Ocean Accounts

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Ocean Science 101


- **Atmosphere**
  - Climate
  - Weather
  - +Oxygen
  - -CO₂
  - -Heat
  - -Acidification
  - -CO₂
  - +Oxygen

- **Land & Freshwater**
  - Biophysical Ecosystems
  - +Water
  - +Natural inputs
  - +Services
  - -Residuals
  - -Modification

- **The ocean**
  - Biophysical Ecosystems
  - +Oxygen
  - -CO₂
  - -Heat
  - -Acidification

**Impacts:**
- Climate change
- Sea-level rise
- Natural disasters
- Ecological collapse

**Socio-economic**
- Consumption
- Accumulation
https://oceanaccounts.unescap.org
SNA + SEEA + ? = Ocean Accounts

Ocean economy
Illegal, unreported, unregulated

SNA

SNA = System of National Accounts
SEEA = System of Environmental-Economic Accounting
The Ocean
A Different kind of “ecosystem”

• It’s very large
• Water & species keep moving
• Multi-layer
• All looks the same from a satellite
• Trans-boundary / shared / most outside of national jurisdictions
• Less studied / known / measured
• Interacts with climate, disaster, food...
• Not tested with SEEA

• ESCAP YouTube Video; UN Environment: Ocean Pollution
Ocean accounts – Map view

**National Spatial Data Infrastructure (NSDI)**
SEEA Ecosystem extent
- Land Accounts: Terrestrial and Freshwater ecosystem types
- Catchment areas
- Coastal communities
- Coastal infrastructure
- Pollution sources

**Ocean spatial units**
- Ocean ecosystem types
- Marine protected areas
- Fishery, tourism, mining areas
- Water quality / temperature

**National statistics**
- Emissions, effluents, wastes
- Assets: fish stock
- Supply/use: catch, beneficiaries

**Governance**
- Mandates

**Analyses**
- Main sources of land-based pollution (by whom)
- Degraded and pristine “Hot spots”
- Cost/benefit of rehabilitation and protection
- Value of natural inputs (to whom)
- Policy options ➔ values at risk
- Capture of “rent” (returns on investment)
# Ocean accounts – Table view

<table>
<thead>
<tr>
<th>Drivers</th>
<th>Ocean Assets:</th>
<th>Ocean Services Supply (physical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific units</td>
<td>Industry</td>
<td>% to ocean</td>
</tr>
<tr>
<td>SEEA Air emissions</td>
<td></td>
<td></td>
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<tr>
<td>SEEA Effluents</td>
<td></td>
<td></td>
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<tr>
<td>SEEA Solid wastes</td>
<td></td>
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</tbody>
</table>

1. would benefit from spatial disaggregation

<table>
<thead>
<tr>
<th>Ocean governance</th>
<th>Ocean Conditions</th>
<th>Ocean Services Use (physical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific units</td>
<td>Industry</td>
<td>Specific units</td>
</tr>
<tr>
<td>Policies, plans and regulations</td>
<td></td>
<td>Acidification (pH)</td>
</tr>
<tr>
<td>Institutions</td>
<td></td>
<td>Eutrophication (BOD)</td>
</tr>
<tr>
<td>Management practices</td>
<td></td>
<td>Plastics (T)</td>
</tr>
<tr>
<td>Technologies</td>
<td></td>
<td>Carbon</td>
</tr>
<tr>
<td>SEEA Protection Expenditures</td>
<td></td>
<td>Biodiversity</td>
</tr>
<tr>
<td>- research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- enforcement</td>
<td></td>
<td>Accessibility/quality</td>
</tr>
<tr>
<td>SEEA Goods and Services</td>
<td></td>
<td></td>
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<tr>
<td>- technologies</td>
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</tbody>
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2. Including critical natural capital areas, settlements, coastal infrastructure, protected areas, fishing zones, designated tourist areas, coral reefs, mangroves, coastal beaches...

3. As in the SEEA-EEA, Carbon and Biodiversity could be full accounts.

Note: This is a stylistic representation of the SEEA-EEA with additional components required for including sources of land-based pollution, abiotic services (such as minerals, energy and medium for transport), expenditures and governance. This is not as comprehensive as described in the text. Much of the data on flows of land-based pollution, ecosystem types, and condition would be derived from detailed maps and aggregated as shown in the tables for reporting.
Regional expert workshop (Aug. 2018)

Remaining research issues...

1. **Spatial units & ecosystem classification**: Delineate units
2. **Ecosystem services**: Expand existing classifications
3. **Disaster risk & climate change**: Establish shared standards
4. **Social**: Identify communities, artisanal fishers, target groups
5. **Economic**: Standard definitions & valuation of non-SNA
6. **Global data**: What is available and how to use it
7. **Measuring SDG14**: Metadata & new indicators
8. **Ocean governance**: International, regional and national
9. **Modelling**: Experience and opportunities
10. **Priorities for pilot studies and research**
What is the ocean economy?

How to define?
Scope (Blue economy, ocean industry, marine...)

