Food and Agriculture Organization of the United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
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IOTC–2025–WPSE02–R[E]

REPORT OF THE 2ND SESSION OF THE IOTC WORKING PARTY ON SOCIO-ECONOMICS

Online, 24–25 April 2025

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ACRONYMS

AFAD	Anchored fish aggregating device
"BIOT"	"British Indian Ocean Territory"
BMSY	Biomass which produces MSY
CMM	Conservation and Management Measure (of the IOTC; Resolutions and Recommendations)
CNCP	Cooperating Non-Contracting Party, of the IOTC
CoC	Compliance Committee of the IOTC
CPs	Contracting Parties
CPCs	Contracting Parties and Cooperating non-Contracting Parties
DFAD	Drifting fish aggregating device
EEZ	Exclusive Economic Zone
FAD	Fish aggregating device
FAO	Food and Agriculture Organization of the United Nations
FMSY	Fishing mortality at MSY
GEF	Global Environment Facility
HCR	Harvest control rule
ICRU	Improved Cost Recovery Uplift
IOC	Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
IPNLF	International Pole and Line Foundation
ISSF	International Seafood Sustainability Foundation
IUU	Illegal, unreported and unregulated
LRP	Limit reference point
LSTLV	Large-scale tuna longline vessel
MPF	Meeting participation fund, of the IOTC
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
NGO	Non-Governmental Organisation
OFCF	Overseas Fishery Cooperation Foundation of Japan
OIG	Office of the Inspector General
OPRT	Organisation for the Promotion of Responsible Tuna Fisheries
OT	Overseas Territories
PEW	PEW Charitable Trust
RFMO	Regional Fisheries Management Organisation
SC	Scientific Committee of the IOTC
SCAF	Standing Committee on Administration and Finance of the IOTC
SIOFA	Southern Indian Ocean Fisheries Agreement
SBMSY	Spawning or 'adult' equilibrium biomass at MSY
SWIOFC	Southwest Indian Ocean Fisheries Commission
TCAC	Technical Committee on Allocation Criteria of the IOTC
TCMP	Technical Committee on Management Procedures
TCPR	Technical Committee on Performance Review
TRP	Target referent point
UNCLOS	United Nations Convention on the Law of the Sea
VMS	Vessel Monitoring System
WPEB	Working Party on Ecosystems and Bycatch of the IOTC
WPICMM	Working party on the Implementation of Conservation and Management Measures
WPM	Working Party on Methods of the IOTC
WPTmT	Working Party on Temperate tunas of the IOTC
WPTT	Working Party on Tropical Tunas of the IOTC
WWF	World Wide Fund for Nature (a.k.a World Wildlife Fund)

STANDARDISATION OF IOTC WORKING PARTY AND SCIENTIFIC COMMITTEE REPORT TERMINOLOGY

SC16.07 (para. 23) The SC **ADOPTED** the reporting terminology contained in Appendix IV and **RECOMMENDED** that the Commission considers adopting the standardised IOTC Report terminology, to further improve the clarity of information sharing from, and among its subsidiary bodies.

How to interpret terminology contained in this report

Level 1: From a subsidiary body of the Commission to the next level in the structure of the Commission:

RECOMMENDED, RECOMMENDATION: Any conclusion or request for an action to be undertaken, from a subsidiary body of the Commission (Committee or Working Party), which is to be formally provided to the next level in the structure of the Commission for its consideration/endorsement (e.g. from a Working Party to the Scientific Committee; from a Committee to the Commission). The intention is that the higher body will consider the recommended action for endorsement under its own mandate if the subsidiary body does not already have the required mandate. Ideally this should be task specific and contain a timeframe for completion.

Level 2: From a subsidiary body of the Commission to a CPC, the Secretariat, or other body (not the Commission) to carry out a specified task:

REQUESTED: This term should only be used by a subsidiary body of the Commission if it does not wish to have the request formally adopted/endorsed by the next level in the structure of the Commission. For example, if a committee wishes to seek additional input from a CPC on a particular topic but does not wish to formalise the request beyond the mandate of the Committee, it may request that a set action be undertaken. Ideally this should be task specific and contain a timeframe for the completion.

Level 3: General terms to be used for consistency:

AGREED: Any point of discussion from a meeting which the IOTC body considers to be an agreed course of action covered by its mandate, which has not already been dealt with under Level 1 or level 2 above; a general point of agreement among delegations/participants of a meeting which does not need to be considered/adopted by the next level in the Commission's structure.

NOTED/NOTING: Any point of discussion from a meeting which the IOTC body considers to be important enough to record in a meeting report for future reference.

Any other term: Any other term may be used in addition to the Level 3 terms to highlight to the readers of IOTC reports the importance of the relevant paragraph. However, other terms used are considered for explanatory/informational purposes only and shall have no higher rating within the reporting terminology hierarchy than Level 3, described above (e.g. **CONSIDERED**; **URGED**; **ACKNOWLEDGED**).

