

REVIEW OF SOCIO-ECONOMIC INDICATORS FROM COASTAL COUNTRIES IN INDIAN OCEAN

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Purpose

This paper is a compilation of socio-economic data relevant to fisheries currently being collected by coastal countries which are members of Indian Ocean Tuna Commission (IOTC).

Background

The socio-economic dimension of fisheries is a critical component of fisheries science and management, especially for coastal countries that livelihoods rely heavily on marine resources for food security, and economic development. While Regional Fisheries Management Organizations (RFMOs) primarily focus on managing fisheries based on biological and ecological data, the integration of socio-economic aspects remains limited. Research has shown that socio-economic data are essential for informing key management tools, such as Harvest Control Rules (HCRs), which are commonly used to prevent overfishing, and the integrating of social well-being into fisheries management frameworks can benefit the fishing communities ([Barclay et al. 2023](#)).

In the case of the IOTC, socio-economic variables were, until recently, not regarded as relevant for establishing Conservation and Management Measures (CMMs). However, the relevance of socio-economic considerations has become increasingly evident, particularly in discussions around quota allocations. These measures have significant economic implications for member countries, as reflected in recent deliberations of the Technical Committee on Allocation Criteria ([Secretariat 2024](#)). To date, the IOTC Secretariat has collected fish price data on a voluntary basis from member countries using standard reporting templates [7PR format](#). Although this standardized format was developed to support the provision of information on fish prices and trade, only limited data have been submitted. The voluntary nature of the data collection likely contributed to the low response rate and limited emphasis placed on this information by member countries. In addition, the Secretariat has gathered fuel price data from other institutions [Forum Fisheries Agency](#) and has reviewed other socio-economic indicators, particularly those provided by the [Food and Agriculture Organization \(FAO\)](#).

Currently, there are twenty-five (25) coastal members of the IOTC, and the regular reporting of datasets remains a challenge for many of these countries. However, the collection of national statistical data is standard practice in most of them. Henceforth, implementing socioeconomic data collection, should be part of the norm. Importantly, a key focus for fisheries stakeholders is the development and management of fisheries that support both ecological sustainability and human well-being outcomes ([Bennett 2021](#)). Despite this, the submission of socio-economic indicators to the IOTC Secretariat has not been a formal requirement for member countries. As conservation and management measures increasingly affect the livelihoods and well-being of fishers, the proposal to establish a Working Party on Socio-Economics was adopted by the IOTC Commission, under [resolution 23/10](#), with part of its mandate includes *assess and advise on potential impacts to CPCs arising from the Conservation and Management Measures*.

It is essential to address the collection of fisheries socio-economic data in both developed and developing countries, taking into account the diversity of fisheries categories and the varying capacity for data collection. Properly understanding these differences is key to developing management systems that can efficiently prevent economic overexploitation ([Grafton, Kirkley, and Squires 2016](#)). This becomes especially important when establishing rules or policies intended to balance sustainability and economic viability.

This short paper reviews available socio-economic information, with a particular focus on data presented in coastal countries' annual statistical reports. These reports often include economic and related statistics that are relevant to the management of fisheries.

Socio-economic indicators parameters

The level and scope of socio-economic data collected in the fisheries sector can be assessed using a variety of indicators. For example, [California's Marine Life Management Act \(MLMA\)](#) emphasises the importance of human well-being and livelihoods as part of achieving sustainable fisheries management. This includes the development of appropriate, responsive management measures that reflect socio-economic realities. Additionally, the FAO addressed the lack of consistent socio-economic data by publishing its [Handbook on fisheries socio-economic sample survey Principles and practice](#): Principles and Practice in 2017. The handbook outlines a detailed process for data collection, especially tailored for contexts where such information is limited. It includes guidance on collecting various indicators, such as fishing activities, vessel characteristics, demographics, and economic and socio-economic parameters.

