of wild fish stocks, coastal protection by mangroves, and carbon sequestration by seagrass are not recorded as production unless directly transacted in markets¹³. SEEA Ecosystem Accounting addresses this gap directly: it “complements the estimates of output based on the SNA production boundary” by measuring ecosystem services in both physical and monetary terms¹⁴.

¶2 The 2025 SNA “strengthens the linkages with the System of Environmental Economic Accounting (SEEA)”⁵, describes the SEEA as providing “a comprehensive set of monetary and non-monetary accounts covering natural resources and ecosystem assets”¹⁵, and “strongly encourages” compilation of ecosystem accounts according to SEEA Ecosystem Accounting¹¹. The 2025 SNA also explicitly identifies ocean accounting as an application of its thematic accounting framework².

¶3 The SNA’s thematic accounting framework (SNA 2025 Chapter 38)¹⁶ provides the methodological basis for compiling ocean economy accounts as a cross-cutting segment of the national economy, following SNA 2025 guidance on identifying ocean-characteristic industries and products and extracting these from national supply and use tables while maintaining accounting identities. Application is in **TG-3.3** Section 3.4.

3.2 SEEA Central Framework

¶1 The **SEEA Central Framework** (SEEA CF) is “a multipurpose conceptual framework that describes the interactions between the economy and the environment, and the stocks and changes in stocks of environmental assets”¹⁷. Adopted as an international statistical standard in 2012, the SEEA CF extends the SNA’s economic accounts to systematically record physical flows between the environment and the economy and to measure stocks of individual environmental assets. An update is currently underway, with adoption anticipated in March 2028, to ensure alignment with SNA 2025¹⁸.

Environmental assets

¶1 The SEEA CF defines **environmental assets** as “the naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, that may provide benefits to humanity”¹⁹. These assets are classified into seven main categories: mineral and energy resources; land; soil resources; timber resources; **aquatic resources** (including wild fish and aquaculture); other biological resources; and water resources²⁰. For ocean accounting, the aquatic resources category is most important, encompassing both cultivated aquatic resources (aquaculture) and natural aquatic resources (wild fish, crustaceans, molluscs, and aquatic plants)²¹.

¶2 The SEEA CF scope includes “all natural resources, cultivated biological resources and land within a country of reference (including resources within a country’s exclusive economic zone)”²². For high seas resources, scope is more limited: “While some aquatic resources on the high seas are included as part of individual environmental assets (e.g., fish stocks attributable to countries on the basis of international agreements on access rights), the overall scope of the asset boundary in the SEEA Central Framework is narrower”²³.

Physical flow accounts

¶1 The SEEA CF Physical Supply and Use Tables (PSUTs) record flows between the environment and the economy in physical units (tonnes, cubic metres, joules)²⁴. For ocean accounting, these enable measurement of fish catches and other aquatic harvests; extraction of seabed minerals and energy resources; use of marine water; and inputs of marine renewable energy. The SEEA CF also provides frameworks for recording residual flows—emissions and waste returned to the environment—which are needed for understanding pressures on marine ecosystems from pollution. Detailed guidance is in **TG-3.2 Flows from Environment to Economy**.

Asset accounts structure

¶1 Asset accounts in the SEEA CF record the opening stock of an environmental asset, additions and reductions during the period, and the closing stock²⁵. For aquatic resources, additions include natural growth (recruitment and biomass increase), whilst reductions include catches, natural mortality, and catastrophic losses. The SEEA CF defines **physical depletion** as “the decrease in the quantity of the stock of a natural resource over an accounting period that is due to the extraction of the natural resource by economic units occurring at a level greater than that of regeneration”²⁶. Depletion is a function of the net change in stock: it arises when extraction exceeds regeneration, causing the stock to decline. A simplified comparison of catch against a sustainable yield estimate is insufficient, because the SEEA CF anchors depletion to the actual net stock change rather than to any single yield reference point. The full derivation is: depletion = gross catch – (natural growth – natural mortality – catastrophic losses – net stock change), consistent with SEEA CF para 5.75–5.83. For sourcing sustainable yield conventions and stock assessment data, see **TG-6.7 Fisheries Stock Assessment** (planned circular)²⁷.

¶2 The treatment of discards is addressed at SEEA CF para 2.90: “During the extraction of some natural resource inputs, not all extraction is retained in the economy, for example, in fishing operations, there is an amount of discarded catch.”²⁸ Detailed methodological guidance is in **TG-3.1 Asset Accounts** and **TG-3.2 Flows from Environment to Economy**.

