

Governance and Institutional Indicators

Compiles governance and institutional indicators from ocean governance accounts, measuring the quality.

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OUTCOME

After working through this Circular, readers will be able to compile governance and institutional indicators from ocean governance accounts, measuring the quality, effectiveness, and coverage of institutional arrangements governing ocean use and conservation. Readers will understand how to derive indicators across five principal dimensions: legal framework coverage, MPA management effectiveness, tenure and access rights security, compliance and enforcement performance, and institutional capacity. Readers will also learn to interpret these indicators using a governance stocks-and-flows analytical framework. The guidance includes a worked example drawn from the Indonesia Gili Matra MPA pilot. It supports national monitoring of SDG 14.2, SDG 14.C, SDG 16.6, and SDG 16.7, and draws on the governance accounts methodology in [TG-3.7 Governance Accounts](#) and the general indicator methodology in [TG-2.1 Aggregate Biophysical Indicators of Environmental State](#).

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DRAFT

1. Outcome

¶1 After working through this Circular, readers will be able to compile governance and institutional indicators from ocean governance accounts, measuring the quality, effectiveness, and coverage of institutional arrangements governing ocean use and conservation. Readers will understand how to derive indicators across five principal dimensions: legal framework coverage, MPA management effectiveness, tenure and access rights security, compliance and enforcement performance, and institutional capacity. Readers will also learn to interpret these indicators using a governance stocks-and-flows analytical framework. The guidance includes a worked example drawn from the Indonesia Gili Matra MPA pilot. It supports national monitoring of SDG 14.2, SDG 14.C, SDG 16.6, and SDG 16.7¹, and draws on the governance accounts methodology in **TG-3.7 Governance Accounts** and the general indicator methodology in **TG-2.1 Aggregate Biophysical Indicators of Environmental State**.

2. Requirements

¶1 Essential prerequisites:

- ¶2 **TG-3.7 Governance Accounts** – compiled governance account data (legal framework registers, MPA management records, tenure registry data, enforcement statistics) that underpin all indicators in this Circular
- ¶3 **TG-0.1 General Introduction to Ocean Accounts** – conceptual framework connecting governance arrangements to ecosystem and economic outcomes

¶4 Helpful background:

- ¶5 **TG-0.2 Overview of Relevant Statistical Standards** – international statistical standards underpinning ocean accounting
- ¶6 **TG-2.1 Aggregate Biophysical Indicators of Environmental State** – general indicator methodology, including normalisation and composite index construction
- ¶7 **TG-6.6 Deep Sea and ABNJ Accounting** – ecosystem accounting methods in Areas Beyond National Jurisdiction, relevant to BBNJ governance indicator tracking

¶8 ⓘ Framework Position

¶9 This Circular addresses how governance accounts capture the institutional arrangements that mediate between economic activity and ecosystem outcomes. In the Ocean Accounts Framework (TG-0.1 Figure 0.1.2), governance operates on all edges:

Edge	Direction	Description
E1	FG1 → SG3	Regulates pollution and residuals from economy to environment
E9	SG3 → FG1	Governs access to ecosystem services by the economy
E10	SG3 → FG2	Governs ecosystem service access by society
E5	FG2 → SG3	Shapes social management of environmental assets

¶10 Governance operates across multiple framework edges in its dual role as regulator of flows (constraining and enabling E1, E9, E10, E5) and as a social asset (SG2) enabling both economic and social activities (E7, E8). See TG-3.7 Governance Accounts for the asset framing.

3. Guidance Material

¶1 Governance of ocean systems encompasses the legal, institutional, and procedural arrangements through which societies make and implement decisions about ocean use, protection, and dis-

tribution of benefits². Ocean governance accounts (TG-3.7) systematise the data on these arrangements into a coherent statistical framework. This Circular translates that data into indicators suitable for policy monitoring and international reporting.

¶2 ⚠ **Emerging Practice**

¶3 Governance and institutional indicator compilation is an emerging area of practice. The indicator framework presented here reflects current methodological thinking but has not been formally validated across a wide range of country contexts. Practitioners should treat scoring rubrics and composite index weights as provisional and document any adaptations to national circumstances. Where national governance indicators diverge from the indicator definitions in this Circular, differences should be reported in indicator metadata to support cross-country comparison.

3.1 Governance Indicator Framework

¶1 Figure 2.13.1 illustrates how the Legal Framework, as the foundational governance stock, defines the tenure rights regime and mandates institutional capacity. These instrument stocks supply the governance flows (MPA management, compliance and enforcement) that drive ecosystem condition and ocean economy trends. Divergence between these trends signals a governance gap that feeds back into institutional adaptation.

