REVIEW OF THE STATISTICS FOR INDIAN OCEAN TROPICAL TUNA FISHERIES, 1950-2025

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Introduction

Global catch trends indicate a continuous increase in tropical tuna harvests, reaching a peak of approximately 6 million tonnes in 2024. The Western and Central Pacific Ocean(WCPFC) has consistently been the largest contributor to global tropical tuna catches, showing sustained growth over time and accounting for approximately 48% of the global catch (**Fig. 1**). The Indian Ocean ranks as the second largest contributing region, representing around 17% of the total catch. The chart also highlights a substantial increase in tropical tuna catches in the Pacific Ocean in 2024, while catches in other oceans have remained relatively stable in recent years. This increase was largely driven by higher catches of skipjack tuna, the dominant tropical tuna species. According to (WCPFC 2025), the increase was primarily attributable to industrial purse seine fisheries achieving higher catches from unassociated fisheries (free-school sets), as well as a westward shift in fishing effort associated with La Niña conditions.

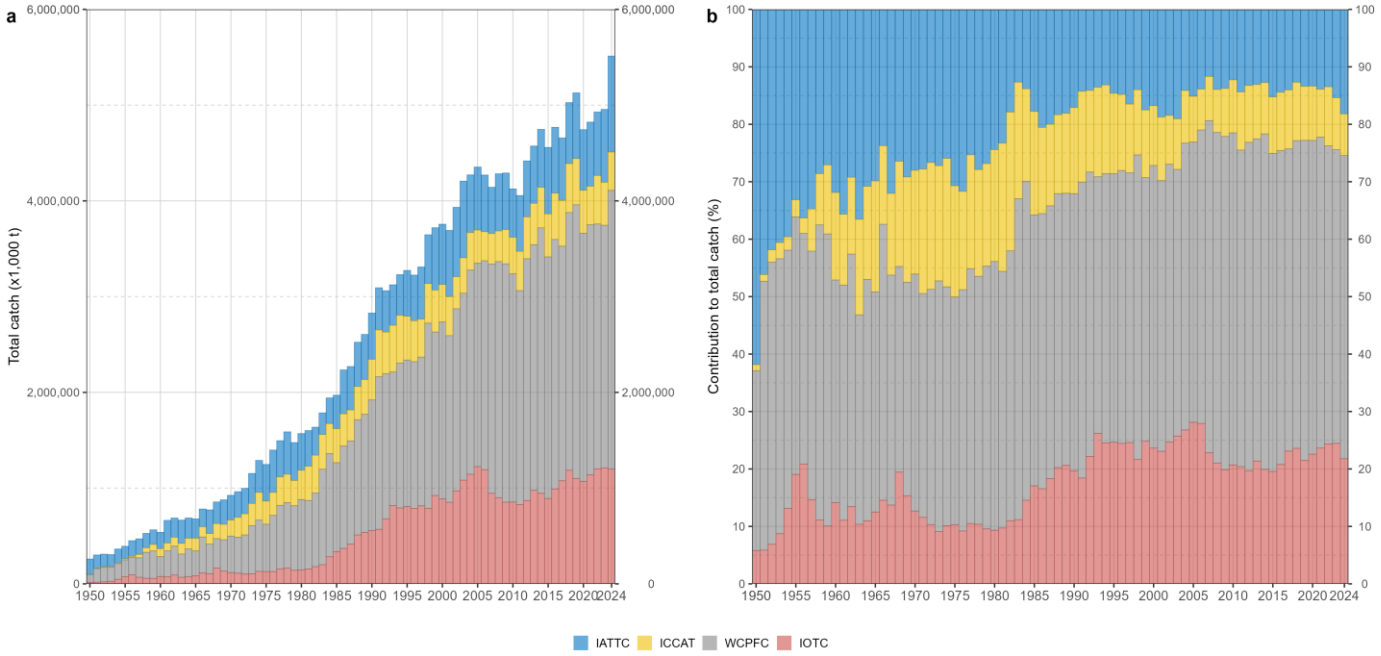

Figure 1: Annual time series of cumulative retained catches (metric tonnes; t) of tropical tunas by ocean basin for the period 1950-2024. Source: Global Tuna Atlas

The primary objective of this paper is to provide an updated evaluation of tropical tuna catches reported through 2025 for consideration at the 28th Session of the (WPTT28) assessment meeting. The paper examines the availability and quality of catch statistics for the three principal tropical tuna species, namely bigeye (Thunnus obesus), skipjack (Katsuwonus pelamis), and yellowfin tuna (Thunnus albacares), as of 30th September 2026. It presents an analysis of temporal catch trends, catch distributions, and the most recent developments in the 2025 fishery statistics.

Materials & Methods

A fundamental component of this analysis is the annual submission of fishery statistics by CPCs. To ensure the consistency, comparability, and quality of reported data, the Secretariat has established standardized reporting templates specific to each data reporting requirement. These templates are accompanied by detailed reporting

guidelines, data standards, IOTC Reference Data Catalogue, and validator procedures designed to assist CPCs in verifying the completeness of their submissions prior to submission.

Methods

The release in the public-domain of the IOTC curated data sets for tropical tunas, as per the confidentiality rules set in IOTC Res. 12/02, is done following some processing data steps which are briefly summarized below.

Data processing

The Secretariat has developed tools that enable CPCs to conduct preliminary checks on their data prior to submission, ensuring the accuracy of reference codes and the completeness of datasets. Upon receipt of submissions, the Secretariat performs additional control checks and processing steps, as outlined below.

Firstly, standard controls are carried out to verify that both metadata and submitted data are consistent and include all mandatory fields (e.g., stratification dimensions). These checks are dataset-specific and may require CPCs to resubmit revised data if the initial submissions are found to be incomplete or inconsistent.

Secondly, a series of processing steps is applied to derive the best scientific estimates of retained catches for the 16 IOTC species (see **Appendix V** of IOTC (2014)), by implementing the following rules:

a. When retained catches are not reported by a CPC, catch data from the previous year may be repeated or catches may be derived from a range of sources, e.g., partial catch and effort data, the FAO global capture production database, data on imports of tropical tunas from processing factories collaborating with the International Seafood Sustainability Foundation, etc.;

b. For certain fisheries with known and significant data quality issues, species and/or gear composition may be re-estimated using data from other years, areas, or proxy fleets. Proxy fleets are defined as fleets operating in the same strata and assumed to have similar catch compositions Moreno et al. (2012) and IOTC Secretariat (2018);

c. Finally, a disaggregation process is applied to allocate catches by species (**Table 1**) and gear (**Table 2**) when these are reported as *aggregated* categories. This process estimates the proportional contribution of each IOTC species and/or gear using data from strata where they are reported separately. When necessary, proxy fleets, proxy gears, and spatial–temporal substitution methods are applied.

Table 1: List of species groups that include one or more tropical tuna species

Species code	Species name	Species scientific name	BET	SKJ	YFT
AG10	Skipjack tuna and kawakawa	*Katsuwonus pelamis; Euthynnus affinis*		✓	
AG35	Yellowfin tuna and skipjack tuna	*Thunnus albacares; Katsuwonus pelamis*		✓	✓
TUN	Tunas nei	*Thunnini*	✓	✓	✓
TUS	True tunas nei	*Thunnus spp*	✓	✓	✓
TUX	Tuna-like fishes nei	*Scombroidei*	✓	✓	✓

Table 2: List of gear aggregates with their component gear codes (limited to gear aggregates that have reported catches of tropical tunas)

Aggr. code	Gear aggregate	Category	BB	GILL	HAND	LIFT	LL	LLCO	PS	PSS	RR	SPOR	TRAW	TROL
BBPS	Baitboat and purse seine	Baitboat	✓						✓					
GIHT	Gillnet and hand line and troll line	Gillnet		✓	✓									✓

Aggr. code	Gear aggregate	Category	BB	GILL	HAND	LIFT	LL	LLCO	PS	PSS	RR	SPOR	TRAW	TROL
HABBTR	Hand line, Pole and line and Troll line	Trolling			✓									
HATR	Hand line and Troll line	Trolling			✓									✓
HOOK	Hook and line	Trolling			✓			✓						✓
LLTR	Coastal Longline and Troll line combination	Longline						✓						✓
UNCL	Unclassified	Other	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Thirdly, applicable only to the five major IOTC species (albacore, bigeye tuna, skipjack tuna, yellowfin tuna, and swordfish); geo-referenced catches are raised to the best scientific estimates of retained catches using all available information, including expert judgment. This is achieved either by leveraging data from proxy fleets or by applying spatial–temporal substitution schemes when information is unavailable for a given stratum.

Hence, the resulting raised catch datasets represent the best scientific estimates of geo-referenced catches based on the information available to the Secretariat, while accounting for limitations in data availability and quality across several fisheries. These datasets include estimated catches expressed in both weight and number, stratified by year, month, fleet, gear, school type (when available), and 5°x5° grid, and cover the full time series for which retained catch data are available. Average species weights can be directly derived from the corresponding raised weights and numbers for each stratum; the accuracy of these estimates is directly dependent on the availability and quality of the underlying geo-referenced catch and size-frequency data.

With regards to the size frequency dataset, applicable to all 16 IOTC species, as well as the most common shark species defined in the appendices of IOTC IOTC Resolution 15/01, filtering and conversion procedures are applied to size-frequency datasets to harmonize their format and structure, and to remove records that do not comply with IOTC standards. For example, data are excluded when size measurements are reported using bin widths that exceed the maximum values considered biologically meaningful for a given species (IOTC Secretariat 2020a).

The standard length measurement considered at IOTC is the fork length (FL; straight distance from the tip of the lower jaw to the fork of the tail, also known as lower-jaw-fork length; LJFL) for all species that are subject to mandatory size measurements, with the exception of black and blue marlins, for which the eye-fork length (EFL; straight distance from the orbit of the eye to the fork of the tail) is used (IOTC Secretariat 2020a).

Finally, a specific processing protocol is applied to tagging data collected for the three tropical tuna species. This includes filtering potentially erroneous records, correcting for tag loss, and adjusting for the under-reporting of recaptures (IOTC Secretariat 2020b).

Data quality

A scoring system has been implemented to assess the quality of retained catch, catch-and-effort, and size-frequency data available at the Secretariat for all IOTC species. The methodology used to assign scores varies by dataset type and is designed to account for both reporting coverage and compliance with IOTC reporting standards (**Table 3**). In general, lower scores indicate higher data quality.

It should be noted, however, that the scoring system does not account for all sources of uncertainty affecting retained catch estimates, such as under-reporting and misreporting. Furthermore, the assessment is conducted at the reporting level only and does not consider the intrinsic quality of the data collected, including sampling procedures and coverage levels.

Table 3: Key to IOTC quality scoring system

Data set	Criterion	By species	By gear
Retained catch	Fully available	0	0
	Partially available	2	2
	Fully estimated	4	4
Catch and effort	Available according to standards	0	0
	Not available according to standards	2	2
	Low coverage (<30% logbooks)	2	
	Not available	8	
Size frequency	Available according to standards	0	0
	Not available according to standards	2	2
	Low coverage (<1 fish per tonne caught)	2	
	Not available	8	

Results

Retained catches

Long-term trends (1950-2025)

The overall catch trend for IOTC species shows a substantial increase since the 1950s, with tropical tuna species accounting for more than 65% of total reported catches in recent years. Variations in total IOTC catches have been largely driven by fluctuations in tropical tuna catches, which increased markedly from the 1990s onwards and reached a peak during the mid-2000s. Subsequently, catches declined, partly because of the impacts of piracy on fishing operations in the western Indian Ocean. In recent years, however, tropical tuna catches have shown a renewed upward trend. The highest recorded catch was observed in 2025, reaching approximately 1.35 million tonnes (**Figure 2**).

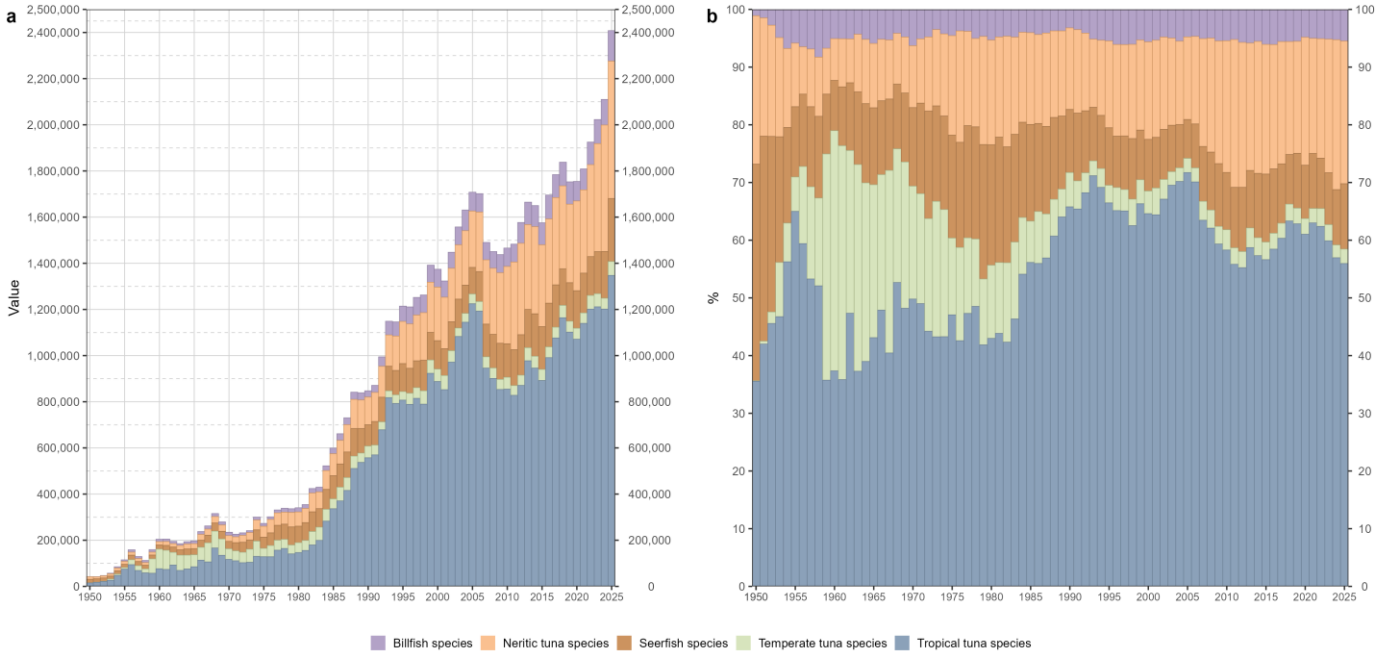

Figure 2: Annual time series of cumulative retained absolute (a) and relative (b) catches (metric tonnes; t) of all IOTC tuna and tuna-like species by species category for the period 1950-2025

Historically, catches of tropical tuna species in the Indian Ocean were derived predominantly from coastal fisheries, while industrial fishing activity remained relatively limited. Nevertheless, industrial fishing operations may have occurred at levels not fully documented in official statistics because reporting systems were less developed and catches were not consistently recorded by national authorities. (Heidrich et al. 2023) estimated that industrial fisheries catches during the early 1950s may have been underestimated by approximately 30%.

