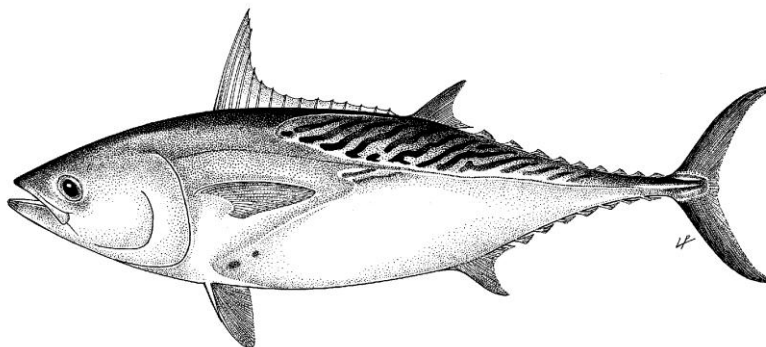


REVIEW OF FISHERIES STATISTICAL DATA AVAILABLE FOR INDIAN OCEAN KAWAKAWA

Author: [IOTC Secretariat](#)



Introduction

Kawakawa catches, mainly from small-scale gillnet fisheries, have generally increased in recent years, peaking at 160 thousand tonnes in 2024, although global catch declined that year. Data on distribution and size composition remain limited due to the constraints of small-scale fisheries.

The overarching objective of the paper is to provide participants at the 16th Session of the IOTC Working Party on Neritic Tunas ([WPNT16](#)) with a review of the status of fisheries information available on kawakawa (*Euthynnus affinis*) ([Risso 1810](#)) occurring in the Indian Ocean. The document describes the temporal and spatial trends in retained catches at global and ocean-basin scale and the main characteristics of the fisheries catching kawakawa in the Indian Ocean, as well as providing an assessment of the reporting quality of the data sets available at the IOTC Secretariat. A full description of the data sources, processing steps to generate the data sets, and key for reporting quality scores is available in Secretariat ([2026](#)).

Global catches

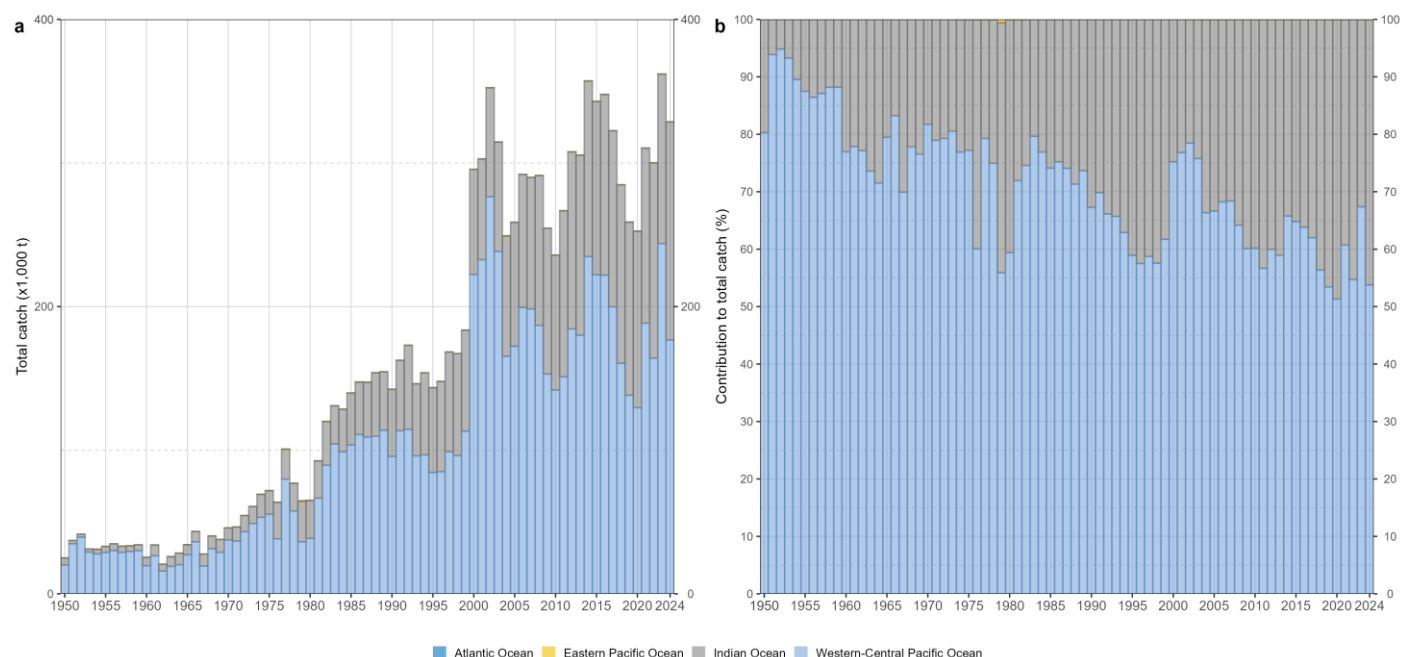


Figure 1: Annual time series of (a) cumulative retained catches (metric tonnes; t) and (b) contribution to the total retained catches (percentage; %) of kawakawa by ocean basin for the period 1950-2021. Source: [FAO global capture production database](#)

Indian Ocean catches & discards

Historical trends (1950-2024)

Table 1: Mean annual retained catches (metric tonnes; t) of kawakawa by decade and fishery for the period 1950-2019. The background intensity colour of each cell is directly proportional to the catch level.

Fishery	1950s	1960s	1970s	1980s	1990s	2000s	2010s
Purse seine Other	130	418	2,080	7,259	13,020	17,344	24,223
Longline Other	0	0	0	24	706	1,106	549
Longline Fresh	0	0	0	0	0	1	20
Longline Deep-freezing	0	0	0	37	0	0	104
Line Coastal longline	241	403	1,100	1,846	2,862	3,917	5,348
Line Trolling	827	1,820	3,497	5,399	8,373	8,693	6,602
Line Handline	116	148	676	1,168	1,514	2,355	6,245
Baitboat	92	303	592	1,129	2,088	1,926	1,459
Gillnet	2,575	4,504	9,712	17,449	28,150	47,026	70,743
Other	237	471	855	1,551	2,560	3,547	4,864
Total	4,217	8,067	18,512	35,862	59,274	85,916	120,157

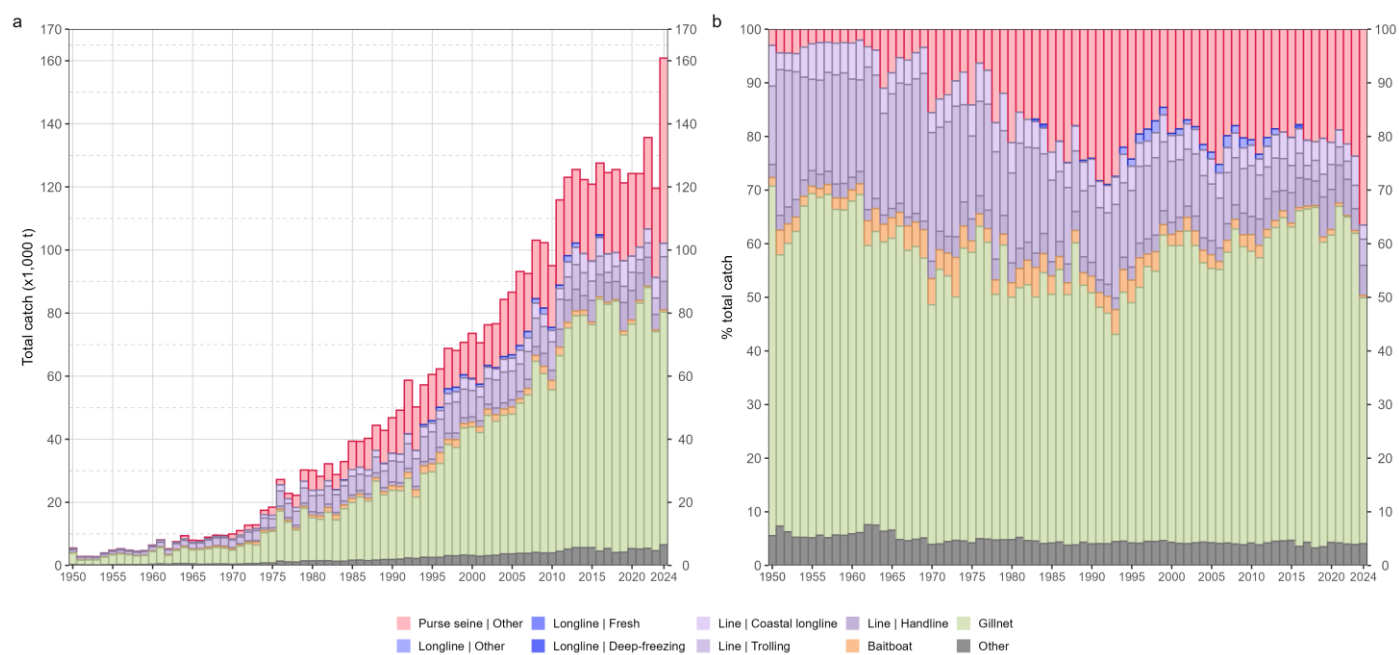


Figure 2: Annual time series of (a) cumulative retained catches (metric tonnes; t) and (b) cumulative contribution to the total retained catches (percentage; %) of kawakawa by fishery for the period 1950-2024. Data source: [best scientific estimates of retained catches](#)

Table 2: Annual retained catches (metric tonnes; t) of kawakawa by fishery for the period 2015-2024. The background intensity colour of each cell is directly proportional to the catch level.

Fishery	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Purse seine Other	24,384	22,716	25,787	26,343	24,704	26,225	23,342	29,038	28,329	58,747
Longline Fresh	52	37	33	27	22	21	18	12	13	12
Longline Deep-freezing	36	954	34	6	15	8	8	5	5	16
Line Coastal longline	6,258	5,821	5,812	4,338	8,054	5,080	3,915	4,361	6,473	4,204
Line Trolling	6,126	5,833	3,181	4,822	5,144	5,798	4,214	4,575	5,218	7,836
Line Handline	6,856	7,071	6,264	5,742	9,065	9,303	8,781	9,147	4,867	9,013
Baitboat	867	742	667	449	1,168	1,297	774	395	596	727
Gillnet	70,641	79,854	77,407	79,690	68,902	71,187	77,964	82,710	69,408	73,764
Other	5,638	4,525	5,367	4,095	4,206	5,334	5,208	5,416	4,660	6,522
Total	120,858	127,551	124,551	125,510	121,281	124,254	124,224	135,660	119,569	160,841

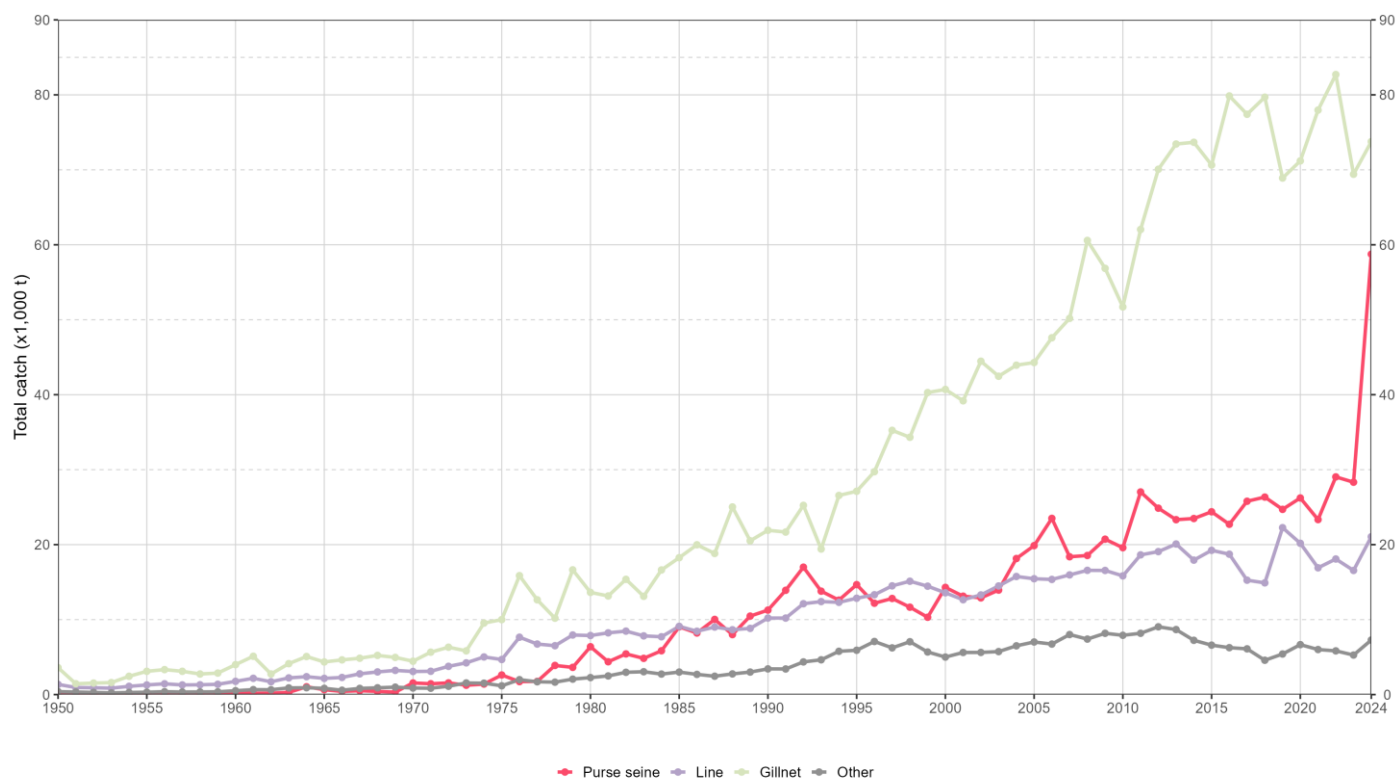


Figure 3: Annual time series of retained catches (metric tonnes; t) of kawakawa by fishery group for the period 1950-2024. Data source: [best scientific estimates of retained catches](#)