In this document, several key indicators have been reviewed based on the publications of national statistical bureaus in IOTC coastal member countries. It is important to note that while most socio-economic data are the responsibility of national statistics agencies, in some countries, essential indicators are also collected as part of fisheries frame surveys. **Table. 1** compares the extent to which the following socio-economic parameters are collected across countries:

- **Employment:** Availability of data on full-time employment, total population engaged in fisheries, and labor seasonality
- **Gross Value Added (GVA):** Net output of the fisheries sector
- **Gross Domestic Product (GDP) Contribution:** The sector's contribution to national GDP
- **Export Contribution:** Proportion of exports derived from fishery products
- **Fish Consumption:** Per capita fish consumption, and the significance of fish in overall dietary protein intake
- **Financial Support:** Types of government financial assistance, including subsidies or support schemes for the fisheries sector
- **Price:** Trends in fish prices, including Consumer Price Index (CPI) data and price fluctuations for fish products.

Socio-economic data published by coastal countries

A review of national statistical reports from IOTC coastal member countries reveals significant variation in the extent and quality of socio-economic data collected on fisheries. These differences often reflect the relative importance of the fisheries sector within each country's economy. In many cases, there is limited reference to tuna fisheries specifically, with available socio-economic data often collected at a broader fishing industry level, encompassing all types of fisheries, including aquaculture. Where fisheries are not a major sector, relevant indicators are typically aggregated under general categories such as primary production.

It is important to recognize that in coastal countries, the fisheries sector extends beyond fishing activities to include processing, trade, and a range of ancillary services that provide employment and generate economic income. However, the review of published national data suggests that these related activities are frequently excluded from fisheries-specific socio-economic assessments. Instead, they are often categorized under broader economic sectors such as manufacturing, re-export, or port services. As a result, **Table. 1** does not include data on these ancillary activities, if not assess as part of the fisheries sector in national statistical reporting.

Conclusion

This review highlights significant gaps in the availability of fisheries-related socio-economic data among IOTC coastal member countries. While national statistical bureaus regularly collect socio-economic data, limited attention is given specifically to the fisheries sector. This is especially evident in countries where: (i) fishing activities are minimal; (ii) fisheries are primarily subsistence-based; or (iii) national income is predominantly derived from other primary resource sectors. As noted in the consultant's report on the *Rapid Review of Socio-Economic Indicators for the IOTC* ([Martin 2025](#)), the development of a conceptual framework for fisheries socio-economic indicators would provide valuable guidance for member countries. Such a framework, supported by the IOTC Secretariat through the design of a standardised reporting format, would help improve data collection and reporting consistency across the region.

Types of socio-economic indicators published in countries Statistical report

Table. 1. Comparison of socio-economic indicators collected by coastal countries

Coastal_Countries	Source	Employment	Gross_Value_Added	GDP_contribution	Export_contribution	Consumption	Financial_support	Prices	Comments
Bangladesh	Annual Statistical report	Aggregated with Agriculture (primary sectors)	Gross value Added, share growth rate of fisheries sector		Export of fish product	Access to food/per capita availability	Information on subsidy to sectors	Index prices by fishery productions/ consumer price index	
Comoros	Project report (Development Bank)/Stat portal	Information for fishery sector		Information for fishery			Requirement of financial		
EUR-France	Data portal for all france territory								
India	Annual Statistical report (https://www.mospi.gov.in/download-tables-data)		Gross value Added, share growth rate of fisheries sector		Export of fish product	Per capita consumption of fish	Information financial support		
Indonesia	Annual Statistical report (also online portal)		Agriculture, forestry, hunting and fisheries	Agriculture, forestry, hunting and fisheries	Agriculture, forestry, hunting and fisheries	Per capita consumption of fish			
Iran, Islamic Republic	Statistics portal (https://amar.org.ir/en/Statistics-by-Topic/Environment-and-multi-domain-statistics/Yearbooks-and-similar-compedia/Yearbook#4990315-iran-statistical-yearbook-2018-2019-1397)	Number of workers - Fishing	GVA for primary sectors	GDP for primary sectors				Consumer price index (fish & see food)	