Although industrial fisheries expanded substantially from the 1990s onwards, coastal fisheries have continued to make an important contribution to tropical tuna catches, accounting for more than 50% of the total catch in some years. This was particularly evident during the piracy period between 2009 and 2012, when industrial fishing activity in the western Indian Ocean declined markedly. During this period, many fleets reduced operations in the Somali Basin or shifted their fishing effort to alternative areas, resulting in a substantial reduction in longline catches (Chassot et al. 2012, Pillai 2015).

In recent years, the relative contributions of industrial and coastal fisheries to tropical tuna catches have remained comparatively stable, accounting for approximately 58% and 42% of total catches, respectively (**Figure 3**).

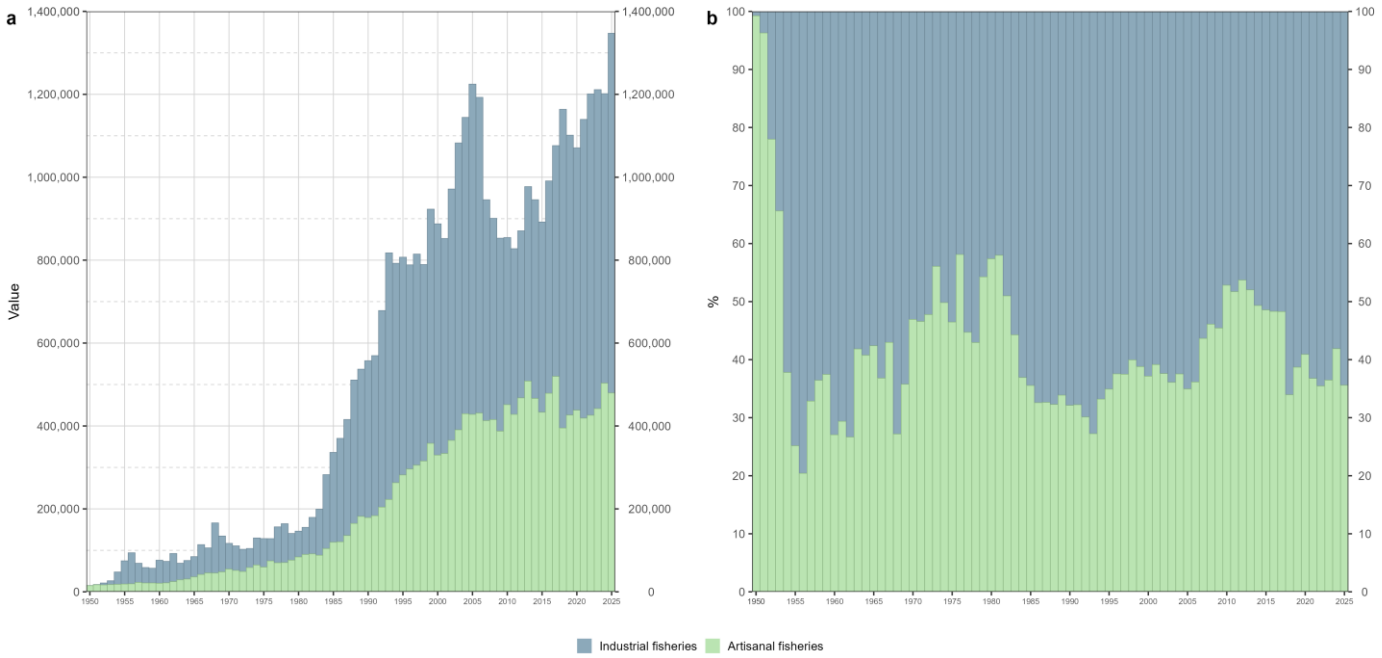

Figure 3: Annual time series of retained catches (metric tonnes; t) of Indian Ocean tropical tuna by fishery type for the period 1950-2025

Catch trends for the three tropical tuna species indicate a continuous increase in skipjack tuna catches, whereas catches of yellowfin and bigeye tuna have remained relatively stable or have shown a slight decline. Since the 2000s, skipjack tuna has accounted for approximately 50% of total tropical tuna catches in the Indian Ocean, reflecting the expansion of purse seine fisheries since the 1990s (**Figure 4**).

Among the three tropical tuna species, skipjack tuna remains the dominant species in the Indian Ocean, accounting for approximately 55% of total tropical tuna catches from 2020. Catch trends differ among species. Bigeye tuna catches have remained relatively stable over time, whereas skipjack and yellowfin tuna catches have shown greater temporal variability.

Following the decline in catches observed in 2009, skipjack tuna catches increased substantially, reaching approximately 618,000 tonnes in 2018 before fluctuating in subsequent years. In 2025, skipjack catches attained their highest recorded level, exceeding 733,000 tonnes. In contrast, yellowfin tuna catches increased at a more moderate rate and generally remained below, averaging at 440,000 tonnes from 2018. The comparatively slower growth in

yellowfin catches may partly reflect the implementation of catch reduction measures under IOTC Resolution 19/01. Although yellowfin catches exceeded 518,000 tonnes in 2025, they remained below the peak levels observed in 2004.

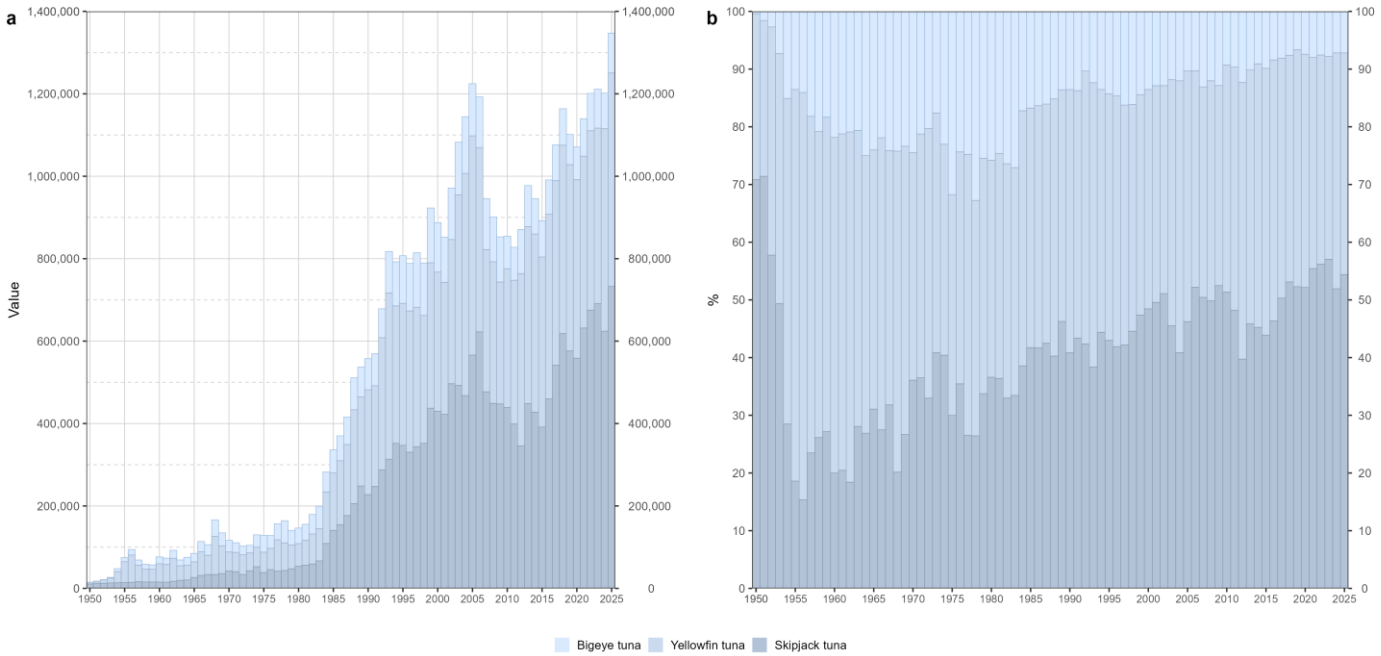

Figure 4: Annual time series of cumulative retained absolute (a) and relative (b) catches (metric tonnes; t) of Indian Ocean tropical tuna by species for the period 1950-2025

Beginning in the 1950s and for the next several decades, the dominating gear of the tropical tuna fisheries were line fisheries, particularly baitboat fisheries. While other tuna fisheries may also have been operating during this period, especially in coastal States with the capacity to exploit pelagic resources, their activities were often poorly documented and are therefore not well represented in historical records. Following the subsequent development and expansion of industrial fisheries, notably longline fisheries from the mid-1950s and purse seine fisheries from the mid-1970s, the relative contribution of coastal fisheries to tropical tuna catches declined.

Gillnet fisheries generally contributed less than 20% of tropical tuna catches, whereas catches from other line fisheries, including coastal longline fleets, have increased, averaging at 16% between 2020 and 2025. In several coastal countries, fishers have transitioned from gillnet to longline operations, or seasonally shifted fishing practices to target higher-value tuna species and improve product quality (Hosseini et al. 2018, Moazzam 2021).

Overall, purse seine fisheries accounted for approximately 39% of tropical tuna catches, followed by line fisheries with 14%, longline fisheries 18%, and gillnet fisheries 15%. However, the contribution of each fishery has varied considerably over time. As discussed previously, these fluctuations have been driven by a combination of factors, including the development of new fisheries, changes in management measures, technological advances, market forces, and external events affecting fishing operations.(**Figure5**).

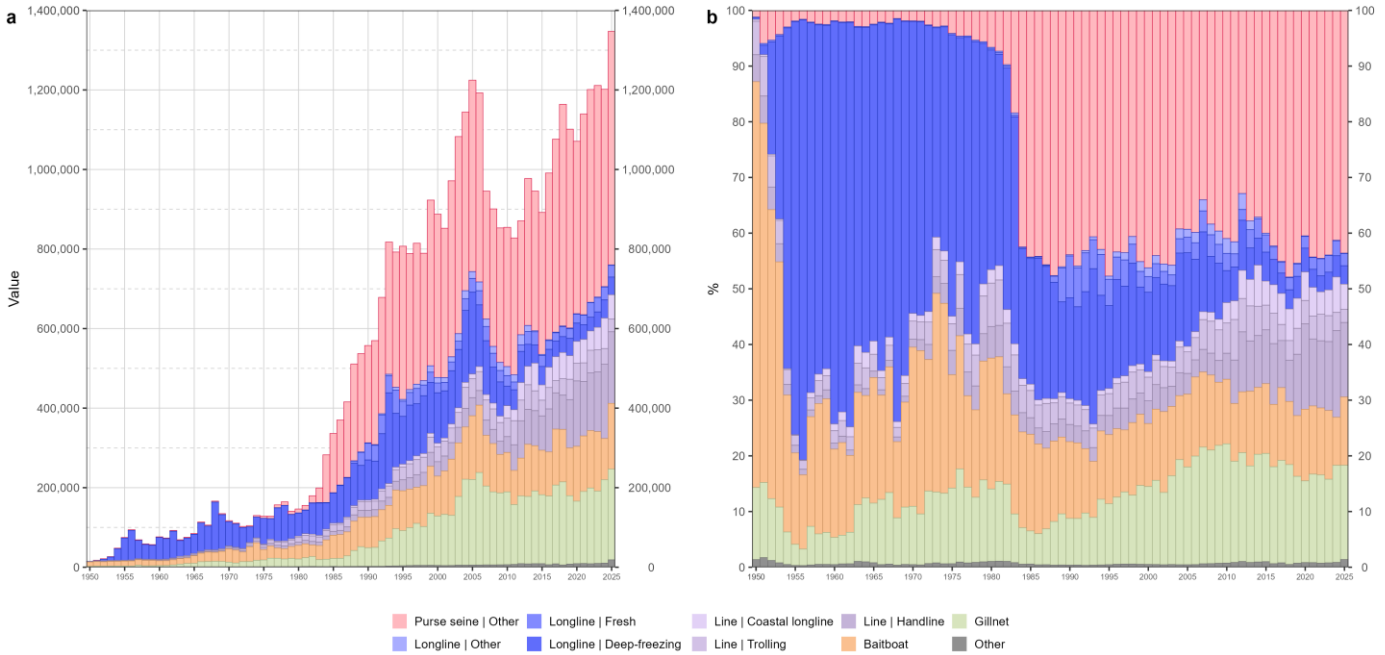

Figure 5: Annual time series of retained catches (metric tonnes; t) of Indian Ocean tropical tuna by fishery for the period 1950-2025

Main fishery features (2021-2025)

Between 2021 and 2025, purse seine fisheries, which comprise of large industrial vessels operating on floating objects (FOBs) and free school, as well as coastal surrounding nets, dominated tropical tuna catches, as illustrates in **Table 4**. Together they accounted for approximately 44% of the total. Line fisheries, comprising handline, trolling, and coastal longline operations, represented the second largest component, accounting for approximately 22% of catches over the same period. This reflects a relative increase in the importance of these fisheries in recent years.In contrast, industrial longline fisheries made the smallest contribution, accounting for approximately 6% of total tropical tuna catches, despite the higher market value often associated with longline-caught tuna (The challenges of purse seine versus longline tuna fishing 2012) (**Fig. 6**).

