Western and Central Pacific Fisheries Commission

SCIENTIFIC COMMITTEE
TWENTY-FIRST REGULAR SESSION

Nuku'alofa, Tonga
13 – 21 August 2025

ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

WCPFC-SC21-AR/CCM-01
7 July 2025

AUSTRALIA

Australian Government
Department of Agriculture, Fisheries and Forestry

ABARES

Annual report to the Western and Central Pacific Fisheries Commission

Part 1: Information on fisheries, research and statistics 2024 Australia

H. Patterson and B. D'Alberto

Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

Technical Report 25.06
July 2025

Scientific data were provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission on the 30th April 2025	Yes
If no, please indicate the reason(s) and intended actions:	

© Commonwealth of Australia 2025

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia (referred to as the Commonwealth).

Creative Commons licence

All material in this publication is licensed under a Creative Commons Attribution 4.0 International Licence except content supplied by third parties, logos and the Commonwealth Coat of Arms.

Cataloguing data

This publication (and any material sourced from it) should be attributed as: Patterson, H & D'Alberto, B 2025, *Annual report for the Western and Central Pacific Fisheries Commission Part 1: Information on fisheries, research and statistics 2024*, ABARES technical report 25.06, Australian Bureau of Agricultural and Resource Economics and Sciences Canberra, July. DOI: 10.25814/

ISSN 189-3128

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
GPO Box 858 Canberra ACT 2601
Telephone 1800 900 090
Web agriculture.gov.au

Disclaimer

The Australian Government acting through the Department of Agriculture, Fisheries and Forestry, represented by the Australian Bureau of Agricultural and Resource Economics and Sciences, has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Agriculture, Fisheries and Forestry, ABARES, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying on any of the information or data in this publication to the maximum extent permitted by law.

Professional independence

The views and analysis presented in ABARES publications reflect ABARES professionally independent findings, based on scientific and economic concepts, principles, information and data. These views, analysis and findings may not reflect or be consistent with the views or positions of the Australian Government or of organisations or groups that have commissioned ABARES reports or analysis. Learn more about ABARES professional independence.

Acknowledgements

The authors wish to thank Rupert Summerson (ABARES) for creating the maps. The authors also acknowledge and appreciate the input of Steph Blake, Michael Dylewski and Brent Wise (ABARES); Scott Cooper (CSIRO); Robert Wood, Lara Ainley and Selina Stoute (AFMA); and Mat Kertesz and Shne Fava (Department of Agriculture, Fisheries and Forestry).

Acknowledgement of Country

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

Contents

Tables

Figures

Summary

Australian commercial fisheries for highly migratory species in the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area are managed as part of the Eastern Tuna and Billfish Fishery (ETBF) (a mainly longline fishery with a smaller minor line component) and the Eastern Skipjack Fishery (a purse seine fishery). Most fishing occurs in the longline sector of the ETBF and, as such, this is the primary focus of the annual report. There was no activity in the Eastern Skipjack Fishery in 2024.

Total catches of WCPFC species of interest reported in logbooks for the ETBF increased from 3,386 t (including <1 t minor line) in 2023 to 4,631 t (including <1 t minor line) in 2024. This is a decline from a peak of 8,229 t in 2002. Longline fishing effort in the ETBF has fallen from a peak of 12.40 million hooks in 2003 to 8.1 million total hooks in 2024. Of this, 8.1 million hooks, 99.6% of effort, was within the Australian exclusive economic zone (EEZ). A further 0.4% of effort occurred in high-seas areas adjacent to the Australian EEZ. Thirty-nine Australian vessels reported longlining in the WCPFC Convention Area during 2024.

The ETBF is a multi-species fishery, targeting albacore, bigeye tuna, yellowfin tuna and swordfish. The profitability and viability of the fishery is dependent on this suite of species, each of which fluctuate in availability in the Australian region through time. Longline logbook catch of albacore increased from 627 t in 2023 to 545 t in 2024. Longline catch of bigeye tuna increased from 220 t in 2023 to 275 t in 2024. Longline catch of yellowfin tuna increased from 1,532 t in 2023 to 2,837 t in 2024. Longline catch of swordfish decreased from 771 t in 2023 to 664 t in 2024. Longline catch of striped marlin increased from 217 t in 2023 to 292 t in 2024. Longline catch of skipjack increased from 4.25 t in 2023 to 15.6 t in 2024.

In 2024 there were two dedicated minor line (including rod-and-reel and line-unspecified) vessels actively targeted WCPFC species of interest using minor line in the ETBF; most minor line catches are reported by vessels (e.g. longline vessels) on their way to and from the primary fishing grounds. The number of vessels reporting using minor line has decreased in the ETBF from a peak of 52 vessels in 2001. There were no vessels active in the Eastern Skipjack Fishery (purse seine) in 2024.

The Australian Fisheries Management Authority (AFMA) observer program began deploying observers on domestic longliners in 2001, initially as part of a program to test the efficacy of seabird mitigation devices. From July 2003, observers were deployed more broadly across the fishery with the aim of collecting additional fishery data, including information on fishing gear and the size and species composition of catches. AFMA conducted a trial of electronic monitoring (i.e. e-monitoring; on-board, fixed-mount digital video cameras and other systems) in 2009–10 to evaluate the effectiveness of this technology for a range of fishery monitoring purposes and to conduct a cost–benefit analysis. E-monitoring of the fishery became compulsory from 1 July 2015 for vessels operating within the Australian Exclusive Economic Zone. As a minimum, 10% of the hauls are reviewed and used to acquit information provided in logbooks. The total number of longline hooks observed from the e-monitoring system in 2024 was 797,694, which is 9.9% of the hooks deployed.

The AFMA Commission agreed on the total allowable commercial catches (TACCs) for the ETBF. These apply to the 2024 season which commenced on 1 January 2024. The TACCs for the five main

target species are: albacore (2,500 t); bigeye tuna (1,056 t); swordfish (1,047 t); striped marlin (351 t); and yellowfin tuna (2,400 t).

1 Background

Australian commercial fisheries for highly migratory species in the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area are managed as part of the Eastern Tuna and Billfish Fishery (ETBF) (a mainly longline fishery with a small minor line component) and Eastern Skipjack Fishery (a purse-seine fishery). Scientific and common names of relevant species are provided in Appendix A.

1.1 Longline

Japanese longliners began fishing off Australia's east coast in the late 1950s. Sporadic domestic longlining for yellowfin tuna commenced soon after, in the early 1960s. The declaration of the Australian Fishing Zone (AFZ) in 1979 resulted in Japanese longliners being licensed to fish in Australian waters under bilateral agreements. In the early 1980s, longlining increased markedly after successful air-freighting of fresh-chilled tuna to Japan. In the 1990s, effort expanded in the waters off northern Queensland, resulting in high catch rates of yellowfin and bigeye tuna.

In the mid-1990s, improved access to swordfish markets in the United States of America prompted many ETBF fishers to move to southern Queensland ports such as Mooloolaba to target swordfish. Japanese longliners were excluded from the AFZ from 1997. Longlining for swordfish has declined since early 2005 because of high fuel and bait costs, the introduction of a competitive total allowable catch (TAC) in 2006 (now an individual transferable quota system), and changes in the currency exchange rate.

The Securing our Fishing Future structural adjustment package (between 2005 and 2006) likely increased the exit of less-efficient vessels from the fishery. However, the number of longline vessels was already declining from a peak of 152 vessels in 1999; by 2007, 58 longline vessels remained, and in 2024 a total of 39 longline vessels were active.

Management through total allowable commercial catch (TACC) limits and individual transferable quotas (ITQs) commenced in 2011. Quota species are albacore, bigeye tuna, yellowfin tuna, swordfish and striped marlin. The level of latency in the ETBF, measured by the proportion of TACC not caught in the fishery, has varied across the key species since the shift to quota-based management in 2011. This is to be expected in a multi-species fishery, noting that latency is driven by a range of factors including catch-per-unit-effort, input costs, fish price and market access.

1.2 Pole-and-line, purse seine and minor line

The pole-and-line fishery expanded rapidly in the 1950s with the introduction of live-bait-and-pole techniques for southern bluefin tuna and sporadic catches of skipjack and yellowfin tuna. Pole-and-line fishing decreased in the late-1990s with little to no fishing by Australian fleets in the WCPFC Convention Area since then. The introduction of purse seining in the 1970s also increased catches. After peaking at 7,000 t in the early 1990s, purse-seine effort and catches of skipjack have decreased dramatically, with zero to very low effort and catches in recent years, although there is industry interest in re-invigorating the fishery. Minor line effort has been decreasing in the fishery over time, with a peak number of vessels in 2001 (52). There were two dedicated minor-line vessels that operated in the ETBF in 2024.

1.3 Recreational fishing

Recreational and charter anglers have taken tuna and billfish off eastern Australia since the early 1900s. During the 1970s, recreational vessels capable of operating offshore became more readily available and angling for tuna and billfish grew in popularity. The continental shelf extends less than 8 natuical miles (nm) offshore in some places along the southeast coast of Australia, allowing anglers to fish for tuna from shore at several locations. The Game Fishing Association of Australia (GFAA) was formed in 1938 and has a membership of several thousand anglers, most based on the east coast of Australia. Many gamefishers tag and release much of their catch, especially marlins.

2 Flag state reporting

2.1 Domestic longlining catch and effort

Unless otherwise stated, all catch and effort levels in this report are derived from those reported in AFMA logbooks. Thirty-nine vessels in the Australian fleet reported longlining in the WCPFC Convention Area during 2024, down from a peak of 180 in 1997 (Figure 1). Total longline effort increased from 7.3 million hooks in 2023 to 8.1 million hooks in 2024 (Table 1). Overall, effort has declined from the peak effort of 12.40 million hooks deployed in 2003. This decline was mainly the result of the strength of the Australian dollar, increased operating costs, the surrender of permits under the structural adjustment component of the Australian Government Securing Our Fishing Future package, the introduction of hook limits in 2009 and the introduction of individual transferrable quota management in 2011. The number of vessels in 2024 fishing for striped marlin south of 15°S was 36. Thirty-six vessels fished for albacore and swordfish south of 20°S. There was no fishing north of the equator in 2024.

Figure 1 Historical annual vessel numbers for the Australian fleet, by gear (longline, purse seine, pole-and-line and other commercial methods [minor line including trolling, rod-and-reel and handline]) for the WCPFC Convention Area

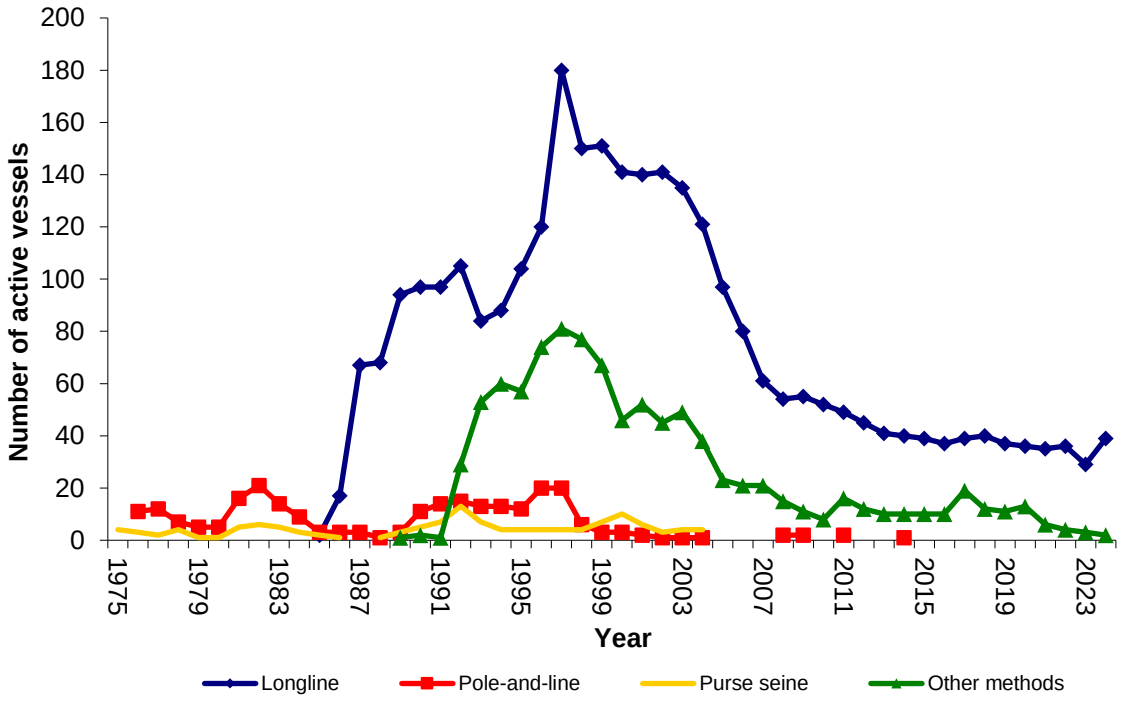


Table 1 Annual catch and effort estimates (whole weight) for the Australian fleet, by gear and primary species, for the WCPFC Convention Area, 2020 to 2024

