

OA and National Budget Processes

Sets out which accounts and indicators feed budget decisions, and how to construct budget submissions using ocean accounting data.

Version 0.8.1

Status Draft

Stability Applied

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Drafting AI-assisted drafting from GOAP Secretariat source materials; source list to be published at the close of consultation.

OUTCOME

Readers will learn which accounts and indicators feed budget decisions, how to read them, and how to present the economic case for public investment in marine resource management and ecosystem conservation. This Circular does not set out how the underlying accounts are compiled: it names the indicator, points to the circular that produces it, and addresses what a finance ministry does with the result.

The guidance addresses three budget use cases:

- Natural capital budgeting uses asset accounts to quantify the value of ocean assets and changes in that value, so that governments can assess whether economic growth is achieved at the expense of depleting marine natural capital. Finance ministries can use depletion-adjusted net domestic product (NDP) calculations to demonstrate the natural capital cost of unsustainable fishing or offshore extraction, and to support budget allocations for resource management.
- Medium-term expenditure framework (MTEF) development requires multi-year projections of ocean economy contributions and asset trajectories. Asset accounts enable projection of fish stock biomass under alternative management scenarios, whilst ecosystem extent accounts track whether mangrove restoration investments will meet MTEF targets for coastal protection services.
- Budget line-item justification for fisheries enforcement, marine protected area management, or coastal infrastructure requires presenting sector economic contribution, asset status and trends, and expected returns to public expenditure.

The quantitative evidence from ocean accounts strengthens these requests by grounding them in internationally standardised data.

Sections 3.3 and 3.4 also set out what a budget official should ask about the figures before relying on them: how the ocean ratio underlying the GVA estimate was derived, whether product taxes and subsidies were extracted or allocated, what the depletion measure covers and what it omits, and whether government rent receipts have been reconciled against it. Those questions are what determine whether a submission survives scrutiny.

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ABOUT THIS CIRCULAR

RECOMMENDED CITATION

OA and National Budget Processes (2026) (GOAP Technical Guidance on Ocean Accounting, TG-1.1, v0.8.1). GOAP Secretariat.
<https://guidance.oceanaccounts.org/circulars/section-1/1-1-budget-processes/>

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DRAFT

¶1 ⓘ Framework Position

¶2 TG-1.1 sits within Section 1 (Decision-Making) of the GOAP Technical Guidance and provides the fiscal planning bridge between ocean accounts compilation (Sections 3-6) and policy use. It draws on asset accounts (TG-3.1), economic activity accounts (TG-3.3), and government expenditure accounts (TG-3.8) to demonstrate to budget officials how ocean accounting data can inform national budget submissions, MTEF projections, and natural capital budgeting.

1. Outcome

¶1 Readers will learn which accounts and indicators feed budget decisions, how to read them, and how to present the economic case for public investment in marine resource management and ecosystem conservation. This Circular does not set out how the underlying accounts are compiled: it names the indicator, points to the circular that produces it, and addresses what a finance ministry does with the result.

¶2 The guidance addresses three budget use cases:

- ¶3 **Natural capital budgeting** uses asset accounts to quantify the value of ocean assets and changes in that value, so that governments can assess whether economic growth is achieved at the expense of depleting marine natural capital. Finance ministries can use depletion-adjusted net domestic product (NDP) calculations to demonstrate the natural capital cost of unsustainable fishing or offshore extraction, and to support budget allocations for resource management.
- ¶4 **Medium-term expenditure framework (MTEF) development**¹ requires multi-year projections of ocean economy contributions and asset trajectories. Asset accounts enable projection of fish stock biomass under alternative management scenarios, whilst ecosystem extent accounts track whether mangrove restoration investments will meet MTEF targets for coastal protection services.
- ¶5 **Budget line-item justification** for fisheries enforcement, marine protected area management, or coastal infrastructure requires presenting sector economic contribution, asset status and trends, and expected returns to public expenditure.

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¶7 Sections 3.3 and 3.4 also set out what a budget official should ask about the figures before relying on them: how the ocean ratio underlying the GVA estimate was derived, whether product taxes and subsidies were extracted or allocated, what the depletion measure covers and what it omits, and whether government rent receipts have been reconciled against it. Those questions are what determine whether a submission survives scrutiny.

2. Requirements

- ¶1 **TG-0.1 General Introduction to Ocean Accounts** – provides foundational understanding of Ocean Accounts structure, including the distinction between stocks and flows, the relationship to the System of National Accounts (SNA) and System of Environmental-Economic Accounting (SEEA), and the multiple-capitals framework for wellbeing and sustainability
- ¶2 **TG-3.7 Governance Accounts** – provides the environmental activity account tables and the COFOG and CEPA/CRMA expenditure classifications used in Section 3.7 of this Circular to identify and track ocean-related government expenditure, together with the accounting boundary between governance expenditure and governance revenue (TG-3.7 Section 3.3.5)

¶3 Readers approaching Section 1 for the first time should begin with **TG-1.0 Ocean Accounting and the Blue/Ocean Economy**, the framing circular for the section, which sets out the ocean

economy terminology used throughout, what an ocean account can and cannot certify about a blue economy claim, and the map from a policy question to the circular that answers it. It is recommended reading, not a prerequisite.

