ISSF Technical Report 2026-10

COMPARISON OF SMALL- AND LARGE-SCALE TUNA FISHING AND THINGS IN-BETWEEN



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Harley, S. / **November 2026**

Suggested citation:
Harley, S. (2026). Comparison of Small- and Large-Scale Tuna Fishing and Things in-Between. ISSF Technical Report 2026-10. International Seafood Sustainability Foundation, Pittsburgh, PA, USA

Topic Categories: Tuna fisheries

Comparison of small- and large-scale tuna fishing and things in-between

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Discussion document for

ISSF Workshop on the Importance of Tropical Tuna Fisheries of Large and Small Scales

Bilbao, Spain, June 30 - July 2, 2026

Summary

Tropical tunas (bigeye, skipjack, and yellowfin tunas), represent a vital global resource with catches reaching 5.5 million tons in 2024 across territorial seas, Exclusive Economic Zones (EEZs), and the high seas. These catches are taken by a wide variety of operations, and the purpose of this report is to describe some of these fisheries taking tropical tunas with a lens towards differentiating between large-scale industrial fleets, small-scale fisheries and what might sit in between.

To do this, the report scopes key binding and non-binding measures across the four tuna-Regional Fishery Management Organizations (t-RFMOs) responsible for managing tropical tunas. Analysis of data was focused on the FAO/FIRMS Global Tuna Atlas because of its purpose in consolidating data across t-RFMOs.

The report contains a range of recommendations that can be categorized into either (1) recommendations relating to information gaps for different fisheries; or (2) recommended improvements to systems and/or processes that will make tasks like mine easier in the future. Importantly, these are my own recommendations and should not be viewed as being reflective of the views of other workshop participants or the organizations that they represent.

Defining Fisheries Creating a single, universal definition to separate small-scale from large-scale tuna fisheries remains a complex challenge, with significant overlap and ambiguity across regions. To navigate this, researchers and organizations have proposed various classification approaches: Gillet's 2011 criteria based on gear and vessel size, the FAO's multi-dimensional 13-criteria scoring system, a hybrid Indian Ocean-specific proposed model of small, semi-industrial, and industrial vessels, and a recent framework proposed in the IATTC categorizing longline fleets based on how, what, where, when, and why they fish.

> ***Recommendation****: t-RFMOs should apply the scoring criteria from the FAO matrix to all significant fisheries within their t-RFMO. This could allow cross t-RFMO comparisons and may assist t-RFMOs in confirming current categories or developing new ones for the purpose of prioritizing data collection and/or verification.*

Tuna Data Availability and Trends Consolidated data from the FAO FIRMS Global Tuna Atlas indicates that global catches of tropical tunas reached a record 5.5 million tons in 2024, heavily dominated by skipjack (64%) and yellowfin (30%). While most of the global catch is driven by industrial purse seine fisheries, small-scale tuna fisheries (SSTF) such as the Indonesian handline and pole-and-line fleets also take significant volumes. Accurately tracking trends in non-industrial fisheries is complicated by changing reporting practices and overlapping gear codes across different tuna t-RFMOs.

> ***Recommendation****: FAO and t-RFMOs should continue to improve fishery definitions in the FAO-FIRMS Global Tuna Atlas, e.g., minimize using different codes for the same methods or combining different methods within the same code, and seek to classify significant 'gear not known' fisheries.*

> ***Recommendation****: To help improve the understanding of patterns in global tuna catches, the FAO and t-RFMOs should develop common color palettes, with a priority for the species and method categories included in the FAO-FIRMS Global Tuna Atlas.*

The Bycatch Management and Information System (BMIS) is a critical repository of a range of information relating to the impacts of tuna fisheries and other species. Its role is particularly important as the amount and structure of information is highly variable across t-RFMOs.

> ***Recommendation****: BMIS continue to be funded and maintained.*

RFMO Requirements The four t-RFMOs have varying regulatory requirements across fleets, primarily differentiated by vessel size and gear type. For instance, vessel registry criteria lack harmonization; while the IATTC requires all fishing vessels to be registered, the WCPFC, ICCAT, and IOTC exclude certain vessels depending on their size or if they only fish within their flag state's Exclusive Economic Zone (EEZ). Furthermore, regulatory measures spanning Vessel Monitoring Systems (VMS), human and electronic observer coverage, and catch limits are highly variable, with industrial purse seine vessels generally facing stricter monitoring and verification requirements than longline or other methods.

> ***Recommendation****: t-RFMOs should maintain compendiums (e.g., single file) consolidating active management measures and searchable databases of active and historical management measures.*

> ***Recommendation****: t-RFMOs recognize the different vessel registry obligations across t-RFMOs and seek to increase the range of vessels required to be registered.*

Fishery Impacts on Tropical Tunas A review of stock assessments across the t-RFMOs reveals that bigeye, skipjack, and yellowfin tuna stocks are generally healthy, in some cases recently recovered, but importantly not currently subject to overfishing. The primary impacts on bigeye and skipjack stocks come from industrial fisheries, particularly purse seine fishing using drifting FADs, while small-scale and non-industrial fisheries account for a significant portion of the impact on yellowfin stocks. Crucial data gaps hindering better stock assessments include accurate catch estimates for small bigeye taken in anchored and drifting FAD fisheries, reliable abundance indices for large bigeye and yellowfin tunas and skipjack tuna, and accurate catch data for non-industrial and small-scale fleets.

> ***Recommendation:*** *Stock assessments should clearly state which fleets comprise the different fisheries defined in stock assessments and indicate any fleets excluded from stock assessments (and why).*

> ***Recommendation:*** *Where possible stock assessments should separately model major fishery types to allow for impact analyses to be conducted to improve the understanding of the impacts of different fisheries*

> ***Recommendation****: Where possible stock assessments should separate out all major fisheries and conduct impact analyses to facilitate an improved understanding of the impacts of different fisheries.*

> ***Recommendation****: To help facilitate analyses that improve the understanding of the impacts of different fisheries, t-RFMOs should make stock assessment input and output files publicly available once stock assessment results have been endorsed by the relevant scientific body.*

Tropical Tuna Fishery Impacts on Other Species Bycatch impacts differ drastically across fishery types. In small-scale fisheries, almost all caught fish are retained due to economic value; the primary concern is incidental interactions with sensitive species like sea turtles and marine mammals. Purse seine bycatch is recognized to be very low per ton of target catch but includes low productivity species such as whale and silky sharks and mobulid rays. Longline bycatch is much higher and includes many species of sharks (some of which now have prohibitions on retention within some t-RFMOs), seabirds and turtles. The specific bycatch profile for a given longline fishery is largely dependent on operational practices such as location, hook depth, and bait type.

> ***Recommendation****: t-RFMOs should considering requiring reporting of catches of all major species taken in fisheries under their jurisdiction (e.g., neritic tunas).*

***Recommendation**: t-RFMOs should consider approaches that address data confidentiality concerns without significantly impacting public data availability (e.g., through either the Global Tuna Atlas or t-RFMO publicly available data sets).*

***Recommendation**: t-RFMOs produce annual reports (with associated data files) of observed, and scaled estimates of bycatch (both fish and non-fish) for purse seine and longline fisheries from observer data.*

***Recommendation**: t-RFMOs take steps to obtain estimates of bycatch for other gears, with an emphasis on gillnet fisheries that predominantly catch tropical tunas.*

***Recommendation**: FAO update the global reviews of bycatch in tuna fisheries (i.e., purse seine, longline, and small-scale fisheries) recognizing that previous reviews were published 12-15 years ago.*

Finally, it is recognized that given the vast magnitude of information available within each t-RFMO that it is almost certain that I have missed or miss-represented some matters.

Introduction

Tropical tunas (bigeye - BET, skipjack - SKJ, and yellowfin - YFT tunas) represent one of the most productive and important global fisheries resources and are taken within territorial seas and archipelagic waters, EEZs, and on the high seas with catches of 5.5 million t in 2024.

They are taken in a wide variety of fisheries which are often represented by a dichotomy of small-scale /artisanal / coastal fisheries versus large-scale / industrial fisheries / distant-water fisheries but in reality there is a continuum of different types of fisheries.

While Industrial fisheries tend to dominate overall catch volumes, Small-scale tuna fisheries (SSTF) are also recognized for their importance to food security, livelihoods, and economies, especially in coastal communities. SSTF are specifically recognized in the 1995 UN Fish Stock Agreement (Article 24):

> *2. In giving effect to the duty to cooperate* ***in the establishment of conservation and management measures*** *for straddling fish stocks and highly migratory fish stocks, States shall take into account the special requirements of developing States, in particular:*
>
> *(a) the vulnerability of developing States which are dependent on the exploitation of living marine resources, including for meeting the nutritional requirements of their populations or parts thereof;*
>
> *(b)* ***the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers*** *and women fishworkers, as well as indigenous people in developing States, particularly small island developing States; and*
>
> *(c) the need to ensure that such measures do not result in transferring ,directly or indirectly, a disproportionate burden of conservation action onto developing States. [****emphasis added****]*

While there is a broad understanding of what is unambiguously recognized as a large-scale tuna vessel (e.g., longline vessels > 24m LOA), and a small-scale tuna vessel (e.g., boats of 4-6m that troll or handline for tunas), there is much room in-between.

The purpose of this discussion paper is to examine the different types of fisheries that are reported to catch the three tropical tunas and examine data available to determine their impacts on target and bycatch species. I considered key documents (e.g., guidelines, binding, and non-binding measures) on the websites of each of the four tuna-RFMOs responsible for tropical tunas to see what obligations / requirements that exist for different vessel types. Data considerations were limited to the FAO/FIRMS Global Tuna Atlas that amalgamates catch and effort data from all tuna RFMOs.

I also summarize some of the literature on possible definitions specifically for small-scale fisheries.

It is recognized that the ‘devil is always in the detail’ and this ‘shallow’ dive into a complex subject will not reflect the richness of information found in reports of the respective t-RFMOs data/statistical working groups, national reports submitted by member states, or specific studies.

Defining fisheries

It is acknowledged that it is difficult to create a single universal metric to categorize fishing activity and below, I outline four approaches that have been used to define or help classify SSTF and other categories of fishing vessels.

Gillet (2011) in his global review of bycatch from SSTF provided the following definition:

"those fisheries that use vessels that are open or partially undecked, or vessels that use outboard engines or sails, or vessels that fish with handlines, rod-and-reel gear, harpoons or similar non-industrial gear"

Gillet did not consider gillnet fishing to represent SSTF, rather he considered that gillnet fishing was comprised on two modes of fishing (a) small vessels catching tropical tunas as a valuable bycatch from fisheries that were primarily aimed at other species such as neritic tunas (therefore not tuna fisheries); or (b) large vessels using pelagic gillnets in what he considered to be more industrial activities.

Gillet identified 15 'true' small-scale fisheries (*Table 1*) that actively fish for tuna based on factors including the proportion of tuna in the overall catch, and whether the there was an export component (note that not all these fisheries are export based).

The FAO has had a significant focus on SSTF but recognized that there is no simple cut-off for defining small- and large-scale activities. They instead proposed a scoring approach (the matrix) which would determine where a given fishery sat on the continuum with scores of 0-3 across 13 criteria including vessel size, gear, motorisation, crew, trip duration, distance from shore, storage, and market integration (*Figure 1*).

They recommend applying this approach to all fisheries activities that are undertaken in an area to determine if a differentiation between larger- and smaller-scale fisheries emerges. Further, the matrix could highlight those fisheries which may be on the edge of small-scale and large-scale (i.e. a small vessel with a high-powered engine and large-scale level of fishing effort), assigning them their own category.

This concept of a 'middle-ground' between SSTF and large-scale was taken further by Haas and Shahid (2026). They propose an Indian Ocean-specific SSTF definition requiring at least three of the following:

vessel <12 m or <10 GT

fishing exclusively within territorial sea or EEZ

crew ≤12

trip duration ≤2 weeks

This hybrid approach blends RFMO practice, national legislation, and FAO's multidimensional framework.

Very recently, the IATTC undertook a characterization of different longline fisheries operating in their convention area and recommended five categories of longline fleets based on different characteristics summarized below (Fuller et al. 2026a) and repeated in Figure 2:

How they fish: Differentiated by fishing technology and operational capability, including propulsion type, electronic equipment, line deployment and retrieval systems, hook numbers, preservation methods, and the use of mothership support.

What they catch: Distinguished by target species composition, ranging from highly specialized fisheries targeting tunas and billfishes to mixed-species fisheries targeting tunas, billfishes, sharks, dorado, and other large pelagic species, often with seasonal shifts in targeting.

Where they fish: Classified according to fishing area, from nearshore coastal waters and national EEZs to offshore oceanic waters and distant-water operations on the high seas beyond 200 nautical miles.

When they fish: Characterized by vessel autonomy and trip duration, ranging from short trips of a few days for coastal vessels to voyages lasting weeks, months, or more than a year for large-scale fleets.

Why they fish: Differentiated by their economic role and market orientation, including local consumption, domestic markets, export markets, and industrial-scale supply chains, which influence vessel design, operational scale, and fishing behaviour.

***Recommendation**: t-RFMOs should apply the scoring criteria from the FAO matrix to all significant fisheries within their t-RFMO. This could allow cross t-RFMO comparisons and may assist t-RFMOs in confirming current categories or developing new ones for the purpose of prioritizing data collection and/or verification.*

Tuna data availability and trends

In this section I use the consolidated RFMO data available via the FAO FIRMS Global Tuna Atlas[1] and links to how to get each t-RFMOs public domain data are provided in Appendix 1.

The specific aims in this section were to understand how fisheries are defined across RFMOs, determine how easy it is to find the SSTF previously identified by Gillet, and more broadly look at trends across fisheries to understand which fleets/fisheries are declining and whether new fisheries have emerged.

Data treatment

The first steps taken were to exclude data from CCSBT and then attempt to further harmonize the gear type codes. On initial examination (see *Table 2*) it became clear that there were three issues (1) some clear duplication of codes (e.g., the gear not known vs gear nei), (2) some t-RFMOs used different codes for similar fisheries (e.g. set longlines and drifting longlines), and (3) there were likely some codes that likely grouped together different fisheries (e.g., handlines and hand-operated pole-and-lines).

Further it was clear that some t-RFMOs used far more gear categories than others and it was not clear if that was solely due to different fisheries existing or whether there were different approaches to 'splitting' or 'grouping' gear types.

I modified some of the gear types assigned to address the first two issues identified above.

***Recommendation**: FAO and t-RFMOs should continue to improve fishery definitions in the FAO-FIRMS Global Tuna Atlas, e.g., minimize using different codes for the same methods or combining different methods within the same code, and seek to classify significant 'gear not known' fisheries.*

***Recommendation**: To help improve the understanding of patterns in global tuna catches, the FAO and t-RFMOs should develop common color palettes, with a priority for the species and method categories included in the FAO-FIRMS Global Tuna Atlas.*

I then identified the SSTF from Gillet (2011) from within the data, noting that in some instances (e.g., South Africa and Indonesia) that the fisheries could exist in more than one t-RFMO. Industrial fisheries were based on the use of purse seine, longline (unless previously identified as a SSTF by Gillet), and for the pole and line fisheries from Ghana,

[1] https://www.fao.org/fishery/collection/firms-tuna-atlas/en

Japan, Maldives, Senegal, Solomon Islands, and South Africa. All others were assigned to an “Other” category awaiting further characterization by relevant experts.

For convenience, I will summarize notable trends or patterns found in *Figure 3* through to *Figure 17* in the bullet points below.

Overall catches by species

Annual catches of tropical tunas have been gradually increasing over the past 25 years with 2024 being the highest on record at 5.5 million t (*Figure 3*).

Catches in 2024 were dominated by skipjack tuna (64 %), then yellowfin tuna (30 %), with bigeye tuna catches making up only 6% and has been decreasing in importance in recent years (*Figure 3*).

Catches by fisheries within groups

Fisheries within Indonesia and the Philippines comprise the top 6 of 15 SSTF with the Indonesia handline /pole and line (averaging 130 thousand tons per year) being the largest SSTF (*Figure 4*);

Thirteen of the top 15 industrial fisheries are based on purse seine with the pole and line fisheries from the Maldives and Japan also being in the top 15 (*Figure 4*);

The largest industrial fishery is the purse seine fishery of the Republic of Korea in the WCPFC, averaging close to 250 thousand tons per year, slightly ahead of Ecuador's purse seine fishery in the IATTC region (*Figure 4*);

The 'unknown gear' fishery from Indonesia is the largest "Other" fishery averaging around 120 thousand tons per year. The category includes a mix of hook- and gillnet-based fisheries with the Sri Lankan gillnet fishery in the IOTC having the second highest catches (*Figure 4*); and

Overall catches by fishery type (*Figure 5*) are dominated by industrial fisheries (82% in 2024), and the catches from Other fisheries (11%) are slightly larger than for SSTF (7%). Catches for all three groups have increased since the Gillet (2011) study.

Notable patterns in the catch time-series for the Industrial fisheries (*Figure 6*) are:

- decreases in the Japanese purse seine and pole and line fisheries, the USA and French purse seine fisheries; and
- increases in the Kiribati, Seychelles, Ecuador purse seine fisheries

Notable patterns in the catch time-series for the SSTF fisheries (*Figure 7*) are:

- Very large shifts in the catches from many fisheries that likely reflect changes in data collection or fishery classification.

Notable patterns in the catch time-series for the Other (not yet categorised) fisheries (*Figure 8*) are:

- increases for Oman handline and pole and line fishery, a Brazilian 'unknown gear' fishery, a Sri Lankan hook and line fishery; and
- decreases for the Sri Lankan gillnet fishery, the Ghanaian handline and pole and line fishery, and Pakistani gillnet fishery.

Catches by fisheries within groups

Considering only the top 15 fisheries in three categories (Industrial, Gillet-identified SSTF, and Other) reduces the overall visibility of the variety of tuna fisheries that operate so I have also looked at the major fisheries in each of the seven most important fishing gears. I will only focus on those fisheries not previously mentioned.

Purse seine catches of tropical tunas average around 3 million tons per year, a large gap down to just over 500 thousand tons for handline and pole and line, and around 400 thousand tons for longline. Interestingly 'gear not known' is next, followed by hook and line, and two types of gillnet fisheries (*Figure 9*);

Among purse seine fisheries (*Figure 11*), there are also growing fisheries for the Federated States of Micronesia and Panama;

The Solomon Islands pole and line fisheries is much smaller than it was prior to 2010, and a significant fishery has rapidly developed in Oman (*Figure 12*);

Most of the major longline fisheries have significantly reduced catches of tropical tunas, exceptions include Vietnam, China and the Seychelles for whom catches have been relatively constant over the past 10-15 years (*Figure 13*).

Indonesia, Brazil, and Kiribati have the most significant 'gear not known' fisheries (*Figure 14*), though the estimates for Kiribati catches appear to be assumed rather than regularly estimated;

Significant hook and line fisheries are emerging in Indonesia and Sir Lanka, but the fishery in the Philippines has dramatically declined (*Figure 15*);

The Sri Lankan gillnet fishery has declined significantly while the Indonesia fishery has remained relatively stable (*Figure 16*); and

Iran and Vietnam have significant drift gillnet fisheries (*Figure 17*).

BMIS – Bycatch Management Information System

I want to specifically acknowledge that after the individual t-RFMOs and the FAO Global Tuna Atlas, BMIS[2] is probably the next most important source of information on global tuna fisheries and their impacts on other species. BMIS contains links to information including:

- Regulations in place in each t-RFMO
- Details on different mitigation techniques
- Summaries of relevant scientific literature and other reports
- Links to important data sources

I used BMIS extensively in searching for information for this report.

***Recommendation**: BMIS continue to be funded and maintained.*

[2] https://www.bmis-bycatch.org

RFMO requirements

In this section I identify some of the RFMO requirements which are differentiated by vessel size or gear type. Obviously almost all measures meet this criterion, so I have focused on those relating to data availability, verification, and managing fishery impacts.

Links to the compendiums of measures for each RFMO are provided in Appendix 1 though I could not find one for the. IATTC.

> ***Recommendation****: t-RFMOs should maintain compendiums (e.g., single file) consolidating active management measures and searchable databases of active and historical management measures.*

Vessel registers

The criteria for inclusion on each t-RFMOs vessel register are provided in *Table 3* and a comparison of them is provided in *Table 4*.

The most comprehensive criteria are for the IATTC who require all fishing vessels[3] to be on the register. The others all vary in different ways, e.g., the WCPFC does not include vessels that only fish within the flag-state EEZ (regardless of size), whilst ICCAT does not require small vessels (<20m) when fishing on the high seas it does require specific "tropical tuna" authorisations for vessels over 20m[4], and IOTC do not include vessels <24 meters operating solely in its respective EEZs.

> ***Recommendation****: t-RFMOs recognize the different vessel registry obligations across t-RFMOs and seek to increase the range of vessels required to be registered.*

All have downloadable versions of their vessel registry, and many have useful interactive tools for examining the information. Due to the different criteria across t-RFMOs, and the presence of many fisheries in each t-RFMO that are not targeting tropical tunas, I have not done any further analysis of data available on vessel numbers and size etc.

For further analysis of vessel registers, please see van der Geest (2023).

RFMO-level overviews of other requirements

A full cross-RFMO analysis of all the different requirements that exist for different fleets is beyond the scope of this report.

The matters highlighted below cut across data and verification requirements, mitigation measures, and other management measures. For a detailed analysis of t-RFMO progress on Electronic Monitoring (EM) please see FAO (2025).

IATTC

Vessel Monitoring Systems (VMS) for all vessels > 24m;

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[3] Vessels fishing within the convention area for stocks managed under the convention.

[4] Note that through binding measures for swordfish and bluefin tuna there are a range of other (smaller) vessels required to be on the ICCAT register. Some of these may also catch tropical tunas and/or may be authorized as Tropical Tuna Vessels in line with Rec24-01.