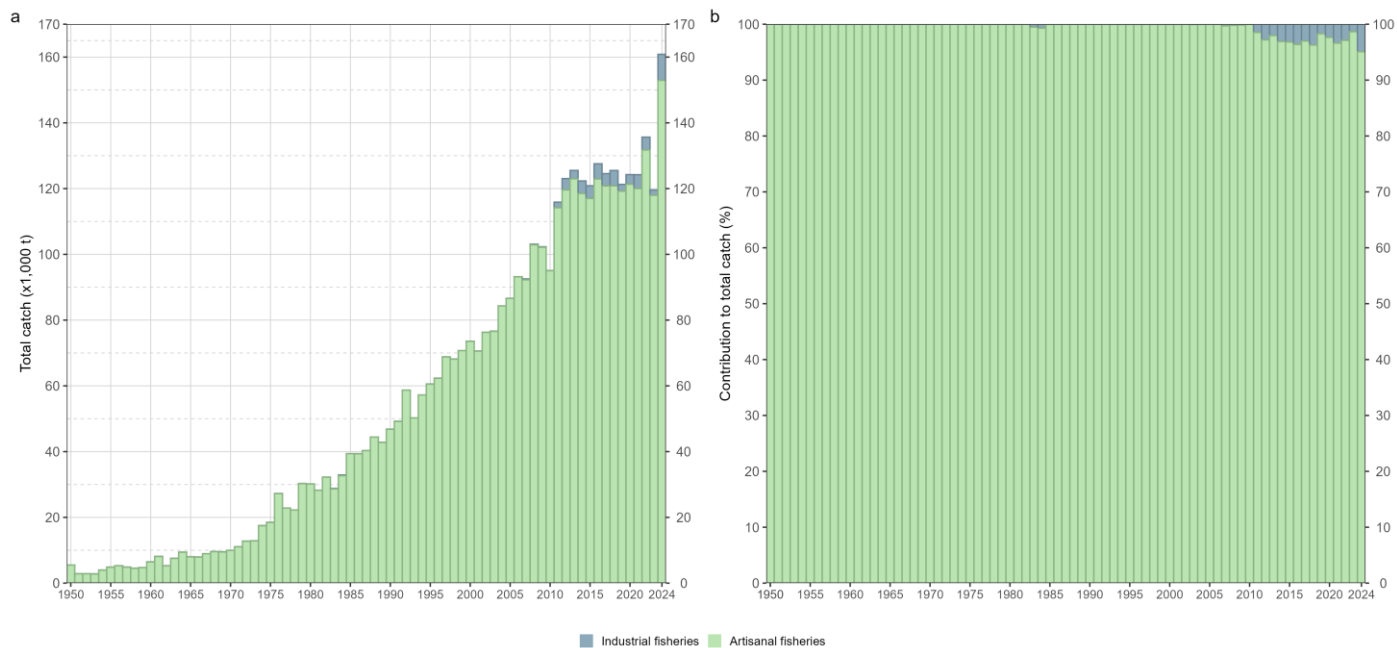


Figure 4: Annual time series of (a) cumulative retained catches (metric tonnes; t) and (b) cumulative contribution to the total retained catches (percentage; %) of kawakawa by type of fishery for the period 1950-2024. Data source: [best scientific estimates of retained catches](#)

Recent fishery features (2020-2024)

Table 3: Mean annual retained catches (metric tonnes; t) of kawakawa by fishery between 2020 and 2024.

Fishery	Fishery code	Catch	Percentage
Gillnet	GN	75,007	56.4
Purse seine Other	PSOT	33,136	24.9
Line Handline	LIH	8,222	6.2
Line Trolling	LIT	5,528	4.2
Other	OT	5,428	4.1
Line Coastal longline	LIC	4,807	3.6
Baitboat	BB	758	0.6
Longline Fresh	LLF	15	0.0
Longline Deep-freezing	LLD	8	0.0

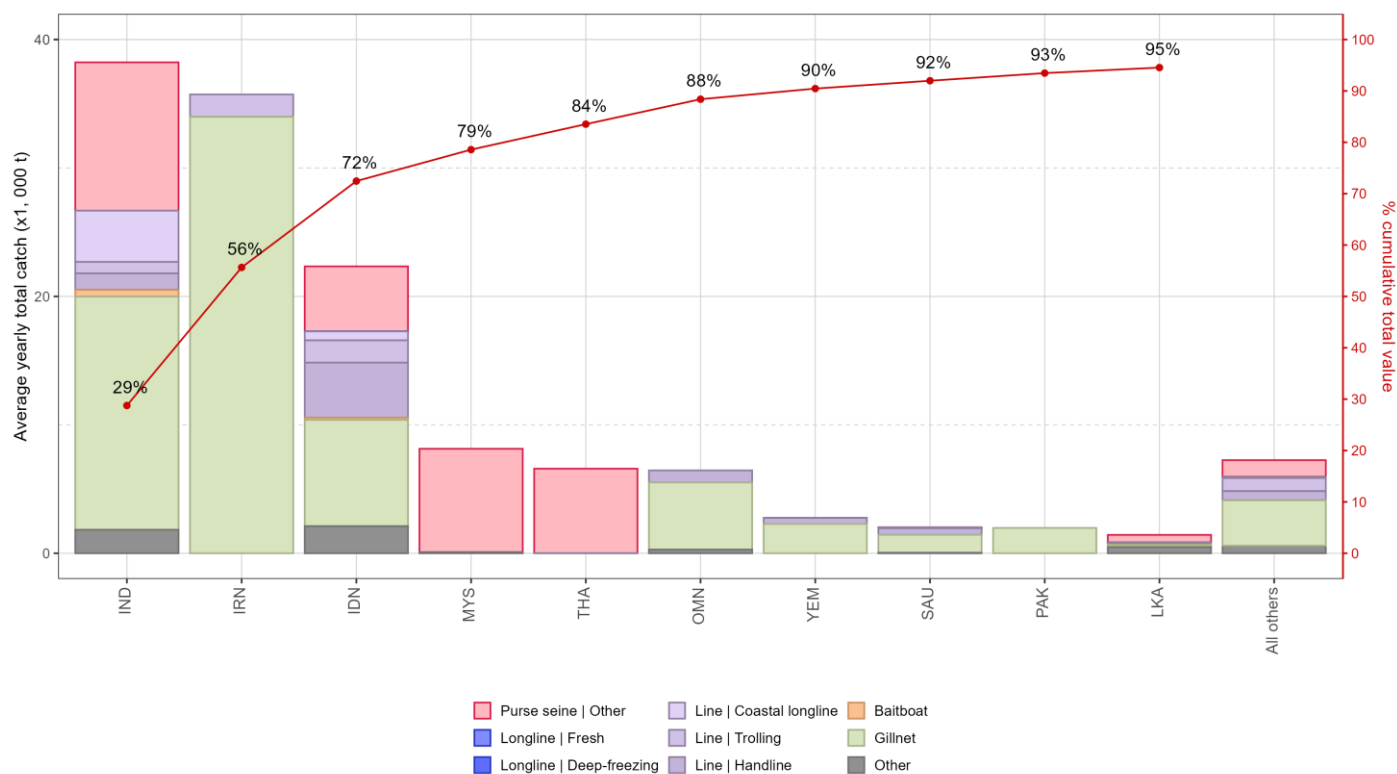


Figure 5: Mean annual retained catches (metric tonnes; t) of kawakawa by fleet and fishery between 2020 and 2024, with indication of cumulative contribution (percentage; %) of catches by fleet. Data source: [best scientific estimates of retained catches](#)

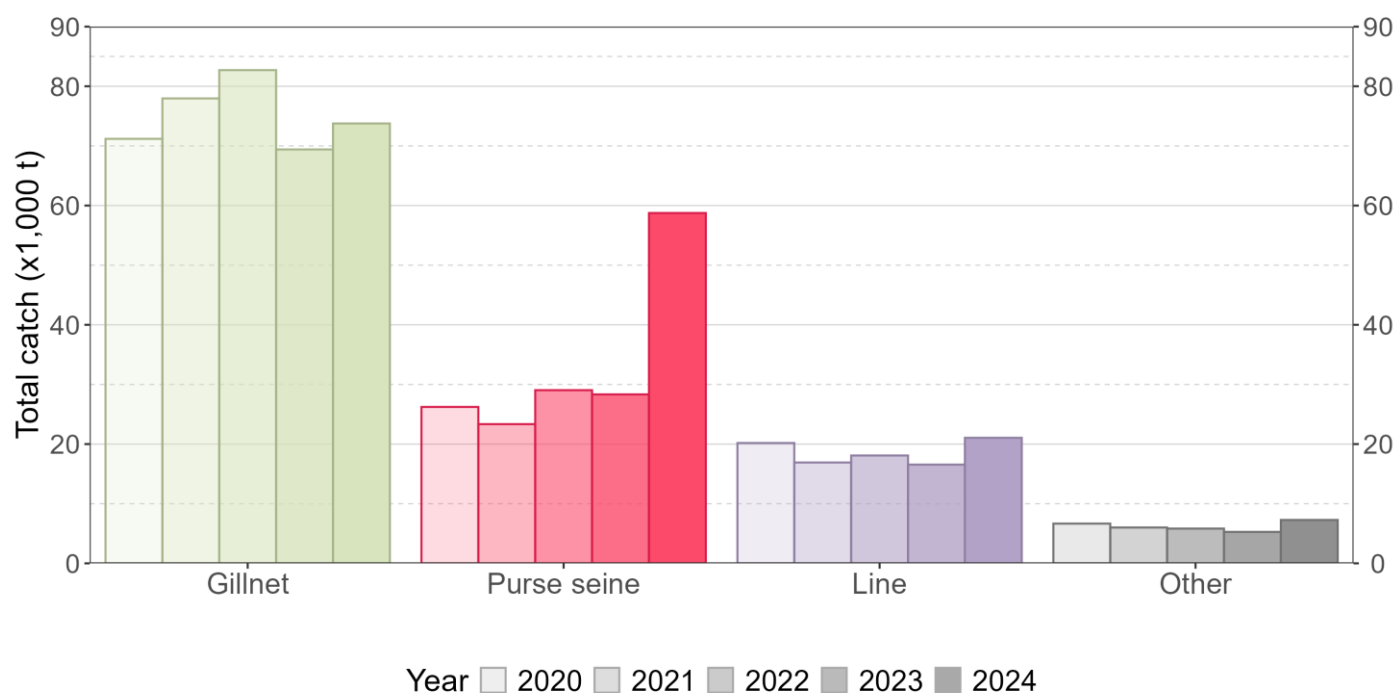


Figure 6: Annual trends in retained catch (metric tonnes; t) of kawakawa by fishery group between 2020 and 2024. Data source: [best scientific estimates of retained catches](#)

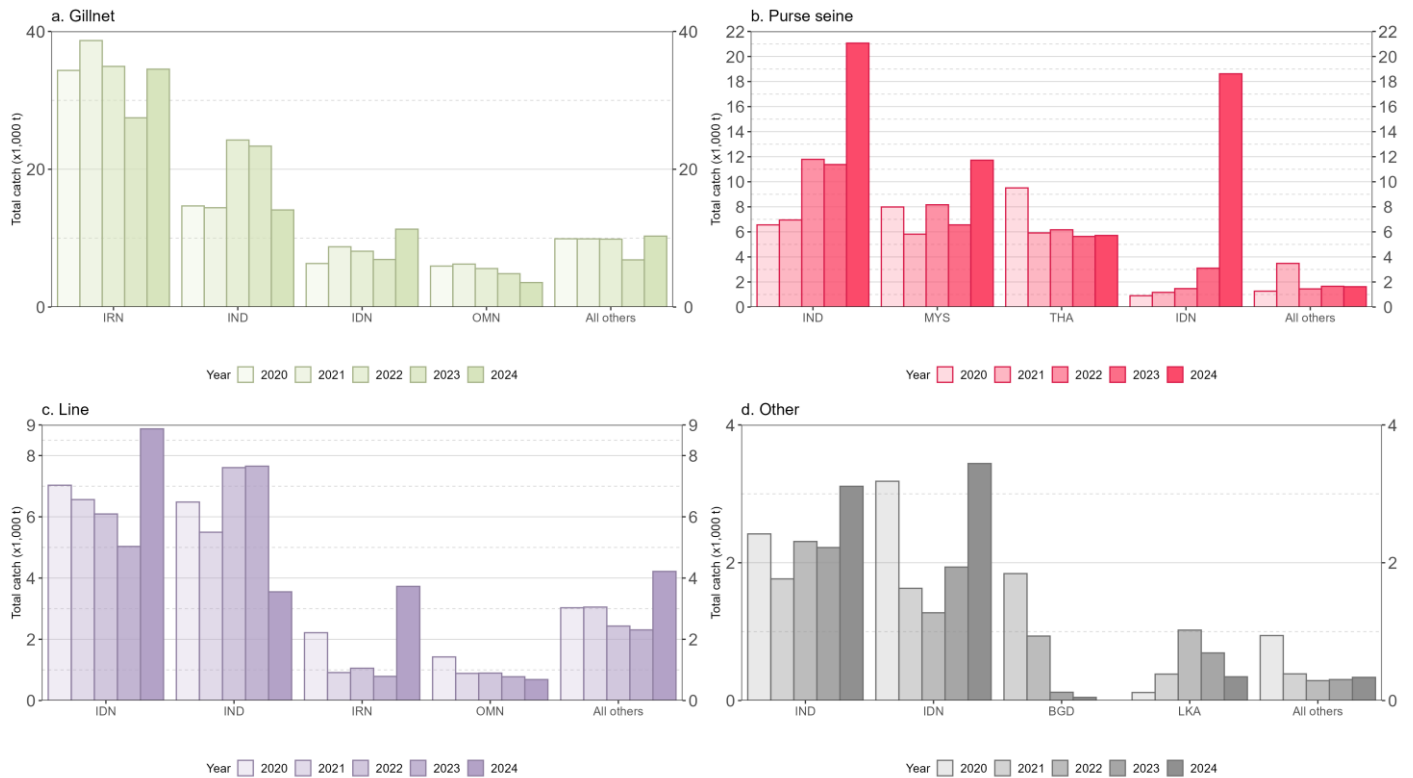


Figure 7: Annual trends in retained catch (metric tonnes; t) of kawakawa by fishery group and fleet between 2020 and 2024. Data source: [best scientific estimates of retained catches](#)

Changes from [WPNT13](#)