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EXECUTIVE SUMMARY

The 2nd Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Socio-Economics (WPSE) was held online on the 24 – 25 April 2025. A total of 50 participants attended the Session (69 in 2024). The list of participants is provided in Appendix I. The meeting was opened by the Chair of the WPSE. The following are the recommendations from the WPSE02 to the Commission, which are provided in Appendix V.

[Para 27] The WPSE **RECOMMENDED** the proposed fisheries (table 1) and context indicators (table 2) by the consultant to be further considered by the Commission as the potential key IOTC socio-economic indicators.

[Para 64] The WPSE **RECOMMENDED** that the group should collate all the information that currently collected by the WPSE invited experts and **AGREED** that this should be made available to the Commission next year.

[Para 65] The WPSE **RECOMMENDED** that the Commission consider and endorse the WPSE Programme of Work (2026–2030), as provided in Appendix IV.

[Para 70] The WPSE **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from WPSE02, provided in Appendix V.

1. Opening of the meeting

1. The 2nd Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Socio-Economics (WPSE) was held online on the 24 – 25 April 2025. A total of 50 participants attended the Session (69 in 2024). The list of participants is provided in Appendix I. The meeting was opened by the Chair of the WPSE.

2. Adoption of the agenda and arrangements for the session

2. The WPSE **ADOPTED** the Agenda provided at Appendix II. The documents presented to the WPSE02 are listed in Appendix III.

3. The IOTC Process: outcomes, updates, and progress

3.1. Outcomes of the 27th Session of the IOTC Scientific Committee

3. The WPSE **NOTED** paper IOTC-2025-WPSE02-04 which summarizes the outcomes the report of the 27th Session of the Scientific Committee (SC27), particularly the comments specifically related to the work of the WPSE:

> *(Para 150) The SC **NOTED** the report of the 1st Session of the Working Party on Socio-Economics (IOTC–2024–WPSE01–R) which was held back-to-back with the 13th meeting of the Technical Committee on Allocation Criteria (TCAC13) and attended by 69 participants.*
>
> *(Para 151) The SC **NOTED** that the WPSE was **REQUESTED** by the TCAC to provide guidance on matters related to socio-economic indicators and inputs into the allocation regime.*
>
> *(Para 152) The SC **NOTED** that the WPSE conducted a preliminary review of the information on socio-economic data and indicators for IOTC CPCs and fisheries, building on the scoping study undertaken in 2019 in accordance with Resolution 18/09.*
>
> *(Para 153) The SC **NOTED** that the Programme of Work for the WPSE will be developed over time and that some inter-sessional work will be undertaken in the interim to identify a suite of socio-economic indicators that could be derived from data available in the CPCs and included in a dedicated section of the National Reports, with assistance from the Secretariat.*
>
> *(Para 154) The SC **AGREED** to hold the next WPSE meeting online in 2025 during a two-day session, at least one month prior to the 14th session of the TCAC.*

3.2. Outcomes of the 28th Session of the Commission

4. The WPSE **NOTED** paper IOTC-2025-WPSE02-03 which summarizes the outcomes of the 28th Session of the Commission. The WPSE **RECALLED** the Commission adopted Resolution 23/10 in 2023, which established the terms of reference for the Working Party on Socio-Economics.

4. Information on socio-economic data for IOTC CPCs and fisheries

4.1. Review of socio-economic data available at the Secretariat

5. The WPSE **NOTED** presentation IOTC-2025-WPSE02-INF07 which presented socio-economic data and information available from FAO related to fisheries and aquaculture.

6. The WPSE **NOTED** the overall objectives of FAO related data collation, processing and dissemination of nutrition, which also includes fisheries data. **NOTING** key socio-economic indicators collected, mode of collection, sources, and their availability in public domain, particularly production, employment at primary sector, fishery fleet, trade, utilisation, consumption, processed production, FAO Fish Price Index. WPSE also **NOTED** the contribution of GLOEFISH, which provide significant information on market intelligence for fisheries and aquaculture products.

7. The WPSE **NOTED** that some of the socio-economic data collected and disseminated through the FAO website are not available at the country level, such as statistics on fishing fleets and employment, but rather at the regional or global level.

8. The WPSE **NOTED** that the data gaps observed in FAO datasets could be attributed to the lack of comprehensive national statistics. It was also **NOTED** that in some countries, certain types of data are underrepresented in official statistics, particularly those related to employment in areas like support chain industries, manufacturing and administration related to fisheries. These components are important but may not be fully captured or included in the main fisheries sector data.

9. It was **NOTED** that FAO is working closely with the World Bank, developing modules to collect information on fisheries dependency, to address gaps in socio-economic data for the sector.

10. The WPSE **NOTED** that FAO currently collects capture fisheries production data based on flag states and fishing areas, rather than by individual fisheries or geo-referenced areas for all datasets.