Table 4: Mean annual catches (metric tonnes; t) of Indian Ocean tropical tuna by fishery between 2021 and 2025

Fishery	Fishery code	Catch	Percentage
Purse seine | Other	PSOT	531,117	43.5
Gillnet	GN	198,114	16.2
Line | Handline	LIH	159,827	13.1
Baitboat	BB	140,530	11.5
Line | Coastal longline	LIC	60,225	4.9
Line | Trolling	LIT	46,241	3.8
Longline | Deep-freezing	LLD	40,060	3.3
Longline | Fresh	LLF	31,763	2.6
Other	OT	11,337	0.9
Longline | Other	LLO	960	0.1

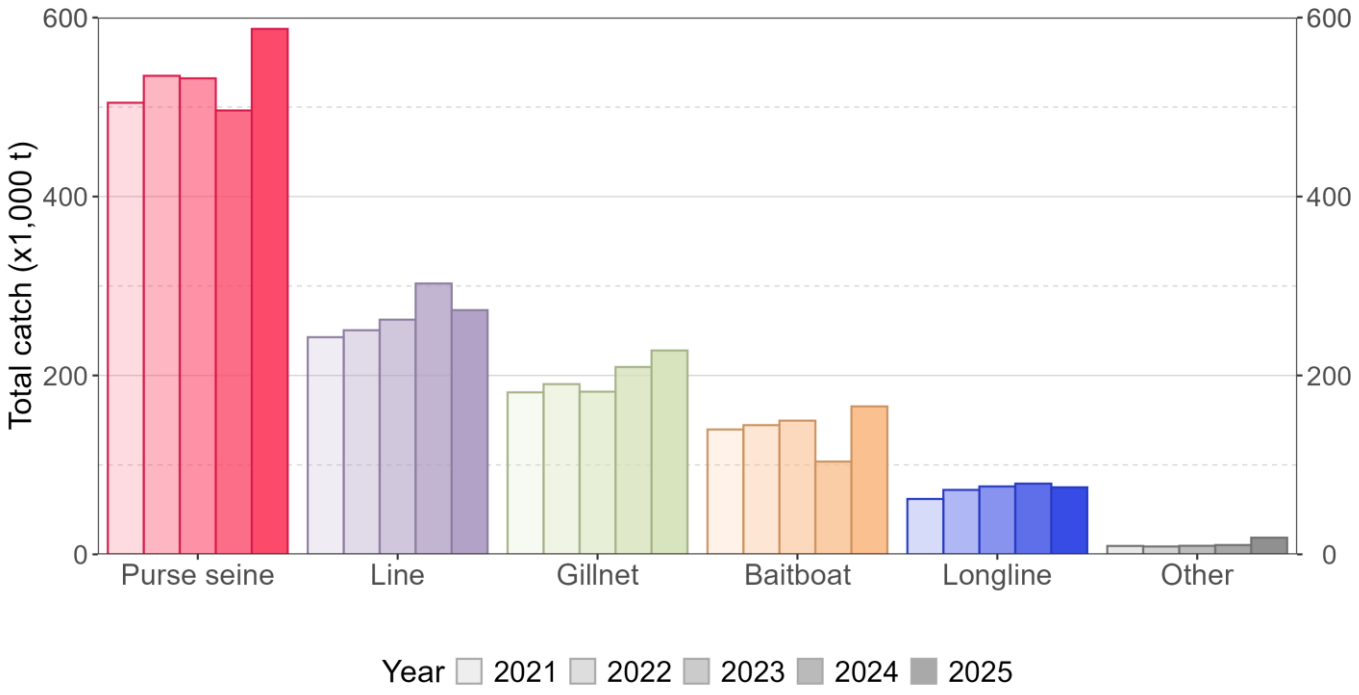

Figure 6: Annual catch (metric tonnes; t) trends of Indian Ocean tropical tuna by fishery group between 2021 and 2025

The diversity of fishing fleets exploiting tropical tuna stocks in the Indian Ocean is evident from the relative contributions of the principal fishing nations and fleets. Indonesia has been the largest contributor in recent years, accounting for approximately 17% of total tropical tuna catches across multiple fishery sectors, with purse seine fisheries contributing more than half of its reported catch. The Maldives is the second-largest contributor, representing approximately 12% of total catches, derived predominantly from pole-and-line fisheries. EU-Spain and Seychelles contribute a further 11% and 11%, respectively, largely through industrial purse seine operations. Iran remains the principal gillnet fisheries, accounting for approximately 10% of total tropical tuna catches in the IOTC-region (**Fig. 7**).

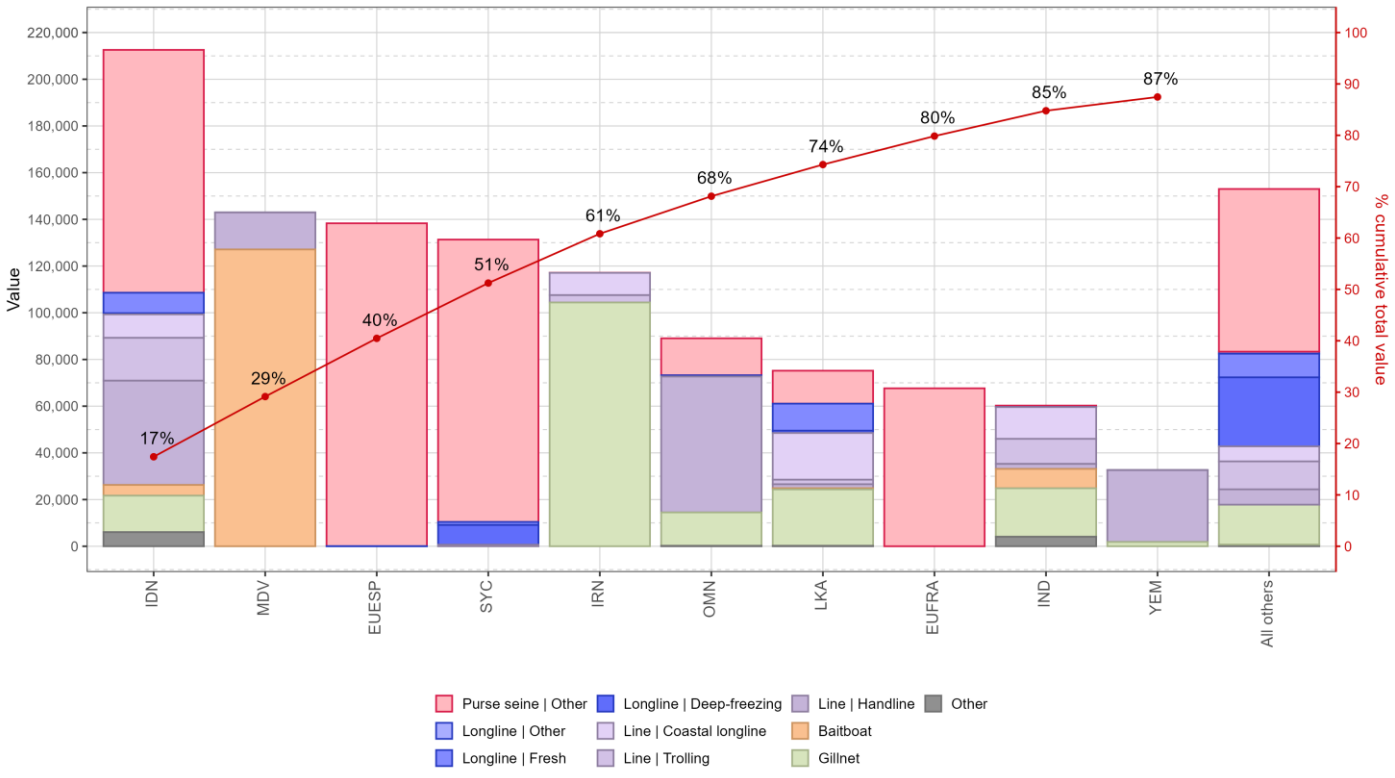

Figure 7: Mean annual catches (metric tonnes; t) of Indian Ocean tropical tuna by fleet and fishery between 2021 and 2025, with indication of cumulative catches by fleet.

EU-Spain, Seychelles, Indonesia, and EU-France remain the principal purse seine fleets operating in the Indian Ocean. Although catches from these fleets have exhibited considerable interannual variability, purse seine catches increased in 2025 and reached a record high of approximately 590,000 tonnes, representing an increase of around 18% compared to 2024. This increase was driven largely by a substantial expansion in catches reported by the Omani purse seine fishery, which increased five-fold relative to 2024. Similarly, catches from India's coastal purse seine fleet increased markedly, contributing significantly to the overall rise in tropical tuna catches. Additional increases were also reported by purse seine fisheries operating under the flags of Kenya, EU-Spain, and Seychelles (**Fig. 8a**).

Line fisheries targeting tropical tuna are dominated by the fleets of Indonesia, Oman, Yemen, and India, with handline fisheries representing the principal fishing method. In contrast to purse seine fisheries, these line fisheries experienced a decline in catches in 2025, resulting in an overall reduction of approximately 10% relative to 2024. The decline was driven primarily by lower skipjack tuna catches reported by Indonesian line fisheries, which decreased by approximately41%, together with a 24% reduction in yellowfin tuna catches reported by Omani fisheries **Fig. 8c**.

The Maldives remains the dominant pole-and-line fleet targeting tropical tunas in the Indian Ocean, although catches are also reported by the Indian and Indonesian pole-and-line fisheries. Following the decline observed in 2024, catches from the Maldivian fleet recovered in 2025, reaching approximately 136,000 tonnes. Reported catches from Indonesia increased by more than an order of magnitude, while catches from India approximately doubled relative to 2024 (**Fig. 8d**).

The gillnet fisheries of Iran, Sri Lanka, India, and Indonesia are the principal contributors to tropical tuna catches within the IOTC Area of Competence. Catch trends among these fleets varied in 2025, with substantial increases reported by some fleets and declines observed in others. Overall, tropical tuna catches from gillnet fisheries increased by approximately 9% compared with 2024. Among the major gillnet fleets, catches reported by Indonesia and Sri Lanka declined by approximately 41% and 14%,, respectively, whereas catches reported by India and Iran increased by 27% and 14%, respectively. Reported catches from Somalia also increased markedly, reaching levels approximately three times higher than those recorded in 2024 (**Fig. 8e**).

Conversely, catches from industrial longline (**Fig. 8b**) and other coastal (**Fig. 8f**) fisheries remained comparatively limited, together accounting for approximately 7% of total catches. Taiwan,China, Sri Lanka, Seychelles and Indonesia are the principal longline fleets. The industrial longline fisheries primarily target yellowfin and bigeye tuna for high-value fresh tuna markets. In 2025, longline catches of tropical tuna increased in Indonesia and Seychelles by approximately 68% and 13%, respectively. In contrast, catches reported by China and Taiwan, China declined during the same period.

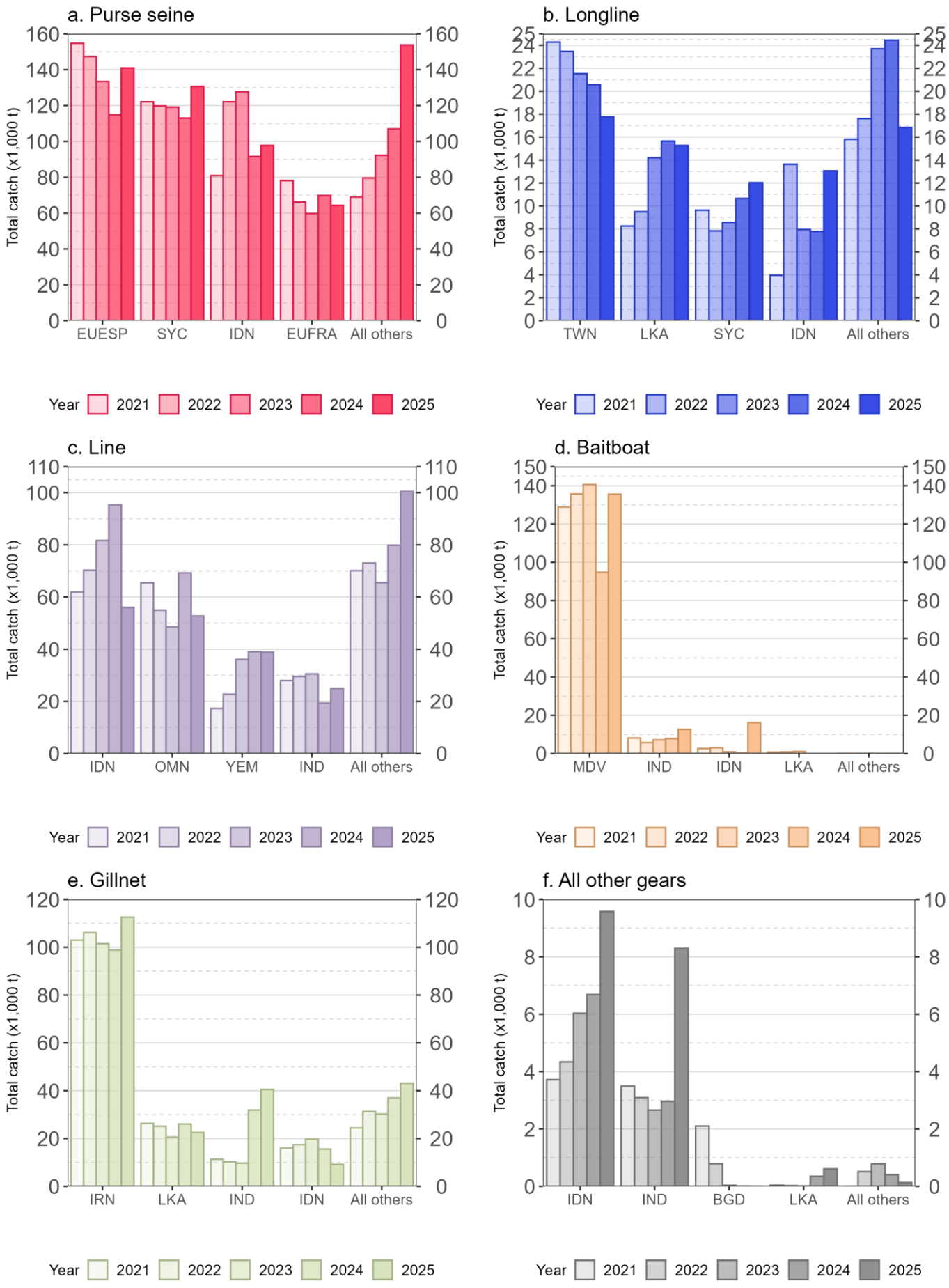

Figure 8: Annual catch (metric tonnes; t) trends of Indian Ocean tuna by main fishery group and fleet between 2021 and 2025

Reporting quality of retained catch data

The quality and completeness of retained catch data reported by fleets targeting tropical tuna species have continued to improve in recent years. Following the substantial reconstruction and enhancement of Indonesia's historical catch statistics, several other CPCs have also strengthened their data management systems, resulting in more comprehensive and reliable catch reporting. Notably, Somalia, which had not previously submitted catch statistics, has now provided catch data for two consecutive years. As a result, only 8% of total tropical tuna catches in 2025 were not represented in the available datasets. These unreported catches are primarily associated with CPCs whose submissions could not be processed because of data quality issues, as well as coastal countries for which catch estimates were derived from FAO statistics.

