SCIENTIFIC COMMITTEE EIGHTEENTH REGULAR SESSION

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

WCPFC-SC18-AR/CCM-09 (Rev.01)

INDONESIA

INDONESIAN FISHERIES
IN
WCPFC CONVENTION AREA

2021

SCIENTIFIC DATA TO BE PROVIDED TO THE COMMISSION

MINISTRY OF MARINE AFFAIRS AND FISHERIES THE REPUBLIC OF INDONESIA
2022

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

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

INDONESIA

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April 2022	[YES]
If no, please indicate the reason(s) and intended actions:	

A. SUMMARY

The Indonesia's national catch estimate (the 13th ACES) for FMAs 713,714, 715, 716 and 717 was conducted by hybrid in the 20-23 July 2022. The WS was attended by MMAF, BRIN, fishing association, fishing industry, and relevant NGOs, WPEA manager and SPC expert. This activity has collaboratively funded by Indonesian Government and MDPI which involved CFR, BRIN, DGCF and Pusdatin (one data). The catch estimates were provided as follow: skipjack – 272.193 t; yellowfin – 252.049 t and bigeye – 22.618t and albacore 87 t with total 546.947 t.

B. BACKGROUND

Indonesia is an archipelagic nation located between the continents of Asia and Australia surrounded by two oceans, Pacific Ocean in the northern part and Indian Ocean in southern part. It consists of 17,508 islands and coast line of approximately 81,000 km^2. Totally, Indonesia has 5.8 million km^2 of marine waters consisting of 3.1 million km^2 of territorial waters (<12 miles) and 2.7 million km^2 of EEZ (12-200 miles). Geographical situation of marine fisheries areas provide interaction with the convention area of WCPFC at Sulawesi Sea as well as Indonesia EEZ in Pacific Ocean where presence of highly migratory species is obvious.

Internationally, fisheries resources identified as highly migratory resources should follow several international and regional measures or guidelines, such as UNCLOS 1982, FAO-Compliance Agreement1993, UN Fish Stock Agreement 1995 and FAO-Code of Conduct for Responsible Fisheries (CCRF). Indonesia has ratified UNIA 1995 through Act. Number 21year 2009. The objective of this ratification is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the UNCLOS 1982.

Indonesian Law Number 31/2004 which amended by law Number 45/2009 of Fisheries in Article 5 (2) stipulated that fishery management outside the Fishery Management Zones of the Republic of Indonesia shall be carried out inconformity with the laws and regulations, prerequisites, and/or generally accepted international standards. It is conducted to achieve the optimum and sustainable benefits while ensuring sustainable fishery resources (Article 6(1)). Furthermore, Article 10 stipulated that the Government shall participate actively in the membership of anybody/institution/ organization at the regional or international levels with respect to the cooperation for regional and international fishery management.

Indonesia since late 2013 becomes a member of WCPFC with an outlook to improve international relations and help secure small-scale fisher livelihood. This report is provided as part of obligation as a member of WCPFC.

C. ANNUAL FISHERIES INFORMATION

The Annual Tuna Fisheries Catch Estimates online Review Workshops (ITFACE-13) was conducted on 20-23 July 2022. DGCF catch estimate data were provided with the comparison with the other sources of data that gathered from port sampling, logbook, observer, as well as catch certificate (Surat Hasil Tangkapan Ikan/SHTI). The estimate catches were representing 86% of data verified as per July 2022.

1. NOMINAL CATCHES IN FISHERIES MANAGEMENT AREA

Indonesia total tuna catch for all gears in Area FAO within WCPFC Statistical Area was estimated as below:

Table 1. Total tuna catch (Skipjack, Yellowfin, Bigeye) for all gear within WCPFC statistical area estimated for 2000-2021

ALL GEAR (WCPFC STATISTICAL AREA)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total tuna**
2000	220.717	64%	105.317	31%	16.167	5%	342.20
2001	203.101	64%	96.911	31%	14.876	5%	314.88
2002	195.213	64%	93.147	31%	14.299	5%	302.65
2003	199.129	64%	95.016	31%	14.585	5%	308.73
2004	262.179	64%	125.100	31%	19.204	5%	406.48
2005	173.203	70%	63.625	26%	10.688	4%	247.51
2006	217.310	76%	55.920	20%	12.612	4%	285.84
2007	243.118	76%	67.773	21%	10.999	3%	321.89
2008	255.918	76%	63.055	19%	15.613	5%	334.58
2009	279.985	72%	92.887	24%	15.762	4%	388.63
2010	273.637	76%	73.846	21%	10.771	3%	358.25
2011	270.101	68%	114.442	29%	12.901	3%	397.44
2012	272.052	61%	151.789	34%	19.476	4%	443.31
2013	351.901	67%	146.646	28%	20.446	4%	518.99
2014	322.840	67%	136.210	28%	23.868	5%	482.91
2015	262.927	61%	146.196	34 %	22.953	5%	432.07
2016	336.455	64 %	160.092	31 %	28.344	5 %	525.238
2017	332.628	69%	134.290	28%	12.095	3%	479.013
2018	291.442	55%	215.460	41%	19.573	4%	526.778
2019	296.743	55%	219.178	41%	19.163	4%	535.105
2020	258.169	50%	233.451	45%	22.899	4%	514.687
2021	272.193	50%	252,049	46%	22,618	4%	546.947
Fishing Port	75.568	67%	35,463	31%	1.831	2%	112.868
Non-Fishing Port	196.624	45%	216.587	50%	20.787	5%	434.079
AVG 2009-2021*)	293.929	63%	159.734	33%	19.298	4%	473.031

Note:

a) For total catch in the last three years has included minor catch of albacore, In the ACES 2022 there was reported for 87 ton of albacore from catches in 2021 (i.e. has included in the total catch)
b) The table was based on the Annual Catch Estimates Workshop on 20-23 July 2022.

Catch estimate for 2021 was agreed in the ACES this year (2022) by BRIN, DGCF, PUSDATIN and relevants stakeholders from fishing association, fishing industry and non-governments organisation. The total nominal catches in Fisheries Management Area 716 (IEEZ Sulawesi Sea) and 717 (IEEZ Pacific Ocean) was estimated as the following table.

Table 2. Total tuna catch (Skipjack, Yellowfin, Bigeye) for all gear within FMA 716 and 717 estimated for 2000-2021

ALL GEAR (FMAs 716 and 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total tuna**
2000	59.392	57%	39.144	37,3%	6.542	6,2%	105.078
2001	54.651	57%	36.020	37,3%	6.020	6,2%	96.691
2002	52.529	57%	34.621	37,3%	5.786	6,2%	92.936
2003	53.583	57%	35.316	37,3%	5.902	6,2%	94.800
2004	70.548	57%	46.498	37,3%	7.771	6,2%	124.816
2005	52.721	61%	28.653	33,4%	4.443	5,2%	85.817
2006	60.638	68%	23.628	26,4%	5.279	5,9%	89.546
2007	55.715	67%	24.367	29,1%	3.696	4,4%	83.777
2008	54.536	64%	24.024	28,4%	6.156	7,3%	84.717
2009	54.373	51%	44.281	41,8%	7.179	6,8%	105.833
2010	52.833	61%	30.509	35,5%	2.709	3,1%	86.051
2011	51.077	56%	36.665	40,1%	3.612	4,0%	91.353
2012	95.725	68%	37.125	26,5%	7.136	5,1%	139.985
2013	94.304	73%	24.454	19,0%	4.083	3,2%	122.842
2014	74.678	61%	41.510	34,0%	5.803	4,8%	121.991
2015	82.018	36%	61.925	27,4 %	6,413	2,8%	150,357
2016	97.416	61%	56.801	36,0%	4,830	3,0%	159.047
2017	82,247	73%	28,685	26%	1,146	1%	112.077
2018	76.432	60%	48.096	37%	3.818	3%	128.425
2019	33.566	49%	30.666	44%	4.742	7%	68.975
2020	54.184	59%	32.256	35%	5.208	6%	91.648
2021	60.602	60%	36.669	37%	2.994	3%	100.265
Fishing Port	22.810	75%	7.245	24%	528	2%	30.583
Non-Fishing Port	37.793	54%	29.424	42%	2.466	4%	69.682
AVG 2009-2021	69.958	61%	39.203	35%	4.590	4%	114.224

Table 3. Total tuna catch (Skipjack, Yellowfin, Bigeye) for all gear within FMA 713, 714, 715, 716, 717 and FAO area 71 estimated for 2021

2021*) estimates								
FMAs	**Skipjack**	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Albacore**	**Total Tuna**
FMAs 713,714,715	211,591	47%	215,380	48%	19,624	4%	87	446,682
FMAs 716, 717	60,602	60%	36,669	37%	2,994	3%	-	100,265
FAO Area 71	272,193	50%	252,049	46%	22,618	4%	87	546,947

The nominal catches by gear in Fisheries Management Area 716 (IEEZ Sulawesi Sea) and 717 (IEEZ Pacific Ocean) was estimated as the following table.