¶3 Following SEEA CF Table 5.1, stock reappraisals are recorded as “revisions and reclassifications,” a distinct account row from “discoveries” (genuine identification of previously unknown resource occurrences). Conflating the two produces errors in the policy-relevant depletion measure. See SEEA CF para 5.55–5.57 for the full distinction²⁹.

Aquaculture versus wild capture

¶1 The SEEA CF maintains a clear distinction between cultivated and natural biological resources. “All cultivated biological resources are considered to be within the production boundary”³⁰, meaning aquaculture production is treated similarly to agricultural production. Natural biological resources (including wild fish) “are recorded as entering the economy at the point of harvest”³¹. Changes in aquaculture stocks are recorded as changes in produced assets. Reductions in wild fish stocks through overfishing constitute depletion of natural resources. The physical asset account template in **TG-3.1** Table 1a sets out cultivated and natural aquatic resources in separate columns.

Limitations for marine ecosystems

¶1 The SEEA CF does not treat the ocean itself as an environmental asset: it “does not include oceans and the atmosphere as part of environmental assets, since their stocks are too large to be meaningful for analytical purposes”²³. Marine ecosystems as integrated spatial units are outside the SEEA CF scope. SEEA Ecosystem Accounting is required for these.

3.3 SEEA Ecosystem Accounting

¶1 **SEEA Ecosystem Accounting** (SEEA EA) was adopted by the United Nations Statistical Commission in March 2021 “as an international statistical standard for the ecosystem accounting framework and physical ecosystem accounts, and presents internationally recognized statistical principles and recommendations for the valuation of ecosystem services and assets”³². The SEEA EA extends the SEEA CF by treating ecosystems as integrated spatial units—**ecosystem assets**—that can be measured in terms of their extent, condition, and the services they provide.

Core concepts

¶1 The SEEA EA defines an **ecosystem** as “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit”³³. An **ecosystem asset** is “contiguous spaces of a specific ecosystem type characterized by a distinct set of biotic

and abiotic components and their interactions”³⁴, assigned to an **ecosystem type** that “reflects a distinct set of abiotic and biotic components and their interactions”³⁵.

¶2 **Ecosystem services** are “the contributions of ecosystems to the benefits that are used in economic and other human activity”³⁶, representing flows generated by ecosystems. The SEEA EA distinguishes between final ecosystem services (directly used by economic units or households) and intermediate services (inputs to the supply of other ecosystem services)³⁷.

Five types of ecosystem account

¶1 The SEEA EA describes five types of ecosystem account³⁸:

Account type	What it records	What it tells you
Ecosystem extent accounts	Areas of different ecosystem types and changes over time.	Whether you are gaining or losing mangroves, seagrass, or reef area.
Ecosystem condition accounts	Quality of ecosystem assets through condition variables and indicators.	Whether your remaining ecosystems are healthy or degrading.
Ecosystem services flow accounts (physical)	Supply and use of ecosystem services in physical units.	How much coastal protection, carbon sequestration, or fish nursery service your ecosystems provide.
Ecosystem services flow accounts (monetary)	Value of ecosystem services in currency units.	The economic contribution of ecosystem services.
Monetary ecosystem asset accounts	Value of ecosystem assets as natural capital.	The total capital value of your marine ecosystems.

¶2 The Statistical Commission noted “outstanding methodological concerns related to chapters 8 to 11 on valuation”³⁹. Accordingly, whilst the physical ecosystem accounts (chapters 3–7) were adopted as a full international statistical standard, the valuation chapters (8–11) were adopted at the level of “internationally recognized statistical principles and recommendations”³². This distinction is relevant for ocean accounting applications involving monetary valuation of marine ecosystem services and assets. A worked example applying all five account types to coastal mangroves and seagrass is in **TG-3.1 Asset Accounts** Section 3.7.

Marine ecosystem considerations

¶1 The SEEA EA notes that “marine ecosystems are not concentrated near one surface (i.e. the air-land/water interface) but extend throughout the water column and include the underlying sediment and seabed”⁴⁰. The recommended delineation approach is: “for marine ecosystems within the continental shelf, it is recommended that ecosystem assets be delineated based on the areas of the different ecosystem types associated with the seabed, for example, seagrass meadows, subtidal sandy bottoms and coral reefs”⁴⁰.