4.2. Socio-economic data assessment relevant to tuna fishing nations and fisheries

11. The WPSE **NOTED** the information paper IOTC-2025-WPSE02-INF06, which reviewed the socio-economic indicators collected by coastal countries in the Indian Ocean related to fisheries and the level of data aggregation. It was **NOTED** that while all countries collect socio-economic indicators, the information directly related to fisheries varies depending on the importance and contribution of fisheries to their national economy

12. The WPSE further **NOTED** that in several countries, socio-economic indicators are aggregated across all primary sectors, including fisheries, forestry, agriculture, and hunting. It was **NOTED** that while socio-economic indicators are available for the fisheries sector in some countries, these indicators are typically presented at the sector level, rather than being species-specific.

13. The WPSE **NOTED** that in some countries, employment contributions within the fisheries sector are evaluated by gender and income level.

14. The WPSE NOTED paper IOTC-2025-WPSE02-06: Socio-economic aspects of offshore tuna fishery of Pakistan with special reference to its role on the livelihood conditions of hinterland communities, with the following summary provided by the authors:

> *"Tuna fishing is one of the oldest economic activities along Pakistan's coast. There is a fleet of about 700 tuna gillnet vessels that operate in Pakistan. These fishing vessels used to be manned by fishermen from the coastal villages of Pakistan; however, since the 1980's fishermen from the hinterland province of Khyber Pakhtunkhwa have replaced most of the crew from the coastal area. Tuna gillnet boats are comparatively more expensive than other types of fishing vessels being used in Pakistan, whereas their operational expenses are comparable to a shrimp/fish trawler. Based on this distribution, the annual income of the fishermen ranges between Rs 300,000 and Rs 600,000 depending on the catch. The annual income of Captain ranges between Rs 2,000,000 to Rs 5,000,000. Some of the fishermen also work on tuna gillnet vessels in the neighbouring country and they earn about 25 to 50 % more than fishermen operating in Pakistan. For most of the period, fishermen remain in the offshore waters, therefore, they do not incur any expenditure. As compared to other trades, the income of tuna gillnet fishermen is almost double. In terms of their living condition, the fishermen working on tuna gillnet vessels are comparatively rich as compared to labourers. Since about 5 % of the population of Malakand District and 2 % of Lower Dir District of the province of Khyber Pakhtunkhwa are working on tuna gillnet vessels, and their earnings are comparatively much higher than any other trade, which is reflected in a better livelihood condition of these fishermen*"

15. The WPSE **NOTED** that tuna fisheries in Pakistan hold varying levels of importance regionally, and that the fleet segment also differs across fisheries. It was **NOTED** that while some of the larger vessels operate offshore, their socio-economic contribution varies significantly.

16. The WPSE further **NOTED** that although tuna fisheries in Pakistan are more remunerative, their operating costs, particularly fuel expenses, are much higher than those in other fisheries. It was **NOTED** that some fishers have shifted their operations to regions with lower fuel costs. Additionally, it was **NOTED** that regional labor costs and tuna market prices play a key role in determining the regions with higher trade activity.

17. The WPSE **NOTED** that fish consumption of tuna species in Pakistan is generally low on a national level, although it may vary regionally. It was **NOTED** that evaluations for allocation criteria should take into account the regional importance of tuna fisheries, and possibly consider the fisheries as a whole, particularly when examining historical data.

18. The WPSE **NOTED** the inadequate data collection in Pakistan and emphasized the need for further work to better understand the dynamics of the fisheries sector.

4.3. Selection of Key Indicators

19. The WPSE **NOTED** paper IOTC-2025-WPSE02-09_Rev1, which provides a rapid review of socioeconomic indicators for the IOTC, with the following summary provided by the authors:

> "The IOTC has outlined the need "to assess the social and economic dynamics of fisheries", specifically the "contribution of… dependence on… importance of.." the fisheries to issues such as food security, employment and exports (Resolution 23/10) and the need to establish a set of socioeconomic indicators. Given there are a vast number of indicators that could potentially be used, developing an overarching framework to structure indicator development is recommended. This facilitates the management process by increasing transparency, reducing bias towards information availability, increasing comprehensiveness and enabling integration within a broader Ecosystem Approach to Fisheries. As there is no one-size-fits-all fisheries socioeconomic evaluation framework (Bennette et al., 2021), a selection of frameworks were reviewed and priority thematic domains were selected based on relevance for IOTC and proposed to form the basis of a socioeconomic evaluation framework for IOTC. Priority domains included: economic value and contribution, employment, livelihoods, food and nutrition, exports and government revenues and subsidies. Based on this framework, a literature review, and previous feedback from IOTC CPCs (MacFadyen and Defaux, 2019) a set of fisheries socioeconomic indicators was proposed, reflecting tuna-fisheries dependency metrics (Box 1). A set of 'context' indicators applicable at the national level were also proposed, reflecting a combination of general vulnerability metrics such as the HDI and general fisheries dependency metrics (i.i. not tuna-specific). Detailed descriptions of each indicator are provided with accompanying data requirements, potential sources of information and methods."

20. The WPSE NOTED that the consultant's approach to the review covered various aspects of evaluating socio-economic indicators, including the conceptual frameworks and key considerations for establishing an indicator framework. Furthermore, NOTED that there is no "one-size-fits-all" socio-economic framework and NOTED that a framework for the IOTC was proposed.