The observed improvements in reporting quality can be attributed to several factors, including:

- the implementation of Conservation and Management Measures (CMMs) requiring more comprehensive catch reporting;
- capacity-building initiatives, training programmes, and technical assistance provided to CPCs;
- the increasing adoption of electronic monitoring and electronic reporting systems; and
- the implementation of integrated fisheries management and data management systems in many coastal States.

Despite these improvements, significant challenges remain in monitoring and reporting catches from small-scale fisheries. These challenges include

(i) limited financial and human resources,

(ii) the large number of dispersed and remote landing sites,

(iii) the socio-economic importance and complexity of the fisheries sector, and

(iv) insufficient numbers of trained personnel for data collection, processing, and analysis.

The availability of retained catch data has remained close to 100% since 2015, indicating a high level of reporting coverage for both industrial and coastal fisheries. Although data availability declined slightly in 2025 to approximately 92%, overall reporting coverage remains high, suggesting that the vast majority of tropical tuna catches are accounted for in official fisheries statistics (**Fig. 9**).

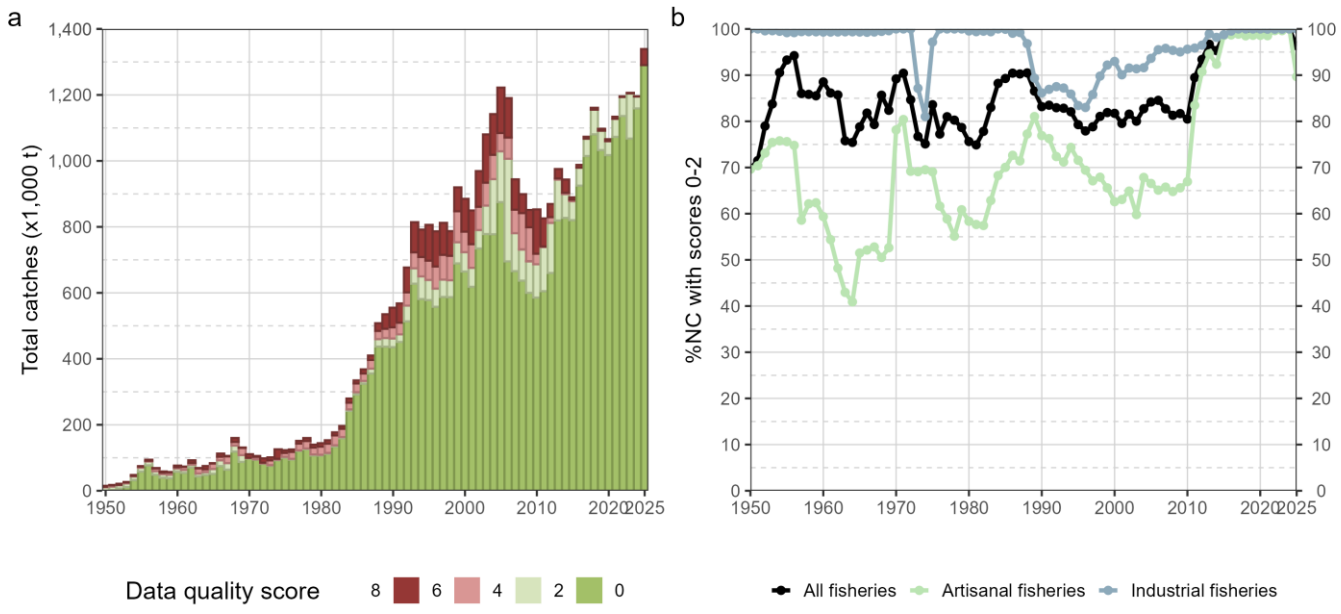

Figure 9: (a) Annual retained catches (metric tonnes; t) of Indian Ocean tropical tuna estimated by quality score and (b) percentage of retained catch fully or partially reported to the IOTC Secretariat for all fisheries and by type of fishery, in the period 1950-2025

Since the implementation of a catch limit on yellowfin tuna to rebuild the stock since 2017 (Res. 17/01), concerns have been raised about potential misreporting and high-grading in some fisheries (IOTC Secretariat 2019, Medley et al. 2021). Notably, the 21st session of the WPTT highlighted how the relative composition of tropical tuna species reported for the year 2018 by the purse seine fleet from EU-Spain showed a higher proportion of bigeye tuna than in previous years (IOTC 2019). Furthermore, other study revisited the catch data of large fishing fleets in the Indian Ocean, focusing on the species composition, concluding that there is possibility of overestimating yellowfin tuna catches in the past (Abascal et al. 2024).

Spatial distribution of reported efforts

Historically, the availability of spatial catch and effort data was limited, with most information reported in coarse spatial strata and often lacking sufficient detail for fine-scale analyses. The majority of historical spatial records were provided by distant-water fishing nations operating industrial longline fleets, notably Japan and Taiwan,China (Fig. X).

In addition to industrial longline and purse seine fisheries, only a limited number of coastal fleets have been able to meet the reporting requirements for geo-referenced catch and effort data. Consequently, the spatial distribution of catches from many coastal and small-scale fisheries remains poorly characterised. Ongoing initiatives are being undertaken to strengthen the capacity of coastal States to collect and report spatially explicit fisheries data.

Longline fisheries

From the early years of the fishery, distant-water longline fleets, primarily the deep-freezing longline fleets of Japan, Taiwan, China, and the Republic of Korea, provided geo-referenced catch and effort data, with fishing activities distributed throughout the high seas of the Indian Ocean. Beginning in the 1970s, the structure of longline fisheries targeting tropical tunas changed substantially. The expansion of Taiwanese longline fleets, together with the development of longline fisheries targeting swordfish, resulted in a greater concentration of fishing activities in tropical areas of the Indian Ocean. In contrast, the deep-freezing longline fleets of Japan increasingly operated in the southern Indian Ocean. Consequently, the spatial distribution of longline fishing effort and catches has evolved markedly over time, with distinct patterns evident across decades and fleet types (**Fig. 10**).

Recent data (2021-2025) reveal the widespread distribution of longline fisheries throughout the Indian Ocean, both within areas under national jurisdiction and in areas beyond national jurisdiction (ABNJ). Since 2023, an increasing share of tropical tuna catches has been reported by fresh-tuna longline and other longline fleets, whereas the contribution of deep-freezing longline fleets has continued to decline. This trend reflects ongoing changes in fleet composition, market demand, and fishing strategies within the Indian Ocean longline fishery (**Fig. 11**).

Average effort distribution of longline fisheries by decade (1950-2009)

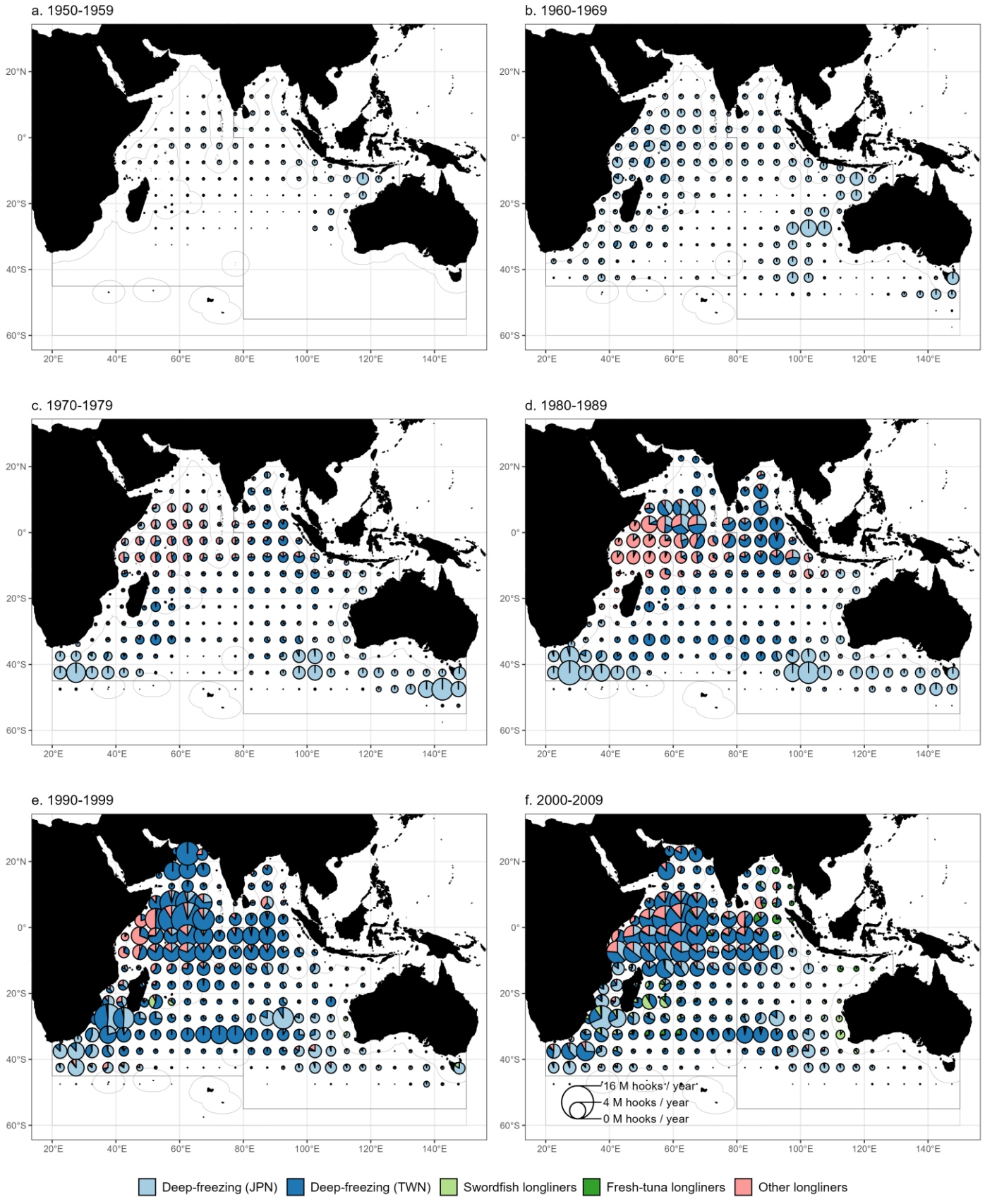

Figure 10: Mean annual effort (millions hooks deployed) exerted by industrial longline fleets by decade, 5°x5° grid, and fleet. Data source: time-area effort dataset for longline fisheries (Res. 15/02)

Average effort distribution of longline fisheries By last years (2021-2025) and decade (2010-2019)