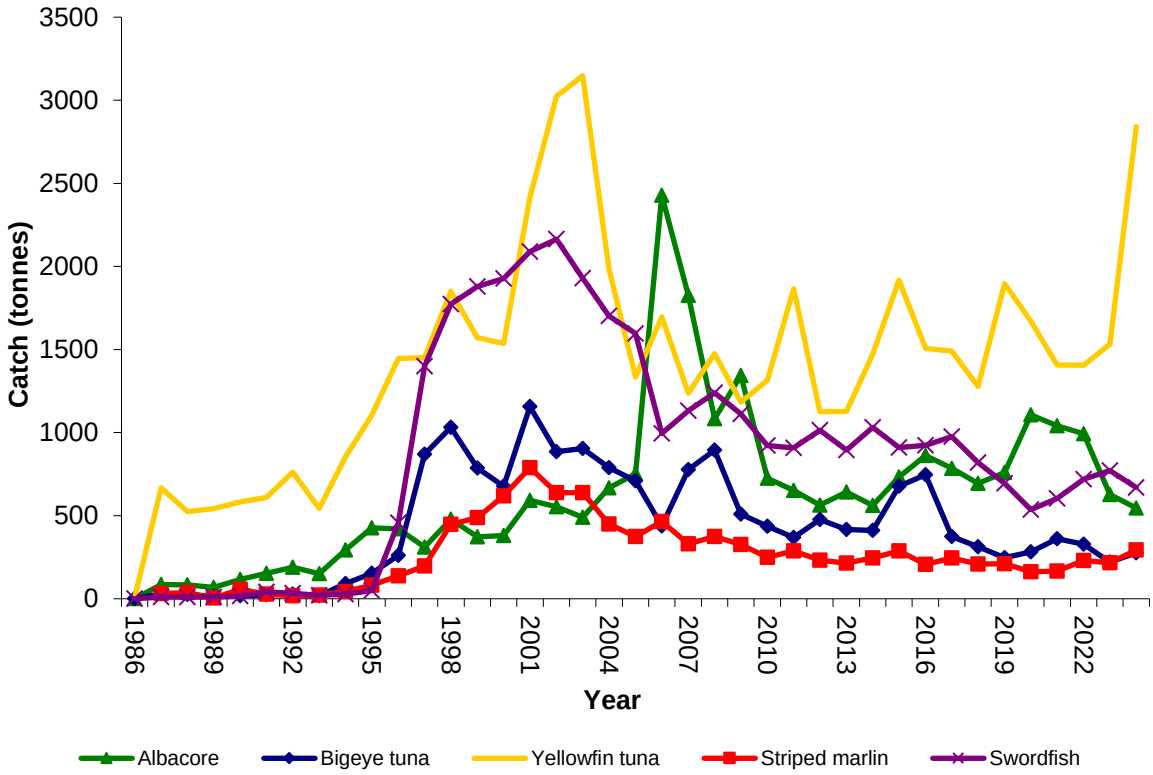
Fishing method	Year	Effort [a]	Primary species (t)					
			Albacore	Bigeye	Skipjack	Yellowfin	Striped marlin	Swordfish
Total	2020	-	1106.9	283.0	2.5	1670.3	162.5	536.3
	2021	-	1040.4	361.0	2.3	1406.7	166.6	604.4
	2022	-	993.4	328.8	14.7	1405.4	230.1	719.3
	2023	-	626.8	219.8	4.25	1531.6	217.0	770.7
	2024	8057	545.3	275.4	16.2	2837.5	291.7	664.3
Longline	2020	8218	1105.4	283.0	2.5	1670.5	162.7	536.3
	2021	7685	1040.9	361.0	2.3	1406.8	166.6	604.4
	2022	6897	993.1	328.8	14.7	1405.4	230.1	719.3
	2023	7277	626.8	219.8	4.25	1531.6	217.0	770.7
	2024	8057	545.3	275.4	16.2	2837.5	291.7	664.3
Purse seine	2020	0	0	0	0	0	0	0
	2021	0	0	0	0	0	0	0
	2022	0	0	0	0	0	0	0
	2023	0	0	0	0	0	0	0
	2024	0	0	0	0	0	0	0

a Longline–number of hooks (000's); purse seine–search hours. **b** Includes small catches from other commercial methods (minor line component including trolling, rod-and-reel, handline and pole-and-line).
Note: Australia is currently reviewing catch estimation methods and therefore values reported here may be amended in future reports.

Total longline catches of WCPFC species of interest in the ETBF reported in logbooks increased from 3,398 t in 2023 to 4,631 t in 2024. This is down from a peak of 8,229 t in 2002. Historical catches for the Australian fleet in the WCPFC Convention Area, by primary species, are shown in Figure 2. Longline catches of albacore decreased from 627 t in 2023 to 545 t in 2024 (518 t caught south of 20°S). Longline catches of bigeye tuna increased from 220 t in 2023 to 275 t in 2024. Longline catches of yellowfin tuna increased from 1,532 t in 2023 to 2,837 t in 2024. Longline catches of swordfish decreased from 771 t in 2023 to 664 t in 2024 (645 t caught south of 20°S). Longline catch of striped marlin increased from 217 t in 2023 to 292 t in 2024 (293 t caught south of 15°S in 2023). Longline catches of skipjack increased from 4 t in 2023 to 16 t in 2024. Annual catch distributions of the main target species by the Australian longline fleet for 2020 to 2024 are shown in Figure 3.

Figure 2 Historical annual longline catch in the WCPFC Convention Area for (a) albacore, bigeye tuna and yellowfin tuna, as well as striped marlin and swordfish, and (b) purse-seine catch skipjack tuna

a)



b)

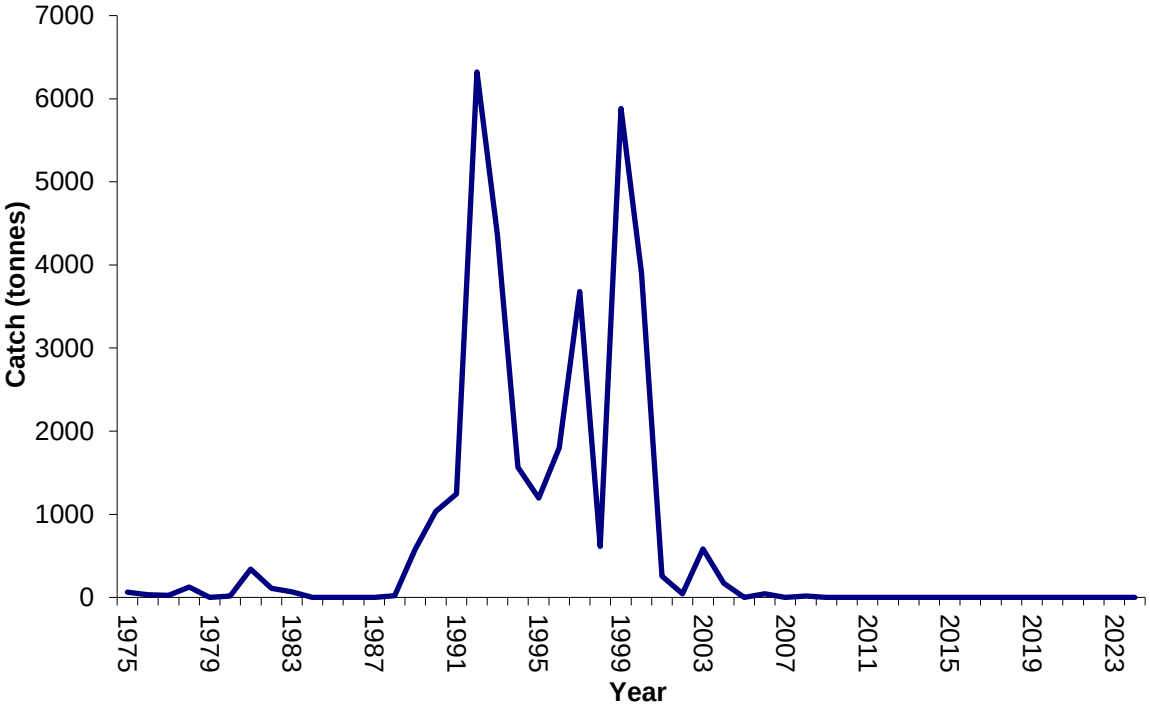
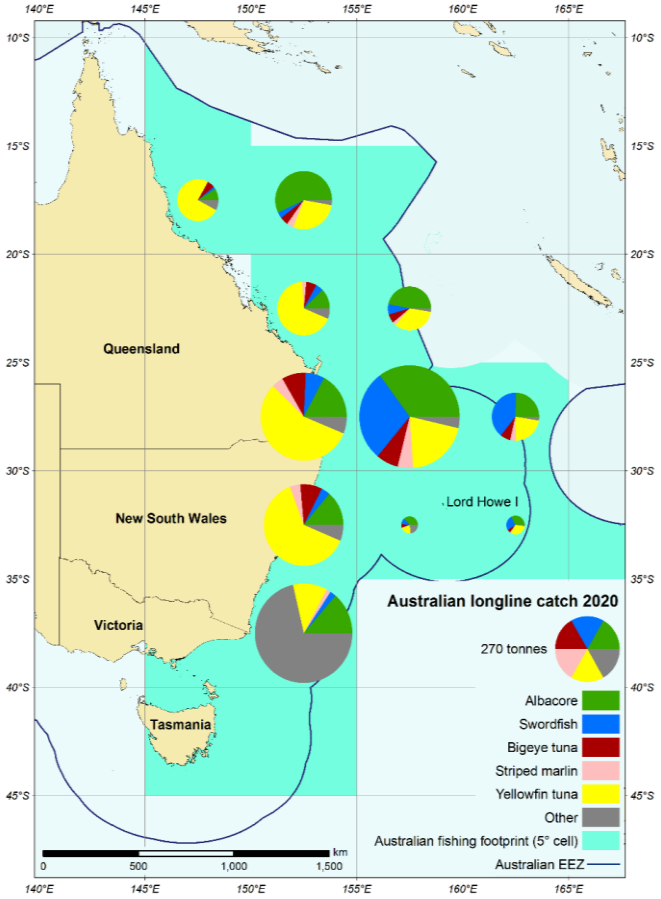
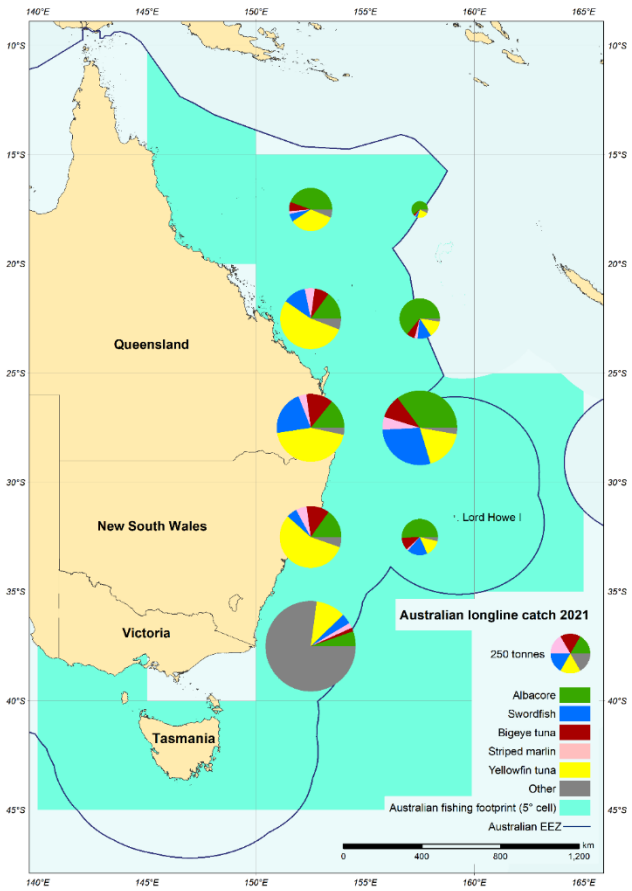

7000
6000
5000
4000
3000
2000
1000
0
Catch (tonnes)
1975
1979
1983
1987
1991
1995
1999
2003
2007
2011
2015
2019
2023
Year

Figure 3 (a–e) Annual distributions of target species catch by the Australian longline fleet active in the WCPFC Convention Area, for 2020 to 2024.

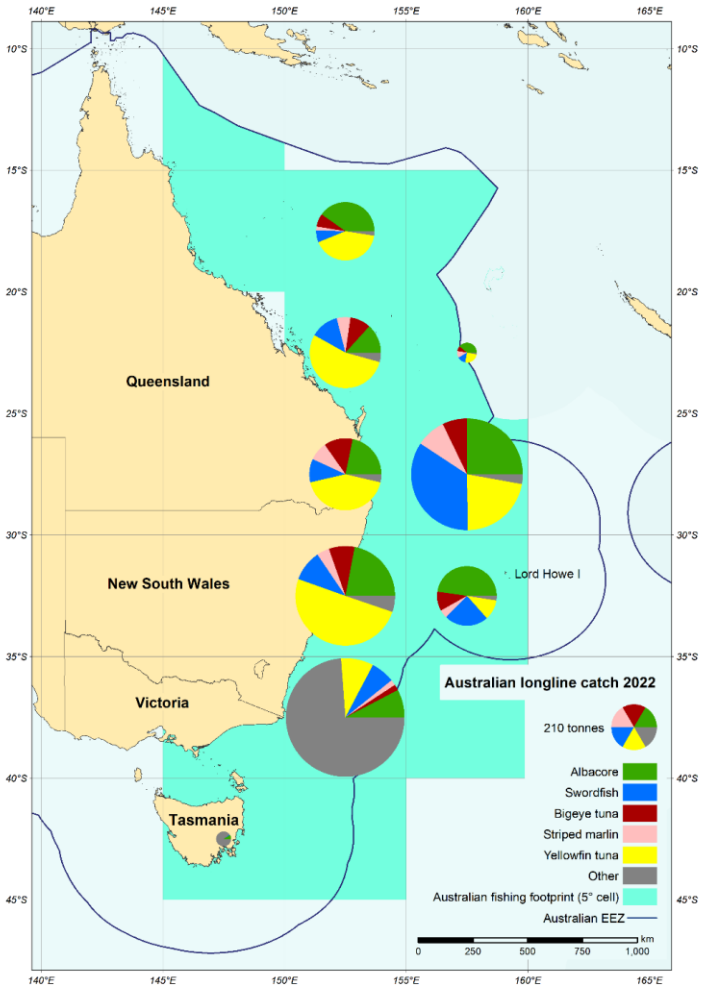
a)