LONGLINE and PURSE SEINE

Table 4. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Longline within FMA 716, 717 and high seas estimated for 2000-2021 awaiting updated from ACES 2022

LONGLINE (FMAs 716 and 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total**
2000			20.361	81,4%	4.648	18,6%	25.009
2001			18.736	81,4%	4.277	18,6%	23.013
2002			18.008	81,4%	4.111	18,6%	22.119
2003			18.369	81,4%	4.193	18,6%	22.563
2004			24.186	81,4%	5.521	18,6%	29.707
2005			10.762	83,0%	2.202	17,0%	12.964
2006			9.482	75,9%	3.011	24,1%	12.493
2007			10.371	83,9%	1.993	16,1%	12.364
2008			12.689	78,0%	3.579	22,0%	16.268
2009			18.221	82,0%	4.000	18,0%	22.221
2010			14.041	92,0%	1.221	8,0%	15.262
2011			13.750	89,0%	1.699	11,0%	15.449
2012			11.656	76,0%	3.681	24,0%	15.337
2013			8.271	74,3%	2.860	25,7%	11.130
2014			13.060	78,0%	3.673	22,0%	16.733
2015			18.509	83,3%	3.701	16,7%	22.210
2016			5.632	99,9%	8	0,1%	5.640
2017	4	2%	178	91%	13	7%	195
2018	-	0%	7.707	86%	1.255	14%	8.962
2019	1.124	7%	9.953	62%	4.976	31%	16.053

2020	1	0,1	428	27%	1.130	73%	1.558
2021	-	0.0%	683	35.44%	1,244	64.56%	1,926
Fishing Port	-	0%	186	35.44%	338	64.56%	524
Non-Fishing Port	-	0%	497	35.44%	906	64.56%	1,403
Average 2009-2021	71	1%	8,963	75%	2,052	24%	11.053

Notes on sources of data and methodology

1. Use same methodology for 2007 for years 2005 and 2006
2. Use average species composition for years 2005 -2013 and apply to the total catch for years previous to 2004
3. Use average species composition for years 2005 -2009 and apply to the total catch for 2010
4. Catch of albacore needs to be reviewed (possibly Thunnus albacares)
5. Percentage of catch composition of 2009 - 2012 using the P4KSI Species Composition data by gear.
6. The total catch for FMA Areas 716 and 717 of 1978-2004 is assumed to be the same as the WCPFC Statistical Area catch
7. Increasing the number of provinces that provide data of catch per gear per species
8. Percentage of catch composition of 2014 and 2016 using the DGCF and WPEA species composition
9. Source data of fishing port (Bitung) from PIPP there were 5 LL < 30 GT operating in WPP 716, and data from SHTI 1 LL <30 GT
10. Source data of non-fishing port (Bitung) from Port Sampling there were 8 LL < 30 GT
11. Catch Composition for data 2021 (FP & non FP) using average catch from data source: WPEA, Logbook
12. Catch of 2021 is provisional data

Table 5. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Purse seine gear within FMA 716, 717 estimated for 2000-2021 awaiting updated from ACES 2022

PURSE SEINE (FMAs 716 and 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total**
2000	8.577	82%	1.735	16,6%	144	1,4%	10.456
2001	7.892	82%	1.596	16,6%	132	1,4%	9.621
2002	7.586	82%	1.534	16,6%	127	1,4%	9.248
2003	7.738	82%	1.565	16,6%	130	1,4%	9.433
2004	10.188	82%	2.061	16,6%	171	1,4%	12.420
2005	12.462	65%	6.114	32,0%	544	2,8%	19.120
2006	12.665	75%	3.634	21,6%	502	3,0%	16.802
2007	8.619	67%	3.958	30,7%	301	2,3%	12.877
2008	5.625	70%	2.122	26,3%	320	4,0%	8.068
2009	7.551	78%	1.742	18,0%	387	4,0%	9.681
2010	5.525	87%	635	10,0%	191	3,0%	6.351

2011	9.815	83%	1.656	14,0%	355	3,0%	11.825
2012	25.164	75%	8.198	24,4%	235	0,7%	33.597
2013	62.726	96%	2.614	4,0%	0	0,0%	65.340
2014	36.085	83%	7.000	16,1%	289	0,7%	43.374
2015	25.205	73%	8.247	9,0%	1.153	1,3%	34.604
2016	40.262	66%	20.546	33,5%	509	0.8%	61.317
2017[a)]	46.741	66%	23.370	33%	708	1%	70.820
2018	15.650	71%	5.951	27%	441	2%	22.043
2019	27.072	74%	8.671	24%	680	2%	36.423
2020	24.887	66%	12.304	33%	566	2%	37.758
2021	29,430	74.52%	9,885	25.03%	178	0.45%	39,492
Fishing Port	15,287	74.52%	5,135	25.03%	92	0.45%	20,514
Non-Fishing Port	14,142	74.52%	4,750	25.03%	85	0.45%	18,978
Average 2009-2021	27,393	76%	8,525	22%	438	2%	36,356

Notes on sources of data and methodology

1. 2005-2008 catch estimates determined by DGCF using their statistical data collection and estimation systems. Species composition was reviewed by the workshop, compared with other fishery data sources (e.g. RCCF port sampling data, Philippines port sampling data and industry estimates), and adjusted accordingly.
2. Use same methodology for 2007 for years 2005 and 2006
3. Use average species composition for years 2005-20 13 and apply to the total catch for years previous to 2004
4. Use average species composition for years 2005 -2009 and apply to the total catch for 2010
5. Percentage of catch composition of 2009 - 2013 using the P4KSI Species Composition data by gear.
6. Percentage of catch composition of 2016 using DGCF Species Composition data by gear.
7. Purse seine FMAs 713-715 based on adjustment figure
8. From data SIPEPI in 2016 : PSPK = 110 vessels, PSPB = 21 vessels (Total = 131 vessels)
9. From data SIPEPI in 2017 : PSPK = 90 vessels, PSPB = 29 vessels (Total = 119 vessels)
10. Catch Composition for data 2021 (FP & non FP) using average catch from data source (WPEA, observer and Logbook)
11. Catch of 2021 is provisional data

POLE and LINE

Table 6. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Pole and Line within FMA 716, 717 estimated for 2000-2021 awaiting updated from ACES 2022

POLE AND LINE (FMAs 716, 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total tuna**
2000	27.848	80,6%	5.264	15,2%	1.425	4,1%	34.538
2001	25.626	80,6%	4.844	15,2%	1.311	4,1%	31.781
2002	24.630	80,6%	4.656	15,2%	1.260	4,1%	30.547
2003	25.124	80,6%	4.750	15,2%	1.285	4,1%	31.159
2004	33.079	80,6%	6.253	15,2%	1.693	4,1%	41.025
2005	22.209	73,1%	6.581	21,7%	1.606	5,3%	30.396
2006	28.385	80,6%	5.166	14,7%	1.673	4,7%	35.224
2007	28.064	81,0%	5.332	15,4%	1.250	3,6%	34.646
2008	30.448	82,5%	4.590	12,4%	1.855	5,0%	36.893
2009	23.339	87,0%	6.045	10,0%	2.515	3,0%	31.899
2010	29.416	87,0%	3.381	10,0%	1.014	3,0%	33.812
2011	25.484	77,3%	6.725	20,4%	758	2,3%	32.968
2012	35.500	92,7%	1.277	3,3%	1.532	4,0%	38.309
2013	16.825	78,3%	4.284	19,9%	377	1,8%	21.486
2014	7.356	68,6%	3.316	30,9%	57	0,5%	10.729
2015	8.860	57,7%	2.280	14,9%	727	4,7%	11.868
2016	8.027	69,8%	3.165	27,5%	311	2,7%	11.502
2017[a)]	8.374	73%	2.983	26%	115	1%	11.471
2018	35.685	91%	3.137	8%	392	1%	39.215
2019	1.112	74%	388	26%	-	0%	1.500
2020	1.640	72%	579	26%	50	2%	2.268
2021	7,232	89.0%	813	10.0%	81	1.0%	8,126
Fishing Port	6,894	89.0%	775	10.0%	77	1.0%	7,746
Non-Fishing Port	338	89.0%	38	10.0%	4	1.0%	380
Average 2005-2021	16,065	80%	2,952	18%	610	2%	19,627