3. Guidance Material

3.1 Ocean accounts and fiscal planning

¶1 National budget processes typically follow an annual cycle comprising budget formulation, legislative approval, execution, and audit. In many countries, annual budgets operate within a Medium-Term Expenditure Framework (MTEF) that projects revenues and expenditures over a three-to-five year horizon. Ocean Accounts can inform both the annual and medium-term dimensions of fiscal planning by providing consistent, comparable data on (1) the contribution of ocean-related sectors to national production and income, (2) the stocks of natural capital assets in marine and coastal areas, (3) the flows of ecosystem services from ocean environments, and (4) the depletion or enhancement of marine resource assets over time.

¶2 The 2025 SNA gives increased prominence to net income measures² and now treats depletion of natural resources as a cost of production alongside depreciation³. Net Domestic Product (NDP) subtracts both depreciation and depletion from GDP, and is identified as the conceptually preferred measure of economic growth for sustainability purposes⁴. For ocean-rich countries, this change has direct implications for fiscal planning: the extraction of marine resources such as fish stocks or seabed minerals now affects measured net income, and budget planners gain a clearer indication of the sustainability of resource-dependent revenue streams.

¶3 Most countries currently compile national accounts under SNA 2008, which does not treat depletion as a cost of production. Depletion-adjusted ocean GVA measures prepared using this Circular should be presented as ocean accounts supplementary measures, clearly distinguished from official GDP and NDP. This framing is consistent with the SEEA Central Framework supplementary account approach⁵ and avoids pre-empting national statistical office SNA 2025 transition timelines.⁶

3.2 From accounts to budget decisions: which data feed fiscal planning

¶1 Four Ocean Accounts modules feed the three calculation steps that translate accounts into budget evidence: the depletion adjustment, ecosystem service valuation, and expenditure classification. Figure 1.1.1 maps these many-to-many linkages.

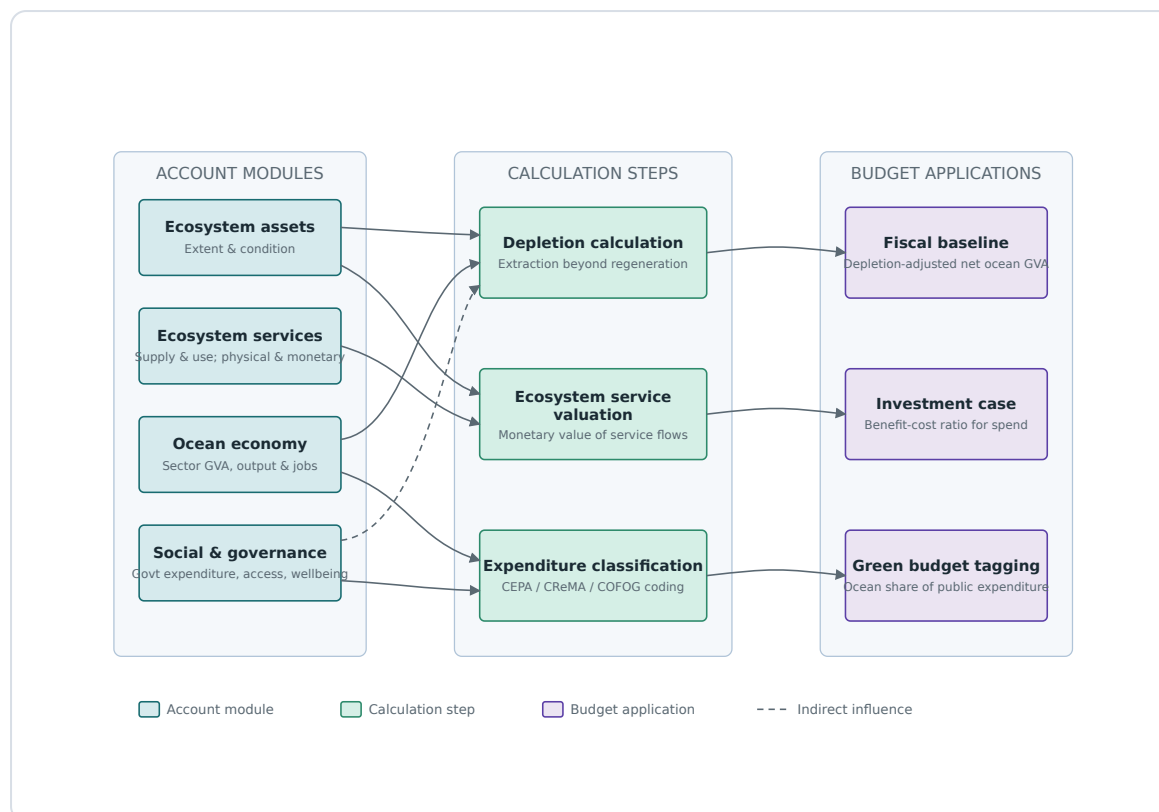


Figure 1.1.1 Four Ocean Accounts modules feed three calculation steps that support three budget applications. Stage colours mark account inputs, calculation steps, and budget applications; edges are many-to-many.

Source: TG-1.1 §3 (account-to-budget mapping); §3.4 (net ocean GVA / depletion); §3.7 (CEPA / CReMA / COFOG expenditure classification). Modules per TG-3.1 (assets), TG-3.2 (services), TG-3.3 (ocean economy), TG-3.8 (government activity).

Adapted from: SNA 2025 Ch.15 & Ch.22 (depletion as a cost of production; government finance interface); OECD (2022) Green Budgeting Framework.