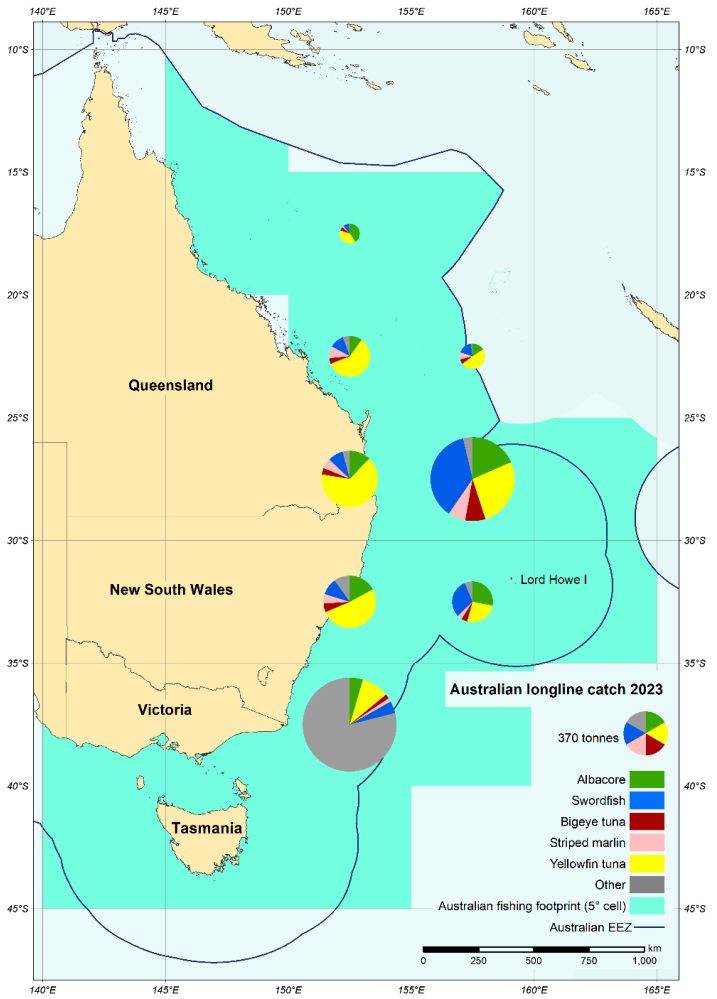
b)



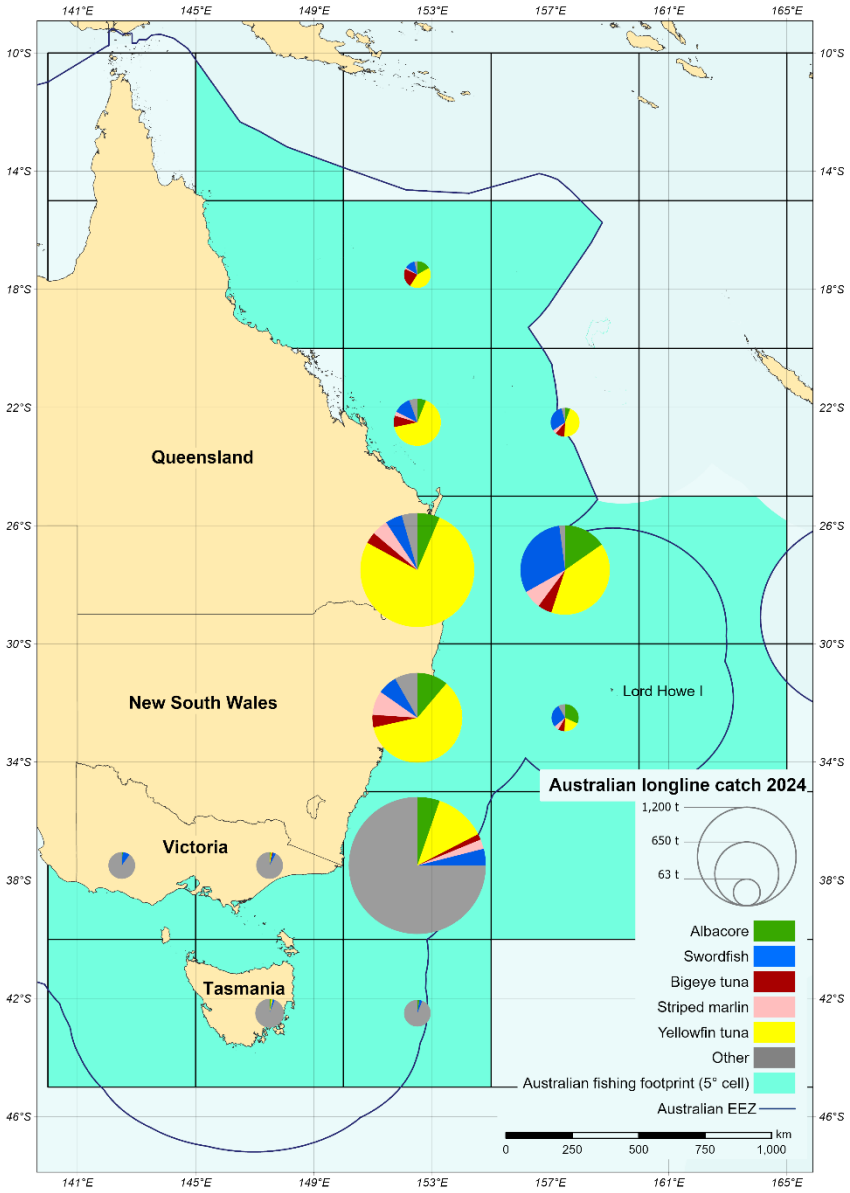
c)


Queensland
New South Wales
Victoria
Tasmania
Lord Howe I
Australian longline catch 2022
210 tonnes
Albacore
Swordfish
Bigeye tuna
Striped marlin
Yellowfin tuna
Other
Australian fishing footprint (5° cell)
Australian EEZ
0 250 500 750 1,000 km

d)


Queensland
New South Wales
Victoria
Tasmania
Lord Howe I
Australian longline catch 2023
370 tonnes
Albacore
Swordfish
Bigeye tuna
Striped marlin
Yellowfin tuna
Other
Australian fishing footprint (5° cell)
Australian EEZ
0 250 500 750 1,000 km

e)



Note: Catches have been aggregated to 5-degree blocks to address issues of confidentiality. The diameter of the pie chart in each grid cell is proportional to the total catch of that grid cell. The diameter to catch relationship is provided in the legend. The pie charts also show the proportions of catch of each of the target species. The segments of the pie chart in the legend are for illustrative purposes only. Fishing footprint shows the total extent of waters fished at a spatial resolution of 5-degree square. The 2024 map was created using ArcGIS Pro 3.2. Maps from previous years were created using ArcGSI Desktop 10.8.2 and previous versions.

Annual retained catch estimates of major non-target, associated and dependent species, including sharks, by the Australian longline fleet from 2020 to 2024 are presented in Table 2. Estimates of releases derived from logbooks are in Table 3. From July of 2015, the logbooks of the Australian longline fleet were subject to potential verification through e-monitoring coverage. This has resulted in a rise in the levels of discards reported in logbooks since 2016 (Table 3).

Since 1 January 2013, retention of oceanic whitetip sharks by all commercial vessels has been prohibited and no retention was recorded in logbooks in 2024 (Table 2) while 1,888 were reported as discarded in logbooks (Table 3). Of the 26 oceanic whitetips observed caught in 2024, 9 were released alive, and 17 were released in an undetermined condition.

Table 2 Annual retained catch estimates (tonnes, t) of major non-target, associated and dependent species, including sharks, by the Australian fleet, by gear (longliners and other methods combined), in the WCPFC Convention Area, for 2020 to 2024

Group	Species	Longline (t)					Other methods (t)				
		2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Scalefish	Escolar	7.7	0.3	0.0	3.0	0.2	0.0	0.0	0.0	0.0	0.0
	Lancetfish	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mahi mahi	81.3	54.7	37.5	57.8	113.2	0.0	0.0	0.0	0.0	0.3
	Moonfish	25.5	33.4	8.8	2.9	2.0	0.0	0.0	0.0	0.0	0.0
	Ocean sunfish	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Oilfish	2.2	0.5	0.5	1.0	0.1	0.0	0.0	0.0	0.0	0.0
	Ray's bream	15.5	8.5	11.9	6.7	9.8	0.1	0.0	0.0	0.0	0.0
	Rudderfish	8.4	11.0	15.6	15.3	5.2	0.0	0.0	0.0	0.0	0.0
	Sailfish	1.3	1.7	1.3	0.7	1.2	0.0	0.0	0.0	0.0	0.0
	Shortbill spearfish	10.4	4.6	5.9	6.2	4.3	0.0	0.0	0.0	0.0	0.0
	Wahoo	13.3	12.8	11.7	17.3	12.4	0.0	0.0	0.0	0.0	0.0
	Subtotal	**165.9**	**127.6**	**93.2**	**111**	**148.4**	**0.1**	**0.0**	**0.0**	**0.0**	**0.3**
Sharks	Blacktip shark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Blue shark	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
	Bronze whaler	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Dusky shark	0.1	0.0	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0
	Hammerhead	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Longfin mako	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Oceanic whitetip	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Porbeagle	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Shortfin mako	16.0	12.7	15.2	13.2	11.4	0.0	0.0	0.0	0.0	0.2
	Silky shark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Thresher shark	0.1	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
	Tiger shark	0.1	0.0	1.5	6.7	4.1	0.0	0.0	0.0	0.0	0.0
	Whale shark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Subtotal	**16.8**	**12.7**	**16.7**	**20.7**	**17.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**
	TOTAL	**182.7**	**140.3**	**109.9**	**131.7**	**165.7**	**0.1**	**0.0**	**0.0**	**0.0**	**0.5**

Table 3 Annual longline discard estimates (numbers) of major non-target, associated and dependent species, including sharks, by the Australian fleet in the WCPFC Convention Area, 2020 to 2024

Group	Species	2020	2021	2022	2023	2024
Scalefish	Black marlin	1,310	1,510	627	1,156	1,377
	Blue marlin	681	1,284	1,529	1,528	2,147
	Escolar	2,041	542	585	132	49
	Lancetfish	19,346	21,799	16,049	17,469	15,856
	Mahi mahi	404	577	411	554	635
	Moonfish	82	40	237	121	10
	Ocean sunfish	2,149	5,855	4,195	4,999	6,011
	Oilfish	258	866	1,326	1,134	397
	Ray's bream	181	68	238	143	127
	Rudderfish	4,349	4,039	5,475	5,167	2,736
	Sailfish	38	73	19	8	9
	Shortbill spearfish	131	101	209	125	195
	Wahoo	47	93	57	78	48
	Subtotal	**31,017**	**36,848**	**30,957**	**32,614**	**29,597**
Sharks	Blacktip sharks	0	0	0	102	38
	Blue shark	14,871	23,317	20,728	28,484	32,865
	Bronze whaler	2,331	11,580	3,598	3,862	3,528
	Dusky shark	1,470	333	211	270	285
	Hammerhead	287	440	142	251	273
	Longfin mako	3	0	0	1	1
	Oceanic whitetip	1,086	1,650	742	950	1,888
	Porbeagle	1	0	0	0	0
	Shortfin mako	805	1,090	516	601	615
	Silky shark	264	60	0	0	0
	Thresher shark	970	931	622	659	1,269
	Tiger shark	1,621	1,770	1,448	756	2,064
	Whale shark	0	0	0	0	0
	Subtotal	**23,709**	**41,171**	**28,007**	**35,941**	**42,826**
	TOTAL	**54,726**	**78,019**	**58,964**	**68,555**	**72,423**

Since 1 July 2014, retention of silky sharks has been prohibited. None were recorded as either retained (Table 2) or discarded (Table 3) in logbooks in 2024. In the 2024 calendar year, no silky sharks were observed caught in the ETBF.

Since 14 September 2014 hammerhead sharks must be reported by species under CITES listings. For the purposes of this report, however, we have continued to group hammerheads into a single group for consistency in data presentation.

The 19th CITES Conference of Parties (Panama, November 2022) adopted proposals to list all species of hammerhead sharks (Family Sphyrnidae), guitarfishes (Family Rhinobatidae) and requiem sharks (Family Carcharinidae) in Appendix II. The listings for guitarfish and hammerhead sharks took effect from 23 February 2023, while the listing for requiem sharks took effect from 25 November 2023.

Following these CITES listings, a positive CITES non-detriment finding must be made by Australia's CITES Scientific Authority certifying that the harvest of the species will not be detrimental to survival of these species in the wild. Overall, 34 species were considered for a non-detriment finding, based on expert scientific advice (DCCEEW 2023). The findings for all the species considered indicated that current levels of harvest were sustainable and therefore a non-detriment finding was appropriate, some additional recommendations were made for some species.

Further information on the non-detriment finding and the scientific advice for each species is available.

Further restrictions on shark catches in the ETBF can be found in the management arrangements booklet.

Retention of both blue marlin and black marlin by commercial longliners has been prohibited since 1998 and no retention was recorded in logbooks in 2024, while 1,377 black marlin and 2,147 blue marlin were reported as discarded (Table 3). The vast majority of the catch and effort by Australian longliners has been within the AFZ, with little effort on the adjacent high seas (Table 4).

2.2 Pole-and-line, purse seine and minor line catch and effort

In 2024, there were no active purse-seine vessels in the Eastern Skipjack Fishery and no interactions with whale sharks were recorded (CMM 2019-04). Total minor-line catches of WCPFC species of interest in the ETBF (including pole and line, trolling, rod-and-reel and handline) was <1 t in 2024. The only catch of target species was albacore (0.03 t). The number of vessels reporting using minor line in the ETBF has steadily decreased from a peak of 52 vessels in 2001 to 2 in 2024 (using rod-and-reel and line - unspecified). Minor-line effort peaked in 2007 with 975 lines.