Observer coverage requirements are 10% for longline vessels >20m and 100% for 'Class-6' purse seine vessels (well capacity > 365 tons). Currently there is no mandatory observer coverage requirements for smaller vessels;

While Electronic Monitoring standards have been agreed, EM cannot currently be used to meet observer coverage requirements;

Currently purse seine fishing is managed through a mix of capacity limits, closures, and FAD limits, and these FAD limits also apply to smaller purse seine vessels;

Industrial longline fishing is primarily regulated through bigeye tuna flag-based catch limits;

No retention for oceanic whitetip sharks, or silky sharks taken by purse seine, but some retention of silky sharks allowed for longline fishing; and

A significant history of work with small-scale longline fisheries known to interact with sea turtles (see Andraka et al. 2013).

ICCAT[5]

The most recent tropical tuna measure states that small-scale fisheries shall be given special consideration to their specificities and needs, though it is not clear how this will be operationalized (e.g., definitions and/or treatment).

VMS for all vessels > 24m, or over 15m if authorized to fish beyond their flag nation's jurisdiction.

Observer coverage at 10% for large longline vessels and 100% for large-scale purse seine. For purse seine it can be 20% human and 80% coverage from Electronic Monitoring.

Multiple requirements around purse seining when using drifting FADs, e.g., plans, logbooks, a transition to 'bio-FADs' has been adopted and there are also FAD closure and individual vessel limits for drifting FADs;

Longline measures are primarily related to reducing the impacts of bycatch, with no retention (with some exceptions) for several shark species, e.g., hammerhead, silky, oceanic white tip, and thresher sharks[6]

IOTC

There are many instances where one or more CPCs have formally objected to management measures which means that any requirements are not necessarily binding on all CPCs;

Data recording systems are required for all purse seine, longline, gillnet, pole and line, handline, and trolling vessels either >24m or those fishing outside the EEZ of the flag state.

VMS and 5% observer coverage for the vessels required to be on the vessel register (e.g., vessels larger than 24m in length overall, or less than 24m, but operating in waters outside the EEZ of the flag state).

Electronic Monitoring standards are also in development for these fleets.

A register of drifting FADs is currently being implemented.

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[5] It is recognized that there are a range of specific requirements relating to fishing for bluefin tuna (e.g., registration, VMS, and observer coverage) which are stricter than the 'general' provisions.

[6] This non-retention also applies to purse seine fishing.

Progressively implementing data recording for vessels <24m fishing within EEZs of the flag state from 1 July 2016.

For coastal fisheries, catches by species to be submitted annually, fishing gear and effort to be submitted frequently and in whichever geographical are best represents the fishery.

Flag-based catch limits now in place for many CPCs for all three tropical tunas, and for bigeye and skipjack tuna the overall catch limits are determined from Management Procedures. These limits apply to all vessels under a given flag regardless of size.

There are significant concerns over the status of several shark species, oceanic white tip, thresher, and whale sharks are protected, plus shortfin mako sharks must be returned unless landed dead and the vessel have an observer or subject to Electronic Monitoring.

Protections for mobulid rays that includes an exemption for artisanal boats for local consumption.

There is a move to encourage the phasing out of gillnet fishing, noting that large-scale driftnets were prohibited within the IOTC convention area since 1 January 2022.

WCPFC

The Convention area has the highest proportion of EEZs and has the largest tuna catches of any t-RFMO, in fact at times the catches within single EEZs (e.g., Papua New Guinea and Kiribati) can be larger than catches for other t-RFMOs.

WCPFC has a specific management measure for how the Commission should consider the requirements of Small Island Developing States (SIDS), but this measure does not mention small-scale or artisanal fisheries. However, the need to avoid adverse impacts on small-scale and artisanal fisheries are included in the measure for skipjack tuna.

Operational catch and effort is required to fishing south of 20N, though there is an exemption for small-scale artisanal fisheries (though these are not defined) and daily electronic catch and effort reporting is required for purse seine, longline, troll, and pole and line fishing on trips that include fishing on the high seas or another EEZ.

VMS for vessels fishing outside of the flag-state EEZ.

Observer coverage is 5% for longline and 100% for purse seine. There is the potential for some flag states to increase their longline bigeye tuna catch limits by increasing longline coverage through either observers or Electronic Monitoring.

Electronic Monitoring standards have only been developed for longline fishing.

Purse seine fishing is managed through a variety of effort limits and closures for which the frameworks sometimes differ between the high seas and EEZs.

Longline fishing is primarily managed through flag-based catch limits for bigeye tunas and other fisheries have catch limits.

Oceanic whitetip and silky sharks are subject to non-retention measures.

Fishery impacts on tropical tunas

There are different ways to examine the impact of different fisheries on a species, these range from catch, to more complex approaches such as fishing mortality, or the impact on spawning biomass depletion (i.e., how much of the depletion in spawning biomass can be attributed to a given fishing gear/fleet).

These 'impact' analyses require fisheries to be identified within an assessment and are most easily implemented in Stock Synthesis (Methot and Wetzel 2013) or MULTIFAN-CL (Hampton and Fournier 2001).

In reviewing tropical tuna assessments across the four t-RFMOs, not all assessments included an 'impact' analysis, and in some instances, it was difficult to find catch plots for the fisheries defined in the assessments. Below is a summary of trends in catches, based on the FAO Global Tuna Atlas database, impact plots (when available) and Kobe and related plots of stock status.

IATTC

Bigeye catches in the eastern Pacific (*Figure 18*, top panel) were historically dominated by longline, but longline catches declined around the same time that the purse seine drifting FAD fishery developed in the late 1990s. Longline catches have continued to decline, but in the last four years there has also been a decline in purse seine FAD catches, attributed in part to the introduction of individual vessel limits in the purse seine fishery (Ovando et al., 2025). Fishery impacts mirror the catch trends with purse seine dominating impacts over the past 25 years and the stock has recovered rapidly in recent years and is not overfished and overfishing is not occurring (*Figure 19*, left panels).

Skipjack catches in the eastern Pacific (*Figure 18*, middle panel) are almost entirely taken by purse seine and have increased consistently from 1990-2010 where they remained relatively stable before a significant increase in 2024 to approximately double the average catch from 2010-2022. A little over 75% of the fishery impact is attributed to FAD fishing with the remainder attributed to free school fishing and the stock is not overfished and overfishing is not occurring (*Figure 19*, middle panels).

Yellowfin catches in the eastern Pacific (*Figure 18*, bottom panel) have generally fluctuated between 180- 300,000t aside from the three high years in the early 2000s where catches briefly exceeded 400,000t. Approximately 50% of the fishery impact is attributed to purse seine fishing on dolphin-associated schools and the impact of purse seine drifting FAD fishing has been increasing while free-school impacts have been declining and the stock is not overfished and overfishing is not occurring (*Figure 19*, right panels).

ICCAT

Bigeye catches (*Figure 20*, top panel) have generally ranged from 40-60,000t except for the period between 1990-2005 where they tracked up to over 100,000t in 1994 before tracking back down again. The catch is dominated by longline with purse seine and other gears contributing smaller and more stable proportions. In the past five years, catches have been lower than the recent 20-year average with a notable decline in purse seine catches. Despite having the highest catches, longline doesn't have the largest impact, rather those gears catching smaller bigeye tuna (e.g. purse seine with FADs) has a proportionally larger impact, and the stock is not overfished and overfishing is not occurring (*Figure 21*, left panels).

Skipjack catches (*Figure 20*, middle panel) increase slowly from the late 1970s through to around 2010, before increasing rapidly to close to 250,000t where catches have remained since. Purse seine overwhelmingly dominates the catch composition, with other gears contributing only minor shares. There is no fishery impact analysis available for this stock, and it is not overfished and overfishing is not occurring (*Figure 21*, middle panels).

Yellowfin catches (*Figure 20*, bottom panel) were at the highest in the early 1990s (just over 150,000t), decreased to just over 100,000t from 2005-15 and have ranged from 125-150,000t since then. Purse seine and longline share most of the catch, though purse seine generally account for the largest and most consistent portion over time. There is no fishery impact analysis available for this stock, and it is not overfished and overfishing is not occurring (*Figure 21*, right panels).

IOTC

Bigeye catches (*Figure 22*, top panel) show a long-term increase from the late 1970s through the 2000s, followed by fluctuations around 75,000t over the past 12 years. Whilst catches were dominated by longline in the early years, purse seine catches have matched or exceeded longline catches over the past 7-8 years. There is also a growing catch from other gears. There is no fishery impact analysis available for this stock, and it is overfished but overfishing is not occurring (*Figure 23*, left panels).

Skipjack catches (*Figure 22*, middle panel) rose steadily from the 1980s to 2006 where catches peaked at 600,000t followed by a decline to around 400,000t. Catches have exceeded 600,000t the past four years. While the dominate fleet is purse seine, significant catches are taken by handline and pole and line, various gillnet fisheries and other gears. There is no fishery impact analysis available for this stock, and it is not overfished and overfishing is not occurring (*Figure 23*, middle panels).

Yellowfin catches (*Figure 22*, bottom panel) increase through the 1980s to the mid-2000s when catches were well above 400,000t for four consecutive years. Catches dipped briefly but have fluctuated slightly above 400,000t for the past 15 years. A wide variety of gears catch yellowfin tuna with handline and pole and line catches very similar to purse seine catches and significant catches are also taken by gillnets, longline, and other gears. Fishery impacts are spread across a range of gears and fishing modes, and due to recent improvements in stock status it is not overfished and overfishing is not occurring (*Figure 23*, right panels).

WCPFC

Bigeye catches (*Figure 24*, top panel) rose through the 1980s to a peak in the mid-2000s of over 150,000t and have been declining slowly since then. Longline catches dominated early in the time series and have remained relatively constant, within most of the increases due to purse seine fishing though there have been recent increases in catches from Other gears. Fishery impacts are dominated by purse seine and other gears due to the smaller fish taken and the stock is not overfished and overfishing is not occurring (*Figure 25*, right panels).

Skipjack catches (*Figure 24*, middle panel) show a strong long-term increase, reaching the highest levels of any tuna stock, exceeding 2 million t in 2019 and 2024. Catches are dominated by purse seine, with decreasing catches from handline and pole and line. Fishery impacts are greatest for purse seining with FADs, slightly ahead of purse seine fishing on free schools and the stock is not overfished and overfishing is not occurring (*Figure 25*, middle panels).

Yellowfin catches (*Figure 24*, bottom panel) increase throughout the past 50 years exceeding 600,000t the last nine years. Purse seine represents about 60 % of catches in recent years with the remainder split between longline, pole and line and other methods. Fishery impacts are more heavily weighted to other gears, in particular fisheries in Indonesia and the Philippines, which catch smaller fish and the stock is not overfished and overfishing is not occurring (*Figure 25*, left panels).

> ***Recommendation**: Stock assessments should clearly state which fleets comprise the different fisheries defined in stock assessments and indicate any fleets excluded from stock assessments (and why).*

Recommendation: *Where possible stock assessments should separately model major fishery types to allow for impact analyses to be conducted to improve the understanding of the impacts of different fisheries.*

Recognizing that not all t-RFMOs maybe familiar with these analyses, if the assessment input and output files are available then this could be undertaken by interested parties.

Recommendation*: To help facilitate analyses that improve the understanding of the impacts of different fisheries, t-RFMOs should make stock assessment input and output files publicly available once stock assessment results have been endorsed by the relevant scientific body.*

Summary of matters relating to each tropical tuna

Considering the information above, and the estimated stock status and stock assessments themselves, below is a summary of matters for each of the three tropical tunas.

Bigeye tuna stocks have been recovering in recent years and are close to or above MSY levels. The primary impacts are the industrial fisheries of longline and purse seine fishing with FADs, but there are some non-industrial fisheries in Indonesia which are estimated to be important for bigeye stocks in the Indian and Western Pacific Oceans. A general concern across the t-RFMOs is how purse seine fishing with FADs (i.e., catches of smaller bigeye tuna) has reduced estimated yields for the stocks. The three largest data gaps are accurate catches of small bigeye tuna taken in FAD fisheries, longline CPUE series for tracking abundance of large bigeye tuna (due to the reductions in the Japanese fleets), and accurate catch estimates from those handline fisheries targeting large bigeye tuna in Indonesia.

Skipjack tuna stocks are healthy, and the primary impacts are due to industrial purse seine fishing. Nevertheless, the stock assessments are uncertain and often lack reliably time series of either relative abundance or fishing mortality. The current greatest data gap is time series of either fishing mortality rates from tagging, or some form of abundance indices.

Yellowfin tuna stocks have been recovering in recent years and are above MSY levels. While catches are generally dominated by industrial purse seine fishing, SSTF and Other fisheries are significant for yellowfin, especially in the Indian and Western Pacific Oceans. Importantly uncertainty in non-industrial tuna fisheries catches is a critical source of uncertainty in these stock assessments. The two biggest data gaps are reliable abundance indices (given the decreasing importance of longline fishing) and accurate catch estimates for SSTF and Other tuna fisheries.

Tropical tuna fishery impacts on other species

In this section I (1) summarize findings of three FAO commissioned global studies, (2) summarize available information from FAO FIRMS, and (3) highlight other data sources.

There are three FAO commissioned studies that look at bycatch in small-scale tuna fisheries (Gillet 2011), purse seine fisheries (Hall and Roman 2013), and longline fisheries (Clarke et al. 2014) respectively.

Small-scale tuna fisheries

Gillett (2011) provided the first global assessment of bycatch in small-scale tuna fisheries. The study estimated that small-scale fisheries produced approximately 681,000 t of tuna and 753,000 t of non-tuna species annually during the mid-2000s, with most production originating from East and Southeast Asia and the Indian Ocean. A key finding was that the concept of “bycatch” is often difficult to apply in small-scale fisheries because these are typically multi-species fisheries in which almost all catch has economic value and is retained. Consequently, discarding was found to

be minimal and generally not a major management concern. Rather than focusing on discarded catch, the report emphasized the importance of understanding the composition of non-tuna catches and the interactions of small-scale fisheries with vulnerable species.

Gillet found that the most significant bycatch-related concerns in small-scale tuna fisheries involve interactions with sensitive species, particularly sea turtles and marine mammals. These impacts are concentrated in certain gear types, especially small-scale gillnet fisheries, rather than in fisheries specifically targeting tuna. In contrast, small-scale handline, troll, and pole-and-line fisheries targeting tuna were generally considered selective, with few discards and limited interactions with protected species. The study concluded that broad bycatch-reduction objectives commonly applied to industrial fisheries may not be appropriate for many small-scale fisheries. Instead, management should focus on fisheries and locations where vulnerable species are affected, while improving monitoring, data collection, and RFMO coverage of small-scale fisheries. Priorities identified were better information on fisheries that interact with turtles and marine mammals, stronger reporting of non-tuna catches, and improved understanding of the large but poorly documented small-scale tuna fisheries of Indonesia.

Purse seine tuna fisheries

Hall and Roman (2013) reviewed bycatch and non-target catches in tropical tuna purse-seine fisheries worldwide. They found that purse-seine fisheries are highly selective in terms of overall catch proportions, with discarded catch typically representing only 1–5% of the total catch, and more than 90–95% of discards consisting of the target tuna species themselves, primarily small or non-marketable fish. The principal non-tuna bycatch groups include sharks, rays, billfishes, sea turtles, and a range of pelagic fishes such as mahi-mahi, wahoo, rainbow runner, and amberjack. Silky sharks were by far the most caught shark species, while olive ridley turtles were the most frequently encountered sea turtle, although most were released alive.

Hall and Roman (2013) concluded that bycatch composition is strongly influenced by fishing strategy, particularly whether sets are made on free-swimming tuna schools, dolphins, or fish aggregating devices (FADs). FAD-associated sets generally produce the highest levels of non-target catch, including sharks, juvenile tunas, and other pelagic species, whereas sets on free-swimming schools are typically the most selective. The review highlighted numerous mitigation measures, including changes in fishing practices and improved release techniques, but noted ongoing uncertainty regarding the broader ecosystem impacts of the rapidly expanding use of FADs in tropical tuna fisheries.

Longline fisheries

Clarke et al. (2014) reviewed global bycatch issues in tuna longline fisheries and found that interactions with non-target species are diverse, involving sharks, sea turtles, seabirds, marine mammals, and a wide range of other pelagic fishes. Sharks represent the largest bycatch component, with catches influenced by gear configuration, bait type, hook design, fishing depth, and operational practices. Although shark catches had declined from their peak by the early 2000s, uncertainty remained regarding population status and the effectiveness of management measures. Sea turtles, particularly loggerheads in the Atlantic, and seabirds, especially albatrosses and petrels in the Southern Hemisphere, were identified as conservation concerns due to mortality associated with hook ingestion and entanglement. Marine mammal interactions were generally less frequent but could have significant local impacts, while hundreds of other pelagic fish species are also caught, although the consequences for many of these populations remain poorly understood.

The review highlighted that bycatch risk varies substantially among fleets because of differences in vessel size, fishing practices, gear configurations, fishing locations, and target species. Larger offshore and distant-water longline vessels

tend to overlap more extensively with seabird and oceanic shark distributions, whereas smaller coastal and domestic fleets may interact more frequently with turtles, coastal sharks, and locally important food fish species. The authors emphasized that operational characteristics—such as hook depth, soak time, bait type, and handling practices—are often more important determinants of bycatch than vessel size alone. Consequently, effective mitigation requires fleet-specific approaches, including circle hooks and finfish bait for turtles, night setting and bird-scaring lines for seabirds, and modifications to fishing gear and practices for sharks and marine mammals. The report concluded that improved observer coverage, better bycatch monitoring, and tailored mitigation strategies are essential because the diversity of longline fleets and fishing methods means that no single solution is effective across all fisheries.

Retained fish bycatch

To examine available data of bycatch of other fish species (e.g., billfish, sharks etc.) I used two datasets from the FAO Global Tuna Atlas (1) the annual catch estimates used above to describe tropical tuna catches, plus (2) the fine scale version of 'the same data' which is disaggregated to either 1x1 or 5x5 degree resolution depending on the fleet and t-RFMO. The use of the spatially aggregated data aimed to more closely focusing on targeted fishing for tropical tunas considering data only between 20 degrees north and south of the equator.

Key features of the annualized catch estimates for fisheries categorized into the three groups are (*Figure 26*):

- Not all gears have any or discernable catch reported outside of the three tropical tunas;
- IOTC has different reporting requirements to WCPFC (e.g., neritic tunas), which is seen in the different catch composition for the same gears used in different RFMOs by Indonesian;
- The gillnet-based fisheries have significant non-tropical tuna catches, confirming Gillet's conclusions that many of these fisheries only take tropical tunas as bycatch.

To closely examine the available non-tropical tuna catches, in *Figure 27*, the other catches are shown as proportions. I have categorized catches at the family level, except for albacore tuna and the bluefin tunas which I have separated from other Scombridae.

Key features are:

- Neritic tunas are dominant in the non-tropical tuna catches in the IOTC and ICCAT fisheries;
- Bluefin tuna are present for several fisheries, likely reflecting widespread fisheries that occur in both tropical and temperate waters.

To address the mix of temperate and tropical fisheries, I attempted to use the spatially disaggregated FAO Global Tuna Atlas data and focus on catches between 20 degrees of the equator. I also choose to look at the major fisheries within each gear type to get data on a broader range of species.

Before describing the results, it is important to report some of the differences in data treatment. Key differences in this data set were[7]:

Catch data from tuna fisheries were reported in either the number of fish or live-weight equivalent;

WCPFC data were filtered at the source to exclude all strata with observations from fewer than four vessels, reducing their accuracy;

[7] https://zenodo.org/records/20364497

Due to WCPFC confidentiality policies, information on fishing fleet in data available at a resolution of one month and 1° or 5° of longitude and latitude is only available for fisheries occurring in the Western Pacific Ocean that use drifting longlines; and

For WCPFC fishing fleet was set to NEI for all fisheries using purse seines, gillnets, and pole-and-lines and only catches of tunas provided for these gear types.

You will see that these data treatments, primarily driven by the WCPFC data release rules, greatly restrict spatial catch data for their fisheries.

Key features are (*Figure 28*):

- Only one purse seine and handline and pole and line fishery is defined for WCPFC and catches are only provided for tropical tunas;

Other species are very important for the gillnet and longline fisheries.

When focusing only on the non-tropical tuna catches (*Figure 29*):

We see that albacore have become increasingly important to fisheries at lower latitudes;

Billfish are an important bycatch in drifting gillnet fisheries.

***Recommendation**: t-RFMOs should considering requiring reporting of catches of all major species taken in fisheries under their jurisdiction (e.g., neritic tunas).*

***Recommendation**: t-RFMOs should consider approaches that address data confidentiality concerns without significantly impacting public data availability (e.g., through either the Global Tuna Atlas or t-RFMO publicly available data sets).*

Non-retained bycatch (fish and non-fish)

Reporting of catches of other species is improving across all fisheries and t-RFMOs but is generally limited to retained catches. Estimates of non-retained catches (both fish and non-fish) are critical to understanding fisheries impacts on the ecosystem (e.g., Aróstegui et al., (2026)) and to monitor the recovery of the numerous shark species for which retention is either not allowed or significantly restricted.

There are other estimates of fish bycatch that incorporate observer data – good for both non-retained species and/or those for which reporting in logbooks may not be mandatory. These are sometimes available in 'National Reports' required by t-RFMOs and are sometimes summarized in 'species-group' specific reports within each t-RFMOs and "Ecosystem and bycatch" working group.

In terms of aggregated information at a t-RFMO level the following are available:

- IATTC provides a report with detailed information with times series of catch estimates for purse seine fishing but limited information for longline and nothing for other gears (Fuller et al., 2026b);
- ICCAT provides an Access database[8] but I could not 'access' the contents.
- IOTC provides a summary of available data for bycatch species, but it is quite limited (IOTC 2026)

[8] https://www.iccat.int/en/bycatch.html

- WCPFC provides detailed reports for purse seine (Peatman et al., 2024) and longline (Peatman and Nicol, 2025) and the tables have been made available in excel form on the WCPFC website for earlier versions of these papers.

WCPFC has the most complete and accessible information, and information is generally more available for purse seine, then longline.

