



By-Product assessment report

BP063

TC Union Agrotech Co. Ltd

Report code	BP063	Date of issue	August 2026
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1. Application details		
Applicant		TC Union Agrotech Co. Ltd
Applicant country		Thailand
2. Certification Body details		
Name of Certification Body (CB)		NSF / Global Trust Certification Ltd.
Contact information for CB		Fisheries@nsf.org
Assessor name		Sérgio Abreu
CB internal peer reviewer name		Matthew Jew
Internal peer review evaluation		Agree with evaluation
Number of Assessment days		5
Comments on the assessment		This re-approval assessment covers 17 by-product species/fishing-area combinations. Step 2 identified five species requiring further assessment at Step 3, represented by 12 stock/area combinations. Traceability information was requested from the applicant and 1,840 vessel-level records were provided. These records were used solely to assess Path 1 at Step 3. All stock/area combinations are downgraded to Medium Risk and are Approved Source with Caution. Thus, all 17 species/stock/area byproducts are able to be used under v3.0 of the MarinTrust byproduct standard.
3. Approval validity		Valid from 08/2026Valid to 08/2027
4. Assessment cycle		Re-Approval

5. By-product assessment outcomes			
By-product species name	Flag country(ies)	Fishing Area(s)	MarinTrust approval status
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Japan, Marshall Islands, Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Philippines, Papua New Guinea, Vanuatu, China, Spain, Republic of Korea (South), Maldives, Fiji, Solomon Islands, Indonesia, USA	FAO 61, 71	Approved source with caution
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain, Tanzania	FAO 51, 57	Approved source with caution
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Papua New Guinea, Republic of Korea (South), Maldives, Fiji, China, Solomon Islands, USA	FAO 77	Approved source with caution
Albacore tuna (<i>Thunnus alalunga</i>)	Indonesia, Fiji, Australia, Japan, Taiwan	FAO 61, 71	Approved source with caution
Albacore tuna (<i>Thunnus alalunga</i>)	Malaysia, Taiwan, Indonesia, Maldives, China, Mauritius	FAO 51, 57	Approved source with caution
Albacore tuna (<i>Thunnus alalunga</i>)	New Zealand, Japan, Australia, China, Taiwan, Vanuatu	FAO 77, 81, 87	Approved source with caution

5. By-product assessment outcomes			
By-product species name	Flag country(ies)	Fishing Area(s)	MarinTrust approval status
Yellowfin tuna (<i>Thunnus albacares</i>)	Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain	FAO 51, 57	Approved source with caution
Yellowfin tuna (<i>Thunnus albacares</i>)	Marshall Islands, Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Republic of Korea (South), Spain, Solomon Islands, Indonesia, USA	FAO 61, 71	Approved source with caution
Yellowfin tuna (<i>Thunnus albacares</i>)	Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Republic of Korea (South), Papua New Guinea, Solomon Islands, USA	FAO 77, 87	Approved source with caution
Bigeye tuna (<i>Thunnus obesus</i>)	Maldives, Indonesia, France, Japan, Kenya, Mauritius, Oman, Seychelles, South Africa, South Korea, Spain	FAO 51, 57	Approved source with caution

5. By-product assessment outcomes			
By-product species name	Flag country(ies)	Fishing Area(s)	MarinTrust approval status
Bigeye tuna (<i>Thunnus obesus</i>)	Marshall Islands, Taiwan, Kiribati, Nauru, South Korea, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Spain, Solomon Islands, USA	FAO 71, 77	Approved source with caution
Japanese amberjack (<i>Seriola quinqueradiata</i>)	Japan	N/A	Approved source with caution
Pink salmon (<i>Oncorhynchus gorbuscha</i>)	USA, Canada	N/A	Approved source with caution
Chum salmon (<i>Oncorhynchus keta</i>)	USA	N/A	Approved source with caution
Pacific saury (<i>Cololabis saira</i>)	Japan	N/A	Approved source with caution
Pilchard/Sardine (<i>Sardinops sagax</i>)	Japan, China	FAO 61	Approved source with caution
Yellowfin Sole (<i>Limanda aspera</i>)	USA	N/A	Approved source with caution

Guidance for on-site auditor

For the audit, the auditor will check how the facility manages by-products deemed medium risk. Any by-products downrated from high to medium risk will require additional due diligence checks.

It is important that facilities check all raw materials from and verify their suppliers especially if there is a perceived risk of sourcing from known or suspected IUU fishing activity. This requires checking supplier records or procedures in place to understand how the supplier can ensure there is no IUU in the raw material they provide. For raw materials risk rated medium, additional or more frequent checks may be required until the facility is certain that the raw materials are not from IUU fishing activity.

The audit requirements are covered in clause 2.11.3 of the MarinTrust Global Standard for Responsible Supply of Marine Ingredients (the MarinTrust Standard) and associated interpretation guidance.

Approved by-products

- No further checks are required beyond those included in the MarinTrust Standard.

Additional checks of Approved Source with Caution by-products

- Review supplier records or procedures in place.

Additional checks of by-products Approved Source with Caution via Step 3 assessment

- In addition to checks for medium risk Approved Source with Caution by-products, by-products that have had risk downgraded from high to medium at Step 3 (use **Appendix 1** to identify these by-product species), confirm that the relevant traceability information continues to be collected for this by-product. During the audit, a traceability check on any by-products downgraded from high to medium risk shall be included as part of the required traceability checks (Section 4).

Guidance for the applicant/certificate holder

The applicant/certificate holder is responsible for ensuring the relevant actions are taken to comply with the MarinTrust Standard.

The certificate holder is responsible for communicating any changes to the by-products sourced by submitting a scope extension request through the MarinTrust online Application Portal.

Appendix 1 – assessment outcomes

Step 2 Assessment Outcomes

By-product species name	Flag country(ies)	IUCN Red List	CITES Appendices	Step 2 risk status	Step 3 required?
Skipjack tuna (<i>Katsuwonus pelamis</i>)	FAO 61, 71 Japan, Marshall Islands, Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Philippines, Papua New Guinea, Vanuatu, China, Spain, Republic of Korea (South), Maldives, Fiji, Solomon Islands, Indonesia, USA	Least concern	Not listed	High risk	Yes
	FAO 51, 57 Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain, Tanzania			High risk	Yes
	FAO 77 Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Papua New Guinea, Republic of Korea (South), Maldives, Fiji, China, Solomon Islands, USA			High risk	Yes
Albacore tuna (<i>Thunnus alalunga</i>)	FAO 61, 71 Indonesia, Fiji, Australia, Japan, Taiwan	Least concern	Not listed	High risk	No
	FAO 51, 57 Malaysia, Taiwan, Indonesia, Maldives, China, Mauritius			High risk	Yes
	FAO 77, 81, 87 New Zealand, Japan, Australia, China, Taiwan, Vanuatu			High risk	Yes

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By-product species name	Flag country(ies)	IUCN Red List	CITES Appendices	Step 2 risk status	Step 3 required?
Yellowfin tuna (<i>Thunnus albacares</i>)	FAO 51, 57 Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain	Least concern	Not listed	High risk	Yes
	FAO 61, 71 Marshall Islands, Taiwan, Kiribati, Nauru, Korea, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Republic of Korea (South), Spain, Solomon Islands, Indonesia, USA			High risk	Yes
	FAO 77, 87 Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Republic of Korea (South), Papua New Guinea, Solomon Islands, USA			High risk	Yes
Bigeye tuna (<i>Thunnus obesus</i>)	FAO 51, 57 Maldives, Indonesia, France, Japan, Kenya, Mauritius, Oman, Seychelles, South Africa, South Korea, Spain	Vulnerable	Not listed	High risk	Yes
	FAO 71, 77 Marshall Islands, Taiwan, Kiribati, Nauru, South Korea, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Spain, Solomon Islands, USA			High risk	Yes
Japanese amberjack (<i>Seriola quinqueradiata</i>)	Japan	Not Evaluated	Not listed	Medium risk	No

By-product species name	Flag country(ies)	IUCN Red List	CITES Appendices	Step 2 risk status	Step 3 required?
Pink salmon (<i>Oncorhynchus gorbuscha</i>)	USA, Canada	Least concern	Not listed	Medium risk	No
Chum salmon (<i>Oncorhynchus keta</i>)	USA	Least concern	Not listed	Medium risk	No
Pacific saury (<i>Cololabis saira</i>)	Japan	Not Evaluated	Not listed	Medium risk	No
Pilchard/Sardine (<i>Sardinops sagax</i>)	Japan, China	Least concern	Not listed	High risk	Yes
Yellowfin Sole (<i>Limanda aspera</i>)	USA	Least concern	Not listed	Medium risk	No

Step 3 Assessment Outcomes

By-product species name	Flag country(ies)	Fishing Area	Stock name	Category C Assessment Outcome	Traceability information	Step 3 Risk Outcome
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Japan, Marshall Islands, Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Philippines, Papua New Guinea, Vanuatu, China, Spain, Republic of Korea (South), Maldives, Fiji, Solomon Islands, Indonesia, USA	FAO 61, 71	Western and Central Pacific Ocean skipjack tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain, Tanzania	FAO 51, 57	Indian Ocean skipjack tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Skipjack tuna (<i>Katsuwonus pelamis</i>)	Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Papua New Guinea, Republic of Korea (South), Maldives, Fiji, China, Solomon Islands, USA	FAO 77	Eastern Pacific Ocean skipjack tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Albacore tuna (<i>Thunnus alalunga</i>)	Indonesia, Fiji, Australia, Japan, Taiwan	FAO 61, 71	North Pacific albacore tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Albacore tuna (<i>Thunnus alalunga</i>)	Malaysia, Taiwan, Indonesia, Maldives, China, Mauritius	FAO 51, 57	Indian Ocean albacore tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk

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By-product species name	Flag country(ies)	Fishing Area	Stock name	Category C Assessment Outcome	Traceability information	Step 3 Risk Outcome
Albacore tuna (<i>Thunnus alalunga</i>)	New Zealand, Japan, Australia, China, Taiwan, Vanuatu	FAO 77, 81, 87	South Pacific albacore tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Yellowfin tuna (<i>Thunnus albacares</i>)	Maldives, Indonesia, France, Seychelles, Kenya, Mauritius, Oman, South Africa, South Korea, Spain	FAO 51, 57	Indian Ocean yellowfin tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Yellowfin tuna (<i>Thunnus albacares</i>)	Marshall Islands, Taiwan, Kiribati, Nauru, Korea, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Republic of Korea (South), Spain, Solomon Islands, Indonesia, USA	FAO 61, 71	Western and Central Pacific Ocean yellowfin tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Yellowfin tuna (<i>Thunnus albacares</i>)	Taiwan, Kiribati, Nauru, Federated States of Micronesia, Tuvalu, Vanuatu, Spain, Republic of Korea (South), Papua New Guinea, Solomon Islands, USA	FAO 77, 87	Eastern Pacific Ocean yellowfin tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Bigeye tuna (<i>Thunnus obesus</i>)	Maldives, Indonesia, France, Japan, Kenya, Mauritius, Oman, Seychelles, South Africa, South Korea, Spain	FAO 51, 57	Indian Ocean bigeye tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk

By-product species name	Flag country(ies)	Fishing Area	Stock name	Category C Assessment Outcome	Traceability information	Step 3 Risk Outcome
Bigeye tuna (<i>Thunnus obesus</i>)	Marshall Islands, Taiwan, Kiribati, Nauru, South Korea, Federated States of Micronesia, Tuvalu, Japan, Philippines, Papua New Guinea, Vanuatu, China, Spain, Solomon Islands, USA	FAO 71, 77	Pacific Ocean bigeye tuna	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Pilchard/Sardine (<i>Sardinops sagax</i>)	Japan, China	FAO 61	Japanese Pacific Ocean pilchard	Pass	Path 1 – Yes	Risk downgraded to Medium Risk
Comments on Step 3 Assessment: Traceability information was requested from the applicant on 17 August 2026 and 1,840 vessel-level records were provided. These records were reviewed for the purposes of the Path 1 assessment only. Path 1 requires that the complete set of whole-fish Key Data Elements defined in MarinTrust Standard clauses 2.11.2.2 and 3.2.5 is available for the species/stock combination under assessment. The records were checked against each of those elements. While information was satisfactory to ensure Traceability elements are met as part of this assessment, there were two aspects of the KDEs that need to be fulfilled for the reapproval in 2027. The required KDEs are described under sections 2.11.2.2 and 3.2.5 of the v3.0 MarinTrust Global Standard for Responsible Supply of Marine Ingredients. The KDEs provided by the client contained most required elements, but vessel owner and license/permit were absent for most records. These data must be provided for the 2027 reapproval in order to maintain certification.						