Notes on sources of data and methodology

1. 2005-2008 catch estimates determined by DGCF using their statistical data collection and estimation systems. Species composition was reviewed by the workshop, compared with other fishery data sources (e.g. RCCF port sampling data, Philippines port sampling data and industry estimates), and adjusted accordingly.
2. Use same methodology for 2007 for years 2005 and 2006

3. Use average species composition for years 2005-2013 and apply to the total catch for years previous to 2004
4. Use average species composition for years 2005-2009 and apply to the total catch for 2010
5. Percentage of catch composition of 2009 - 2012 using the P4KSI Species Composition data by gear
6. Percentage of catch composition of 2013 using the DGCF species composition (RCFMC data of 2013 covered only 4 (four months)
7. Percentage of catch composition of 2016 using the CFR-WPEA species composition
8. Source data of fishing port (Bitung) for 2017 from PIPP there were 4 PL < 30 GT , 1 PL > 30 GT
9. Source data of non-fishing port for 2017 from Port Sampling there were 5 PL < 30 GT operating in 717 (Sorong)
10. Catch Composition for data 2021 (FP & non FP) using average catch from data source (WPEA)
11. Catch of 2021 is provisional data

HANDLINE

Table 7. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Handline (Large tuna) within FMA 716, 717 estimated for 2000-2021 awaiting updated from ACES 2022

HANDLINE (FMAs 716, 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	%	**Bigeye**	**%**	**Total tuna**
2000			10.329	97,3%	284	2,7%	10.613
2001			9.504	97,3%	261	2,7%	9.766
2002			9.135	97,3%	251	2,7%	9.386
2003			9.319	97,3%	256	2,7%	9.575
2004			12.269	97,3%	337	2,7%	12.606
2005			4.054	98,0%	81	2,0%	4.136
2006			4.107	98,0%	82	2,0%	4.189
2007			3.497	98,0%	70	2,0%	3.567
2008			3.378	98,0%	68	2,0%	3.446
2009			13.085	99,0%	132	1,0%	13.218
2010			8.500	98,0%	173	2,0%	8.674
2011			8.534	96,0%	356	4,0%	8.890
2012			3.359	92,1%	290	7,9%	3.648
2013			3.801	96,0%	158	4,0%	3.960
2014			15.173	97,0%	461	3,0%	15.634
2015	6.118	18.3%	26.817	80,3%	476	1,2%	33.411
2016	14.994	57%	11.039	42%	396	1,5%	26.430
2017[a)]	3.930	68%	1.636	28%	190	3%	5.756
2018	3.407	14.9%	19.022	83%	460	2%	22.935
2019	1.004	8%	11.301	90%	250	2%	12.556
2020	2.782	22%	9.450	75%	291	2%	12.523
2021	3,511	18.93%	14,778	79.67%	260	1.40%	18,550

Fishing Port	273	18.93%	1,150	79.67%	20	1.40%	1,443
Non-Fishing Port	3,238	18.93%	13,629	79.67%	239	1.40%	17,106
Average 2009-2021	5,107	30%	1,269	81%	299	3%	14,322

Notes on sources of data and methodology

1. 2005-2008 catch estimates determined by DGCF using their statistical data collection and estimation systems. Species composition was reviewed by the workshop, compared with other fishery data sources (e.g. RCCF port sampling data, Philippines port sampling data and industry estimates), and adjusted accordingly.
2. FMA area 715 accounts for at least 5,000 t. more HL catch, but os not included here
3. Use same methodology for 2007 for years 2005 and 2006
4. Use average species composition for years 2005-2013 and apply to the total catch for years previous to 2004
5. Use average species composition for years 2005-2009 and apply to the total catch for 2010
6. Percentage of catch composition of 2009 - 2012 using the P4KSI Species Composition data by gear.
7. Percentage of catch composition of 2013 and 2015 using the P4KSI species composition of FMAs 716 -7 17
8. Handline (large tuna) WCPFC area based on adjustment figure
9. Handline in this year (2015) was combination of surface handline, deep handline, Kite line, vertical line
10. in year 2016, HL is combined catch surface HL (skipjack, small YFT/BET) and Deep HL (Large YFT/BET)
11. Catch Composition for data 2021 (FP & non FP) using average catch from data source (MDPI, WPEA, Logbook)
12. Total tuna catch was estimated using 2021 data except for Biak Numfor using the previous year (2020 data), Need further clarification and ground check for Biak Numfor.
13. Catch of 2021 is provisional data.

TROLL LINE

Table 8. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Troll Line within FMA 716, 717 estimated for 2013-2021 awaiting updated from ACES 2022

TROLL LINE (FMAs 716, 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total**
2013	5.290	65,0%	2.447	30,1%	400	4,9%	8.138
2014	19.877	93,6%	915	4,3%	435	2,1%	21.228
2015	36.076	88,6%	1.788	4,4%	299	0,7%	38.163
2016	28.160	61.7%	13.929	30.5%	3.533	7,7%	45.622

2017	296	60%	183	37%	15	3%	494
2018	5.137	83%	745	12%	309	5%	6.191
2019	1.405	29%	3.497	71%	11	0%	4.913
2020	6.121	44%	5.989	43%	1.684	12%	13.794
2021	5,767	42.62%	7,372	54.48%	392	2.90%	13,532
Fishing Port	-	-	-	-	-	-	-
Non-Fishing Port	5,767	42.62%	7,372	54.48%	392	2.90%	13,532
Average 2013-2021	12,014	64%	4,096	32%	787	4%	16,897

Notes on sources of data and methodology

1. Percentage of catch composition of 2013 using PPS Kendari species composition
2. Percentage of catch composition of 2014-2015 using DGCF species composition
3. Percentage of catch composition of 2020 using Pusdatin species composition
4. Catch Composition for data 2021 (FP & non FP) using logbook data source
5. Catch of 2021 is provisional data

GILLNET

Table 9. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Gillnet within FMA 716, 717 estimated for 2013 – 2021 awaiting updated from ACES 2022

GILL NET (FMAs 716 and 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total**
2013	2.312	83,3%	460	16,6%	2	0,1%	2.775
2014	3.351	85,0%	584	14,8%	6	0,2%	3.941
2015	1.046	20,2%	297	5,7%	2	0,03%	1.344
2016	1.522	91,7%	136	8.2%	2	0,1%	1.660
2017[a)]	1.521	97%	40	3%	-	0%	1.561
2018	1.950	87%	303	13%	3	0%	2.256
2019	935	82%	199	18%	-	0%	1.134
2020	15.321	85%	2.047	11%	759	4%	18.127
2021	10,737	76%	2,798	20%	675	5%	14,210
Fishing Port	331	100%	-	0%	-	0%	331
Non-Fishing Port	10,406	75%	2,798	20%	675	5%	13,879
Average 2013-2021	4,299	85%	763	14%	161	1%	5,223

Notes on sources of data and methodology

1. Percentage of catch composition of 2013 and 2016 using the DGCF species composition

2. Percentage of catch composition of 2020 using Pusdatin species composition
3. Percentage of catch composition of 2021 using Sub Div Data DGCF species composition
4. Catch of 2021 is provisional data

OTHERS (Exclude Troll, small-fish HI, gillnet, etc.)