¶2 The spatial boundary for ecosystem accounting aligns with the SEEA CF: “Consistent with the scope of the SEEA Central Framework, the scope of national jurisdictions for ecosystem accounting should include all ecosystems across the terrestrial, freshwater and marine realms to the boundary of the exclusive economic zone (EEZ)”⁴¹. For areas beyond national jurisdiction, the SEEA EA notes these may be “the focus of regional or international accounting work”⁴².

IUCN Global Ecosystem Typology

¶1 The SEEA EA adopts the **IUCN Global Ecosystem Typology (GET)** as its reference classification for ecosystem types⁴³. Detailed marine biome and ecosystem functional group classifications relevant to ocean accounting are described in Section 3.5 below.

Ecosystem condition measurement

¶1 Ecosystem condition is measured using a three-stage approach: presentation of condition variables, derivation of condition indicators, and optional derivation of composite indices⁴⁴. The SEEA EA links condition to **ecosystem integrity**: “the ecosystem’s capacity to maintain its characteristic composition, structure, functioning and self-organization over time within a natural range of variability”⁴⁵. For marine ecosystems, key drivers of condition include bathymetric profile, climate factors (including ocean acidification and temperature), substrate type, ocean circulation, salinity, and human activities⁴⁶.

¶2 Condition variables are selected from SEEA EA Table 5.7, which organises variables by characteristic class using full descriptive names (e.g., coral cover, bleaching prevalence, calcification rate, fish species richness, rugosity). See **TG-6.1 Coral Reef Accounts** for detailed guidance on condition variable selection for coral reef ecosystem assets⁴⁴.

Monetary ecosystem asset accounts and discount rate guidance

¶1 Monetary ecosystem asset accounts record the value of ecosystem assets as natural capital, derived by capitalising projected ecosystem service flows using a discount rate (SEEA EA Chapter 9)³⁸. The discount rate is one of the most consequential inputs in ecosystem asset valuation. SEEA EA para 10.36–10.42 discusses appropriate approaches, including:

- ¶2 The **social discount rate**, which reflects societal time preference and intergenerational equity considerations;
- ¶3 The **risk-free rate** as a lower bound, typically approximated by long-term sovereign bond yields;
- ¶4 Country-specific approaches where market data are available.

¶5 Any worked example applying a specific discount rate (such as the illustrative 4% in **TG-3.1** Table 8) is illustrative only and does not constitute a GOAP recommendation. Compilers should select a rate appropriate to their national context following SEEA EA para 10.36–10.42. For countries without a sovereign yield curve, the SEEA EA recommends consulting regional comparators or applying a conservative social discount rate consistent with national planning frameworks. Full valuation methodology is in **TG-3.1 Asset Accounts**.

¶6 The closing value of a monetary ecosystem asset account is derived by summing all account entries: opening value, additions (natural expansion or restoration, upward revaluations), and subtractions (degradation, conversions, downward revaluations). Every account entry must correspond to a distinct row in the SEEA EA para 9.10 account structure and reconcile arithmetically to the stated closing value.

3.4 SEEA-Oceans (Emerging)

¶1 Standards status of content in this section

¶2 Content in this circular draws on sources with different levels of international endorsement. Compilers should distinguish:

1. ¶3 **Adopted international statistical standards** – SNA 2025 (adopted March 2025), SEEA CF (adopted 2012, update anticipated March 2028), and SEEA EA physical accounts (Chapters 3–7, adopted March 2021). These carry full UN Statistical Commission authority.
2. ¶4 **Internationally recognised statistical principles and recommendations** – SEEA EA valuation chapters (Chapters 8–11, adopted at principles level March 2021). These are authoritative guidance but carry a different level of endorsement than the physical accounts. As the SEEA EA Preface para 8 notes, the Commission “noted that there are outstanding methodological concerns related to chapters 8 to 11 on valuation” and adopted these chapters as principles-level guidance.³⁹
3. ¶5 **Emerging / non-adopted frameworks** – SEEA-Oceans (no formal Statistical Commission adoption), GOAP Technical Guidance (interim methodological framework). These apply princi-

ples from adopted standards to the ocean domain but do not themselves carry Statistical Commission authority.

¶6 When citing material from this circular in policy or official statistical publications, authors should identify which tier of authority applies to the specific methodology being cited.