Coastal_Countries	Source	Employment	Gross_Value_Added	GDP_contribution	Export_contribution	Consumption	Financial_support	Prices	Comments
Kenya	https://www.knbs.or.ke/wp-content/uploads/2024/12/2024-Statistical-Abstract1.pdf	Number of workers - Fishing / wages	GVA for primary sectors	GDP for primary sectors		Per capita consumption of fish		average prices fish and fish preparations	
Madagascar	Frame Survey	Employment by sex, type of fisheries		GDP contribution fishery (FS), economic report for all primary sectors	Export of primary sectors				
Malaysia	https://www.dosm.gov.my/	Primary sectors		GDP for marine fishing	Export of seafood				
Maldives	https://statistics.maldives.gov.mv/statistics/	Fisheries and agriculture	Fisheries and agriculture	GDP for fisheries	Export of Tuna product			Consumer price index (fish)	
Mauritius	https://statsmauriti.us.govmu.org/Pages/Statistics/statsbysubject.aspx	Primary sectors (non-sugar)	Primary sectors (non-sugar)		Fish and fish preparations				
Mozambique	https://nso-mozambique.opendataforafrica.org/fxuqre/national-summary-data-page-nsdp		Fisheries related						
Oman	https://www.ncsi.gov.om/Elibrary/LibraryContentDoc/bar_bar_Statistical%20Year%20Book%2020242_098a2ed4-28b5-4267-90d7-dca6c2c42583.pdf	Primary sectors/gender	Fishery	Fishery	Total export of fish product/ national level as non-oil product trade				

Coastal_Countries	Source	Employment	Gross_Value_Added	GDP_contribution	Export_contribution	Consumption	Financial_support	Prices	Comments
Pakistan	https://www.pbs.gov.pk/content/detail-tables	Primary sectors/gender		GDP value of fishery	Value of export - fishery				
Seychelles	https://www.nbs.gov.sc/	Agriculture, forestry and fishing		Fishing (very local) & manufacturing of fish products	Fish and fish products				at a glance: https://www.tradeportal.sc/fisheries-and-aquaculture-sector/
Somalia	https://nbs.gov.so/statistical-publications/	Agricultural, livestock, forestry and fishery workers		AS good and services					
South Africa	https://www.statssa.gov.za/?m=2024	Primary sectors		Primary sectors	Primary sectors				
Sri Lanka	https://www.statistics.gov.lk/Agriculture/StaticInformation/FisheriesandAquaticResources#gsc.tab=0	Marine and Fresh Water Fishing and Aquaculture	Marine and Fresh Water Fishing and Aquaculture	Marine and Fresh Water Fishing and Aquaculture					
Sudan	https://sudan.opendataforafrica.org/data/#menu=topic								Portal not up-to-date
Tanzania	https://www.nbs.gov.tz/statistics/economic-statistics	Agriculture, forestry and fishing		fishing		Per capita fish consumption			
Thailand	Annual Statistical report (https://www.nso.go.th/public/e-book/Statistical-Yearbook/SYB-2024/)	Agriculture, forestry and fishing		Aggregated with other primary sectors					

Coastal_Countries	Source	Employment	Gross._Value_Added	GDP_contribution	Export_contribution	Comsuption	Financial_support	Prices	Comments
United Kingdom (BIOT)									
Yemen	https://cso-ye.org/en/annual-statistics-book-at-the-level-of-governorate/	Agriculture/hunting/fishing		Agriculture/hunting/fishing					In Arabic / old report contains socio-eco data



References

- Barclay, Kate M., Simon R. Bush, Jan Jaap Poos, Andries Richter, Paul A. M. Van Zwieten, Katell G. Hamon, Eira Carballo-Cárdenas, et al. 2023. "Social Harvest Control Rules for Sustainable Fisheries." *Fish and Fisheries* 24 (5): 896–905. <https://doi.org/10.1111/faf.12769>.
- Bennett, Nathan J. 2021. "Socio-Economic Monitoring and Evaluation in Fisheries." *Fisheries Research*. <https://www.sciencedirect.com/science/article/pii/S016578362100062X>.
- Grafton, R. Quentin, James Kirkley, and Dale Squires. 2016. *Economics for Fisheries Management*. London: Routledge. <https://doi.org/10.4324/9781315257037>.
- Martin, Sarah. 2025. "A Rapid Review of Socioeconomic Indicators for the IOTC." In. Virtual meeting. <https://iotc.org/documents/WPSE/02/09>.
- Secretariat, IOTC. 2024. "IOTC-2024-TCAC13-RE_FINAL Report." In. Thailand: IOTC. https://iotc.org/sites/default/files/documents/2025/02/IOTC-2024-TCAC13-RE_FINAL.pdf.