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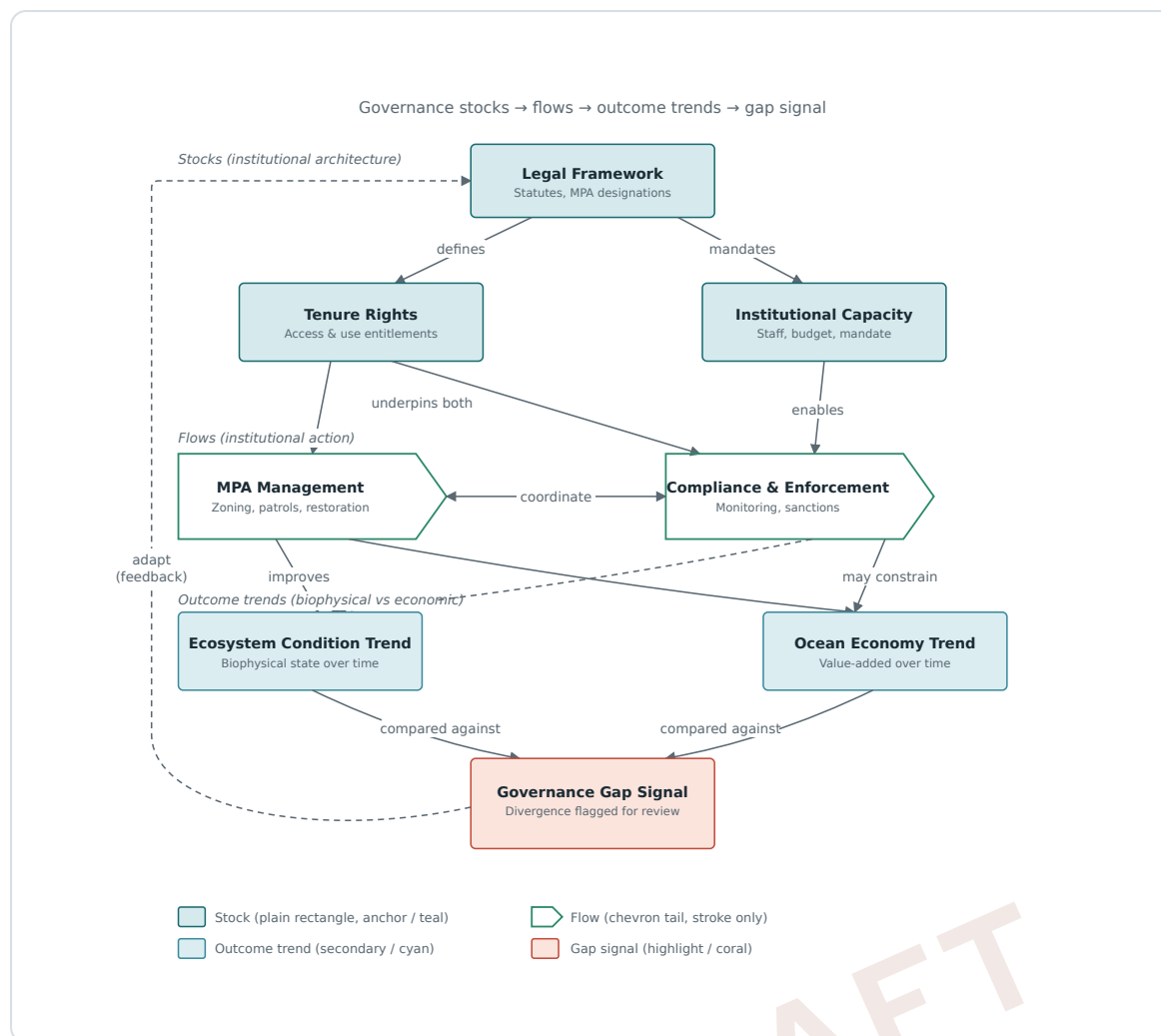


Figure 2.13.1 Governance stocks (legal framework, tenure, capacity) supply management and enforcement flows that shape condition and economy trends. Rectangles = stocks; chevrons = flows. Dashed loop = adaptation feedback, not a measured flow.

Source: TG-2.13 draft, §3.1.4 stocks-and-flows analytical framework; §3.8 Gili Matra worked example (Tables 2-4); SEEA EA Section 13.5 and paras 1.13-1.18 (governance and institutional context).

Adapted from: SDG 14.5 (MPA coverage); Kunming-Montreal GBF Target 3 (protected-area effectiveness); IPBES governance framework (institutional stocks-and-flows distinction).

3.1.1 Dimensions of ocean governance

¶1 Ocean governance indicators span five analytically distinct dimensions, each corresponding to a component of governance accounts compiled under TG-3.7³. Table 3.1.1 below summarises these dimensions.

¶2 **Table 3.1.1: Dimensions of ocean governance indicators**

Dimension	Description
Legal framework coverage	Measures whether the legal and policy instruments required for sustainable ocean management are in place – fisheries laws, marine protected area enabling legislation, coastal zone management acts, and their alignment with international obligations including UNCLOS ⁴ .
Management effectiveness	Measures whether the institutions and processes tasked with ocean management perform their functions – whether management plans are developed and implemented, whether monitoring and evaluation systems are operating, and whether management decisions are informed by evidence.

Dimension	Description
Tenure and access rights security	Measures whether ocean-dependent resource users have legally recognised rights that provide security of access and create incentives for stewardship – fishing licences, community tenure arrangements, and IPLC customary use rights.
Compliance and enforcement	Measures whether legal obligations are being respected and enforced – detection and sanction of illegal fishing and other violations, flag state control performance, and port state inspection records.
Institutional capacity	Measures whether the institutions responsible for ocean governance have the human, financial, and technical resources to fulfil their mandates – staffing levels, budget allocations, and inter-agency coordination mechanisms.

¶3 A sixth dimension, **climate-adaptive governance**, is increasingly recognised as relevant to ocean governance assessment. This dimension measures whether governance frameworks incorporate adaptive management provisions, climate risk assessment requirements, and flexible spatial management mechanisms that can accommodate climate-driven shifts in species distributions and ecosystem boundaries. Methods for assessing climate-adaptive governance quality are still developing. Compilers interested in this dimension should consult the climate indicator framework in [TG-2.8 Climate Change Indicators](#) and document existing adaptive provisions as a narrative component of governance accounts.

