

**INDONESIA National Report to the  
Scientific Committee of the  
Indian Ocean Tuna Commission, 2013**

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**INFORMATION ON FISHERIES, RESEARCH AND STATISTICS**

<p>In accordance with IOTC Resolution 10/02, final scientific data for the previous year was provided to the Secretariat by 30 June of the current year, <b>for all fleets other than longline</b> [<i>e.g.</i> for a National report submitted to the Secretariat in 2012, final data for the 2009 calendar year must be provided to the Secretariat by 30 June 2012)</p>	<p>YES or NO [delete one]</p> <p>DD/MM/YYYY [Add submission date here]</p>
<p>In accordance with IOTC Resolution 10/02, provisional <b>longline data</b> for the previous year was provided to the Secretariat by 30 June of the current year [<i>e.g.</i> for a National report submitted to the Secretariat in 2012, preliminary data for the 2011 calendar year was provided to the Secretariat by 30 June 2012).</p> <p><b>REMINDER:</b> Final longline data for the previous year is due to the Secretariat by 30 Dec of the current year [<i>e.g.</i> for a National report submitted to the Secretariat in 2012, final data for the 2011 calendar year must be provided to the Secretariat by 30 December 2012).</p>	<p>YES or NO [delete one]</p> <p>DD/MM/YYYY [Add submission date here]</p>
<p>If no, please indicate the reason(s) and intended actions:</p>	

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## Executive Summary

Fisheries management Areas (FMAs) 572 (Indian Ocean – west Sumatera) and 573 (South of Java – East Nusa Tenggara), 571 (Malaka strait and Andaman Sea) are three fisheries management areas among eleven FMAs that located within the IOTC area of competence. Long liners is the main fishing gear type operated in those FMAs, was 1227 vessels in 2013. The national catch of four main tuna species in 2012 was estimated 168,626 t while the total catch for all species by all gears type was estimated 398,540 t. Port sampling and scientific observer programs is still continuing and conducted by Research Institute for Tuna fisheries (RITF) Benoa. Recently ministerial regulation of MMAF no 01 year 2013 concerning observer onboard for fishing and carrier vessel was issued, furthermore Database Sharing Systems for Fisheries Management which integrate a number of databases, including the licensing, logbook and VMS databases has recently launched by the Minister of Marine Affairs and Fisheries on 19 November 2013 in Jakarta.



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## 1. BACKGROUND/GENERAL FISHERY INFORMATION

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 consist of 17,508 islands and coast line of approximately 81,000 km. Totally, Indonesia has 5.8 million km<sup>2</sup> of marine waters consisting of 3.1 million km<sup>2</sup> of territorial waters (<12 miles) and 2.7 million km<sup>2</sup> of EEZ (12-200 miles). For fisheries management purpose Indonesia waters is divided into eleven Fisheries Management Areas (FMAs) (Figure 1). FMAs 572 (Indian Ocean – west Sumatera) , 573 (South of Java – east Nusa Tenggara),and 571 (Malaka strait and Andaman sea) are located within the IOTC area of competence (Figure 1).