Quantitative estimates of non-fish bycatch (e.g., seabirds, turtles, and marine mammals) are less available than those for fish bycatch across all t-RFMOs.

The only detailed observer data published from a t-RFMO that I could find was for WCPFC that publishes 'raw' observer data from its Regional Observer Programme[9]. The data are provided at a 5x5 degree and fishing gear (longline or purse seine level) and at the species level reported by the observer.

The United States also makes estimates of bycatch available for its longline fisheries[10]. Though not responsible for tropical tunas, it is noteworthy that CCSBT makes observed longline bycatch data publicly available[11].

> ***Recommendation****: t-RFMOs produce annual reports (with associated data files) of observed, and scaled estimates of bycatch (both fish and non-fish) for purse seine and longline fisheries from observer data.*

> ***Recommendation****: t-RFMOs take steps to obtain estimates of bycatch for other gears, with an emphasis on gillnet fisheries that predominantly catch tropical tunas.*

> ***Recommendation****: FAO update the global reviews of bycatch in tuna fisheries (i.e., purse seine, longline, and small-scale fisheries) recognizing that previous reviews were published 12-15 years ago.*

Summary of matters relating to fisheries

In terms of matters relating to each fishery type:

Purse seining is by far the most dominant industrial fishery in terms of catches but also has the greatest level of verification and reporting. Observer coverage (human or electronic) is at or near 100% in most RFMOs, transhipment must occur in port (with some limited exemptions), they are subject to closures, limits around FAD use, and fishers have logbooks that include interactions with FADs in addition to regular catch and effort information for fishing activity. Further, FAD registries are being developed or rolled out in many RFMOs. Key impacts that require better information and/or management intervention include:

> Catches of bigeye tuna associated with fishing on FADs;
>
> Approaches to further reduce impacts on sharks and rays taken as bycatch;
>
> Research to support the development of abundance indices; and
>
> Environmental impacts of lost and/or abandoned FADs.

[9] https://www.wcpfc.int/public-domain-bycatch-data-files

[10] https://connect.fisheries.noaa.gov/Bycatch-GUI/

[11] https://www.ccsbt.org/en/userfiles/file/data/ERSWG_Data.xlsx

Longlining is the dominant industrial method for more temperate species (not covered in this report) but is also important for catching bigeye and yellowfin tunas. Verification levels are much lower (typically around 5% or less) and generally not considered sufficient to accurately estimate or track bycatch of rarer species. Longline vessels often transship their catch on the high seas, though most RFMOs now require observers on the transshipment vessels and to notify transshipment activities. Further, there are catch documentation programs that help monitor trade for bigeye tuna. Longline activity is generally managed through output controls (e.g., catch limits) and most other regulations relate to mitigate the bycatch of (e.g., seabirds, turtles, and sharks) and there are several shark species across RFMOs for which retention is now prohibited. Key impacts that require better information and/or management intervention include:

- Greatly increased verification of fishing activity (compliance with regulations and estimates of non-retained species, especially sharks subject to retention prohibitions) through either human observers or Electronic Monitoring;
- Consideration of the pros and cons of high-seas transhipment; and
- More detailed information of fishing practices to help accurately standardize catch per unit effort data.

Fisheries for **Other gears** are important to overall stock status in several stocks, in particular the importance of fisheries in Indonesia for yellowfin tunas in the Indian Ocean, and fisheries from Indonesia, the Philippines, and Vietnam for all tropical tunas in the western Pacific Ocean. Pole and line fisheries often provide important abundance indices for skipjack tuna assessments. Variable vessel registry requirements mean than for many important fleets that vessel numbers are not known and catch estimates are often annual or even carried across multiple years. In some instances, revision of catch estimates can dramatically shift stock assessments. In terms of unwanted bycatch, gillnet related fisheries are known to be important, but routine monitoring and reporting of bycatch is rare. Key impacts that require better information and/or management intervention include:

- Increased coverage of Other fisheries in vessel registries, VMS, observer coverage, and reporting requirements[12];
- Continued monitoring of the various fisheries in Indonesia and the Philippines;
- Improved quantification of bycatch from gillnet fisheries, in particular pelagic gillnet fisheries
- Improved understanding of new emerging fisheries, e.g., Oman handline and pole and line, Iran gillnet, Sri Lanka hook and line, and Brazil unknown gear fishery; and
- Improved articulation by RFMOs as to how SSTF are protected in the establishment of management measures.

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[12] Application of the FAO classification matrix could help prioritise this.

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Tables and Figures

Table 1 Small-scale tuna fisheries identified by Gillet (2011)

Bonitier fishing in French Polynesia[13]	Handlining in Hawaii[14]
Commercial rod/reel fishing in South Africa	Longlining in Ecuador
Handlining in Cap Vert	Longlining in Grenada
Handlining fisheries of the Philippines	Longlining in Sri Lanka
Handlining in Morocco	Longlining in Samoa
Handlining in Algeria	Pole-and-line fishing in Indonesia
Handlining in the Maldives	Trolling in Kiribati
Handlining in Indonesia	
Handlining in many Pacific Islands (drop-stoning)	

Table 2: Gear codes and descriptions from FAO FIRMs Global Tuna Atlas for those fisheries reported catching tropical tunas in each t-RFMO

gear_type	gear_descr	IATTC	ICCAT	IOTC	WCPFC
1.1	Purse seines	X	X	X	X
1.2	Surrounding nets without purse lines			X	
10.1	Harpoons			X	
10.9	Gear nei	X		X	X
2.1	Beach seines			X	
2.2	Boat seines			X	
3.9	Trawls (nei)			X	
5.9	Lift nets (nei)			X	
6.1	Cast nets			X	
6.9	Falling gear (nei)			X	
7.2	Drift gillnets			X	X
7.9	Gillnets and entangling nets (nei)	X		X	
8.4	Stow nets			X	
8.9	Traps (nei)			X	
9.1	Handlines and hand-operated pole-and-lines	X	X	X	X
9.2	Mechanized lines and pole-and-lines			X	
9.31	Set longlines				X
9.32	Drifting longlines	X	X	X	
9.5	Trolling lines	X		X	X
9.9	Hooks and lines (nei)			X	X
99.9	Gear not known	X	X		

[13] Similar to pole and line

[14] Combination of “ika-shibi” fishing at night, “palu ahi” fishing during the day, and jigging on FADs

Table 3: Vessel registry requirements by tuna-RFMO

Tuna-RFMO	Vessel registry requirement
IATTC	Vessels authorized to fish for species managed under the convention within the convention area (https://www.iattc.org/en-US/Management/Vessel-register)
ICCAT	Vessels that are 20m in length overall or greater and authorized to fish for tuna or tuna-like species in the ICCAT Convention area (https://www.iccat.int/en/vesselsrecord.asp)[15]
IOTC	Vessels larger than 24m in length overall, or less than 24m, but operating in waters outside the economic exclusive zone of the flag state (https://iotc.org/vessels)
WCPFC	Vessels that are authorized to fish beyond a flag-state national jurisdiction within the Convention Area (https://vessels.wcpfc.int)

Table 4: Comparison of t-RFMO vessel registry requirements

RFMO	Small vessel (<20–24 m) fishing only in EEZ	Small vessel (<20–24 m) fishing on high seas	Large vessel (≥20–24 m) fishing only in EEZ	Large vessel (≥20–24 m) fishing on high seas
IATTC	✓ Required	✓ Required	✓ Required	✓ Required
ICCAT[15]	✗ Not required	✗ Not required	✓ Required	✓ Required
IOTC	✗ Not required	✓ Required	✓ Required	✓ Required
WCPFC	✗ Not required	✓ Required	✗ Not required	✓ Required

[15] See footnote 4

	0	1	2	3
Size of fishing vessel (or equivalent range for fixed gears)	☐ No vessel	☐ <12m, <10GT	☐ ≤24m, <50GT	☐ >24m, >50GT
Motorization	☐ no engine	☐ outboard engine/ inboard engine ≤100hp	☐ inboard engine <400hp	☐ inboard >400hp
Mechanization	☐ No mechanization	☐ Small power winch/hauler powered off engine	☐ Independently powered gear deployment/hauling	☐ Fully mechanized gear deployment & hauling
Fishing gear	☐ Labour intensive gear	☐ Passive gear	☐ Gear with aggregating devices	☐ Highly active gear
Refrigeration/Storage on board	☐ no storage	☐ ice box (i.e. on deck)	☐ ice hold (i.e. below deck)	☐ refrigerated hold
Labour/Crew	☐ Individual and/or family members	☐ Cooperative group	☐ ≤2 paid crew	☐ >2 paid crew
Fishing Unit/Ownership	☐ Owner/operator	☐ Leased arrangement	☐ Owner	☐ Corporate business
Time commitment	☐ Occasional	☐ Full-time, but seasonal	☐ Part-time all year	☐ Full time
Daily trip/multiday	☐ <6 hours	☐ day trip (< 24 hours)	☐ <4 days	☐ > 4 days
Fishing grounds/zone/ distance from shore	☐ <100 metres from shoreline/baselines/ high-water mark	☐ <10 km from shoreline	☐ <20km	☐ >20km from shoreline/ baselines
Disposal of catch	☐ Household consumption/barter (exchange for payment in goods or services)	☐ Local direct sale (exchange for monetary payment)	☐ Sale to traders	☐ Onboard processing and/or delivery to processors
Utilization of catch, Value adding/ preservation	☐ For direct human consumption	☐ Chilled/ locally processed/ cured	☐ Frozen	☐ Frozen/chilled for factory processing (for human consumption or fishmeal)
Integration into economy and/or management system	☐ Informal not integrated (no fees)	☐ Integrated (registered, untaxed)	☐ Formal integrated (licensed, landing fees)	☐ Formal, integrated (licensed, taxed)

Figure 1: FAO Matrix for the characterization of fishing activities (Savoré, 2023).

TABLE 8. Proposed classification categories for longline vessels targeting tunas and billfishes under the Commission's purview in the eastern Pacific Ocean (EPO), developed with a focus on fishing activity characteristics (how, what, where, when, and why). Categories were developed in response to recommendations from the 2nd and 3rd meetings of the Ecosystem and Bycatch Working Group. Due to substantial variation in how "artisanal" fisheries are defined across CPCs, as highlighted by the Common Oceans ABNJ Tuna I and II Projects (SAC-07-06b(ii); SAC-07-06b(iii); SAC-16 INF-V), the characteristic descriptions for each category **are general in nature and may include exceptions**. The purpose of establishing these categories is to guide research planning, support management measures and decision-making, and improve clarity for CPCs, data providers, scientists, policy makers, and other stakeholders when considering relevant Resolutions and IATTC documents. Development of clear and practical reporting categories—particularly for smaller-scale longline vessels—given the current lack of formal definitions for "small-scale" and "artisanal" vessels in IATTC Resolutions, will improve data collection and estimates of total removals (e.g., under Resolution C-03-05). The two small-scale categories may deploy other gears, in addition to longline, depending on season and market conditions. EEZ: Exclusive Economic Zone; NA: Not Applicable.

TABLA 8. Categorías de clasificación propuestas para los buques palangreros que pescan atunes y peces picudos bajo competencia de la Comisión en el Océano Pacífico oriental (OPO), elaboradas centrándose en las características de la actividad pesquera (cómo, qué, dónde, cuándo y por qué). Las categorías se elaboraron en respuesta a las recomendaciones de la 2ª y 3ª reunión del Grupo de Trabajo sobre Ecosistema y Captura Incidental. Debido a la considerable variación en la definición de pesquerías "artesanales" entre los CPC, tal y como se destaca en los proyectos ABNJ Atún I y II de Océanos Comunes (SAC-07-06b(ii), SAC-07-06b(iii); SAC-16 INF-V), las descripciones de las características de cada categoría **son de carácter general y pueden incluir excepciones**. El objetivo de establecer estas categorías es orientar la planificación de la investigación, respaldar las medidas de ordenación y la toma de decisiones, y mejorar la claridad para los CPC, los proveedores de datos, los científicos, los responsables políticos y otras partes interesadas a la hora de examinar las resoluciones y los documentos pertinentes de la CIAT. El desarrollo de categorías de notificación claras y prácticas, en particular para las embarcaciones palangreras de pequeña escala, dada la actual falta de definiciones formales de embarcaciones "de pequeña escala" y "artesanales" en las resoluciones de la CIAT, mejorará la recolección de datos y las estimaciones de las extracciones totales (por ejemplo, en virtud de la resolución C-03-05). Las dos categorías de pequeña escala pueden utilizar otros artes de pesca además del palangre, en función de la estación y las condiciones del mercado. ZEE: Zona Económica Exclusiva; N/A: No aplicable.

Fishing activity	Characteristic	Large-scale longline	Advanced medium-scale longline	Medium-scale longline	Small-scale commercial longline	Small-scale coastal longline
How	Autonomy	**Long durations**, capacity to stay at sea from several months to more than a year	Capable of **long durations**, capacity to stay at sea for several weeks or months; commonly >25 days but generally < 90 days	**Moderate durations** at sea; commonly <25 days	**Short durations** at sea, commonly <5 days	**Short durations** at sea, commonly <5 days. Duration increases if used as a catcher vessel aboard a mothership
	Length (m)	**Large vessels:** Commonly >30 m	**Large vessels:** Commonly 20–30 m	**Medium vessels**: Commonly >10–20 m	**Small vessels:** Commonly <10–12 m	**Small boats**: Commonly <10 m
	Propulsion	**Diesel-inboard power**	**Diesel-inboard power**	**Diesel-inboard power**	**Diesel- or gasoline-inboard power**	**Gasoline outboard engine(s)**
	Electronic equipment	**Fish finding and navigational electronics** (e.g., acoustic doppler current profilers, SONAR, echo-sounder)	May have **fish finding and navigational electronics** (e.g., acoustic doppler current profilers, SONAR, echo-sounder)	Some **fish finding and navigational electronics** (e.g., GPS, radar, echo-sounder)	**Basic electronics** (e.g., VHF radio, GPS, echo-sounder, etc.)	May have some **basic electronics** (e.g., VHF radio, GPS, etc.)
	Deck equipment	**Mechanical:** Hydraulic spool, winches, and/or line shooters to deploy and recover line and associated gear	**Mechanical:** Hydraulic spool, winches, and/or line shooters to deploy and recover line and associated gear	**Mechanical or manual:** hydraulic spool or hand-deployed and recovered line	**Manual:** May haul by hand into baskets or tubs, or use a hand-cranked line drum	**Manual:** Likely hauls by hand into baskets or tubs, or use a hand-cranked line drum
	Preservation method	**Advanced freezing capabilities** (i.e., refrigeration systems for preserving catch at ultra-low temperatures (-50°C to -60°C) for extended time periods	May have **advanced freezing capacity** (i.e., refrigeration systems to preserve fish at ultra-low temperatures for extended time periods)	Commonly use **ice** either carried from port or made aboard at sea	**Ice**; no refrigeration systems	**Ice**; no refrigeration systems
	Number of hooks	Generally, >2,500	Generally, 1,000–2,500	Generally, 500–2,000	Generally, ≤1,000	Generally, ≤1,000
	Mothership[12]	NA	The principal vessel actively fishes and may provide logistical support (fuel, provisions, bait, catch storage) to up to 10 small-scale coastal longline vessels in distant fishing grounds.	The principal vessel actively fishes and may provide logistical support (fuel, provisions, bait, catch storage) to up to 10 small-scale coastal longline vessels in distant fishing grounds.	NA	May operate as a "catcher" vessel aboard a mothership (advanced medium-scale longliner or medium-scale longliner)
	Transshipment	May occur (see C-22-03)	May occur (see: C-22-03)	Does not occur (see C-22-03)	Does not occur (see C-22-03)	Does not occur (see C-22-03)
What	Target species	Tunas, billfishes some shark species	Tunas, billfishes, dorado, some shark species	Tunas, billfishes, sharks, dorado, and other large pelagic fishes	Mixed or multi-species fisheries, switching target species from dorado to tunas, billfishes, sharks	Mixed or multi-species fisheries, switching target species from dorado to tunas, billfish and sharks
Where	Fishing area	Due to its characteristics, particularly its autonomy, the vessel generally operates far from the territory of its Flag State or home port, and at a considerable distance from the coast, primarily on the high seas, beyond the 200-mile EEZs. However, the vessel may also fish in the EPO within areas under national jurisdiction under license granted by the coastal State or within the framework of a fishing agreement	Vessels can fish at a considerable distance from the coast including outside EEZs, but generally operate within EEZs either of their own flag State or in another EEZ, other than that of their flag State, under license granted by the coastal State or within the framework of a fishing agreement	Vessels can fish at a considerable distance from the coast, including outside EEZs, but generally operate within EEZs either of their own flag State or under license granted by the coastal State or within the framework of a fishing agreement	Vessels primarily fish within the areas under national jurisdiction of their own flag State or of another EPO coastal State	Vessels primarily fish within the areas under national jurisdiction of their own flag State or of another EPO coastal State, unless operating as a catcher vessel in coordination with a mothership and may then operate outside the EEZ
When	Seasonality component	Target species typically does not change seasonally	Target species typically does not change seasonally	Target species may change depending on the season and market conditions	Target species may change depending on the season and market conditions	Target species may change depending on the season and market conditions
Why	Market	Domestic and export markets	Domestic and export markets	Domestic and export markets	Commonly for domestic markets; occasionally export markets	Commonly used for local consumption; may be sold in domestic markets; catcher-vessel product may be exported

[12] A longline "Mothership" is defined as a fishing unit consisting of the mothership and up to 10 'small-scale coastal ('artisanal') longline' vessels (traditional fiber-glass skiffs or pangas) operating in distant fishing areas, for the purpose of fishing, supplying water, fuel, provisions, bait and other fishing supplies, and in turn, storing the fish caught by the 'artisanal' fishing vessels in its holds.

Figure 2: Proposed criteria for categorizing longline fishing activities within IATTC (from Fuller et al. 2026a).

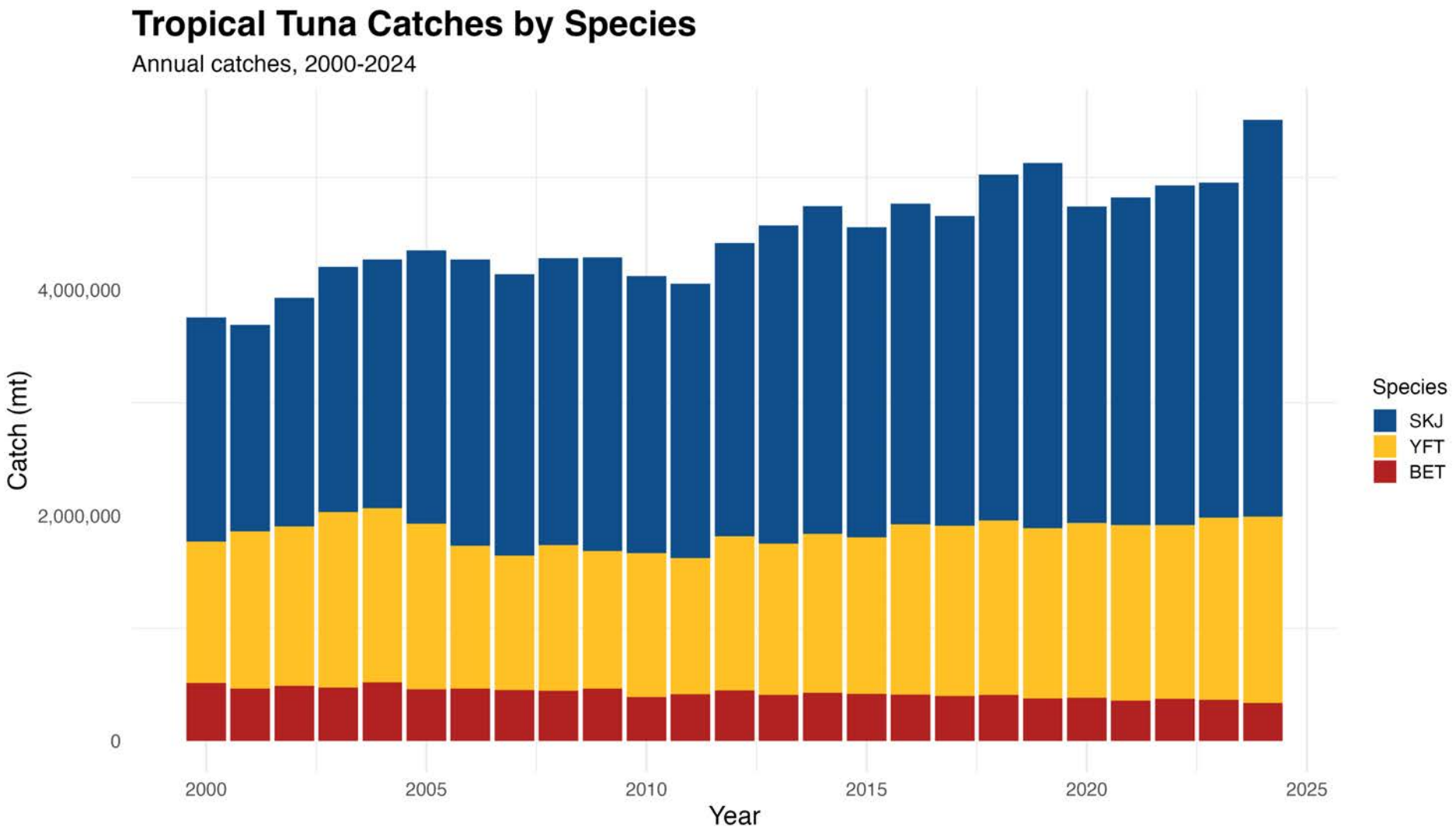


Figure 3: Annual catches of BET+SKJ+YFT across all four t-RFMOs for 2000-2024.