21. The WPSE **NOTED** the literature review of key indicators, **ACKNOWLEDGING** that some institutions collecting socio-economic data may have objectives different from those of the IOTC and should CONSIDER of selective criteria when adopting these indicators.

22. The WPSE **NOTED** that the currently available indicators for TCAC are at various levels but often lack species and ocean-specific data. These indicators could be aggregated by ocean and species groups, such as pelagic species. It was NOTED that data on vulnerability indices, which are often at the global level, can be found in national statistics and could be estimated by country with the assistance of local experts.

23. The WPSE **NOTED** that while performance metrics are important, they may not always directly relate to IOTC's primary objectives (in Res 23/10). **NOTING** that the impact of CMM on fisheries should be considered when measuring fisheries' performance changes.

24. The WPSE **NOTED** that when reviewing indicators, it is important to consider the fleet segments, including industrial and small-scale fisheries within countries, and to categorize the sectors accordingly. Furthermore, **NOTED** that there should be a consensus among CPCs on how fisheries should be measured.

25. The WPSE **NOTED** that the process for generating indicators for developing countries, to be considered by TCAC, should not be delayed due to back-and-forth between the Commission and TCAC. At a minimum, some ideas should be presented at the July TCAC meeting. Additionally, **NOTING** that consideration should be given to indicators that have not been thoroughly reviewed, as these could otherwise be overlooked.

26. The WPSE **NOTED** the need to evaluate the relevance of the indicators—whether they should be collected by countries and calculated at the national level, or whether the responsibility for the calculations should lie with the Secretariat.

27. The WPSE **RECOMMENDED** the proposed fisheries (table 1) and context indicators (table 2) by the consultant to be further considered by the Commission as the potential key IOTC socio-economic indicators.

Table 1: List of indicators proposed at fishery level

Proposed fishery level indicators	
Indicators	Description
Catch value (value of landing catch (PPP))	Total value of landings in Purchasing Power Parity (PPP) to describe the economic importance of the fishery in absolute terms *(Note that these summary indicators are made up from calculations including finer scale information such as species and price data, so it would be easy to expand the list to include those explicitly if preferred)*
Contribution to GDP (IO tuna)	Relative importance of Indian Ocean tuna to CPC economy Contribution to GDP (current market prices) = nominal catch x ex-vessel price / GDP
Contribution to employment	Total number of people employed by sector (pre-harvest, harvest and post-harvest) and gender.
Total livelihoods dependent upon the IO tuna fisheries	Total number of people employed along fisheries value chains plus the members of their households…
Per capita tuna consumption	The per capita supply of tuna available for human consumption.
Micronutrient contribution of tuna to local diets	Average % contribution of tuna to local diets across 6 micronutrients.
Contribution to national export earnings (IO tuna)	Relative importance of Indian Ocean tuna to foreign income
Contribution to government revenues	Tuna fisheries revenues from ports/licences/access fees as a % of state budget
Government expenditure	Tuna fisheries expenses directly incurred by government as a % of state budget

Table 2: List of proposed context Indicators

Indicator	**Description**	**Data source**
Human Development Index	*Human Development Index* *This encompasses average conditions of life expectancy, education, and a decent standard of living.*	*https://hdr.undp.org/data-center/human-development-index#/indices/HDI*
Gross National Income	*Gross National Income (per capita) at PPP.*	https://data.worldbank.org/indicator/NY.GNP.MKTP.CD

	Measure of national economic activities including GDP and returns from foreign investments and remittances.	
Fisheries contribution to GDP	*Sustainable fisheries contribution to GDP (SDG indicator 14.7.1)*	https://www.fao.org/faostat/en/#data/SDGB
Contribution of fisheries production to food supply	*Total fisheries production per capita*	*FAO FishStatj (Fisheries capture production database)*[1] https://www.fao.org/fishery/en/statistics/software/fishstatj *https://population.un.org/wpp/)*
Per capita fish consumption	*Estimated consumption of aquatic products per capita (g/capita/day)*	*https://www.fao.org/faostat/en/#data/HCES*
Fisheries contribution to employment	*Percent contribution of fishers to total national labour force (%)*	ILOstat[1]; WIOFish; OECD Basurto et al. (2025)
Fisheries contribution to exports	*Percent contribution of fisheries to national export earnings (%)*	https://wits.worldbank.org/ FAO FishStatj Global aquatic trade database
Number of active vessels	*Number of active vessels by size category (GT)*	Industrial and semi-industrial vessels https://clav.iotc.org/ Artisanal vessels OECD

28. The WPSE **NOTED** paper IOTC-2025-WPSE02-07, which consists of a scoping socio-economic indicators across Coastal States in the Indian Ocean, with the following summary provided by the authors:

    "RFMOs have the responsibility to help fishing states towards agreement on "participatory rights such as allocations of allowable catch or levels of fishing effort Despite this recognition in international law, allocations within RFMOs remain contentious, due to disagreements or different interpretations of what equitable sharing agreements vis-à-vis allocations should look like" – see the paper for full summary.