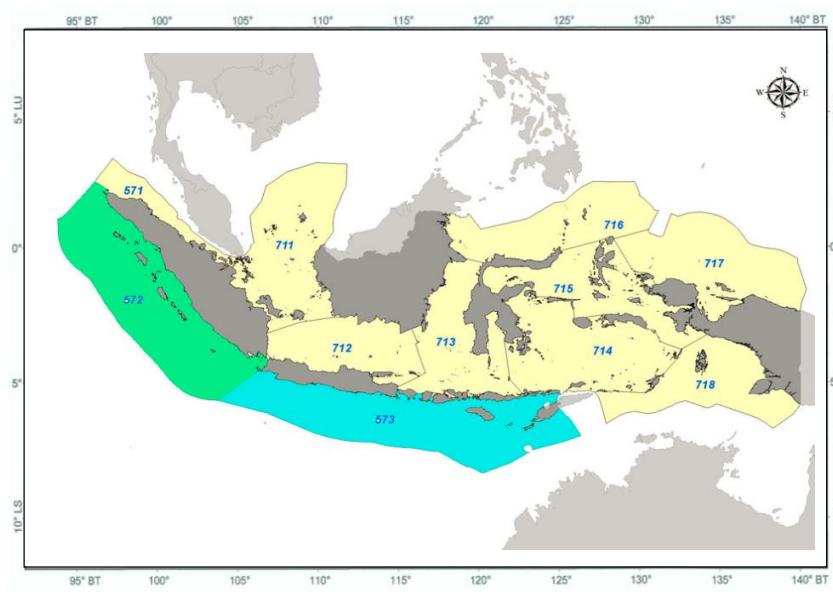


Figure 1. The eleven of fisheries management area in Indonesian marine waters

Across South Indonesian marine waters from Banda Aceh to NTT (East timor) there are at least 12 fishing ports as landing site for tuna. Five main landing sites for Indian Ocean tuna industrial fleet are Bena Fishing Port (Bali), Muara Baru Port (Jakarta) and Cilacap Port (Central Java), Pelabuhan Ratu (West Java) and Bungus (West Sumatera). There are also several non industrial fishing ports located in Sumatera, Jawa, Bali and NTT Island that known as tuna landing place (Figure 2). Bena Fishing Port is considered as main tuna landing port for Indonesian tuna catch

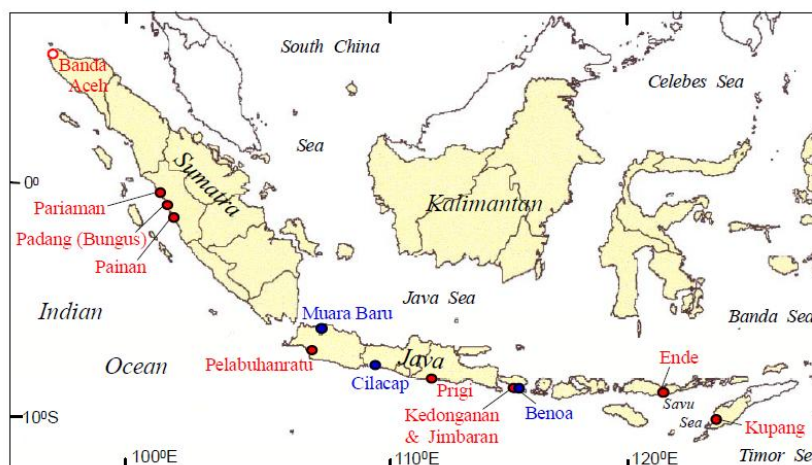


Figure 2. Primary fishing port/landing sites the industrial (*blue label*) and artisanal (*red label*)  
 Source: RCCF- ACIAR Report 2003 (Source of map Proctor *et al* 2003)

The species of tropical tuna that are commonly found in Indonesia waters are yellowfin tuna (YFT), bigeye tuna (BET) and skipjack tuna (SKJ). These species are targeted by various fishing gears such as tuna longline (LL), purse seine (PS), pole and line (PL), hand line (HL), and gill net (GN). Among those, long line and purse seine are gears type that mainly contribute a significant catch from the total catch of tuna

## 2. FLEET STRUCTURE

The number of registered fishing boats operated, as reported to IOTC as per November 2013 in the FMAs 571, 572 and 573 was 1256 with breakdown for longline (1227), purse seine (25), gillnet (2), carrier boat (2). Those fishing boats were vary in size from less than 50 GT to 1025 GT, among them 28 vessels over 200 GT and mostly 100-200 GT. the number of tuna longline fishing in the Indian ocean has slightly decrease from 1256 boats in 2012 to 1227 boats in 2013. Fishing fleets targeting tunas less than Loa 24m operated in the territorial water up to Indonesian EEZ that not included in the table 1.