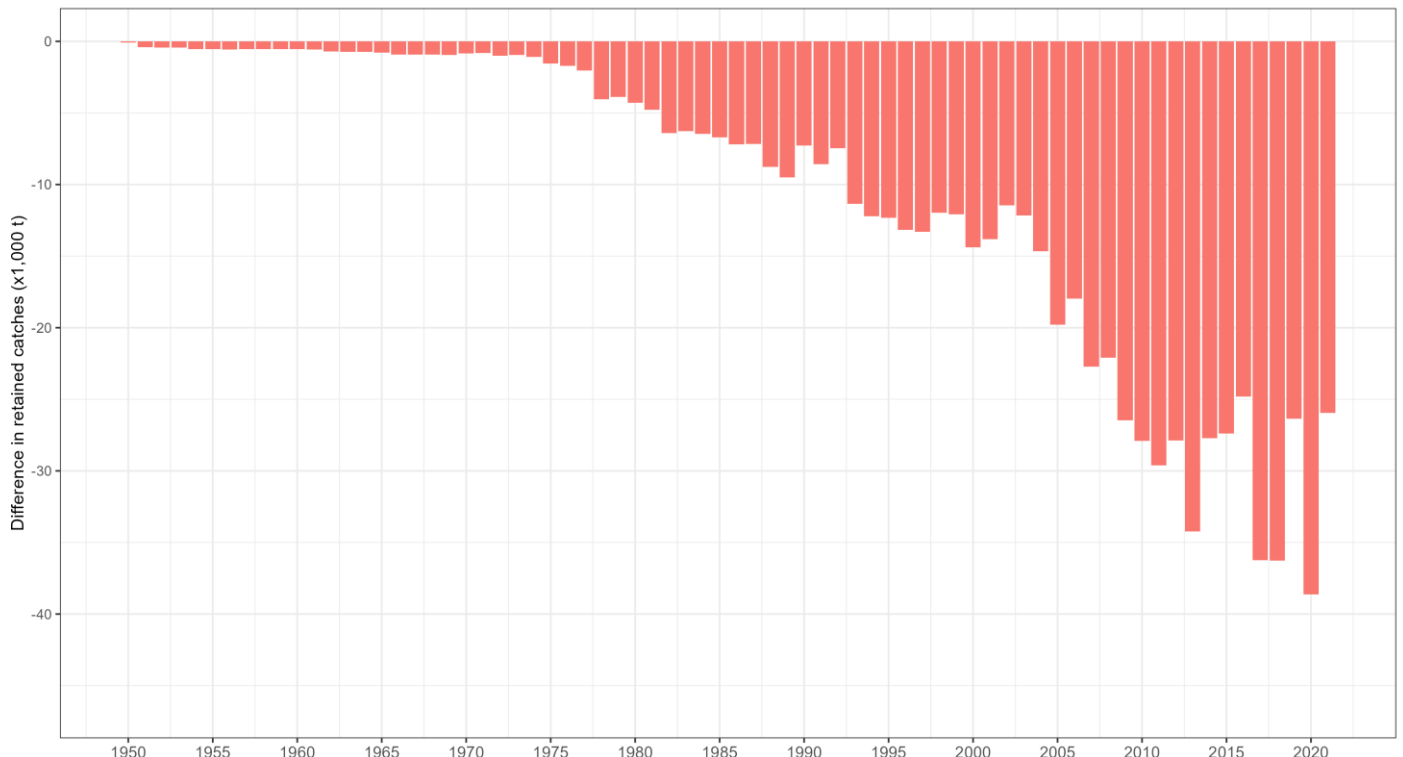


Figure 8: Differences in the annual retained catches (metric tonnes; t) of bullet tuna available between the current assessment meeting and last assessment meeting of kawakawa (WPNT13 held in July 2023). Details by year, fleet, fishery group, and Indian Ocean major area given in [Appendix II](#)

Uncertainties in retained catch data

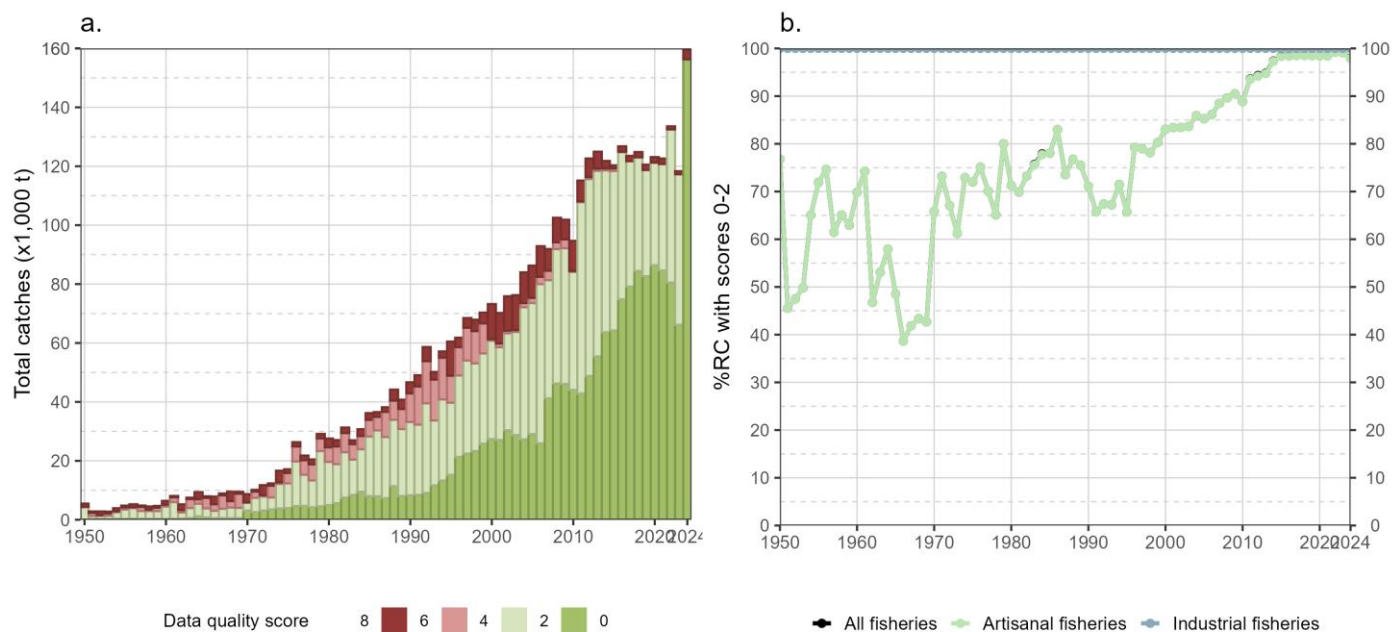


Figure 9: Annual time series of (a) cumulative retained catches (metric tonnes; t) estimated by quality score and (b) contribution of retained catches fully or partially reported to the IOTC Secretariat to all retained catches (percentage; %) of kawakawa for all fisheries and by type of fishery, for the period 1950-2024

Spatial distribution of catch

Geo-references catches

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

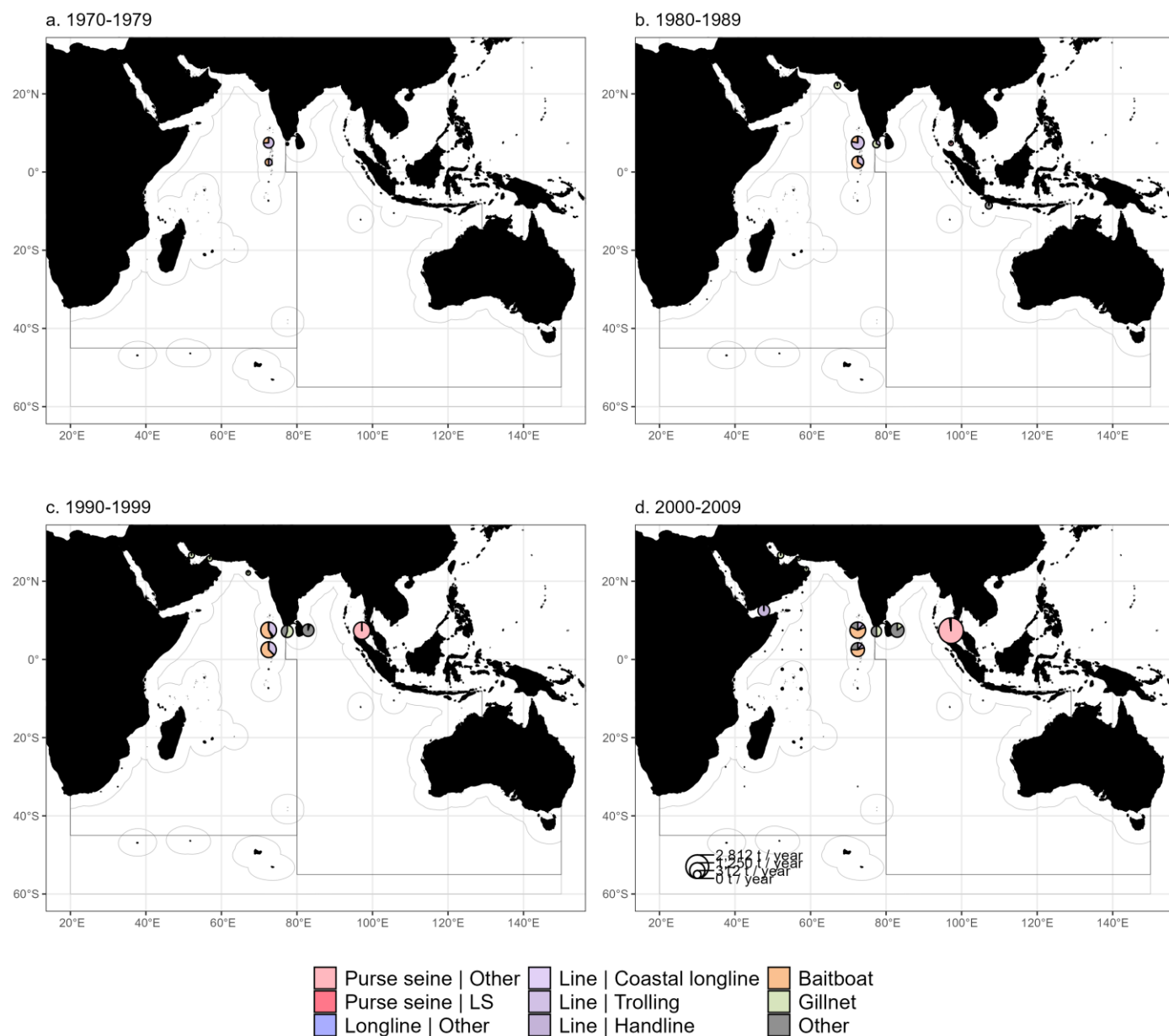


Figure 10: Mean annual time-area catches (metric tonnes; t) of kawakawa, by decade, 5-degree grid area, and fishery. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [time-area catches](#)

Geo-referenced catches by fishery, last years (2020-2024) and decade (2010-2019)

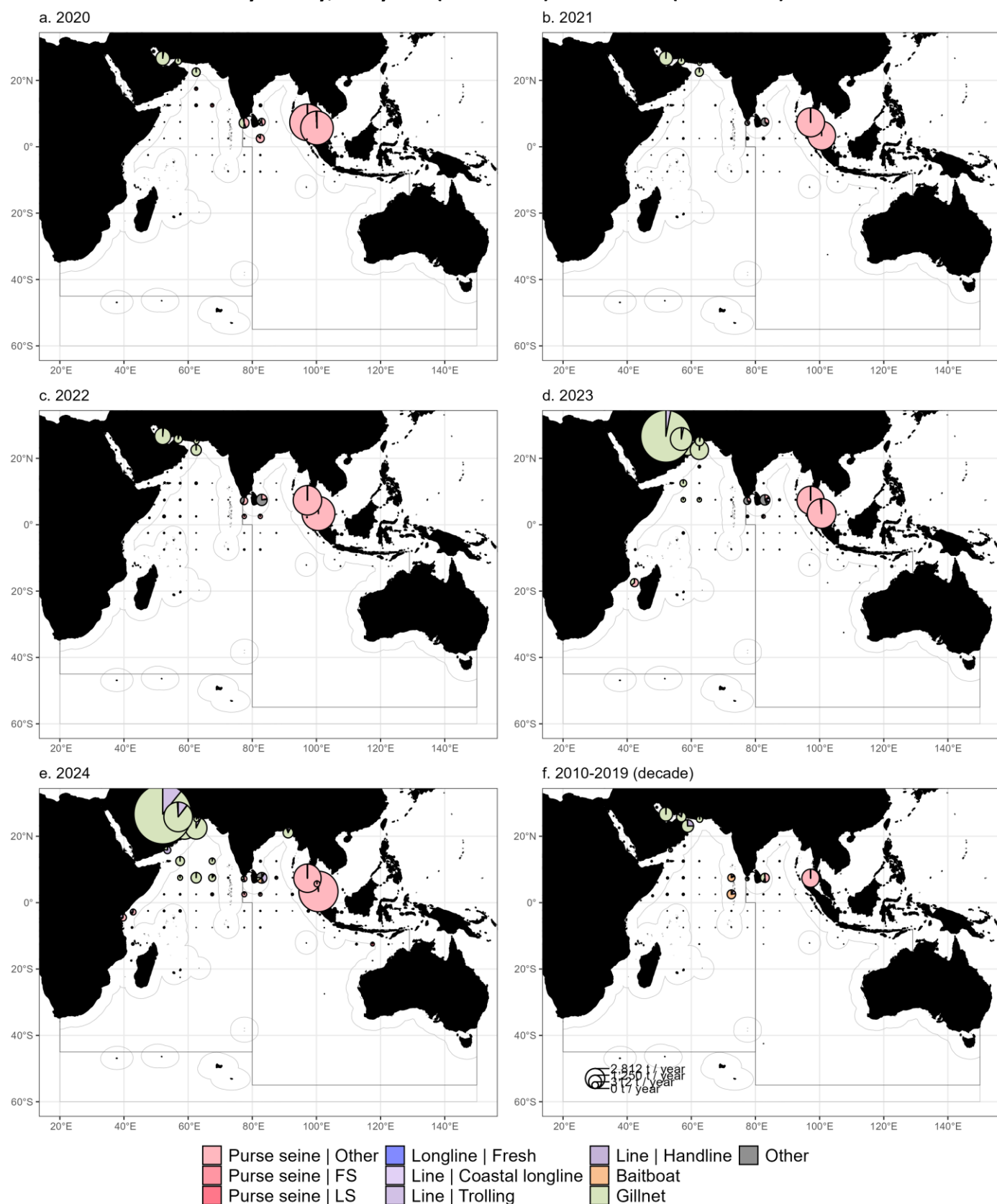


Figure 11: Mean annual time-area catches (metric tonnes; t) of kawakawa, by year and decade, 5-degree grid area, and fishery. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [time-area catches](#)