29. The WPSE **NOTED** the importance of including socio-economic indicators in allocation criteria, given the vulnerability of developing states. The WPSE further **NOTED** that the country's Vulnerability Index (as developed by the Commonwealth), fleet segment composition, and socio-economic dependency, such as workforce involvement, export levels, and the fisheries sector's overall contribution to the national economy, are key indicators to move forward to TCAC.
30. The WPSE **NOTED** that specific statistics are necessary to determine a country's economic vulnerability. **CONSIDERING** the existing data limitations faced by the IOTC, which only focuses on tuna statistics, the WPSE is **CONCERNED** about the need to collect multiple indicators.
31. The WPSE **NOTED** that, depending on the overall importance of fisheries within a country, including non-tuna species, it may be more appropriate to assess vulnerability at the broader fisheries sector level, rather than focusing exclusively on tuna.
32. The WPSE **NOTED** that the calculation of the Commonwealth Vulnerability Index is critical for understanding vulnerability and emphasised the importance of ensuring that raw data is accessible to the public where possible.
33. The WPSE **NOTED** that additional key indicators related to climate change, such as the impact of the Indian Ocean Dipole on fish stocks, should be integrated into allocation decision-making, as they may significantly influence national vulnerability.

[1] Note that fisheries/aquaculture employment data available at ILO are incomplete and inconsistent with FAO estimates.

34. The WPSE **NOTED** the socio-economic monitoring framework study of the FFA members and the fishery characteristics its member countries and emphasised the need to recognise the diverse impacts of tuna fisheries across these nations. It was also **NOTED** that the FFA-led project in the Pacific aims to assess the broader contributions of tuna fisheries, extending beyond direct socio-economic benefits.
35. The WPSE **NOTED** the reliance on household surveys for socio-economic data in some countries, due to limited access to other data sources. The WPSE further **NOTED** that in evaluating socio-economic performance and narrowing down the list of indicators, emphasis should be placed on setting objectives that are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART).
36. The WPSE **NOTED** the existence of a Monitoring, Evaluation, and Learning (MEL) framework for fisheries, which emphasises socio-economic outcomes. It was further **NOTED** that achieving development goals will rely on data from fishery company surveys, government sources, and household surveys, with a strong emphasis on collaboration with national statistical authorities.
37. The WPSE **NOTED** the document detailing the socio-economic monitoring and evaluation of the Indonesian tuna industry and its impacts on vulnerable communities (also see Section 5.3).
38. The WPSE **NOTED** the challenges in acquiring fisheries-specific socio-economic data, due to interoperable data and limited data-sharing practices. It was also **NOTED** that although targeted surveys are conducted, wrangling is often required to extract fisheries-specific data. The WPSE further **NOTED** that the norm of Indonesian national fisheries data aggregates tuna under the category "tonggol," limiting species-specific insights.
39. The WPSE further **NOTED** the feasibility of improving socio-economic data collection in developing countries.
40. The WPSE **NOTED** that the publication of socio-economic research by the FFA in Papua New Guinea will benefit the IOTC and other Regional Fisheries Management Organizations (RFMOs), contributing to improved outcomes in socio-economic work. Furthermore, **CONSIDERING** that such studies require comprehensive and long-term data collection efforts.

5. Incorporating fisheries socio-economics into IOTC science and management

5.1. Assessment of the socio-economic significance of fisheries

41. The WPSE **NOTED** paper IOTC-2025-WPSE02-08_Rev1, which provides an assessment of the potential social and economic impacts of banning the use of wire leader on Taiwanese longline fishery in the Indian Ocean, with the following summary provided by the author:

    "Banning wire leader could result in at least US$24 million direct economic loss of Taiwanese longline fishery in the Indian Ocean. It could cause around 500 inhabitants of Donggang Township, losing their jobs; furthermore, it could seriously damage the community image of Donggang Township boasong a longstanding icon of three culinary treasures: bluefin tuna, sakura shrimp, and oilfish roe."

42. The WPSE **RECALLED** that the Scientific Committee requested an evaluation of the operational, economic, and social impacts of shark mitigation approaches when adopting its recommendations. The WPSE **NOTED** that this study was conducted in response to that request.

43. The WPSE **NOTED** that the Taiwanese longline fleet operates an oilfish fishery in the South West Indian Ocean. This fleet comprises both small and large-scale longliners, with the number increasing from 37 to 56 from 2022 to 2024.

44. The WPSE **NOTED** that while oilfish is generally considered a bycatch species in oceanwide, it is targeted in the South West Indian Ocean, which represents a critical fishing ground during its distinctive fishing season from March to August. There is another productive fishing ground located near South Africa.

45. The WPSE **NOTED** that most vessels in this fishery utilize monofilament lines when targeting tuna but switch to wire leaders for oilfish. This use of wire leader is essential for catching oilfish: mature oilfish possess sharp teeth capable of easily biting through monofilament or braided multifilament lines. The average catch of oilfish by this fleet is approximately 6,800 tons between 2022 and 2024.