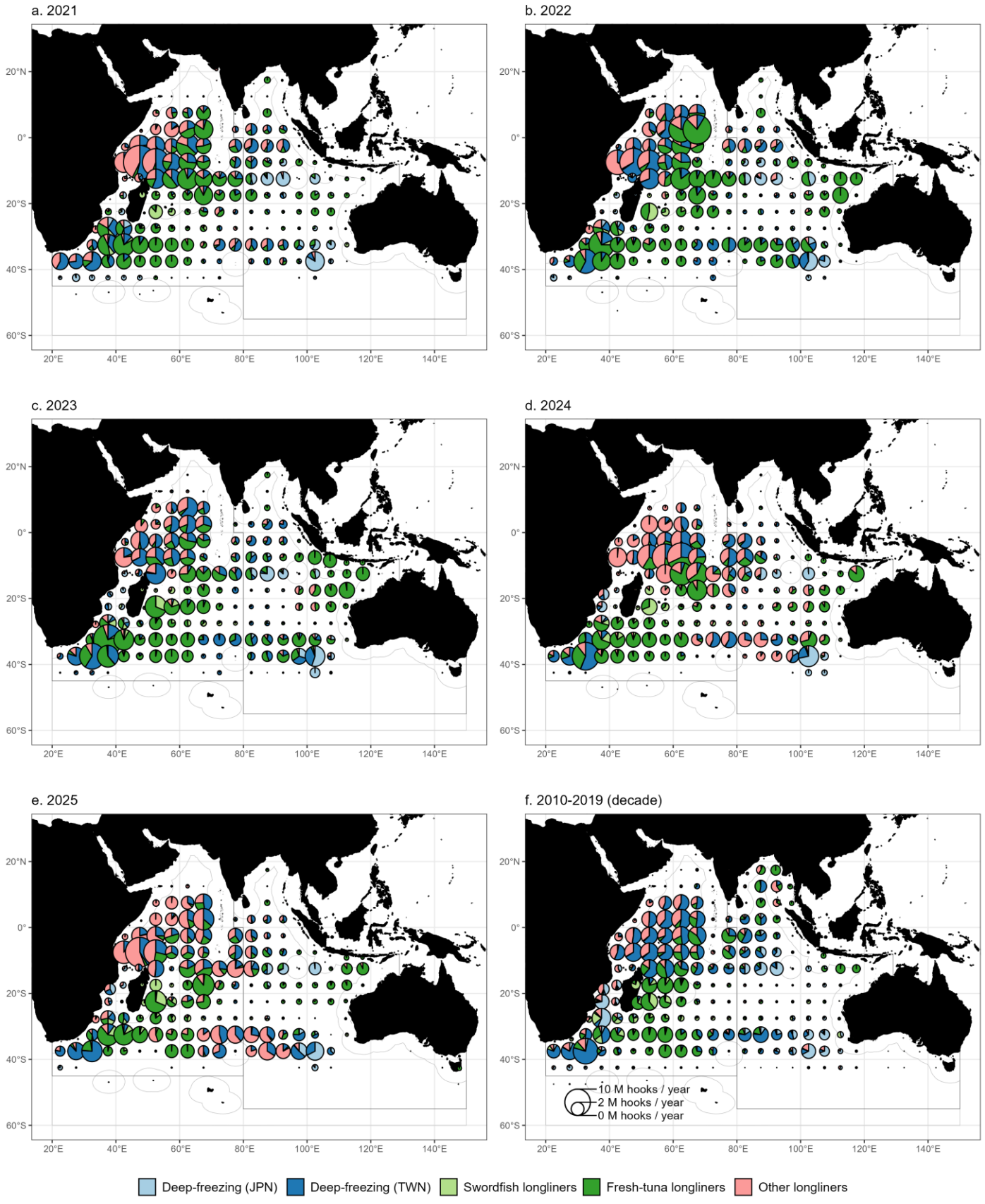

Figure 11: Mean annual effort (millions hooks) exerted by industrial longline fleets by year / last decade, 5°x5° grid. and fleet. Data source: time-area effort dataset for longline fisheries (Res. 15/02)

Purse seine fisheries

Spatial referenced data indicate that purse seine fisheries have operated continuously in the western Indian Ocean since their establishment in the 1980s. The European Union purse seine fleet has historically dominated fishing activity in this region, while effort in the eastern Indian Ocean remained relatively limited until the late 1990s (**Fig. 12**).

During the period 2021-2025, the distribution of European Union purse seine effort remained highly concentrated in the western tropical waters of Indian Ocean (**Fig. 13**). Other purse seine fleets exhibited a broader spatial distribution across the basin. Of particular note is the marked increase in purse seine effort reported by Indonesia in the eastern Indian Ocean, reflecting the growing importance of this region for tropical tuna fisheries (**Fig. 14**).

Average effort distribution of purse seine fisheries, by decade (1980-2009)

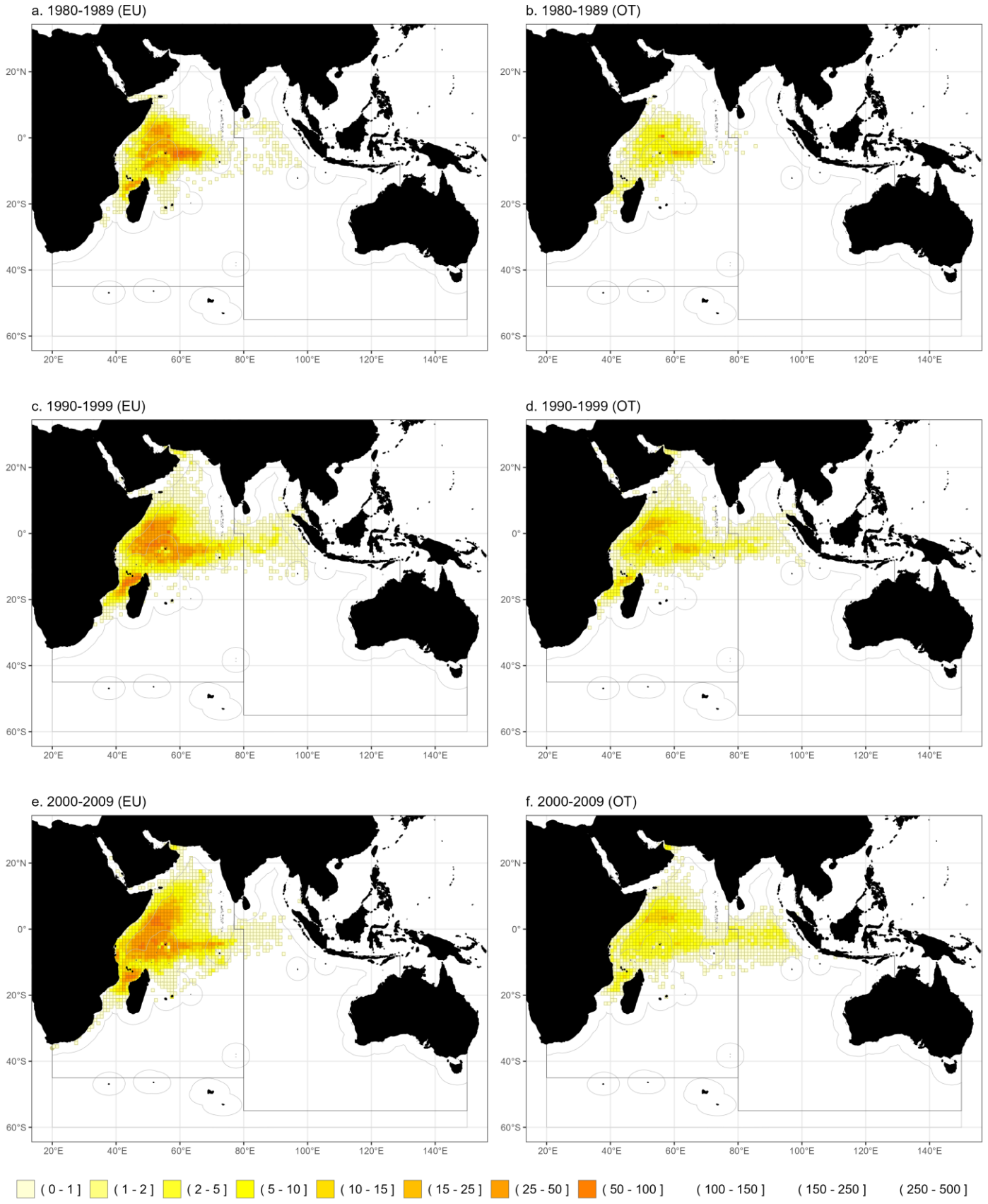

Figure 12: Mean annual effort (fishing days) exerted by the industrial purse seine fleets of the European Union and comparable fleets (EU) vs. all other flags (OT) by decade, 1°x1° grid, and fleet. Data source: time-area effort dataset for purse-seine fisheries (Res. 15/02)

Average effort distribution of the European Union purse seine fisheries, by last years (2021-2025) and decade (2010-2019)

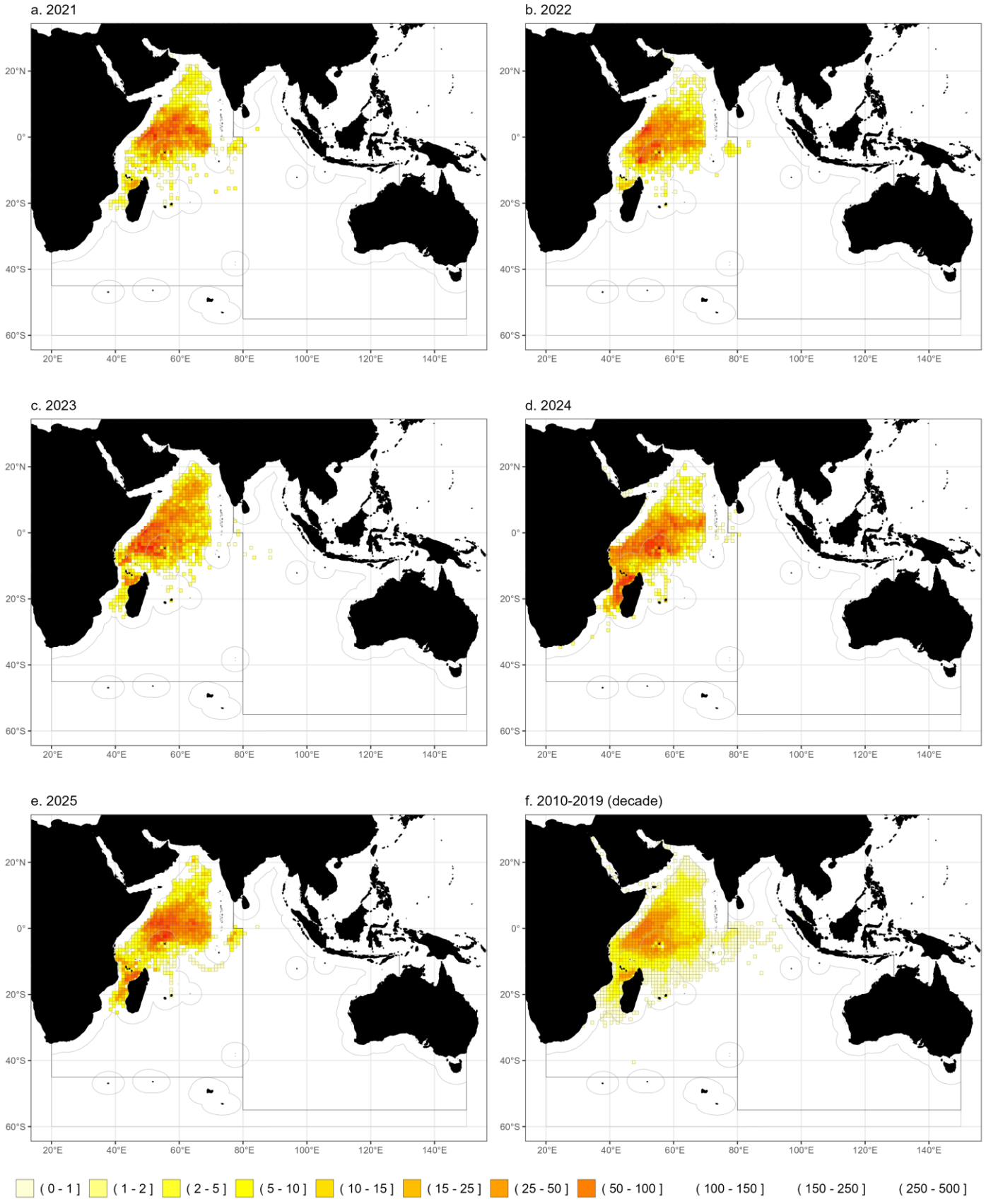

Figure 13: Mean annual effort (fishing days) exerted by the industrial purse seine fleets of the European Union and comparable fleets (EU) by year / decade and 1°x1° grid. Data source: time-area effort dataset for purse-seine fisheries (Res. 15/02)

Average effort distribution of other purse seine fleets, by last years (2021-2025) and decade (2010-2019)

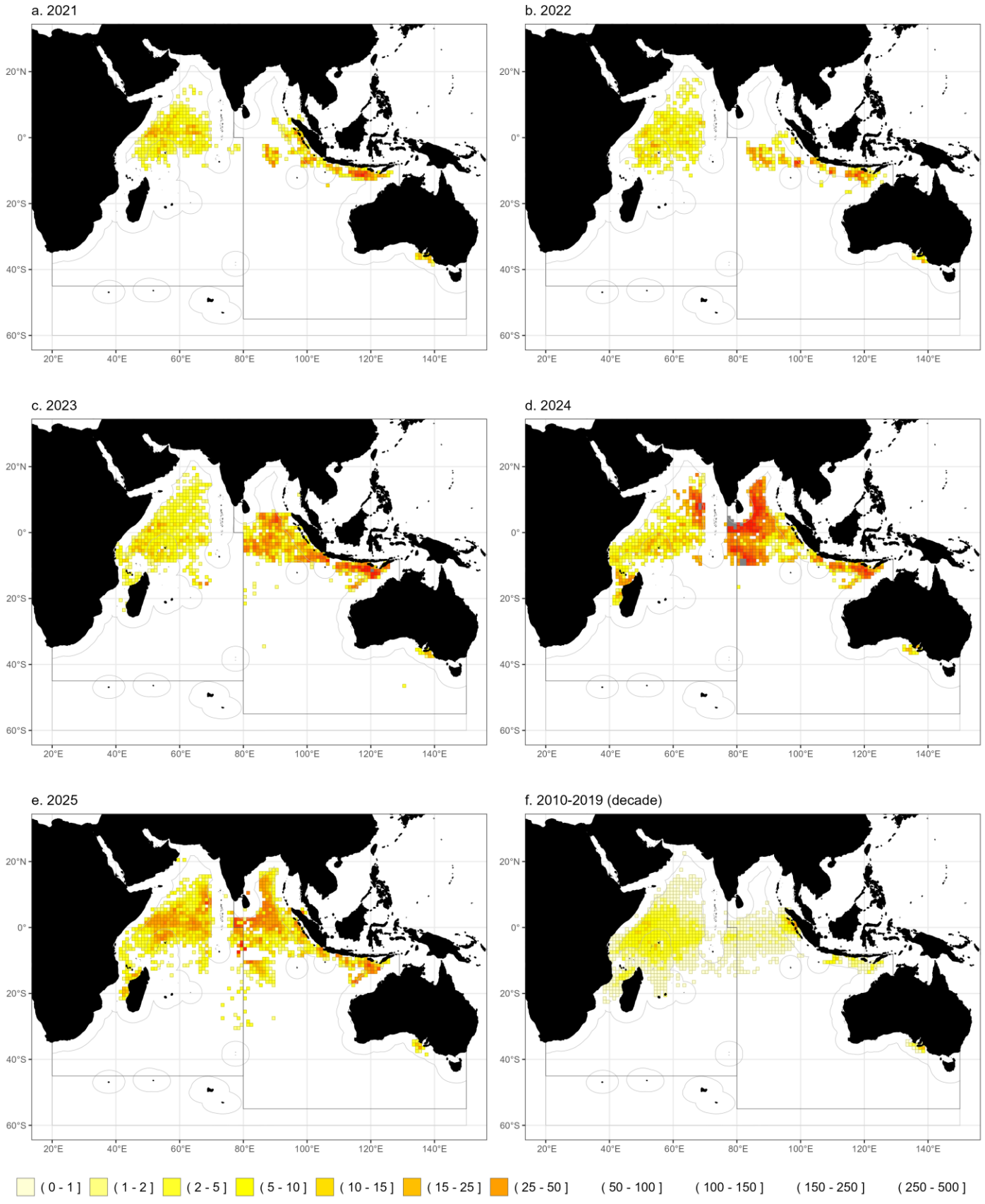

Figure 14: Mean annual effort (fishing days) exerted by purse seine fleets from other flags (OT) by year / decade and 1°x1° grid. Data source: time-area effort dataset for purse-seine fisheries (Res. 15/02)

Spatial distribution of reported catches

Geo-referenced catch distributions indicate that, in addition to longline fisheries, spatial catch data were available from Maldivian pole-and-line (baitboat) fisheries during the early decades of the fishery. Spatial records from gillnet fisheries began to emerge during the 1970s. The increasing importance of purse seine fisheries is clearly reflected in the catch distributions from the 1990s onwards, particularly in the western Indian Ocean, where they became the dominant source of tropical tuna catches (**Fig. 15**).