3.1.2 Relationship to SDG and international frameworks

¶1 Table 1 maps governance indicator dimensions to relevant SDG and international monitoring frameworks, providing the reporting linkages that underpin compilation priorities.

¶2 **Table 1: Governance Indicator Dimensions and International Framework Mapping**

Governance Dimension	SDG Indicator	International Framework
Legal framework coverage	SDG 14.C.1	UNCLOS implementation
MPA management effectiveness	SDG 14.2.1, SDG 14.5.1	Kunming-Montreal GBF Target 3
Tenure and access rights	SDG 14.b.1	SSF Guidelines
Compliance and enforcement	SDG 14.6.1	IPOA-IUU, PSM Agreement
Institutional capacity	SDG 16.6.1	Open Government Partnership
Participation and community voice	SDG 16.7.2	Aarhus Convention; SSF Guidelines Part 6

¶3 Participation indicators are documented in governance accounts per [TG-3.7 §3.1](#) and can be compiled alongside the five primary indicator dimensions.

¶4 KM-GBF Target 3 requires that marine protected areas be “effectively” managed⁵, making MPA management effectiveness indicators directly relevant to national GBF reporting beyond the 30×30 area metric.

¶5 The FAO Small-Scale Fisheries Guidelines establish international recognition of secure and equitable access rights for small-scale fishers⁶. Tenure security indicators serve as the accountability mechanism for SSF Guidelines implementation.

¶6 SDG 14.6.1 measures progress in implementing international instruments to combat IUU fishing⁷, for which compliance and enforcement indicators provide the quantitative underpinning.

¶7 For indicators tracking national implementation of multilateral environmental agreements more broadly, see [TG-2.10 Multilateral Environmental Agreement Indicators](#). For governance and indicator implications of the BBNJ Agreement, see [TG-6.6 Deep Sea and BBNJ Accounting](#). Compilers should track national ratification progress and document operational BBNJ implementation indicators as a data gap pending further international methodological guidance⁸.

3.1.3 Relationship to biophysical and economic outcomes

¶1 Improvements in governance quality can precede measurable changes in ecosystem condition and economic performance, though the causal pathways and time lags are often long and context-dependent. A country may show declining biophysical condition despite strong governance scores if governance improvements are recent. Conversely, stable biophysical indicators may mask governance deterioration if legacy institutional arrangements are eroding.

¶2 Compilers should present governance indicators alongside the relevant biophysical and economic outcome indicators from TG-2.1 through TG-2.7 Pollution Flows and Pressures Indicators to support integrated assessment. Correlations between, for example, MPA management effectiveness scores and coral reef condition indicators provide empirical material for exploring potential relationships, though attribution remains subject to the causal and time-lag caveats above.

3.1.4 Governance Stocks and Flows

¶1 A useful analytical distinction within the governance accounts framework separates **governance stocks** from **governance flows**, following the accounting logic of the System of National Accounts as applied in the SEEA⁹.

¶2 **Governance stocks** are the institutional arrangements existing at a specific point in time – the architecture of the governance system. In the marine domain, governance stocks include: the spatial extent of marine jurisdictions (territorial sea, EEZ, ABNJ zones); the legal instruments in force (fisheries acts, MPA enabling legislation, coastal zone management acts); rights allocations (fishing licences, quota allocations, TURF designations); MPA zoning designations and associated management plans; and formal co-management agreements with IPLCs or community groups. Governance stocks map directly onto the legal framework coverage and tenure and access rights dimensions described in Section 3.1.1. Within this architecture the legal framework is foundational: statutes and enabling legislation define the tenure and access rights regime and confer the institutional mandates that capacity is resourced to fulfil, so the three stock dimensions are not fully independent.

¶3 **Governance flows** are the activities, transactions, and interventions generated by the institutional architecture over a defined accounting period. Governance flows include: enforcement actions taken (boardings, inspections, prosecutions); management expenditures disbursed; revenue collected from taxes, resource rent and administrative fees; compliance monitoring patrols conducted; observer deployments; and measurable stakeholder participation in decision-making processes. Expenditure and revenue flows are recorded gross and separately, in the two distinct accounting modules set out at TG-3.7 Section 3.3.5: expenditure belongs to the environmental activity accounts, revenue to the environmental transactions module. Indicators in this Circular are therefore constructed on one side or the other, and no indicator should net governance revenue against governance expenditure. Where a cost-recovery ratio is reported, it must be labelled as an analytical ratio and state both gross figures. They correspond to the compliance and enforcement and institutional capacity dimensions described in Section 3.1.1.

¶4 The stock-and-flows framing exposes a common governance failure pattern: the governance stock may appear well-developed (a management plan exists, zones are legally designated, rights are formally allocated) whilst governance flows are inadequate, meaning enforcement is absent, management budgets are unspent, and monitoring is not conducted. The Gili Matra pilot (Section 3.8) illustrates this pattern empirically. Compilers should assess and present both the stock architecture and the flow performance of governance systems together. The management effectiveness indicators in Section 3.3 and compliance indicators in Section 3.5 operationalise governance flow performance. Legal framework and tenure indicators in Sections 3.2 and 3.4 operationalise governance stock coverage.