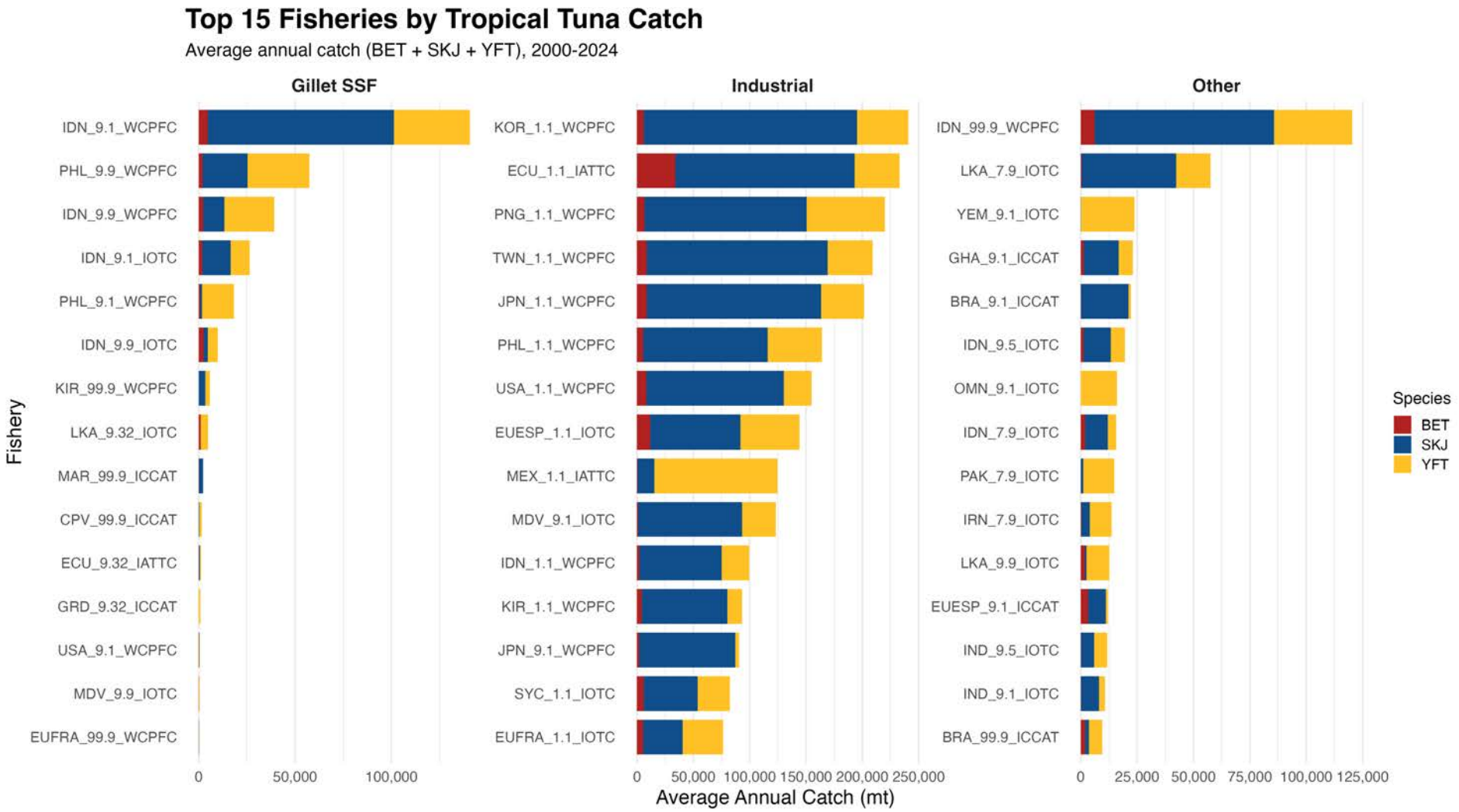


Figure 4: Average annual catch of tropical tunas of the top 15 fisheries categorised as SSTF (after Gillet), Industrial, or Other.

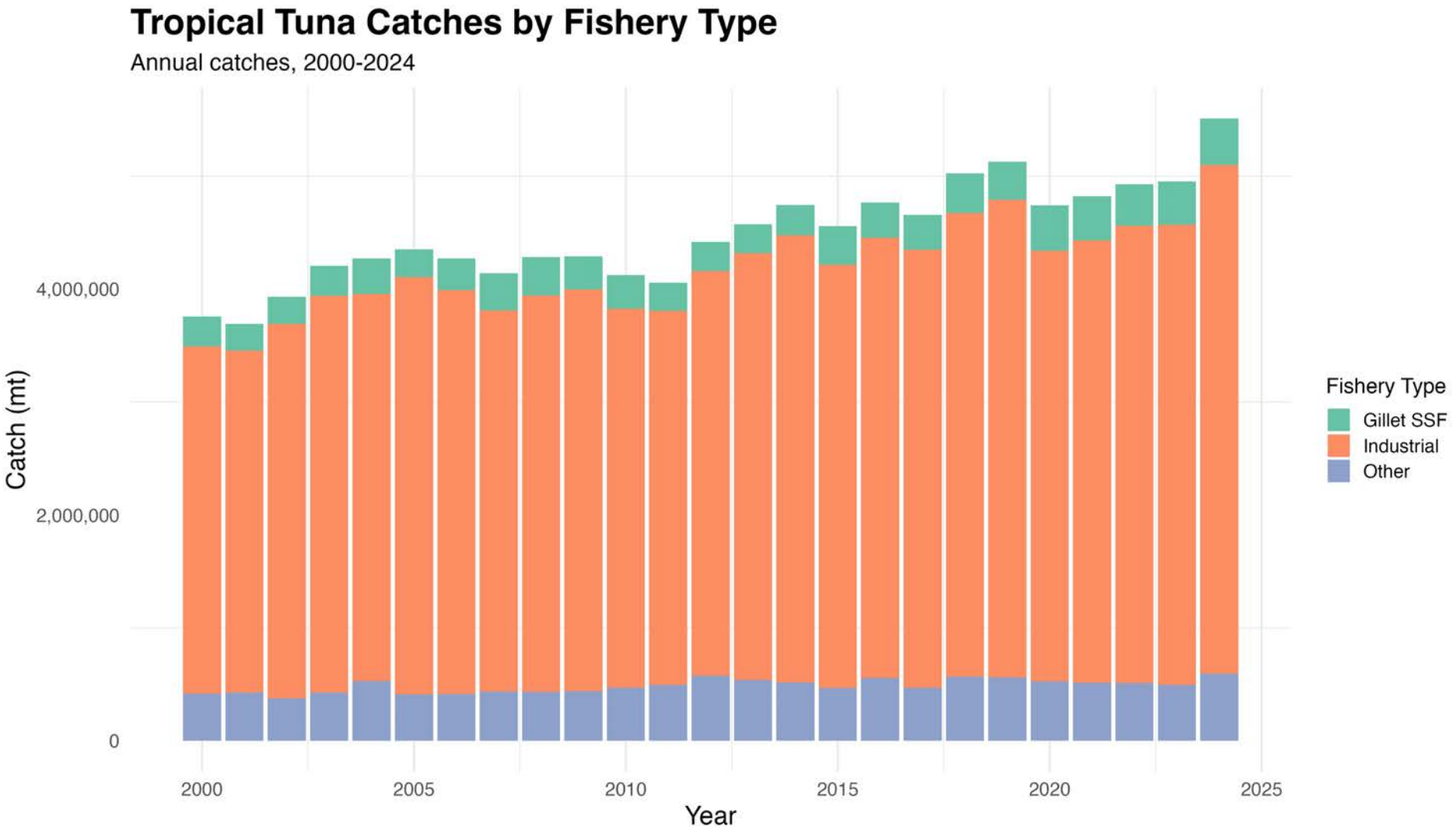


Figure 5: Annual catch of tropical tunas categorised as SSF (after Gillet), Industrial, or Other.

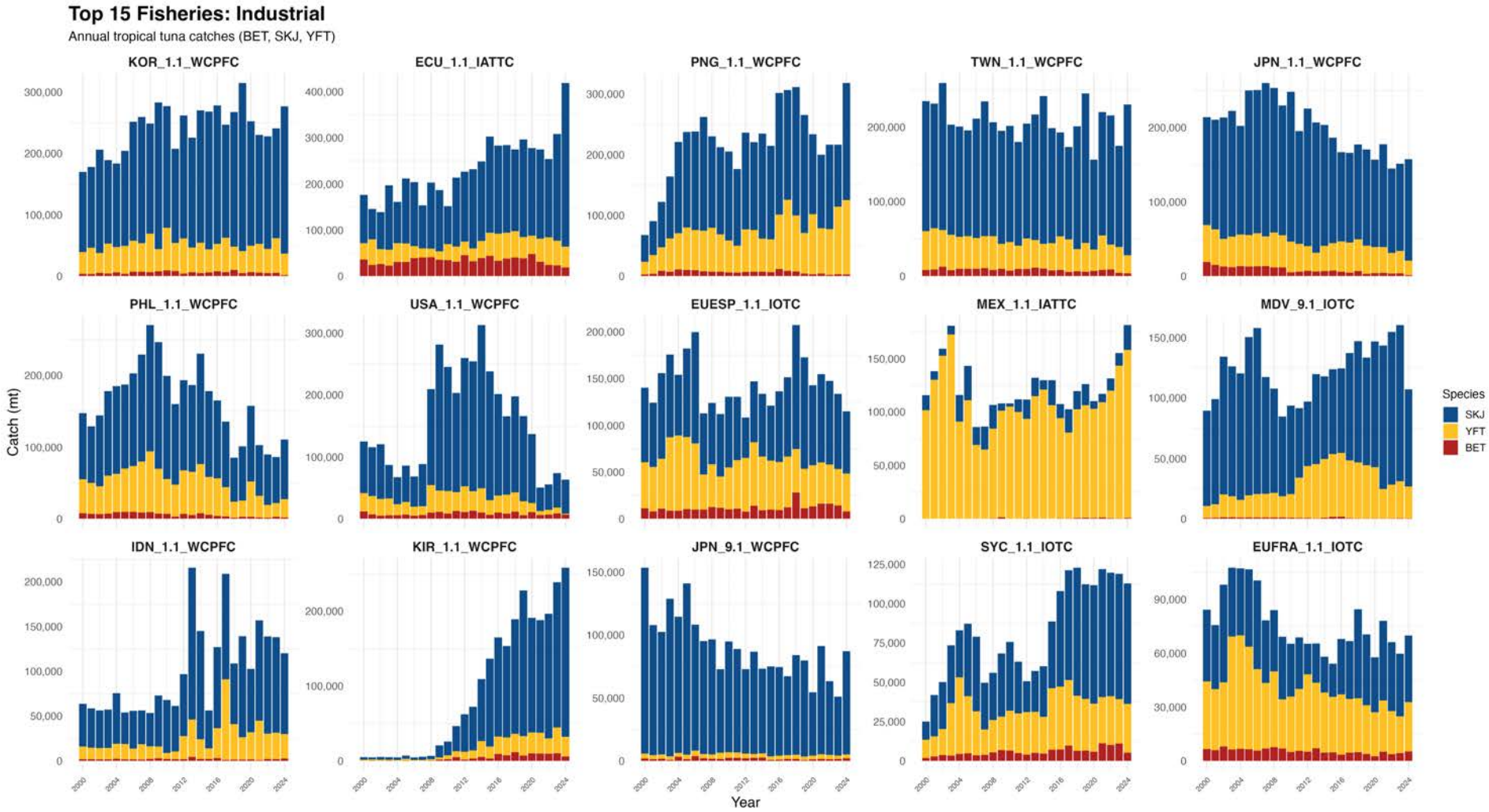


Figure 6: Annual catches of tropical tuna for the top 15 Industrial fisheries.

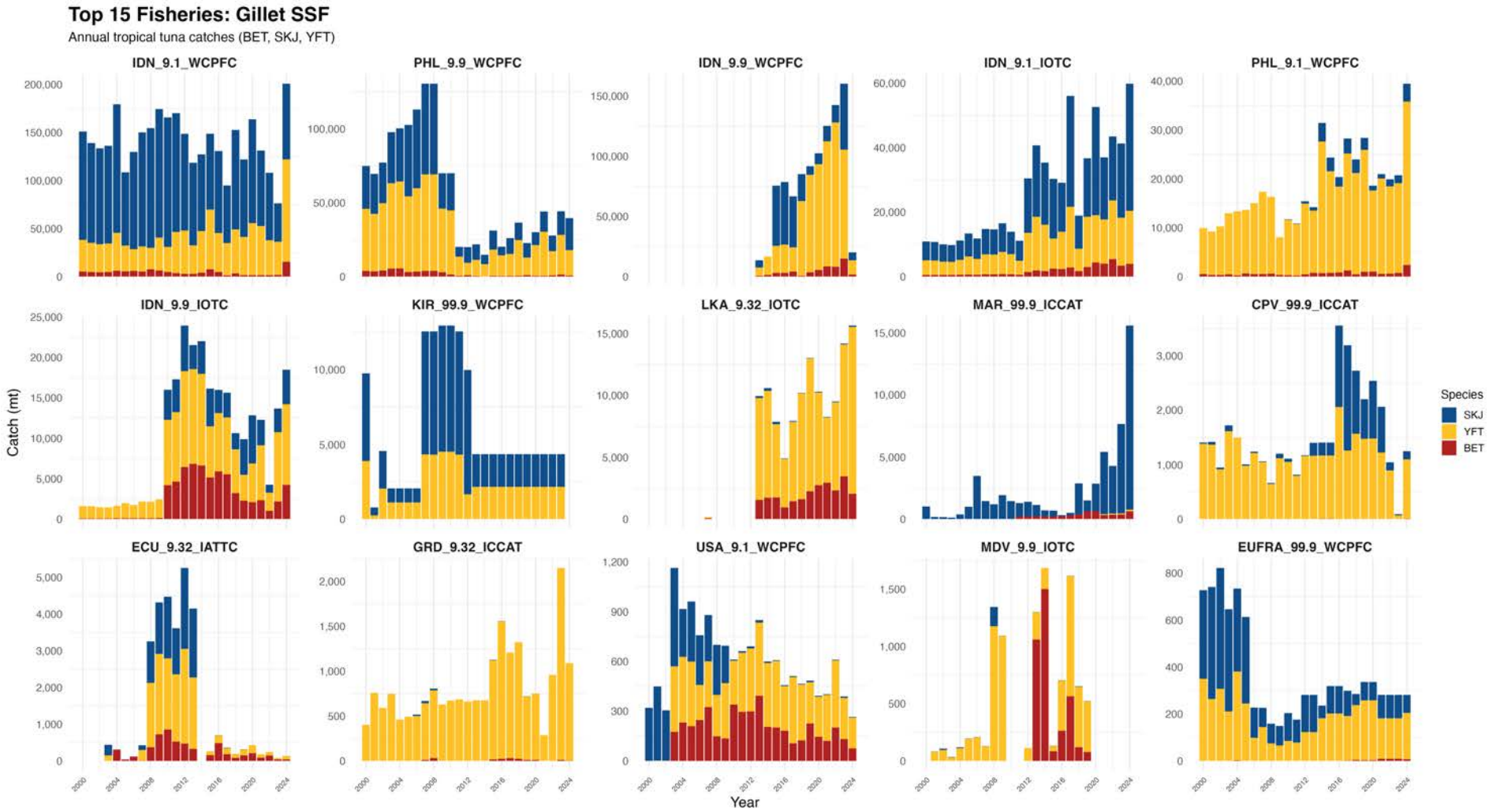


Figure 7: Annual catches of tropical tuna for the top 15 SSTF fisheries identified by Gillet (2011).

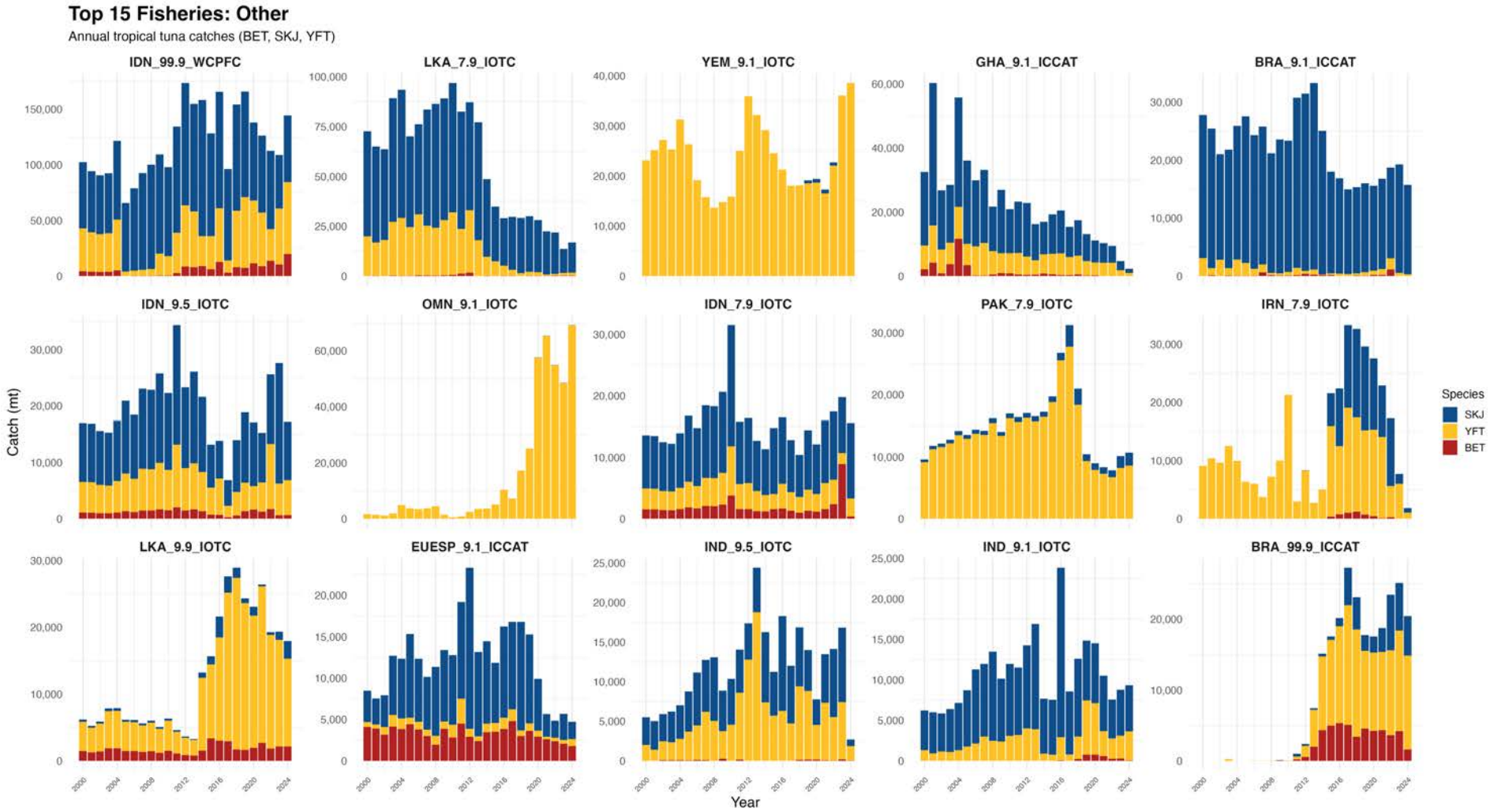


Figure 8: Annual catches of tropical tuna for the top Other fisheries.

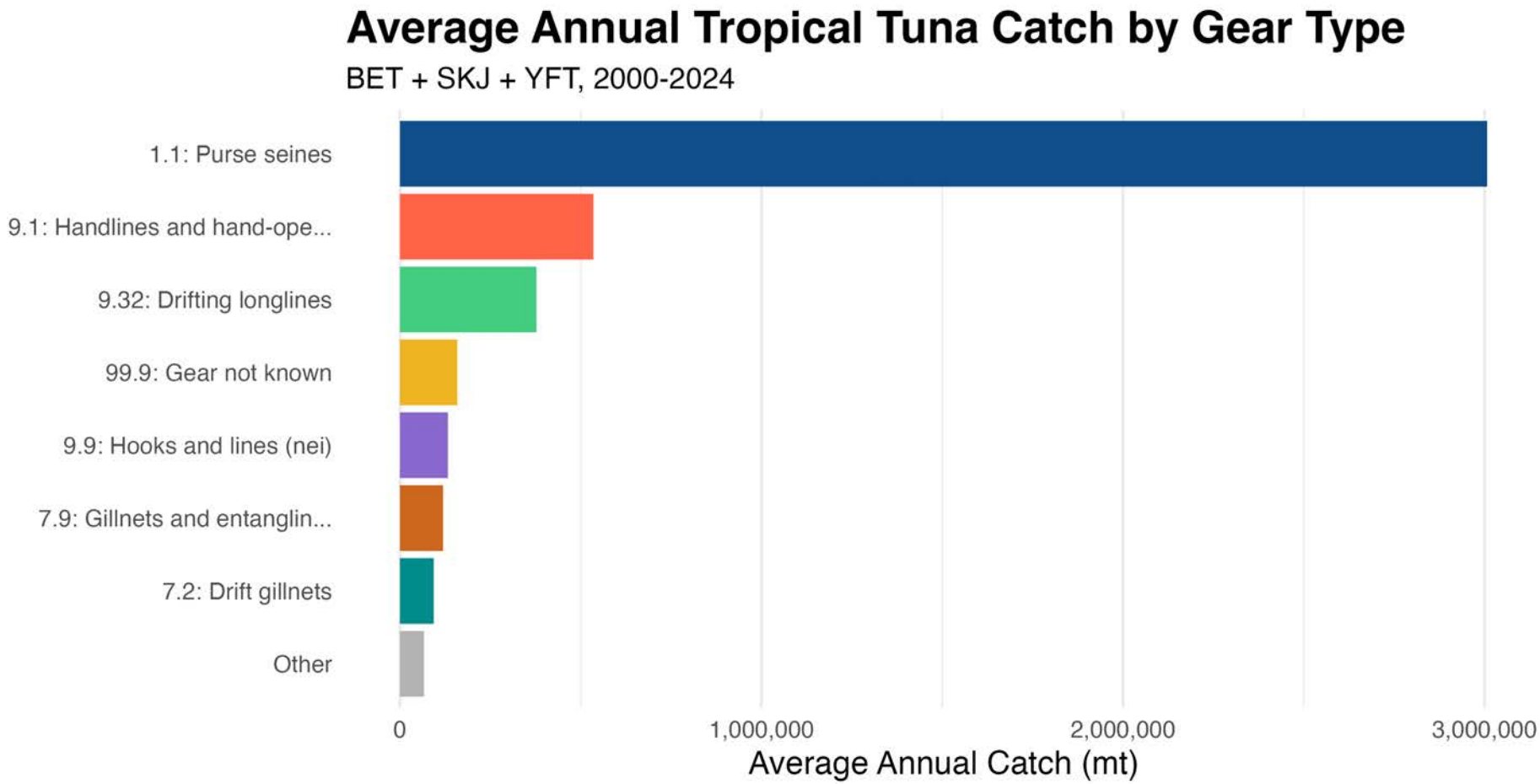


Figure 9: Annual average catch of tropical tunas by gear type.