Asset accounts feed natural capital budgeting

¶1 Asset accounts provide the quantitative foundation for assessing whether ocean economic growth is sustainable or whether it draws down marine natural capital. Three specific account entries are particularly relevant:

¶2 **Physical fish stock accounts** (TG-3.1 Section 3.4.1) record opening stock, natural growth, gross catch, natural mortality, and closing stock in tonnes of biomass. Depletion is derived as gross catch minus sustainable yield, and indicates whether extraction exceeds regeneration⁷. A fisheries ministry budget submission can state: “Commercial fish stocks declined from 180,000 tonnes to 176,800 tonnes during 2025, with catch of 24,000 tonnes exceeding sustainable yield of 22,000 tonnes by 2,000 tonnes, indicating depletion. Stabilising stocks requires increased management expenditure of USD X million annually.” This statement draws directly from the physical asset account structure in TG-3.1 Table 1.

¶3 **Monetary fish stock accounts** (TG-3.1 Section 3.3) translate physical depletion into monetary terms by multiplying depletion in tonnes by the resource rent per tonne. If resource rent is USD 450 per tonne and depletion is 2,000 tonnes, the monetary value of depletion is USD 900,000. This figure should be deducted from gross ocean GVA to calculate net ocean GVA for inclusion in MTEF projections. The calculation procedure is specified in Section 3.4 below.

¶4 **Ecosystem asset accounts** (TG-3.1 Section 3.5) record the extent and condition of marine ecosystems that provide coastal protection, carbon sequestration, and other services relevant to budget decisions. If mangrove extent declined by 3.2 km² during 2025 (TG-3.1 Table 5), and each hectare provides coastal protection services valued at USD 12,000 per year (TG-3.1 worked exam-

ple), the annual loss of coastal protection capacity is USD 3.84 million (320 hectares × USD 12,000). This figure can justify budget requests for mangrove restoration by quantifying the replacement value of protection services that have been lost.

Ocean economy accounts feed sector contribution evidence

¶1 Ocean economy thematic accounts compiled under **TG-3.3 Economic Activity** provide the data to demonstrate the ocean sector's contribution to national income, employment, and exports. The derivation procedure from supply and use tables (SUTs) to budget indicators is detailed in **TG-2.5** Section 3.7. The resulting indicators populate Table 1 in Section 3.3 below.

Flow accounts feed environmental expenditure tracking

¶1 Environmental activity accounts described in **TG-3.7 Governance Accounts** Section 3.3.5, and adapted for investment purposes in **TG-2.6 Ocean Investment** Section 3.2, enable tracking of government spending on ocean-related environmental activities. These accounts classify expenditure using the Classification of Environmental Protection Activities and Expenditure (CEPA) and the Classification of Resource Management Activities (CReMA)⁸. For budget purposes, the accounts identify:

¶2 **Marine protected area management expenditure** is classified under CEPA 6 (Protection of biodiversity and landscapes). A budget submission can state: "Government expenditure on marine protected area management totalled USD 8.2 million in 2025, protecting 72,000 hectares of marine ecosystems that provide USD 23 million annually in ecosystem services (coastal protection, carbon sequestration, fish nursery habitat)." The expenditure figure comes from functional accounts. The ecosystem service values come from ecosystem service flow accounts in **TG-3.2**.

¶3 **Fisheries management expenditure** is classified under CReMA resource management activities. A budget submission can compare management expenditure to the value at risk: "Fisheries management expenditure of USD 5.5 million protects an ocean fishing sector contributing USD 175 million GVA and employing 32,000 persons. Fish stock asset value is estimated at USD 73 million based on net present value of sustainable yield."

3.3 Quantifying ocean contributions to national income

¶1 An ocean economy thematic account disaggregates ocean-related economic activities that are often hidden within broader classifications in standard national accounts⁹. For the thematic and extended accounts framework (SNA 2025 Chapter 38), see **TG-0.2 Standards and Frameworks**. The ocean economy thematic account is a thematic account in the SNA 2025 sense: it disaggregates and rearranges items within the SNA integrated framework rather than expanding its boundaries.

¶2 The account identifies industries and products that are 'ocean-related', either because they take place in marine areas, use marine resources as inputs, or produce goods and services specifically for ocean activities¹⁰. The specific activities included will vary according to national circumstances. Countries with large exclusive economic zones may place greater emphasis on offshore extraction and deep-sea activities, whilst small island developing States may prioritise coastal tourism and artisanal fisheries. The SEEA Ecosystem Accounting framework provides guidance on defining ocean-related activities in Section 13.5, and the GOAP Technical Guidance encourages countries to document their classification choices transparently so that cross-country comparisons can account for differences in scope¹¹. The classification should be applied consistently over time so that trend data remain meaningful.

¶3 Key ocean-related activities typically include:

- ¶4 Marine fishing and aquaculture
- ¶5 Offshore mineral and energy extraction (including petroleum, natural gas, and emerging marine renewable energy)

- ¶6 Maritime transport (shipping, port services)
- ¶7 Shipbuilding and marine equipment manufacturing
- ¶8 Coastal tourism and recreation¹²
- ¶9 Marine and coastal construction
- ¶10 Ocean research and education

¶11 For each activity, the thematic account records output, intermediate consumption, gross value added, compensation of employees, and other standard economic variables. The sum of gross value added across all ocean-related activities provides a measure of the ocean economy's direct contribution to GDP.

Which indicators a budget submission needs, and where they come from

¶1 A budget official does not compile the ocean economy account. Four indicators are drawn from it, and Table 1 below is the format in which they are presented.