3.2 Legal Framework Coverage Indicators

3.2.1 Ocean legislation registry

¶1 The governance accounts compiled under TG-3.7 include a legal framework register recording the existence, date of adoption, and implementation status of key ocean governance instruments. Table 3.2.1 below summarises the indicators derived from this register.

¶2 **Table 3.2.1: Indicators derived from the ocean legislation registry**

Indicator	Description
Proportion of EEZ covered by fisheries legislation	Whether the national fisheries law provides coverage for all waters within the EEZ, or is limited to territorial sea or archipelagic waters; gaps in legislative coverage create unregulated zones that undermine stock management.
Alignment of fisheries legislation with international instruments	Scored assessment of whether the national fisheries act implements the key obligations under UNCLOS (Articles 61 and 62 on conservation and utilisation), the UN Fish Stocks Agreement, and the FAO Code of Conduct for Responsible Fisheries ¹⁰ ; scored as 0 (no legislation), 1 (legislation exists but does not address obligations), 2 (partial alignment), 3 (full alignment).
Marine spatial planning legislative basis	Whether a legal instrument provides authority for binding marine spatial plans, or whether planning is conducted on a non-binding advisory basis; binding plans create enforceable mechanisms for resolving competing uses.
Coastal zone management legislation	Existence and coverage of integrated coastal zone management legislation that coordinates terrestrial and marine jurisdictions.
Environmental impact assessment coverage	Whether EIA requirements apply to all ocean-related development activities, including offshore energy, aquaculture, and port development, and whether EIA processes incorporate ecosystem accounts data.

3.2.2 International obligations coverage

¶1 **UNCLOS implementation score** – SDG indicator 14.C.1 measures progress in implementing UNCLOS through legal, policy and institutional frameworks¹¹. Governance accounts provide the data for scoring national implementation across the seven dimensions of the SDG 14.C.1 methodology (see Section 3.7.4 for the DOALOS voluntary national reporting tool used in compilation).

¶2 **Regional fisheries body participation** – proportion of stocks within national jurisdiction that fall under the management framework of a Regional Fishery Management Organisation (RFMO) or Regional Fishery Body (RFB) to which the country is a member or cooperating non-contracting party (a status allowing non-member states to participate in conservation obligations without full membership rights).

¶3 **Port State Measures Agreement implementation** – scored assessment of national implementation of PSMA obligations: port designation, advance notification requirements, inspection procedures, and information sharing with flag states and RFMOs¹².

3.2.3 Relationship to Macroeconomic Governance Indicators

¶1 The World Bank Worldwide Governance Indicators (WGI) provide annual composite scores for six governance dimensions across more than 200 economies¹³. National WGI scores may provide useful macroeconomic context – compilers may note them as metadata when reporting governance indicator results.

¶2 The WGI framework is insufficiently granular for sector-specific ocean governance assessment: its six dimensions characterise whole-of-government performance at national scale and cannot capture MPA management quality, fishing rights security, or compliance patrol intensity. Where country-level WGI data are available, compilers may note in indicator metadata the degree of alignment or divergence between national governance scores and sector-level ocean governance indicator values, as this divergence can itself be analytically informative.

3.3 MPA Management Effectiveness Indicators

3.3.1 Coverage and representativeness

¶1 **Marine area under formal protection (%)** – proportion of the national marine jurisdiction (territorial sea + EEZ) designated as marine protected areas, marine reserves, or other effective area-based conservation measures (OECMs). This is the metric tracked by SDG 14.5.1, SDG 14.2.1 (proportion of national EEZ managed using ecosystem-based approaches), and KM-GBF Target 3.

¶2 **Ecosystem representativeness** – proportion of each major marine ecosystem type (coral reefs, seagrass meadows, mangroves, pelagic zones, seamounts) covered by protected areas, measured in hectares and as a proportion of total ecosystem extent from ecosystem extent accounts (TG-3.1 Asset Accounts for the Ocean).

¶3 **Protection level classification** – distribution of protected areas across IUCN protection categories (I–VI), indicating the range of restrictions on extractive and other activities within the protected area network. Areas under strict protection (Categories I–II) are distinguished from those permitting sustainable use (Categories V–VI).

3.3.2 Management effectiveness scoring

¶1 **METT-4 score** – Management Effectiveness Tracking Tool (METT-4) score averaged across all MPAs in the national system, measuring six dimensions: context, planning, inputs, processes, outputs, and outcomes¹⁴. METT-4 is the primary global tool for MPA management effectiveness assessment and is used for KM-GBF Target 3 “effective” reporting.

¶2 **Proportion of MPAs with current management plans** – MPAs with a management plan adopted within the past five years as a proportion of all designated MPAs.

¶3 **Proportion of MPAs with operational monitoring programmes** – MPAs with documented, regularly implemented biological and compliance monitoring as a proportion of all designated MPAs.

¶4 **Staff-to-area ratio** – number of full-time equivalent management staff per 1,000 km² of protected area. Consistent with the staffing data compiled in governance accounts (TG-3.7), this indicator is standardised by area to enable cross-site and cross-country comparison.

¶5 **MPA management budget per km²** – recurrent management expenditure (excluding capital) per km² of protected area, derived from the institutional expenditure accounts in TG-3.7. Budget-to-area ratios below empirically established minimum thresholds (typically USD 600–2,500 per km² depending on location, management intensity, and ecosystem type) may indicate severe resource constraints¹⁵.