Table 10. Total tuna catch (Skipjack, Yellowfin, Bigeye) for Other gear within FMA 716, 717 estimated for 2000 – 2021*) awaiting updated from ACES 2022

OTHERS (FMAs 716 and 717)							
Year	**Estimated Tuna Catch (metric tonnes)**						
	Skipjack	**%**	**Yellowfin**	**%**	**Bigeye**	**%**	**Total**
2000	22.966	93,9%	1.455	5,9%	41	0,2%	24.463
2001	21.133	93,9%	1.339	5,9%	38	0,2%	22.511
2002	20.313	93,9%	1.287	5,9%	36	0,2%	21.636
2003	20.720	93,9%	1.313	5,9%	37	0,2%	22.070
2004	27.281	93,9%	1.729	5,9%	49	0,2%	29.058
2005	18.050	93,7%	1.142	5,9%	10	0,4%	19.202
2006	19.588	93,7%	1.240	5,9%	11	0,4%	20.838
2007	19.032	93,7%	1.209	5,9%	81	0,4%	20.322
2008	18.463	92,1%	1.245	6,2%	334	1,7%	20.042
2009	23.484	81,5%	5.187	18,0%	144	0,5%	28.814
2010	17.891	81,5%	3.951	18,0%	110	0,5%	21.953
2011	15.778	71%	6.000	27,0%	444	2,0%	22.222
2012	35.061	71,4%	12.635	25,7%	1.398	2,8%	49.094
2013	7.151	71,4%	2.577	25,7%	285	2,8%	10.013
2014	8.010	77,4%	1.462	14,1%	881	8,5%	10.352
2015	4.714	40,1%	3.988	33,9%	55	0,5%	8.757
2016	4.451	65%	2.345	34%	71	0,6%	6.876
2017	21.382	98%	295	1%	104	0%	21.780
2018	14.602	54%	11.230	42%	959	4%	26.824
2019	1.541	29%	2.228	41%	1.611	30%	5.381
2020	3.433	61%	1.459	26%	728	13%	5.620
2021	3,925	89%	340	8%	164	4%	4,429
Fishing Port	25	100%	-	0%	-	0%	25
Non-Fishing Port	3,900	89%	340	8%	164	4%	4,404
Average 2005-2021	12,417	70%	4,131	25%	535	5%	17,086

Notes on sources of data and methodology

1. 2005-2008 catch estimates determined by DGCF using their statistical data collection and estimation systems. Species composition was reviewed by the workshop, compared with other fishery data sources (e.g. RCCF port sampling data, Philippines port sampling data and industry estimates), and adjusted accordingly.
2. The workshop acknowledged that information on species composition for these gears is lacking and more work in data collection for these gears is required in the future.
3. % BET was reduced from 7.0% to 0.4% reflecting expected %BET to %YFT composition according to understanding that most of catch comes from the TROLL gear
4. Use same methodology for 2007 for years 2005 and 2006
5. Use average species composition for years 2005- 2012 and apply to the total catch for years previous to 2004
6. Use average species composition for years 2005 -2009 and apply to the total catch for 2010
7. % BET reduced from 7.0% to 0.4% reflecting expected %BET to %YFT expected from these gears
8. Percentage of catch composition of 2009 and 2010 using P4KSI sampling in Kendari of 2010
9. Catch of other gears for 2013 and 2014 excluded troll line, gill net and small-fish handline
10. Percentage of catch composition of 2021 using Sub Data DGCF species composition
11. Catch of 2021 is provisional data

SHARK CATCH ESTIMATE

Table 11a. Landed-Catch estimate of Sharks (metric ton) related to tuna fishery in FMAs 716 and 717,

Year	*Centrophoridae, Squalidae* **Dogfishes (DGZ) + Others**	*Carcharhinus longimanus* **Oceanic Whitetip (OCS)**	*Carcharhinus falciformis* **Silky shark (FAL)**	*Galeocerdo cuvier* **Tiger Sharks (TIG)**	*Sphyrna spp* **Hammerheads sharks (SPN)**	*Prioance glauca* **Blue Sharks (BSH)**	*Alopias spp* **Thresher sharks (THR)**	*Isurus spp* **Mako sharks (MAK)**
2016	365	0	92	0	5	0	59	174
2017	52*	1	1*	0	2	0	6	2
2018	31	0	24	0	1	0	0	7
2019	0	0	55*	0	0	0	?*	1
2020	9	-	0	0	0	0	0	0.03
2021	20	-	1	0	0	0	0	1

Notes:

1. First time in 2016 for estimating total catch of sharks from national fisheries data statistics (landing data)-DGCF
2. Estimated Catch of Sharks in 2017 -2020 from Pusdatin (CSDI)-MMAF
3. *) subject to be further clarified, source of data from surveillance unit of MMAF and CFR
4. All catches of sharks were fully utilized by the fishers as source for livelihood.

5. -) will be provided after national data validation (end of 2022)

Table 11b. ERS (Ecological Related Species) for sharks interaction of tuna fisheries recorded by national observers in the 715 in 2021.

Gear Type	FMA	ERS Species	Species Code	QTY	Catch	Post Catch	Handling
Pole and Line	715	*Carcharhinus obscurus*	DUS	1	Life	Life	Release
		Carcharhinus obscurus	DUS	1	Life	Life	Release
		Carcharhinus obscurus	DUS	1	Life	Life	Release
		Carcharhinus falciformis	FAL	1	Life	Life	Release

2. THE NUMBER OF FISHING VESSELS OPERATING IN IEEZ SULAWESI SEA AND IEEZ PACIFIC OCEAN, 2013-2021

The number of Purse Seine operating in the FMA 716 and 717 in 2021 were 99 vessels. Since 2016 the Size of purse seiner operated in these areas were lower than 201 GT (30-200 GT) (Table 12).

Table 12. Number of fishing vessel operating in EEZ FMA 716 and 717, by size and gear licensed by central Government

Gear	Size Class (GT)	2021	2020	2019	2018	2017	2016	2015	2014	2013
Longline (in EEZ Longline (FMA 716 and 717)	0-50	3	1	0	0	0	1	35	42	41
	51-200	2	3	1	2	1	0	92	95	104
	201-500	0	0	0	0	0	0	0	0	2
	500+	0	0	0	0	0	0	0	0	0
Pole and Line (in EEZ FMA 716 and 717)	0-50	1	2	1	27	27	28	9	4	6
	51-150	1	2	3	18	19	32	22	32	49
	150+	0	0	0	0	0	0	0	0	0
Purse seine (in EEZ FMA 716 and 717)	0-500	99*	120*	115*	104	103	118	111	132	131
	30-60	66	81	81						
	61-100	15	12	8						
	101-150	11	18	19						
	151-200	7	9	7						
	501-1,000	0	0	0	0	0	0	6	5	2
Handlines (in EEZ FMA 716 and 717)	0-10	0	0	0	0	0	0	0	0	0
	11-50	4	4	9	9	9	15	0	1	1
	51-200	3	3	0	0	0	0	0	2	7

Gear	Size Class (GT)	2021	2020	2019	2018	2017	2016	2015	2014	2013
	201-500	0	0	0	0	0	2	1	0	0
	500+	0	0	0	0	0	0	0	0	0
Troll line (in EEZ FMA 716 and 717)	0-10	0	0	0	0	0	0	0	0	0
	11-50	0	0	0	0	0	0	0	0	0
	51-200	0	0	0	0	0	0	0	0	0
	201-500	0	0	0	0	0	0	0	0	0
	500+	0	0	0	0	0	0	0	0	0
Gillnet (in EEZ FMA 716 and 717)	0-10	0	0	0	0	0	1	0	0	0
	11-50	0	0	1	2	2	0	2	8	2
	51-200	0	0	0	0	0	0	0	0	0
	201-500	0	0	0	0	0	1	1	3	1
	500+	0	0	0	0	0	0	1	1	1
Others, excludes troll line, handlines, gillnets (in EEZ FMA 716 and 717)	0-10	0	0	0	0	0	0	65	22	9
	11-50	0	0	0	1	0	0	55	61	53
	51-200	0	0	0	0	1	0	60	67	52
	201-500	0	0	0	0	0	1	1	1	0
	500+	0	0	0	0	0	0	0	0	0
TOTAL		**103**	**132**	**[+]130**	**163**	**162**	**199**	**461**	**476**	**461**

Note : *) the sum of number of purse seine fishing vessel from size of 30 GT to 200 GT.
[+]) revised number for 2019

3. THE INDONESIAN FISHING FLEET STRUCTURE REGISTERED IN WCPFC 2021

Table 13. Number of Indonesia fishing fleet by gear and type registered in WCPFC (2015-2021)

NO	FLEET	2021	2020	2019	2018	2017	2016	2015
1	Tuna long liner and long liner	0	0	0	0	0	0	153
2	Purse Seiner	11	9	17	8	6	4	124
3	Pole and Liner	2	13	0	13	9	7	28
4	Gillnetter	0	0	0	0	0	0	2
5	Handliner	0	0	2	0	0	0	4
6	Support Vessel	0	0	0	0	0	0	55
7	Non Specified vessel	0	0	0	0	0	0	2
8	Fish Carrier	0	0	0	0	0	0	26
	Total	13	22	19	21	15	11	394

Note: The significant decrease of vessel registered in WCPFC in 2016 due to the national policy on the moratorium on the fishing vessels that were constructed overseas.