¶7 The SEEA EA does not describe a separate “SEEA-Oceans” standard; rather, it describes **ocean accounts** as a thematic accounting application that builds upon SEEA EA and the SEEA Central Framework⁴⁷. No ocean-specific thematic guidance under the SEEA has yet been adopted by the United Nations Statistical Commission. The GOAP Technical Guidance provides an interim methodological framework applying the principles of SNA 2025, SEEA CF, and SEEA EA to the marine and coastal domain. As the international statistical community continues to develop ocean-specific methodology, this Technical Guidance will be updated to reflect any standards adopted by the Statistical Commission.

Ocean accounts framework

¶1 The SEEA EA describes ocean accounts as providing “a broad framework for connecting relevant elements of the SNA, the SEEA Central Framework and SEEA EA in order to harmonize priority ocean data covering economic, ecological, governance and social dimensions”⁴⁷. The framework adds governance, management and technology accounts alongside the environmental and economic accounts derived from SEEA⁴⁸.

¶2 Ocean accounts enable measurement of⁴⁹:

- ¶3 Changes in ocean ecosystem extent and condition and in associated flows of ecosystem services
- ¶4 Changes in ocean wealth, including produced assets (e.g., ports) and non-produced assets (e.g., mangroves, coral reefs)
- ¶5 Ocean-related income and welfare for different groups of people
- ¶6 Ocean-based economic production (GDP from ocean-related sectors)
- ¶7 Changes in how oceans are governed and managed

Current status and development

¶1 The Global Ocean Accounts Partnership (GOAP), endorsed as a key initiative in the UN Ocean Decade Programme in July 2025, coordinates the development of ocean accounting methodology and supports implementation in member countries¹⁸. As of 2025, more than 33 countries are undertaking ocean accounting initiatives, among them the Netherlands, which has moved to a first full SEEA ecosystem account for its North Sea waters⁵⁰. At the Third United Nations Conference to Support the Implementation of Sustainable Development Goal 14 (UNOC3) in Nice in June 2025, the political declaration “Our ocean, our future: united for urgent action” formally recognized ocean accounting as a key mechanism to accelerate action for a sustainable ocean economy⁵¹.

Challenges for ocean accounting

¶1 The SEEA EA acknowledges specific challenges for ocean accounting. Data on the ocean “is more fragmented than data for terrestrial and freshwater ecosystems and the understanding of the ecological and economic connections among marine ecosystems, coastal ecosystems and other ecosystems is less advanced, although the relationship is expected to be highly non-linear”⁵². Additional challenges include appropriately reflecting the three dimensions of marine areas (depth in addition to area), accurately capturing changes in condition, and addressing transboundary issues for migrating fish stocks and shared ecosystems⁵³.

3.5 Related Classification Standards

¶1 The key classifications for ocean accounting span economic activities, products, government expenditure, environmental protection activities, and ecosystem types.

International Standard Industrial Classification (ISIC)

¶1 The **International Standard Industrial Classification of All Economic Activities (ISIC)** classifies economic activities⁵⁴. ISIC Revision 5 was endorsed by the UN Statistical Commission at its 55th session in March 2024 and organises activities into a four-level hierarchy: sections (alpha-betic), divisions (2-digit), groups (3-digit), and classes (4-digit)⁵⁵. Where national classifications have not yet adopted ISIC Rev.5, compilers should use the correspondence tables between ISIC Rev.4 and ISIC Rev.5 published by the UN Statistics Division and document the classification version applied in their metadata⁵⁶.

¶2 For ocean accounting, the most directly relevant ISIC categories are:

ISIC category	Coverage
Division 03 – Fishing and Aquaculture	Marine fishing, freshwater fishing, marine aquaculture, and freshwater aquaculture. ⁵⁷
Division 50 – Water Transport	Sea and coastal passenger transport, sea and coastal freight transport, and inland water transport. ⁵⁸
Class 5222 – Service activities incidental to water transportation	Port operations, navigation, pilotage, and lighthouse activities. ⁵⁹

¶3 Other ocean-relevant categories include shipbuilding, offshore support activities for petroleum and natural gas extraction, and recreational fishing services⁶⁰. Fish processing at land-based plants is classified in Division 10 (Food products)⁶¹.

Central Product Classification (CPC)

¶1 The **Central Product Classification (CPC)** classifies goods and services⁶². CPC Version 3.0 was endorsed by the UN Statistical Commission at its 55th session in March 2024⁶³. Each CPC subclass corresponds to specific ISIC classes of industrial origin, enabling linkage between product statistics and industry statistics⁶⁴.