Domestic catches within areas under national jurisdiction (2020-2024)

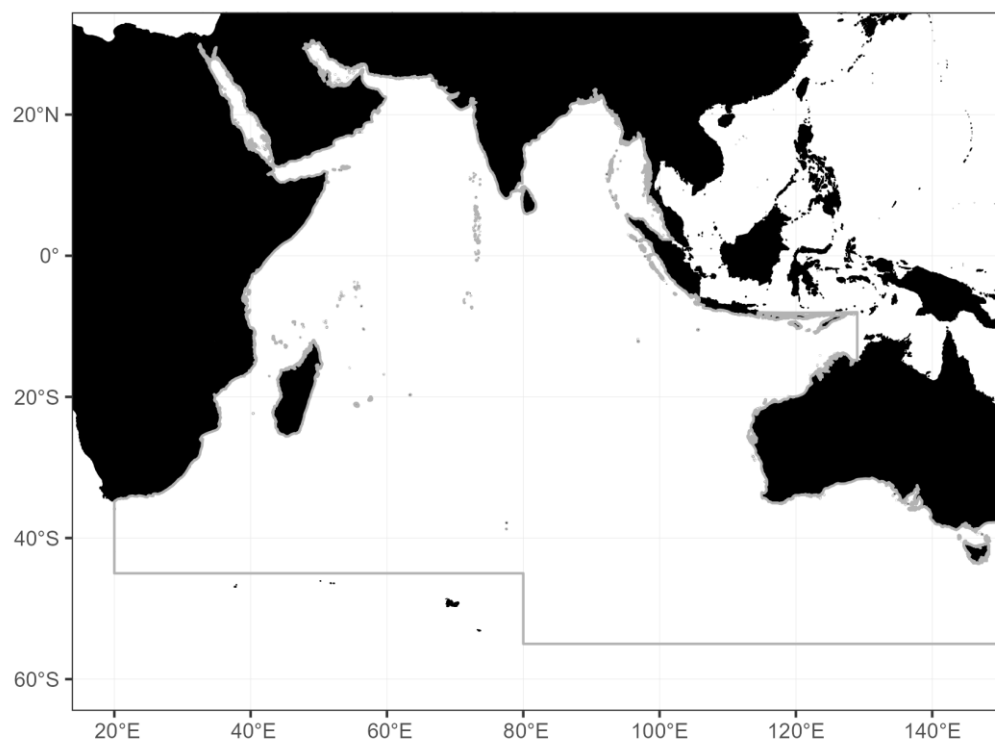


Figure 12: Mean annual density of catch ($t\ km^{-2}$) of kawakawa reported for domestic fisheries operating in areas under national jurisdiction of IOTC coastal states between 2020 and 2024. Data source: [best scientific estimates of retained catches](#)

Uncertainties in geo-referenced catch and effort data

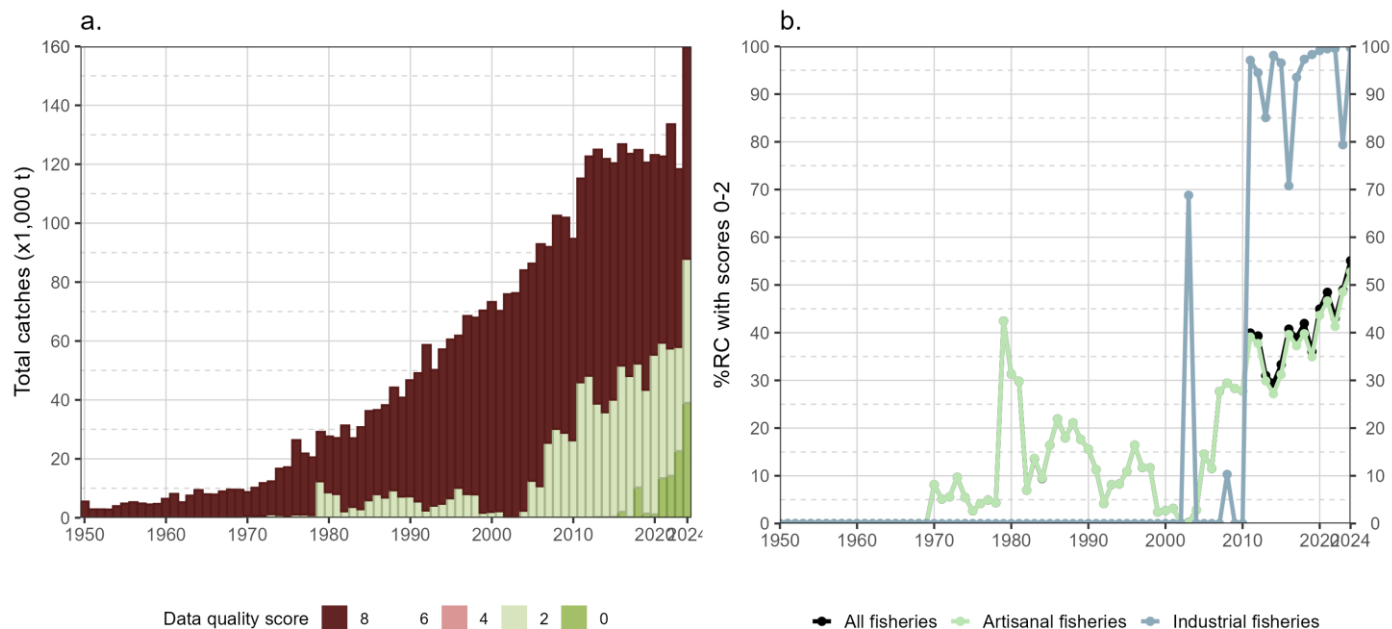


Figure 13: Annual time series of (a) cumulative retained catches (metric tonnes; t) estimated by quality score and (b) contribution of retained catches (percentage; %) with corresponding geo-referenced catch and effort data reported to the IOTC Secretariat in agreement with the requirements of Res. 15/02) to all retained catches of kawakawa for all fisheries and by type of fishery, for the period 1950-2024

Size composition of the catch

Samples availability

By fishery group

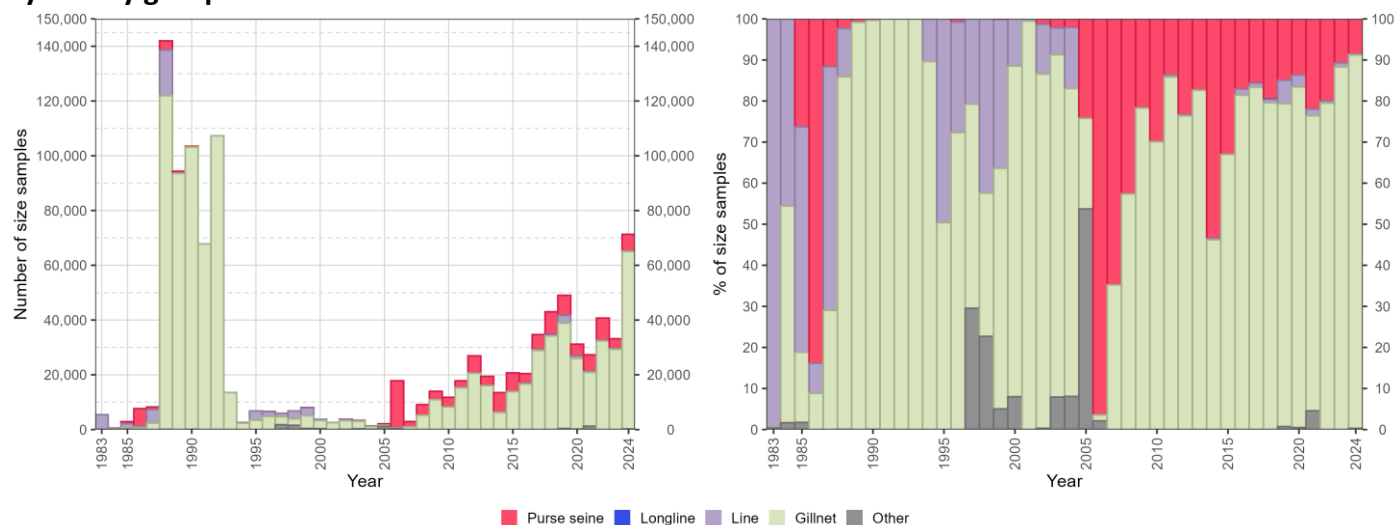


Figure 14: Availability of size-frequency data for kawakawa as (left) absolute and (right) relative number of samples per year and fishery group. Data source: [standardized size-frequency dataset](#)

Purse seine fisheries

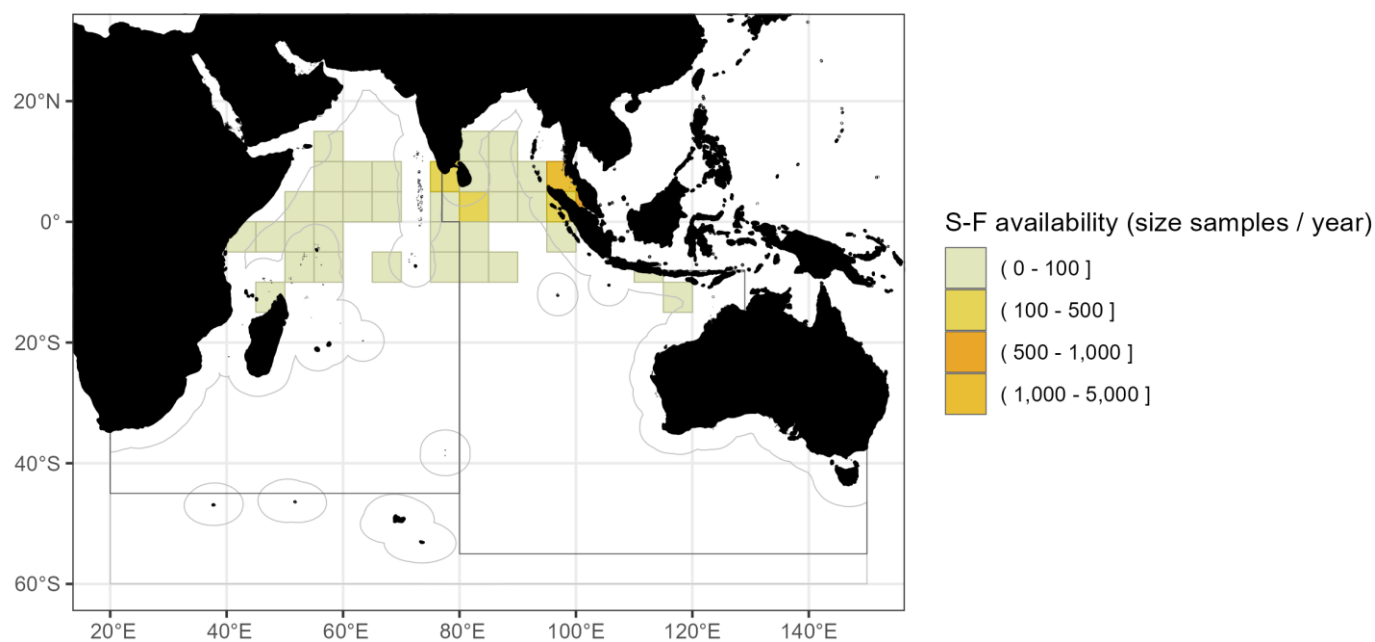


Figure 15: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in purse seine fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

Gillnet fisheries

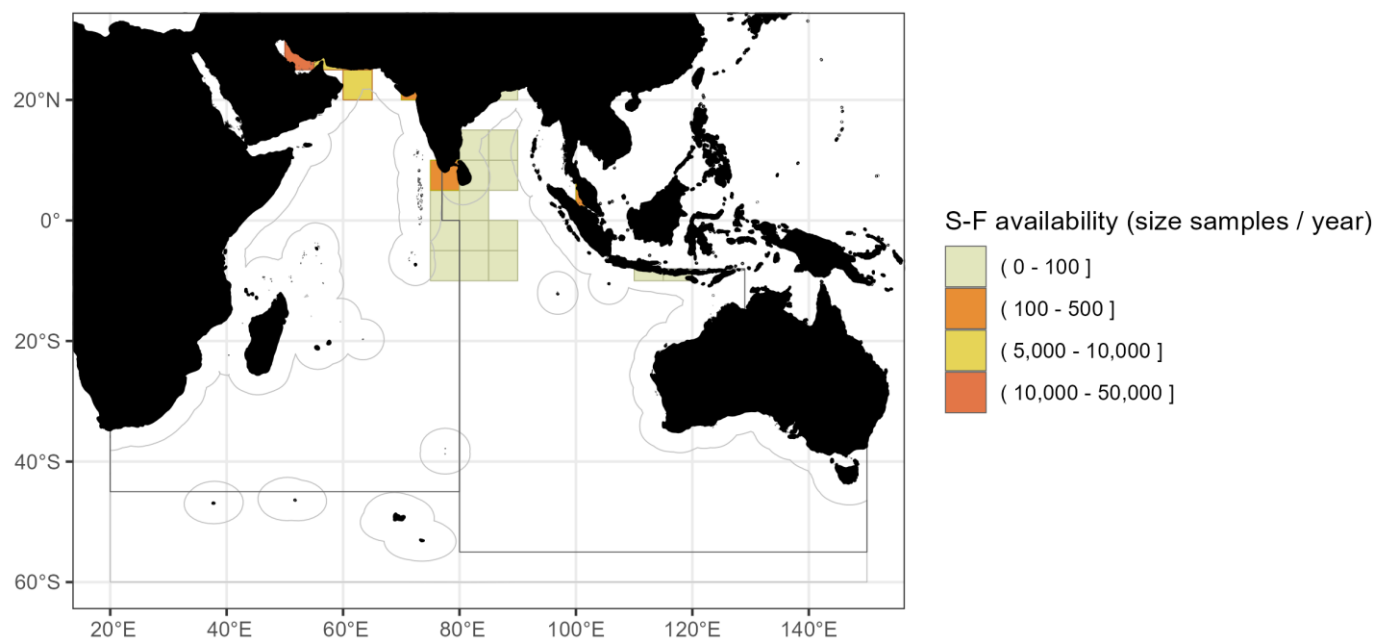


Figure 16: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in gillnet fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