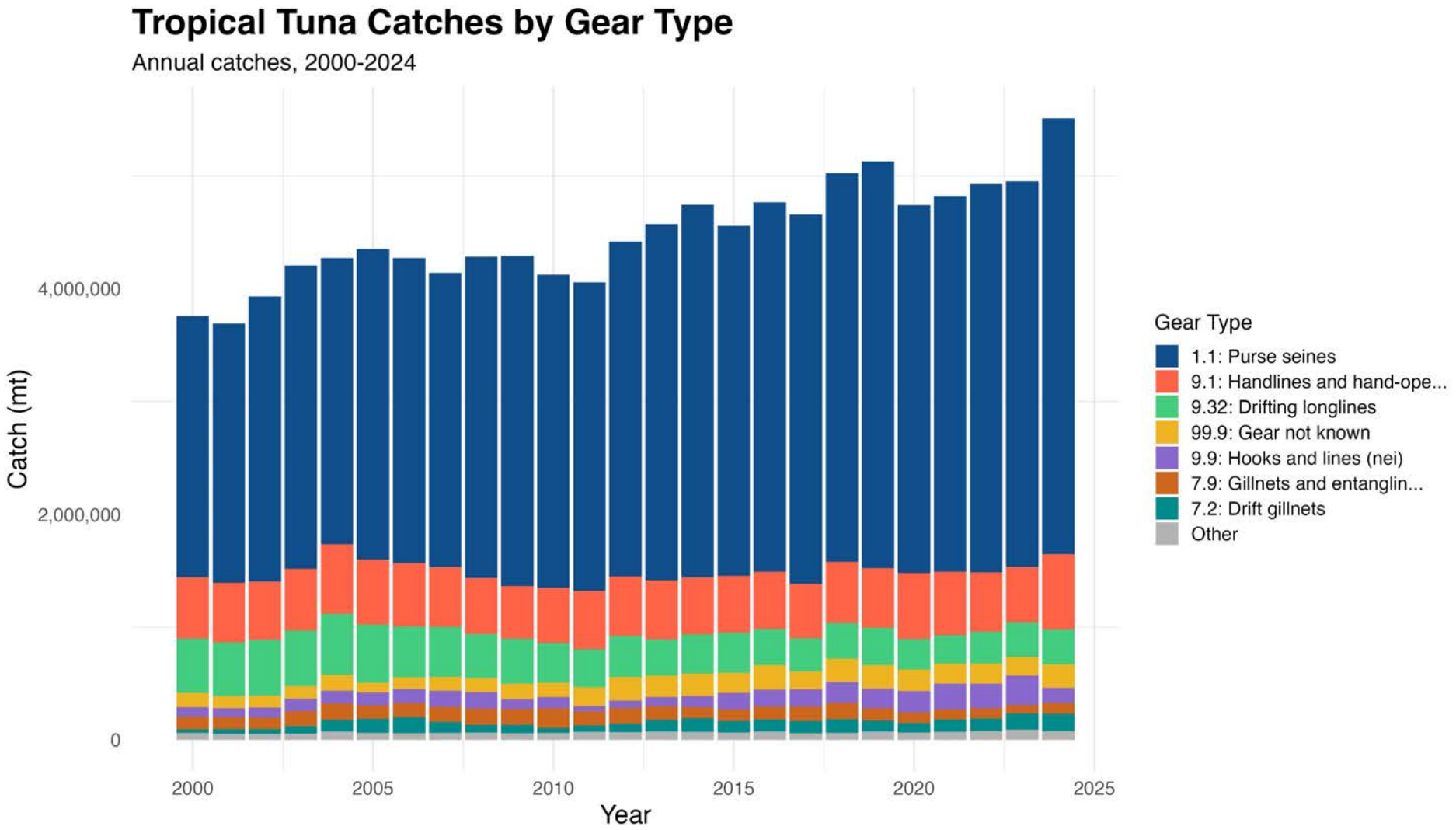


Figure 10: Annual catches of tropical tuna by gear type.

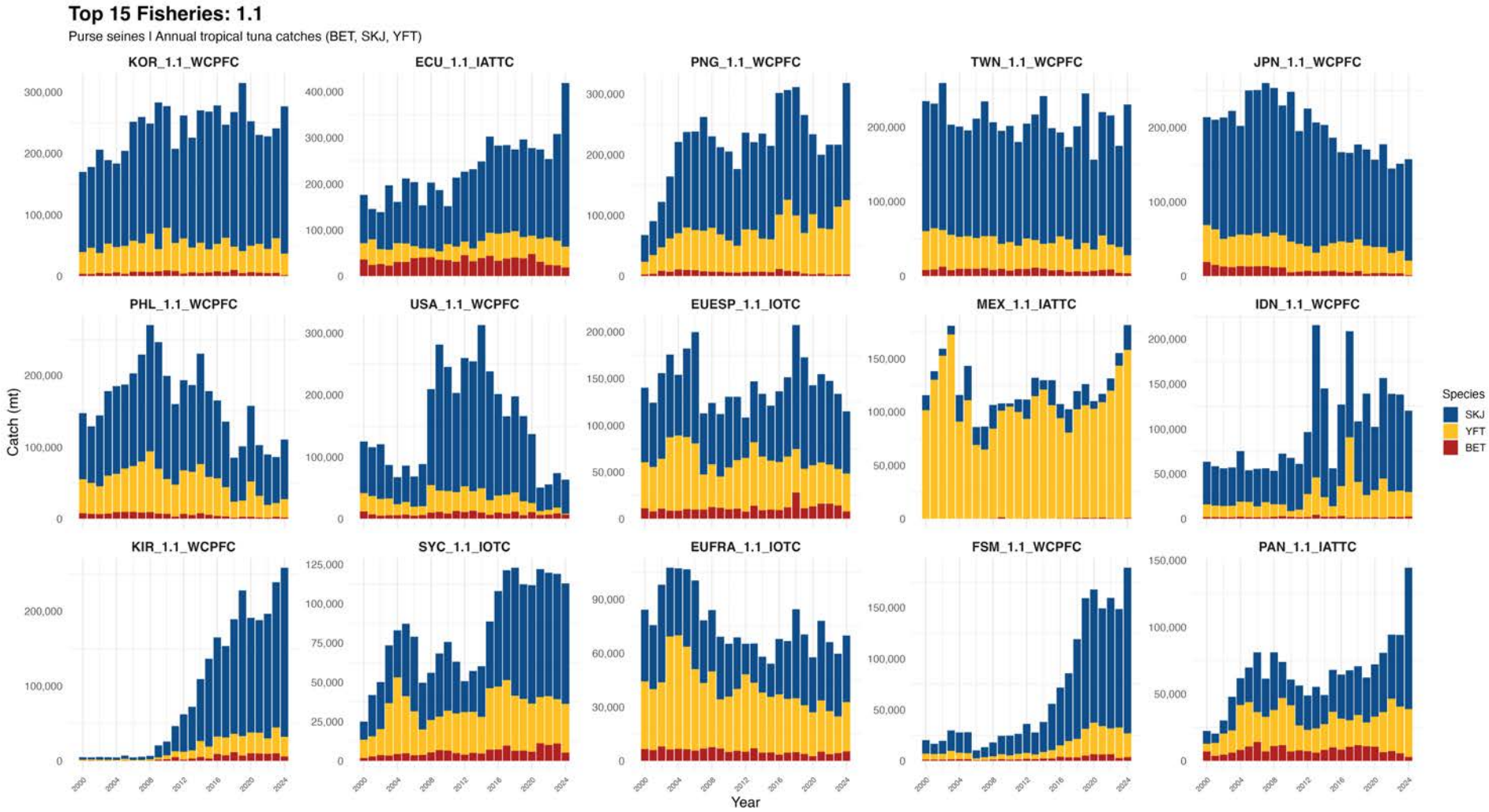


Figure 11: Annual catches of tropical tuna for the top 15 purse seine fisheries.

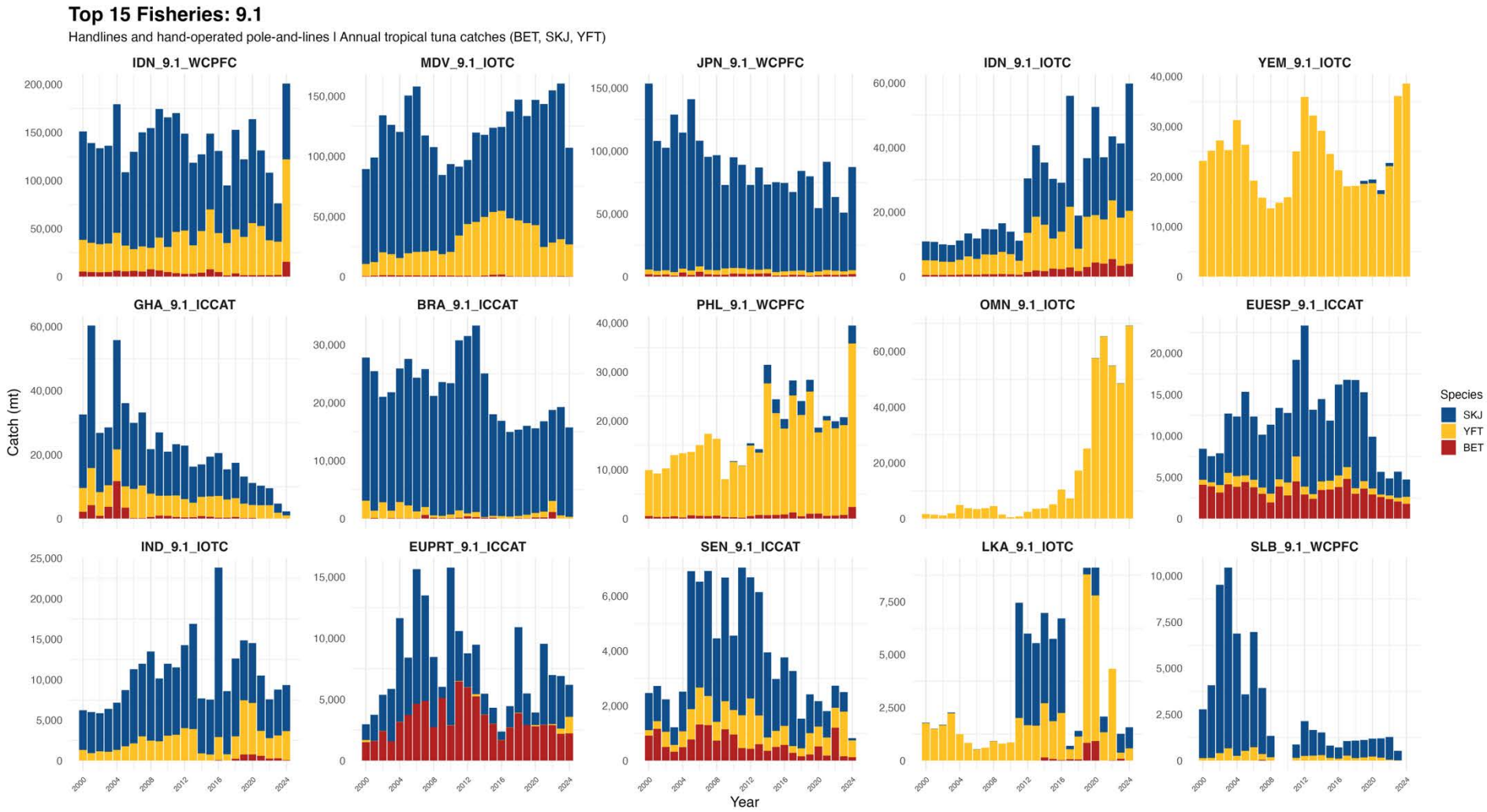


Figure 12: Annual catches of tropical tuna for the top 15 handline and pole and line fisheries.

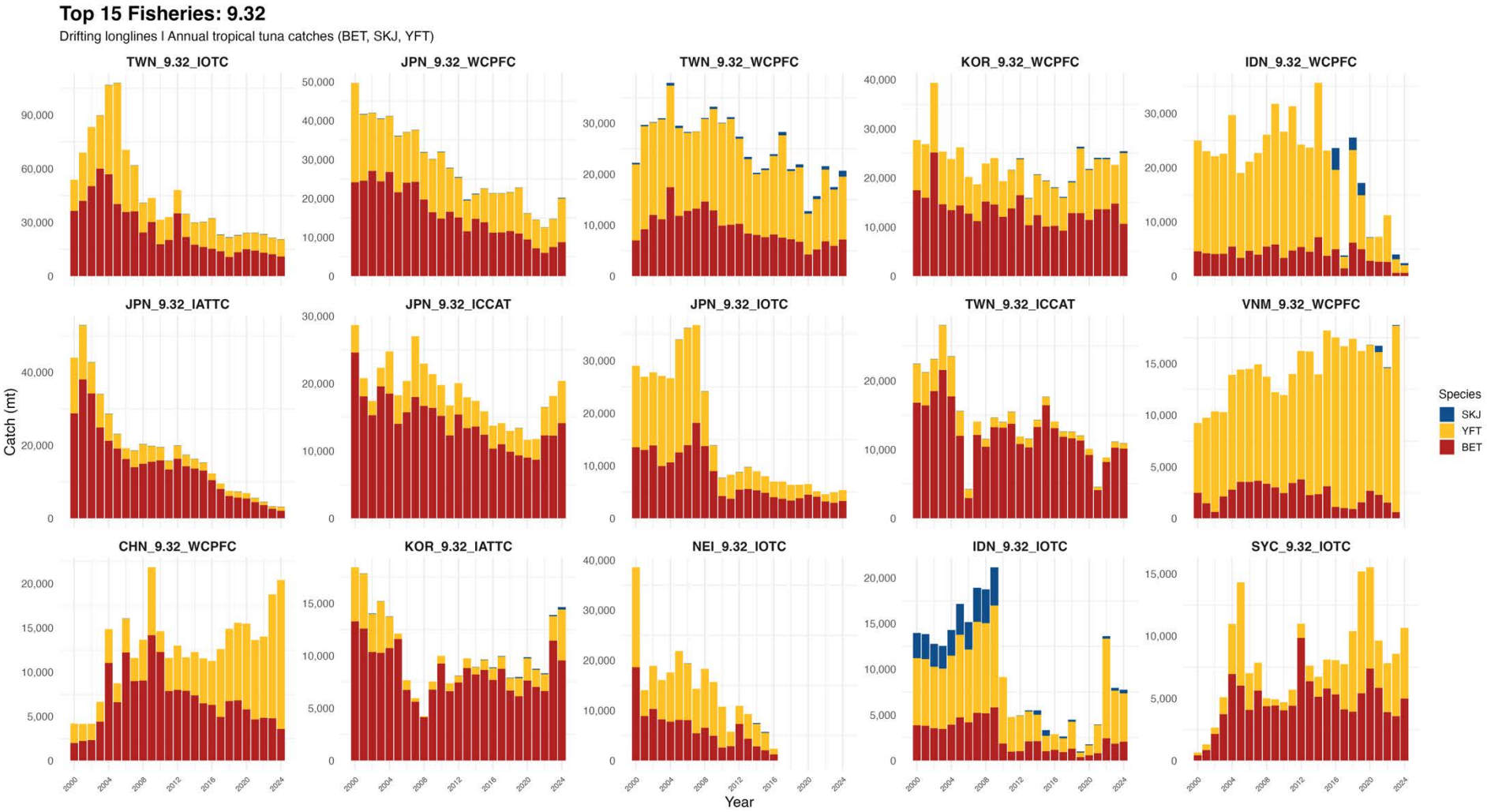


Figure 13: Annual catches of tropical tuna for the top 15 longline fisheries.

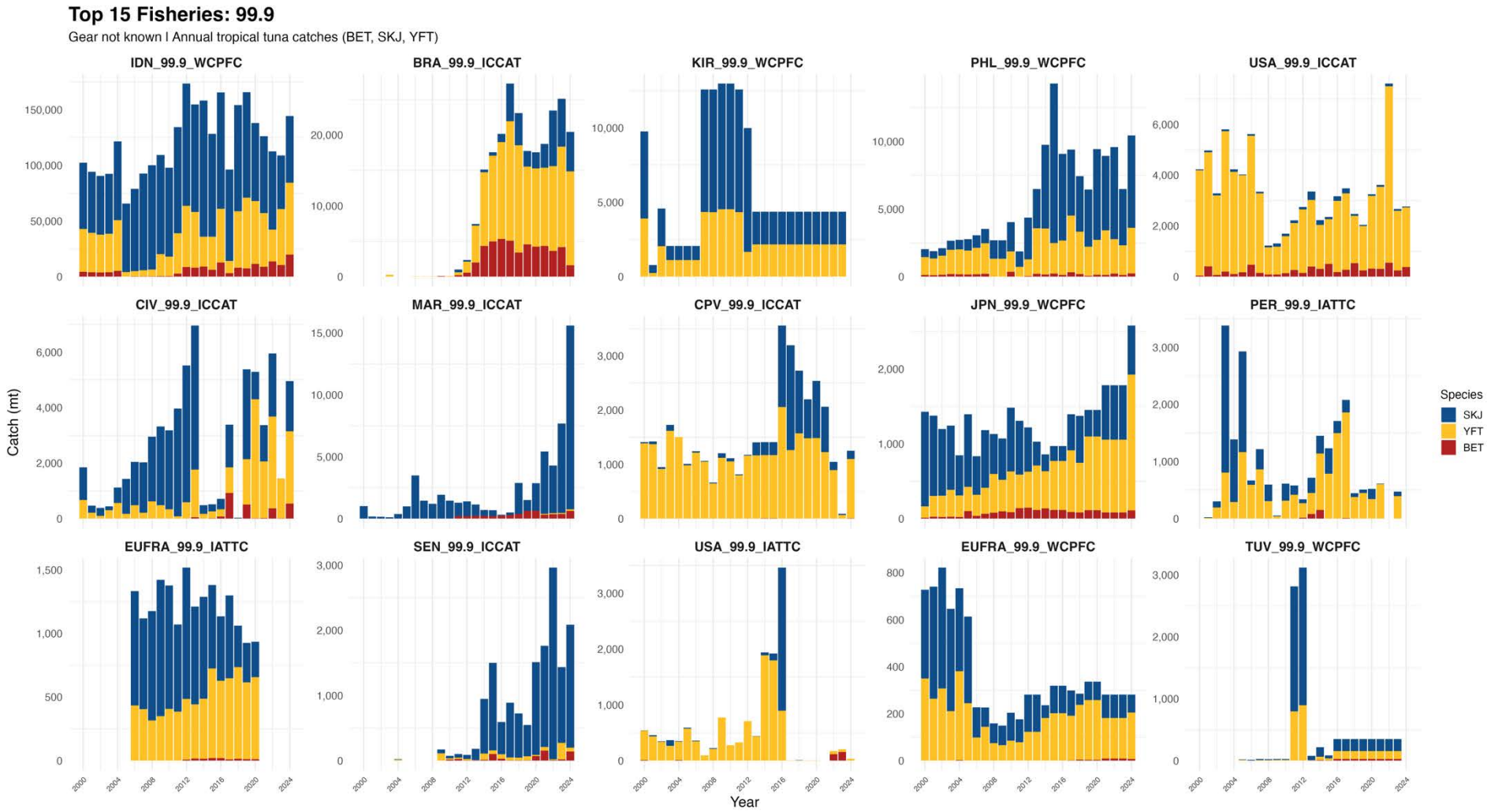


Figure 14: Annual catches of tropical tuna for the top 15 fisheries for which the gear is not known.