46. The WPSE **NOTED** that the authors indicate that a ban on wire leaders could lead to a collapse of the fishery, resulting in an estimated direct economic loss of over $20 million, with a total loss exceeding $43 million to the broader economy. The termination of the oilfish fishery is anticipated to have severely adverse effects on numerous families operating roe processing plants in the fishing communities of Donggang township and on over 500 individuals employed in the local tourism industry.

47. The WPSE **NOTED** Information paper IOTC-2025-WPSE02- INF03, which described a Survey-based approach to generate regional multipliers for the Indonesian tropical tuna fisheries, with the following summary provided by the author:

"This study applies surveys of business and household expenditure to draw inferences about the size of regional multipliers to assess the cascading economic impacts of the data-limited Indonesian tropical tuna fishery. The average business-level production multiplier was estimated at around 1.3 across survey respondents, while household-level consumption effects were considerably higher, with the total economic effect roughly three times larger than the production value. A statistical analysis using generalized additive models suggests that there is considerable difference in production multipliers across regions, driven by the individual characteristics of operators, such as revenue/profit, size of the boat, type of gear, and the class of the port where the business is located. This research has the potential to provide a practical management tool to measure flow-on economic impacts of a fishery when information necessary for more formal economic analysis is unavailable, such as for data-limited fisheries or small regional studies"

48. The WPSE **NOTED** that regional multipliers capture flow-on or cascading economic effects, including production and consumption-induced impacts. Input-output (I-O) analysis, the most common method for estimating multipliers, is highly data-intensive and not always feasible for regional studies or data-limited fisheries. However, the WPSE **NOTED** that survey-based approaches produce results comparable to those derived from I-O analysis. This approach calculates a distribution of individual multipliers, enabling the assessment of factors influencing multiplier values.

49. The WPSE **NOTED** that limited information exists to assess the socio-economic aspects of fisheries in Indonesia due to the multi-gear, multi-species, and multi-jurisdiction nature of the sector. The estimation of regional multipliers aims to address this information gap by providing insights into fishery production, employment, and market dynamics. These quantitative indicators support policy decision-making and assess tuna dependence.

50. The WPSE **NOTED** that the estimated multiplier for households (3.39, meaning 2.39 additional dollars are generated for every dollar of production) is significantly higher than the multiplier for business-level production (1.3, meaning 0.3 additional dollars are generated for every dollar of production).

51. The WPSE **NOTED** that the study also analyzed factors affecting individual business production multipliers. It was found that smaller boats have lower multipliers, as they use fewer inputs (e.g., one-man operations) and, in some cases, rely on unpaid labour (resulting in no monetary transactions). However, factors affecting consumption-induced multipliers were not explored due to a lack of income data specific to tuna-dependent households.

52. The WPSE **NOTED** that one purpose of developing multiplier-based indicators is to explore and monitor changes in the impacts of different harvest strategies through regional comparisons. However, it was emphasized that multipliers are not direct indicators for monitoring fishery performance.

53. The WPSE queried whether national statistics could be used for this type of study instead of household surveys. It was **NOTED** that Indonesian national statistics typically include input-output tables for the entire fishery sector, rather than regional tables that allow for regional comparisons. Disaggregating national statistics for tuna-specific data could be labor-intensive. But it would be valuable to examine the data availability in other IOTC countries

5.2. Analysis of socio-economic impacts of fisheries

54. The WPSE **NOTED** the presentation by Prof. Kate Barclay (University of Technology Sydney) on the analyses conducted to evaluate the social and economic significance and impacts of tuna industries in Indonesia and Pacific Island Countries. These analyses included an economic evaluation of contributions from both tuna fishing and processing industries.

55. The WPSE **NOTED** that the study utilized a wide range of data sources, including basic national statistics and data collated from various reports for the PNG study, as well as basic statistics and survey interview data for the Indonesian study. The WPSE **NOTED** that streamlining and sharing information is critical to the success of the study, given the sheer volume of information and the large number of indicators used in the evaluation.

56. The WPSE also **NOTED** the importance of developing national capacity to conduct such evaluations. It was highlighted that there is not sufficient funding to conduct these studies on an ongoing basis for each country. Therefore, countries need to take on this responsibility in the future, which will require training and capacity building.

57. The WPSE **DISCUSSED** how the IOTC could utilize the framework of this pilot study for resource management. It was pointed out that it is essential to continue these studies to obtain longer time series data rather than relying on a snapshot of the current status. Only through time series data can a critical mass of information be accumulated to guide policy decisions. When individual countries take on the responsibility of implementing these studies, the results could feed back into the regional framework.

58. The WPSE **NOTED** that the WCPFC did not participate in the evaluation study. However, it was noted that the WCPFC is developing its own harvest strategies, which may incorporate socio-economic components.

59. The WPSE **NOTED** that the national datasets used in the study include a wide range of data, such as household surveys. The Indonesian National Statistics Bureau, for instance, has many years of household survey data, including information on income, poverty, and food consumption. However, it was noted that these datasets are usually not tuna-specific.