Line fisheries

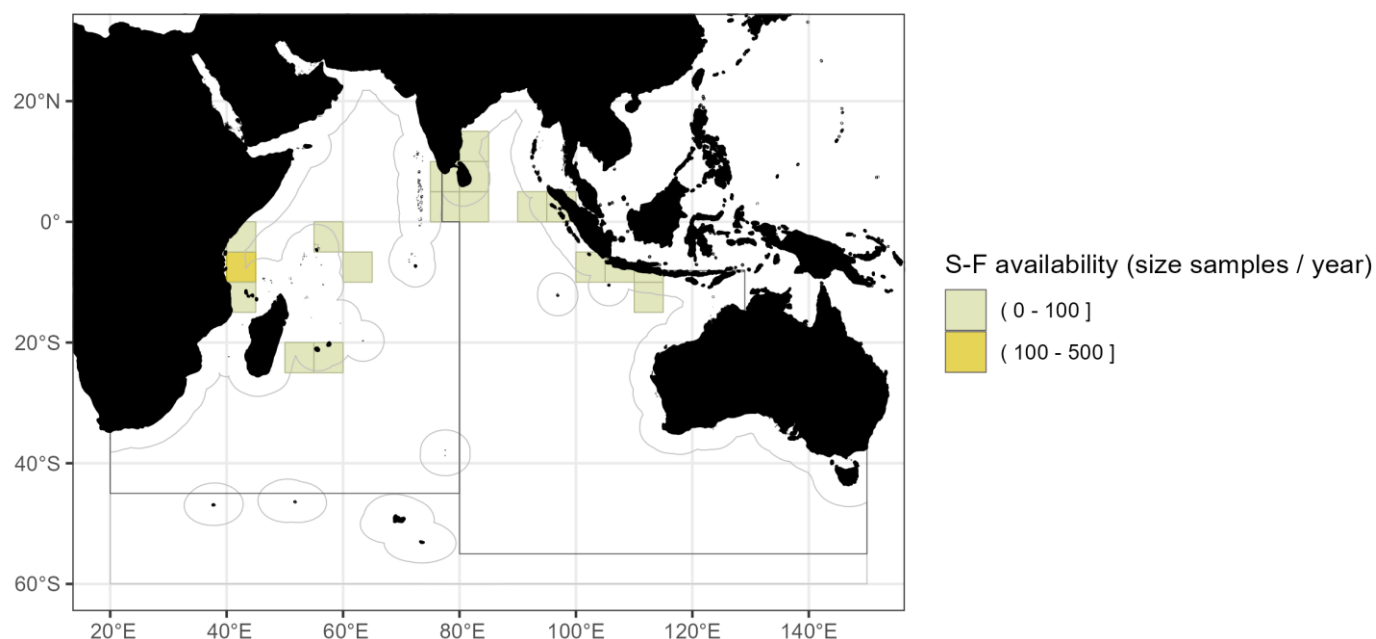


Figure 17: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in line fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

Other fisheries

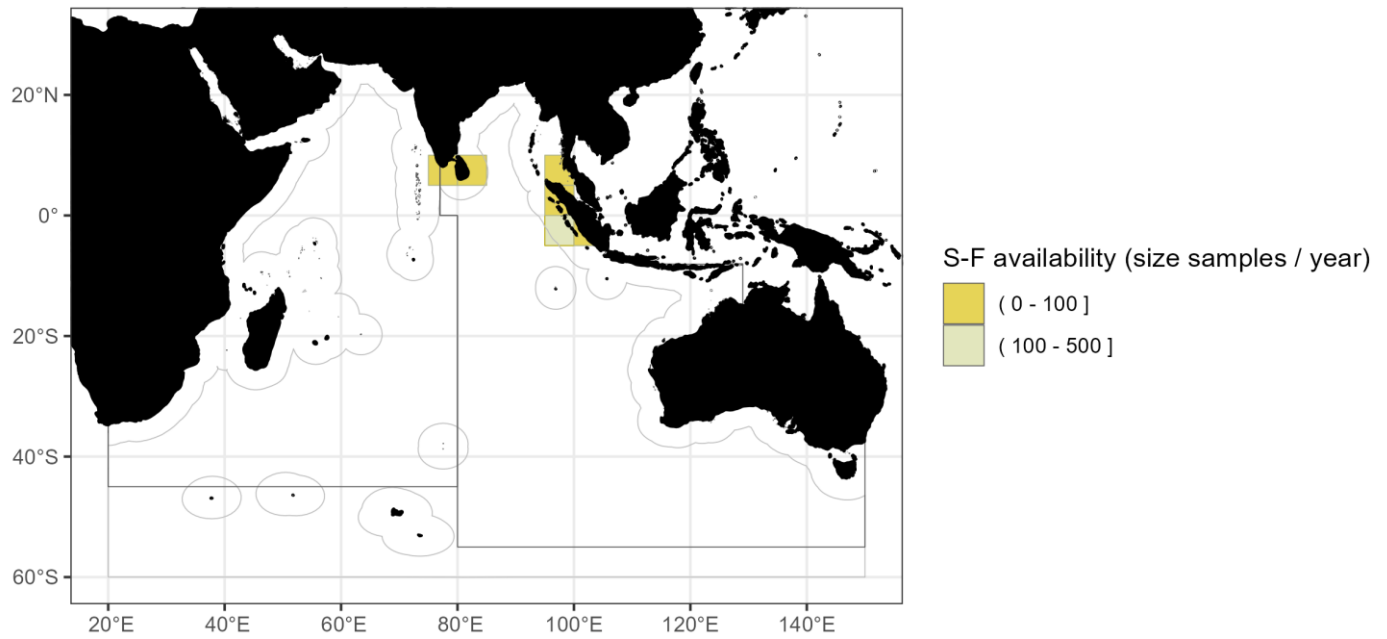


Figure 18: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in 'other' fisheries (beach seine, liftnet, unclassified) during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

By fishery

Purse seine fisheries

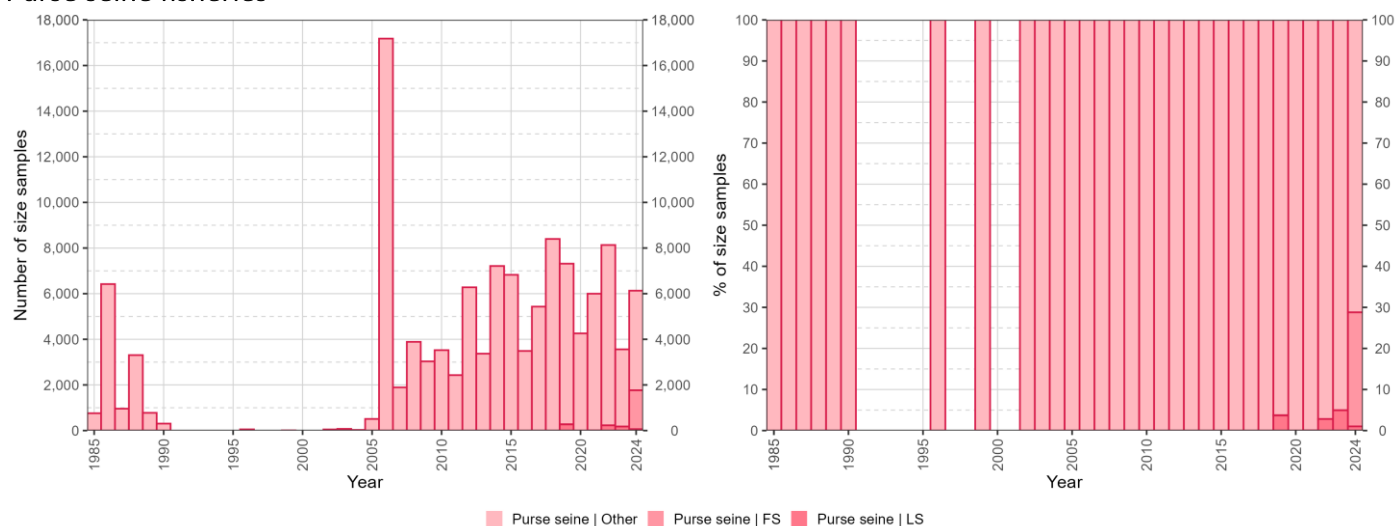


Figure 19: Availability of size-frequency data for kawakawa as (left) absolute and (b) relative number of samples per year and type of purse seine fishery. Data source: [standardized size-frequency dataset](#)

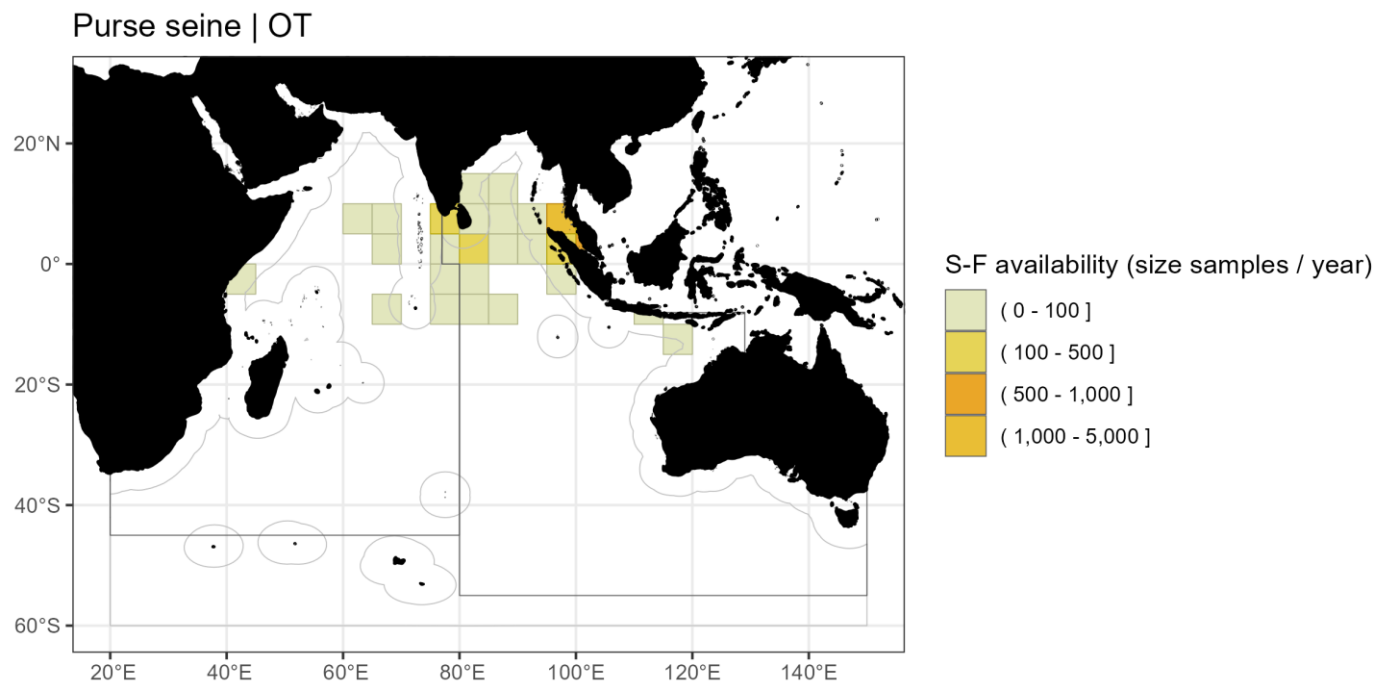


Figure 20: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in coastal and ringnet purse seine fisheries (Purse seine | Other) during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

Gillnet fisheries

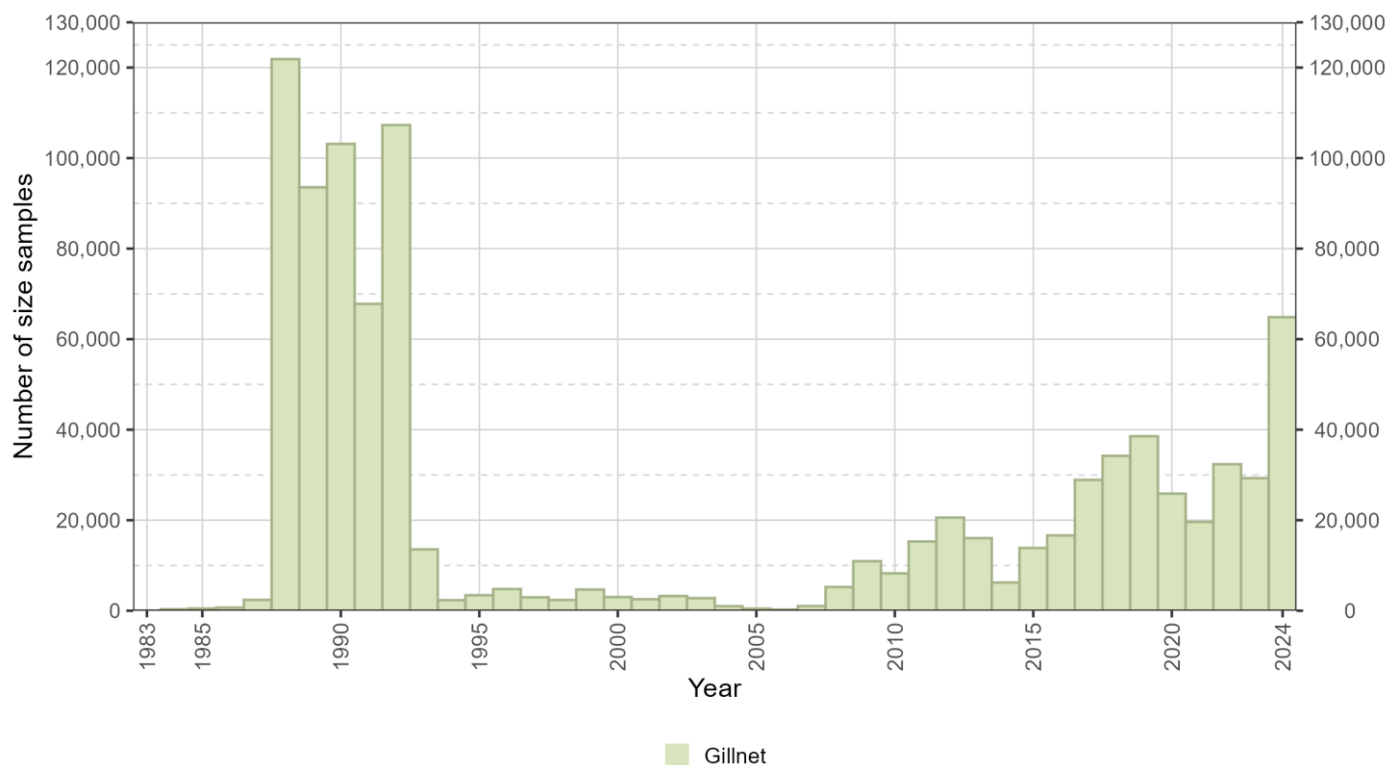


Figure 21: Availability of size-frequency data for kawakawa as absolute number of samples per year in gillnet fisheries. Data source: [standardized size-frequency dataset](#)