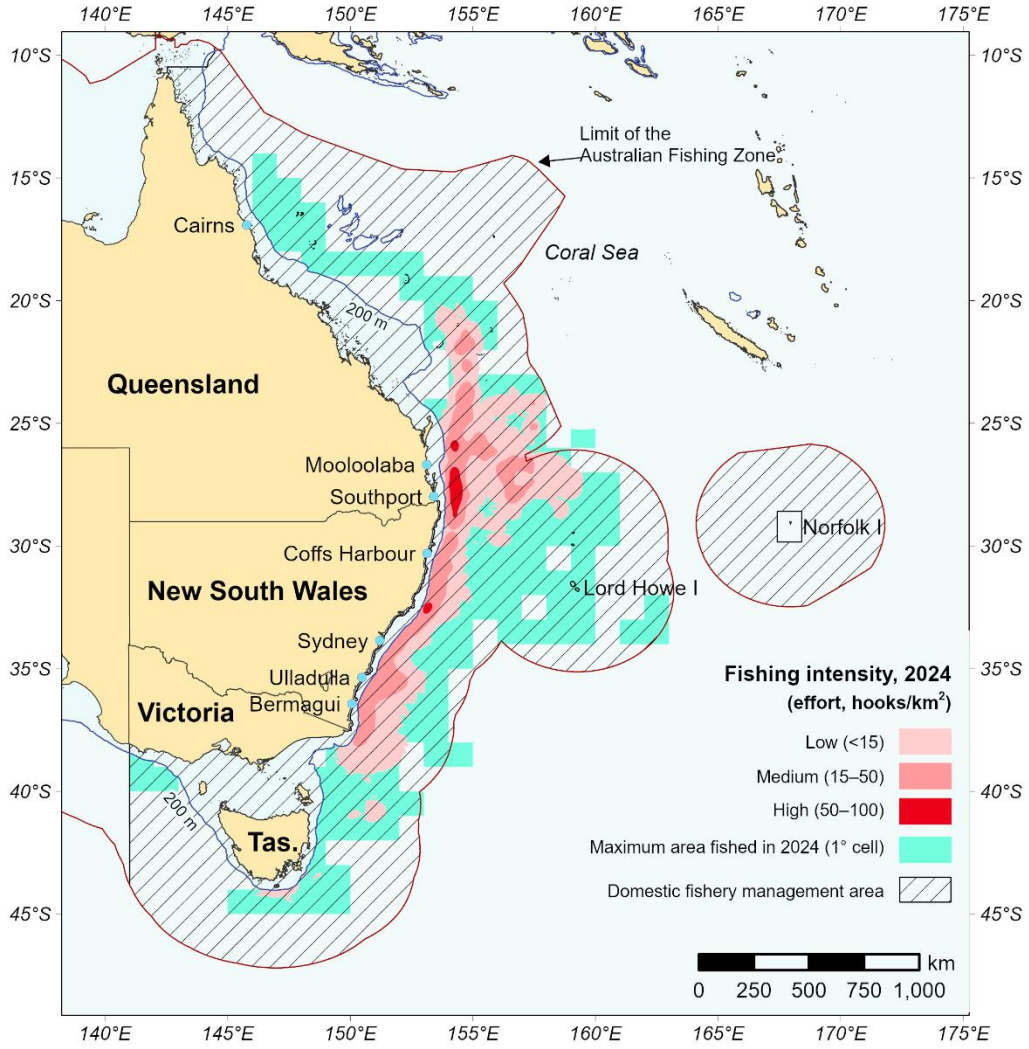
Table 4 Effort by Australian longliners and catch by primary species, within the AFZ and on the high seas, 2020 to 2024. The percentage of catch or effort within the AFZ or on the high seas is provided in parentheses.

	Year	Effort ('000 hooks)	Primary species catch (t)					
			Albacore	Bigeye	Skipjack	Yellowfin	Striped marlin	Swordfish
Within AFZ	2020	8,134	1,100.6	281.1	2.5	1,660.9	161.2	525.0
		(99.1%)	(99.5%)	(99.3%)	(99.6%)	(99.4%)	(99.2%)	(97.9%)
	2021	7,424	1,019.4	348	2.2	1,376.8	162.8	588.6
		(99.8%)	(99.9%)	(100%)	(100%)	(99.9%)	(100%)	(99.9%)
	2022	6,876	991.8	328.4	14.7	1,404.4	229.6	717.2
		(99.7%)	(99.9%)	(99.9%)	(99.99%)	(99.9%)	(99.8%)	(99.7%)
	2023	7,214	622.3	215.9	4.2	1521.4	214.3	753.8
		(99.1%)	(99.3%)	(98.3%)	(99.3%)	(99.3%)	(98.7%)	(97.8%)
	2024	8,009	522.0	255.2	14.7	2,473.6	258.7	580.4
		(99.5%)	(99.9%)	(99.4%)	(99.8%)	(99.6%)	(99.5%)	(99.4)
High seas	2020	72	5.9	2	0.01	9.4	1.3	11.2
		(0.9%)	(0.5%)	(0.7%)	(0.4%)	(0.6%)	(0.8%)	(2.1%)
	2021	17	1	0	0	0.6	0	0.1
		(0.2%)	(0.1%)	(0%)	(0%)	(<0.1%)	(0%)	(<0.1%)
	2022	20.8	1.2	0.4	0.001	1	0.5	2.1
		(0.3%)	(0.1%)	(0.1%)	(<0.1%)	(<0.1%)	(0.2%)	(0.3%)
	2023	63.5	4.4	3.8	0.03	10.2	2.7	16.8
		(0.9%)	(0.7%)	(1.7%)	(0.7%)	(0.7%)	(1.3%)	(2.2%)
	2024	43.6	0.8	1.5	0.03	11.1	1.4	3.5
		(0.5%)	(0.1%)	(0.6%)	(0.2%)	(0.4%)	(0.5%)	(0.6%)

2.3 Fishing patterns

Fishing patterns vary with target species, location and season. The management area of the ETBF extends from Cape York, at the northern tip of Queensland, to the border between Victoria and South Australia, including waters around Tasmania (Figure 4). In the WCPFC Convention Area, skipjack tuna are fished from southern New South Wales to north-eastern Tasmania.

Figure 4 Longline effort distribution in the Eastern Tuna and Billfish Fishery (2024). Fishing footprint shows the total extent of waters fished at a spatial resolution of one degree square.



2.4 Fleet operations

Domestic longlining vessels are mostly 15–25 m long and use monofilament gear (Table 5). Vessels usually conduct one longline operation per day, or night, depending on the target species. A typical longline set will comprise about 1,400+ hooks. Fishers commonly operate around 150 days per year. Most trips are between 2 and 15 days and typically range from 40–300 nm from port with effort mostly concentrated on the edge of the continental shelf (seaward of 200 m depth) but extending much further eastward off Mooloolaba (Figure 4). The catch is gilled and gutted (depending on species) and stored on ice, in ice slurry or in refrigerated brine.

Historically, most purse-seiners were 20–25 m long, but several were 40–45 m. Most poling vessels were 15–20 m long. Most minor-line catches are reported by vessels (e.g. longline vessels) on their way to and from fishing grounds.

Table 5 Number of Australian vessels, by gear and size category, active in the WCPFC Convention Area, targeting WCPFC species, for 2020 to 2024

Year	Longline				Purse seine	Pole-and-line	Troll	Rod-and-reel	Total
Vessel size (GRT)	≤50	51–200	201–500	Subtotal	≤500	0–50	Unknown	Unknown	
2020	8	27	1	36	0	0	2	0	38
2021	9	25	1	35	0	0	2	3	41[a]
2022	8	26	2	36	0	0	1	3	40
2023	6	26	2	34	0	0	0	2	37[b]
2024	7	30	2	39	0	0	1	1	41

GRT Gross registered tonnes**.**

a The total of forty-one vessels that fished in the WCPFC Convention Area in 2021 includes one handline vessel.

b The total of thirty-seven vessels that fished in the WCPFC Convention Area in 2023 includes one 'line – unknown' vessel.

2.5 Species of special interest

Australia implements a mandatory reporting scheme for fisheries interactions with protected species, which includes species of special interest. Interactions with these species are recorded by fishers in their logbooks and are reported to AFMA. These interactions are then forwarded to the Department of Climate Change, Energy, the Environment and Water on a quarterly basis. A summary of these interactions, from logbooks, is presented in Table 6. Life status of the animal involved in the interaction is also recorded.

In 2024, interactions were recorded with 16 green turtles (15 alive and 1 dead), 14 leatherback turtles (all alive), 13 loggerhead turtles (all alive), 7 Olive Ridley turtles (6 alive and 1 dead), and 25 unidentified turtles (18 alive and 7 dead) and 1 hawksbill Turtle (alive).

In 2024, interactions were recorded with 1 short-tailed shearwater (dead), 1 flesh-foot shearwater (dead), 18 unspecified shearwaters (2 alive and 16 dead), 11 unspecified petrels and shearwaters (all dead), 62 unspecified albatrosses (23 alive and 39 dead), and 6 unspecified birds (all dead).

Interactions were also recorded in 2024 with 2 short-finned pilot whale (all alive), 3 long-finned pilot whales (2 alive and 1 dead), 2 unspecified toothed whales (1 alive and 1 dead), 2 unspecified dolphins (both alive), 3 Australian fur seal (all alive) and 1 unspecified seal (alive).

From July of 2015, the logbooks of the Australian longline fleet were subject to potential verification through electronic monitoring. This has resulted in an increase in the reporting level of interactions with species of special interest since 2016 (Table 6).

Observed captures are reported in Table 7. In 2024, there were 4 observed captures of sea turtles (2 alive, 1 dead and 1 uknown); and 15 captures of seabirds (8 alive and 7 dead).

2.5.1 Sea turtles

The ETBF requires the use of large circle hooks in Australia's shallow-set pelagic longline fisheries targeting swordfish, consistent with CMM2018-03. Mitigation requirements in the ETBF for sea turtles are reported in Appendix B.

2.5.2 Seabirds and marine mammals

Australia has extensive mitigation requirements for seabirds in the ETBF (Appendix B). More specific seabird interaction information is presented in Table 8 and Table 9. Table 10 provides the proportion of mitigation measures used.

Table 6 Interactions with species of special interest recorded in logbooks for the Australian longline fleet in the WCPFC Convention Area, 2020 to 2024. Interactions not identifid to species level are noted as unspecified (unspec).

Group	Common name	2020	2021	2022	2023	2024
Seabirds	Black-browed albatross	3	0	0	4	0
	Shy albatross	1	0	1	0	0
	Sooty albatross	1	0	0	0	0
	Wandering albatross	0	0	1	0	0
	Albatrosses (unspec)	9	20	33	20	62
	Cape Petrel	0	0	0	0	0
	Sooty shearwater	0	0	0	0	0
	Short-tailed shearwater	0	1	2	5	1
	Flesh-footed shearwater	0	16	10	0	1
	Shearwaters (unspec)	10	5	24	16	18
	Petrel and shearwaters (unspec)	3	0	4	1	11
	Terns	1	0	0	0	0
	Australian gannet	3	0	0	0	0
	Birds (unspec)	14	16	0	4	4
	Subtotal	**45**	**58**	**75**	**50**	**97**
Turtles	Green turtle	31	16	29	15	16
	Hawksbill turtle	3	2	0	0	1
	Leatherback turtle	21	22	25	35	14
	Loggerhead turtle	13	10	13	6	13
	Flatback turtle	0	1	0	0	0
	Pacific (Olive) Ridley turtle	7	5	6	2	7
	Turtles (unspec)	20	34	25	14	25
	Subtotal	**95**	**90**	**98**	**72**	**76**
Mammals	Melon-headed whale	2	0	0	0	0
	Toothed whales	0	0	5	2	2
	Short-finned pilot whale	1	4	2	1	2
	Long-finned pilot whale	0	2	1	6	3
	False killer whale	3	0	1	0	0
	Humpback whale	0	0	0	1	0
	Whales (unspec)	3	0	0	2	0
	Common dolphin	2	0	2	6	0
	Bottlenose dolphin	1	1	0	2	0
	Dolphin (unspec)	4	1	5	0	2

Australian fur seal	0	0	2	1	2
New Zealand fur seal	0	0	0	0	0
Seals (unspec)	1	11	13	5	1
Subtotal	**17**	**19**	**31**	**26**	**12**
Unknown or other	**0**	**0**	**0**	**0**	**0**
TOTAL	**154**	**167**	**200**	**147**	**185**

Table 7 Observed captures of species of special interest for the Australian longline fleet in the WCPFC Convention Area, 2020 to 2024. Interactions not identified to species level are noted as unspecified (unspec).

Group	Common name	2020	2021	2022	2023	2024
Seabirds	Black-browed albatross	0	0	0	0	0
	Shy albatross	0	0	0	0	0
	Wandering albatross	0	0	0	0	0
	Albatrosses (other)	4	8	1	3	4
	Cape petrel	0	0	0	0	0
	Gannets and boobies	3	0	0	1	0
	Great crested tern	0	0	0	0	0
	Flesh-footed shearwater	0	0	0	0	0
	Wilson's storm petrel	0	0	0	0	0
	Petrels Prions and Shearwaters	0	1	1	1	2
	Shearwaters	2	4	7	1	5
	Birds (unspec)	2	1	1	4	4
	Subtotal	**11**	**14**	**10**	**10**	**15**
Turtles	Green turtle	0	0	0	0	0
	Hawksbill turtle	0	0	0	0	0
	Leatherback turtle	0	6	3	4	0
	Loggerhead turtle	0	0	0	0	0
	Pacific (Olive) Ridley	0	0	0	0	0
	Turtles (unspec)	9	11	13	4	4
	Subtotal	**9**	**17**	**16**	**8**	**4**
Mammals	Dolphin (unspec)	0	0	0	0	0
	Long-finned pilot whale	0	0	0	0	0
	Short-finned pilot whale	0	0	0	0	0
	Whales (unspec)	1	0	2	2	0
	Eared seals	0	1	1	0	0
	Australian fur seal	0	0	0	0	0
	Subtotal	**1**	**1**	**3**	**2**	**0**
	TOTAL	**21**	**32**	**29**	**20**	**19**

Note: E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

CMM 2011-03 regarding the intentional setting of purse-seine gear on cetaceans entered into force on 1 January 2013. Such setting practices are prohibited in Australian purse-seine fisheries since the introduction of the *Environment Protection and Biodiversity Conservation Act*. There were no reported interactions with cetaceans in purse-seine fisheries in 2024; there was no relevant purse-seine effort in the WCPFC area in 2024.