3.3.3 Ecological effectiveness

¶1 **Condition differential (MPA vs. non-MPA)** – comparison of ecosystem condition indicators (coral cover, fish biomass, seagrass density) inside and outside MPAs, controlling for environmental gradients. A positive differential indicates that MPAs are generating ecological benefits. The absence of a differential suggests enforcement or management failure. This indicator integrates governance accounts data (MPA boundaries and management quality) with condition account data from TG-3.1 Asset Accounts for the Ocean.

¶2 **Spillover index** – estimated biomass of target fish species in the unprotected zone adjacent to MPAs as a proportion of MPA interior biomass, measuring whether MPAs are generating fisheries benefits for adjacent communities through adult spillover¹⁶.

3.4 Tenure and Access Rights Indicators

3.4.1 Fishing rights coverage and security

¶1 **Proportion of fishing effort under formal rights instruments** – fishing effort (days at sea or gross registered tonnes-days, GRT-days, where GRT-days are a measure of vessel capacity utilisation).

tion combining gross registered tonnage with fishing days) under formal fishing licences, individual transferable quotas, territorial use rights in fisheries (TURFs), or community rights agreements as a proportion of total estimated fishing effort.

¶12 **Fishing rights security index** – composite indicator of rights security, drawing on governance accounts data on:

- ¶13 Duration of rights (long-term rights score higher than seasonal or annual licences)
- ¶14 Transferability (tradeable rights score higher)
- ¶15 Exclusivity (exclusive rights score higher than non-exclusive)
- ¶16 Legal basis (statutory rights score higher than administrative allocations)

¶17 Each criterion is scored 0–3 (0: absent; 1: limited; 2: moderate; 3: strong). The composite index is the unweighted mean of the four criterion scores, normalised to 0–100 by multiplying by 100/3. Compilers should document and justify any alternative weighting scheme using the composite index procedure in [TG-2.1 Aggregate Biophysical Indicators of Environmental State](#), Section 3.4.3.

¶18 **Small-scale fisheries (SSF) rights coverage** – proportion of small-scale fishing households with documented access rights to their primary fishing grounds. This indicator operationalises SDG 14.b.1 (progress on implementation of the SSF Guidelines)¹⁷ and should be disaggregated by sex and IPLC status where data permit.

¶19 **IPLC customary rights recognition** – proportion of IPLC communities with ocean-based customary use areas that have received formal legal recognition of their rights, either through statutory instruments, co-management agreements, or customary fishing area designations. Formal recognition is distinguished from mere acknowledgement in policy documents.

3.4.2 Rights equity and distribution

¶1 **Gender equity in fishing rights** – proportion of formal fishing licence holders who are women, and proportion of fishing quota or community rights allocations held by women's organisations. Disaggregated by gear type and fishing area. Governance accounts should record rights holder identity disaggregated by sex where administrative records allow. Data for this indicator should be drawn from social accounts compiled per [TG-3.5 Social Accounts](#), Section 3.2 on rights and access disaggregation.

¶2 **Gini coefficient for fishing quota distribution** – inequality in the distribution of quota or fishing effort allocations across rights holders, where transferable quota systems exist. This indicator applies only in jurisdictions with tradeable quota systems (ITQs or similar), whilst in licensing or effort-based fisheries management systems, alternative distribution metrics such as the proportion of licensed effort held by small-scale versus large-scale operators may be substituted.

¶3 **Community tenure area** – hectares of marine area subject to community tenure arrangements (TURFs, locally managed marine areas, community conserved areas), and this area as a proportion of total managed marine area.

3.5 Compliance and Enforcement Indicators

3.5.1 IUU fishing and compliance

¶1 **IUU fishing prevalence index** – estimated proportion of total catch in national waters attributable to illegal, unreported, and unregulated (IUU) fishing, derived from catch reconstruction applied to governance accounts data on reported and estimated actual catches. For estimation methods (port sampling, observer programmes, VMS comparison, stock-assessment back-calculation, trade-based analysis, satellite surveillance) and the SEEA CF accounting treatment, see [TG-4.10 Extending Fisheries Statistics](#) Section 3.8.4. This indicator is the outcome measure against which enforcement performance indicators should be assessed.

¶2 **Vessel monitoring system (VMS) coverage** – proportion of commercial fishing vessels above the licensing threshold that are equipped with operational VMS transponders and transmitting to the national fisheries monitoring centre.

¶3 **Observer coverage rate** – proportion of commercial fishing trips with on-board fisheries observers (human or electronic), by gear type and fleet segment. Observer coverage significantly below 20% is generally considered insufficient for reliable catch verification in high-value fisheries in many contexts, though appropriate coverage rates depend on fishery type and risk level – some RFMOs require 100% coverage (human or electronic) for high-value tuna fisheries¹⁸.

¶4 **Boarding and inspection rate** – number of at-sea boardings per 1,000 commercial fishing vessel days, indicating the probability of inspection that a vessel faces.

¶5 **Violation detection and prosecution rate** – proportion of detected fishing violations that result in formal charges, sanctions, or permit revocation. A high detection-to-prosecution ratio indicates an effective enforcement chain, whilst a low ratio suggests administrative or judicial bottlenecks.

¶6 Satellite-based monitoring is increasingly providing proxy enforcement indicators that can supplement administrative enforcement records where data coverage is weak. Technologies such as Automatic Identification System (AIS) vessel tracking, as operationalised through platforms such as Global Fishing Watch, can generate measurable proxies including vessel days in MPAs, AIS transponder activity rates, and dark vessel detection rates in designated zones. These emerging data sources may be especially useful in contexts where on-water patrol capacity is limited, though compilers should treat them as supplementary rather than primary compliance indicators pending broader methodological validation¹⁹.