In recent years, geo-referenced catch distributions have revealed substantial catches from multiple fisheries across most regions of the Indian Ocean, including increasing catches reported within areas under national jurisdiction (NJAs). **Fig. 16** illustrates that purse seine fisheries dominate tropical tuna catches in the western Indian Ocean when catch is expressed in metric tonnes, while increasing catches from line and gillnet fisheries are evident in the north-western Indian Ocean. In 2025, spatial catch distributions indicated increased catches from Maldivian pole-and-line fisheries, whereas catches declined in parts of the eastern Indian Ocean, particularly within Indonesian fisheries (**Fig. 16**).

By contrast, catches reported in numbers of fish, which are primarily associated with deep-freezing and fresh-tuna longline fleets, are distributed across both the western and eastern Indian Ocean, extending into temperate waters. This distribution reflects the targeting of species such as albacore tuna by these fleets. In recent years, however, catches of yellowfin tuna reported by longline fisheries have shown an increasing trend, driven by the market demand for quality yellowfin tuna (**Fig. 17**).

Geo-referenced catches by fishery and decade (1950-2009)

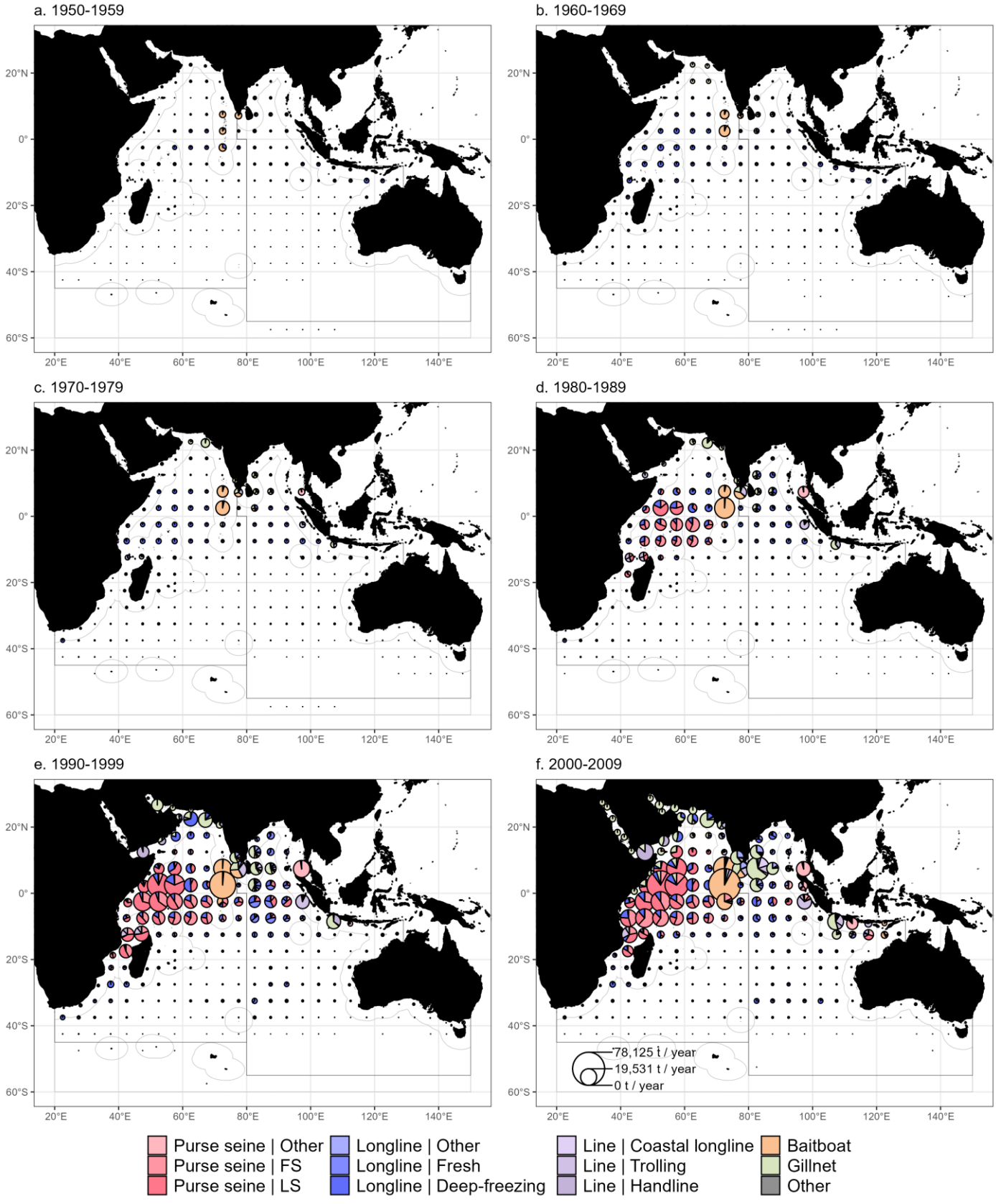

Figure 15: Estimated mean annual time-area catches (metric tonnes; t) of Indian Ocean tropical tuna by decade, 5°x5° grid, and fishery. Data source: tropical tuna raised time-area catches

Geo-referenced catches by fishery for catch data in metric tonnes, last years (2021-2025), and decade (2010-2019)

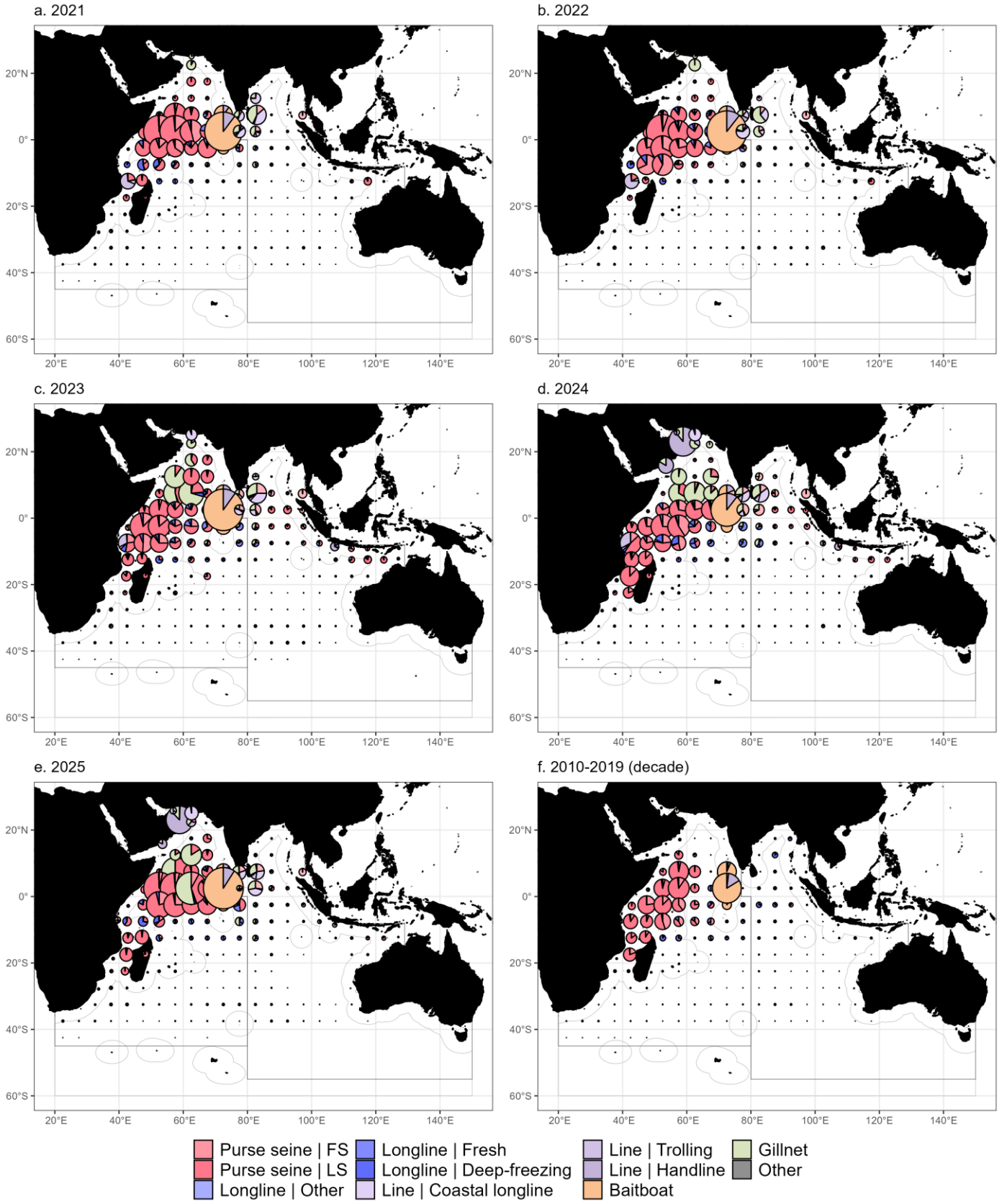

Figure 16: Estimated mean annual time-area catches (metric tonnes; t) of Indian Ocean tropical tuna by year / decade, 5°x5° grid, and fishery. Data source: Tropical tuna raised time-area catches

Geo-referenced catches by fishery for catch data in number, last years (2021-2025), and decade (2010-2019)

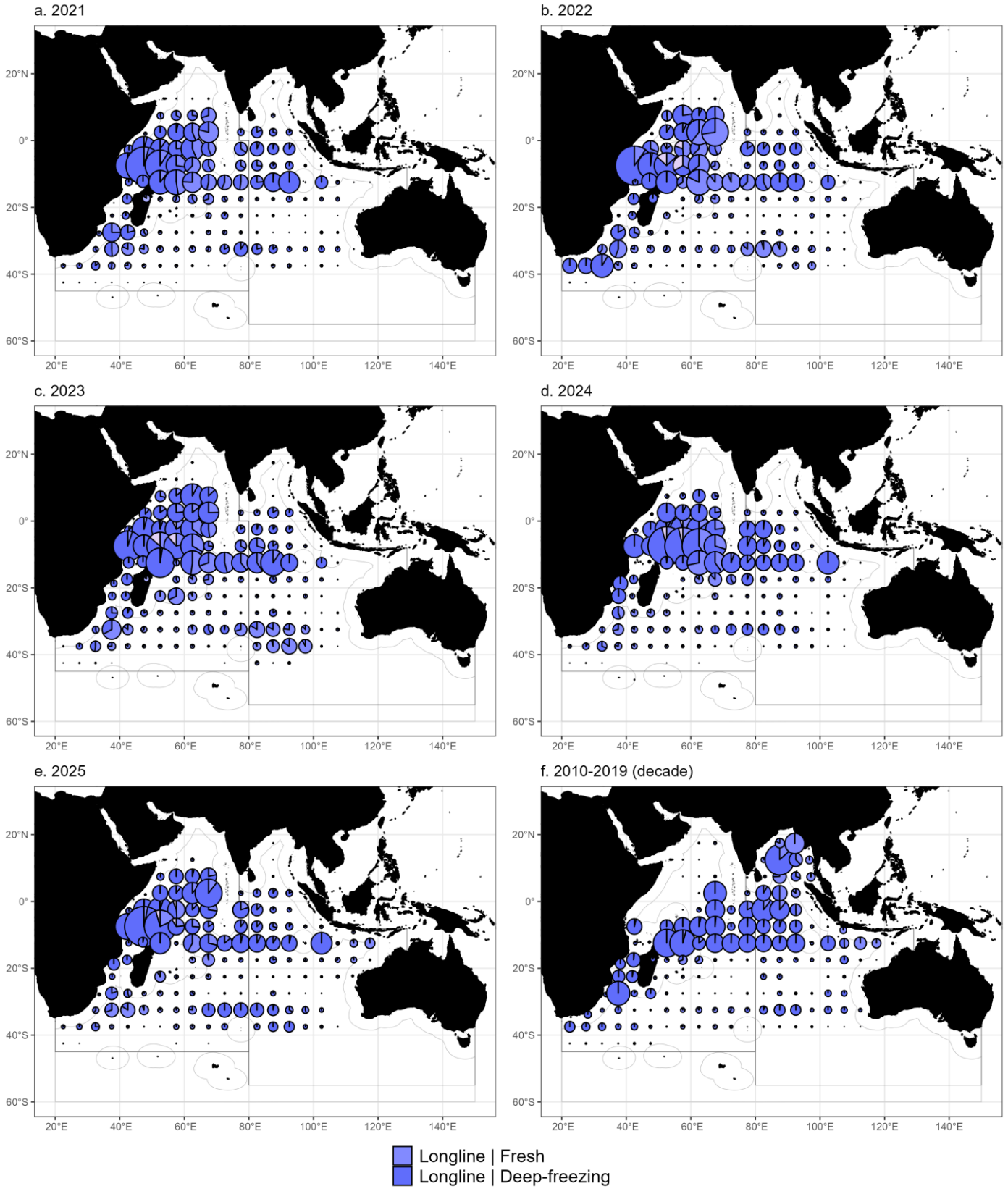

Figure 17: Estimated mean annual time-area catches (number; NO) of Indian Ocean tropical tuna by year / decade, 5°x5° grid, and fishery. Data source: Tropical tuna raised time-area catches

Reporting quality of catch and effort data

The provision of geo-referenced catch and effort data continues to present challenges for some CPCs, particularly those with extensive artisanal fisheries. Relative to retained catch statistics, geo-referenced datasets remain less complete and exhibit greater variability in both quality and spatial coverage. While notable improvements have been achieved since 2015, the availability of geo-referenced data from artisanal fisheries has generally remained below 70%. Despite these constraints, coastal CPCs have continued to enhance their fisheries information systems through targeted capacity development, technological innovation, and the implementation of alternative data collection approaches designed to improve the reporting of geo-referenced fisheries data (Martin 2023).