Table 8 Effort and observed seabird captures by fishing year for the ETBF a) south of 30°S, b) for 25°S – 30°S and c) for 23°N – 25°S. For each year, the tables provide the number of longline vessels, total number of hooks (000's), number of observed hooks (000's), observer coverage (percentage of hooks observed), number of observed captures and the capture rate (captures per thousand hooks).

a) South of 30°S

Year		Fishing effort (000's hooks)			Observed seabird captures	
	Number of vessels	Number of hooks	Observed hooks	% hooks observed	Capture number	Capture rate
2020	31	1,794	178	9.9	8	0.45
2021	32	2,088	189	9.1	11	0.058
2022	31	2,270	217	9.6	3	0.014
2023	28	2,339	219	9.3	7	0.032
2024	30	2,838	286	10.1	7	0.024

Note: E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

b) 25°S – 30°S

Year	Fishing effort (000's hooks)				Observed seabird captures	
	Number of vessels	Number of hooks	Observed hooks	% hooks observed	Capture number	Capture rate
2020	22	4,006	412	10.3	2	0.005
2021	22	2,638	265	10.0	1	0.004
2022	22	2,594	242	9.3	6	0.025
2023	21	3,390	341	10.1	2	0.006
2024	22	3,613	342	9.5	8	0.023

Note: E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

c) 23°N – 25°S

Year	Fishing effort (000's hooks)				Observed seabird captures	
	Number of vessels	Number of hooks	Observed hooks	% hooks observed	Capture number	Capture rate
2020	18	2,414	244	10.1	1	0.004
2021	17	3,030	288	9.5	2	0.007
2022	20	2,060	210	10.2	1	0.005
2023	17	1,573	142	9.1	1	0.007
2024	20	1,547	149	9.6	0	0.000

Note: No seabird captures have been observed north of 23°N as there was no effort. E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

Table 9 Number of observed seabird captures in the ETBF, 2024, by species and area

Species	South of 30°S	25°S–30°S	23°N–25°S	North of 23°N	Total Captures
Birds	1	3	0	0	4
Albatrosses	4	0	0	0	4
Gannets and boobies	0	0	0	0	0
Petrels and Shearwaters	0	2	0	0	2
Shearwaters	2	3	0	0	5
Total	**7**	**8**	**0**	**0**	**15**

Note: E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

Table 10 Proportion of mitigation types used by the fleet 2020 to 2024

Combination of mitigation measures	Proportion of observed effort using mitigation measures				
	2020	2021	2022	2023	2024
TL + WB	0.90	0.87	0.86	0.87	0.90
TL + WB + NS	0.10	0.13	0.14	0.13	0.10
Total	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

TL Tori line. **NS** Night setting. **WB** Weighted branch lines.

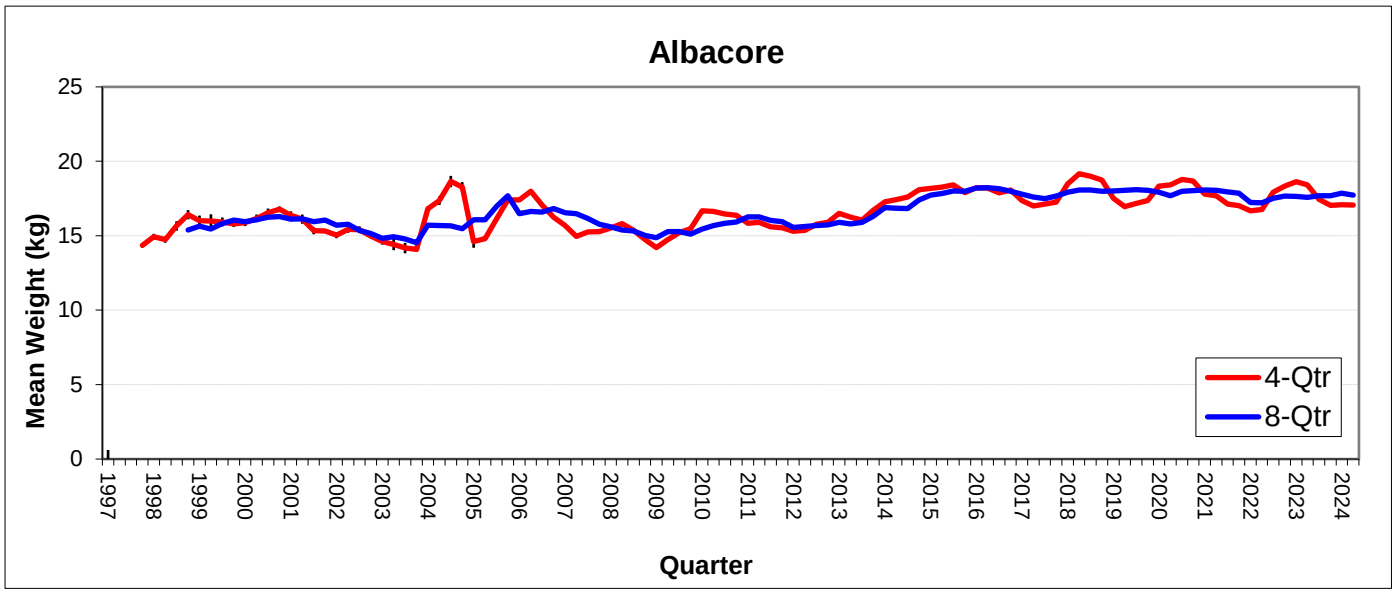
Note: Proportions were derived from the AFMA observer database and, from July 2015 onwards, from electronic monitoring data. E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

2.6 Trends in size composition of retained catch

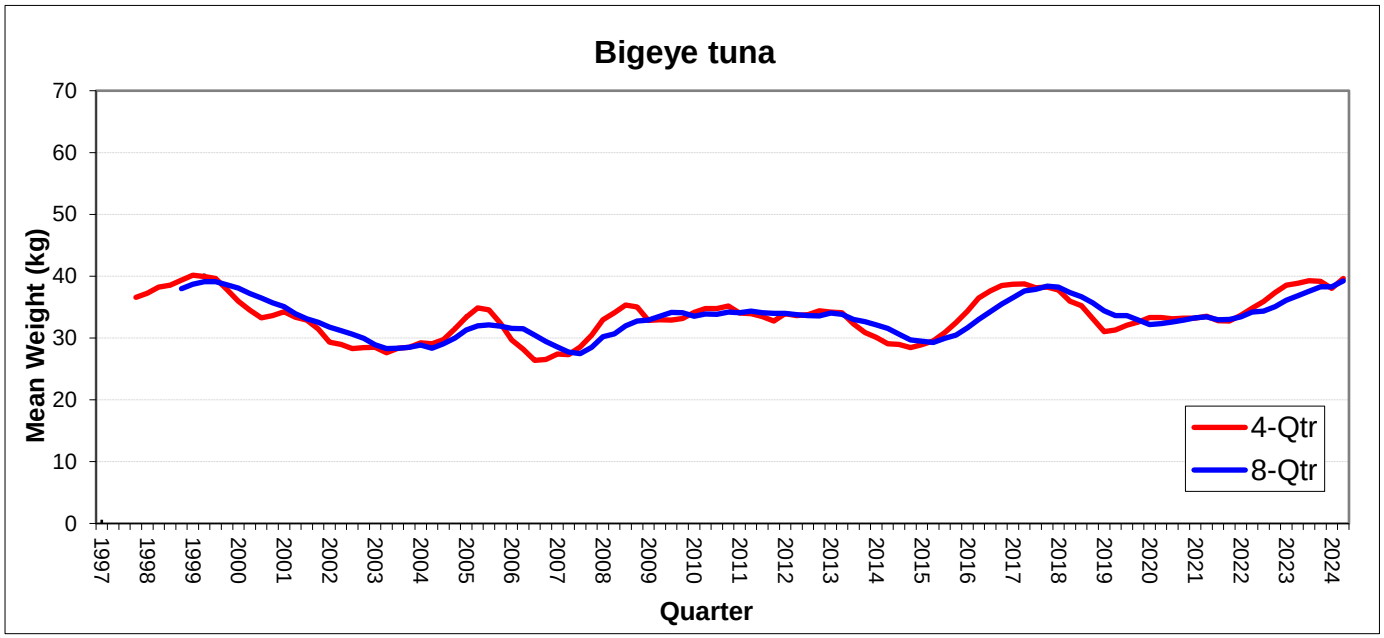
The size composition (based on processed weights) of albacore, bigeye tuna, yellowfin tuna and striped marlin is shown in Figure 5. Albacore has maintained a high 8-quarter running mean weight of around 18 kg since 2016 (Figure 5a). The 8-quarter running mean of bigeye tuna declined to around 32 kg in 2020 but increased again to around 39 kg by the end of 2024 (Figure 5b). Yellowfun tuna maintained a high 8-quarter running mean weight of 39 to 40 kg between 2016 to 2018 but has since decreased to around 33 kg in 2024 (Figure 5c). The 8-quarter running mean weight of striped marlin was around 63 kg from 2018 to 2020 before decreasing to 60 kg in 2022 to 2024 (Figure 5d). Swordfish showed an increasing trend in its 8-quarter running mean between 2015 to 2018 before declining to around 40 kg in 2024 (Figure 5e).

Figure 5 (a–e). Time series of 4-quarter and 8-quarter running means from 1998 to 2024, by quarter, of processed fish weight (in kg) of a) albacore, b) bigeye tuna, c) yellowfin tuna, d) striped marlin and e) swordfish sampled across the entire ETBF based on the data collected from the port sampling program

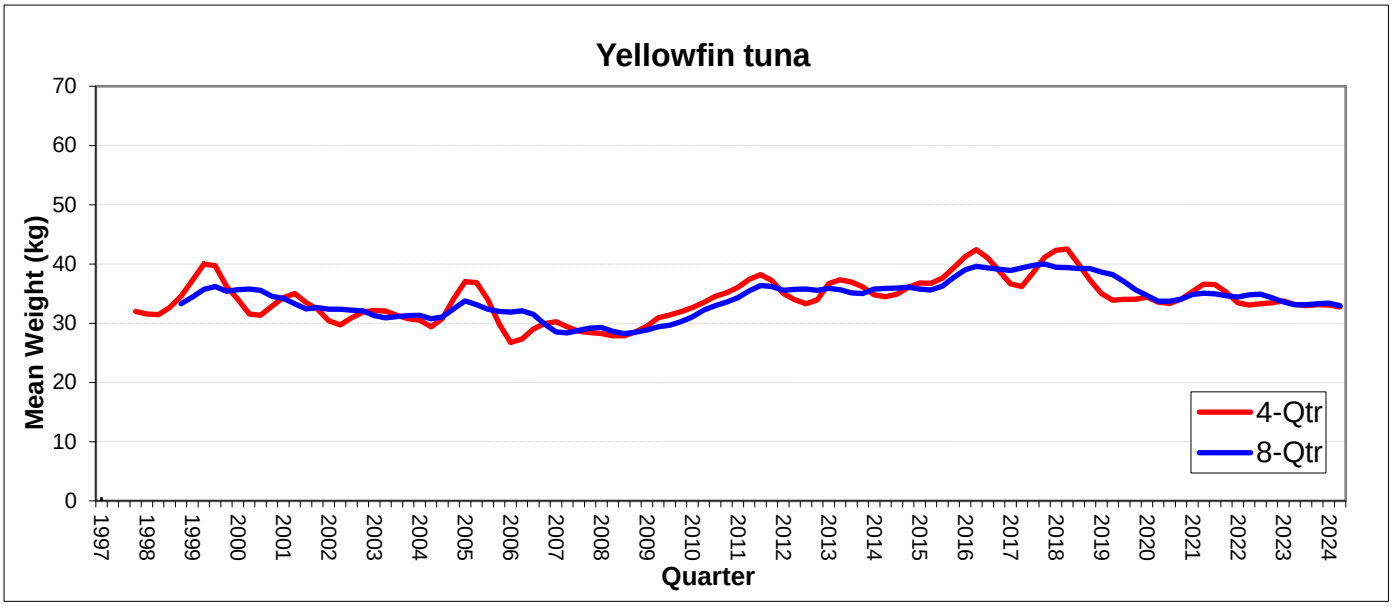
a)