6. WPSE Program of work

6.1. WPSE Program of Work (2026–2030) and research priorities

60. The WPSE **NOTED** paper IOTC-2025-WPSE02-05 presenting the draft WPSE Programme of Work (2026–2030). The WPSE **NOTED** that a full programme of work will be developed over time and that the current workplan is a living document.

61. The WPSE **NOTED** that it was useful to include the leader of each work item (e.g. Secretariat or CPC); the estimation of cost of the work item; a ranking in terms of priority so that funding can be allocated appropriately; and that the workplan will be reviewed every year by the WPSE to ensure it is up-to-date and relevant.

62. The WPSE **DISCUSSED** concerns regarding the scope of work items and **AGREED** that projects should be well described, and reinforced the idea that the workplan is a living document.

63. The WPSE **AGREED** to three main topics for work – 1) Social-Economic Indicators; 2) Data Collection, Reporting, and Capacity Building; 3) Climate Change.

64. The WPSE **RECOMMENDED** that the group should collate all the information that currently collected by the WPSE invited experts and **AGREED** that this should be made available to the Commission next year.

65. The WPSE **RECOMMENDED** that the Commission consider and endorse the WPSE Programme of Work (2026–2030), as provided in Appendix IV.

7. Other business

7.1. Date and place of the 3rd and 4th Sessions of the WPSE (Chairperson and IOTC Secretariat)

66. The WPSE **DISCUSSED** the dates for the next session of the WPSE. It was **NOTED** that it will be held virtually, for two days at the first week of April 2026, however these dates are still TENTATIVE, and the WPSE can make suggestions around timing of the next meeting.

67. The WPSE strongly **ENCOURAGED** participants to actively engage in the next session to advance the work of the WPSE. The WPSE expressed concern that virtual meetings often suffer from a lack of engagement, with many participants passively logging on to meetings without actively contributing to the discussions.

7.2. Development of priorities for Invited Expert(s) or consultant(s) at the next WPSE meeting (Chairperson)

68. The WPSE **AGREED** to invite relevant experts from other RFMOs to provide their experience and guidance to the next session of the WPSE.

69. The WPSE **REQUESTED** that relevant experts from RFMOs that have experience in developing socio-economic indicators for RFMOs be invited to the next session of the WPSE.

7.3. Review of the draft, and adoption of the Report of the 2nd Session of the WPSE (Chairperson)

70. The WPSE **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from WPSE02, provided in Appendix V.

71. The report of the 2nd Session of the Working Party on Socio-Economics (IOTC–2025–WPSE02–R) was **ADOPTED** by correspondence.

APPENDIX I

LIST OF PARTICIPANTS

Chairpersons					
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APPENDIX II
AGENDA FOR THE 2ND WORKING PARTY ON SOCIAL-ECONOMICS

Date: 24–25 April 2025

Location: Virtual

Time: 12 am - 4 pm Seychelles

1. **OPENING OF THE MEETING** (Chairperson)
2. **ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION** (Chairperson)
3. **THE IOTC PROCESS: OUTCOMES, UPDATES AND PROGRESS (**IOTC Secretariat)
   - 13.1. Outcomes of the 28th Session of the Commission
   - 13.2. Outcomes of the 27th Session of the Scientific Committee
4. **INFORMATION ON SOCIO-ECONOMIC DATA FOR IOTC CPCS AND FISHERIES**
   - 13.1. Review of socio-economic data available at the Secretariat
   - 13.2. Socio-economic data assessment relevant to tuna fishing nations and fisheries
   - 13.3. Selection of Key Indicators
   - 13.4. Mapping value chains and market organisation in Indian Ocean coastal countries
5. **INCORPORATING FISHERIES SOCIO-ECONOMICS INTO IOTC SCIENCE AND MANAGEMENT**
   - 13.1. Assessment of the socio-economic significance of fisheries
   - 13.2. Analysis of socio-economic impacts of fisheries (e.g., catch limits)
   - 13.3. Applied fisheries economic and social science research relevant to fisheries (e.g., climate change)
6. **WPSE PROGRAM OF WORK** (Chairperson and IOTC Secretariat)
   - 13.1. WPSE Program of Work (2026–2030) and research priorities
   - 13.2. Regional cooperation and capacity building
7. **OTHER BUSINESS**
   - 13.1. Date and place of the 3rd and 4th Sessions of the WPSE (Chairperson and IOTC Secretariat)
   - 13.2. Development of priorities for Invited Expert(s) or consultant(s) at the next WPSE meeting (Chairperson)
   - 13.3. Review of the draft, and adoption of the Report of the 2nd Session of the WPSE (Chairperson)