¶2 Division 04 (Fish and Other Fishing Products) provides detailed categories for live fish, fresh fish, crustaceans, molluscs, and other aquatic products, with distinctions between wild-caught and farmed products⁶⁵. Division 21 covers processed fish products. Transport services related to water are classified in Divisions 65 (water transport services) and 67 (port and waterway operation services)⁶⁶.

Classification of Functions of Government (COFOG)

¶1 The **Classification of Functions of Government (COFOG)** classifies government expenditure by purpose⁶⁷. COFOG is currently under revision, with adoption expected in March 2028⁶⁸. For ocean accounting, the relevant COFOG categories are:

COFOG category	Coverage
04.2.3 – Fishing and hunting	Fisheries management, regulation, licensing, and support for commercial fishing activities. ⁶⁹
04.5.2 – Water transport	Maritime transport infrastructure and operations. ⁷⁰
Division 05 – Environmental protection	Sub-categories applicable to marine environmental protection, including pollution abatement and biodiversity protection. ⁷¹

¶2 **Interim guidance pending the March 2028 COFOG revision:** Compilers preparing pilot ocean accounts before the revised COFOG is adopted should apply the existing COFOG (2000 version) codes with supplementary national detail and document allocation decisions in metadata. Where

existing codes do not clearly distinguish ocean-related expenditures (for example, marine spatial planning or blue economy development expenditures not fitting clearly within Class 04.2.3), compilers should record a supplementary classification note alongside the COFOG code. Compilers should monitor the UNSD COFOG revision process at

<https://unstats.un.org/unsd/classifications/cofog/revision>

(<https://unstats.un.org/unsd/classifications/cofog/revision>) and consult **TG-1.1 National Ocean Budgets** for interim bridging conventions on government expenditure classification.

CEPA and CReMA

¶1 The **Classification of Environmental Protection Activities (CEPA)** and **Classification of Resource Management Activities (CReMA)** provide detailed categories for environmental expenditure and activities⁷². Developed jointly by Eurostat and UNSD, these are international classifications with global applicability⁷³. SEEA CF Chapter 4 provides the overarching framework context. Compilers should note that CEPA and CReMA are in the process of being replaced by the new **Classification of Environmental Purposes (CEP)**, which is progressing through UN adoption. Compilers implementing ocean accounts should monitor CEP development at the UNSD classifications portal⁷⁴.

¶2 For ocean accounting, relevant CEPA categories include wastewater management (CEPA 2) covering discharge to marine waters⁷⁵; protection and remediation of soil and water (CEPA 4) which “concerns surface water, groundwater and marine waters” including oil spill cleanup in coastal areas⁷⁶; and protection of biodiversity and landscapes (CEPA 6) covering marine species and habitat protection, marine protected area management, and fisheries quota enforcement⁷⁷. CReMA 13A covers production of energy from renewable sources including ocean energy (wave, tidal, thermal)⁷⁸.

IUCN Global Ecosystem Typology

¶2 The **IUCN Global Ecosystem Typology (GET)** serves as the reference classification for ecosystem types in SEEA Ecosystem Accounting. For ocean accounting, the GET provides a typology of marine and coastal ecosystems organised into realms, biomes, and ecosystem functional groups. The Marine realm encompasses 20 ecosystem functional groups across four biomes, from seagrass meadows and coral reefs in the Marine Shelf biome to chemosynthetic-based ecosystems in the Deep Sea Floors biome⁷⁹. The transitional realms add further categories for shoreline systems, coastal wetlands, mangroves, estuaries, and other coastal ecosystem types⁸⁰.

Cross-classification considerations

¶1 ISIC identifies ocean-related industries (producers), CPC identifies ocean-related products (outputs), COFOG tracks government spending on ocean functions, CEPA/CReMA tracks environmental protection and resource management activities, and IUCN GET provides the ecosystem asset classification. Correspondences between classifications—such as the linkage between CPC subclasses and their ISIC classes of origin—facilitate integrated analysis⁸¹. Gaps exist: ISIC does not separately identify marine mining from land-based mining, offshore renewable energy is not distinctly classified, and marine-specific environmental activities are often combined with terrestrial activities in CEPA and CReMA⁸². These limitations may require supplementary classification detail for complete ocean accounts.

3.6 Standards Application Summary

¶1 Table 3.1 summarises how the international statistical standards described in this Circular are applied across the GOAP Technical Guidance, mapping each standard to the key concepts it provides, the ocean accounting applications it enables, and the specific circulars where detailed implementation guidance is provided.