Appendix 2 – detailed assessment outcomes

(step 2 and step 3 if applicable)

Step 2 outcomes

Flag state	Risk rating	Flag score	Port score	General score	Flag State is contracting party or cooperating non-contracting party to all relevant RFMOs	'Carded' under EU Carding system	Flag state party to PSMA	Flag state mandatory vessel tracking for commercial seagoing fleet	WGI Governance rank
Australia	Medium	2.42	1.94	1.27	1	1	1	1	99.53%
Canada	Low	1.92	1.89	1.4	1	1	1	1	95.75%
China	High	4.21	4.33	3.2	1	1	5	1	36.79%
Fiji	Medium	2	2.17	1.9	1	1	1	1	50.47%
France	Medium	3.17	2.39	1.67	1	1	1	1	85.38%
Indonesia	Medium	3.33	2.56	2.47	1	1	1	1	59.43%
Japan	Medium	2.92	2.06	1.93	1	1	1	1	91.51%

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Flag state	Risk rating	Flag score	Port score	General score	Flag State is contracting party or cooperating non-contracting party to all relevant RFMOs	'Carded' under EU Carding system	Flag state party to PSMA	Flag state mandatory vessel tracking for commercial seagoing fleet	WGI Governance rank
Kenya	Medium	1.63	1.83	2.63	1	1	1	1	39.15%
Kiribati	High	1.79	3.11	1.96	1	1	5	1	42.92%
Malaysia	High	1.96	2.89	2.13	1	1	5	1	72.64%
Maldives	High	2.25	1.67	2.13	1	1	1	1	26.89%
Marshall Isl.	High	1.79	3.17	1.89	1	1	5	1	37.74%
Mauritius	Medium	2.13	2.72	1.97	1	1	1	1	84.43%
Micronesia (FS of)	High	1.92	2.94	1.93	1	1	5	1	31.13%
Nauru	Medium	2.04	1	1.64	1	1		1	53.30%
New Zealand	Medium	2.46	2.11	1.5	1	1	1	1	99.06%
Oman	Medium	1.92	1.6	2.03	1	1	1	1	65.57%
Papua New Guinea	High	2.04	2.94	2.07	1	1	5	1	26.42%
Philippines	Medium	2.04	2.06	2.53	1	1	1	1	53.77%
Korea (Rep. South)	Medium	3.67	3.11	1.97	1	1	1	1	83.96%

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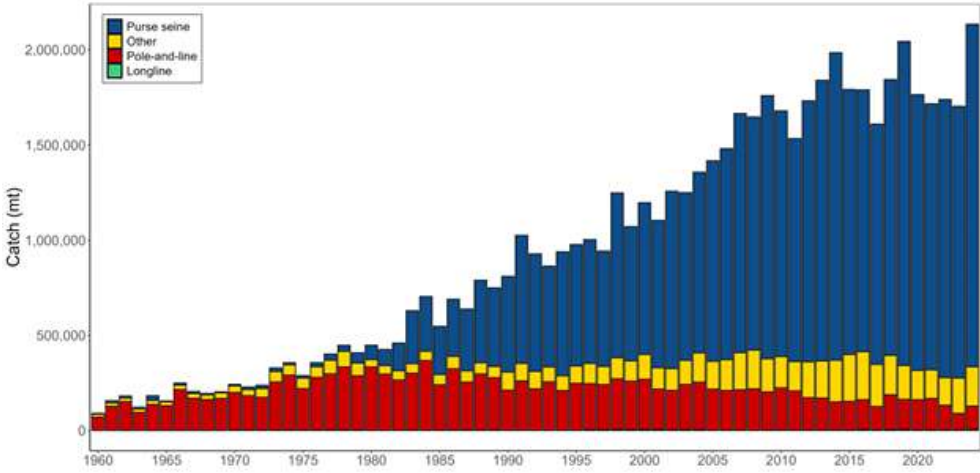
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Flag state	Risk rating	Flag score	Port score	General score	Flag State is contracting party or cooperating non-contracting party to all relevant RFMOs	'Carded' under EU Carding system	Flag state party to PSMA	Flag state mandatory vessel tracking for commercial seagoing fleet	WGI Governance rank
Seychelles	Medium	1.79	2.39	1.57	1	1	1	1	62.26%
Solomon Isl.	High	1.58	3.28	2.07	1	1	5	1	21.70%
South Africa	Medium	2.58	2.67	2.3	1	1	1	1	44.34%
Spain	Medium	3.21	3.39	2.03	1	1	1	1	75.94%
Taiwan	High	4.17	3.06	2.27	1	1	5	1	90.57%
Tanzania	High	1.83	2.78	2.3	2	1	5	1	30.19%
Tuvalu	High	1.67	2.67	1.81	1	1	5	1	47.64%
USA	Medium	2.29	2.06	2.37	1	1	1	1	91.04%
Vanuatu	High	2.88	1.56	2.17	2	1	1	1	48.58%

Step 3 outcomes

Category C assessment

Species name		Skipjack tuna (<i>Katsuwonus pelamis</i>)
Fishing area and stock		Western and Central Pacific Ocean skipjack tuna (FAO 61 and 67)
C1	Category C Stock Status - Minimum Requirements	
C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The WCPO skipjack tuna stock is assessed by the WCPFC Scientific Committee using an integrated MULTIFAN-CL stock assessment model, which incorporates catch, effort, size-frequency and tagging data from all major fisheries operating on the stock across the WCPO, including purse seine, pole-and-line, longline and artisanal fleets (Tearns et al., 2025). Fishery removals under this assessment are therefore included in the stock assessment process.  Figure 1 - WCPFC-CA skipjack tuna catch (mt) by gear, 1960–2024. Source: Vidal and Ruaia (2025)		
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. The most recent stock assessment of WCPO skipjack tuna was conducted in 2025 (Tearns et al., 2025). The assessment estimated median recent spawning biomass depletion at $SB_{recent}/SB_{F=0} = 0.51$, compared with the WCPFC limit reference point (LRP) of 20% of unfished spawning biomass		

($SB/SB_{F=0} = 0.20$). The stock is therefore well above the LRP, and no models in the assessment ensemble estimated the stock to be below the LRP. Median recent fishing mortality was also well below F_{MSY} ($F_{recent}/F_{MSY} = 0.35$). The assessment concluded that WCPO skipjack tuna is not overfished and is not undergoing overfishing (Tears et al., 2025). The subsequent WCPFC stock-status update similarly reported a recent median $SB_{recent}/SB_{F=0}$ of 0.51, a median F_{recent}/F_{MSY} of 0.35, and a 0% probability of breaching the LRP under the recent stock-status estimate (SPC-OFP, 2025).

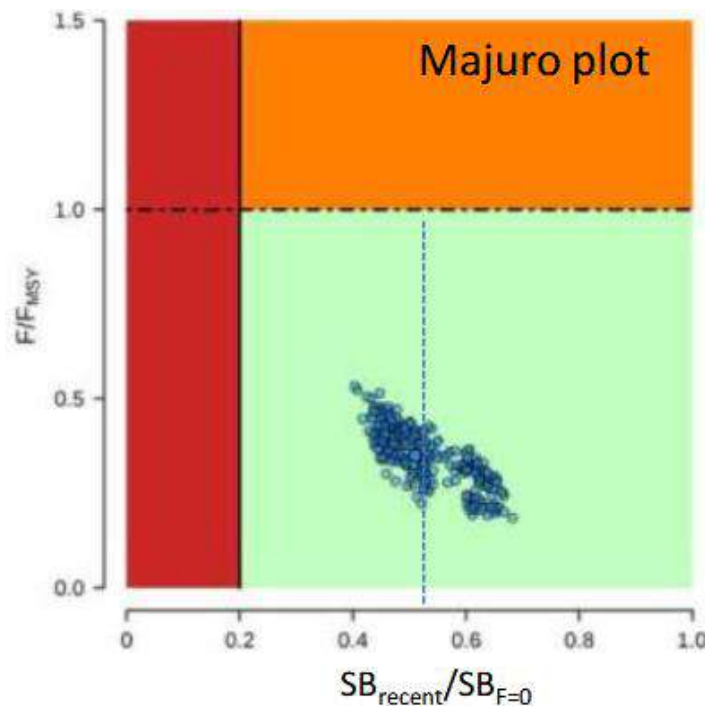
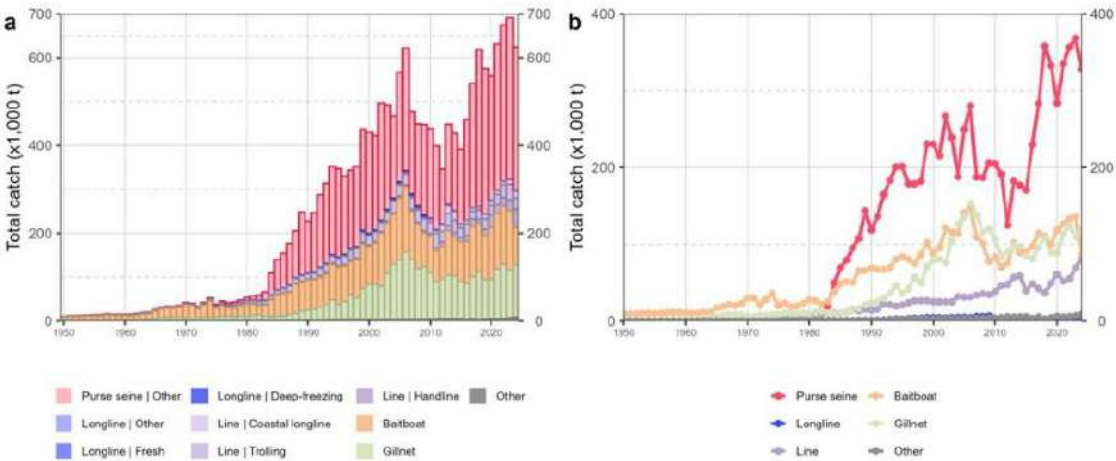