In 2025, geo-referenced catch and effort data were available for nearly all industrial fisheries, providing close to complete spatial coverage of industrial tropical tuna catches (~100%). In contrast, the availability of geo-referenced catch data for artisanal fisheries declined relative to 2024, from approximately 73% to 52%. This reduction was attributable to: (i) increases in reported tropical tuna catches that were not accompanied by corresponding geo-referenced information; (ii) the non-submission of spatial datasets by some CPCs; and (iii) data quality issues, including incomplete spatial coverage and the absence of required information in submitted datasets. Overall, the availability of geo-referenced catch and effort data for tropical tuna fisheries reached approximately 83% in 2025 (**Fig. 18**).

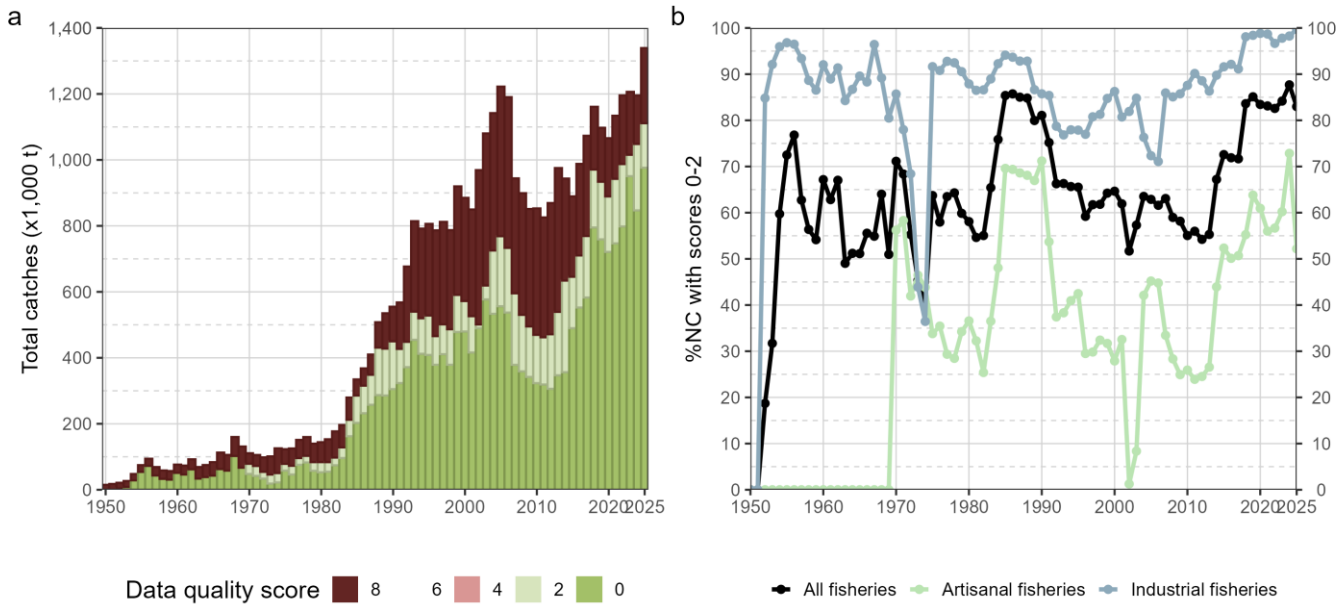

Figure 18: (a) Annual retained catches (metric tonnes; t) of Indian Ocean tropical tuna estimated by quality score and (b) percentage of geo-referenced catches reported to the IOTC Secretariat in agreement with the requirements of Res. 15/02 for all fisheries and by type of fishery, in the period 1950-2025

Size-frequency

Reporting quality of size-frequency data

Although the importance of biological and size-frequency data for stock assessment has increased substantially (Phillips et al. 2025), the overall coverage of size-frequency datasets remains limited. Since the 1980s, size-frequency information has been collected through a variety of programmes, including fisheries research projects, port and landing-site sampling schemes, and onboard observer and sampling programmes.

The availability and quality of geo-referenced size-frequency data from artisanal fisheries have fluctuated considerably over time. Despite a substantial improvement in coverage since 2010, the availability of size-frequency data relative to retained catches remains low. Coverage for artisanal fisheries reached a maximum of approximately 59% in 2020 but has subsequently declined. In 2025, the availability of geo-referenced size-frequency data for artisanal fisheries represented only around 22%% of retained tropical tuna catches.

In contrast, the availability of geo-referenced size-frequency data for industrial fisheries has remained comparatively high, although complete coverage has not yet been achieved. In 2025, size-frequency sampling coverage relative to retained catches was approximately 81%, representing a slight decrease compared with 2024. Overall, the availability of geo-referenced size-frequency data was approximately 60% in 2025, which remains lower than that of other key fishery datasets. The limited coverage reflects persistent challenges in the implementation of sampling programmes in some CPCs, including insufficient sampling capacity and the inability to consistently achieve the recommended sampling intensity of one fish measured per metric tonne of catch (**Fig. 19a**).

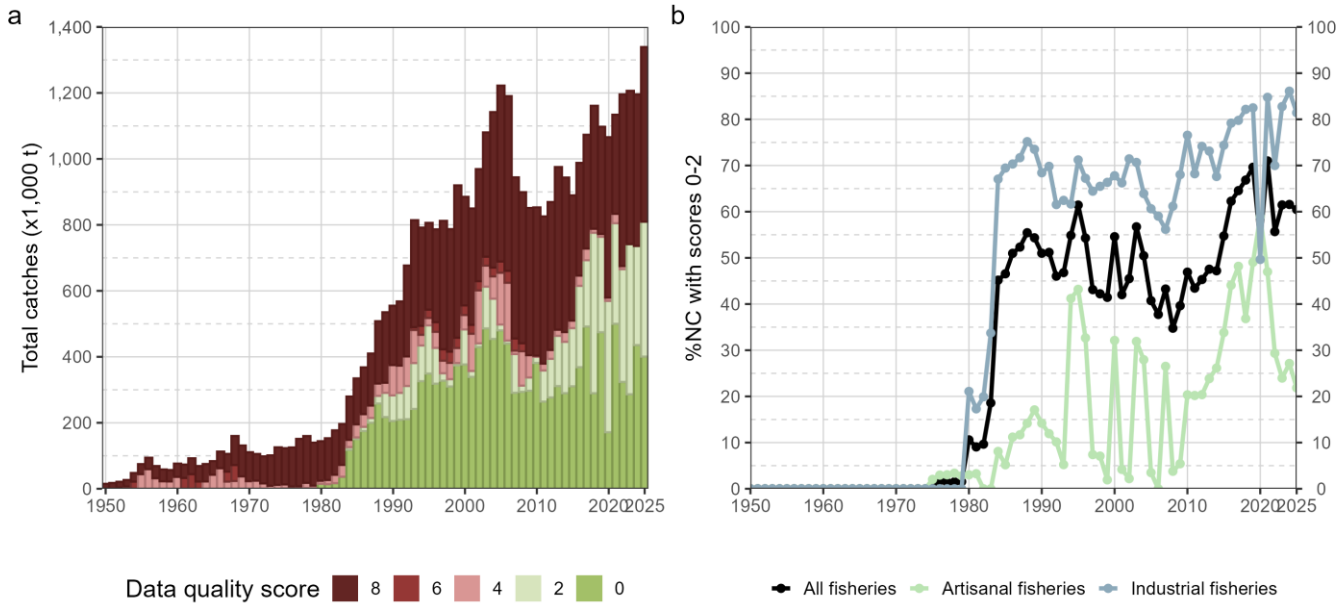

Figure 19: Annual retained catches (metric tonnes; t) of Indian Ocean tropical tuna estimated by quality score (barplot) and percentage of geo-referenced size-frequency data reported to the IOTC Secretariat in agreement with the requirements of Res. 15/02 (lines with dots) for all fisheries (a) and by type of fishery (b), in the period 1950–2025

Appendix I: Monthly time series of tropical tuna import prices, 2000-2024

Frozen purse seine, Thai import prices (canning grade)

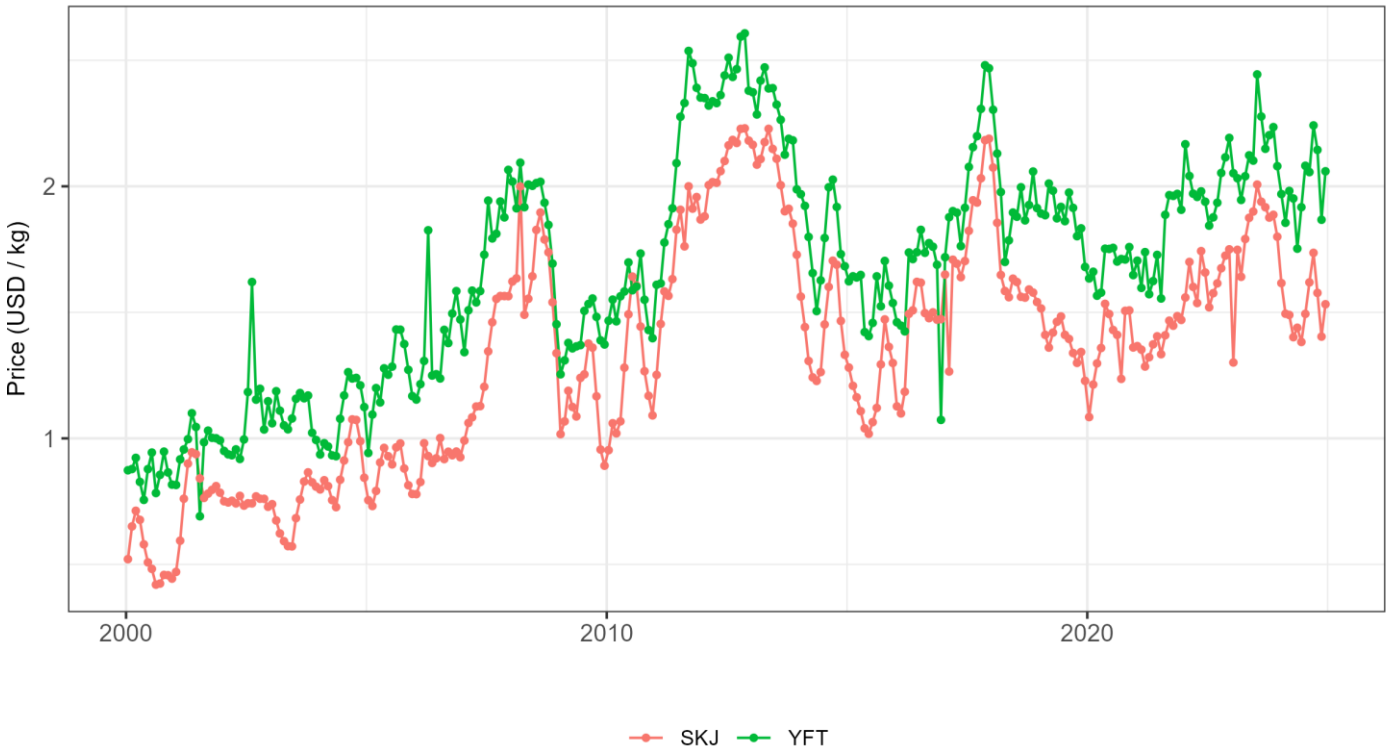

Figure 20: Monthly time series of import prices (USD/kg) in Thailand for canning-grade frozen skipjack and yellowfin tunas during the period 2000-2024. Data sourced from Thailand customs, compiled, and curated by the FFA Fisheries Development Division (Ruaia et al. 2020)

Frozen longline, Japanese import prices (sashimi grade)