Line fisheries

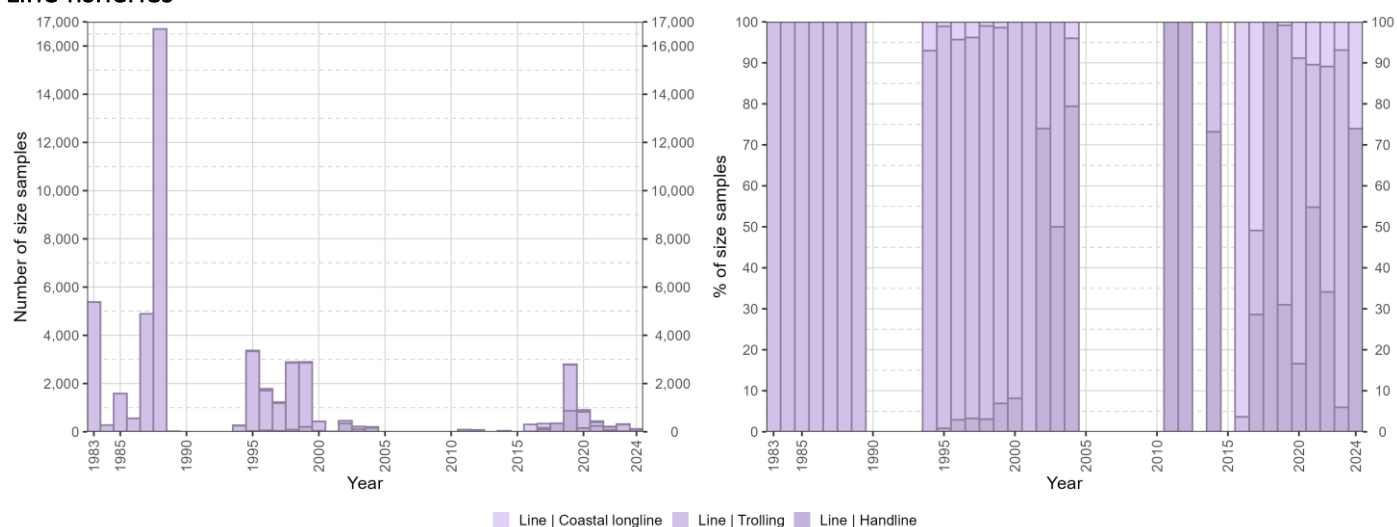


Figure 22: Availability of size-frequency data for kawakawa as (left) absolute and (right) relative number of samples per year and line fishery type. Data source: [standardized size-frequency dataset](#)

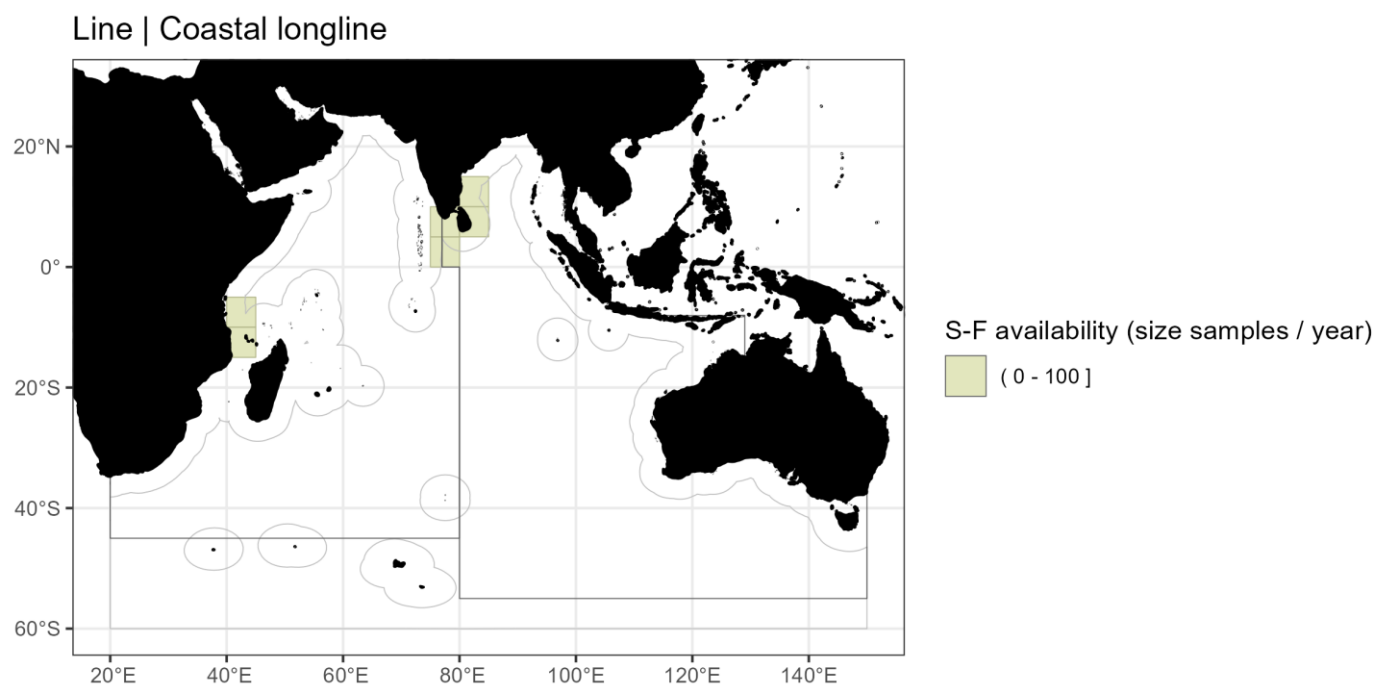


Figure 23: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in coastal longline fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

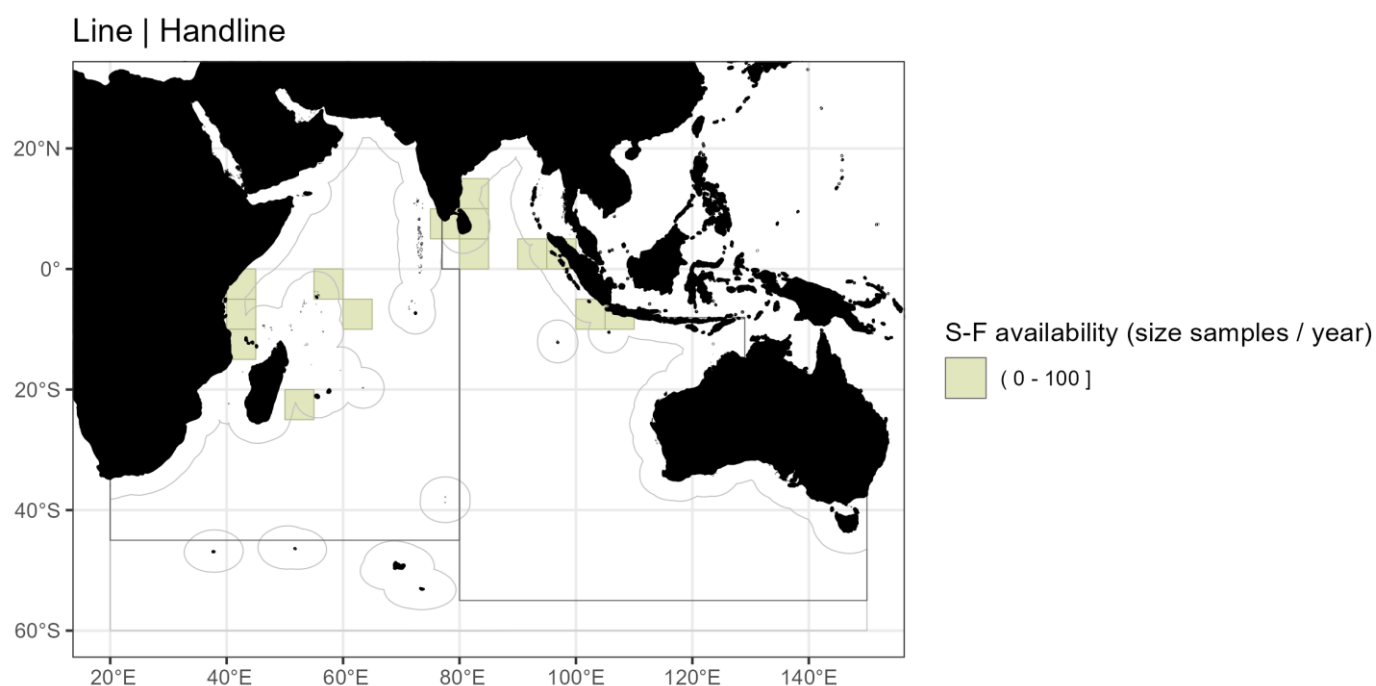


Figure 24: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in handline fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

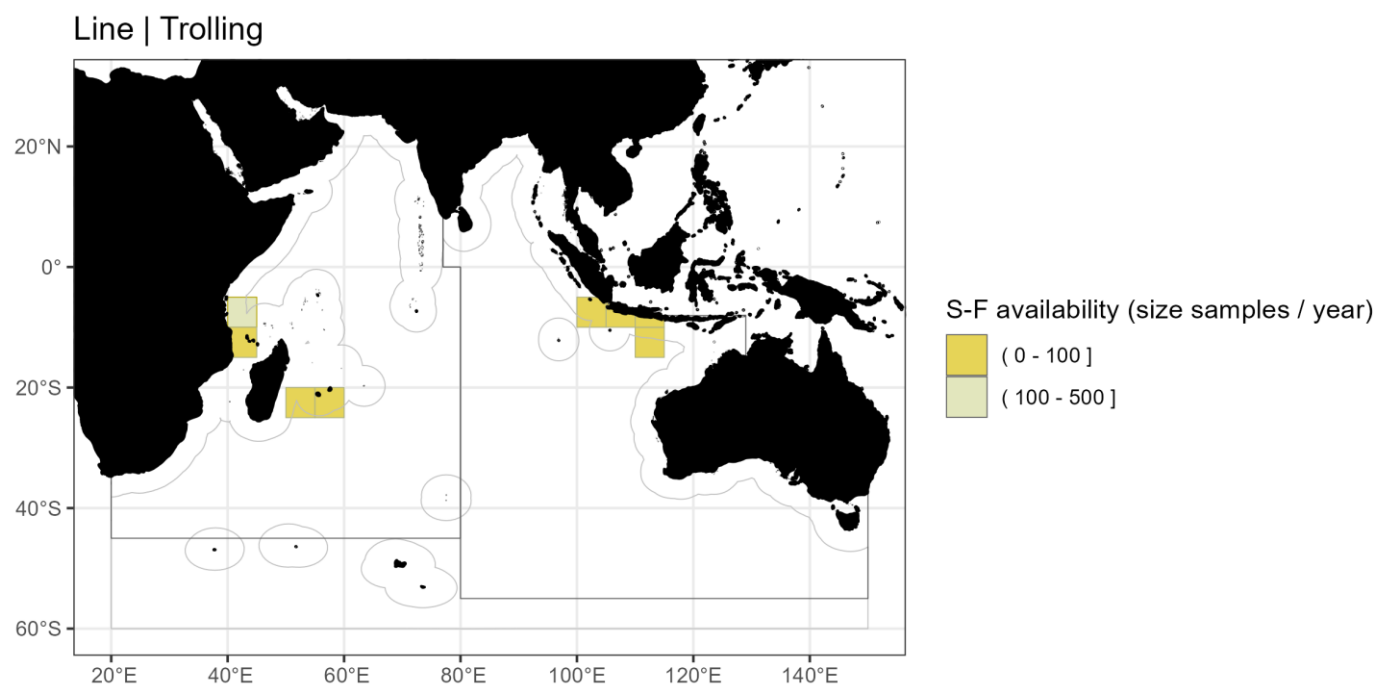


Figure 25: Spatial distribution (mean annual number of samples per 5-degree grid area) of available size-frequency data for kawakawa caught in trolling fisheries during 2020-2024. Light grey solid lines delineate areas beyond national jurisdiction. Data source: [standardized size-frequency dataset](#)

Other fisheries

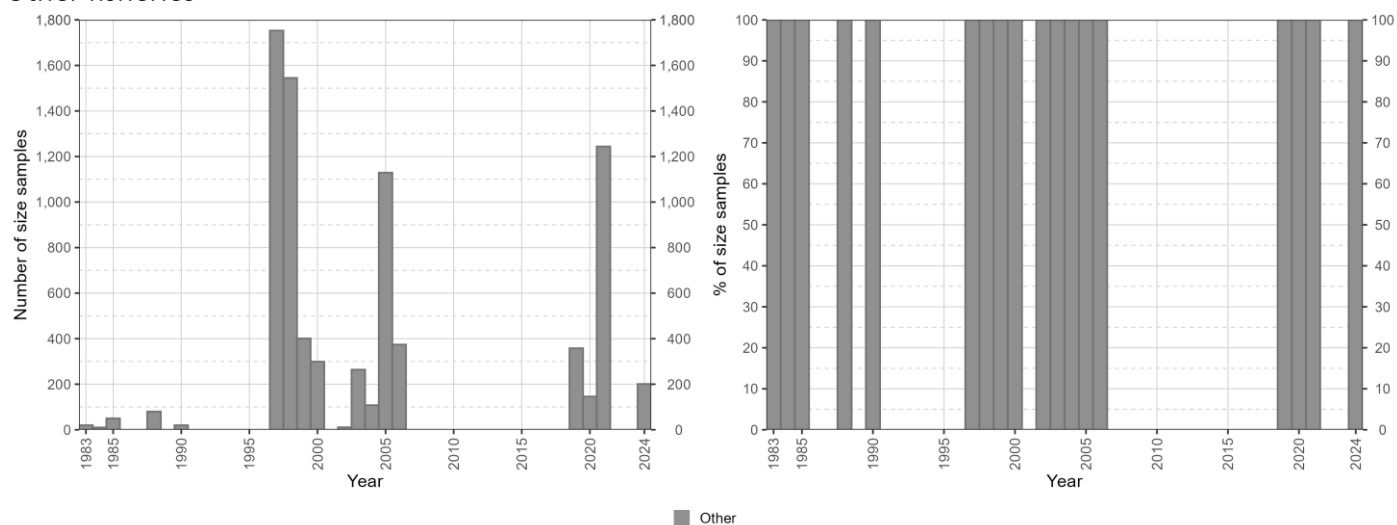


Figure 26: Availability of size-frequency data for kawakawa as (left) absolute and (right) relative number of samples per year for 'other' fishery types (beach seine, liftnet, unclassified). Data source: [standardized size-frequency dataset](#)