Table 1. Registered Indonesian vessels by size (GT) as reported to IOTC as per 20 November 2013 (Source DGCF 2013)

size	Longline	Purse seine	Gillnet	Carrier /cargo freezer	Total
<50	183	0	1	0	184
51-100	469	7	1	0	477
101-200	552	14	0	1	567
201-300	3	1	0	0	4
301-500	6	0	0	1	7
501-800	14	0	0	0	14
>800	0	3	0	0	3
Total	1227	25	2	2	1256

### 3. NATIONAL CATCH

Indonesian national statistic reported that annual catch of four (4) main species such as bigeye tuna, yellowfin tuna, skipjack tuna and albacore as described in the (Table 2) , Total catch of main tunas in 2012 was 168,626 ton which composed of yellowfin tuna (37,724t); bigeye tuna (32,540 t), skipjack tuna (87,333 t) and albacore (11,028 t). The average of tunas catch since 2004 to 2012 is estimated 133,092t (tonnes). The catch proportion in average since 2004 to 2012 was yellowfin tuna (28,74 %) , bigeye tuna (16,35%), skipjack tuna (48,60%) and albacore (8,11%). Long line was the main fishing gears targeting tuna that contribute a significant proportion among others gear type. Table 2 did not include data for Southern Bluefin tuna (SBT), tuna like species, sharks, billfishes, seerfish and others associated species, therefore the actual total catch of all species might be much larger, for example the total catch for all species caught by all gears type in 2007, 2008, 2009, and 2011 was 250,296 t, 334,559 t, 336,372 t, 604,452 t, 429,751 t respectively, while in 2012 it is estimating for 398,540 t (DGCF 2012).