¶2 *Table 3.1: Application of statistical standards in ocean accounts*

Standard	Key concepts for ocean accounts	Primary applications	Implementing circulars
SNA 2025	Integrated framework of national accounts; sequence of economic accounts; thematic accounts; natural capital; depletion as cost of production; asset boundary (EEZ scope)	Ocean economy GDP, employment, trade statistics; net ocean GVA adjusted for depletion; ocean-related government expenditure; investment in ocean infrastructure	TG-3.3 Economic Activity TG-2.5 Ocean Economy Structure TG-1.1 National Ocean Budgets
SEEA CF	Environmental assets; physical supply and use tables; natural inputs; physical depletion; asset accounts for aquatic resources, minerals, energy; gross catch vs. landings; cultivated vs. natural resources	Fish stock asset accounts; physical flow accounts for marine resources; depletion measurement; valuation of marine natural resources	TG-3.1 Asset Accounts TG-3.2 Flows from Environment to Economy TG-6.7 Fisheries Stock Assessment (planned)
SEEA EA	Ecosystem assets; ecosystem extent, condition, services; five types of ecosystem account; IUCN GET classification; ecosystem integrity; degradation; NPV of ecosystem services	Coral reef, mangrove, seagrass ecosystem accounts; marine ecosystem condition monitoring; coastal protection and carbon sequestration services; blue carbon accounting	TG-3.1 Section 3.5 Ecosystem Assets TG-6.1 Coral Reef Accounts TG-6.2 Mangrove Accounts TG-6.3 Seagrass Accounts
ISIC Rev.5	Industry classification hierarchy; Division 03 Fishing and aquaculture; Division 50 Water transport; offshore energy extraction	Ocean economy sector composition; employment by ocean industry; output and GVA by industry; international comparison	TG-3.3 Section 3.3 Industry Classification TG-2.5 Sector Composition
CPC Ver.3.0	Product classification hierarchy; Division 04 Fish products; Division 65 Water transport services; ocean-characteristic products	Ocean economy supply and use tables; exports and imports of ocean products; tourism receipts; fish trade statistics	TG-3.3 Section 3.4 Product Classification TG-2.5 Trade Indicators
IUCN GET	Ecosystem type classification; Marine realm (M1-M4); Transitional realms (MT, MFT); Ecosystem functional groups (M1.3 Coral reefs, MFT1.2 Mangroves, M1.1 Seagrass)	Ecosystem extent accounts; ecosystem condition variable selection; spatial units for ecosystem accounting; ecosystem asset delineation	TG-3.1 Sections 3.5.1-3.5.2 TG-6.1 Coral Reef Accounts TG-6.2 Mangrove Accounts

4. Acknowledgements

¶1 **Authors:** [To be confirmed]

¶2 **Reviewers:** [To be confirmed]