How to value non-SNA benefits?
SEEA: exchange value NOT welfare value

Who benefits?
Large/small; local/global

Scope: Industrial and Geographical Perspectives

From the ocean
(Replaceability of outputs)

Outputs

In the ocean
(Dependability of space)

Land

Ocean

To the ocean
(Specialty of inputs)

Who depends on it

Who contributes to it

Where activity occurs
A working definition (China, KMI...)

✓ Classification standard: Scope of concept

✓ Narrow → Broader → Broadest
✓ Broader: Market Goods and Services / Private and Public

- Narrow Ocean Economy
  - Private Sectors (Ocean Industry)
- Broader Ocean Economy
  - Narrow Ocean Economy & Public Sectors
- Broadiest Ocean Economy
  - Broader Ocean Economy & Non-market value

Market Goods and Services
Private sectors
Public sectors
Non-Market Goods and Services

SNA
SEEA CF
SEEA EEA
Activity accounts
Service Supply
Services Use
Ocean Accounts

Status updates on national pilots
## Activities and timelines

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives</th>
<th>Timeline</th>
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| Scoping assessment              | • Review existing ocean-related policy priorities, concerns, stakeholders, institutional mechanisms; existing data; constraints and opportunities  
                                 | • Suggest options for the pilot                                            | Jan-May 2019      |
| 1st national workshop           | • Ocean accounts/SEEA training  
                                 | • Review/discuss scoping report  
                                 | • Agree on pilot topic and geographical area  
                                 | • Develop work plan                                                       | Jan-May 2019      |
| Pilot implementation            | • Conduct the pilot project  
                                 | - Technical support from local consultants and ESCAP                       | May-Oct 2019      |
| 2nd national workshop           | • Review/discuss pilot results                                             | Oct 2019          |
| Regional workshop               | • Present pilot results  
                                 | • Share lessons learned  
                                 | • Discuss next steps                                                     | Nov 2019          |
Thailand

• Lead agency: National Statistical Office
• First workshop held (15 Jan 2019)
• Pilot topic: Sustainable tourism - linkages between tourism, the environment and the ocean
  • Stage I: TSA-SEEA (water, energy and solid waste accounts)
  • Stage II: Mapping land cover, tourism and ecosystem information to identify tourism potentials and sites for conservation
  • Stage III: Building scenarios to inform decisions on tourism sustainability
• Geographical scope: five Andaman provinces (Phang Nga, Phuket, Krabi, Trang, and Satun)
Malaysia

- Lead agency: Department of Statistics
- First workshop held (4-5 Apr 2019)
- Pilot topic: Living resources in Straits of Malacca
  - Stage I: Test accounts and change matrix of selected ecosystem extent and conditions
  - Stage II: Test valuation of selected ocean services
- Geographical scope: Straits of Malacca
Viet Nam

• Lead agency: Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE)
• First workshop held (23-24 Apr 2019)
• Pilot topic: Land-based pollution, tourism and ecosystem impacts
  • Stage I: Estimating and allocating land-based pollution to drainage basins
  • Stage II: Mapping ecosystems (extent, conditions, services) and designated uses
  • Stage III: Estimating impacts of tourism on ecosystems
• Geographical scope: Quang Ninh province
Samoa

- Lead agency: Ministry of Natural Resources and Environment
- First workshop held (7-8 May 2019)
- Pilot topic: Sustainable tourism - accounting for the environment and selected ocean factors (tbc)
  - Stage I: Developing a test Tourism Satellite Account (TSA)
  - Stage II: TSA-SEEA (water, energy, solid waste and possibly land)
- Geographical scope: national
China

• Lead agency: Fourth Institute of Oceanography
• First workshop held (15-16 May 2019)
• Pilot topic: Ecosystem mapping in Beihai Bay
  • Stage I: Creating change matrix of key ecosystem types (mangroves, coral reefs, etc.)
  • Stage II: Analyzing important ecosystem conditions
  • Stage III: Calculating changes in essential ecosystem services
• Geographical scope: Beihai Bay, Guangxi province
Good news!

• Ocean Accounts don’t need to be complete to be useful

• Growing international interest and support
  • Special Envoy, Oceans Conference, UNSC, COP23, GEO
  • Partnerships, platforms and pathways
  • Evidence for good governance; Blue Financing...

• ESCAP support for partnerships for governance & statistics
  • Horizontal (topic, country) & vertical (international, regional)

• We can learn from each other
  • Progress on SEEA (capacity & guidance)
  • Interest in data and statistics
Take home points

• Ocean Accounts are an extension and adaptation of the SEEA to the ocean and SDG14

• The SNA could provide more detail on the ocean economy

• The SEEA Central Framework could be spatially detailed to give information on
  • Solid wastes, wastewater, water emissions
  • Fish stocks and catch
  • Seafloor mineral assets, energy potential

• SEEA Ecosystems needs:
  • Spatial infrastructure and classification of marine ecosystems

• (Environmental) accountants can save the ocean!
References: The Ocean

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