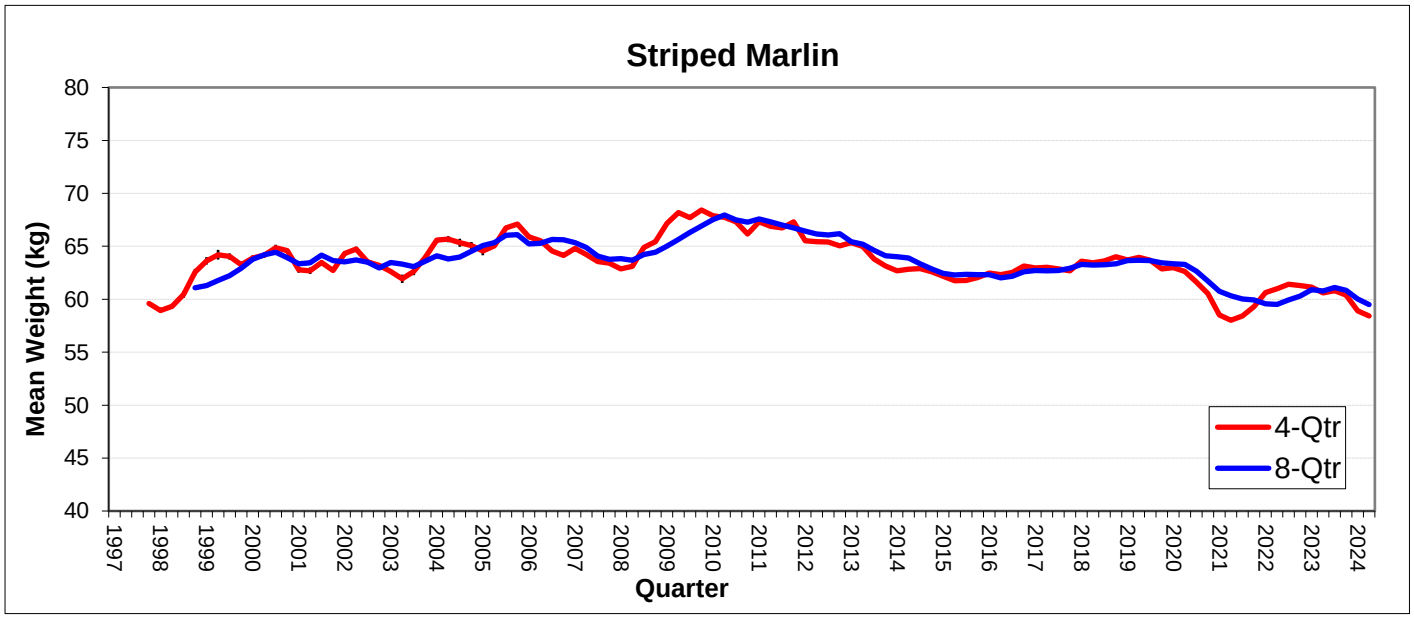
b)



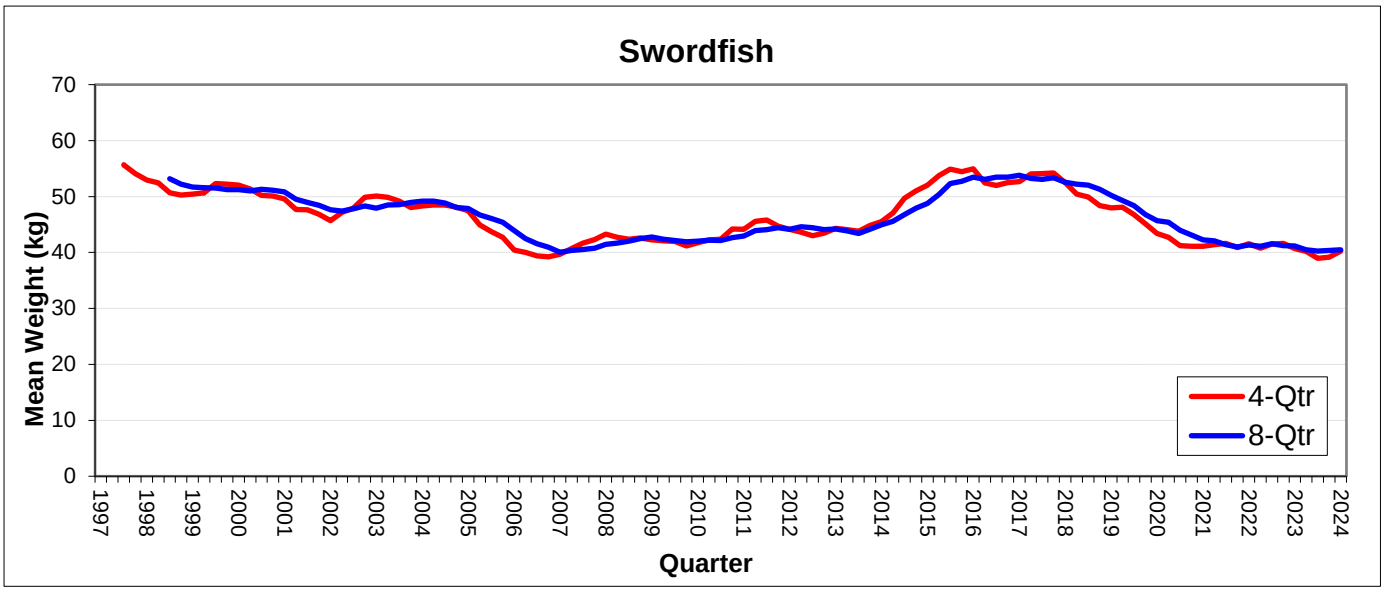
c)


Yellowfin tuna
Mean Weight (kg)
70
60
50
40
30
20
10
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Quarter
4-Qtr
8-Qtr

d)


Striped Marlin
Mean Weight (kg)
80
75
70
65
60
55
50
45
40
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Quarter
4-Qtr
8-Qtr

e)


Swordfish
Mean Weight (kg)
70
60
50
40
30
20
10
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Quarter
4-Qtr
8-Qtr

3 Coastal state reporting

There are currently no foreign fishing vessels licensed to operate in the AFZ.

4 Socio-economic factors

The gross value of production (GVP) of the ETBF reached an 11-year peak in real terms (2023–24 dollars) of $61.6 million in 2015–16, reflecting increased catch of all key targeted species and generally improved prices that year. Between 2016–17 and 2023–24 real GVP remained below the 2015–16 value, averaging $42.1 million because of lower catch volumes and despite generally improved prices for key species during that period. In 2023–24, GVP decreased from the previous financial year by 4% to $38.6 million driven by lower yellowfin tuna prices.

5 Disposal of catch

Catch from the ETBF is highly export oriented—particularly for premium tuna species—with exports of bigeye tuna, yellowfin tuna and swordfish representing 51%, 30% and 32% respectively of catch on a 5-year average basis. These three species are exported (mostly fresh or chilled) mainly to Japan and the United States. On average, 67% of albacore catch is exported (predominantly frozen) mostly to Thailand (mainly for canning) and Spain. Catch not exported is directed towards domestic consumption.

In 2023–24 the combined value of exports from the east-coast Australia of albacore, bigeye tuna and yellowfin tuna (the three key species of tuna caught in the WCPFC) decreased by 9% to $14.4 million from the prior financial year. Export volumes for all three species were lower than the prior year. The overall decrease in export value was driven by 45% lower export value of albacore to $1.9 million (reflecting 31% lower catch volume that the prior year) and was offset partially by 6% higher yellowfin tuna export value (to $10.5 million). Bigeye tuna export value decreased by 20% to $2.0 million.

The average export unit price of swordfish is typically below yellowfin tuna and bigeye tuna, the other key species landed in the ETBF. In 2023–24 the value of swordfish exports from the east-coast Australia decreased by 7% to $2.5 million, reflecting lower average export unit prices despite higher export volumes.

6 Onshore developments

Nil

7 Future prospects for the fishery

Commercial operators view the Australian skipjack fisheries as an important development opportunity because significant catching capacity exists in Port Lincoln, South Australia. Currently, catches are low as a result of variability in the availability of skipjack tuna in the AFZ, variable participation levels, low profit margins and the closure of the Port Lincoln cannery; however, there is room for development in this fishery.

The AFMA Commission agreed on the total allowable commercial catches (TACCs) for the ETBF. These apply to the 2024 season which commenced on 1 January 2024. The TACCs for the five main target species are: albacore (2,500 t); bigeye tuna (1,056 t); swordfish (1,047 t); striped marlin (351 t); and yellowfin tuna (2,400 t).

8 Status of data collection systems

8.1 Logbook data collection and verification

AFMA introduced a logbook for domestic longliners in 1986. The logbook has been revised on several occasions. The latest (AL06—Australian Pelagic Longline Daily Fishing Log) was introduced in 2007; vessels began submitting AL06 logbooks in November 2007. Return of logbooks by Australian longliners improved when, in 1995, it became a condition of fishing permits and has been close to 100% in recent years. Logbooks have also been introduced for the skipjack tuna purse-seine fisheries; PS01—Australian Purse Seine Daily Fishing Log was distributed in July 2002 with the first skipjack tuna catch recorded in this logbook in December 2003. Weights from catch disposal records are verified; weights recorded on logbooks are an estimate only. From 1 July 2015 logbooks have been verified through e-monitoring. As of 2021, all reporting in the ETBF is done via electronic logbooks.

8.2 Observer program

AFMA observers were deployed on domestic longliners from 2001 to 2015. From July 2003 to 2015, observers were deployed more broadly across the fishery with more general duties, such as the collection of data on fishing gear and the size and species composition of catches.

AFMA implemented a trial of e-monitoring to evaluate the effectiveness of this technology for a range of fishery monitoring purposes and to conduct a cost–benefit analysis in 2009–10 (Piasente et al. 2012). E-monitoring became compulsory for all ETBF longline vessels from 1 July 2015. E-monitoring replaced human observers in the ETBF for all in-zone observer requirements, although the government maintains the right to place human observers on board vessels if there is a need to do so. At least 10% of the video footage from all hauls is reviewed to verify the accuracy of logbooks which are required to be completed for 100% of shots. This review rate may be increased in some cases.

In 2024, the coverage rate was 9.9% (Table 11). During the reporting period, Australian vessels operated principally in Australian waters with occasional forays onto the high seas. Australia's national observer program is accredited under the WCPFC ROP.

E-monitoring (observed) data for 2024 are estimated to be >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

Table 11 Summary of longline observer coverage (by hooks) for 2024

CCM Fleet	Fishery	No. of Hooks			Days fished			Days at sea			No. of trips			See notes
		Total est.	Obs.	Obs %	Total est.	Obs.	Obs %	Total est.	Obs.	Obs %	Total est.	Obs.	Obs %	
Australia	Domestic	8.1 million	797,694	9.9										Nil

Note: Blacked-out cells are not applicable. E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

8.3 Port sampling program

The collection of individual processed fish weights from processors receiving longline caught fish from the ETBF commenced in mid-1997. The program mainly focuses on the five principal target species in the fishery (yellowfin tuna, bigeye tuna, albacore, swordfish and striped marlin), though data on a range of other species have also been collected. During the period from July 1997 to December 2024 over 2.37 million individual fish weights pertaining to the five main target species have been collected. Coverage rates (% of landed fish sampled) for the target species are generally high, and for the 5-year period between 2020 and 2024 have averaged around 90% for yellowfin tuna, 90% for bigeye tuna, 88% for swordfish and 91% for striped marlin, while for albacore 4% of landed fish have been individually sampled (Table 12). Individual fish weights for another 374,979 fish from 54 non-target species have also been collected across all years. Bulk weights for albacore sampled in batches (covering on average 94% of the catch between 2020 and 2024) and some other species are also collected. Where both the total batched weight and the number of fish have been recorded, these bulk weights cover 1,574,545 fish for 40 species (including 1,097,224 albacore).

Table 12 Estimated annual coverage of operational catch and effort (logbooks), observer data (% hooks) and port sampling (% coverage rate for the 5 main target species of individual fish weights collected from processors receiving longline-caught fish in the ETBF) for the Australian fleet active in the WCPFC Convention Area, 2020 to 2024

Gear	Year	Operational catch & effort coverage (%)	Observer coverage (%)	Port sampling coverage (%)					
				YFT	BET	ALB	SWO	STM	SKJ
Longline[a]	2020	100	9.7	88	96	3	94	93	0
	2021	100	9.9	91	91	3	92	94	0
	2022	100	9.4	90	91	3	90	90	0
	2023	100	9.3	90	82	7	82	88	0
	2024	100	9.9	90	86	7	83	92	0
Purse seine	2020	NA	NA	NA	NA	NA	NA	NA	NA
	2021	NA	NA	NA	NA	NA	NA	NA	NA
	2022	NA	NA	NA	NA	NA	NA	NA	NA
	2023	NA	NA	NA	NA	NA	NA	NA	NA
	2024	NA	NA	NA	NA	NA	NA	NA	NA

ALB Albacore. BET Bigeye tuna. NA Not applicable. SKJ Skipjack tuna. STM Striped marlin. SWO Swordfish. YFT Yellowfin tuna.

a Includes fish taken by minor line.

Note: E-monitoring data for 2024 are >90% complete. Updated (100% complete) data for 2024 will be included in the 2026 report.

Source: Scott Cooper (CSIRO) and AFMA observer database

8.4 Unloading/transhipment

Catch disposal records are the formal method for monitoring unloads and were implemented in the ETBF in January 2006 (Table 13). Catch disposal records are completed by both the fisher and licensed fish receiver at the point of unload to obtain accurate data on fish numbers and verified weight by species. Skippers tend to under-estimate the weights reported in logbooks for most species, so the catch disposal record data have been reported in domestic official statistics since

2007 and are the authoritative figures for retained catch in the fishery. Compliance checks are conducted on unloads as part of a risk-based compliance programme. Weight estimates are also derived from the size-monitoring program and are likely to be more accurate than logbook data for that part of the time series.

Table 13 Annual catch estimates (converted whole weights) for the ETBF, 2019 to 2024, derived from catch disposal records

Year	Albacore	Yellowfin	Bigeye	Striped marlin	Swordfish	Other	Total
2020	1176.8	1856.4	308.2	204.4	610.6	231.0	4387.4
2021	1094.7	1593.3	391.9	207.1	619.8	179.5	4085.5
2022	1134.3	1367.6	347.8	284.0	727.6	172.2	4033.4
2023	835.5	1716.2	235.1	265.7	794.3	193.8	4040.6
2024	672.9	2563.5	300.2	365.7	697.0	262.7	4861.7

Note: Estimates are in tonnes. As of 2020, catch of southern blue fin tuna is no longer included in 'Other'.

No transhipment activities were undertaken in 2024. No Australian vessels were authorised to tranship on the high seas.