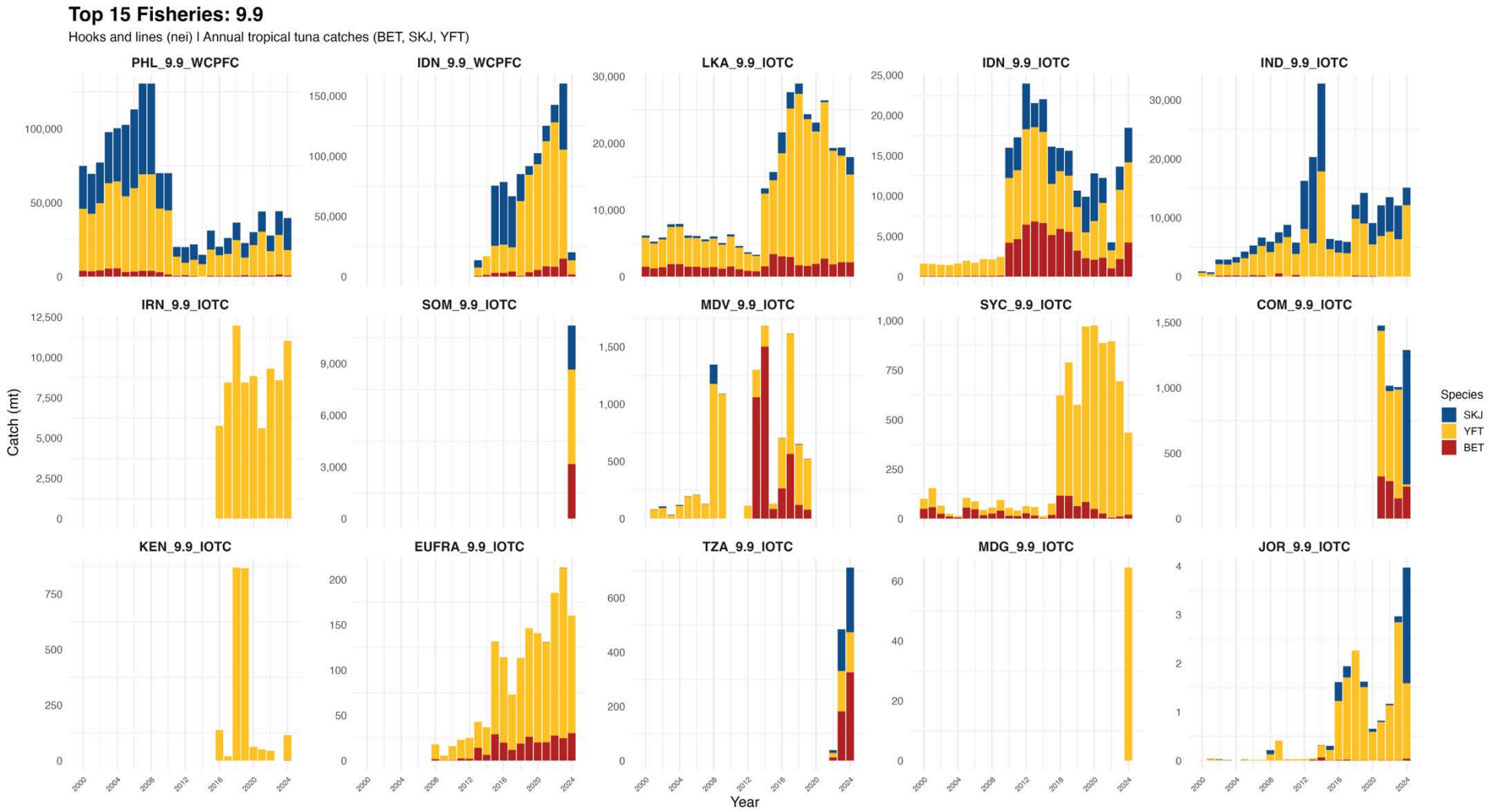


Figure 15: Annual catches of tropical tuna for the top 15 hook and line fisheries.

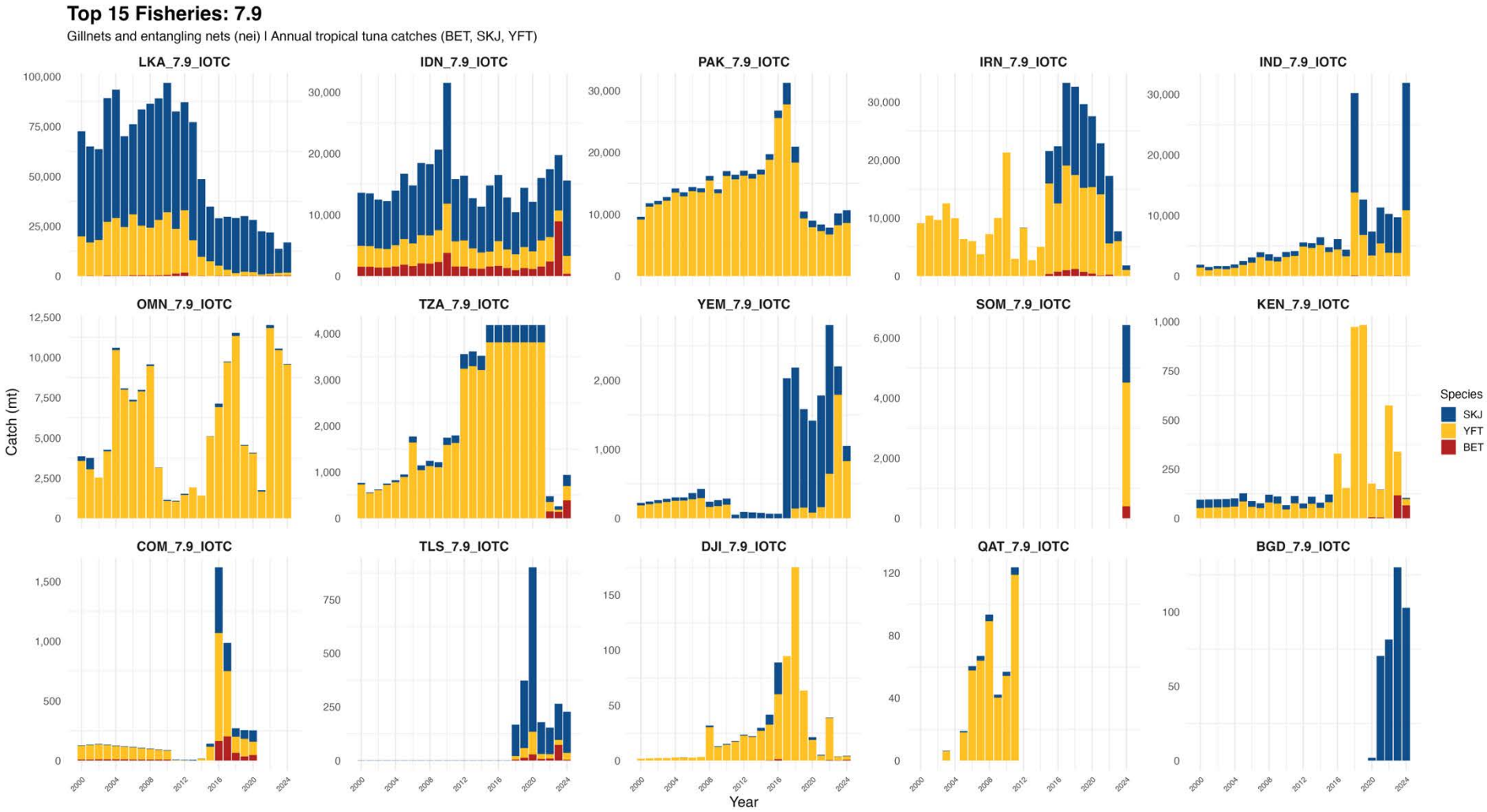


Figure 16: Annual catches of tropical tuna for the top 15 gillnet and entangling net fisheries.

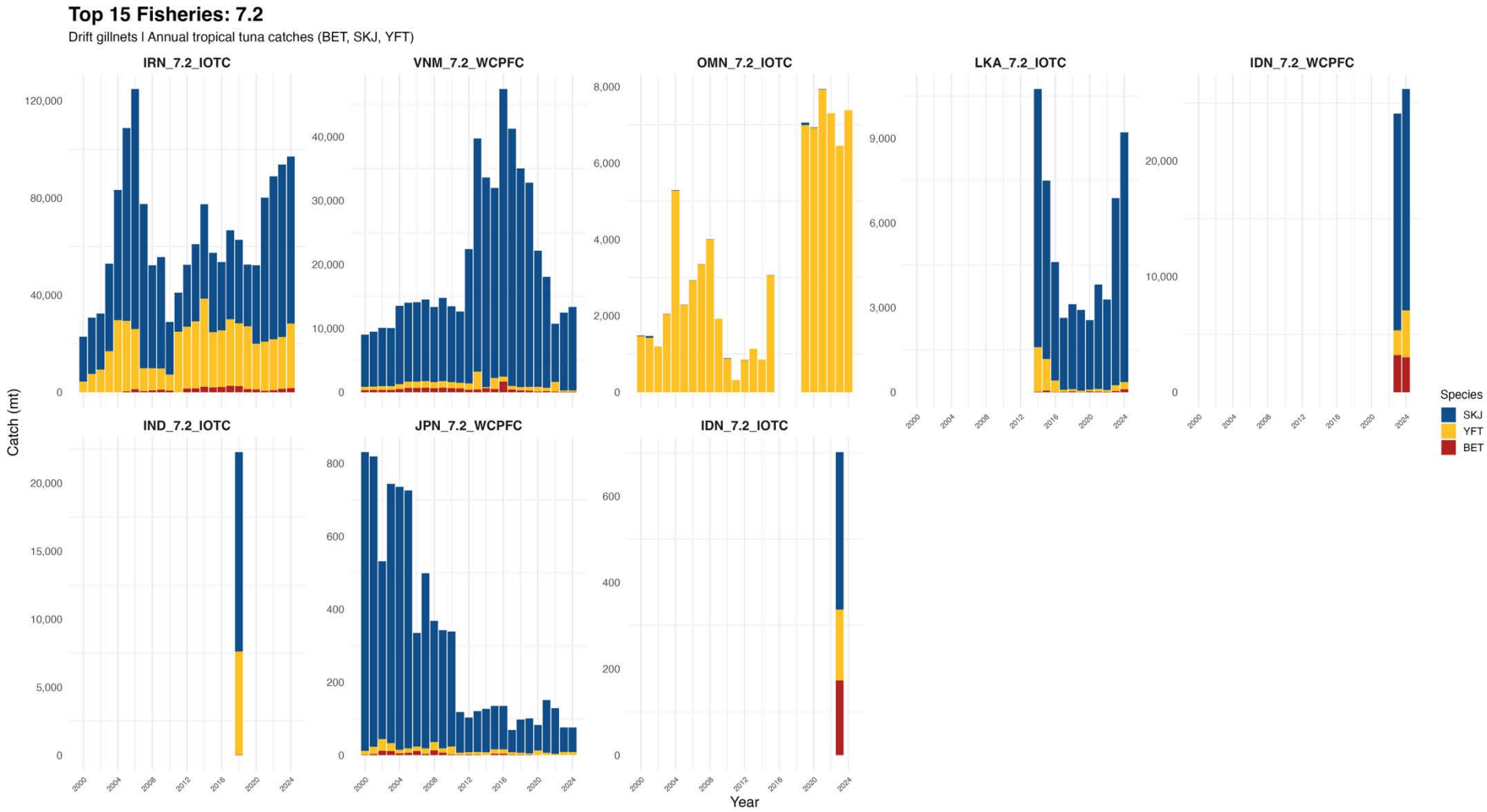


Figure 17: Annual catches of tropical tuna for the eight drift gillnet fisheries.

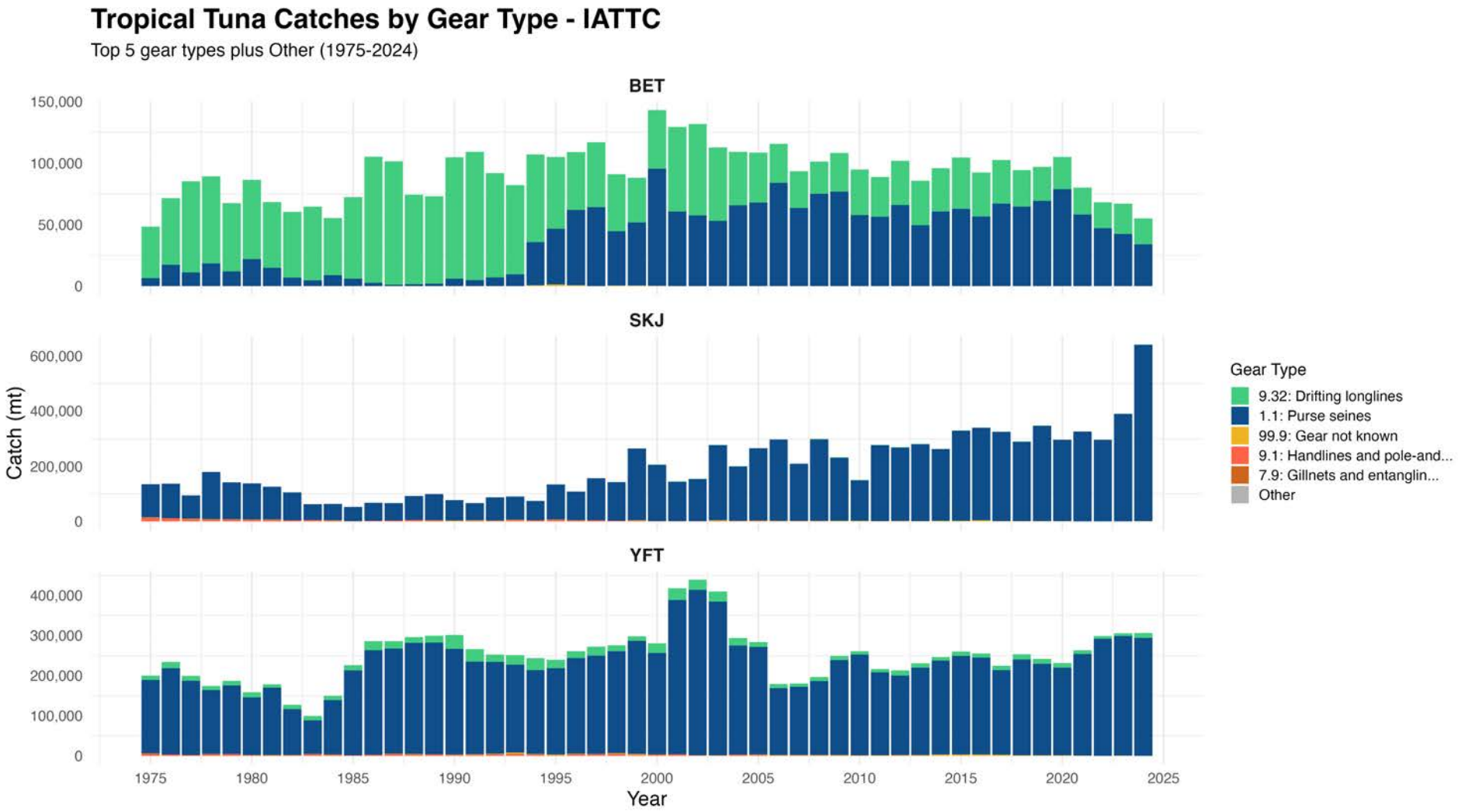


Figure 18: Time series of tropical tuna catches by gear type for IATTC.

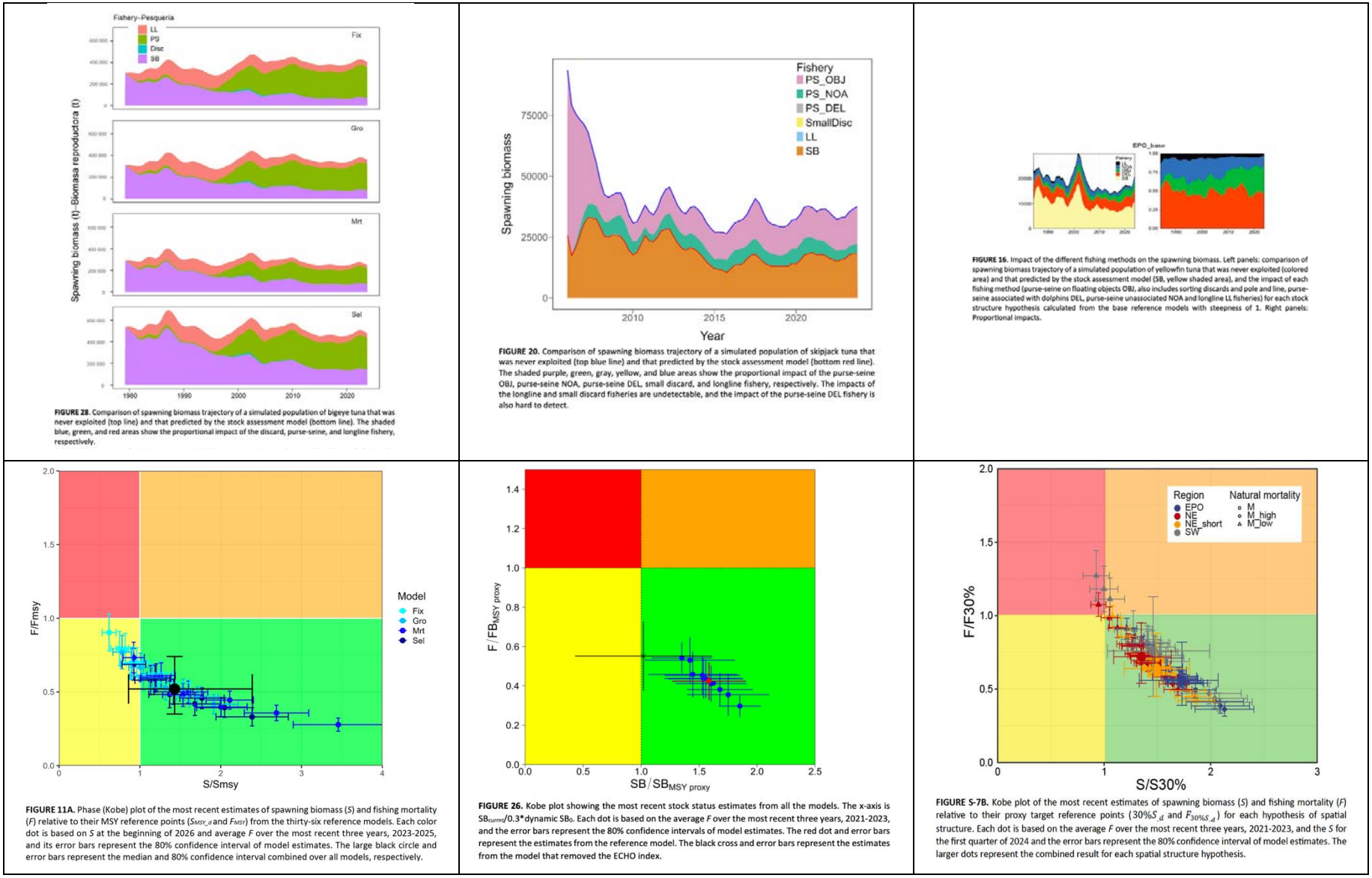


FIGURE 28. Comparison of spawning biomass trajectory of a simulated population of bigeye tuna that was never exploited (top line) and that predicted by the stock assessment model (bottom line). The shaded blue, green, and red areas show the proportional impact of the discard, purse-seine, and longline fishery, respectively.

FIGURE 20. Comparison of spawning biomass trajectory of a simulated population of skipjack tuna that was never exploited (top blue line) and that predicted by the stock assessment model (bottom red line). The shaded purple, green, gray, yellow, and blue areas show the proportional impact of the purse-seine OBJ, purse-seine NOA, purse-seine DEL, small discard, and longline fishery, respectively. The impacts of the longline and small discard fisheries are undetectable, and the impact of the purse-seine DEL fishery is also hard to detect.

FIGURE 16. Impact of the different fishing methods on the spawning biomass. Left panels: comparison of spawning biomass trajectory of a simulated population of yellowfin tuna that was never exploited (colored area) and that predicted by the stock assessment model (SB, yellow shaded area), and the impact of each fishing method (purse-seine on floating objects OBJ, also includes sorting discards and pole and line, purse-seine associated with dolphins DEL, purse-seine unassociated NOA and longline LL fisheries) for each stock structure hypothesis calculated from the base reference models with steepness of 1. Right panels: Proportional impacts.

FIGURE 11A. Phase (Kobe) plot of the most recent estimates of spawning biomass (S) and fishing mortality (F) relative to their MSY reference points (S_{MSY_d} and F_{MSY}) from the thirty-six reference models. Each color dot is based on S at the beginning of 2026 and average F over the most recent three years, 2023-2025, and its error bars represent the 80% confidence interval of model estimates. The large black circle and error bars represent the median and 80% confidence interval combined over all models, respectively.

FIGURE 26. Kobe plot showing the most recent stock status estimates from all the models. The x-axis is $SB_{current}/0.3$*dynamic SB_0. Each dot is based on the average F over the most recent three years, 2021-2023, and the error bars represent the 80% confidence intervals of model estimates. The red dot and error bars represent the estimates from the reference model. The black cross and error bars represent the estimates from the model that removed the ECHO index.

FIGURE S-7B. Kobe plot of the most recent estimates of spawning biomass (S) and fishing mortality (F) relative to their proxy target reference points ($30\%S_{_d}$ and $F_{30\%S_d}$) for each hypothesis of spatial structure. Each dot is based on the average F over the most recent three years, 2021-2023, and the S for the first quarter of 2024 and the error bars represent the 80% confidence interval of model estimates. The larger dots represent the combined result for each spatial structure hypothesis.

Figure 19: IATTC fisheries impacts (top) and stock status (bottom) for bigeye (left), skipjack (center), and yellowfin (right) tunas. Figures reproduced from Bi et al. (2024), Xu et al. (2024), and Minte-Vera et al. (2025).