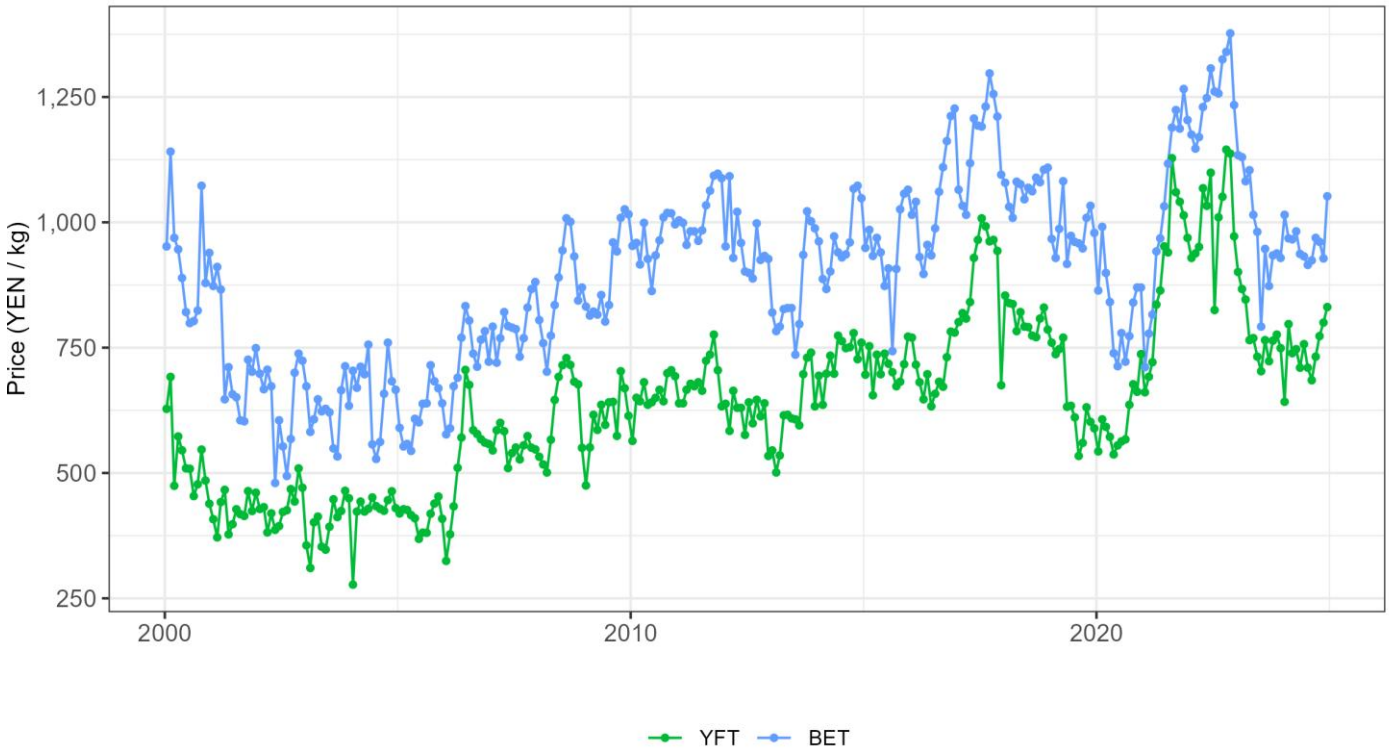

Figure 21: Monthly time series of import prices (YEN/kg) in Japan for sashimi-grade frozen during the period 2000-2024. Data sourced from Japanese customs, compiled, and curated by the FFA Fisheries Development Division (Ruaia et al. 2020)

Fresh longline, Japanese import prices (sashimi grade)

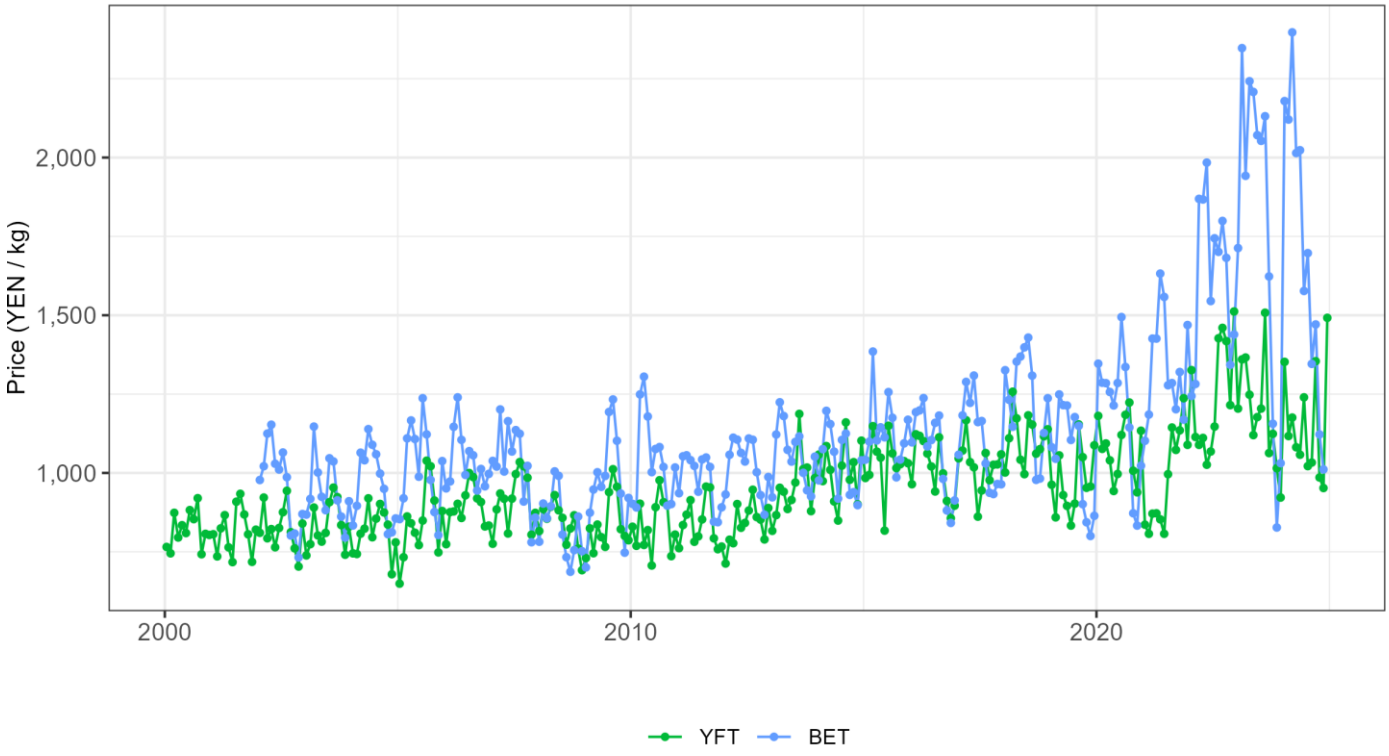

Figure 22: Monthly time series of import prices (USD/kg) in Thailand for canning-grade frozen during the period 2000-2024. Data sourced from Japanese customs, compiled, and curated by the FFA Fisheries Development Division (Ruaia et al. 2020)

Fresh longline, US import prices (sashimi grade)

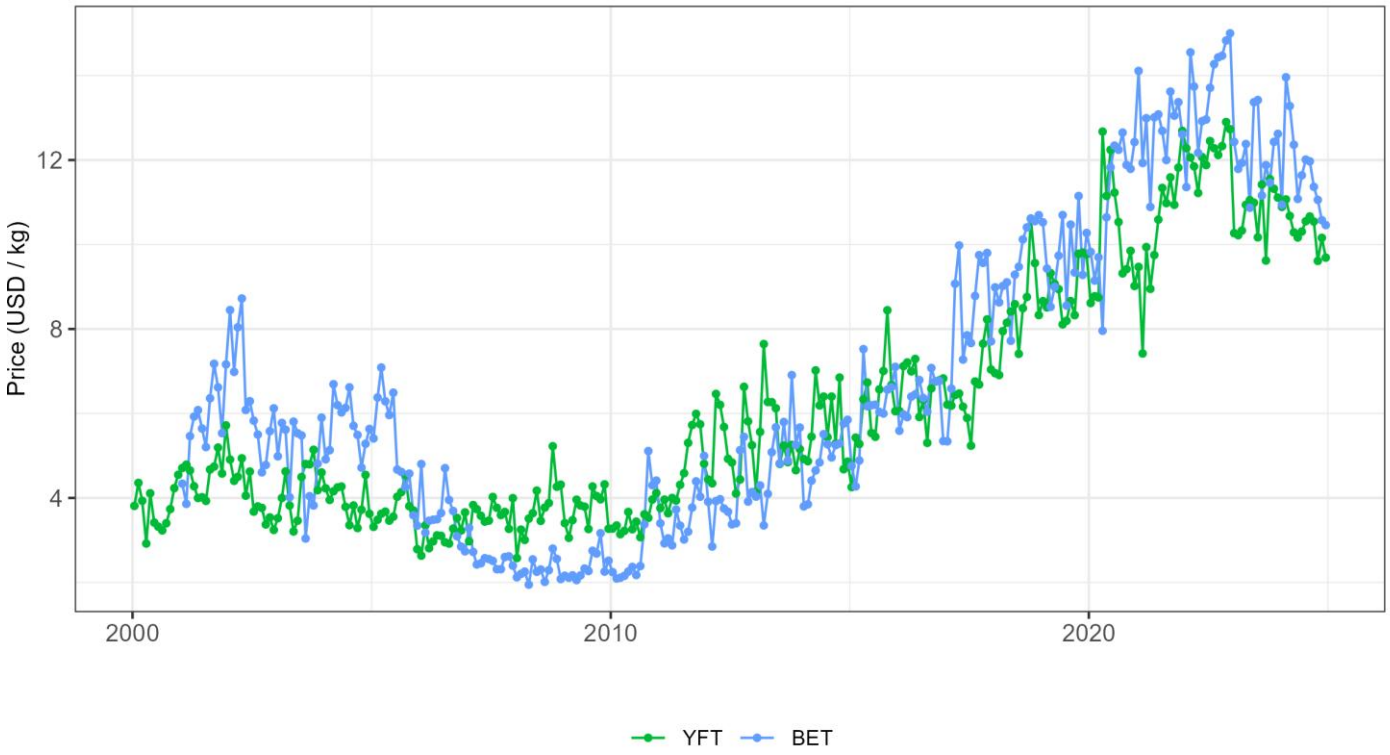

Figure 23: Monthly time series of import prices (USD/kg) in Thailand for canning-grade frozen during the period 2000-2024. Data sourced from USA customs, compiled, and curated by the FFA Fisheries Development Division (Ruaia et al. 2020)

Appendix II: Monthly time series of crude oil prices, 2000-2024

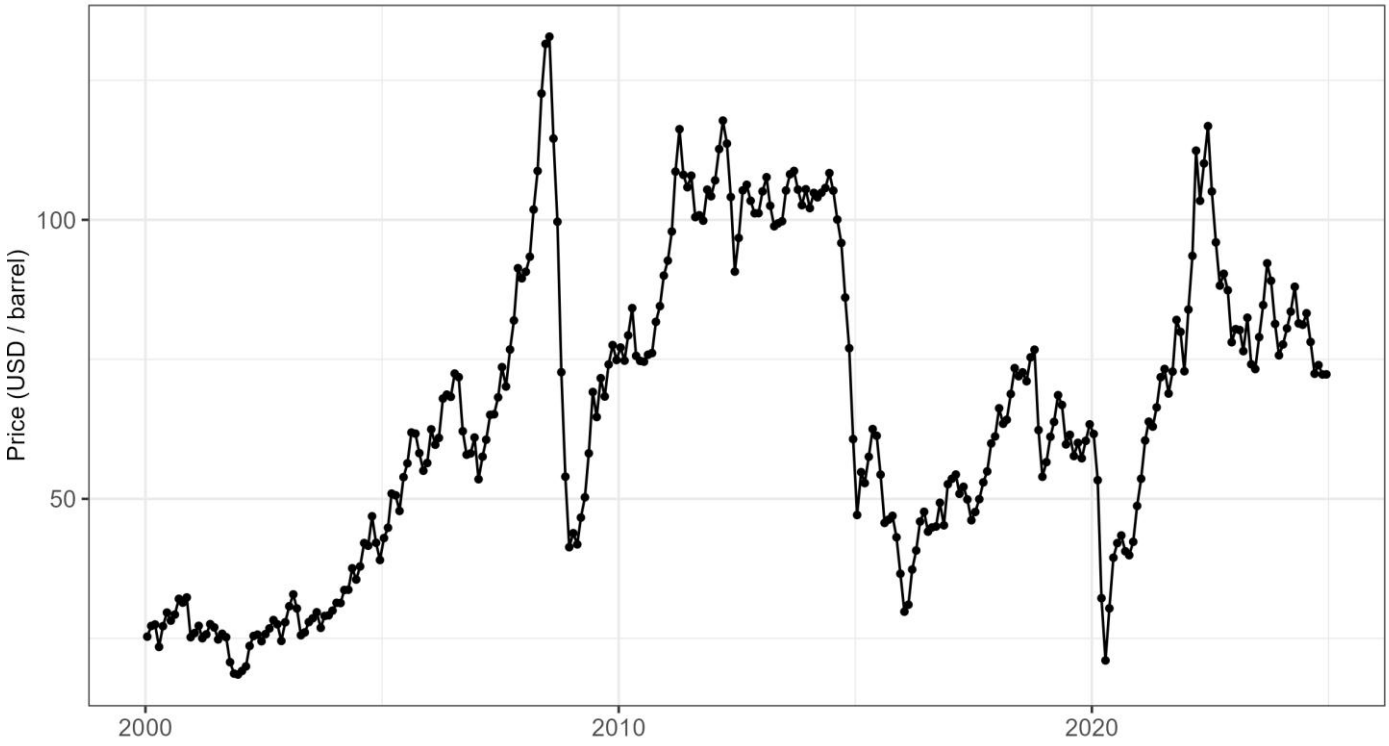

Figure 24: Monthly time series of crude oil spot price (USD/barrel) during the period 2000-2024. Data sourced from the spot prices of Brent, Dubai, and West Texas, compiled, and curated by the FFA Fisheries Development Division

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