8.5 Other

AFMA introduced the compulsory requirement for all Commonwealth endorsed fishing vessels to be fitted with Integrated Computer Vessel Monitoring Systems (ICVMS) in 2007. For 2024, no ETBF vessel received formal warnings for non-operational ICVMS. There were no other ICVMS infringements. Compliance with ICVMS requirements has increased markedly since mid-2008. AFMA uses the ICVMS to assist in planning inspections and operations, to assist the observer program in deploying scientific observers and to actively monitor compliance with closed areas.

A range of data is also collected via individual research projects (see the Research Activities section for more information).

9 Research activities

The Australian Government and the fishing industry allocate considerable funds to fishery research and monitoring each year. In addition to the logbook and observer programs, key areas of research in past years and ongoing research include:

9.1 Biological research projects

- Reproductive dynamics of swordfish in the domestic longline fishery off eastern Australia (Young & Drake 2002)
- Age and growth of bigeye tuna from the eastern and western AFZ (Farley et al. 2003)
- Age and growth of swordfish from Australian waters (Young & Drake 2004)
- Population biology and habitat preferences of striped marlin in eastern Australia (Keller & Davie 2009)
- Population biology of albacore tuna in the Australian region (Farley et al. 2012)
- Spatial dynamics of swordfish in the south Pacific Ocean (Evans et al. 2012)
- Defining regional connections in southwest Pacific swordfish (Wilcox 2012)
- Determination of swordfish growth and maturity relevant to the southwest Pacific stock (Farley et al. 2016)
- Age, growth and maturity of bigeye tuna in the western and central Pacific Ocean (Farley et al. 2018)
- Yellowfin tuna age and growth in the Western and Central Pacific Ocean (Farley et al. 2020)
- Feasibility of close-kin mark-recapture assessment for South Pacific albacore in the WCPO (Bravington et al 2021)
- Bomb radiocarbon age validation for bigeye and yellowfin tunas in the WCP (Andrews et al. 2022)

9.2 Assessment-related research projects

- Dynamics of the interactions of the fishery and swordfish on seamounts off eastern Australia (Campbell & Hobday 2003)
- Migration and habitat preferences of bigeye tuna on the east coast of Australia (Gunn et al. 2005)
- Stock assessment of striped marlin in the south-western Pacific Ocean (Langley et al. 2006)
- Developing harvest strategies for the ETBF (AFMA 2007)
- Developing robust stock-status indicators (Basson & Dowling 2008)

- Updating the stock assessment of swordfish in the south Pacific Ocean (Kolody, Campbell & Davies 2008)
- Determining the depths fished and the effective longline effort targeted at various species in the ETBF (Campbell & Young 2010)
- Integrated evaluation of management strategies for tropical multi-species long-line fisheries (Kolody et al. 2010)
- Eastern Tuna and Billfish Fishery size monitoring program (Williams et al. ongoing)
- Integrated analysis and assessment supporting implementation of the management and harvest strategy framework within the ETBF (Campbell 2011)
- Predicting the impact of hook decrementation on the distribution of fishing effort in the ETBF (Wilcox et al. 2011)
- Analysis of recreational fishing catch and effort data to support the striped marlin stock assessment (Ghosn et al. 2012)
- Standardisation of commercial catch and effort data to support the stock assessment of striped marlin (Campbell 2012)
- Changes in fishing strategies in the ETBF in response to the introduction of quota management (Preece, Cambell & Hillary 2012)
- Development of an approach to harvest strategy management of internationally managed multi-species fisheries (Hillary et al. 2016)
- Developing innovative approaches to improve CPUE standardisation for Australia's multi-species longline fisheries (Campbell et al. 2017)
- Data management, assessment and implementation of harvest strategies for Australia's tropical tuna fisheries (Campbell 2017)
- Determination of the spatial dynamics and movement rates of the principal target species within the Eastern Tuna and Billfish Fishery and connectivity with the broader western and central Pacific Ocean - beyond tagging (Evans et al. 2021)
- Data management, assessment and implementation of harvest strategies for Australia's tropical tuna fisheries (Campbell et al. 2020)
- ETBF striped marlin harvest strategy revision and evaluation (Preece 2021)
- Management strategy evaluation of the broadbill swordfish ETBF harvest strategies (Hillary 2020)
- Data management, assessment and implementation of harvest strategies for Australia's tropical tuna fisheries (Campbell et al. 2020; Williams et al. 2023)
- Scientific advice for management of Tropical Tuna and Billfish Fisheries (CSIRO, July 2023-May 2026)

9.3 Ecological research projects

- Ecological risk assessment for the effects of fishing (Webb et al. 2007)
- Rapid quantitative assessment (Zhou, Smith & Fuller 2007)
- Determining the ecological impacts of longline fishing in the ETBF (Young et al. 2009)
- Ecological risk assessment for the effects of fishing report for the Eastern Tuna and Billfish Fishery: Longline sub-fishery (Sporcic et al. 2019, 2025)
- Investigation of oceanographic and environmental factors impacting on the ETBF (Hartog et al. 2023; Scales et al. 2023)

9.4 Bycatch research projects

- A review of byproduct interactions and economics in Australia's tuna and billfish fisheries (Bromhead et al. 2005)
- Marine turtle mitigation in Australia's pelagic longline fishery (Robins et al. 2007)
- The effects of bycatch mitigation measures, such as circle hooks and wire leaders, on target and non-target catches (Ward et al. 2008)
- Effect of line shooters on the sink rates of pelagic longlines and the effect on seabird interactions (Robertson, Candy & Wienecke 2010a)
- Factors affecting the sink rates of baited hooks and the impact on seabird interactions in pelagic longline fisheries (Robertson & van den Hoff 2010; Robertson et al. 2010b; Robertson & Candy 2014)
- Branch line weighting regimes to reduce the incidental catch of seabirds in pelagic longline fisheries (Robertson et al. 2013)
- The effects of propeller turbulence on sink rates of baited hooks (Robertson & Candy 2014)
- Development of an underwater bait setting system (Robertson et al. 2015)
- Improving the effectiveness, efficiency and safety of mitigation tools for protected species interactions in the Eastern Tuna and Billfish Fishery (FRDC 2020-041, 2020, ongoing).
- Improving the management of wildlife interactions in pelagic longline fisheries (FRDC 2021-078, 2021, ongoing).

Appendix A: Common and Scientific Names

Common names	Scientific names
Albacore	*Thunnus alalunga*
Albatrosses (other)	*Diomedeidae* spp.
Australian fur seal	*Arctocephalus pusillus doriferus*
Australian gannet	*Morus serrator*
Australian sea lion	*Neophoca cinerea*
Baleen whale	Mysticeti
Bigeye tuna	*Thunnus obesus*
Birds	Aves
Black marlin	*Makaira indica*
Black-browed albatross	*Thalassarche melanophrys*
Blacktip sharks	*Carcharhinus* spp.
Blue marlin	*Makaira mazara*
Blue shark	*Prionace glauca*
Bottlenose dolphin	*Tursiops truncatus*
Bronze whaler shark	*Carcharhinus brachyurus*
Buller's albatross	*Thalassarche bulleri*
Cape petrel	*Daption capense*
Common dolphin	*Delphinus delphis*
Cormorants	*Phalacrocoracidae*
Cuvier's beaked whale	*Ziphius cavirostris*
Dolphin	Delphinidae
Dugong	*Dugong dugon*
Dusky shark	*Carcharhinus obscurus*
Escolar	*Lepidocybium flavobrunneum*
False killer whale	*Pseudorca crassidens*
Flatback turtle	*Natator depressa*
Flesh-footed shearwater	*Puffinus carneipes*
Great crested tern	*Sterna bergii*
Great skua	*Catharacta skua*
Great-winged petrel	*Pterodroma macroptera*
Green turtle	*Chelonia mydas*
Grey-headed albatross	*Thalassarche chrysostoma*
Hammerhead shark	*Sphyrna* spp.
Hawksbill turtle	*Eretmochelys imbricata*
Humpback whale	*Megaptera novaeangliae*
Lancetfish	*Alepisaurus sp.*
Leatherback turtle	*Dermochelys coriacea*
Loggerhead turtle	*Carretta carretta*
Long-finned pilot whale	*Globicephala melas*
Longfin mako	*Isurus paucus*
Mahi mahi	*Coryphaena hippurus*
Melon-headed whale	*Peponcephala electra*
Moonfish (opah)	*Lampris guttatus*
New Zealand fur seal	*Arctocephalus fosteri*
Northern bluefin tuna	*Thunnus orientalis*
Ocean sunfish	*Mola mola*
Oceanic whitetip shark	*Carcharhinus longimanus*
Oilfish	*Ruvettus pretiosus*
Pacific (olive) ridley turtle	*Lepidochelys olivacea*

Petrels, prions and shearwaters	*Procellariidae* spp.
Porbeagle	*Lamna nasus*
Ray's bream	*Brama brama*
Rudderfish	*Centrolophus niger*
Sailfish	*Istiophorus platypterus*
Scalloped hammerhead	*Sphyrna lewini*
Seals	Phocidae
Shearwaters	*Puffinus* spp.
Shortbill spearfish	*Tetrapturus angustirostris*
Shortfin mako	*Isurus oxyrinchus*
Short-finned pilot whale	*Globicephala macrorhynchus*
Short-tailed shearwater	*Puffinus tenuirostris*
Shy albatross	*Thalassarche cauta*
Silky shark	*Carcharhinus falciformis*
Skipjack tuna	*Katsuwonus pelamis*
Smooth hammerhead	*Sphyrna zygaena*
Sooty shearwater	*Puffinus griseus*
Southern bluefin tuna	*Thunnus maccoyii*
Southern royal albatross	*Diomedea epomophora*
Striped marlin	*Kajikia audax*
Swordfish	*Xiphias gladius*
Thresher shark	*Alopias vulpinus*
Tiger shark	*Galeocerdo cuvier*
Toothed whale	Odontoceti
Turtles	Testudinata
Wahoo	*Acanthocybium solandri*
Wandering albatross	*Diomedea exulans*
Wedge-tailed shearwater	*Puffinus pacificus*
Westland petrel	*Procellaria westlandica*
Whale shark	*Rhincodon typus*
Wilson's storm petrel	*Oceanites oceanicus*
Yellowfin tuna	*Thunnus albacares*
Yellow-nosed albatross	*Thalassarche chlororhynchos*

Appendix B: Mandatory mitigation measures in the ETBF 2025

Eastern Tuna and Billfish Fishery Management Arrangements Booklet 2025

Seabirds

At all times you must:

- Carry more than one assembled tori lines onboard.
- Not discharge offal while setting.
- Comply with seabird interaction obligations relating to the Threat Abatement Plan (TAP).

When you are fishing south of 25°S you must:

- Deploy a tori line before commencing a shot when fishing between the hours of nautical dawn and nautical dusk.
- A tori line is not required to be deployed when performing fishing operations between the hours of nautical dusk and nautical dawn.
- Use only non-frozen bait.
- Weight longlines with either a minimum of:
  - 60 g weights at a distance of no more than 3.5 m from each hook, or
  - 98 g weights at a distance of no more than 4 m from each hook, or
  - 40 g weights immediately adjacent to the hook, or at no more than 0.5 m from the hook, with dead, non-frozen baits attached to the hooks, or
  - A hook-shielding device attached and deployed directly to each hook according to minimum branch line specifications.

Note: If you are fishing south of 40° South, AFMA may require you to implement additional seabird mitigation measures as this is an area in which higher than average number of seabird interactions are possible.

Your tori line must be:

- At least 100 m long.
- Must be deployed from a position on board the boat and utilise an additional towed line, material or object to create drag and ensure that it remains above the water surface for a minimum of 75 m from the stern of the boat.
- Must have streamers attached to it with a maximum interval between the streamers of 3.5 m.
- All streamers must be maintained to ensure that their lengths are as close to the water surface as possible.

Individual vessels that fail to consistently avoid or minimise interaction rates with seabirds are subject to additional monitoring and mitigation requirements. Specifically, vessels that exceed a rate of 0.05 birds/1,000 hooks - in two of the last three consecutive Summer (or Winter) TAP seasons, or in consecutive Summer and Winter seasons, or take more than ten birds in a season - will be notified and placed on a watchlist. If that vessel then breaches the trigger again in-season, it will be required to implement additional mitigation. That will comprise either stronger line weighting, night setting, hook shields, or moving the area of operation at least five degrees north (to a lower seabird abundance area). Additional mitigation will be required on top of this if the vessel continues to have seabird interactions. The additional mitigations measures remain in place until AFMA notifies the SFR holder in writing that the vessel has achieved a seabird by-catch rate less than 0.05 birds per 1,000 hooks.

Sea turtles

Circle hooks

Large circle hooks must be used for shallow sets with less than 8 hooks per basket.

De-hooking device

At all times you must carry on board a minimum of one de-hooking device, with the following specifications:

- The device must enable the hook to be secured and the barb shielded so that the barb does not re-engage with the fish while the hook is being removed
- The device must be blunt with all edges rounded
- Where more than one size of hook is to be carried, a de-hooking device (or devices) must be carried that can be used with all hooks on the boat; and
- The shaft of the device must be a minimum of 1.5 metres in length.

Line cutting device

At all times you must carry on board a minimum of one line cutting device. The line cutting device must be constructed and used in accordance with the following specifications:

- The device must be constructed to allow the line to be cut as close to the hook as possible
- The blade of the device must be enclosed in a blunt rounded (arc-shaped) cover with the hook exposed on the inside of the arc; and
- The shaft of the device must be a minimum of 1.5 metres in length.

References

AFMA 2007, Eastern Tuna and Billfish Fishery Harvest Strategy Framework, Australian Fisheries Management Authority, Canberra.

Andrews, A, Okamoto, K, Satoh, K, Welte, C, Eveson, P, Roupsard, F, Macdonald, J, Lockheed, B & Farley, J 2022, Final report on bomb radiocarbon age validation for yellowfin and bigeye tunas in the WCPO (Project 105) – 2022, information paper WCPFC-SC18-2022/SA-IP-14a, Scientific Committee Eighteenth Regular Session, 10–18 August 2022, online meeting, accessed 5 June 2025.