Indicator	What it establishes in a budget submission	Compiled in
Ocean economy direct GVA	The sector's contribution to national income, and its share of GDP	TG-2.5 Section 3.7
Ocean economy direct GDP	The same on a GDP basis, after the ocean share of taxes less subsidies on products	TG-2.5 Section 3.7
Ocean employment	Jobs at stake in the allocation decision, and the basis for cost-per-job comparisons	TG-2.5 Sections 3.5 and 3.7
Ocean exports	Foreign exchange exposure to the sector, relevant where fiscal projections depend on it	TG-2.5 Section 3.6

¶2 Two features of the compilation bear on how these figures should be read and defended, and a budget official should ask about both.

¶3 **The ocean ratio drives the result.** Industries that are only partly ocean-related – coastal accommodation, marine construction, parts of transport – enter the account scaled by an estimated share. TG-2.5 Section 3.7 Step 3 sets a preference order for estimating that share, from establishment surveys through statistical proxies to documented expert judgement. Where the ratio for a large industry rests on expert judgement, the resulting GVA figure carries a correspondingly wide range, and a budget submission is stronger for stating the range than for presenting a point estimate that will not survive scrutiny.¹³

¶4 **Product taxes and subsidies are allocated, not observed.** Where the ocean share of taxes less subsidies on products is allocated proportionally rather than extracted directly, subsidised sectors are understated – fuel tax rebates for commercial fishing are the common case. A submission arguing about the fiscal cost or benefit of a sector should establish which method was used before relying on the GDP figure.¹⁴

Budget presentation table

¶1 Table 1 presents the standard format for presenting ocean economy contribution in national budget submissions. This format implements the four-row structure specified in Section 3.3 of this Circular and is populated using the indicators derived in Steps 4–6 above.

¶2 **Table 1: Ocean economy contribution – budget presentation format**

Indicator	Ocean economy	National total	Ocean share (%)
GDP contribution (USD million)	1,750	50,000	3.5
Employment (thousand persons)	300	10,000	3.0
Exports (USD million)	620	12,000	5.2
Fish protein supply (thousand tonnes)	285	340	83.8

¶3 *Note: Values are illustrative synthetic data for a medium-income coastal state. Compilers should replace these with data derived from national ocean accounts following the compilation procedure described above.*

¶4 The fish protein supply row represents total marine fish supply available for human consumption. This figure is derived conceptually as total marine fish catch, less exports of fish products and non-food uses (fishmeal, industrial use), multiplied by a species-mix-weighted protein conversion factor. Compilers should refer to FAO food balance sheet methodology for the operational procedure and FAO food composition tables for protein conversion factors.¹⁵ Where fish constitutes a major share of national protein consumption, this indicator demonstrates the ocean sector's contribution to food security and can justify budget allocations for fisheries management that maintain this contribution.

3.4 Net ocean GVA: accounting for natural capital depletion

¶1 Gross measures of ocean economy value added do not account for the depletion of the marine natural resources on which many ocean industries depend. **TG-2.5** Section 3.4 defines net ocean GVA and specifies which depletion categories enter it¹⁶; **TG-3.1 Asset Accounts** Section 3.4.1 and **TG-6.7 Fisheries Accounting: Integrating Stock Assessment** Section 3.3 set out how physical depletion is derived from the asset accounts and valued at resource rent.¹⁷ This Circular takes those figures as given and addresses what a finance ministry does with them.

¶2 Two boundary points determine whether the number can be defended in a budget process.

¶3 **Coverage is partial, and the gap runs one way.** Net ocean GVA as currently specified nets off depletion of fish stocks and of seabed minerals. It does not net off degradation of coastal and benthic habitat – trawl damage, coral bleaching, seagrass loss – which is a decline in ecosystem asset value rather than resource depletion and is accounted separately under TG-3.1 Section 3.5. A reef-dependent or trawl-intensive economy that presents net ocean GVA without noting this will understate its natural capital costs, and should disclose the omission explicitly rather than leave it to be discovered.¹⁸

¶4 **The measure is supplementary until the SNA 2025 transition completes.** Most countries still compile national accounts under SNA 2008, which does not treat depletion as a cost of production. Depletion-adjusted measures should be presented as ocean accounts supplementary measures, clearly distinguished from official GDP and NDP, consistent with the SEEA Central Framework supplementary account approach.⁶ Presenting them as adjustments to headline national accounts pre-empts the national statistical office's transition timetable and invites the figure to be rejected on procedural grounds.

¶5 **Reconciling with government revenue.** Only part of the resource rent that underlies the depletion valuation accrues to government as access payments or royalties. Where those receipts also appear in the governance revenue tables (**TG-3.7** Table 3.7.10b), the two must be reconciled rather than added: presenting government rent receipts alongside a depletion-adjusted net income measure without reconciliation double counts the same flow.¹⁹

Budget application of net measures

¶1 The difference between gross and net ocean GVA indicates the extent to which the ocean economy's recorded economic contribution depends on the drawdown of natural capital. Finance ministries can use this information to assess:

- ¶2 Whether ocean sector growth rates are sustainable or are achieved by depleting assets
- ¶3 The fiscal sustainability of revenue streams dependent on resource extraction
- ¶4 The magnitude of management investment required to stabilise stocks and protect future income flows

¶5 For MTEF purposes, projected net ocean GVA under alternative policy scenarios provides a more realistic basis for revenue forecasting than gross measures alone. If current depletion rates continue, the annual natural capital cost recorded in the accounts will grow and erode the sector's net contribution. Budget submissions can state: "Stabilising fish stocks to eliminate depletion would protect USD 900,000 annually in natural capital value, requiring estimated management expenditure of USD 2.5 million annually. The USD 900,000 in avoided annual depletion represents a direct return of 36 cents per dollar of management expenditure from natural capital preservation alone. When the broader economic benefits of maintaining the USD 175 million GVA fishing sector and 32,000 jobs are considered, the case for investment is substantially stronger."

