



# Setting Up Ocean Economy Satellite Accounts: Guidance Summary

## Key messages

- Ocean Satellite Accounts are an adaptation of National Income and Product Accounts that permit an answer to the question: What portion of the national production of goods and services is related to the ocean?
- The construction of an ocean satellite account is grounded in the definition and data operationalisation of the components of this question: what is meant by “ocean”, “relationship”, and “portion”?
- Key decisions must be made about industries (economic activity) and geography. These decisions are partly dependent on local conditions but are often somewhat arbitrary.
- The principal economic measures in a satellite account are gross output and value added on an industry basis. Value added is the most important measure because it can be specified at both the industrial and geographic levels. Employment in ocean sectors, though not normally a part of national income accounts, is often included as an additional item in ocean accounts.
- Measuring the share of total goods and services values that is ocean related requires the use of “partials” or proportions that can be applied to total output to get ocean output. Some partials (such as marine transportation) are equal to 1. But others must be inferred from geography, physical output, tax or other data.
- Once complete, ocean satellite accounts can provide an empirical basis for discussing the relative size and performance of ocean activities.

## Introduction

One of the foundational elements of the evolving concept of the ocean economy is understanding the contribution of the oceans (and coasts) to national and regional economies. How big is this contribution? How has it evolved over time? How does the ocean-related economy perform relative to the overall economy.

The Ocean Economy Satellite Account (henceforth Ocean Satellite Account), built as an adjunct to the National Income and Product Accounts can provide answers to these and other questions. When joined to accounts that measure the economic contributions of natural capital (covered elsewhere), the result provides critical information about the status and condition of the ocean economy.

Unlike natural capital accounts, the foundations of ocean satellite accounts already exist in the National Income and Produce Accounts. These

accounts generally conform to the UN System of National Accounts and so are consistent from one country to the next. Therefore, developing Ocean Satellite Accounts is often a first step for countries looking to eventually go “Beyond GDP” in measuring their natural ocean wealth. The Ocean Satellite Account is an adaptation of these national income accounts that separates the ocean and coastal component from other rest of the economy. This adaptation requires several steps.





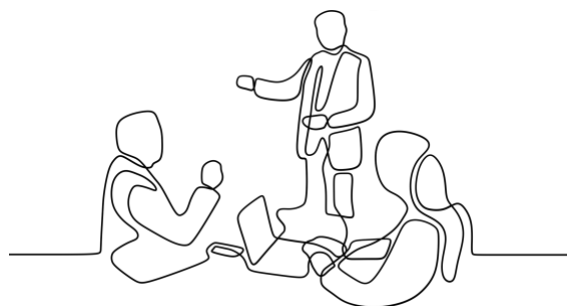
## Steps in Creating a Satellite Account

### Value Added

The key statistic in the satellite account is value added, which is the total sales of an industry less the costs of intermediate inputs. It can be thought of as the additional economic value that a business adds before offering goods or services to customers. Value added can be calculated for individual industries and can be calculated in different geographies. Value added is not as large as gross sales (also called gross output or turnover), which is the total value of a company's sales before any costs or deductions are subtracted, but more accurate for specialised views of the economy.

### Employment

Ocean satellite accounts may also contain data on employment by industry, though this is not strictly required by the System of National Accounts. Employment can present some tricks. Does it mean jobs (full time, part time, seasonal) or people who have jobs? What about self-employment? Or subsistence employment? There are no absolutely right answers, therefore informed choices that must be made, because of this transparency and consistency of estimates are essential.



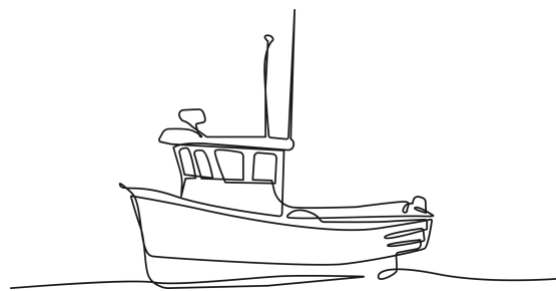
### Industrial and geographical boundary

The process of creating a satellite account begins by defining the boundaries of the account. Ocean accounts require both an industrial boundary (what economic activity is included) and a geographic boundary (both seaward and landward, particularly for major estuaries and other waterbodies).

National income accounts are commonly built at the industrial level, with the industries defined by an industrial taxonomy such as the International Standard Industrial Classification (ISIC). Other taxonomies, generally with greater detail, are used but are not as common.

A key decision in selecting industries involves deciding between intermediate and final industries. Intermediate industries produce goods and services for use as inputs to other production. Final industries use the intermediate goods and services provided by intermediate industries to produce final goods and services. These final goods and services are those that have been purchased for final use and will not be used in production.

For example, commercial fishing is almost universally included in ocean satellite accounts. Ship and boat building is also an important industry. But part of the output of the boat building industry is fishing boats, which are an input to the fishing industry. If the full value of the fishing industry is included in the account, part of that value is what the fishing firms pay for boats. So, boats would be counted as a part of the fishing and industry and as an industry in its own.