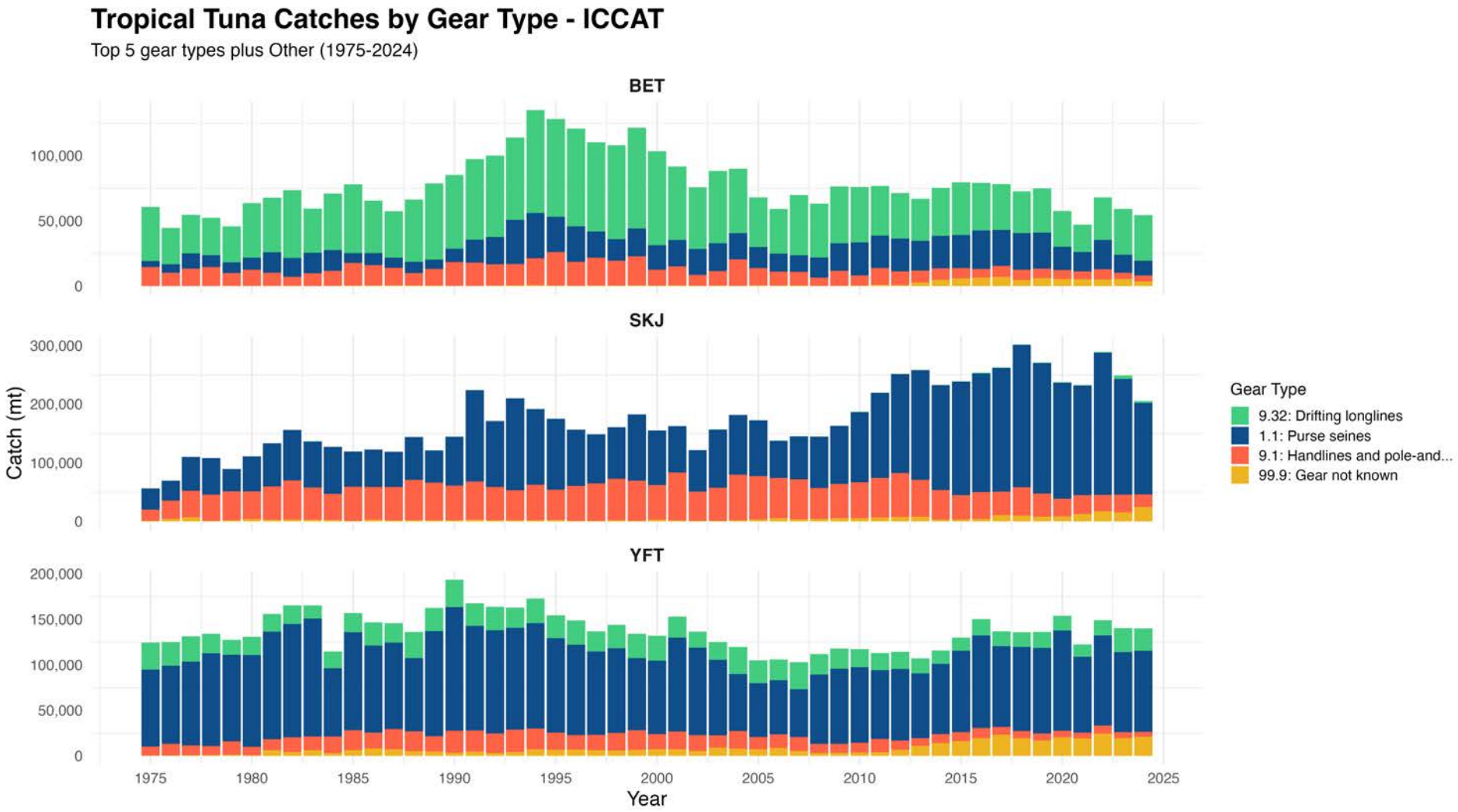


Figure 20: Time series of tropical tuna catches by gear type for ICCAT.

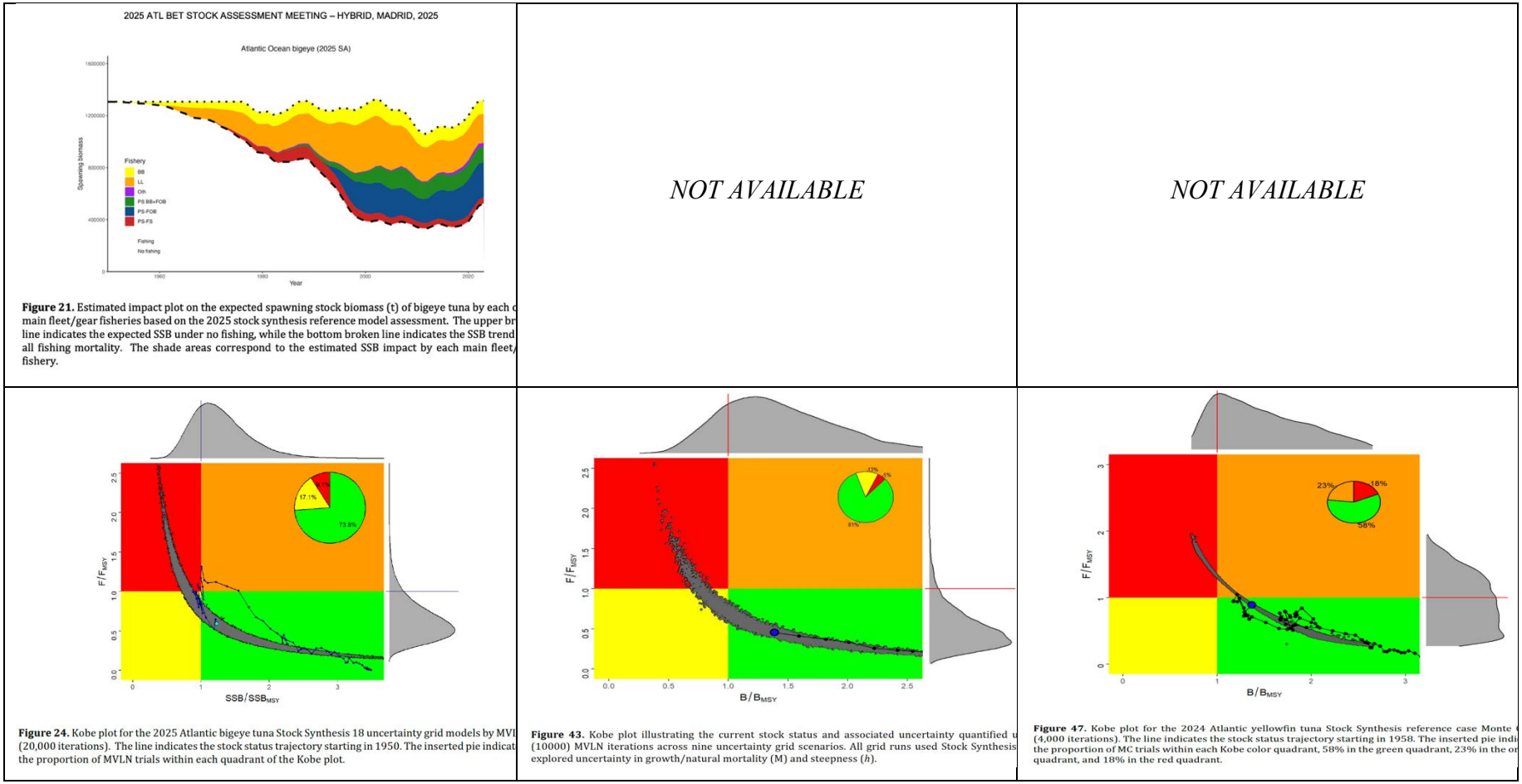


Figure 21. Estimated impact plot on the expected spawning stock biomass (t) of bigeye tuna by each c main fleet/gear fisheries based on the 2025 stock synthesis reference model assessment. The upper br line indicates the expected SSB under no fishing, while the bottom broken line indicates the SSB trend all fishing mortality. The shade areas correspond to the estimated SSB impact by each main fleet/ fishery.

Figure 24. Kobe plot for the 2025 Atlantic bigeye tuna Stock Synthesis 18 uncertainty grid models by MVI (20,000 iterations). The line indicates the stock status trajectory starting in 1950. The inserted pie indicat the proportion of MVLN trials within each quadrant of the Kobe plot.

Figure 43. Kobe plot illustrating the current stock status and associated uncertainty quantified u (10000) MVLN iterations across nine uncertainty grid scenarios. All grid runs used Stock Synthesis explored uncertainty in growth/natural mortality (M) and steepness (h).

Figure 47. Kobe plot for the 2024 Atlantic yellowfin tuna Stock Synthesis reference case Monte (4,000 iterations). The line indicates the stock status trajectory starting in 1958. The inserted pie indi the proportion of MC trials within each Kobe color quadrant, 58% in the green quadrant, 23% in the or quadrant, and 18% in the red quadrant.

Figure 21: ICCAT fisheries impacts (top) and stock status (bottom) for bigeye (left), skipjack (center), and yellowfin (right) tunas. Figures reproduced from ICCAT (2022, 2024, 2025).

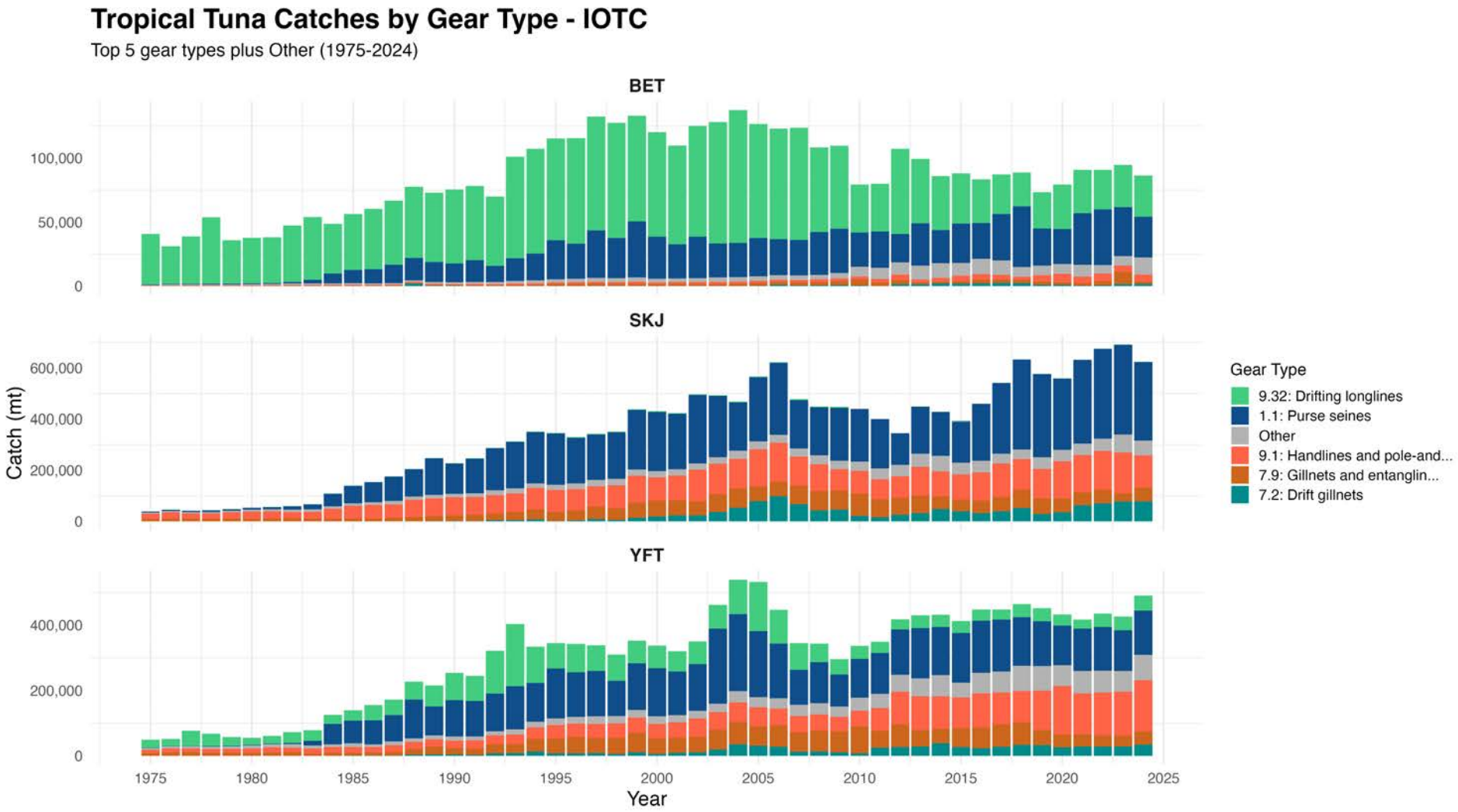


Figure 22: Time series of tropical tuna catches by gear type for IOTC.

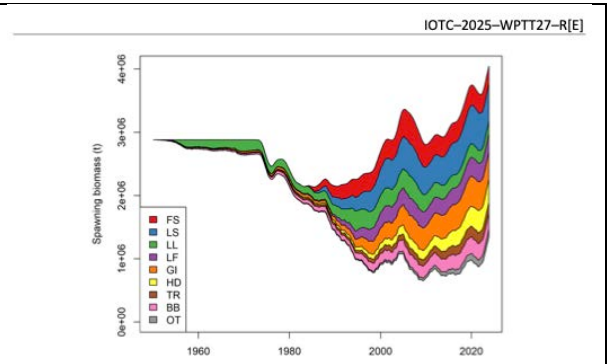
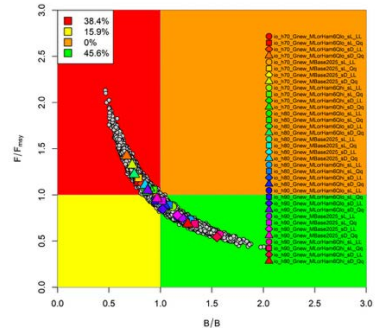
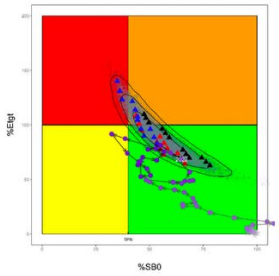
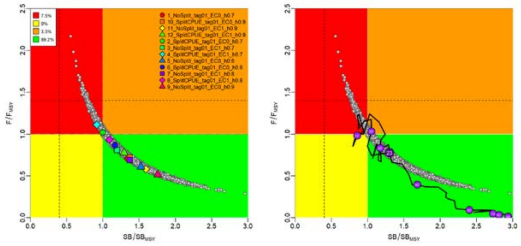
NOT AVAILABLE	*NOT AVAILABLE*	 **Fig 8.** Fishery Impact Plot: Estimates of reduction in spawning biomass due to fishing over all regions attributed to various fishery groups for the assessment model.
 **Fig. 3.** Bigeye tuna: SS3 Aggregated Indian Ocean assessment Kobe plot. The coloured points represent stock status estimates from the 36 model options. Coloured symbols represent Maximum Posterior Density (MPD) estimates from individual models which varied in terms of steepness (h), natural mortality (M), selectivity on the LL2+LL3 fleets (sL *vs* sD), and gear creep applied to the LL CPUE indices (LL *vs* Qq, where Qq represents 0.5% of effort creep ajustment on the indices).	 **Fig. 3.** Skipjack tuna: SS3 Aggregated Indian Ocean assessment Kobe plot of the 2023 uncertainty grid: current stock status, relative to SB0 and F (x-axis) and $F_{40\%B0}$ (y-axis) reference points for the final model grid. The middle vertical line indicates 40% B_0; The middle horizontal line indicates the 100% of the target fishing mortality. Triangles represent Maximum Posterior Density estimates from individual models (black, models based on pole-and-line (PL) index; red, models based on floating object associated purse seine fishery (PSLS) index; blue, models based on and both PSLS and ABBI index). Grey dots represent uncertainty from individual models. The arrowed line represents time series of historical stock trajectory for model PSLS. Contours represent 50, 80, and 90% confidence region.	 **Fig. 5.** Yellowfin tuna: SS3 Indian Ocean assessment Kobe plot: (left): current (2023) stock status, relative to SB_{MSY} (x-axis) and F_{MSY} (y-axis) reference points for the final model options. Coloured symbols represent Maximum posterior density (MPD) estimates from individual models. Grey dots represent the statistical uncertainty from individual models (20,000 replicates from each). The dashed lines represent limit reference points for IO yellowfin tuna (SBlim = 0.4 SB_{MSY} and Flim = 1.4 F_{MSY}); (right) mean stock trajectory from the model grid

Figure 23: IOTC fisheries impacts (top) and stock status (bottom) for bigeye (left), skipjack (center), and yellowfin (right) tunas. Figures reproduced from IOTC (2025).

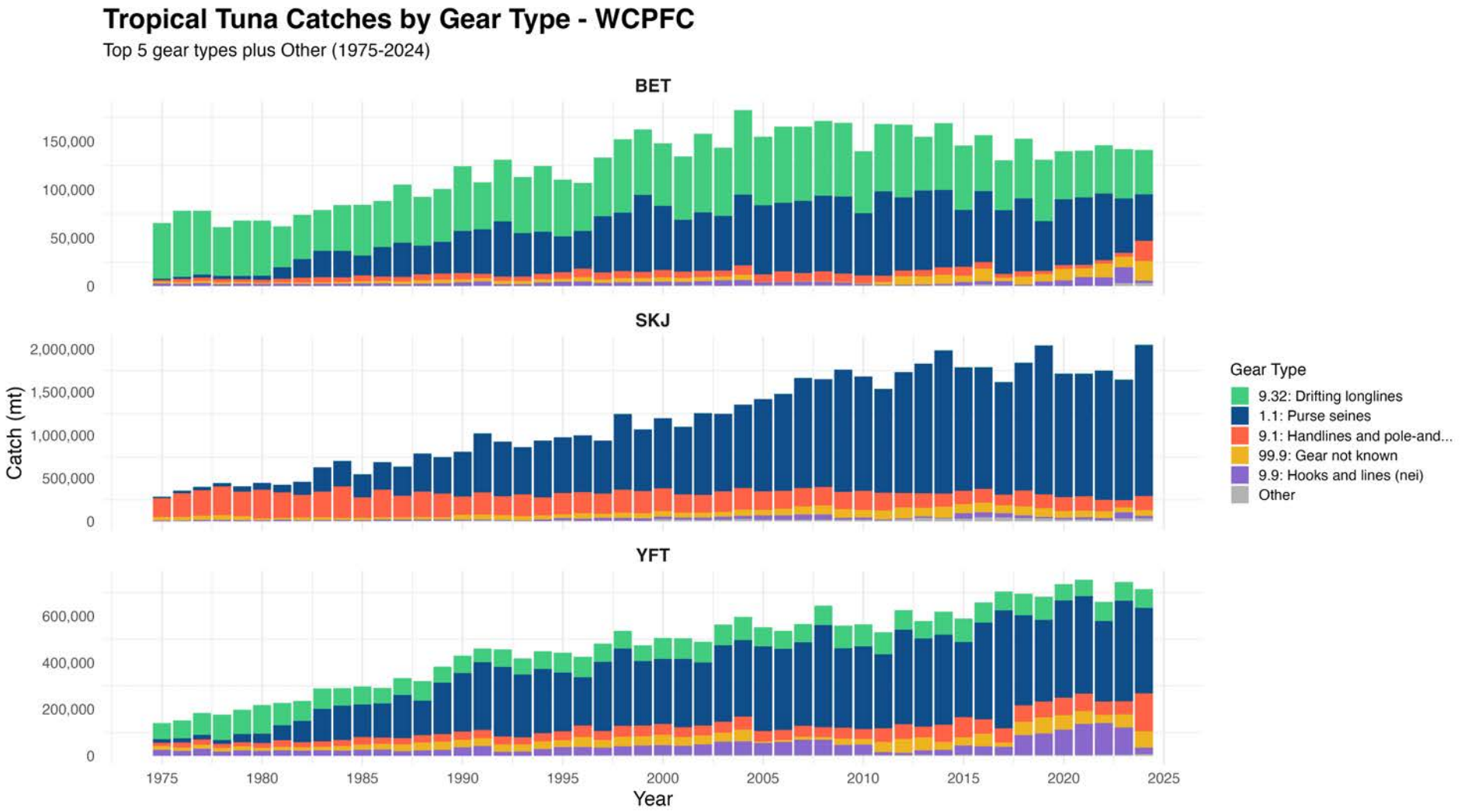


Figure 24: Time series of tropical tuna catches by gear type for WCPFC.

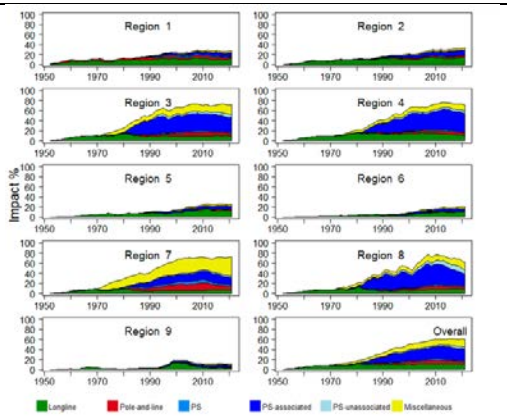


Figure 70: Estimates of fishery impact, or reduction in spawning potential due to fishing (Fishery Impact = $1-SB_t/SB_{t,F=0}$) by region, and over all regions (bottom right), attributed to various fishery groups for the 2023 diagnostic model.

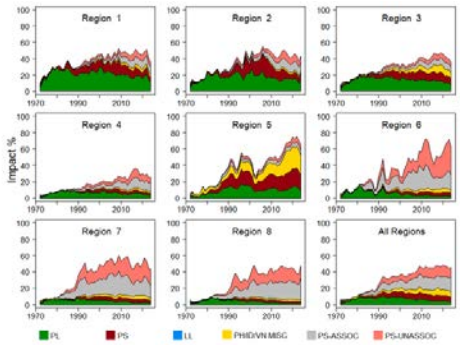


Figure 43: Estimates of reduction in spawning potential due to fishing (Fishery Impact = $1-SB_{latest}/SB_{F=0}$) by region, and over all regions (lower right panel), attributed to various fishery groups for the diagnostic model.

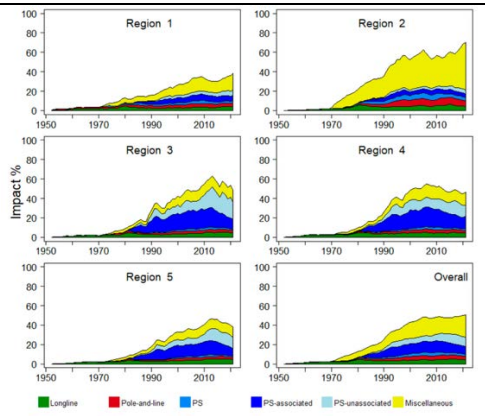


Figure 66: Estimates of reduction in spawning potential due to fishing (Fishery Impact = $1-SB_t/SB_{t,F=0}$) by region, and over all regions (lower right panel), attributed to various fishery groups for the diagnostic model.