3.5 Building budget requests using ocean data

Worked example: marine protected area expansion budget submission

¶1 This worked example demonstrates how to construct a complete budget submission for marine protected area (MPA) expansion using data from ocean accounts. The example uses synthetic data for a hypothetical coastal state seeking to expand MPA coverage from 15% to 30% of territorial waters over a three-year MTEF period, in line with global Target 3 of the Kunming-Montreal Global Biodiversity Framework.

¶2 **Context and policy objective:** The government seeks to expand marine protected area coverage from the current 15% (450 km² out of 3,000 km² territorial waters) to 30% (900 km²) by 2028. The Ministry of Environment prepares a budget submission for the MTEF 2026–2028 requesting USD 15 million capital expenditure for MPA establishment and USD 3 million annually for ongoing management.

¶3 **Step 1: Quantify ecosystem services from existing MPAs.** Using ecosystem service flow accounts (**TG-3.2**), the compilers estimate that existing MPAs provide:

- ¶4 Coastal protection services: 50 km of coastline protected, avoiding USD 8 million annually in storm damage
- ¶5 Carbon sequestration: 15,000 tonnes CO₂ sequestered annually, valued at USD 50/tonne = USD 750,000
- ¶6 Fish nursery habitat: Spillover effects support commercial fishing worth USD 5 million GVA annually
- ¶7 Tourism services: 80,000 visitor-days annually, generating USD 4 million in coastal tourism revenue

¶8 Total ecosystem service value from existing MPAs: USD 17.75 million annually. Per-hectare service value: USD 17.75 million / 45,000 hectares = USD 394 per hectare per year.

¶9 **Step 2: Project service benefits from MPA expansion.** Projecting benefits from MPA expansion requires accounting for the likelihood that additional areas will differ from existing MPAs in ecosystem condition and productivity. Where ecosystem condition accounts (**TG-3.1** Section 3.5 condition scores) are available for proposed expansion areas, compilers should weight the per-hectare service values by relative condition scores rather than applying a flat proportional scalar. Where condition data for expansion areas are unavailable, a marginal productivity discount is appropriate: the evidence indicates that MPA expansion into adjacent or lower-priority areas tends to yield below-average per-hectare service values²⁰. A discount of 70% of the existing per-hectare average is used as a working assumption in this example. That assumption must be disclosed, and a sensitivity analysis across 50–100% of the average per-hectare value should be presented alongside the central estimate. For guidance on spatial adjustment of service values, see **TG-1.9 Valuation**.

¶10 Applying a 70% marginal productivity factor: additional 45,000 hectares × USD 394/ha/yr × 0.70 = approximately USD 12.4 million in additional annual ecosystem services. For comparison, the

upper bound (100% factor, fully proportional) is USD 17.75 million, and the lower bound (50% factor) is USD 8.9 million.

¶11 **Step 3: Calculate net present value of benefits.** Using a 4% real discount rate consistent with **TG-1.9 Valuation** guidance, and assuming a 25-year planning horizon for management commitments:

¶12

$$\text{NPV of benefits} = \text{Annual service flow} \times \frac{1 - (1 + r)^{-n}}{r}$$

¶13 Where $r = 0.04$ and $n = 25$:

¶14 Central estimate: USD 12.4 million $\times$ 15.622 = USD 193.7 million Upper bound (100% factor): USD 17.75 million $\times$ 15.622 = USD 277.3 million Lower bound (50% factor): USD 8.9 million $\times$ 15.622 = USD 139.0 million

¶15 **Step 4: Calculate net present value of costs.** Capital costs of USD 15 million occur in years 0–2, with USD 5 million payable at the beginning of each year: year 0, year 1, year 2. Annual management costs of USD 3 million continue for 25 years.

¶16

$$\text{NPV of capital costs} = 5 \times \left(1 + \frac{1}{1.04} + \frac{1}{1.04^2}\right) = 5 \times 2.886 = 14.43 \text{ million}$$

¶17 *Note: this formula assumes beginning-of-year payments. Compilers replicating this calculation with end-of-year payment conventions should use the factor $(1/1.04 + 1/1.04^2 + 1/1.04^3) = 2.775$, yielding USD 13.88 million.*

¶18

$$\text{NPV of management costs} = 3 \times 15.622 = 46.87 \text{ million}$$

¶19

$$\text{Total NPV of costs} = 14.43 + 46.87 = 61.3 \text{ million}$$

¶20 **Step 5: Calculate benefit-cost ratio and present budget case.**

¶21 Central estimate: USD 193.7 / USD 61.3 = 3.16 Upper bound (100% factor): USD 277.3 / USD 61.3 = 4.52 Lower bound (50% factor): USD 139.0 / USD 61.3 = 2.27

¶22 *Note: The step-by-step figures above are authoritative. The budget submission narrative below rounds to one decimal place (3.16 $\rightarrow$ 3.2; 4.52 $\rightarrow$ 4.5; 2.27 $\rightarrow$ 2.3; USD 193.7M $\rightarrow$ USD 194M) for readability. Compilers replicating this example should carry unrounded figures through the calculation and apply rounding only in the final narrative.*