Temporal patterns and trends in size distributions

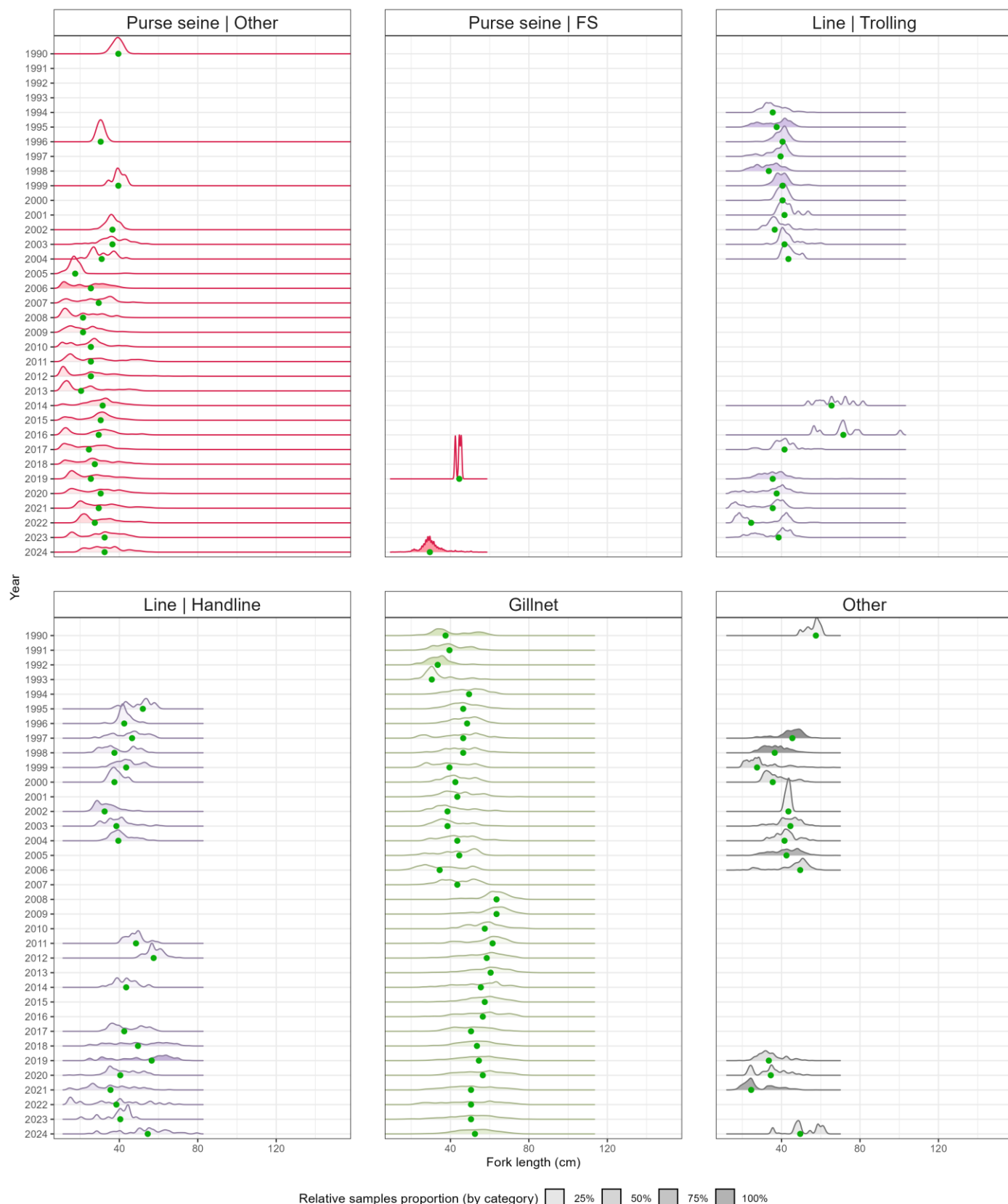


Figure 27: Relative size distribution (fork length; cm) of kawakawa caught in coastal and ringnet purse seine fisheries (Purse seine|Other), gillnet fisheries, and 'other' fisheries (beach seine, liftnet, unclassified). Fill intensity is proportional to the number of samples recorded for the year, while the green dot corresponds to the median value. Data source: [standardized size-frequency dataset](#)

Size distribution by fishery and fleet

Purse seine fisheries (other)

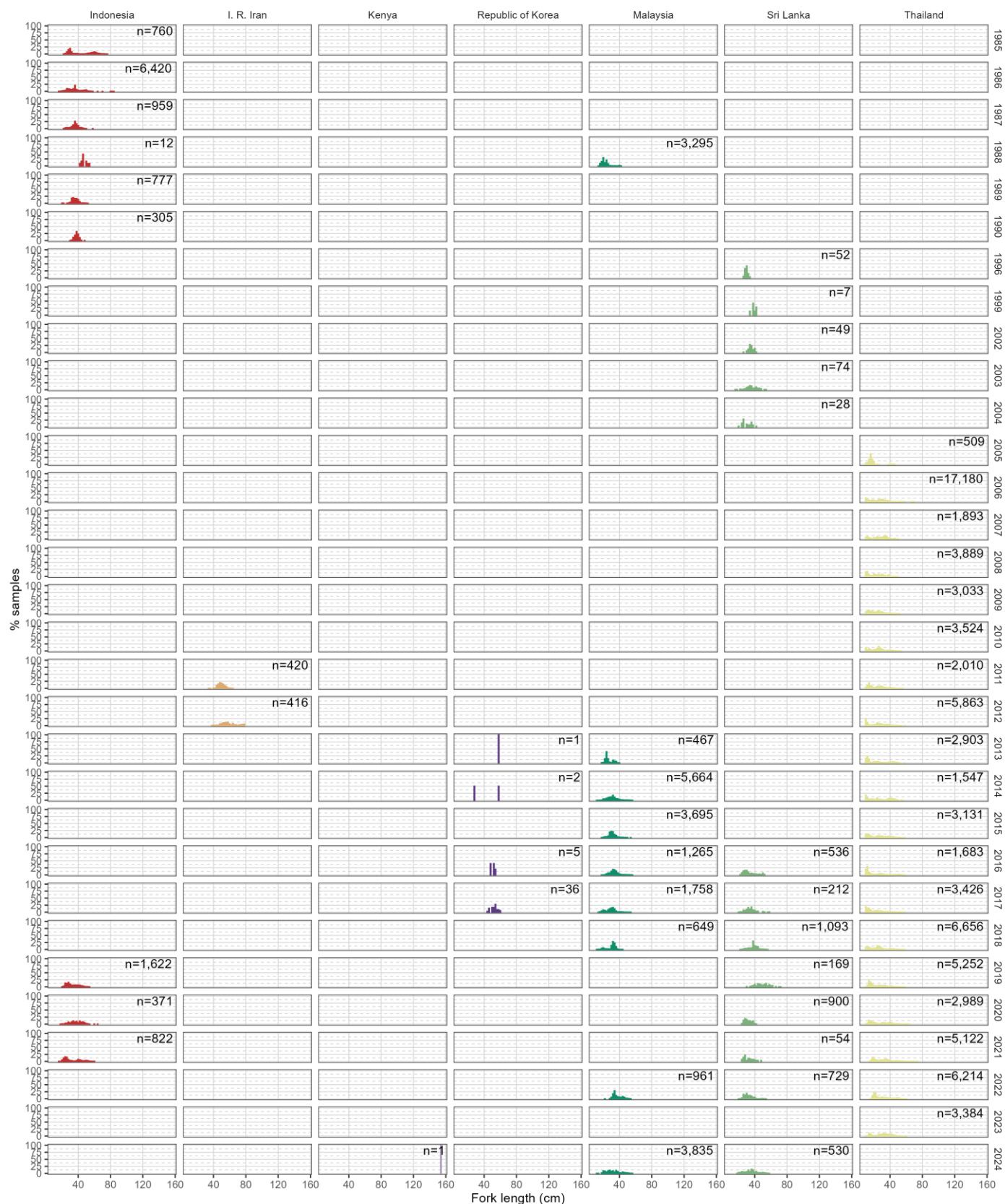


Figure 28: Relative size distribution of kawakawa (fork length; cm) caught in coastal purse seine and ringnet fisheries (Purse seine|Other) by year and main fleet. Data source: [standardized size-frequency dataset](#)

Gillnet fisheries

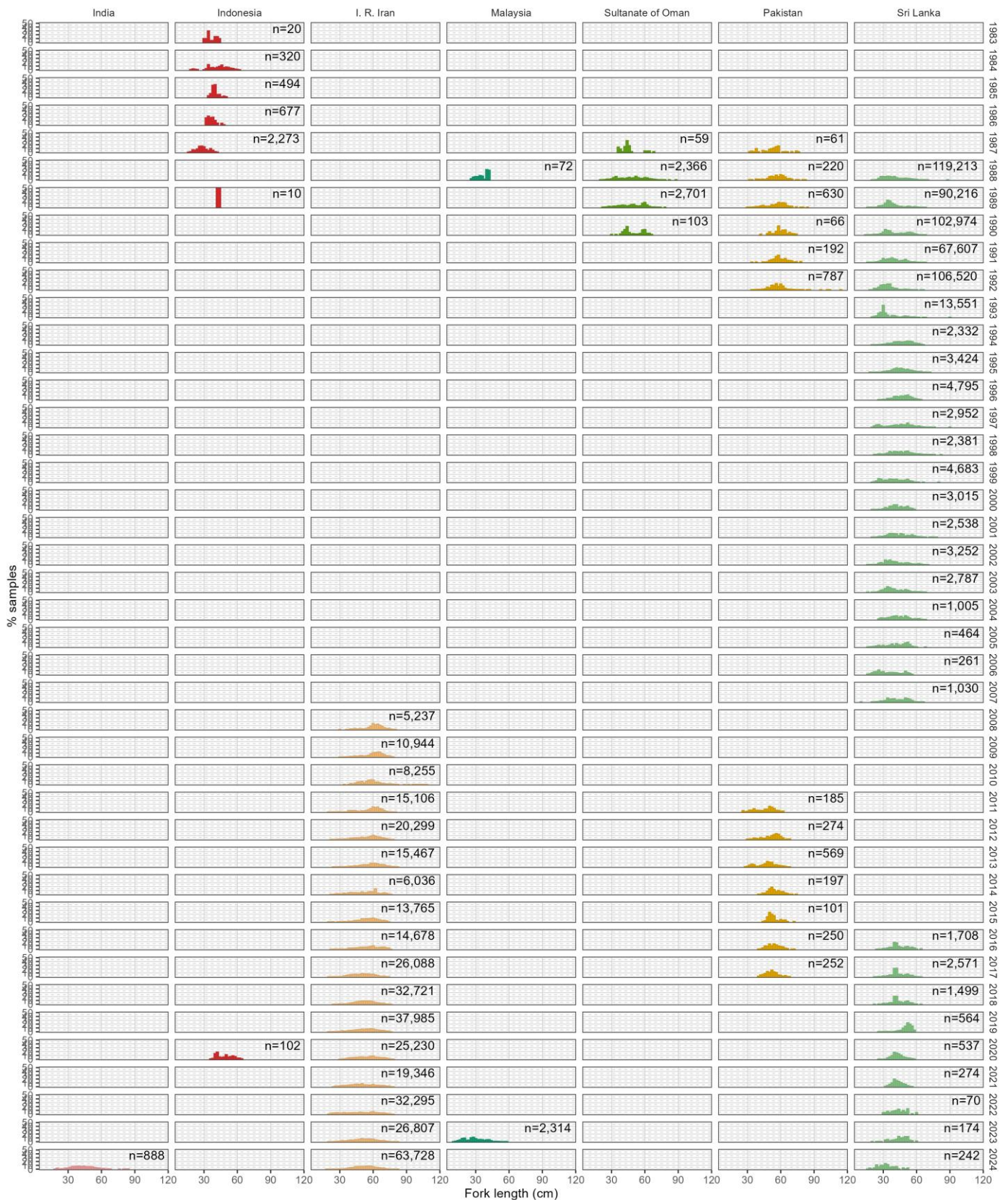


Figure 29: Relative size distribution of kawakawa (fork length; cm) caught in gillnet fisheries by year and main fleet. Data source: [standardized size-frequency dataset](#)