Figure 2 - Majuro plot for WCPO skipjack tuna from the 2025 stock assessment, showing terminal $SB_{recent}/SB_{F=0}$ against F_{recent}/F_{MSY} for each of the 271 models in the uncertainty ensemble. The red band marks the limit reference point ($0.20 SB_{F=0}$); the dashed vertical line is the depletion target reference point recalibrated on the 2025 assessment (0.52). Source: SPC-OFP (2025)

References

- SPC-OFP (2025). 2024 Overview of Stock Status and Fisheries Update in WCPO. WCPFC22-2025-07. Western and Central Pacific Fisheries Commission, Twenty-Second Regular Session, 1–5 December 2025, Manila, Philippines. <https://meetings.wcpfc.int/file/19557/download>
- Tears, T., Davies, N., Hamer, P., Magnusson, A., Peatman, T., Scutt Phillips, J., Vidal, T. and Hampton, J. (2025). WCPO skipjack tuna stock assessment. WCPFC-SC21-2025/SA-WP-02 Rev.03. WCPFC Scientific Committee, Twenty-First Regular Session, 13–21 August 2025, Nuku'alofa, Tonga. <https://meetings.wcpfc.int/file/18374/download>
- Vidal, T., and Ruaia, T. (2025). Overview of Tuna Fisheries in the Western and Central Pacific Ocean, Including Economic Conditions – 2024. WCPFC-SC21-2025/GN-WP-01_rev1. WCPFC Scientific Committee, Twenty-First Regular Session, 13–21 August 2025, Nuku'alofa, Tonga. <https://meetings.wcpfc.int/file/18088/download>

Species name		Skipjack tuna (<i>Katsuwonus pelamis</i>)
Fishing area and stock		Indian Ocean skipjack tuna (FAO 51 and 57)
C1	Category C Stock Status - Minimum Requirements	
C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The Indian Ocean skipjack tuna stock is assessed by the IOTC using a Stock Synthesis (SS3) model that incorporates the full catch time series reported by IOTC members and cooperating non-contracting parties fishing the stock (2024 catch: 624,609 t). Fishery removals are therefore included in the stock assessment process.  Figure 3 - Indian Ocean skipjack tuna retained catch, 1950–2024: (a) cumulative retained catch (t) by fishery; (b) retained catch (t) by fishery group. Source: IOTC Scientific Committee (2025)		
C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	
The most recent stock assessment (IOTC 2023, data through 2022; no new assessment was conducted in 2025 and the 2023 advice was carried forward — IOTC Scientific Committee, 2025) estimated $SB_{2022}/SB_0 = 0.53$ (80% CI: 0.42–0.68), against the IOTC-adopted limit reference point of $SB_{lim} = 0.2 \times SB_0$ (Resolution 16/02). Current biomass is therefore well above the limit reference point (equivalent to $SB_{2022}/SB_{MSY} = 2.30$). The IOTC Scientific Committee determined the stock to be "not overfished and not subject to overfishing" ($F_{2022}/F_{MSY} = 0.49$).		

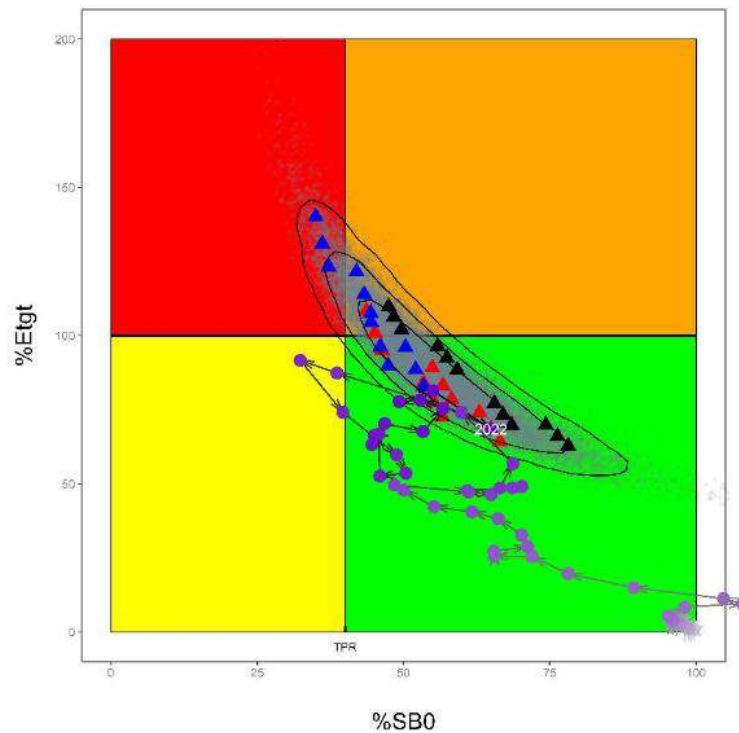
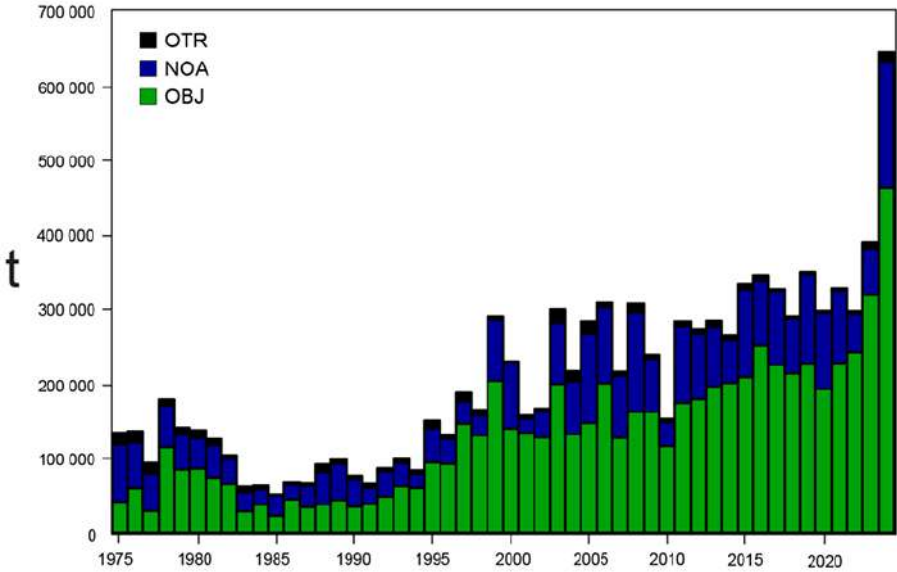


Figure 4 - Indian Ocean skipjack tuna Kobe plot from the 2023 assessment uncertainty grid, showing stock status relative to the 40% SB_0 target reference point (x-axis, vertical line marked TPR) and the target fishing mortality (y-axis, horizontal line at 100%). Triangles are maximum posterior density estimates from individual models — black for models using the pole-and-line index, red for the floating-object purse seine index, blue for models using both the PLS and ABBI indices. Grey points show within-model uncertainty; the arrowed line traces the historical stock trajectory, with the terminal year (2022) labelled. Contours enclose the 50%, 80% and 90% confidence regions. Source: IOTC Scientific Committee (2025)

References

IOTC Scientific Committee (2025). Appendix 3, Executive Summary: Skipjack Tuna (2025). IOTC-2025-SC28-ES03[E]. Indian Ocean Tuna Commission, Twenty-Eighth Session of the Scientific Committee. https://iotc.org/sites/default/files/content/Stock_status/2025/English/IOTC-2025-SC28-ES03_SKJE.pdf

Species name		Skipjack tuna (<i>Katsuwonus pelamis</i>)
Fishing area and stock		Eastern Pacific Ocean skipjack tuna (FAO 77)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The EPO skipjack tuna stock is assessed by the IATTC using an integrated stock assessment model fitted to catches, relative abundance indices and size-composition data from all fisheries operating on the stock in the IATTC Convention Area. Fishery removals are therefore included in the stock assessment process.  <i>Figure 5 - Skipjack tuna catches in the eastern Pacific Ocean by purse-seine set type — OBJ (floating object) and NOA (unassociated) — and by other gears (OTR), 1975–2024. The 2024 catch of approximately 645,000 t is the highest of the series. Source: IATTC (2025a)</i>		
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. The most recent stock assessment (IATTC, 2024 benchmark, updated with a 2025 risk analysis) determined that current spawning biomass is above the interim target proxy under both static and dynamic formulations, with the September 2025 Commission-level risk synthesis (IATTC, 2025b)		

reporting a less than 1% probability that current spawning biomass is below the limit reference point (S_{LIMIT} , defined under Resolution C-23-06 as the biomass corresponding to a 50% reduction in recruitment, $S_{0.5R0}$). The stock is not overfished and is not subject to overfishing (0% probability F exceeds $F_{MSY-proxy}$).

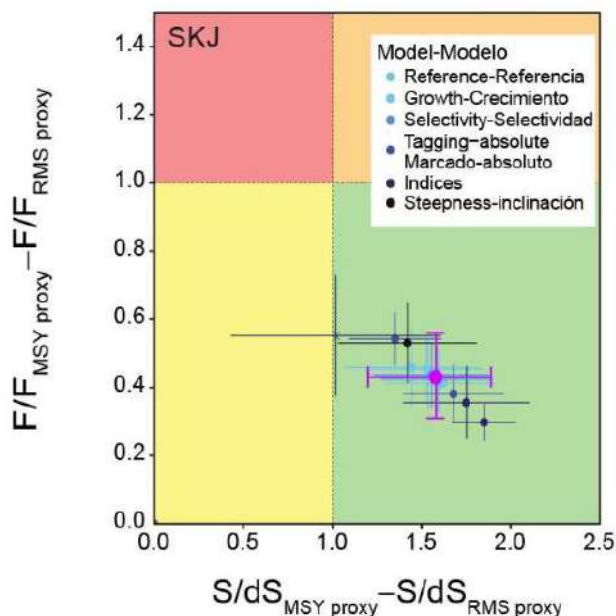
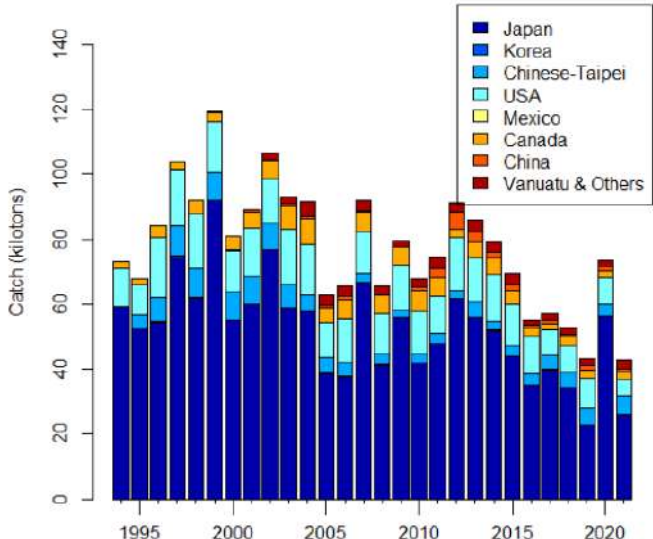