4. DEVELOPMENTS/TRENDS IN THE FISHERY (CHANGES IN FISHING PATTERNS, FLEET OPERATIONS, TARGET SPECIES, LEVEL OF TRANSHIPMENT, ETC.)

Regulations related to major changes of Indonesia tuna fisheries are Minister Regulation No. 56/2014 concerning on moratorium of fishing license for vessels built outside Indonesia (foreign built vessel) and Minister Regulation No. 57/2014 on banning of transhipment at sea. Implementation of these regulations take changes such as: Issue moratorium, issue changing fishing activities (HL, PL ,LL, PS)

a. No transhipment at sea since January 2015 to end of 2021
b. Vessels built by foreign are tight up at port or back to the origin state or other state.
c. No fishing operation on high seas and foreign EEZ, fishing activities were conducted in archipelagic and teritorial waters.
d. Increase number of small-scale fishing boat that mostly operated in archipelagic and territorial waters, at the same time increase catch rate of these vessel

In order to monitor the activities of fishing vessel government of Indonesia (GOI) has introduced to the fishers and fishing company;

a. Re-registry and re-measure of all fishing boats (2017,2018,2019,2020)
b. Updating the R-VIA (Record of Vessel Authorized to fish in Indonesia waters) into DIVA TUNA (Database of Indonesian Vessel Authorised to fish for Tuna) as online and public verification tool.
c. Increase inspection and surveillance in results to date no less than 621 vessels were mostly be sunk due to IUU fishing activities both national and foreign vessel boats since 2015.

5. SPECIFIC INFORMATION ABOUT IMPLEMENTATION OF CMM (SEABIRD, CETACEAN, AND WHITE-TIP SHARK)

a. Seabird : According to the Minister regulation No 12/2012 concerning on fishing in highs seas, that Indonesian Longline fishing vessel operating in high seas should utilized tori line. Recently, Indonesia has developed national plan of action (NPOA) of seabird in collaboration with seabird life South Africa and able to join several workshops related to seabird conservation both in Indonesia and Vietnam in 2016 and April 2017. During the workshops it is noted that very small number of seabird has interact with vessel that operated in the Indian Ocean. In the 2021 in the area of WCFPC convention i.e. FMA 716 and FMA 717 there were reported zero interaction with seabird.
b. Cetacean: According to Indonesian government Act No. 7 year 1999 on protecting of cetaceans and stipulating the Minister Regulation No. 12 /20 12 on Fishing Business in High Seas, Minister Regulation No. 30 year 2012 on Fishing Business in Fisheries Management Area of Republic of Indonesia, and Minister Regulation No. 26 year 2013 on Amended of Minister Regulation No. 30 year 2012 article 73 on Fishing Business in Fisheries Management Area of Republic of Indonesian cetaceans are protected. Log book data reported in 2021 (as submitted to Secretariat) there were no (zero) interaction of cetaceans with purse seine (PS) with cetacean

c. White-tip Shark: According to Minister regulation No 12/2012, No 59/2014 as amended by minister regulation No 34/2015 it is regulated that landing of oceanic whitetip shark and hammer head sharks are prohibited, to date such regulation still enforce.

d. Sea Turtle: There was zero interaction Sea Turtle with Indonesia purse-seine fishing vessels based on 2021 log book, surveillance and national observer report.

6. DISPOSAL OF CATCH (FRESH/FROZEN/OTHER)/MARKET DESTINATION (EXPORT)

a. Disposal of Catch: There was no disposal of catch in 2021.

b. Market Destination (Export)

The export data of tuna has been divided by HS number. The export data included catches from Indian Ocean and Pacific Ocean.

Indonesia has issued detailed breakdown of tuna exports into 16 HS code, as the following:

a. YFT (Fresh or Chilled);
b. Skipjack (Fresh or Chilled);
c. Bigeye (Fresh or Chilled);
d. Albacore (Fresh or Chilled);
e. Other tunas (Fresh or Chilled);
f. YFT (Frozen);
g. Skipjack (Frozen);
h. Bigeye (Frozen);
i. SBT (Frozen);
j. Other tunas (Frozen);
k. Skipjack and Frozen tuna fillet;
l. Whole or sliced tuna in the air tied container;
m. Whole or sliced Skipjack or bonito in the air tied container.

7. SUMMARY OF OBSERVER AND PORT SAMPLING PROGRAMMES (SCIENTIFIC DATA)

Ministry of Marine Affairs and Fisheries has issued Ministerial Regulation Number 01 Year 2013 concerning national observer program. In 2018, DGCF national observer program has deployed 276 observers for Hand Line, Pole and line and Purse seine in FMAs 716, 717 and Indonesian archipelagic waters (FMAs 714 and, 715), with total 1,881 days at sea. In 2019, a total 1262 days at sea has been covered by 137 observers for various tuna fishing vessel. In 2020 there were 80 national observers with 1201 days at sea been observed the fishing vessels, in 2021 there were 52 observers has been deployed on several tuna catchers with a total of 1.749 days at sea (Table 14-15). Port sampling activities is continuing under WPEA-ITM in 2 landing sites i,e: Bitung (12 enumerators). The National data collection program by Research Institute for marine fisheries (RIMF) were also conducted for port sampling at Bulukumba (2 enumerators, Kwandang (2 enumerators) and Manado (2 enumerators) and Sikka, Maumere (2 enumerators). Some data collections through ports sampling and observer also been conducted by non-government organizations (NGOs) and linked to DGCF and the harvest strategy work of the FMA 713,714, and 715 (*The Indonesian Archipelagic Waters*-IAW)

Table 14. Indonesia national observer program (DGCF) in 2016-2020 (LL : Longline, HL: handline, PL; Pole and line, PS: Purse seine).

Gear Type	FMA	2016		2017		2018		2019		2020	
		No Observer	No. Days at sea	No Observer	No. Days at sea	No Observer	No. Days at sea	No Observer	No. Days at sea	No Observer	No. Days at sea
LL	714	-	-	4	74	-	-	-	-	**1**	**4**
	714-715	-	-	2	19	-	-	-	-	-	-
	715	-	-	3	55	-	-	-	-	-	-
	716-717	-	-	1	20	-	-	2	57	-	-
HL	715	1	8	-	-	9	162	5	44	4	50
	716-717							1	6	-	-
PL	714	3	12	3	59	3	23	7	137	11	132
	715	8	69	3	50	13	133	18	164-	18	204
	715-716	-	-	1	7	15	144	-	-	-	-
	716	-	-	2	19	2	11	3	26	-	-
PS	714	2	12	4	125	63	331	46	457	18	152
	714-715	-	-	1	8	81	458			-	-
	715	17	63	11	94	18	127	31	156	18	351
	715-716	-	-	3	28	36	246			-	-
	715-717	-	-	1	17	18	127			-	-
	716	-	-	2	44	18	119	21	127	5	132
	717							3	88	5	176
Total		31	164	41	619	276	1881	137	1262	80	1201

Table 15. Indonesia national observer program (DGCF) in 2021 (LL : Longline, HL: handline, PL; Pole and line, PS: Purse seine),

Gear Type	FMA	2021	
		No. Observer	No. Days At Sea
HL	714	2	32
	715	2	5
PL	714	9	333
	715	9	244
	716	1	10
PS	713	1	20
	714	15	649
	715	8	278
	716	4	103
	717	1	75
Total		52	1749

8. REPORTING OF EFFORT (Purse seine, Hand line and Pole and line)

Indonesia has launched interim harvest strategy framework for skipjack, yellowfin and bigeye in its Archipelagic waters at the 3rd Bali Tuna Conference on the 31 May 2018. Recent nominal CPUE of the skipjack has been estimated (using WPEA data) for 1.2 tons/day and effort for all pole and line operated in FMAs 713 to 715 to be 64.581 days with 177 days/year/vessel. Log book data on 2017 and 2021?? for PS, LL and PL in particular for FMA 716 and 717 have been submitted to the WCPFC that might be used to estimate effort for those fishery,. During annual catch estimate workshop, the need to have detail information of total effort of PS, HL & PL operated in 716 & 717 derived from logbook data is remained and required further discussion in a dedicated catch and effort workshop.