Basson, M & Dowling, NA 2008, *Development of a robust suite of stock status indicators for the Southern and Western and the Eastern Tuna and Billfish Fisheries*, CSIRO Marine and Atmospheric Sciences, Hobart.

Bravington, M, Nicol, S, Anderson, G, Hampton, J, Castillo-Jordan, C & Macdonal, J 2021, South Pacific albacore close-kin mark-recapture: update on design (Project 100b), information paper WCPFC-SC17-2021/SA-IP-14, Scientific Committee Seventeenth Regular Session, 11–19 August 2021, online meeting, accessed 5 June 2025.

Bromhead, D, Ackerman, J, Graham, S, Wight, M, Wise, B & Findlay, J 2005, *Byproduct: catch, economics and co-occurrence in Australia's pelagic longline fisheries,* Bureau of Rural Sciences, Canberra.

Campbell, RA 2011, *Integrated analysis and assessment supporting implementation of the management and harvest strategy framework within the Eastern Tuna and Billfish Fishery - Compilation of Related Project Papers*, Final report to the Australian Fisheries Management Authority, Canberra.

—— 2012, Aggregate and size-based standardised CPUE indicators for longline target species caught in the south-west Pacific, information paper WCPFC-SC8-2012/SA-IP-13, Scientific Committee, Eighth Regular Session, 7–15 August 2012, Korea, accessed 5 June 2025.

—— 2017, *Data management, assessment and implementation of the harvest strategies for Australia's tropical tuna fisheries - Compilation of Related Project Papers*, Final report for project R2014/0822 to the Australian Fisheries Management Authority, Canberra.

—— 2020, *Data management, assessment and implementation of the harvest strategies for Australia's tropical tuna fisheries - compilation of related project papers*, final report to the Australian Fisheries Management Authority, project R2017/0813, Canberra.

—— & Hobday, A 2003, *Swordfish-environment-seamount-fishery interactions off eastern Australia*, Report to AFMA, Canberra.

—— & Young, J 2010, Determination of effective longline effort in the Eastern Tuna and Billfish Fishery, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Rep. No. 2005/005, Hobart, accessed 5 June 2025.

——, Zhou, S, Hoyle, SD, Hillary, R, Haddon, M & Hall, S 2017, Developing innovative approaches to improve CPUE standardisation for Australia's multispecies pelagic longline fisheries, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Rep. No. 2014-021, Canberra, accessed 5 June 2025.

DCCEEW 2023, Non-detriment findings for CITES-listed shark and ray species harvested in Australian export fisheries, Department of Climate Change, Energy, the Environment and Water, Canberra, accessed 5 June 2025.

Evans, K, Grewe, P, Foster, S, Gunasekera, R & Lansdell, M 2021, Determination of the spatial dynamics and movement rates of the principal target species within the Eastern Tuna and Billfish Fishery and connectivity with the broader western and central Pacific Ocean – beyond tagging, CSIRO Oceans and Atmosphere Research Report to the Fisheries Research and Development Corporation, Project 2016/018, Hobart, accessed 5 June 2025.

——, Kolody, D, Abascal, F, Holdsworth, J & Maru, P 2012, Spatial dynamics of swordfish in the south Pacific Ocean inferred from tagging experiments, information paper WCPFC-SC8-2012/SA-IP-05, Scientific Committee Eighth Regular Session, 7–15 August 2012, Korea, accessed 5 June 2025.

Farley, J, Clear, N, Leroy, B, Davis, T & McPherson, G 2003, Age and growth of bigeye tuna (*Thunnus obesus*) from the eastern and western AFZ, CSIRO Marine Final Report to the Fisheries Research and Development Corporation, Project 2000/100, Hobart, accessed 5 June 2025.

——, Williams, AJ, Davies, CR, Clear, NP, Eveson, JP, Hoyle, S & Nicol, SJ 2012, Population biology of albacore tuna in the Australian region, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 2009/012, Hobart, accessed 5 June 2025.

——, Clear, NP, Kolody, D, Krusic-Golub, K, Eveson, P & Young, J 2016, Determination of swordfish growth and maturity relevant to the southwest Pacific stock, Final report to the Australian Fisheries Management Authority, Project R-2014/ 821, Canberra, accessed 5 June 2025.

——, Eveson, K, Krusic-Golub, K, Sanchez, C, Roupsard, F, McKechie, S, Nicol, S, Leroy, B, Smith, N & Chang, S-K 2017, Project 35: Age, growth and maturity of bigeye tuna in the western and central Pacific Ocean, working paper WCPFC-SC13-2017/SA-WP-01-Rev 1, Scientific Committee Thirteenth Regular Session, 7–17 August 2017, Rarotonga, Cook Islands, accessed 5 June 2025.

——, Krusic-Golub, K, Eveson, K, Clear, N, Roupsard, F, Sanchez, C, Nicol, S & Hampton, J 2020, Age and growth of yellowfin and bigeye tuna in the western and central Pacific Ocean from otoliths, working paper WCPFC-SC16-2020/SA-WP-02, Scientific Committee Sixteenth Regular Session, 11–20 August 2020, online meeting, accessed 5 June 2025.

Ghosn, D, Collins, D, Baiada, C & Steffe, A 2012, Catch per unit effort and size composition of striped marlin caught by recreational fisheries in southeast Australian waters, information paper WCPFC-SC8-2012/SA-IP-7, Scientific Committee, Eighth Regular Session, 7–15 August 2012, Korea, accessed 5 June 2025.

Gunn, J, Hampton, J & Evans, K 2005, Migration and habitat preferences of bigeye tuna, *Thunnus obesus*, on the east coast of Australia—a project using archival and conventional tags to determine

key uncertainties in the species stock structure, movement dynamics and CPUE trends, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 1999/109, Hobart, accessed 5 June.

Hartog, JR, Eveson, JP, Moore, T, Scales, K, Patterson, T, Baylis, S, Sloyan, B, Williams A, Spillman, C, Hobday, AJ 2023, Investigate oceanographic and environmental factors impacting on the ETBF, CSIRO Oceans and Atmosphere Final Report to the Fisheries Research and Development Corporation, Project 2017/004, Hobart, accessed 5 June 2025.

Hillary, R 2020, Management strategy evaluation of the broadbill swordfish: ETBF harvest strategies, CSIRO Marine and Atmospheric Research Report to the Australian Fisheries Management Authority, Canberra.

——, Preece, A, Kolody, D, Evans, K, Davies, C 2016, Development of an approach to harvest strategy management of internationally managed multi-species fisheries, Final report for project R2013/203 to the Fisheries Research and Development Corporation, Canberra, accessed 5 June 2024.

Keller, KR & Davie, P 2009, *Population biology and habitat preferences of striped marlin, Kajikia audax, in the southwest Pacific Ocean*, report for New South Wales Fisheries and the Australian Fisheries Management Authority, Canberra.

Kolody, D, Campbell, R & Davies, N 2008, A MULTIFAN-CL assessment of south-west Pacific swordfish, working paper WCPFC-SC4-2008/SA-WP-6, Scientific Committee Fourth Regular Session 11–22 August 2008, Papua New Guinea, accessed 5 June 2025.

——, Preece, AL, Davies, CR, Hartog, JR & Dowling, NA 2010, Integrated evaluation of management strategies for tropical multispecies long-line fisheries, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 2007/017, Hobart, accessed 5 June 2025.

Langley, A, Molony, B, Bromhead, D, Yokawa, K & Wise, B 2006, Stock assessment of striped marlin (*Tetrapturus audax*) in the south west Pacific Ocean, working paper WCPFC-SC2-2006/SA WP-6, Scientific Committee Second Regular Session 7–18 August 2006, Philippines, accessed 5 June 2025.

Piasente, M, Stanley, B, Timmiss, T, McElderry, H, Pria, M, & Dyas, M 2012, Electronic onboard monitoring pilot project for the Eastern Tuna and Billfish Fishery, FRDC Project 2009/048, Australian Fisheries Management Authority, Canberra, accessed 5 June 2025.

Preece, AL 2021, Management strategy evaluation for striped marlin, CSIRO Oceans and Atmosphere Research Report to the Australian Fisheries Management Authority, TTRAG32, Canberra, accessed 5 June 2025.

——, Campbell, R & Hillary, R 2012, *Investigation of possible changes in fishing strategies under quota management and implication for the ETBF harvest strategy*, CSIRO Marine and Atmospheric Research Report to the Australian Fisheries Management Authority, Canberra.

Robertson, G & van den Hoff, J 2010, Static water sink rate trials to improve understanding of sink rates estimated at sea third meeting of the Seabird Bycatch Working Group, SBWG-3 Doc 31,

Agreement on the Conservation of Albatrosses and Petrels, 8–9 April 2010, Mara del Plata, Argentina, accessed 5 June 2025.

——, Candy, SG & Wienecke, B 2010a, Effect of line shooter and mainline tension on the sink rates of pelagic longlines and implications for seabird interactions, *Aquatic Conservation: Marine Freshwater Ecosystems,* vol. 20, pp. 419–427, DOI: 10.1002/aqc.1100, accessed 5 June 2025.

——, Candy, SG, Wienecke, B & Lawton, K 2010b, Experimental determinations of factors affecting the sink rates of baited hooks to minimize seabird mortality in pelagic longline fisheries, *Aquatic Conservation: Marine Freshwater Ecosystems*, vol. 20, pp. 632–643, DOI: 10.1002/aqc.1140, accessd 5 June 2025.

——, Candy, SC & Hall, S 2013, New branch line weighting regimes to reduce the risk of seabird mortality in pelagic longline fisheries without affecting fish catch, *Aquatic Conservation: Marine Freshwater Ecosystems,* vol. 23, pp. 885–900, DOI: 10.1002/aqc.2346, accessed 5 June 2025.

—— & Candy, SC 2013, Does propeller turbulence affect the sink rate of baited hooks and their availability to seabirds in pelagic longline fisheries?, *Aquatic Conservation: Marine Freshwater Ecosystems,* vol. 24, pp. 179–191, DOI: 10.1002/aqc.2373, accessed 5 June 2025.

——, Ashworth, Phillip, Ashworth, Peter, Carlyle I & Candy SG 2015, The development and operational testing of an underwater bait setting system to prevent the mortality of albatrosses and petrels in pelagic longline fisheries, *Open Journal of Marine Science* vol. 5, pp. 1-12, DOI: 10.4236/ojms.2015.51001, accessed 5 June 2025.

Robins, CM, Bradshaw, EJ & Kreutz, DC 2007, *Marine turtle mitigation in Australia's pelagic longline fisheries*, Fisheries Research and Development Corporation Final Report 2003/013, Canberra, accessed 5 June 2025.

Scales, KL, Moore, TS, Sloyan, B, Spillman, CM, Eveson, JP, Patterson, TA, Williams, AJ, Hobday, AJ & Hartog, JR 2023, Forecast-ready models to support fisheries' adaptation to global variability and change, *Fisheries Oceanography*, vol. 32(4), pp. 405–417, DOI: 10.1111/fog.12636, accessed 5 June 2025.

Sporcic, M, Hobday, A, Bulman, C, Hartog, J & Fuller, M 2019, *Ecological risk assessment for the effects of fishing report for the Eastern Tuna and Billfish Fishery: longline sub-fishery, data to 2015*, report for the AFMA, Canberra, accessed 5 June 2025.

——,Dell, J, Fuller, M, Gerber, C & Roos, M 2025, *Ecological risk assessment for the effects of fishing report for the Eastern Tuna and Billfish Fishery: pelagic longline sub-fishery, data to 2018–22*, report for the AFMA, Canberra, accessed 5 June 2025.

Ward, P, Epe, S, Kreutz, D, Lawrence, E, Robins, C & Sands, A 2008, *Implementation of bycatch mitigation measures in Australia's pelagic longline fisheries: the effects of circle hooks on target and non-target catches*, Final Report to the Natural Heritage Trust, Bureau of Rural Sciences, Canberra.

Webb, H, Hobday, A, Dowdney, J, Bulman, C, Sporcic, M, Smith, T, Stobutzki, I, Fuller, M & Furlani, D 2007, *Ecological risk assessment for the effects of fishing: Eastern Tuna & Billfish Fishery: longline sub-fishery*, report for the AFMA, Canberra.

Wilcox, C 2012, Defining regional connections in southwestern Pacific broadbill swordfish, FRDC 2007/036, draft final report, Canberra, accessed 5 June 2025.

——, Dowling, N & Pascoe, S 2011, Predicting the impact of hook decrementation on the distribution of fishing effort in the ETBF CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 2008/028, Hobart, accessed 5 June 2025.

Williams, AJ, Tremblay-Boyer, L, Cooper, S, Hillary, R, Preece, A, Dell, J, & Hill, N 2023, *Data management, assessment & implementation of harvest strategies for Australia's tropical tuna and billfish fisheries*, CSIRO Oceans and Atmosphere Research Report to the Australian Fisheries Management Authority, Project 2019/0847, Hobart.

Young, J & Drake, A 2002, Reproductive dynamics of broadbill swordfish (*Xiphias gladius*) in the domestic longline fishery off eastern Australia, FRDC 1999/108 Final Report, Canberra, accessed 5 June 2025.

—— & Drake, A 2004, Age and growth of broadbill swordfish from Australian waters, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 2001/014, Hobart, accessed 5 June 2025.

——, Lansdell, MJ, Hobday, AJ, Dambacher, JM, Griffiths, SP, Cooper, S, Kloser, R, Nichols, PD & Revill, A 2009, Determining ecological effects of longline fishing in the Eastern Tuna and Billfish Fishery, CSIRO Marine and Atmospheric Research Report to the Fisheries Research and Development Corporation, Project 2004/063, Hobart, 5 June 2025.

Zhou, S, Smith, T & Fuller, M 2007, Rapid quantitative risk assessment for fish species in selected Commonwealth fisheries, report to the AFMA, Canberra, accessed 5 June 2025.