Figure 6 - Kobe plot for eastern Pacific skipjack tuna, showing spawning biomass and fishing mortality relative to their MSY-proxy reference points ($S/dS_{MSY proxy}$ and $F/F_{MSY proxy}$), based on average fishing mortality over 2021–2023. Coloured points are the individual reference models in the 2024 benchmark assessment and 2025 risk analysis; the large magenta point and bars give the median and 80% confidence interval combined across models. Source: IATTC (2025b)

References

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Species name		Albacore tuna (<i>Thunnus alalunga</i>)
Fishing area and stock		North Pacific albacore tuna (FAO 61 and 71)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The North Pacific albacore tuna stock is assessed jointly for WCPFC and IATTC by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), using a Stock Synthesis model that integrates catch data from all North Pacific fisheries, including Japanese, Taiwanese and other distant-water and coastal longline, troll, and pole-and-line fleets. Japanese catch data — the fishery's largest single national contributor — is compiled annually from logbooks and landing reports and formally submitted to the ISC as part of the Official Catch Statistics feeding each benchmark assessment (Tsuda et al., 2025). Fishery removals are therefore included in the stock assessment process.		
 The chart is a stacked bar graph showing the annual catch of North Pacific albacore tuna from 1994 to 2021. The y-axis represents 'Catch (kilotons)' ranging from 0 to 140. The x-axis shows years from 1995 to 2020. The legend identifies the following countries: Japan (dark blue), Korea (medium blue), Chinese-Taipei (light blue), USA (cyan), Mexico (yellow), Canada (orange), China (red), and Vanuatu & Others (dark red). Japan consistently shows the largest catch, peaking around 1999 and then generally declining. Other countries show smaller, more fluctuating catches.		
<i>Figure 7 - Estimated total annual catch of North Pacific albacore tuna (<i>Thunnus alalunga</i>) by all countries harvesting the stock, 1994–2021. Source: ISC Albacore Working Group (2023)</i>		
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.		

The most recent benchmark stock assessment (ISC Albacore Working Group, 2023, terminal data year 2021) estimated female spawning biomass $SSB_{2021}/SSB_{current,F=0} = 0.54$ (95% CI: 0.40–0.68), against the WCPFC/IATTC-adopted limit reference point of 14% of current dynamic unfished spawning biomass (14% $SSB_{current,F=0}$) — i.e., current biomass is approximately 1.8 times the 30% $SSB_{current,F=0}$ threshold reference point and roughly 3.9 times the 14% limit reference point. Minor calculation errors identified in the 2023 assessment's fishing-intensity ratios ($F_{\%SPR}$ figures) were corrected and reviewed by the ISC25 Plenary in June 2025, which confirmed the corrections "did not result in any qualitative change in the reported stock status of NPO ALB." The ISC25 Plenary formally reaffirmed the stock status as current, stating the stock "is likely not overfished relative to the threshold (30% $SSB_{current,F=0}$) and limit (14% $SSB_{current,F=0}$) reference points" and "is likely not experiencing overfishing relative to the adopted target reference point ($F_{45\%SPR}$).". The estimated female SSB has not fallen below the threshold or limit reference points in any year since 1994.

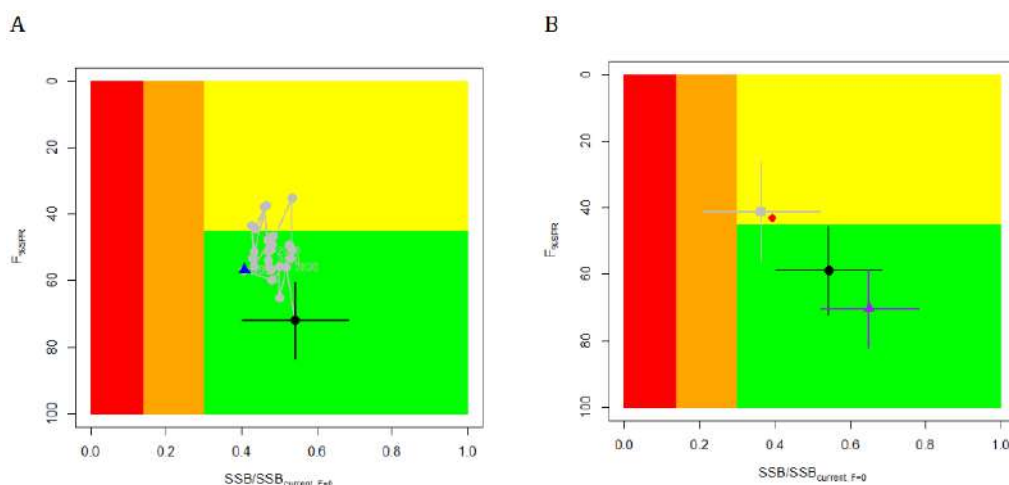


Figure 8 - North Pacific albacore stock status relative to the biomass-based threshold (30% $SSB_{current,F=0}$) and limit (14% $SSB_{current,F=0}$) reference points and the fishing-intensity target reference point ($F_{45\%SPR}$). (A) Trajectory over 1994–2021; the blue triangle is the start year (1994) and the black circle with 95% confidence intervals the terminal year (2021). (B) Terminal-year status for the base-case model (black circle) alongside three sensitivity runs — CV = 0.06 for L_{inf} in the growth model (grey square), an estimated growth model (purple triangle), and the 2020 base case updated to 2023 data (red diamond). No confidence intervals are shown for the last of these because that model did not have a positive-definite Hessian matrix and its uncertainty estimates were unreliable. Source: ISC Albacore Working Group (2023)

References

ISC Albacore Working Group (2023). Stock Assessment of Albacore Tuna in the North Pacific Ocean in 2023 (Rev.01). ISC/23/ANNEX/08; tabled at WCPFC as WCPFC-SC19-2023/SA-WP-08. 18 August 2023. <https://meetings.wcpfc.int/file/13355/download>

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Species name		Albacore tuna (<i>Thunnus alalunga</i>)
Fishing area and stock		Indian Ocean albacore tuna (FAO 51 and 57)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS

C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.

The Indian Ocean albacore tuna stock is assessed by the IOTC Working Party on Temperate Tunas using a Stock Synthesis (SS3) model incorporating total catch and catch-by-fleet data (2024 catch: 36,458 t) from all fisheries operating on the stock. Fishery removals are therefore included in the stock assessment process (IOTC, 2025).

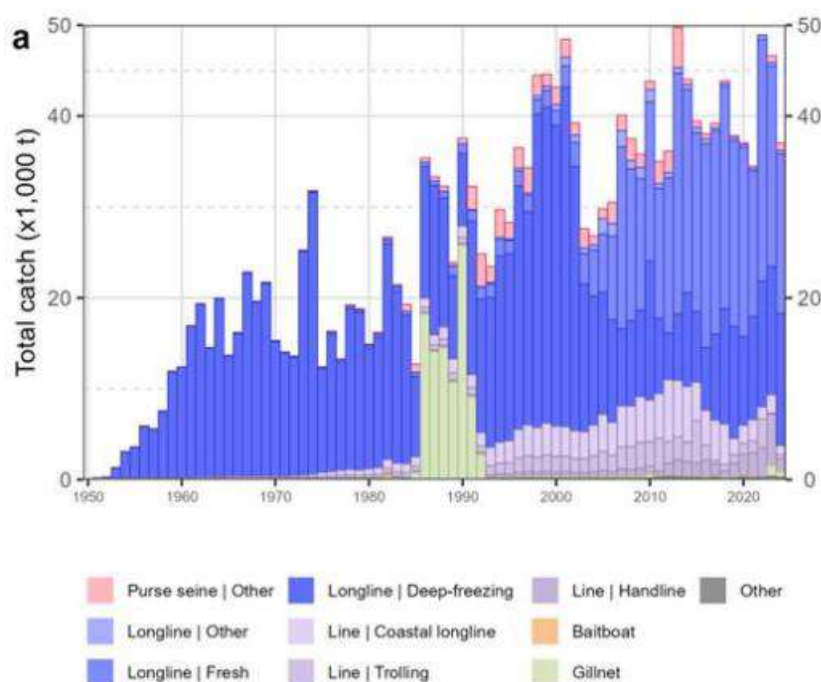


Figure 9 - Cumulative retained catch (t) of Indian Ocean albacore tuna by fishery, 1950–2024. Source: IOTC Scientific Committee (2025)

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The most recent stock assessment (IOTC Working Party on Temperate Tunas, 2025, data through 2023) estimated $SB_{2023}/SB_{MSY} = 1.33$ (95% CI: 0.90–1.78), against the IOTC-adopted limit reference point of $SB_{lim} = 0.4 \times SB_{MSY}$ (Resolution 15/10). The point estimate is above both SB_{MSY} and the limit reference point, and the lower bound of the 95% confidence interval remains more than twice the limit. Assessment uncertainty concerns the stock's status against the target rather than the limit: the model options place 54.1% probability on the stock being in the green quadrant of the Kobe plot (not overfished and not subject to overfishing) and 44.1% probability on the stock being subject to overfishing, $F_{2020}/F_{MSY} \geq 1$, whether or not it is overfished, with the residual 1.8% probability on the stock being overfished but not currently subject to overfishing (IOTC Scientific Committee, 2025, Table 2). Biomass is above the limit reference point on every model option, and C1.2 is met.

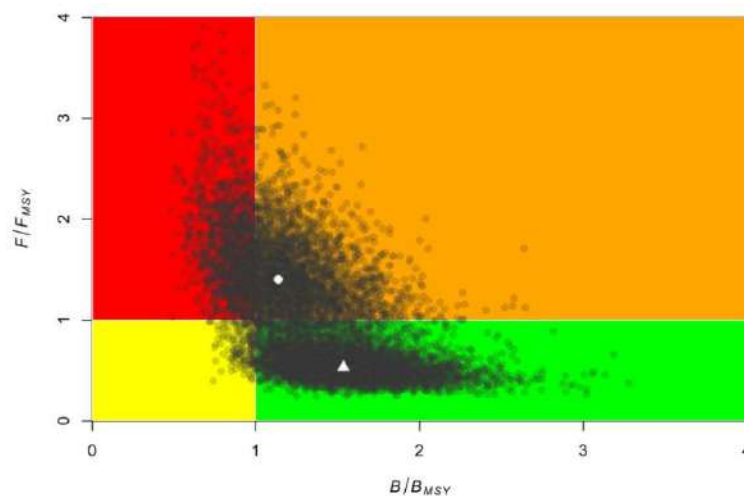


Figure 10 - Indian Ocean albacore tuna Kobe plot for the two model options considered in the 2025 assessment, plotted together. The white triangle and white circle are the maximum posterior density estimates for each model option; grey points show the statistical uncertainty around them (white circle: model fitted to the north-western CPUE; white triangle: south-western). Source: IOTC Scientific Committee (2025)

References

- IOTC Scientific Committee (2025). Appendix 1, Executive Summary: Albacore (2025). IOTC-2025-SC28-ES01[E]. Indian Ocean Tuna Commission, Twenty-Eighth Session of the Scientific Committee. https://iotc.org/sites/default/files/content/Stock_status/2025/English/IOTC-2025-SC28-ES01_ALBE.pdf
- IOTC Working Party on Temperate Tunas – Assessment Session (2025). Report of the Ninth Session. IOTC-2025-WPTmT09(AS)-R[E]. Indian Ocean Tuna Commission. https://iotc.org/sites/default/files/documents/2025/08/IOTC-2025-WPTmT09AS-RE_0.pdf

Species name		Albacore tuna (<i>Thunnus alalunga</i>)	
Fishing area and stock		South Pacific albacore tuna FAO 77, 81, and 87)	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:			PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.			
South Pacific albacore was most recently assessed in 2024 using an integrated Multifan-CL stock assessment model (Tears et al., 2024a), covering the entire South Pacific stock area — both the WCPFC Convention Area and the eastern Pacific Ocean/IATTC area — with catch, CPUE and length-composition data through to 2022. Total South Pacific removals in 2024 were approximately 92,000 t, of which longline accounted for 89,632 t — 97% of the catch by weight — and troll 1,485 t; within the southern WCPFC Convention Area the 2024 catch was 74,766 t, with the remainder taken in the eastern Pacific, where catch estimates were not available at publication and 2023 values were carried through (McKechnie et al., 2025). Fishery removals for this stock are therefore included in the stock assessment process (Tears et al., 2024a).			