3.5.2 Flag and port state control

¶1 **Flag state control performance** – proportion of vessels flagged to the country that have been inspected by port state control authorities in foreign ports and found to have fishing-related deficiencies, sourced from RFMO IUU vessel lists and port state inspection databases.

¶2 **Port state inspection coverage** – proportion of foreign fishing vessels calling at national ports that are subject to PSM Agreement inspection requirements and that receive documentary or physical inspection, measuring compliance with PSMA obligations²⁰.

¶3 **IUU vessel listing** – number of vessels flagged to the country appearing on RFMO IUU vessel lists during the reference year, indicating flag state control failures.

3.6 Institutional Capacity Indicators

3.6.1 Human and financial resources

¶1 **Fisheries management staff per 1,000 active fishers** – full-time equivalent staff in the national fisheries authority per 1,000 licensed or registered commercial and small-scale fishers.

¶2 **Ocean governance budget as share of ocean economy GDP** – total recurrent expenditure on fisheries management, MPA management, coastal monitoring, and related governance functions as a proportion of ocean economy GDP (as compiled under [TG-2.5 Ocean Economy Structure and Activity](#)).

¶3 **Fisheries research expenditure intensity** – expenditure on stock assessment, ecosystem monitoring, and fisheries science as a proportion of total fisheries management expenditure, indicating the share of capacity devoted to the evidence base for management decisions.

3.6.2 Coordination and integration

¶1 **Inter-agency ocean coordination score** – scored assessment of the effectiveness of formal coordination mechanisms between the fisheries authority, environment/conservation agency,

coastguard/maritime enforcement, tourism authority, and other relevant bodies. Scoring criteria are applied as follows: (1) existence of a formal inter-agency coordination body; (2) meeting frequency; (3) joint planning processes; (4) shared data systems; (5) joint enforcement operations. Score each criterion 0 (absent), 1 (exists but not operational), 2 (operational but limited), 3 (fully operational and effective). Average across criteria: 0.0–1.0 = weak coordination; 1.1–2.0 = partial coordination; 2.1–3.0 = effective coordination. The coordination score methodology is consistent with TG-3.7 §3.6 coordination effectiveness scoring.

¶2 **Marine spatial plan adoption and implementation** – binary indicator of whether a binding marine spatial plan covering at least 50% of national waters is in force, plus a scored assessment of plan implementation status. Draws on legal framework data (Section 3.2) and governance accounts process records (TG-3.7).

¶3 **Integrated coastal monitoring system coverage** – proportion of the coastline covered by an integrated monitoring system that combines biophysical data (condition accounts), economic activity data (economic accounts), and governance compliance data (enforcement records), enabling evidence-based adaptive management.

3.7 Compilation Procedure

3.7.1 Step 1: Assemble governance account data

¶1 Governance and institutional indicators are derived from the governance accounts compiled under TG-3.7. Before indicator compilation, confirm that the following governance account components are available and current:

- ¶2 Legal framework register (Section 3.7.2 of TG-3.7)
- ¶3 MPA register with METT-4 assessments and management plan status
- ¶4 Rights registry: fishing licences, quotas, TURFs, community agreements
- ¶5 Enforcement records: inspections, boardings, detections, prosecutions
- ¶6 Institutional budget and staffing records

¶7 Where governance account data are incomplete, note data gaps in indicator metadata and apply conservative assumptions rather than extrapolating from incomplete records.

3.7.2 Step 2: Calculate indicator values

¶1 For each indicator, apply the formula or scoring procedure specified in Sections 3.2 through 3.6, drawing on the relevant governance account component. Record the numerator, denominator, and source data reference for each indicator to enable verification and updating.

¶2 **Scoring indicators.** Where indicators involve scored assessments (legal framework alignment, inter-agency coordination), apply the scoring rubric consistently across all spatial units or time periods being assessed. Document the scoring criteria and, where expert judgement is involved, identify the assessor and date of assessment.

¶3 **Composite indicators.** Where composite indicators aggregate multiple sub-indicators (fishing rights security index, composite governance indicator (Section 3.8.5)), apply the normalisation and weighting procedure from **TG-2.1 Aggregate Biophysical Indicators of Environmental State**, Section 3.4.3 on composite index construction. The weighting scheme and normalisation method must be documented.

Worked compilation: Fishing rights security index (§3.4.1)

Data source: Rights registry component of the TG-3.7 governance accounts. Each fishing right entry records: duration class (annual / multi-year / permanent), transferability flag, exclusivity class, and legal basis type.

Step 1 – Score each criterion per the scoring rubric in §3.4.1.

Step 2 – Average across criteria for each rights class and compute the composite:

Unweighted mean of the four criterion scores. Normalise to 0–100: index = (mean score ÷ 3) × 100.

Example: A small-scale fishing community holds 5-year TURFs, transferable within the community, exclusive to licence holders, established by fisheries regulation: Duration = 2, Transferability = 1, Exclusivity = 2, Legal basis = 2. Mean = $7 \div 4 = 1.75$. Index = $(1.75 \div 3) \times 100 = 58.3$.

Step 3 – Aggregate across rights classes: Where a fishery has multiple rights instruments (e.g., commercial licences and community TURFs), compute a weighted average using fishing effort (days at sea or GRT-days) as the weight, then report the overall index alongside the disaggregated class-level scores.