9. STATISTICAL DATA COLLECTION SYSTEMS IN USE ORGANIZATION AND JOB DUTIES

A. GENERAL PROCEDURE OF ONE DATA POLICY

1. Since 2017, based on One Data Policy within the Ministry of Marine and fisheries Affairs (MMAF), data collection has been conducted by Centre of Data Statistic and Information (CDSI). CDSI has responsible for designing survey method, supervision of the survey, tabulation/compilation, analyzing, and publishing of National Capture Fisheries Statistics. In the 2021 the national capture fisheries statistic back lead by DGCF and report to CDSI.
2. Data validation process is conducted with hierarchical scheme from district, provincial to center government (MMAF).
3. Directorate General (DG) such as DG of Capture Fisheries, DG of Aquaculture, DG of Spatial and Zoning will conduct validation for catches production, Aquaculture production and Salt production respectively, all data from these DG as well as From district and Provinces will be validated by CDSI.

4. Data collection conduct at fishing port is derived from fishing logbook, landing data information, initial sheet for catch certification, vessel Inspection Report and observer program.

B. RESEARCH ACTIVITIES (TUNAS, OTHER SPECIES, SPECIES OF SPECIAL INTEREST, OCEANOGRAPHIC INFLUENCES)

1. WPEA: Tuna data collection based on ports sampling on selected sampling is continuing under WPEA-ITM project. The Project in the 2021 covers Bitung fishing ports to continue record on catch composition by species by gear as well as its size distribution.

2. A collaborative research project between CFR-MMAF (Indonesia) and ACIAR – CSIRO (Australia) for period 2018-2021 that extended to March 2023 is "Harvest strategies for Indonesian tropical tuna fisheries to increase sustainable benefits", among other objectives this activity will determine productivity of tropical tuna in Indonesia and collect socio-economic information for the different sectors of the tuna fisheries, as well as improve capacity of operational fisheries management and research..

3. Continuing data collection from port based program on small scale tuna fisheries through collaborative work with NGOs (i,e. MDPI, TNC, SFP, YKAN, YII) and fishing association (AP2HI) fisheries using E.BRPL platform , IFISH and trial on used of spot trace.

4. National fish stock Assessment conducted by Research Institute for Marine Fisheries (RIMF-MMAF). Data Collection with support from Indonesia's government under national stock assessment program has been conducted for FMA 713,716,717 including the tropical tuna since 2019.

I. FISHING GROUND (2021)

Based on interview with the skippers and having them point the position of fishing in one-degree-grid map, the fishing grounds can be presented in the following figures:

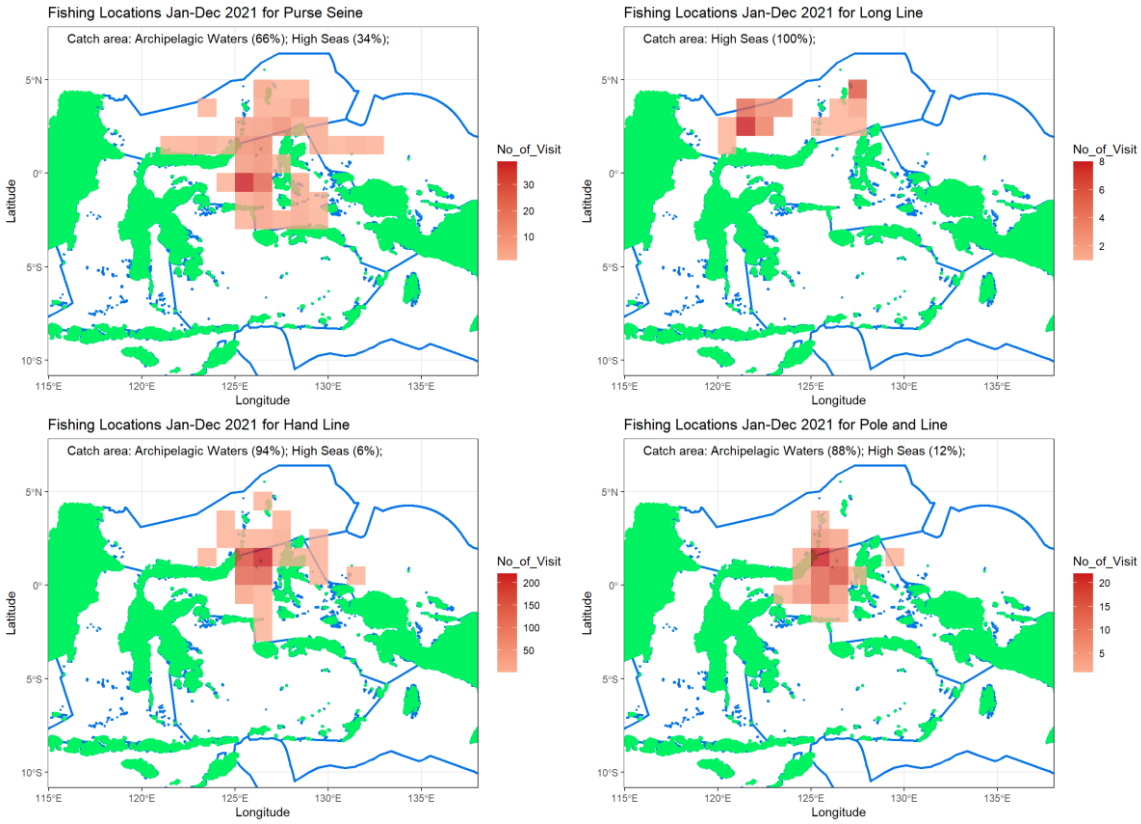


Figure 2. Fishing areas for Purse Seine, Pole and Line, Long Line and Hand Line vessels.