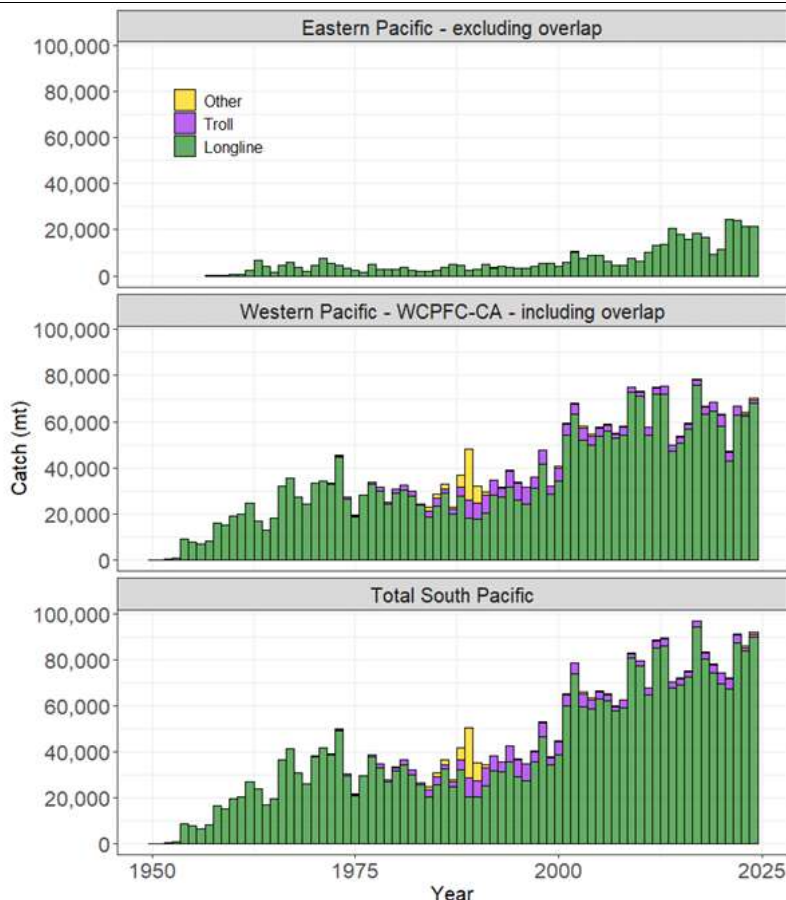


Figure 11 - South Pacific albacore catch (mt) by gear, 1950–2024, shown for the eastern Pacific Ocean excluding the WCPFC–IATTC overlap area (top), the WCPFC Convention Area including the overlap (middle), and the South Pacific as a whole (bottom). The 2024 eastern Pacific estimate has been carried over from 2023 pending data provision. Source: McKechnie et al. (2025)

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The 2024 assessment estimates median recent stock depletion ($SB_{\text{recent}}/SB_{F=0}$) at 0.48, close to the interim target reference point of 0.50 adopted by WCPFC, with median fishing mortality ($F_{\text{recent}}/F_{\text{MSY}}$) at 0.18, well below F_{MSY} . The assessment places the stock in the "not overfished, not subject to overfishing" zone of the Kobe/Majuro plots, with a 0% probability of the stock having recently breached the limit reference point (rising to 14% under continued fishing at 2020–2022 levels). The species is therefore considered to have a biomass above the limit reference point (SPC-OFP, 2025).

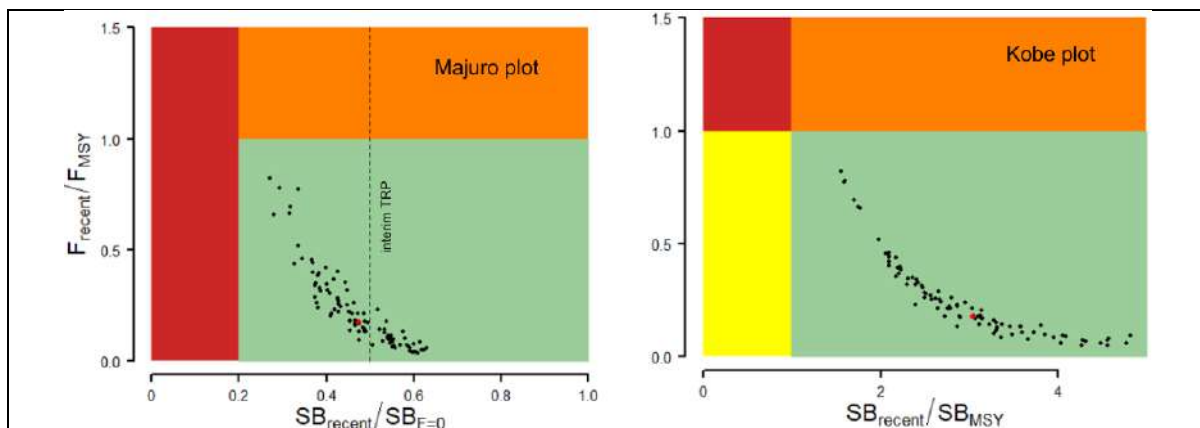


Figure 12 - South Pacific albacore stock status from the 2024 assessment, covering the entire South Pacific stock including the IATTC region. Left: Majuro plot of $SB_{recent}/SB_{F=0}$ against F_{recent}/F_{MSY} , with the dashed line marking the interim target reference point of 0.50 and the red band the limit reference point of 0.20 $SB_{F=0}$. Right: Kobe plot of SB_{recent}/SB_{MSY} against F_{recent}/F_{MSY} . Each point is one model of the 100-model ensemble. Source: SPC-OFP (2026)

References

- McKechnie, S., Pilling, G., Vidal, T., Williams, P. and the WCPFC Secretariat (2025). Trends in the South Pacific Albacore Longline and Troll Fisheries. WCPFC-SC21-2025/SA-IP-09, 28 July 2025. WCPFC Scientific Committee, Twenty-First Regular Session, 13–21 August 2025, Nuku'alofa, Tonga. <https://meetings.wcpfc.int/meetings/sc21>
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- SPC-OFP (2026). South Pacific Albacore Stock Status. A4.1, SPAJWG01 – Agenda Item 4.1. First WCPFC and IATTC Joint Working Group on the Management of South Pacific Albacore Tuna Fisheries, 18–19 March 2026, online. <https://meetings.wcpfc.int/node/29569>
- Tears, T., Peatman, T., Castillo-Jordán, C., Davies, N., Day, J., Hampton, J., Magnusson, A., et al. (2024a). Stock Assessment of South Pacific Albacore: 2024 (Rev.03). WCPFC-SC20-2024/SA-WP-02. WCPFC Scientific Committee, Twentieth Regular Session, 14–21 August 2024, Manila, Philippines. <https://meetings.wcpfc.int/file/15784/download>

Species name		Yellowfin tuna (<i>Thunnus albacares</i>)
Fishing area and stock		Indian Ocean yellowfin tuna (FAO 51 and 57)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS

C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.

The Indian Ocean yellowfin tuna stock is assessed by the IOTC using a fully integrated Stock Synthesis model incorporating catch, size-frequency, tagging and CPUE data from all fisheries operating on the stock (2024 catch: 489,742 t). Fishery removals are therefore included in the stock assessment process.

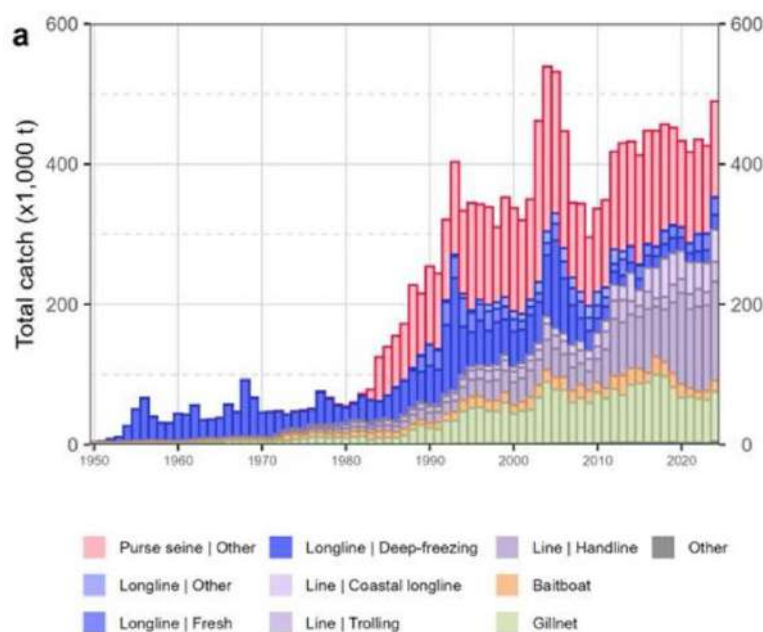


Figure 13 - Cumulative retained catch (t) of Indian Ocean yellowfin tuna by fishery, 1950–2024. Source: IOTC Scientific Committee (2025)

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The most recent stock assessment (IOTC, 2024 model, rerun 2025 following CPUE-index corrections) estimated $SB_{2023}/SB_{MSY} = 1.32$ (80% CI: 1.00–1.59), against the IOTC-adopted limit reference point of

$SB_{lim} = 0.4 \times SB_{MSY}$ (Resolution 15/10). Biomass is above both SB_{MSY} and the limit reference point even at the lower confidence bound. The stock was previously overfished (2007–2019) and subject to overfishing (2003–2020). However, at its 29th Session (2025) the IOTC Commission noted that "the large change in the joint CPUE series for longline fleets in 2024 was the main driver of the positive assessment outcome" and requested the Scientific Committee investigate this before treating the improved status as confirmed (IOTC, 2025).