Iranian fisheries

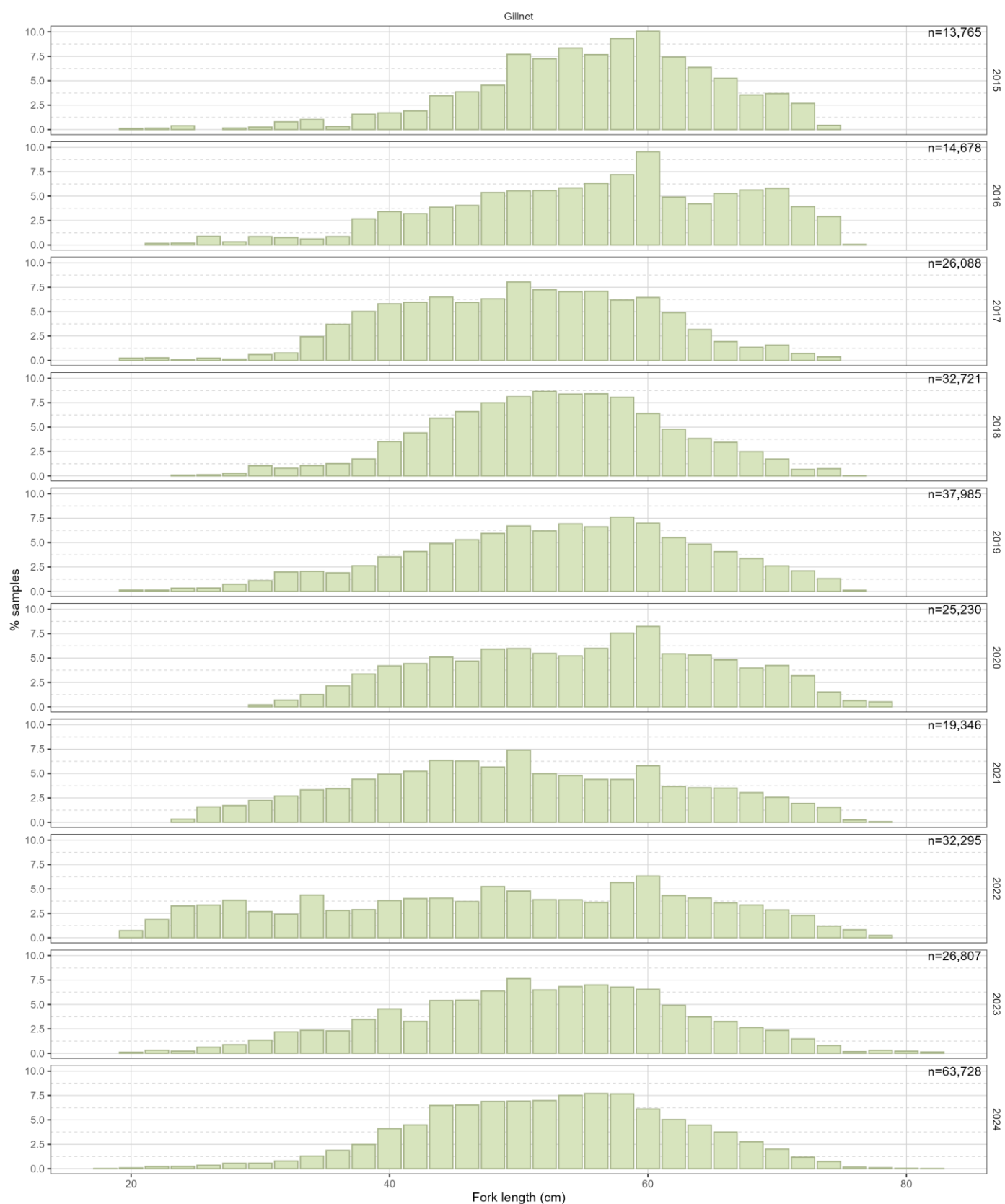


Figure 30: Relative size distribution of narrow-barred Spanish mackerel (fork length; cm) caught in Iranian fisheries by year and fishery. Data source: [standardized size-frequency dataset](#)

Uncertainties in geo-referenced size-frequency data

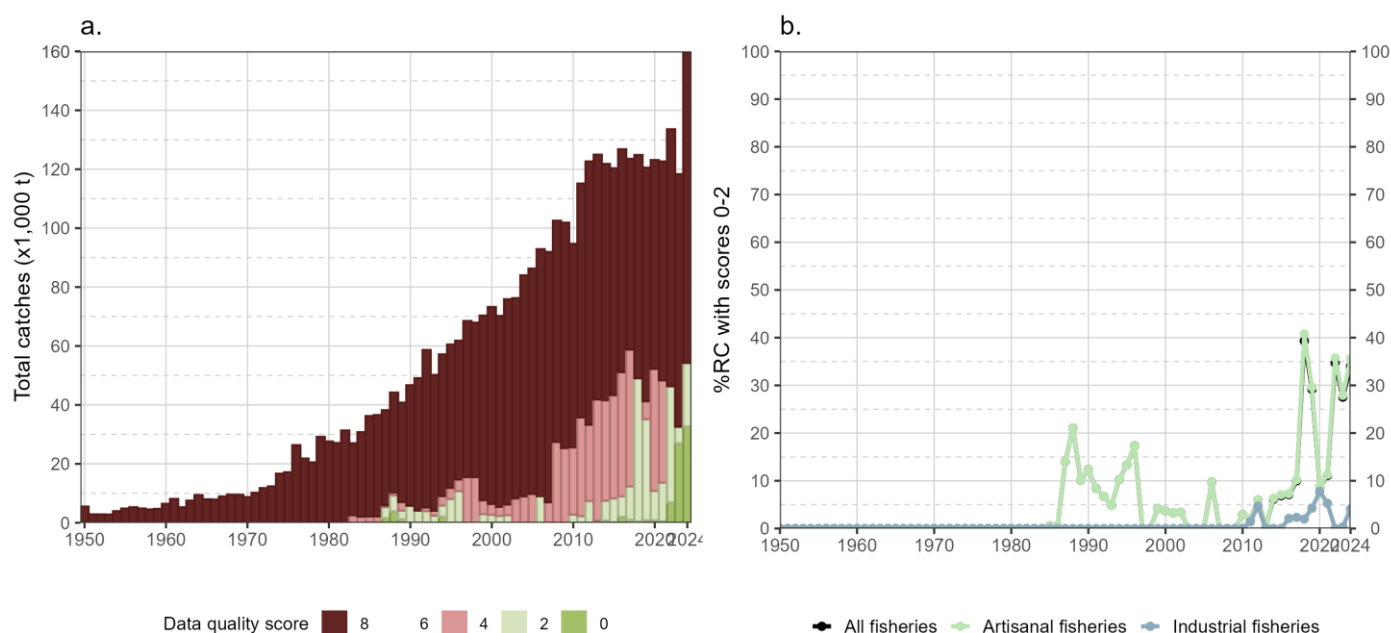


Figure 31: Annual time series of (a) cumulative retained catches (metric tonnes; t) estimated by quality score and (b) contribution of retained catches with corresponding geo-referenced size-frequency data reported to the IOTC Secretariat in agreement with the requirements of Res. 15/02 to all retained catches (percentage; %) of kawakawa for all fisheries and by type of fishery, for the period 1950-2024

References

Risso A (1810) [Ichthyologie de nice, ou, histoire naturelle des poissons du département des alpes maritimes](#). F. Schoell, Paris.

Secretariat I (2026) [Overview of indian ocean neritic tuna and seerfish species fisheries](#). IOTC Secretariat, Seychelles

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Appendix II: Changes in best scientific estimates of retained catches from [WPNT13](#)

Table 4: Changes in best scientific estimates of annual retained catches (metric tonnes; t) between the current assessment meeting and last assessment meeting of kawakawa (WPNT13 meeting held in July 2023) by fleet, fishery group, and main Indian Ocean area, limited to absolute values higher than 10 t

Year	Fleet	Fishery group	Area	Current (t)	Previous (t)	Difference (t)
2021	BGD	Gillnet	Eastern Indian Ocean	385	7	378
		Other	Eastern Indian Ocean	1,842	2,219	-376
	IDN	Baitboat	Eastern Indian Ocean	189	1	188
		Gillnet	Eastern Indian Ocean	8,747	8,421	326
		Line	Eastern Indian Ocean	6,562	13,448	-6,886
		Other	Eastern Indian Ocean	1,435	3,986	-2,551
		Purse seine	Eastern Indian Ocean	1,173	19,097	-17,925
	YEM	Gillnet	Western Indian Ocean	3,451	2,836	615
		Line	Western Indian Ocean	762	626	136
2020	IDN	Baitboat	Eastern Indian Ocean	268	2	266
		Gillnet	Eastern Indian Ocean	6,320	10,552	-4,232
		Line	Eastern Indian Ocean	7,032	16,853	-9,821
		Other	Eastern Indian Ocean	2,914	4,995	-2,081
		Purse seine	Eastern Indian Ocean	902	23,924	-23,022
	TMP	Gillnet	Eastern Indian Ocean	151	0	151
2019	IDN	Baitboat	Eastern Indian Ocean	119	1	118
		Gillnet	Eastern Indian Ocean	7,718	7,216	502
		Line	Eastern Indian Ocean	5,864	11,524	-5,660
		Other	Eastern Indian Ocean	1,359	3,416	-2,057
		Purse seine	Eastern Indian Ocean	821	20,222	-19,401
2018		Gillnet	Eastern Indian Ocean	5,955	6,190	-235
		Line	Eastern Indian Ocean	4,707	9,886	-5,178
		Other	Eastern Indian Ocean	961	2,930	-1,969
		Purse seine	Eastern Indian Ocean	1,877	30,913	-29,036
2017		Baitboat	Eastern Indian Ocean	523	1	522
		Gillnet	Eastern Indian Ocean	6,938	9,746	-2,808
		Line	Eastern Indian Ocean	4,796	15,565	-10,769
		Other	Eastern Indian Ocean	2,613	4,613	-2,000

Year	Fleet	Fishery group	Area	Current (t)	Previous (t)	Difference (t)
2016		Purse seine	Eastern Indian Ocean	807	21,987	-21,181
		Baitboat	Eastern Indian Ocean	119	1	118
		Gillnet	Eastern Indian Ocean	9,103	7,815	1,288
		Line	Eastern Indian Ocean	5,010	12,480	-7,470
		Other	Eastern Indian Ocean	1,479	3,699	-2,220
		Purse seine	Eastern Indian Ocean	1,110	17,630	-16,520
2015		Baitboat	Eastern Indian Ocean	303	1	302
		Gillnet	Eastern Indian Ocean	7,810	8,223	-413
		Line	Eastern Indian Ocean	4,959	13,133	-8,175
		Other	Eastern Indian Ocean	2,758	3,893	-1,135
		Purse seine	Eastern Indian Ocean	588	18,552	-17,964
		2014	Baitboat	Eastern Indian Ocean	390	1
Gillnet			Eastern Indian Ocean	6,767	8,367	-1,600
Line			Eastern Indian Ocean	5,352	13,363	-8,011
Other			Eastern Indian Ocean	2,375	3,961	-1,586
Purse seine			Eastern Indian Ocean	1,956	18,876	-16,921
2013			Baitboat	Eastern Indian Ocean	387	1
		Gillnet	Eastern Indian Ocean	5,877	9,499	-3,622
		Line	Eastern Indian Ocean	6,170	15,170	-9,000
		Other	Eastern Indian Ocean	2,305	4,496	-2,191
		Purse seine	Eastern Indian Ocean	1,613	21,429	-19,816
		2012	Baitboat	Eastern Indian Ocean	359	1
Gillnet			Eastern Indian Ocean	6,955	8,130	-1,176
Line			Eastern Indian Ocean	5,270	12,985	-7,715
Other	Eastern Indian Ocean		2,505	3,849	-1,344	
Purse seine	Eastern Indian Ocean		331	18,342	-18,011	
2011	Baitboat		Eastern Indian Ocean	243	1	242
	Gillnet	Eastern Indian Ocean	6,193	8,163	-1,970	
	Line	Eastern Indian Ocean	5,098	13,037	-7,938	
	Other	Eastern Indian Ocean	1,773	3,864	-2,091	

Year	Fleet	Fishery group	Area	Current (t)	Previous (t)	Difference (t)
2010		Purse seine	Eastern Indian Ocean	551	18,416	-17,865
		Baitboat	Eastern Indian Ocean	157	1	155
		Gillnet	Eastern Indian Ocean	5,547	7,920	-2,373
		Line	Eastern Indian Ocean	4,859	12,648	-7,789
		Other	Eastern Indian Ocean	1,442	3,749	-2,307
		Purse seine	Eastern Indian Ocean	2,283	17,867	-15,584
2009		Baitboat	Eastern Indian Ocean	182	1	181
		Gillnet	Eastern Indian Ocean	6,918	7,672	-754
		Line	Eastern Indian Ocean	4,845	12,252	-7,407
		Other	Eastern Indian Ocean	1,474	3,632	-2,157
		Purse seine	Eastern Indian Ocean	984	17,308	-16,323
		2008	Baitboat	Eastern Indian Ocean	162	1
Gillnet			Eastern Indian Ocean	6,133	6,543	-411
Line			Eastern Indian Ocean	4,295	10,450	-6,155
Other			Eastern Indian Ocean	1,307	3,097	-1,791
Purse seine			Eastern Indian Ocean	872	14,762	-13,889
2007			Baitboat	Eastern Indian Ocean	163	1
		Gillnet	Eastern Indian Ocean	6,190	6,686	-496
		Line	Eastern Indian Ocean	4,335	10,678	-6,343
		Other	Eastern Indian Ocean	1,319	3,165	-1,846
		Purse seine	Eastern Indian Ocean	881	15,084	-14,203
		2006	Baitboat	Eastern Indian Ocean	131	1
Gillnet			Eastern Indian Ocean	4,957	5,313	-356
Line			Eastern Indian Ocean	3,472	8,485	-5,013
Other	Eastern Indian Ocean		1,056	2,515	-1,459	
Purse seine	Eastern Indian Ocean		705	11,987	-11,281	
2005	Baitboat		Eastern Indian Ocean	148	1	147
	Gillnet	Eastern Indian Ocean	5,611	5,906	-295	
	Line	Eastern Indian Ocean	3,930	9,432	-5,502	
	Other	Eastern Indian Ocean	1,196	2,796	-1,600	

Year	Fleet	Fishery group	Area	Current (t)	Previous (t)	Difference (t)
		Purse seine	Eastern Indian Ocean	798	13,324	-12,526
2004		Baitboat	Eastern Indian Ocean	123	1	123
		Line	Eastern Indian Ocean	3,277	7,314	-4,037
		Other	Eastern Indian Ocean	997	2,168	-1,171
		Purse seine	Eastern Indian Ocean	666	10,332	-9,666
2003		Baitboat	Eastern Indian Ocean	108	1	108
		Gillnet	Eastern Indian Ocean	4,108	3,887	221
		Line	Eastern Indian Ocean	2,877	6,207	-3,331
		Other	Eastern Indian Ocean	875	1,840	-965
		Purse seine	Eastern Indian Ocean	584	8,769	-8,184
		2002	Baitboat	Eastern Indian Ocean	110	1
Gillnet			Eastern Indian Ocean	4,184	3,788	396
Line			Eastern Indian Ocean	2,930	6,049	-3,119
Other			Eastern Indian Ocean	892	1,793	-901
Purse seine			Eastern Indian Ocean	595	8,545	-7,950
2001			Baitboat	Eastern Indian Ocean	119	1
		Gillnet	Eastern Indian Ocean	4,528	4,363	165
		Line	Eastern Indian Ocean	3,171	6,968	-3,797
		Other	Eastern Indian Ocean	965	2,065	-1,100
		Purse seine	Eastern Indian Ocean	644	9,843	-9,199
		2000	Baitboat	Eastern Indian Ocean	120	1
Line			Eastern Indian Ocean	3,198	7,165	-3,967
Other			Eastern Indian Ocean	973	2,124	-1,151
Purse seine			Eastern Indian Ocean	650	10,122	-9,472