**Table 2 . Annual catch estimation by main tuna species and by gears during 2004-2012**

Gear type	Tuna Species										Average	*)
		2004	2005	2006	2007	2008	2009	2010	2011	2012	(MT)	(%)
Longline	Yellowfin	35.566,0	47.570,0	27.090,0	15.837,1	15.133,4	13.487,7	14.572,0	9.503,0	10.222,4	20.998	45,99%
	Bigeye	24.132,0	13.337,0	13.278,0	12.708,5	11.830,4	10.001,7	14.202,0	8.251,6	9.621,0	13.040	28,56%
	Cakalang	1.933,0	1.850,0	2.741,0	1.306,4	492,4	585,3	1.463,0	4.189,3	8.943,1	2.611	5,72%
	Albacore	11.178,0	9.222,0	7.950,0	9.148,1	8.653,6	13.025,6	5.505,0	8.775,0	7.631,4	9.010	19,73%
	<b>Total</b>	<b>72.809,0</b>	<b>71.979,0</b>	<b>51.059,0</b>	<b>39.000,1</b>	<b>36.109,8</b>	<b>37.100,3</b>	<b>35.742,0</b>	<b>30.718,9</b>	<b>36.417,8</b>	<b>45.660</b>	<b>100,00%</b>
Purse-seine	Yellowfin	487,0	651,0	371,0	1.282,5	3.373,2	1.717,9	4.334,0	8.331,0	9.257,0	3.312	11,12%
	Bigeye	-	-	237,0	1.478,9	726,6	7.070,9	8.226,0	7.385,0	8.920,0	3.783	12,70%
	Cakalang	23.986,0	22.960,0	11.722,0	16.982,3	13.216,9	27.209,7	22.652,0	36.016,0	27.667,0	22.490	75,52%
	Albacore	-	-	-	218,3	86,6	-	341,0	1.027,0	93,0	196	0,66%
	<b>Total</b>	<b>24.473,0</b>	<b>23.611,0</b>	<b>12.330,0</b>	<b>19.962,0</b>	<b>17.403,3</b>	<b>35.998,5</b>	<b>35.553,0</b>	<b>52.759,0</b>	<b>45.937,0</b>	<b>29.781</b>	<b>100,00%</b>
Pole and Line	Yellowfin	511,0	684,0	373,0	-	-	358,7	457,0	1.639,0	416,0	493	16,17%
	Bigeye	-	-	-	-	-	-	-	-	-	-	0,00%
	Cakalang	2.164,0	2.071,0	3.780,0	-	-	3.613,1	2.255,0	2.506,0	6.626,0	2.557	83,83%
	Albacore	-	-	-	-	-	-	-	-	-	-	0,00%
	<b>Total</b>	<b>60,0</b>	<b>2.755,0</b>	<b>4.153,0</b>	<b>-</b>	<b>-</b>	<b>3.971,8</b>	<b>2.712,0</b>	<b>4.145,0</b>	<b>7.042,0</b>	<b>3.050</b>	<b>100,00%</b>
Handline	Yellowfin	60,0	80,0	554,0	856,0	5.256,5	3.028,8	3.117,0	2.133,0	2.251,0	1.926	47,90%
	Bigeye	-	-	-	1,8	58,9	200,8	200,0	239,0	116,0	91	2,26%
	Cakalang	69,0	66,0	353,0	685,3	2.947,1	3.720,2	3.373,0	2.743,0	3.143,0	1.900	47,25%
	Albacore	-	-	-	0,6	453,8	-	39,0	39,0	405,0	104	2,59%
	<b>Total</b>	<b>129,0</b>	<b>146,0</b>	<b>907,0</b>	<b>1.543,7</b>	<b>8.716,3</b>	<b>6.949,8</b>	<b>6.729,0</b>	<b>5.154,0</b>	<b>5.915,0</b>	<b>4.021</b>	<b>100,00%</b>
Others	Yellowfin	6.238,0	8.343,0	2.196,0	13.044,4	427,9	15.478,9	25.446,0	16.944,0	15.578,0	11.522	22,51%
	Bigeye	-	-	732,0	6.507,8	3.510,1	5.848,6	2.142,0	10.983,0	13.883,0	5.451	10,65%
	Cakalang	22.691,0	21.721,0	31.922,0	33.278,0	31.443,6	34.677,7	38.723,2	39.147,0	40.954,0	32.729	63,94%
	Albacore	65,0	63,0	-	-	-	1.544,4	7.145,0	1.642,0	2.899,0	1.484	2,90%
	<b>Total</b>	<b>-</b>	<b>30.127,0</b>	<b>34.850,0</b>	<b>52.830,2</b>	<b>35.381,6</b>	<b>57.549,6</b>	<b>73.456,2</b>	<b>68.716,0</b>	<b>73.314,0</b>	<b>51.185</b>	<b>100,00%</b>
Grand Total	Yellowfin	42.862	57.328	30.584	31.020	24.191	34.072	47.926	38.550	37.724	38.251	28,74%
	Bigeye	24.132	13.337	14.247	20.697	16.126	23.122	24.770	26.859	32.540	21.759	16,35%
	Cakalang	50.843	48.668	50.518	52.252	48.100	69.806	68.466	84.601	87.333	62.288	46,80%
	Albacore	11.243	9.285	7.950	9.367	9.194	14.570	13.030	11.483	11.028	10.794	8,11%
	<b>Total</b>	<b>117.837</b>	<b>128.618</b>	<b>103.299</b>	<b>113.336</b>	<b>97.611</b>	<b>141.570</b>	<b>154.192</b>	<b>161.493</b>	<b>168.626</b>	<b>133.092</b>	<b>100%</b>

Source data: Indonesia capture Fisheries statistic (2000-2012)

\*) : catch proportion (%) by species for all gears.

Exclude Catch for SBT, 2012 catch include FMA 512

Change of the catch (in particular albacore) as adopted in WS of catch estimate with IOTC June 2013

Table 2 has been revised and developed based on Indonesia capture fisheries data (2004-2012) and estimation from recent workshop of catch estimate supervised by IOTC on 21-25 June 2013 in Bogor and Jakarta \_Indonesia.

### 3.1 Annual Catch Estimation at Bena Fishing Port

Estimation of annual catch through port sampling program and landed at Bena, reported a decrease trend of total tuna landed since 2009 for 13,686 ton become 6,326 ton in 2011, while in 2012 the total catch was slightly increase to 6,602 t (Table 3).