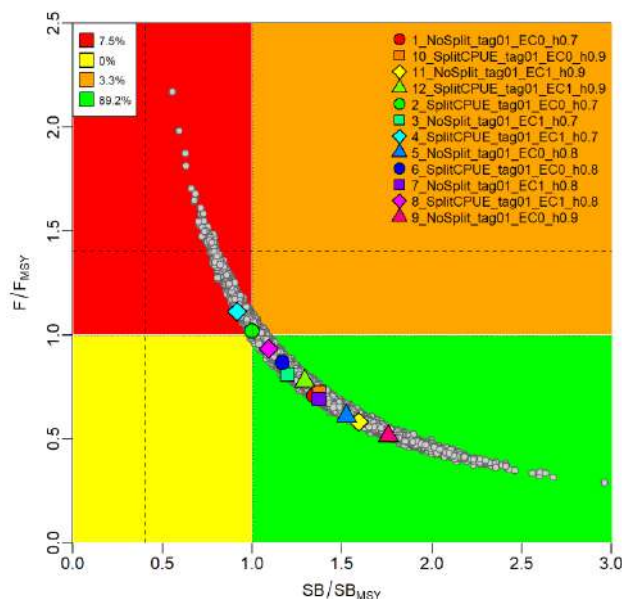
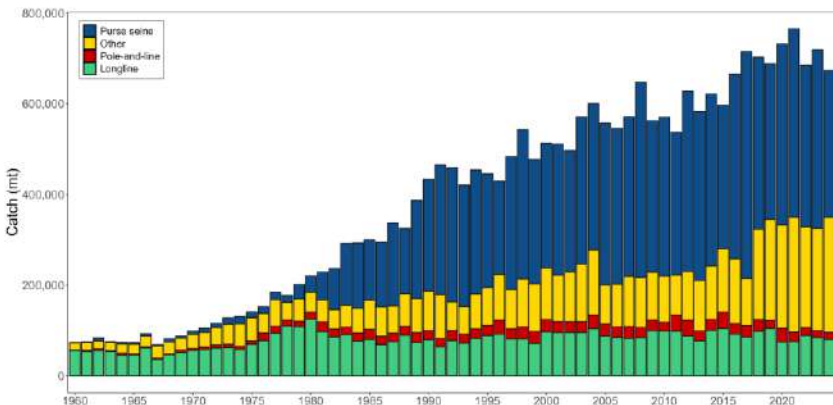


Figure 14 - Indian Ocean yellowfin tuna Kobe plot showing 2023 stock status relative to SB_{MSY} (x-axis) and F_{MSY} (y-axis). Coloured symbols are maximum posterior density estimates from the twelve individual model options; grey points show statistical uncertainty (20,000 replicates per model). Dashed lines mark the IOTC limit reference points for this stock, $SB_{lim} = 0.4 SB_{MSY}$ and $F_{lim} = 1.4 F_{MSY}$ (Resolution 15/10). Quadrant probabilities, given in the legend, are: green 89.2%, red 7.5%, orange 3.3%, yellow 0%. Source: IOTC Scientific Committee (2025)

References

IOTC (2025). Report of the 29th Session of the IOTC Commission. IOTC-2025-S29-R[E]. Indian Ocean Tuna Commission. <https://iotc.org/sites/default/files/documents/2025/07/IOTC-2025-S29-RE.pdf>

IOTC Scientific Committee (2025). Appendix 4, Executive Summary: Yellowfin Tuna (2025). IOTC-2025-SC28-ES04[E]. Indian Ocean Tuna Commission, Twenty-Eighth Session of the Scientific Committee. https://iotc.org/sites/default/files/content/Stock_status/2025/English/IOTC-2025-SC28-ES04_YFTE.pdf

Species name		Yellowfin tuna (<i>Thunnus albacares</i>)
Fishing area and stock		Western and Central Pacific Ocean yellowfin tuna (FAO 61 and 71)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The WCPO yellowfin tuna stock is assessed by the WCPFC Scientific Committee using an integrated MULTIFAN-CL model, stratified across a five-region spatial structure. The model incorporates catch data from all major gear types taking yellowfin in the WCPFC Convention Area: in 2024, total WCPFC-CA yellowfin catch was approximately 677,600 mt, comprising purse seine (331,367 mt, 49%), archipelagic/other small-scale fisheries (250,420 mt, 37%), longline (79,974 mt, 12%) and pole-and-line (15,994 mt, 2%). Fishery removals are therefore included in the stock assessment process (Vidal and Ruaia 2025).  Figure 15 - WCPFC-CA yellowfin tuna catch (mt) by gear, 1960–2024. Source: Vidal and Ruaia (2025)		
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. The most recent stock assessment (last assessed 2023, next assessment 2026) estimated median recent stock depletion ($SB_{recent}/SB_{F=0}$) at 0.47 (10th–90th percentile: 0.42–0.52), against the WCPFC-adopted limit reference point of 20% of unfished spawning biomass, with median fishing mortality (F_{recent}/F_{MSY}) at 0.50 (10th–90th percentile: 0.41–0.62). There is a 0% probability of the stock having recently breached the limit reference point, and 0% probability of doing so under projected 2019–		

2021 fishing levels. Current biomass is therefore well above the limit reference point, and the stock is not overfished and not subject to overfishing (SPC-OFP, 2025).

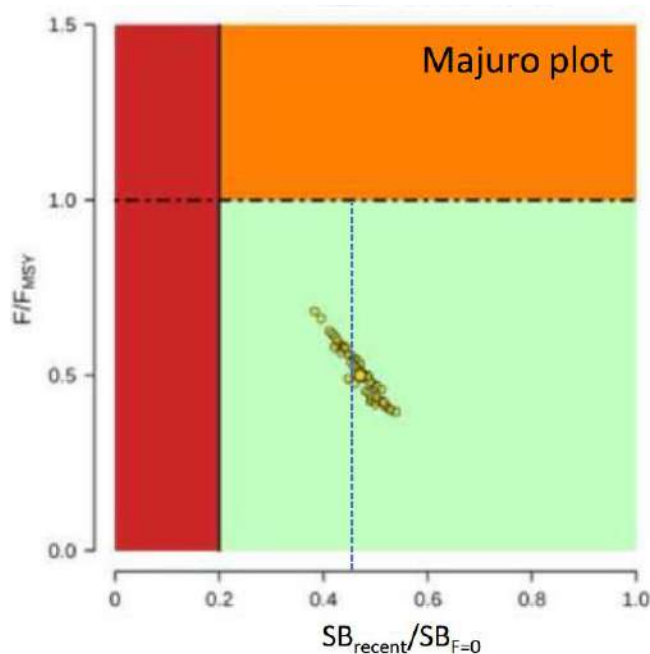
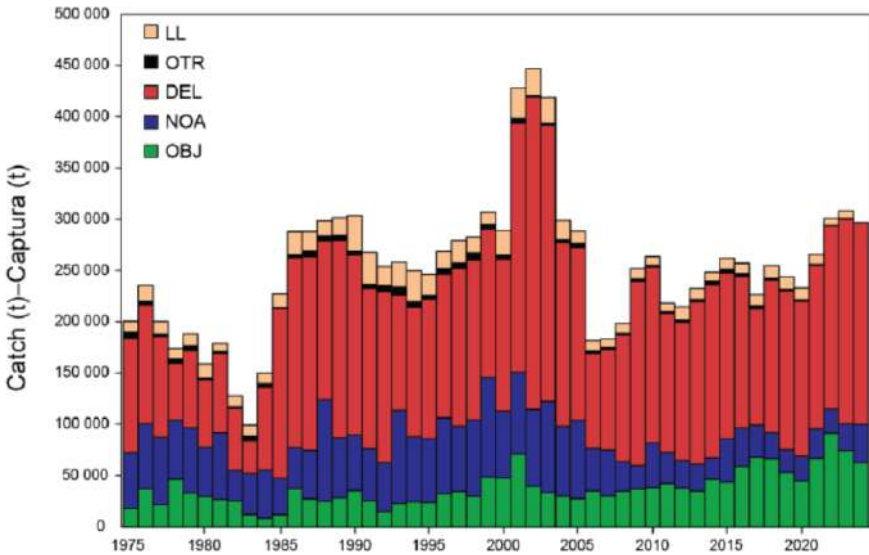


Figure 16 - Majuro plot for WCPO yellowfin tuna from the 2023 stock assessment, showing terminal $SB_{recent}/SB_{F=0}$ against F_{recent}/F_{MSY} for each of the 54 models in the uncertainty grid. The red band marks the limit reference point ($0.20 SB_{F=0}$); the dashed vertical line is the CMM 2023-01 objective of average 2012–2015 depletion (0.44). Source: SPC-OFP (2025)

References

- SPC-OFP (2025). 2024 Overview of Stock Status and Fisheries Update in WCPO. WCPFC22-2025-07. Western and Central Pacific Fisheries Commission, Twenty-Second Regular Session, 1–5 December 2025, Manila, Philippines. <https://meetings.wcpfc.int/file/19557/download>
- Vidal, T., and Ruaia, T. (2025). Overview of Tuna Fisheries in the Western and Central Pacific Ocean, Including Economic Conditions – 2024. WCPFC-SC21-2025/GN-WP-01_rev1. WCPFC Scientific Committee, Twenty-First Regular Session, 13–21 August 2025, Nuku'alofa, Tonga. <https://meetings.wcpfc.int/file/18088/download>

Species name		Yellowfin tuna (<i>Thunnus albacares</i>)
Fishing area and stock		Eastern Pacific Ocean yellowfin tuna (77 and 87)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. The EPO yellowfin tuna stock is assessed by the IATTC using an integrated Stock Synthesis model conditioned on catches and fitted to relative abundance indices and length-composition data from all fisheries operating on the stock, including the purse-seine fishery (dolphin-associated, floating-object and unassociated sets) and the longline fishery. Total EPO yellowfin catch in 2024 was approximately 294,000 t, with purse-seine gear accounting for the large majority of removals, longline for roughly 4% of the total, and other gears (pole-and-line, troll, gillnet, artisanal and recreational) for a small remainder. Fishery removals are therefore included in the stock assessment process (IATTC, 2025a).		
 Figure 17 - Yellowfin tuna catches in the eastern Pacific Ocean, 1975–2024: total catches (retained plus discards) for the purse-seine fishery by set type — DEL (dolphin-associated), NOA (unassociated) and OBJ (floating object) — and retained catches for the longline (LL) and other (OTR) fisheries. Purse-seine catches are adjusted to the species composition estimated from catch sampling. Data for 2023 and 2024 are preliminary. Source: IATTC (2025a)		

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The most recent benchmark stock assessment (IATTC, 2025b) estimated current spawning biomass at 5.4 to 7.7 times the IATTC-adopted limit reference point (S_{LIMIT} , $S_{0.5R0}$ basis, Resolution C-23-06), depending on the spatial-structure hypothesis used, with a 0% probability across all hypotheses that the limit reference point has been breached. This is corroborated by the Commission-level risk synthesis presented in September 2025, which reports less than 3% probability that current biomass is below S_{MSY} and 0% probability that it is below the limit reference point. The stock is not subject to overfishing (F/F_{MSY} ranging 0.40–0.53 across models; less than 7% probability of exceeding F_{MSY}).