APPENDIX III

LIST OF DOCUMENTS

Document	Title	Authors
IOTC-2025-WPSE02-01a	Agenda of the 2nd WPSE	IOTC Secretariat
IOTC-2025-WPSE02-01b	Annotated agenda of the 2nd WPSE	IOTC Secretariat
IOTC-2025-WPSE02-02	List of documents of the 2nd WPSE	IOTC Secretariat
IOTC-2025-WPSE02-03	Outcomes of the 28th Session of the Commission	IOTC Secretariat
IOTC-2025-WPSE02-04	Outcomes of the 27th Session of the SC	IOTC Secretariat
IOTC-2025-WPSE02-05	Revision of the WPSE program of work (2026–2030)	IOTC Secretariat
IOTC-2025-WPSE02-06	Socio-economic aspects of offshore tuna fishery of Pakistan	M Moazzam
IOTC-2025-WPSE02-07	Scoping socio-economic indicators across Coastal States in the Indian Ocean	Bailey et al.
IOTC-2025-WPSE02-08	An assessment of the potential social and economic impacts of banning the use of wire leader	Lin
IOTC-2025-WPSE02-09	A rapid review of socioeconomic indicators for the IOTC	Martin
Information Papers		
IOTC-2025-WPSE02-INF01	Equitable pathways for sustainable tuna fisheries management in the Indian Ocean	Tidd et al.
IOTC-2025-WPSE02-INF02	Overcapacity and dynamics of a tuna fleet facing catch limits and high efficiency: the case of the Indian Ocean tuna fishery	Tidd et al.
IOTC-2025-WPSE02-INF03	Survey-based approach to generate regional multipliers for the Indonesian tropical tuna fisheries	Hoshino et al.
IOTC-2025-WPSE02-INF04	Monitoring social and economic impacts of tuna industries (data and indicators): examples from Indonesia and Pacific Islands Countries	Barclay (Presentation only)
IOTC-2025-WPSE02-INF05	Evaluating social and economic significance and impacts of tuna industries (analysis): examples from Indonesia and Pacific Islands Countries	Barclay (Presentation only)
IOTC-2025-WPSE02-INF06	Review of Socio-Economic indicators from Coastal countries in Indian Ocean	IOTC Secretariat
IOTC-2025-WPSE02-INF07	Review of socio-economic data available at FAO	FAO (Presentation only)
Reference Papers		
IOTC–2025–WPSE02–REF01	Resolution 23/10 - *Terms of Reference for a Working Party on Socio-Economics*	

APPENDIX IV
WORKING PARTY ON SOCIAL ECONOMICS PROGRAM OF WORK (2026–2030)

The Program of Work consists of the following, noting that a timeline for implementation would be developed by the SC once it has agreed to the priority projects across all of its Working Parties:

- **Table 1**: Priority topics for obtaining the information necessary to develop Social-Economic Indicators and advance Social-Economic studies for IOTC (2026-2030);
- **Table 2**: Stock assessment schedule.

Table 1. Priority topics for obtaining the information necessary to develop Social-Economic Indicators and advance Social-Economic studies for IOTC (2026-2030)

Topic		Sub-topic and project		Priority	Timing				
					2026	2027	2028	2029	2030
1	Social and Economic Indicators	1.3	Conduct a review of existing social and economic indicators. Recommend indicators that are relevant to the aims of the IOTC and are achievable to collect and monitor long-term.	High, short term (1)					
		2.3	Ensure that indicators are organised based on current or relevant future programmes of work and can be mapped to current resolutions e.g. allocation, impact of CMMs on socioeconomics, harvest strategies.						
		3.3	Develop social and economic SMART goals (Specific, Measurable, Achievable, Realistic and Timely) that link to the indicators and relevant programmes of work.						
1	Data collection and reporting	1.4	Development of a programme of work to review existing repositories of social and economic data of IOTC member countries.	High, short to medium term (2)					

		2.4 Undertake a gap analysis to identify the data gaps, based on the results from topic 1 (identification of relevant indicators required for IOTC), and topic 2.1 (review of existing data). 3.4 Identify major challenges in data collection and estimation or evaluation methodologies that are causing the data gaps; and provide practicable solutions to ensure good data collection into the future. 4.4 Develop and distribute reporting templates for social and economic data that inform the relevant indicators identified in topic 1.						
3	External influences and impacts to social and economic impacts	1.2 Conduct (via invited academic experts) a systematic literature review of the potential climate change impacts on the social and economic aspects of tuna fisheries in the IOTC area of competence, including for example, the direct effects of positive dipole years on tuna fishing. 2.2 Review, research, and record the potential (or known, where appropriate) economic and social impact of CMM measures on social and economic indicators.	Medium, longer term (3)					

APPENDIX IV

CONSOLIDATED RECOMMENDATIONS OF THE 2ND SESSION OF THE WORKING PARTY ON SOCIAL-ECONOMICS

[Para 27] The WPSE **RECOMMENDED** the proposed fisheries (table 1) and context indicators (table 2) by the consultant to be further considered by the Commission as the potential key IOTC socio-economic indicators.

[Para 64] The WPSE **RECOMMENDED** that the group should collate all the information that currently collected by the WPSE invited experts and **AGREED** that this should be made available to the Commission next year.

[Para 65] The WPSE **RECOMMENDED** that the Commission consider and endorse the WPSE Programme of Work (2026–2030), as provided in Appendix IV.

[Para 70] The WPSE **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from WPSE02, provided in Appendix V.