5. References

1. ¶1 See SEEA EA para 1.45 and SNA 2025, Preface para B for the hierarchical relationship among these standards.
2. ¶2 United Nations et al. (2025). *System of National Accounts 2025*. New York: United Nations. ST/ESA/STAT/SER.F/2/Rev.6.
3. ¶3 United Nations et al. (2025). *System of National Accounts 2025*, Preface para B.
4. ¶4 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 3, para 3.1-3.15.
5. ¶5 United Nations et al. (2025). *System of National Accounts 2025*, Preface, Wellbeing and sustainability section.
6. ¶6 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 35, para 35.24; see also Glossary.
7. ¶7 United Nations et al. (2025). *System of National Accounts 2025*, Preface, Wellbeing and sustainability section; Annex 4, para A4.59.
8. ¶8 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 1, para 1.65.
9. ¶9 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 13, para 13.20.
0. ¶10 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 1, para 1.68.
1. ¶11 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 1, para 1.66.
2. ¶12 United Nations (2023). 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 (BBNJ Agreement). Entered into force 17 January 2026.
3. ¶13 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 6 on the production boundary applied in the integrated framework; Chapter 1, para 1.65 on the general production condition.
4. ¶14 United Nations (2024). *System of Environmental-Economic Accounting – Ecosystem Accounting*, para 1.38: “In the SNA, these flows remain outside the production boundary that establishes the set of goods and services that are the focus of measures of output, value added and gross domestic product (GDP)... Measurement of ecosystem services, in both physical and monetary terms, through ecosystem accounting complements the estimates of output based on the SNA production boundary.”
5. ¶15 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 2, para 2.24.
6. ¶16 United Nations et al. (2025). *System of National Accounts 2025*, Chapter 38. SNA 2025 contains 39 chapters in total (compared with 29 in SNA 2008); Chapter 38 is titled “Thematic Accounts” and covers thematic and extended accounts as flexible tools for disaggregating key phenomena including the ocean economy.
7. ¶17 United Nations et al. (2014). *System of Environmental-Economic Accounting 2012 – Central Framework*. New York: United Nations. ST/ESA/STAT/Ser.F/109, para 1.1.
8. ¶18 Web research compilation, February 2026. See: UN Statistics Division, SEEA website (seea.un.org); Global Ocean Accounts Partnership (oceanaccounts.org).
9. ¶19 United Nations et al. (2014). *SEEA Central Framework*, Chapter 5, para 5.2.
0. ¶20 United Nations et al. (2014). *SEEA Central Framework*, Table 5.1.
1. ¶21 United Nations et al. (2014). *SEEA Central Framework*, Section 5.9.
2. ¶22 United Nations et al. (2014). *SEEA Central Framework*, Preface, para 29.
3. ¶23 United Nations et al. (2014). *SEEA Central Framework*, Preface, para 30.
4. ¶24 United Nations et al. (2014). *SEEA Central Framework*, Preface, para B.18.
5. ¶25 United Nations et al. (2014). *SEEA Central Framework*, para 5.3.
6. ¶26 United Nations et al. (2014). *SEEA Central Framework*, Chapter 5, para 5.75.
7. ¶27 TG-6.7 Fisheries Stock Assessment is a planned circular; methodology for sourcing sustainable yield estimates and stock assessment data will be addressed therein.
8. ¶28 United Nations et al. (2014). *SEEA Central Framework*, para 2.90; para 3.37–3.40 (natural inputs and residual flows including discards).
9. ¶29 United Nations et al. (2014). *SEEA Central Framework*, para 5.55–5.57 (distinction between revisions and re-classifications versus discoveries in asset accounts for biological resources).
0. ¶30 United Nations et al. (2014). *SEEA Central Framework*, Preface, para 19.
1. ¶31 United Nations et al. (2014). *SEEA Central Framework*, para 3.285.
2. ¶32 United Nations (2024). *System of Environmental-Economic Accounting – Ecosystem Accounting*. Statistical Papers Series F No. 124. New York: United Nations. Preface para 2.
3. ¶33 United Nations (2024). *SEEA Ecosystem Accounting*, para 2.6 (citing the Convention on Biological Diversity).
4. ¶34 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.5.
5. ¶35 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.6.
6. ¶36 United Nations (2024). *SEEA Ecosystem Accounting*, para 2.24.
7. ¶37 United Nations (2024). *SEEA Ecosystem Accounting*, para 6.15.
8. ¶38 United Nations (2024). *SEEA Ecosystem Accounting*, para 1.31.
9. ¶39 United Nations (2024). *SEEA Ecosystem Accounting*, Preface para 8.
0. ¶40 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.11-3.12.