Step 4 – Record metadata: Source register (TG-3.7 rights registry), reference year, number of rights entries scored, assessor, and any rights classes where data were incomplete.

3.7.3 Step 3: Temporal and spatial disaggregation

¶1 Governance indicators should be compiled at the same temporal and spatial resolution as the governance accounts from which they are derived. For most indicators, an annual compilation cycle aligned with the governance accounts reference year is appropriate.

¶2 **Spatial disaggregation.** Where governance accounts are compiled at sub-national level (provincial, district, or management unit), governance indicators should be reported at that level to support sub-national policy analysis. The sub-national governance accounts methodology is addressed in **TG-3.11 Sub-National Ocean Accounts**.

¶3 **Temporal trends.** A minimum of three reference years is needed to identify trend direction. Five or more years is recommended for tracking reform impacts.

3.7.4 Step 4: SDG and international reporting

¶1 Map compiled indicator values to the relevant SDG metadata frameworks and international reporting obligations identified in Table 1. Where national governance indicators use different methodologies from the SDG global indicator standards, document the methodological alignment and note any adjustments applied to produce SDG-compatible values.

¶2 For SDG 14.C.1 reporting, the governance account data support the structured assessment across the seven implementation dimensions of the voluntary national reporting tool developed by the UN Division for Ocean Affairs and the Law of the Sea (DOALOS)²¹.

3.7.5 Step 5: Data quality flags and limitations

¶1 Governance data are subject to quality constraints that compilers should document systematically. Common data gaps include: incomplete administrative records for enforcement activities (inspection logs, prosecution outcomes); inconsistent licensing database formats across agencies; and delayed or partial reporting from subnational institutions. Where scoring on qualitative governance dimensions involves expert judgement, the assessor, date, and scoring rationale should be recorded as metadata attached to the indicator value.

¶2 Several governance indicators may be politically sensitive in some country contexts – enforcement failure rates, IUU vessel listings, and compliance rates may reflect negatively on agencies that are also primary data custodians. Compilers should apply standard statistical quality assurance principles and, where possible, triangulate sensitive indicators from multiple independent data sources (e.g., VMS records cross-checked against vessel logbooks and observer reports). Where data cannot be disclosed due to confidentiality or sensitivity, the indicator should be reported as “not available” with a note on the data gap, rather than suppressed without explanation. Scored assessments (METT-4, coordination scores, legal alignment scores) reflect the judgement of

assessors at a point in time. Governance accounts should include version tracking for scored assessments, recording assessment date, assessor identity, and any changes in scoring methodology between periods.

3.8 Worked Example: Gili Matra Marine Protected Area (Indonesia)

¶1 This section presents a worked example based on the Indonesia Gili Matra MPA pilot ocean accounts, demonstrating how governance stocks and flows indicators can be compiled and interpreted at MPA scale. Gili Matra was selected by GOAP as a primary pilot site for ocean accounting implementation²². The MPA comprises the islands of Gili Meno, Gili Ayer, and Gili Trawangan in West Nusa Tenggara Province, Indonesia. The pilot produced accounts for ecosystem extent, flows to the economy, flows to the environment, and ocean governance. These accounts provide one of the first empirically grounded illustrations of governance indicator compilation from ocean accounts at MPA scale. The ecosystem extent and condition accounts underlying this example were compiled following the methods described in [TG-6.1 Coral Reef Ecosystem Accounting](#), [TG-6.2 Mangrove and Coastal Wetland Accounting](#), and [TG-6.3 Seagrass Ecosystem Accounting](#).

3.8.1 Context: governance stocks and biophysical account findings

¶1 The Gili Matra MPA operates under a 2014–2034 Management and Zoning Plan, which establishes the core governance stock: defined zone boundaries, legal designation as a protected area, and formally documented management responsibilities. The MPA is managed across four institutional tiers: the designated working unit (Satker), local Gili Indah Village officials, the North Lombok Regency, and the West Nusa Tenggara Provincial government. This institutional architecture spans sub-village, district, and provincial jurisdictions simultaneously²³.

¶2 Ecosystem extent accounts for the period 2015–2021 showed that despite this formal governance stock, biophysical condition deteriorated: coral reef extent decreased by 18.16 hectares and mangrove extent decreased by 7.38 hectares, whilst seagrass experienced a minor gain of 8.43 hectares. During the same period, the total measured economic value derived from the MPA's ecosystems increased substantially, from IDR 45.24 billion per year in 2015 to IDR 64.17 billion per year in 2021 – driven primarily by rising tourism demand and inflation²⁴.

3.8.2 Legal framework and governance stock indicators

¶1 **Table 2: Gili Matra Governance Stock Indicators**

Indicator	Status/ Value	Notes
Management and Zoning Plan in force	Yes (2014–2034)	20-year plan; mid-term review status not confirmed
EIA coverage for MPA activities	Partial	Tourism development EIA requirements inconsistently applied
Inter-tier coordination instrument	Not formalised	4-tier institutional structure lacks a formal joint coordination agreement
IPLC co-management agreement	Not recorded	Village participation recorded in administrative role; formal co-management agreement with community rights provisions not documented in pilot accounts

¶2 The governance stock assessment reveals a pattern common in small island and coastal developing settings: a legally sound management plan exists (positive governance stock), but the institutional architecture for implementing it is fragmented across jurisdictions without a formal coordination mechanism.