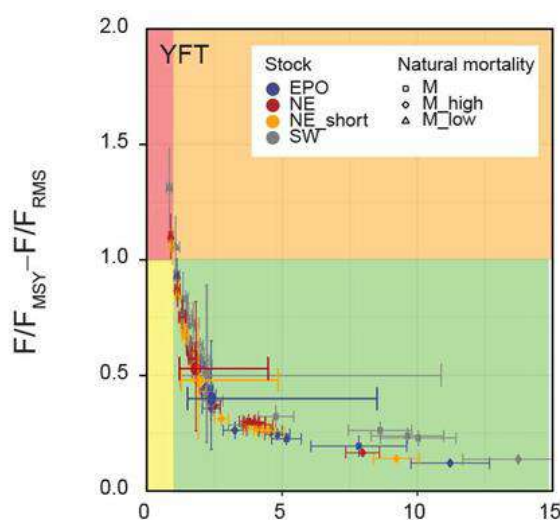


Figure 18 - Kobe plot for eastern Pacific yellowfin tuna, showing spawning biomass and fishing mortality relative to their MSY reference points and dynamic-MSY reference points (x-axis: S/S_{MSY} – S/S_{RMS} ; y-axis: F/F_{MSY} – F/F_{RMS}), based on average fishing mortality over 2021–2023. Points are the individual models of the 2025 benchmark assessment and risk analysis, coloured by spatial-structure hypothesis (EPO, NE, NE_short, SW) and shaped by natural-mortality assumption; bars are 80% confidence intervals. Source: IATTC (2025c)

References

- IATTC (2025a). The Tuna Fishery in the Eastern Pacific Ocean in 2024. SAC-16-01. Inter-American Tropical Tuna Commission, 16th Meeting of the Scientific Advisory Committee, 2–6 June 2025, La Jolla, California. https://www.iattc.org/GetAttachment/0f3c1e8c-0ae6-41f3-a3a9-5d5891b5cc4e/SAC-16-01_The-tuna-fishery-in-the-Eastern-Pacific-Ocean-in-2024.pdf
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- IATTC (2025c). Staff Recommendations for Management and Data Collection, 2025. IATTC-103-01b. 103rd Meeting of the Inter-American Tropical Tuna Commission, 1–5 September 2025, Panama City, Panama. https://www.iattc.org/GetAttachment/59c1bddd-55e4-49fe-864d-c337afd00a2e/IATTC-103-01b_Staff-recommendations-to-the-Commission.pdf

Species name		Bigeye tuna (<i>Thunnus obesus</i>)	
Fishing area and stock		Indian Ocean bigeye tuna (FAO 51 and 57)	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:			PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.			
Indian Ocean bigeye tuna was assessed in 2025 using an SS3 (Stock Synthesis) model built on the 2022 assessment structure and updated with new growth and natural mortality estimates, fitted to regional joint longline CPUE indices and the EU purse-seine index, across a grid of 36 model configurations spanning uncertainty in stock-recruitment steepness, natural mortality, longline selectivity and CPUE gear-creep assumptions. The model incorporates retained catch by fishery and fleet across the full 1950–2024 time series. Total 2024 catch was 87,040 t (mean annual catch 2020–2024: 88,555 t), taken mainly by purse seine (41.3%), longline (37.3%) and line gear (14.6%), with the remainder taken by other gears (6.8%); the largest contributing fleets were Indonesia (19.4%), Seychelles (15.7%) and the EU/Spain (15.4%). Fishery removals are therefore included in the stock assessment process (IOTC Scientific Committee, 2025).			

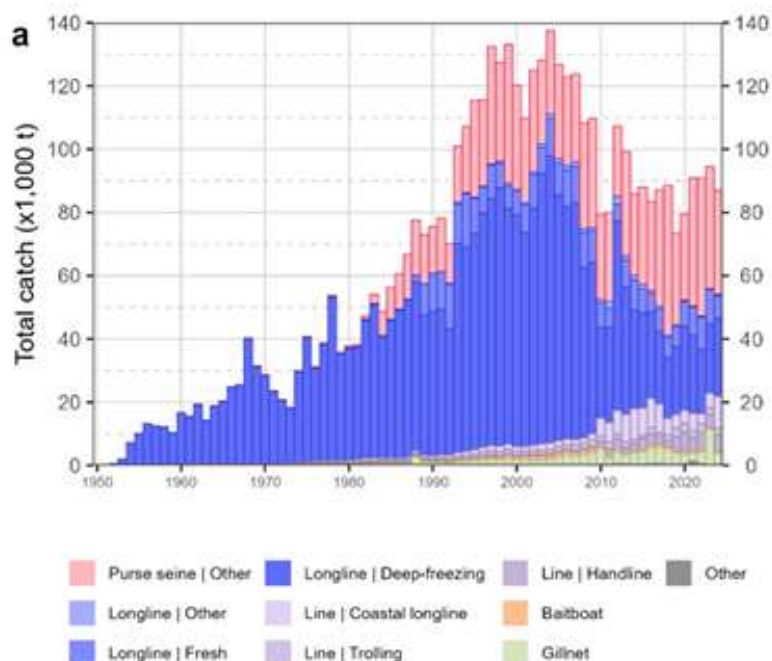


Figure 19 - Cumulative retained catch (t) of Indian Ocean bigeye tuna by fishery, 1950–2024. Source: IOTC Scientific Committee (2025)

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The 2025 assessment estimates median spawning biomass in 2024 (SB_{2024}/SB_{MSY}) at 0.98 (80% CI: 0.71–1.25), with a 54% probability that SB_{2024} is below SB_{MSY} . On this weight of evidence IOTC determines the stock to be overfished relative to the MSY-based target reference point, though not subject to overfishing (62% probability that F_{2024} is below F_{MSY} ; median $F_{2024}/F_{MSY} = 0.94$). That determination is made against the target reference point, not against IOTC's adopted limit reference point, which for this stock is $SB_{lim} = 0.4 \times SB_{MSY}$ under Resolution 15/10. The estimated median SB_{2024}/SB_{MSY} of 0.98 is approximately 2.5 times that limit, and across the 36-model grid no model places the stock below it. The species is therefore considered to have a biomass above the limit reference point, notwithstanding its borderline status relative to the target (IOTC Scientific Committee, 2025).

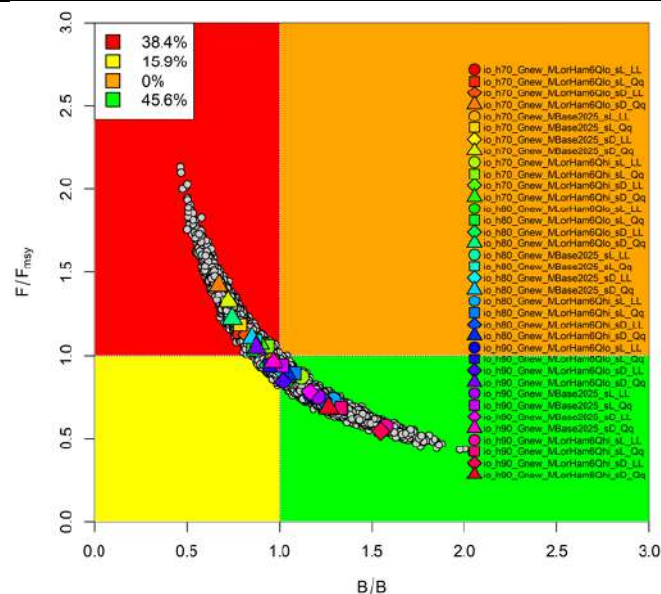


Figure 20 - Indian Ocean bigeye tuna Kobe plot from the 2025 assessment, showing stock status relative to SB_{MSY} (x-axis) and F_{MSY} (y-axis) across the 36-model grid. Coloured symbols are maximum posterior density estimates from individual models, which vary in steepness (h), natural mortality (M), selectivity on the LL2+LL3 fleets (sL vs sD), and the effort-creep adjustment applied to the longline CPUE indices (LL vs Qq, where Qq applies a 0.5% annual adjustment). Grey points show within-model uncertainty. Quadrant probabilities: green 45.6%, red 38.4%, yellow 15.9%, orange 0%. Source: IOTC Scientific Committee (2025)

References

IOTC Scientific Committee (2025). Appendix 2, Executive Summary: Bigeye Tuna (2025). IOTC-2025-SC28-ES02[E]. Indian Ocean Tuna Commission, Twenty-Eighth Session of the Scientific Committee. https://iotc.org/sites/default/files/content/Stock_status/2025/English/IOTC-2025-SC28-ES02_BETE.pdf

Species name		Bigeye tuna (<i>Thunnus obesus</i>)
Fishing area and stock		Pacific Ocean bigeye tuna (FAO 71 and 77)
C1	Category C Stock Status - Minimum Requirements	
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible. PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. PASS
Clause outcome:		PASS

C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.

The WCPPO bigeye tuna stock is assessed by the WCPFC Scientific Committee using an integrated MULTIFAN-CL model, stratified across a five-region spatial structure, incorporating catch data from all major gear types taking bigeye in the WCPFC Convention Area. Total WCPFC-CA bigeye catch in 2024 was 119,023 mt, taken by longline (47,653 mt, 40%), purse seine (33,787 mt, 28%), archipelagic and other small-scale gears (34,610 mt, 29% — the highest share of the time series), and pole-and-line (2,864 mt, 2%). Fishery removals are therefore included in the stock assessment process (Vidal and Ruaia 2025). The eastern Pacific portion of this row (FAO 77) falls under IATTC, which assesses bigeye tuna separately using an integrated Stock Synthesis model fitted to catch, relative abundance and size-composition data from the purse-seine and longline fisheries operating in the IATTC Convention Area. Preliminary 2024 EPO bigeye catches were approximately 34,000 mt retained by purse seine and 18,000 mt by longline (IATTC, 2025a).

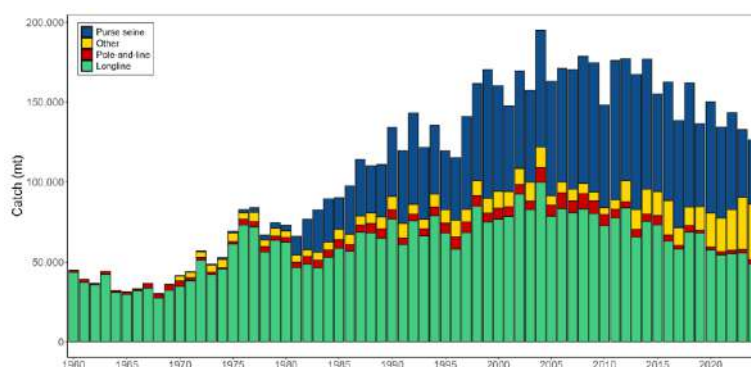


Figure 21 - WCPFC-CA bigeye tuna catch (mt) by gear, 1960–2024. Source: Vidal and Ruaia (2025)

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

The most recent stock assessment (last assessed 2023, next assessment 2026) estimated median recent stock depletion ($SB_{\text{recent}}/SB_{F=0}$) at 0.35 (10th–90th percentile: 0.30–0.40), close to the CMM 2023-01 objective of 0.34 (average 2012–2015 depletion levels), with median fishing mortality ($F_{\text{recent}}/F_{\text{MSY}}$) at 0.59 (10th–90th percentile: 0.46–0.74), below F_{MSY} . There is a 0% probability of the

stock having recently breached the limit reference point. Current biomass is therefore above the limit reference point, and the stock is not overfished and not subject to overfishing — although bigeye remains the WCPO tuna stock closest to its reference points, and the one with the highest relative fishing mortality of the four target species. For the eastern Pacific portion of this row, the 2024 IATTC benchmark assessment and its 2025 risk analysis estimate a 0.1% probability that current fishing mortality exceeds F_{LIMIT} and a 0.2% probability that current spawning biomass is below S_{LIMIT} — both far below the 10% threshold that triggers action under Resolution C-23-06. IATTC concludes that all three tropical tuna stocks in the EPO, bigeye included, are in healthy condition (IATTC, 2025b).