Table 3. Estimation of annual catch (in tonnes) of primary species by longline landed at the Bena Port (YFT=Yellowfin tuna, BET=Bigeye tuna, SBT=Southern bluefin tuna, ALB=Albacore from 2004 to 2012

YEAR	YFT	BET	SBT	ALB	TOTAL
2004	4.413	4.184	613	1.906	11.116
2005	4.196	3.939	1.690	1.494	11.319
2006	4.323	4.366	558	1.450	10.697
2007	5.354	5.292	1.077	1.132	12.855
2008	6.924	5.033	905	2.811	15.673
2009	7.240	4.680	746	1.020	13.686
2010	5.372	2.168	566	983	9.089
2011	3.006	2.504	432	384	6.326
2012	2.049	2.719	613	1.221	6.602
TOTAL	42.877	34.885	7.200	12.401	97.363

The number of tuna longliner unloaded the catch at Bena fishing port since 2004 showing a steady decrease trend down up to 60-70% in 2011 compare to 2004 and continue to decrease in 2012 (Figure 3), indicate decrease production of catch from the Indian Ocean landed in Bena.

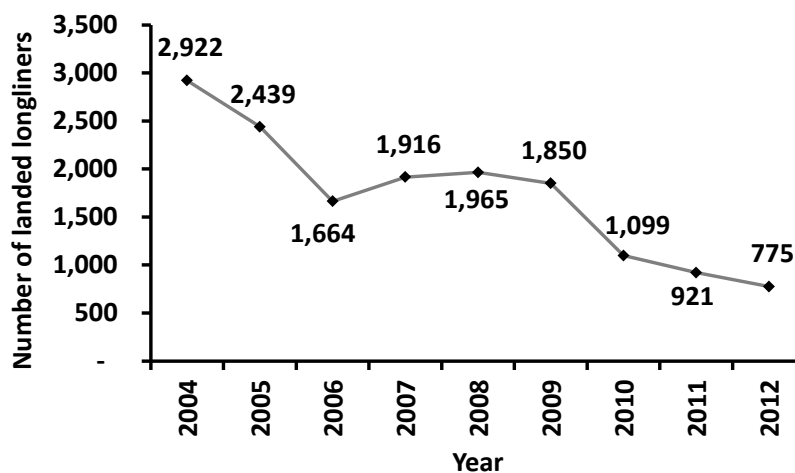


Figure 3. The number of tuna longliner landed at Bena Fishing Port during 2004-2012

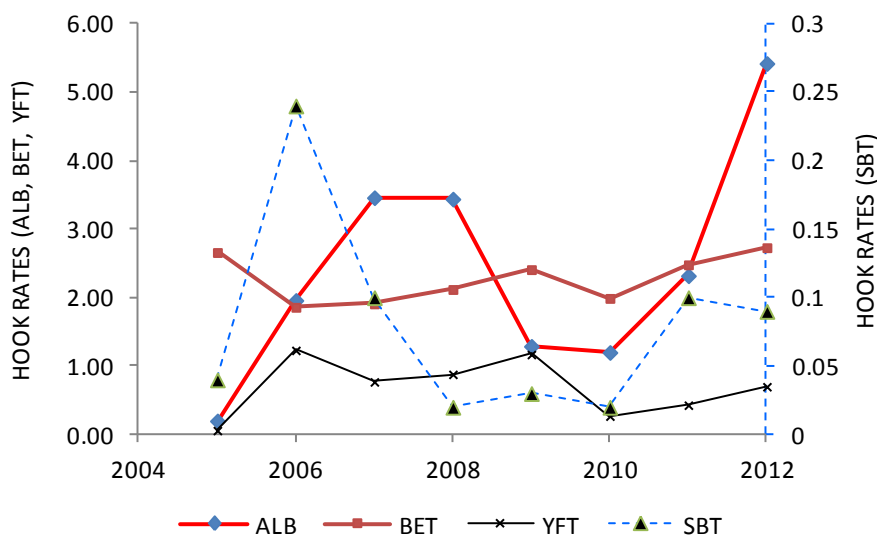


Figure 4. Fluctuation of average hook rate (fish/1000 hooks) for tuna(ALB, BET, YFT and SBT) based on scientific observer data in the Indian Ocean, 2012. (As presented in Satria *et al* 2013)

Long liners hook rate of Yellowfin tuna was decrease from 1.23/1000 hooks in 2006 to just 0.27/1000 hooks in 2010 while hook rate of Bigeye tend to slightly increase up to 2.73 in 2012 (figure 4)