¶23 **Budget submission narrative:** “The Ministry of Environment requests USD 15 million capital expenditure over 2026–2028 and USD 3 million annually for ongoing management to expand marine protected area coverage from 15% to 30% of territorial waters. This expansion will approximately double the supply of coastal protection, carbon sequestration, fish nursery, and tourism services currently valued at USD 17.75 million annually from existing MPAs. Applying a marginal productivity discount of 70% (to account for the likelihood that expansion areas have lower average productivity than existing MPAs), the expected additional annual service flow is USD 12.4 million. Using a 4%

discount rate over 25 years, the central-estimate NPV of benefits is USD 194 million against costs of USD 61 million, yielding a benefit-cost ratio of 3.2 (range: 2.3 to 4.5 depending on marginal productivity assumption). This investment aligns with global Target 3 of the Kunming-Montreal Global Biodiversity Framework and will contribute to national commitments under the UN Convention on Biological Diversity. Physical accounts indicate that existing MPAs cover 45,000 hectares, and ecosystem extent accounts will track the addition of 45,000 hectares of protected area under the expansion programme, with condition monitoring to verify that service supply targets are achieved.”

Three decision use cases

¶1 Beyond MPA expansion, budget officials regularly face three additional decision use cases where ocean accounts provide the supporting evidence:

¶2 **Use case 1: Fisheries management budget justification.** A national fisheries agency seeks increased budget allocation for stock assessment and enforcement activities. Using the net GVA figure and depletion calculation derived in Section 3.4, a budget submission can state: “Fish stocks declined 9.5% in 2025 due to catch exceeding sustainable yield. At current depletion rates, the sector’s economic contribution will decline 25% over the MTEF period. Increased management expenditure of USD 2.5 million annually will stabilise stocks through enhanced monitoring and enforcement, protecting the sector’s contribution to GDP and employment.”

¶3 **Use case 2: Coastal protection infrastructure investment.** A ministry of public works evaluates whether to invest in seawall construction or mangrove restoration for coastal protection. Using Ocean Accounts data:

- ¶4 Ecosystem extent account records 500 km² of mangroves providing coastal protection services (TG-3.1)
- ¶5 Ecosystem service valuation estimates mangroves provide protection equivalent to USD 12,000 per hectare per year
- ¶6 Engineering cost estimate for equivalent seawall is USD 25 million per 10 km of coastline
- ¶7 Mangrove restoration cost estimate is USD 8,000 per hectare

¶8 Budget submission: “Ecosystem accounts indicate that existing mangroves provide coastal protection services worth USD 600 million annually (50,000 hectares × USD 12,000/ha/year). For context, the NPV of this annual flow at 4% over 25 years is approximately USD 9.4 billion. Restoring 250 hectares of degraded mangrove at USD 8,000/ha (total USD 2 million) can provide coastal protection comparable to approximately 2.5 km of seawall costing USD 6.25 million, depending on local conditions such as wave exposure and ecosystem health, whilst also supplying carbon sequestration and fish nursery services not provided by grey infrastructure.”

¶9 **Use case 3: Medium-term revenue forecasting for resource extraction.** A ministry of finance prepares MTEF revenue projections dependent on offshore oil extraction royalties. Using Ocean Accounts data:

- ¶10 Mineral asset account records proved reserves of 100 million barrels with 15-year extraction profile
- ¶11 Gross revenue from extraction is projected at USD 6 billion over MTEF period
- ¶12 Monetary depletion is USD 4.8 billion (equal to 80% of gross revenue; this part of the resource rent is a drawdown of the asset, not income)
- ¶13 Net revenue contribution to government (royalties and taxes) is USD 600 million over MTEF period

¶14 Budget submission: “Offshore extraction generates substantial gross revenue but also depletes the national mineral asset base. Asset accounts indicate that depletion equals 80% of gross extraction revenue, and that share is a drawdown of the asset rather than income. MTEF revenue projections should account for the finite nature of reserves and declining production profile.

Diversification investments funded from current resource revenues are needed to maintain fiscal capacity beyond the 15-year extraction horizon.”

3.6 Integration with MTEF and annual budgets

¶1 Ocean Accounts support MTEF development because the accounts structure supports temporal comparison and trend analysis. Asset accounts record opening and closing stocks, enabling projection of future asset values under different management scenarios. Supply and use tables for ecosystem services provide baseline data for estimating the future flow of benefits from marine ecosystems.

¶2 To integrate Ocean Accounts with MTEF processes, budget officials should:

¶3 **Establish baseline accounts:** Compile or obtain baseline ocean economy thematic accounts and relevant asset accounts for the most recent period for which complete data are available. These baselines serve as the reference point for projecting future contributions and assessing trends.

¶4 **Project asset and income trajectories:** Using the asset account structure, project forward the expected stocks of key marine assets (fish stocks, mangrove extent, coral reef condition) under current management policies. Combine this with projections of ocean economy GDP contribution to estimate the medium-term fiscal significance of the ocean sector. The worked example in Section 3.5 illustrates this projection approach for marine protected areas.

¶5 **Identify decision points:** Use the accounts to identify decision points where changes in management expenditure or policy could affect asset trajectories. For example, where fish stock accounts record declining trends that will cross a sustainability threshold within the MTEF period, the accounts provide a rationale for increased management investment. The threshold can be defined as the stock biomass at maximum sustainable yield (BMSY) from stock assessment models (TG-6.7).