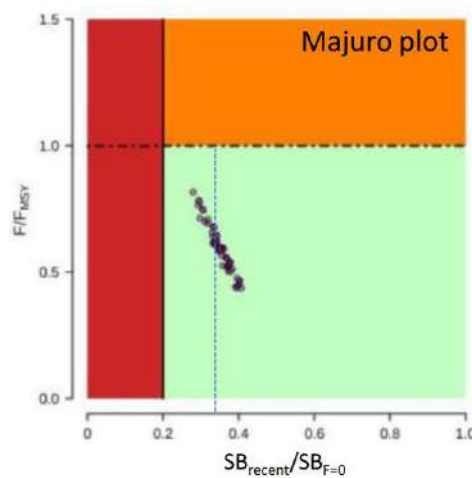


Figure 22 - Majuro plot for WCPO bigeye tuna from the 2023 stock assessment, showing terminal $SB_{recent}/SB_{F=0}$ against F_{recent}/F_{MSY} for each of the 54 models in the uncertainty grid (estimation uncertainty excluded). The red band marks the limit reference point ($0.20 SB_{F=0}$); the dashed vertical line is the CMM 2023-01 objective of average 2012–2015 depletion (0.34). Source: SPC-OFP (2025)

References

- IATTC (2025a). The Tuna Fishery in the Eastern Pacific Ocean in 2024. SAC-16-01. Inter-American Tropical Tuna Commission, 16th Meeting of the Scientific Advisory Committee, 2–6 June 2025, La Jolla, California. https://www.iattc.org/GetAttachment/0f3c1e8c-0ae6-41f3-a3a9-5d5891b5cc4e/SAC-16-01_The-tuna-fishery-in-the-Eastern-Pacific-Ocean-in-2024.pdf
- IATTC (2025b). Staff Recommendations for Management and Data Collection, 2025. IATTC-103-01b. 103rd Meeting of the Inter-American Tropical Tuna Commission, 1–5 September 2025, Panama City, Panama. https://www.iattc.org/GetAttachment/59c1bdbb-55e4-49fe-864d-c337afd00a2e/IATTC-103-01b_Staff-recommendations-to-the-Commission.pdf
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- Vidal, T., and Ruaia, T. (2025). Overview of Tuna Fisheries in the Western and Central Pacific Ocean, Including Economic Conditions – 2024. WCPFC-SC21-2025/GN-WP-01_rev1. WCPFC Scientific Committee, Twenty-First Regular Session, 13–21 August 2025, Nuku'alofa, Tonga. <https://meetings.wcpfc.int/file/18088/download>

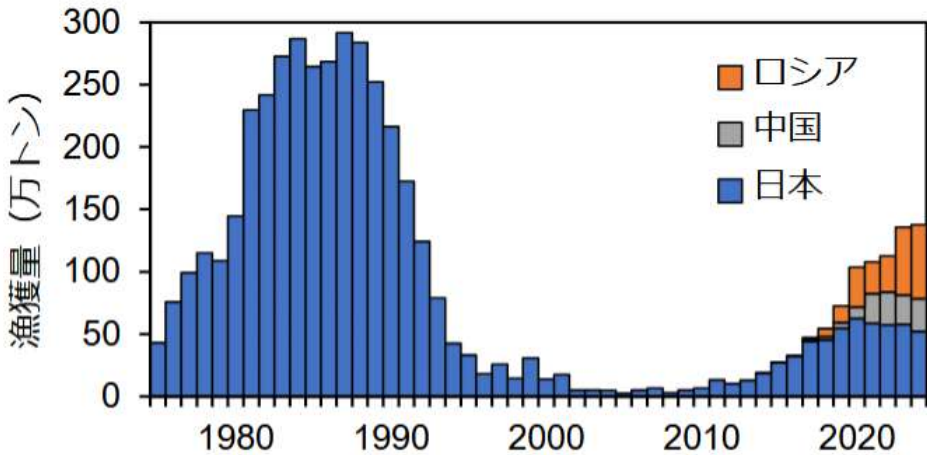
Species name		Pilchard/Sardine (<i>Sardinops sagax</i>)
Fishing area and stock		Japanese Pacific Ocean pilchard (FAO 61)
C1	Category C Stock Status - Minimum Requirements	
C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:		PASS
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible. Japanese sardine (Pacific stock) is assessed annually by Japan's Fisheries Research and Education Agency (FRA) using a tuning VPA (cohort analysis) incorporating national catch and biological data. The FY2025 assessment explicitly incorporates catch data for Russia and China via North Pacific Fisheries Commission (NPFC) statistics (July 2025 data), in addition to Japan's own landings. Fishery removals of the species under assessment are included in the stock assessment process, and C1.1 is met. 		
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible. The FY2025 FRA stock assessment (published 29 August 2025, data through 2024) estimated 2024 spawning biomass at 2.699 million tonnes (Furuichi et al., 2025). This is 1.89 times the proposed target reference point ($SB_{MSY} = 1.432$ million tonnes) and roughly 5.1 times the proposed limit reference point (530,000 tonnes, defined as the biomass yielding 60% of MSY catch). The assessment further notes that spawning biomass has been maintained above SB_{MSY} every year since		

Figure 23 - Reported landings of Japanese sardine, Pacific stock, by country: Japan (blue), China (grey) and Russia (orange). The vertical axis is in units of 10,000 t — 50 on the axis is 500,000 t. Source: FRA (2025a)

2019, following a recovery from a below-target period spanning 1988–2018. Fishing pressure in 2024 was estimated at 2.14 times F_{MSY} , so the stock is subject to overfishing relative to the proposed target reference point, although biomass remains well above both the target and the limit; C1.2 tests biomass against the limit reference point, which is met by a wide margin. The most recent stock assessment concluded that stock biomass was above the limit reference point level, and C1.2 is met.

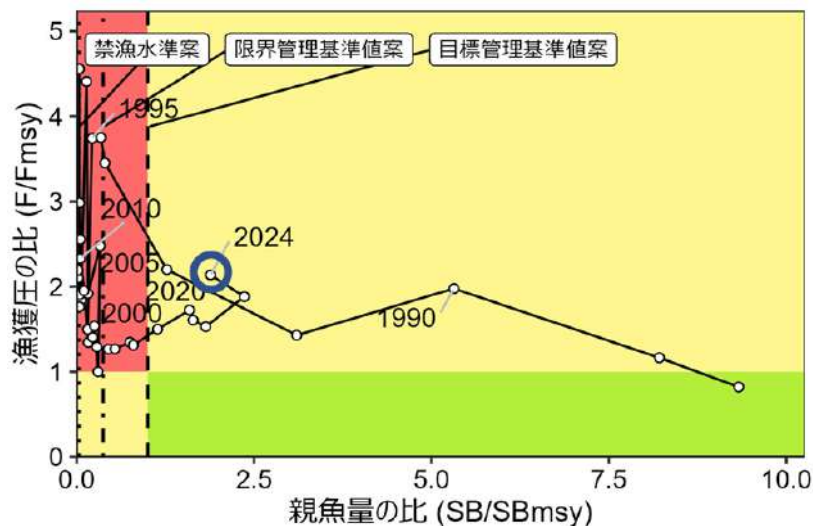


Figure 24 - Kobe chart for Japanese sardine, Pacific stock, plotting spawning biomass relative to SB_{MSY} (x-axis) against fishing pressure relative to F_{MSY} (y-axis) for each year since 1988, with 2024 ringed. Vertical dashed lines mark the proposed reference points: the fishery-closure level, the limit reference point ($SB_{0.6msy} = 530,000$ t) and the target reference point ($SB_{MSY} = 1.432$ million t). In 2024 spawning biomass stood at $1.89 \times SB_{MSY}$ while fishing pressure was $2.14 \times F_{MSY}$. Source: FRA (2025a)

References

Furuichi, S., Yukami, R., Kamimura, Y., Nishijima, S., Isu, S., Izawa, Y., Higashiguchi, K. and Watanabe, R. (2025). Stock assessment and evaluation for Japanese sardine of the Pacific stock (fiscal year 2025). FRA-SA2025-SC08-01. Japan Fisheries Research and Education Agency, published 29 August 2025.

https://www.fra.go.jp/shigen/fisheries_resources/meeting/stock_assessment_meeting/2025/files/sa2025-sc08/fra-sa2025-sc08-01.pdf

FRA (2025a). Stock assessment summary slides: Japanese sardine (Pacific stock). Stock Assessment Meeting FY2025, Session SC08. Japan Fisheries Research and Education Agency, published 29 August 2025.

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Traceability information

Species name	Western and Central Pacific Ocean skipjack tuna FAO 61, 71			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided	Yes ☒ No ☐			
Path 2	Yes ☒ No ☐			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	Indian Ocean skipjack tuna FAO 51 and 57			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided	Yes ☒ No ☐			
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	Eastern Pacific Ocean skipjack tuna FAO 77			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided	Yes ☒ No ☐			
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	North Pacific albacore tuna FAO 61, 71			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided	Yes ☒ No ☐			
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	Indian Ocean albacore tuna FAO 51 and 57			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	South Pacific albacore tuna FAO 77, 81, and 87			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	Indian Ocean yellowfin tuna FAO 51 and 57			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name	Western and Central Pacific Ocean yellowfin tuna FAO 61 and 71			
Path 1	Yes ☒ No ☐			
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name		Eastern Pacific Ocean yellowfin tuna FAO 77 and 87		
Path 1		Yes ☒ No ☐		
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name		Indian Ocean bigeye tuna FAO 51 and 57		
Path 1		Yes ☒ No ☐		
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name		Pacific Ocean bigeye tuna FAO 71 and 77		
Path 1		Yes ☒ No ☐		
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Species name		Japanese Pacific Ocean pilchard FAO 61		
Path 1		Yes ☒ No ☐		
Confirm all KDEs are provided		Yes ☒ No ☐		
Path 2	Yes ☐ No ☒			
Path 2 outcome	Flag country	Coastal score	Port score	Risk outcome

Guidance for Applicants/Certificate holders on improved traceability

When by-product origin cannot be made more granular than major FAO Areas, or when the source fishery is taking place in the High Seas (i.e. outside of EEZs of all relevant nations), an assessor must evaluate the Coastal and Port scores for each nation that straddles that FAO Area. This may lead to higher risk outcomes for an applicant. To mitigate that risk, better practice involves securing KDEs from the source fishery of the by-products, thereby meeting Path 1 instead of Path 2.

What does better practices look like?

Comprehensive data collection and sharing: Collect detailed information using Key Data Elements (KDEs) including vessel identification and authorisation, species, catch areas, fishing method and dates. These are defined in the MarinTrust Standard clauses 2.11.2.2 and 3.2.5.

Supply chain transparency: Maintain detailed records at each step of the supply chain, from capture to final sale, to ensure traceability.

Interoperable systems and technologies to support the collection and transfer of this information.