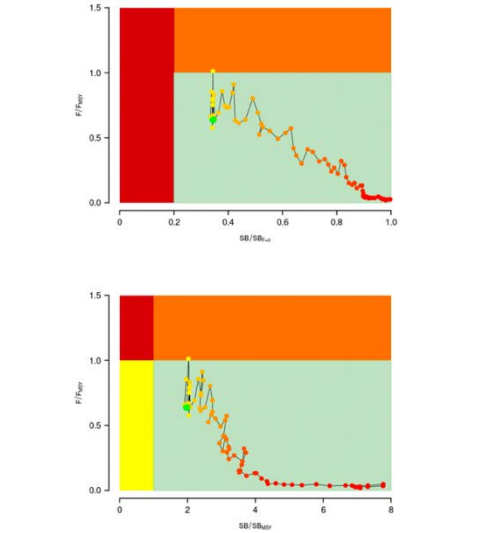


Figure 69: Time dynamic Majuro (top) and Kobe (bottom) plots summarising the results for the 2023 diagnostic model over the model period. The larger green point is the estimated 2021 status.

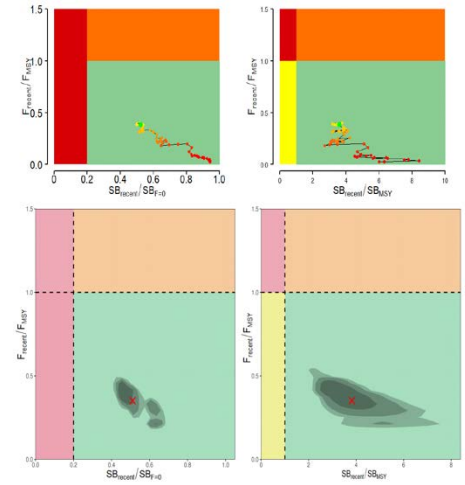


Figure 82: Majuro plots (left) and Kobe plots (right) summarising the results for the dynamic MSY analysis (top) and the Monte-Carlo random draws from the model ensemble (i.e., including estimation uncertainty) for the recent period (2021–2024; right). Colors for dynamic MSY go from red to green over time. Shading of model ensemble results indicate 50th, 80th, and 90th highest density regions. The red X in model ensemble represents the median.

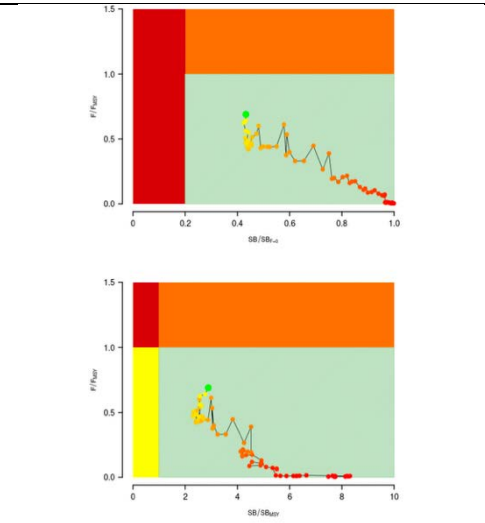


Figure 65: Time dynamic Majuro (top) and Kobe (bottom) plots summarising the results for the diagnostic case model over the model period. The green point is the estimated 2021 status, the redder the point the further back in time.

Figure 25: WCPFC fisheries impacts (top) and stock status (bottom) for bigeye (left), skipjack (center), and yellowfin (right) tunas. Figures reproduced from Day et al. (2023), Magnusson et al. (2023), and Teears et al. (2025).

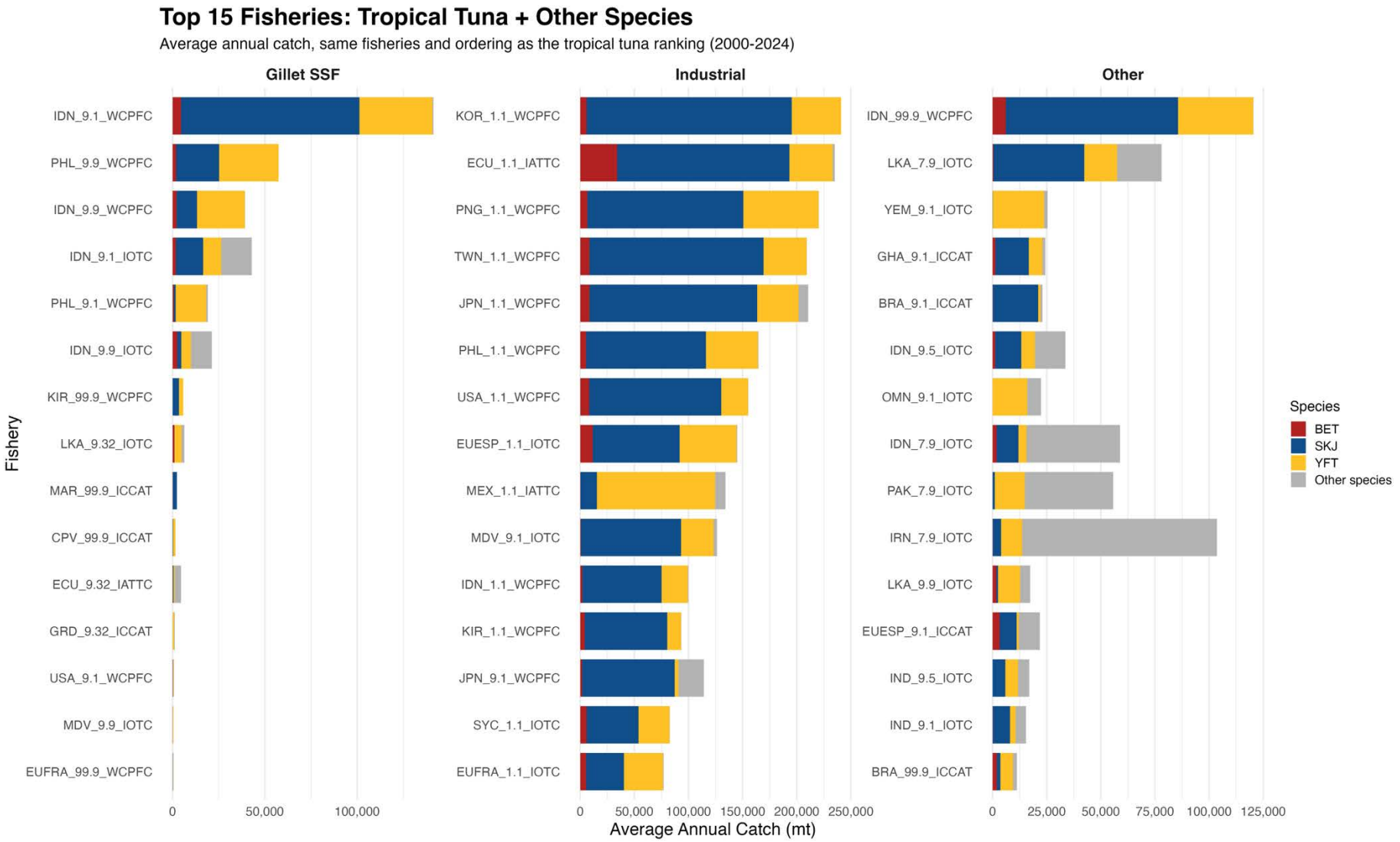


Figure 26: Average annual catch of tropical tunas PLUS other species for the top 15 fisheries categorised as SSTF (after Gillet), Industrial, or Other.

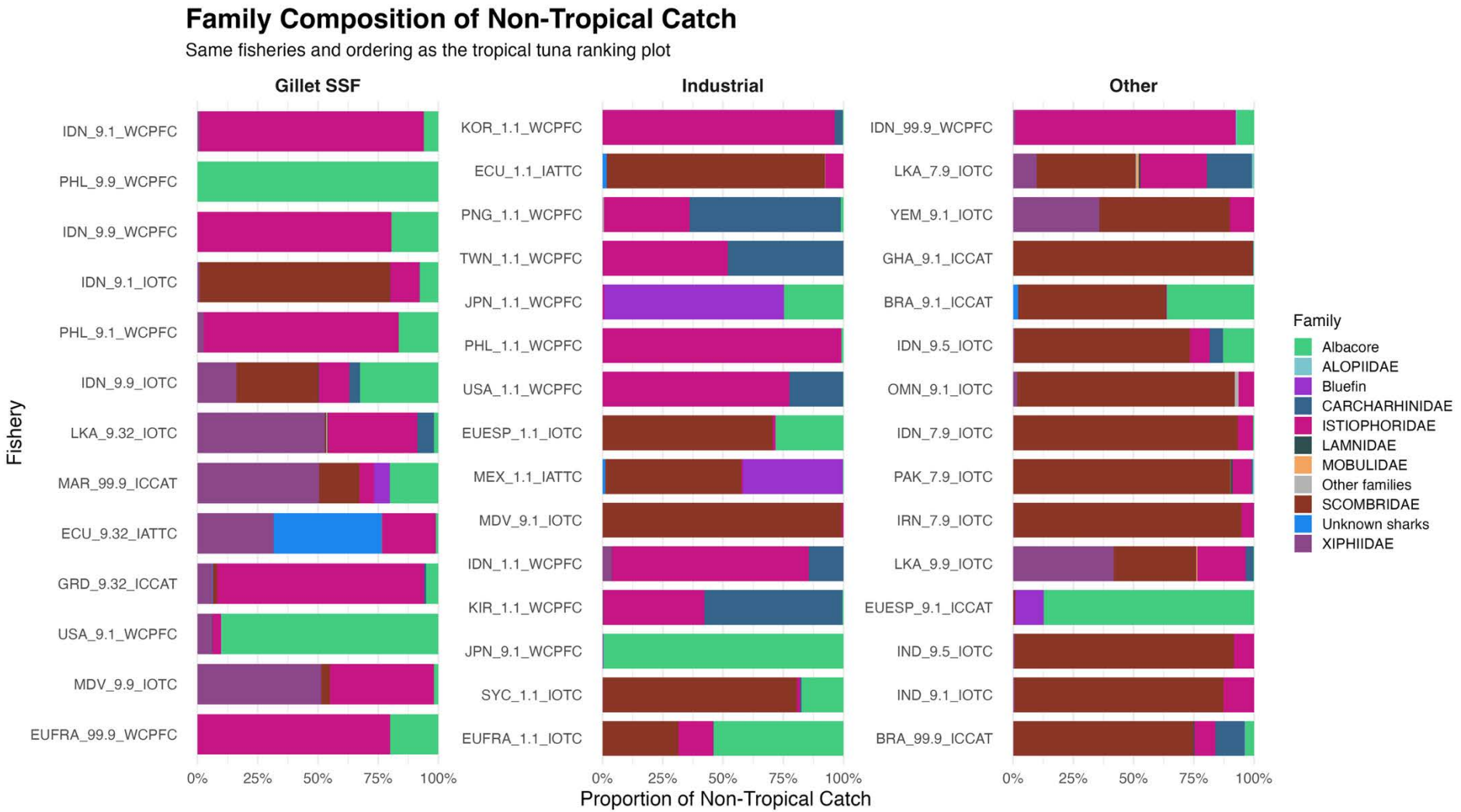


Figure 27: Species composition of the non-tropical tuna catches for the top 15 fisheries categorised as SSTF (after Gillet), Industrial, or Other.

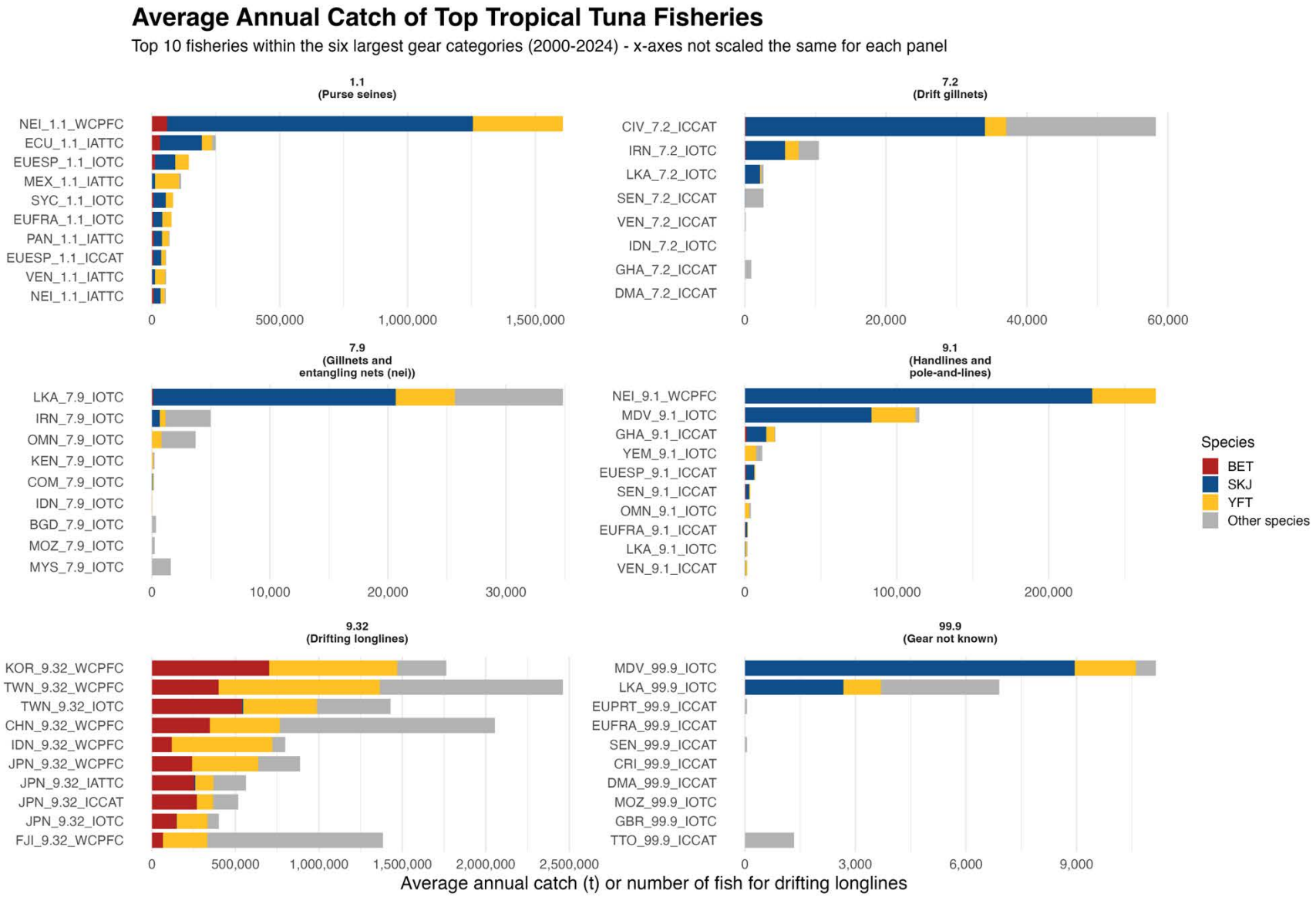


Figure 28: Species composition of the catches for the top ten fisheries by fishing gear based on the spatially disaggregated data for 20N to 20S.

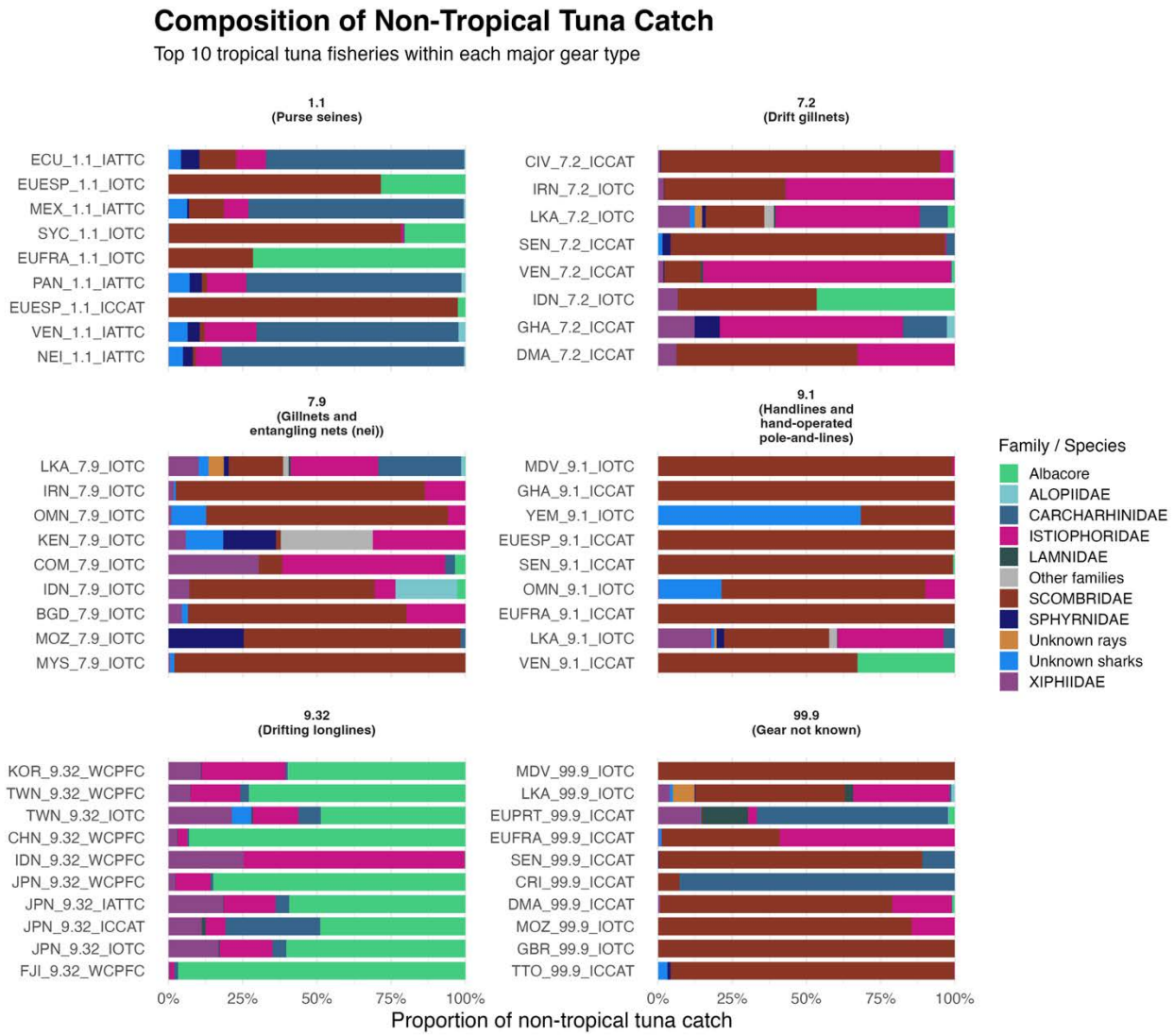


Figure 29: Species composition of the non-tropical tuna catches for the top fisheries by fishing gear based on the spatially disaggregated data from 20N to 20S.

Appendix 1: Data sources

	IATTC	ICCAT	IOTC	WCPFC
Conservation and Management Measures	https://www.iattc.org/en-US/resolution/type/IATTC (no compendium of active measures)	https://www.iccat.int/en/RecRes.asp and https://www.iccat.int/Documents/Recs/COMPENDIUM_ACTIVE_ENG.pdf	https://iotc.org/cmms and https://iotc.org/sites/default/files/documents/compliance/cmm/IOTC_-_Compendium_of_ACTIVE_CMMs_01_January_2026.pdf	https://cmm.wcpfc.int and https://cmm.wcpfc.int/sites/default/files/compiled-conservation-measures-and-resolutions.pdf?_dl=1
Vessel registry	https://www.iattc.org/en-US/Management/Vessel-register	https://www.iccat.int/en/VesselsRecord.asp	https://iotc.org/vessels	https://vessels.wcpfc.int
Data provision requirements	https://www.iattc.org/en-US/Resources/Reports-and-provision-of-data and https://www.iattc.org/getattachment/45a39dd5-6ae6-4a22-81ac-1d12b01fdc16/IATTC-forms_Specifications-for-data-provision-under-resolution-C-03-05.pdf?lang=en-US (Resolution C-03-05 forms the basis for data provision)	https://www.iccat.int/en/submitSTAT.html	https://data.iotc.org/reference/latest/guidelines/	https://www.wcpfc.int/sustainability/scientific-data (Includes templates for logbook, observer data, and Electronic Reporting data, and National Report templates)
Public domain catch and effort data	https://www.iattc.org/en-US/Data/Public-domain	https://www.iccat.int/en/accesingdb.html	https://iotc.org/data/datasets	https://www.wcpfc.int/sustainability/scientific-data/wcpfc-public-domain-aggregated-catcheffort-data-download-page and for other bycatch https://www.wcpfc.int/public-domain-bycatch-data-files
Stock status for tunas and related species	No specific page summarizing stock status. Available through specific volumes of https://www.iattc.org/en-	https://www.iccat.int/en/assess.html	https://iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc	https://www.wcpfc.int/sustainability/conservation-and-

	US/publication/commission/Stock-Assessment-Report	(detailed reports often combine multiple assessment models and can be difficult to follow)	(supporting information not updated, stock assessment documents difficult to find)	management-tuna-and-billfish-species (including links to stock assessment reports)
"Yearbook"	https://www.iattc.org/en-US/Publication/Commission/Fishery-Status-Report	https://www.iccat.int/sbull/SB51-2026/index.html		https://www.wcpfc.int/media/818#.pdf

Other Information

Data Source	**Location**	**Details**
Bycatch Management Information System (BMIS)	https://www.bmis-bycatch.org	Links to data sources, scientific publications, and RFMO management measures relating to tuna fishing
FAO FIRMS Global Tuna Atlas	https://www.fao.org/fishery/collection/firms-tuna-atlas/en	Amalgamated catch and effort data across all five tuna RFMOs
RAM Legacy Database	https://www.ramlegacy.org	Global database of stock assessment outputs and key data inputs
Hawaiian and American Samoa scaled longline bycatch estimates	https://connect.fisheries.noaa.gov/Bycatch-GUI/	

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