¶6 **Align reporting periods:** Ensure that ocean accounting compilation cycles align with MTEF and annual budget preparation timelines. Ideally, accounts are updated at least annually and available to budget officials during the formulation phase of the budget cycle. For annual budget integration, the key requirement is timely availability of accounting data. Many countries compile national accounts with a lag of one to two years, and environmental accounts may have additional delays. Countries seeking to use Ocean Accounts in budget processes should prioritise timeliness in their compilation programmes, and may use provisional or ‘flash’ estimates for recent periods to inform current budget decisions. Provisional estimates carry the P (provisional) quality flag set out in **TG-0.7 Quality Assurance Principles** Section 3.6. Budget submissions using provisional ocean account data should indicate clearly that the figures are subject to revision.

3.7 Government expenditure on ocean-related functions

¶1 Ocean-related government expenditure is compiled by function using COFOG. The concordance – which COFOG classes carry ocean functions, how mixed classes are apportioned, and how the ocean share is documented – is set out in **TG-3.7 Governance Accounts** Section 3.3.5, Table 3.7.7.^{21, 22} Environmental protection and resource management expenditure is classified in parallel using CEPA and CReMA, per SEEA CF Chapter IV, and presented alongside other government activity in **TG-3.8 Combined Presentations**.

¶2 For budget purposes the compiled figure does three things.

¶3 **It establishes the current baseline.** A request for additional resource cannot be assessed without knowing what is already spent on the function, across all the agencies that spend on it. Because ocean functions are dispersed – enforcement in one ministry, habitat management in another, port infrastructure in a third – the COFOG-based total is frequently the first consolidated figure a finance ministry has seen, and is often larger than any single agency’s own account of the sector.

¶4 **It supports a return comparison.** Set against the ecosystem service values from **TG-3.2** or the sector GVA from TG-2.5, the expenditure figure allows a submission to state what public spending is protecting: “expenditure on marine protected area management totalled USD 8.2 million in 2025, over 72,000 hectares supplying USD 23 million annually in coastal protection, carbon sequestration and nursery habitat services”, or “management expenditure of USD 5.5 million supports a fishing sector contributing USD 175 million GVA and employing 32,000 persons”.

¶5 **It exposes the ocean share as the contested assumption.** Because most COFOG classes are mixed, the headline total depends on apportionment judgements that are rarely visible in the presented figure. A submission that states the ocean shares applied, and the basis for each, is far harder to dispute than one that presents a total alone – and a scrutiny process that goes looking for the assumption and does not find it will usually discount the whole figure.

¶6 One caution applies when expenditure and revenue are presented together. Governance expenditure (TG-3.7 Tables A to C) and governance revenue (Table D) come from different SEEA CF modules – outlay accounts classified by purpose, and environmental transactions classified by the nature of the transaction. They are not two halves of a single balance, and presenting a net position across them without reconciliation misstates both.

3.8 Ocean ecosystem assets in fiscal frameworks

¶1 Ocean ecosystem assets form a substantial component of sovereign natural capital, and one relevant to fiscal policy, sovereign debt management, and public finance decisions. This section provides guidance on incorporating ocean ecosystem asset values into fiscal frameworks, building on the monetary asset valuation methods described in this Circular and in **TG-1.9 Safe Usage of Monetary Valuation**.

¶2 **Sovereign natural capital.** The 2025 SNA recognises that natural capital, including both environmental assets and ecosystem assets, forms part of a country’s wealth. For countries with large ocean territories, marine ecosystem assets may constitute a substantial share of national wealth. Monetary ecosystem asset accounts, compiled using net present value methods applied to expected ecosystem service flows, provide estimates of ocean natural capital that can be incorporated into sovereign balance sheets. These estimates inform fiscal policy by revealing the extent to which current economic activity depends on the drawdown of natural capital stocks and whether that drawdown is sustainable.

¶3 **Blue bonds and sovereign borrowing.** Sovereign blue bonds are debt instruments whose proceeds are earmarked for ocean-related expenditures that maintain or enhance marine ecosystem assets. Ocean Accounts provide the evidence base for blue bond issuance in several ways:

- ¶4 Monetary ecosystem asset accounts demonstrate the value of the natural capital that blue bond proceeds will protect or restore
- ¶5 Ecosystem service flow accounts quantify the annual economic benefits that depend on maintaining ocean ecosystem condition
- ¶6 Time-series accounts provide the monitoring data needed for blue bond impact reporting
- ¶7 Depletion accounts reveal the fiscal cost of ecosystem degradation, which strengthens the case for preventive investment

¶8 Countries considering blue bond issuance should compile ocean ecosystem asset accounts as part of their bond preparation. That practice grounds the use-of-proceeds framework in standardised natural capital data. For blue bond structuring and other project-level instruments, see **TG-1.8 OA and Project-Level Finance**; for the multilateral project cycle, **TG-1.7**.

¶9 **Natural capital in fiscal risk assessment.** Fiscal risk assessments recognise that degradation of natural capital can affect government revenues (through reduced economic activity in nature-dependent sectors), increase government expenditures (through disaster response and adaptation costs), and create contingent liabilities (through environmental remediation obligations). Ocean

Accounts quantify these fiscal risks by tracking changes in ecosystem asset values over time and linking those changes to economic sector performance through supply and use tables.