II. CATCH COMPOSITION 2021

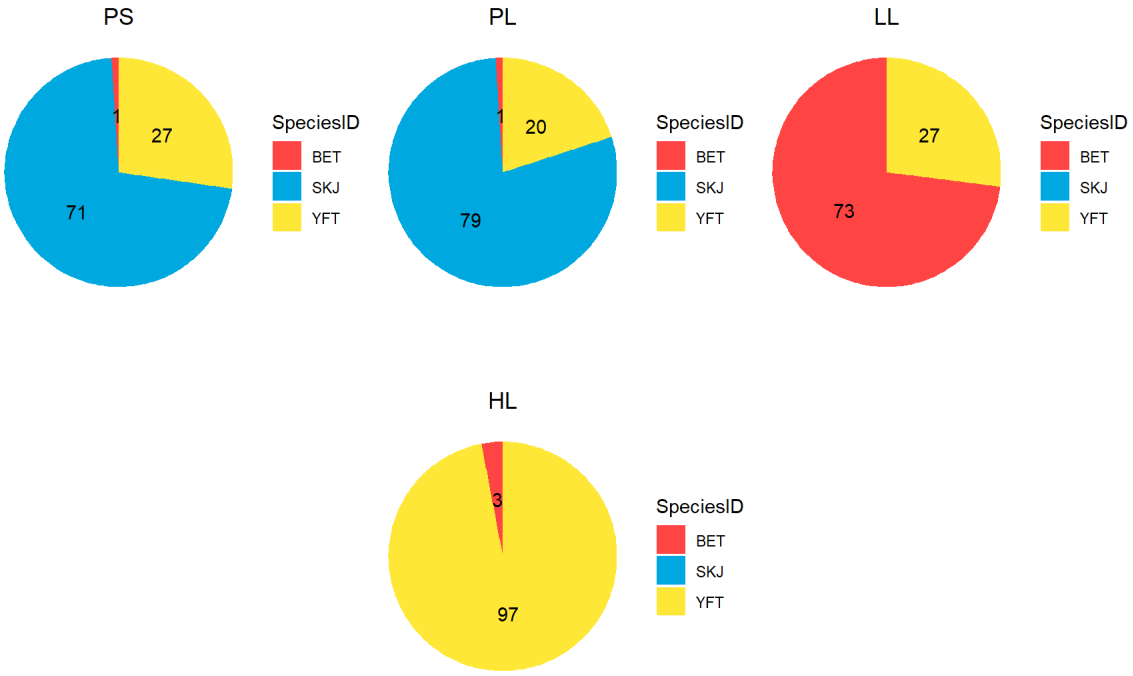


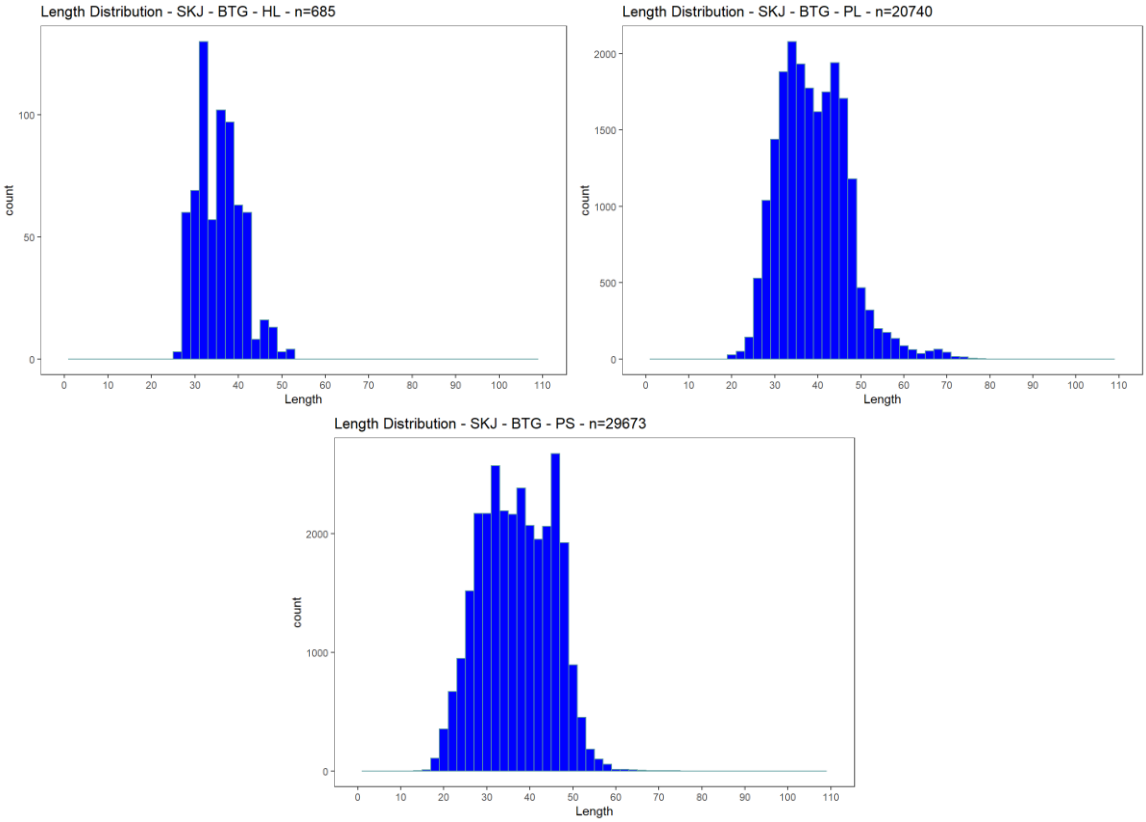
Figure 3. Catch composition of Purse Seine, Pole and Line, Long Line and Hand Line, based at Bitung, in 2021

Port Sampling activity in Bitung in 2021 reports that catch composition by gear varied: Purse Seine caught mostly SKJ (71 %); Pole and Line caught mostly SKJ (79 %); Long Line caught mostly BET (73 %); Hand Line caught mostly YFT (97 %);

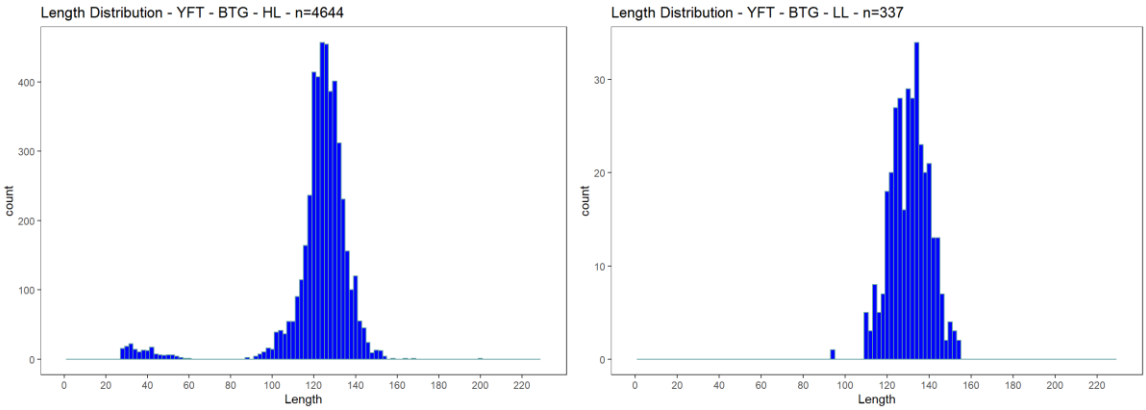
III. SIZE DISTIBUTION BASED ON PORT SAMPLING YEAR 2021.

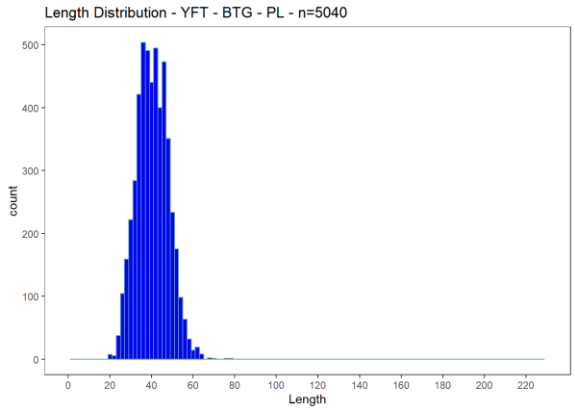
A. Length Frequency Distribution

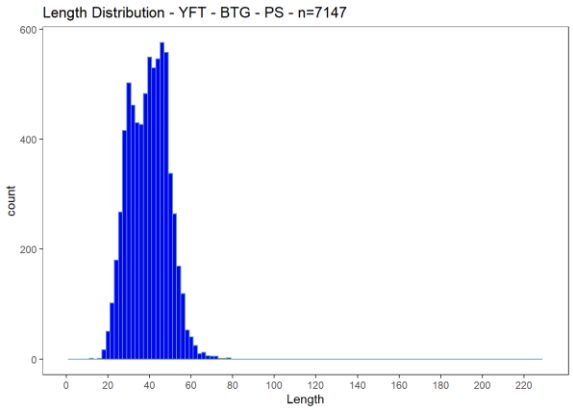
Skipjack (*Katsuwonus pelamis*)



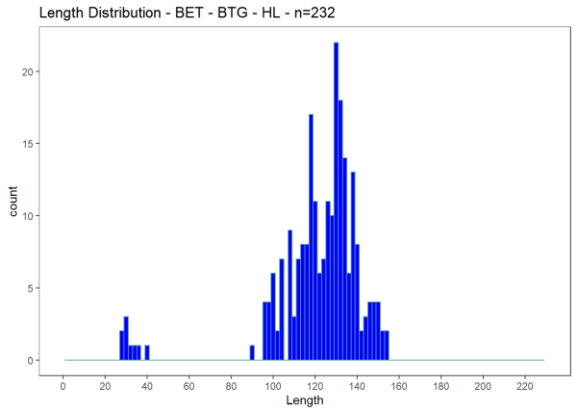
Yellowfin Tuna (*Thunnus albacares*)