There are several different ways this potential double counting can be addressed in the way the accounts are constructed. Many accounts accept a certain amount of double counting to provide a broader description of the ocean economy. Other accounts more explicitly account for all industry connections through the use of input-output tables. However, this requires considerably greater effort.

The decision on the geographical boundary is also important. Should estuaries be included in the boundary? How should landside activities be



considered? For example, if a landside activity occurred in a defined “coastal” geography should that activity be captured in the Ocean Satellite Account?

## Methodology

There are two basic strategies for the ocean satellite account.

1. The first is to take the existing national income accounts and disaggregate them (break them down) to the ocean portion.
2. The second is to take individual economic actors’ information defined as included in the ocean account and aggregate them up (add them up).

Countries may choose one method over the other, but some countries, such as the United States, use both methods.

## The issue of the partial

The central problem in constructing ocean accounts is the **share of the economy that is ocean related**. That share or the “partial” ratio is often the most difficult part of building a satellite account.

Some industries such as commercial fishing and marine transportation are generally wholly ocean and so their partial is 1.0. Other industries, such as marine mining or marine renewable energy, will have partials ranging from 0.01 to 0.99.

There are rarely obvious sources for partials other than geography. Any data that can reliably and consistently measure the ocean portion can be used. Geographic location is perhaps the easiest source for a partial. For example, businesses serving tourists located “on the coast” could define a major part of tourism and recreation.

However, the way “on the coast” is defined is then critical. It could mean in an ocean-adjacent province, county, municipality, or postal code.

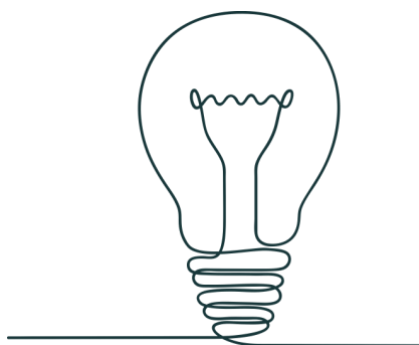
Partials can also be complicated by what data they are being used for apportionment. There are three levels of data that increase in precision but also in complexity:

- A level 1 partial is applied to simple value added estimates.
- Level 2 is a partial for each major component of Gross Domestic Product: consumption, investment, government, and exports.
- Level 3 shifts from industry partials to products, providing the greatest detail. Level 3 partials are the most demanding to estimate.

## Special topics

There are special topics that ocean satellite accounts are asked to address. One is technology development in fields such as biomedicine or information technology. These can be important parts of the ocean economy, but they are challenging to represent in ocean accounts.

They rarely fit neatly into any industrial category. They are also often too small because of their highly niche nature or their early stage of development to be detectable in the existing data. When these conditions apply, separate special studies are usually best for representing the technology-focused sectors.



A common issue in many countries is the problem of subsistence economies. These are very difficult to measure and are often poorly represented in the basic national income statistics. Subsistence activity can also be mixed with market activity in complex ways. A fish harvester may keep some catch, sell some, and barter other parts. Such details cannot usually be picked up in the ocean satellite accounts without targeted special studies.



## Conclusion

Ocean satellite accounts are relatively simple to understand and, because they are derived from data that is already widely used, readily explainable. However, their construction can be time and resource intensive. It is important therefore not to become ensnared in the many details that can take large amounts of resources to follow up such that no accounts are ever created.

It is recommended that ocean satellite accounts be built in stages:

1. Start with sectors whose connection to the ocean is most easily established such as fishing and transportation.
2. Build from there to add sectors such as tourism and recreation with a strong geographic component.

3. Build in stages to expand the scope and detail of the satellite account, for example considering more complex sectors and topics such as those covered in the special issues section.

This policy brief was produced in collaboration with Charles Colgan, the Director of Research for the Center for the Blue Economy (CBE).

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## Glossary of key terms

**Gross Value added:** The total sales of an industry less the costs of intermediate inputs. It can be thought of as the additional economic value that a business adds before offering goods or services to customers.

**Gross Domestic Product:** The total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.

**Intermediate industry:** Intermediate industries produce goods and services for use as inputs (i.e., intermediate goods and services) to other production.

**Final industry:** Final industries use the intermediate goods and services provided by intermediate industries to produce final goods and services. These final goods and services are those that have been purchased for final use and will not be used in production.

**Goods and services:** Goods and services are the products and services that are bought and sold in an economy.

**Gross sales/gross output/turnover:** metric for the total value of a company's sales before any costs or deductions are subtracted.

**National income accounts:** measure a country's economic activity. At a national level this would be measuring Gross Domestic Product, at a sectoral or another disaggregated level this would be measuring Gross Value Added.

**Subsistence economies:** economy that is directed to basic subsistence, such as the provision of food or shelter, rather than to the market. In the ocean context, this could include fishing for own consumption rather than for sale or trade in formal markets.