1. ¶41 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.27.
2. ¶42 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.26d.
3. ¶43 United Nations (2024). *SEEA Ecosystem Accounting*, para 3.57–3.66.
4. ¶44 United Nations (2024). *SEEA Ecosystem Accounting*, para 5.16–5.18; Table 5.7 (condition variable classification by characteristic class).
5. ¶45 United Nations (2024). *SEEA Ecosystem Accounting*, para 5.10 (citing Pimentel and Edwards, 2000).
6. ¶46 United Nations (2024). *SEEA Ecosystem Accounting*, Appendix A3.27.
7. ¶47 United Nations (2024). *SEEA Ecosystem Accounting*, para 1.45, footnote 23 (citing Technical Guidance on Ocean Accounting for Sustainable Development, ESCAP 2020).
8. ¶48 United Nations (2024). *SEEA Ecosystem Accounting*, para 13.83.
9. ¶49 United Nations (2024). *SEEA Ecosystem Accounting*, para 13.81.
0. ¶50 Statistics Netherlands (CBS) (2023). “SEEA Ocean Ecosystem Account for the Dutch North Sea: toward a first full implementation.” December 2023.
1. ¶51 United Nations (2025). “Our ocean, our future: united for urgent action.” Political declaration of the Third United Nations Conference to Support the Implementation of Sustainable Development Goal 14, Nice, France, June 2025.
2. ¶52 United Nations (2024). *SEEA Ecosystem Accounting*, para 13.79.
3. ¶53 United Nations (2024). *SEEA Ecosystem Accounting*, para 13.85, 10.58.
4. ¶54 United Nations (2024). *International Standard Industrial Classification of All Economic Activities (ISIC), Revision 5*. Statistical Papers, Series M, No. 4/Rev.5. New York: United Nations.
5. ¶55 United Nations (2024). *ISIC Rev.5, Part One, Chapter I*.
6. ¶56 UNSD. ISIC Rev.4 to ISIC Rev.5 correspondence tables. Available at: <https://unstats.un.org/unsd/classifications/Econ/ISIC> (<https://unstats.un.org/unsd/classifications/Econ/ISIC>). Compilers should document the classification version (Rev.4 or Rev.5) applied in their metadata to support time-series comparability.
7. ¶57 United Nations (2024). *ISIC Rev.5, Part Three, Division 03*.
8. ¶58 United Nations (2024). *ISIC Rev.5, Part Three, Division 50*.
9. ¶59 United Nations (2024). *ISIC Rev.5, Part Three, Class 5222*.
0. ¶60 United Nations (2024). *ISIC Rev.5, Part Three*.
1. ¶61 United Nations (2024). *ISIC Rev.5, Part Three, Division 03 (exclusions note)*.
2. ¶62 United Nations (2024). *Central Product Classification (CPC), Version 3.0*. Statistical Papers, Series M, No. 77, Ver.3.0. New York: United Nations.
3. ¶63 United Nations (2024). *CPC Ver.3.0, Introduction*.
4. ¶64 United Nations (2024). *CPC Ver.3.0, Part One, Chapter I*.
5. ¶65 United Nations (2024). *CPC Ver.3.0, Division 04*.
6. ¶66 United Nations (2024). *CPC Ver.3.0, Divisions 65, 67*.
7. ¶67 United Nations (2000). *Classifications of Expenditure According to Purpose*. Statistical Papers, Series M, No. 84. New York: United Nations. Part One, Chapter I, para 1.
8. ¶68 UNSD (2025). COFOG Revision process. See: <https://unstats.un.org/unsd/classifications/cofog/revision> (<https://unstats.un.org/unsd/classifications/cofog/revision>).
9. ¶69 United Nations (2000). *COFOG, Part Two, Class 04.2.3*.
0. ¶70 United Nations (2000). *COFOG, Part Two, Class 04.5.2*.
1. ¶71 United Nations (2000). *COFOG, Part Two, Division 05*.
2. ¶72 Eurostat (2020). *CEPA and CReMA Explanatory Notes*. Technical Note, December 2020. Luxembourg: Eurostat. Introduction. See also: United Nations et al. (2014). *SEEA Central Framework*, Chapter 4 (physical flow accounts, including classification of environmental protection and resource management activities).
3. ¶73 CEPA and CReMA are international classifications developed jointly by Eurostat and UNSD for use in environmental-economic accounting worldwide. The Eurostat explanatory notes represent custodian-agency guidance; SEEA CF Chapter 4 provides the broader international framework context.
4. ¶74 UNSD Classifications portal: <https://unstats.un.org/unsd/classifications> (<https://unstats.un.org/unsd/classifications>). For the joint Eurostat-UNSD work on the Classification of Environmental Purposes (CEP) as the successor to CEPA and CReMA, see the UNSD classifications portal and associated Eurostat/UNSD working documents. Consistent with the format used for footnote 68 (COFOG revision portal reference).
5. ¶75 Eurostat (2020). *CEPA and CReMA Explanatory Notes*, CEPA 2.
6. ¶76 Eurostat (2020). *CEPA and CReMA Explanatory Notes*, CEPA 4.
7. ¶77 Eurostat (2020). *CEPA and CReMA Explanatory Notes*, CEPA 6.
8. ¶78 Eurostat (2020). *CEPA and CReMA Explanatory Notes*, CReMA 13A.
9. ¶79 Keith, D.A. et al. (2020). *IUCN Global Ecosystem Typology 2.0*, Marine realm biomes and EFGs.
0. ¶80 Keith, D.A. et al. (2020). *IUCN Global Ecosystem Typology 2.0*, Transitional realms (MT, MFT, FM).
1. ¶81 United Nations (2024). *CPC Ver.3.0, Part One, Chapter I*.
2. ¶82 Based on review of ISIC Rev.5 and CEPA/CReMA classifications; see research notes for TG-0.2.

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