3.8.3 Compliance and enforcement governance flows

¶1 The “Flows to Environment” account documented the solid waste burden generated by the growing tourism economy as a proxy indicator of governance flow adequacy. In 2021, the MPA gen-

erated 4.45 thousand tonnes of solid waste, of which 56.38% was organic. Of the total waste stream, only 25.86% was successfully recycled or managed. A further 70.4% (approximately 3,133 tonnes) accumulated in local landfills, posing an ongoing contamination threat to adjacent reef and seagrass ecosystems; the other 3.74% is not allocated in the source account²⁵.

¶2 Waste management performance functions as a proxy governance flow indicator: the proportion of solid waste managed to standard reflects both enforcement capacity and infrastructure investment by the responsible authorities.

¶3 **Table 3: Gili Matra Proxy Governance Flow Indicators**

Indicator	Value (2021)	Interpretation
Solid waste generated	4.45 thousand tonnes	Driven by tourism growth
Proportion organic	56.38%	Composting potential largely unrealised
Waste managed / recycled	25.86%	Major governance flow gap: 70.4% to landfill
Institutional fragmentation	4 tiers, no joint coordination body	Governance stock gap: no formal inter-tier agreement

3.8.4 MPA coverage and biophysical governance indicators

¶1 **Table 4: Gili Matra Integrated Governance and Biophysical Indicators (2015–2021)**

Indicator	2015	2021	Direction
Coral reef extent change (ha)	–	-18.16	Declining
Mangrove extent change (ha)	–	-7.38	Declining
Seagrass extent change (ha)	–	+8.43	Minor gain
Economic value (IDR billion/year)	45.24	64.17	Increasing
Waste managed to standard (%)	Not reported	25.86	Below target

3.8.5 Lessons for indicator compilation

¶1 The Gili Matra pilot illustrates several principles for MPA-scale governance indicator compilation:

1. ¶2

Compile governance stocks and flows separately. A management plan in force is a positive stock indicator. Waste management performance at 26% is a negative flow indicator. Combining them into a single composite score would obscure this diagnosis.

2. ¶3

Use biophysical accounts as the outcome benchmark. Governance indicator values should be interpreted against biophysical trends, rather than economic trends, when assessing whether governance is performing its conservation function.

3. ¶4

Institutional fragmentation is a measurable governance stock indicator. The number of institutional tiers, the existence (or absence) of a formal coordination instrument, and the clarity of jurisdictional boundaries are all quantifiable and should be included in governance accounts.

4. ¶5

Proxy indicators can substitute where direct enforcement data are absent. Where patrol records and inspection logs are not available, solid waste management rates, wastewater treatment coverage, and similar environmental outcome proxies can indicate whether governance flows are adequate.

4. Acknowledgements

¶1 **Authors:** [To be confirmed]

¶2 **Reviewers:** [To be confirmed]

5. References

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2. ¶2 Adapted from Ostrom, E. (1990), *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press. The definition is adapted from Ostrom's general theory of common-pool resource governance to the ocean context. See also Cicin-Sain, B. and Knecht, R.W. (1998), *Integrated Coastal and Ocean Management: Concepts and Practices*, Island Press.
3. ¶3 SEEA EA, paras 1.13–1.18, which describe the governance and institutional context for ecosystem accounting, noting that governance arrangements are relevant to understanding ecosystem management but that standardized governance accounts are not yet included in the SEEA EA compilation framework. Governance accounting for ocean systems is an emerging practice; see TG-3.7 Governance Accounts for the operational methodology.
4. ¶4 United Nations Convention on the Law of the Sea (UNCLOS), Articles 61 and 62 on conservation and utilisation of living resources of the EEZ.
5. ¶5 Kunming-Montreal Global Biodiversity Framework, Target 3: Conserve at least 30% of terrestrial, inland water, and coastal and marine areas, particularly areas of particular importance for biodiversity and ecosystem functions and services, through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures.
6. ¶6 FAO, Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), 2015.
7. ¶7 United Nations, Global indicator framework for SDGs, Indicator 14.6.1.
8. ¶8 United Nations, 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), adopted 19 June 2023. As of compilation date, the Agreement had not yet entered into force; ratification status should be verified at the time of indicator compilation. Key governance mechanisms include: area-based management tools for ABNJ (Part III), environmental impact assessment requirements for activities in ABNJ (Part IV), and a multilateral benefit-sharing mechanism for marine genetic resources (Part II).
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18. ¶18 Davies, S. and Rangeley, R. (2010), Connecting with fisheries: Developing observer programmes in developing countries, *Marine Policy*, 34(6), 1118–1127. See also Western and Central Pacific Fisheries Commission (WCPFC), Conservation and Management Measure 2019-02 on observers; and Kinney, M.J. et al. (2021), Observer coverage targets for monitoring fishing activities, *ICES Journal of Marine Science*, for updated guidance on appropriate coverage rates by fishery type.

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5. ¶25 Ocean Accounts of Gili Matra (2022), Flows to Environment account: solid waste. Total waste generated: 4.45 thousand tonnes (2021); organic fraction: 56.38%; recycled/managed: 25.86%; accumulated in landfill: 70.4% (approximately 3,133 tonnes; $70.4\% \times 4,450$ tonnes). Note: $25.86\% + 70.4\% = 96.26\%$; the unallocated residual (3.74%) reflects source data categorisation in the pilot accounts and does not affect the governance flow indicator values. See also: Ocean Accounts of Indonesia (2023), perikanan.org edition.

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