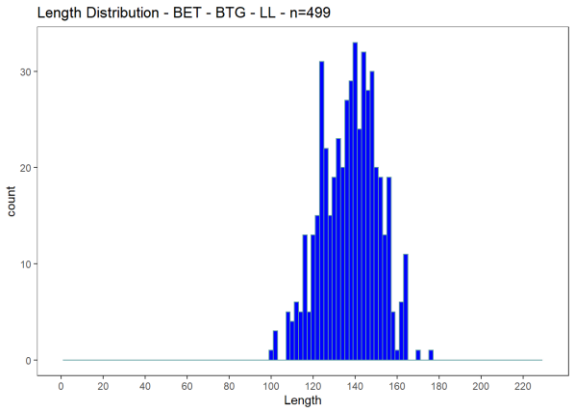


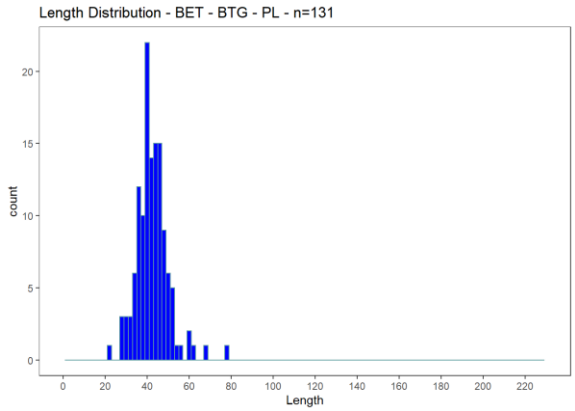


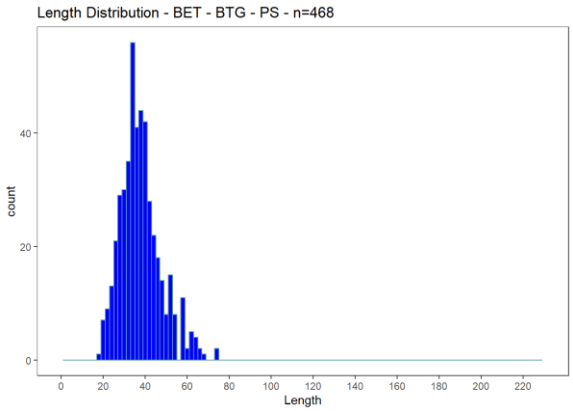


Bigeye Tuna (*Thunnus obesus*)



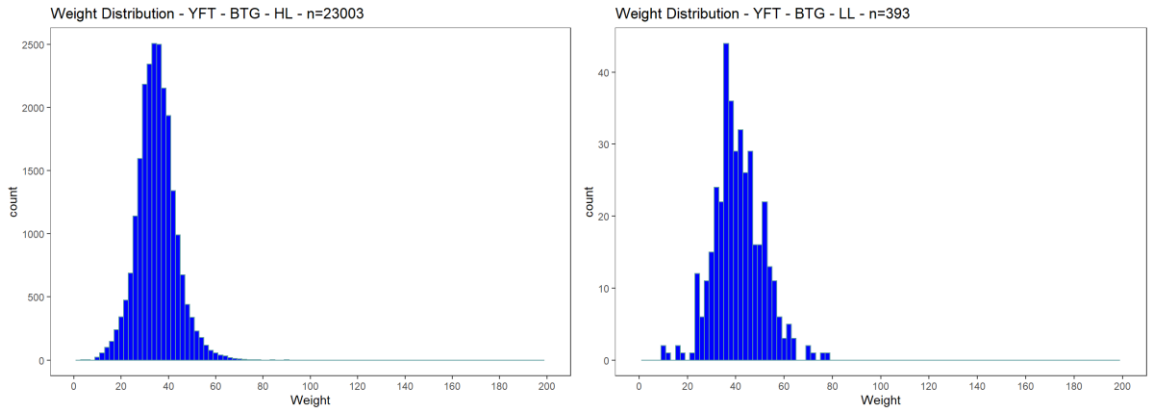




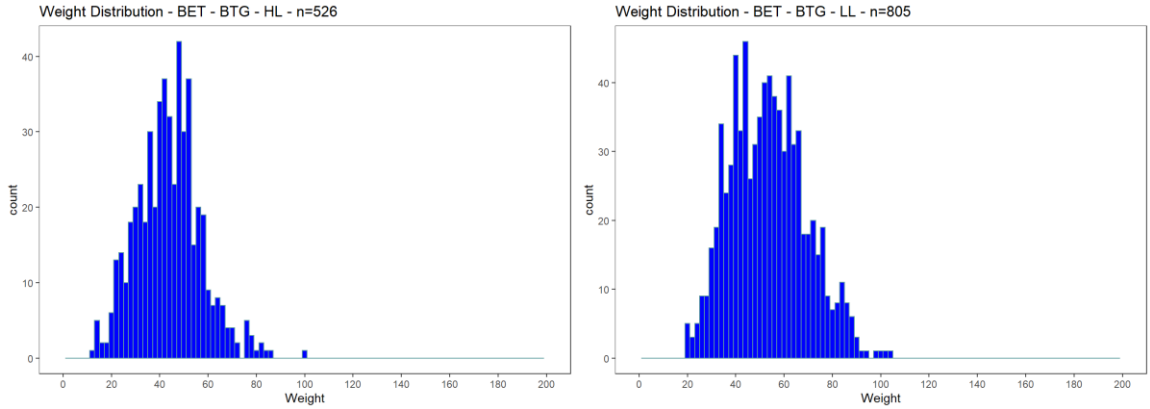


B. Weight Distribution

Yellowfin Tuna *(Thunnus albacares)*



Bigeye Tuna *(Thunnus obesus)*



ADDENDUM TO ANNUAL REPORT PART 1 (2021)
Specific information to be provided in Part 1 as required by CMMs[1]

CMM 2005-03 [North Pacific Albacore], Para 4	There are no catch of north albacore from (PS,LL, PL) gear that operated north of equator.
CMM 2006-04 [South West striped Marlin], Para 4	Not Applicable for Indonesia. No Indonesian fishing vessel operated South of 15 S
CMM 2009-03 [Swordfish], Para 8	Not Applicable for Indonesia → No Indonesia fishing vessels targeting swordfish South of 20^0S as well as north of 20^0S in WCPFC convention Area
CMM 2009-06 [Transshipment], Para 11 (ANNEX II)	**No transhipment in 2021**, all cacth shall landed directly to port. Indonesia has issued Minister Regulation No. 57/20 14 on banning of transhipment.
CMM 2010-07 [Sharks], Para 4	Catch of shark is provide in the table 10 a.
CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5	**No PS interaction with cetaceans** CCMs shall include in their Part 1 Annual Report any instances in which cetaceans have been encircled by the purse seine nets of their flagged vessels, reported under paragraph 2(b).
CMM 2011-04 [Oceanic whitetip sharks], Para 3	Provision Catch of shark is provide in the table 10 a
CMM 2012-04 [Whale sharks], Para 06	**No PS interaction with cetaceans**
CMM 2013-08 [Silky sharks], Para 3	Provision Catch of shark is provide in the table 10 a
Observer coverage (WCPFC 11 decision – para 484(b)	Indonesia has national observer program as inform in annual part 1. Table 14. **Not applicable** . In year 2021 there was no Indonesia vessel operated in high seas and on other countries EEZ.
CMM 2015-02 [South Pacific Albacore] Para 4	**Not applicable** for Indonesia. no Indonesian fishing vessel operated South of 20 S
CMM 2017-06 [Seabirds] Para 9	Zero interactions of seabird to Indonesia's Tuna fishing Vessel

[1] Reporting requirements requested by CMMs and decisions by the Commission, as of WCPFC15 (Dec 2018)

IV. CMM 2017-06: [Seabirds] Annex 2. Guidelines for reporting templates for Part 1 report

Indonesia has adopted CMM 2012-07/CMM 2015-03/CMM 2017-06 through Minister Regulation No. 12 year 2012 on Fishing in High Seas. In 2021, no interactions were reported by observer on board on 2021.

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