4. Acknowledgements

¶1 **Authors:** [To be confirmed]

¶2 **Reviewers:** [To be confirmed]

5. References

1. ¶1 A medium-term expenditure framework (MTEF) is a multi-year budgeting framework, typically covering three to five years, that links aggregate fiscal targets to the allocation of resources across ministries and programmes, and within which each annual budget is prepared. World Bank. (2013). *Beyond the Annual Budget: Global Experience with Medium-Term Expenditure Frameworks*. Washington, DC: World Bank.
<https://openknowledge.worldbank.org/handle/10986/11971> (<https://openknowledge.worldbank.org/handle/10986/11971>)
2. ¶2 United Nations. (2025). *System of National Accounts 2025*, Chapters 34-35: Measuring the sustainability of well-being. Adopted by the United Nations Statistical Commission at its 56th session, March 2025.
3. ¶3 United Nations. (2025). *System of National Accounts 2025*, Annex 4, para A4.59: "Depletion of non-produced natural resources is recorded as a cost of production in the 2025 SNA, instead of the 2008 SNA treatment as other changes in the volume of assets."
4. ¶4 United Nations. (2025). *System of National Accounts 2025*, Annex 4, para A4.10: "The volume change of net domestic product (NDP) has been identified as the conceptually preferred measure of economic growth."
5. ¶5 United Nations, European Union, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development, & World Bank. (2014). *System of Environmental-Economic Accounting 2012: Central Framework*, para 1.1. Adopted as an international statistical standard by the United Nations Statistical Commission at its 43rd session, March 2012.
6. ¶6 United Nations et al. (2014). *System of Environmental-Economic Accounting 2012: Central Framework*, para 1.1 (supplementary account approach). United Nations. (2025). *System of National Accounts 2025*, Annex 4 para A4.59. See also SNA 2008 Chapter 10 for treatment of other changes in volume of assets under the 2008 framework.
7. ¶7 SEEA CF, para 5.75-5.78. For renewable resources, depletion occurs when "the extraction of the natural resource is occurring at a level greater than that of regeneration."
8. ¶8 United Nations et al. (2014). *System of Environmental-Economic Accounting 2012: Central Framework*, Chapter IV: Environmental activity accounts and related flows.
9. ¶9 Colgan, C.S. (2016). Measurement of the ocean economy from national income accounts to the sustainable blue economy. *Journal of Ocean and Coastal Economics*, 2(2), Article 12.
10. ¶10 United Nations. (2025). *System of National Accounts 2025*, Chapter 38: Thematic and extended accounts.
11. ¶11 United Nations. (2021). *System of Environmental-Economic Accounting—Ecosystem Accounting*, Section 13.5: Ocean accounts.
12. ¶12 United Nations World Tourism Organization & United Nations Statistics Division. (2024). *Statistical Framework for Measuring the Sustainability of Tourism*, para 2.30-2.33.
13. ¶13 United Nations World Tourism Organization & United Nations Statistics Division. (2024). *Statistical Framework for Measuring the Sustainability of Tourism*, paras 2.30-2.31 (tourism ratio methodology and documentation requirements).
14. ¶14 United Nations. (2025). *System of National Accounts 2025*, Chapter 38. United Nations World Tourism Organization & United Nations Statistics Division. (2024). *Statistical Framework for Measuring the Sustainability of Tourism*, paras 3.27-3.28.
15. ¶15 Food and Agriculture Organization of the United Nations. *Food Balance Sheets: A Handbook*. FAO, Rome. Available at: <https://openknowledge.fao.org/handle/20.500.14283/x9892e> (<https://openknowledge.fao.org/handle/20.500.14283/x9892e>). FAO food composition tables provide species-mix-weighted protein conversion factors for fisheries products.
16. ¶16 United Nations. (2025). *System of National Accounts 2025*, Chapter 15, para 15.137: "Gross value added minus depreciation of fixed assets minus depletion of non-produced natural resources equals net value added."
17. ¶17 SEEA CF, para 5.75-5.78. United Nations. (2021). *System of Environmental-Economic Accounting—Ecosystem Accounting*. See TG-6.7 Fisheries Stock Assessment for the stock assessment outputs table and correspondence of biological reference points to physical depletion calculation.
18. ¶18 United Nations. (2021). *System of Environmental-Economic Accounting—Ecosystem Accounting*, Chapter 9: Ecosystem degradation accounting. See also SEEA EA Chapter 7 for ecosystem services in the context of ecosystem accounting.
19. ¶19 SEEA CF, para 5.113-5.114. "Resource rent is the economic rent that accrues in relation to environmental assets, including natural resources." Resource rent for fisheries is the surplus after deducting operating costs, depreciation,

and normal return to capital from the gross value of landings.

0. [¶20](#) Brander, L.M. et al. (2011). Using Meta-Analysis and GIS for Value Transfer and Scaling Up: Valuing Climate Change Induced Losses of European Wetlands. *Environmental and Resource Economics* (Springer). DOI: 10.1007/s10640-011-9535-1. Brander, L.M. et al. (2019). The global costs and benefits of expanding Marine Protected Areas. *Marine Policy*, 116. DOI: 10.1016/j.marpol.2019.103423.
1. [¶21](#) United Nations (2000). *Classification of the Functions of Government (COFOG)*. In *Classifications of Expenditure According to Purpose*. Statistical Papers Series M No. 84. New York: United Nations.
2. [¶22](#) World Tourism Organization (2024). *SF-MST*, Table 3.9 on “Tourism related Functions of Government–COFOG classes.” The mapping in Table 2 adapts this approach for ocean economy functions. SF-MST Table 3.9 also provides guidance on estimating ocean shares for mixed COFOG classes.

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