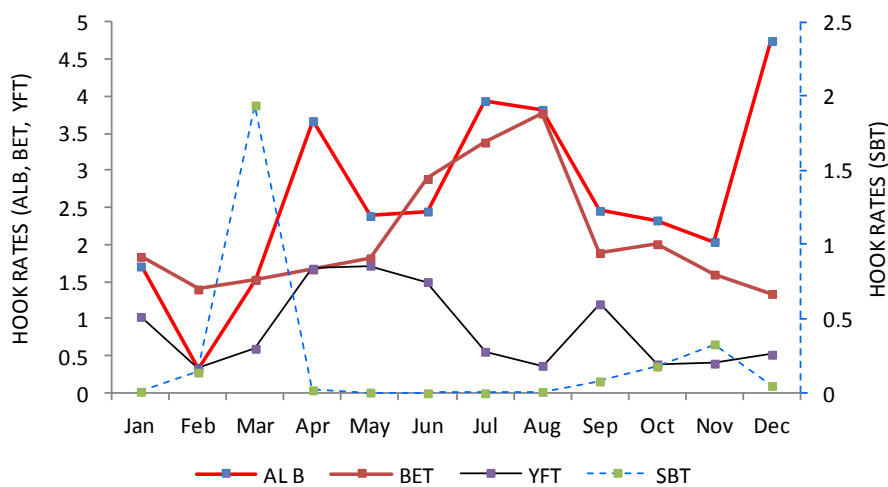


Figure 5. Average hook rate by month (fish/1000 hooks) for ALB, BET, YFT and SBT based on scientific observer data in 2012 (As presented in Satria *et al* 2013)

There was also occur fluctuation of average hook rate for ALB, BET, YFT and SBT on monthly basis (figure 5). The highest hook rate (2.88-3.77/1000 hooks) occur between June to August for bigeye and April-June (1.5-1.68/1000 hooks) for Yellowfin. The average of hook rate on monthly basis of Bigeye tuna (BET) are commonly higher compare to Yellowfin tuna (YFT).

#### 4. RECREATIONAL FISHERY

There is no official reported catch from Indonesia recreational fishing. An organization deal with sport fishing has been established since 1997 “FORMASI” (*Indonesia Fishing Sport Federation*) and this organization is a member of International game fish association (IGFA). FORMASI regularly conduct international sport fishing tournament at least once time a year in the Indian Ocean, information could be accessed at [www.formasi.or.id](http://www.formasi.or.id) activities in the convention area.

#### 5. ECOSYSTEM AND BYCATCH ISSUES

##### 5.1 Sharks

Recent progress related to the management of shark in Indonesia after establishment of National Plan of Action of the Shark (NPOA-Shark) on 10<sup>th</sup> October 2010 is the issuance of ministerial decree no 12, 2012 chapter X which regulate a management and conservation of bycatch and ecological related species on tuna fisheries. Several activities in 2012 is raising the fishers awareness on the important of sharks resource sustainability through workshops, seminars and producing and distribute posters which prohibit several keys species of sharks to catch. Due to budget constraint, implementation of the key actions is being focussed in Tanjung Luar Fish Landing Center (East Lombok), since this place is considered as a main place where sharks is landed. however, it is still difficult to change the tradition for the sharks fisher to not target the sharks particularly in Tanjung luar. Recently in October 2013 a workshop attended by stake holder of sharks was conducted in Jakarta and continue with initiation to set national quota for (*Charcharhinus longimanus*, *Sphyrna zygaena*, *sphyrna mokaran*, *Sphyrna lewini*) it was agree by the WS to limit the catch with a certain quota for selected sharks however the WS also noted the difficulties to estimate sharks quota with limited data available while also consider a highly migratory nature of the species.

## 5.2 Seabirds

Scientific observer program also include seabirds on their data record and since 2005 to 2012, in 2012 observed reported within 638 setting were incidentally caught 8 seabirds, 6 were released alive while 2 seabirds already dead. Indonesia currently do not has national plan of action for seabird mitigation

## 5.3 Marine turtle

Recent update on marine turtle In 2012 observer of RITF benoa reported 5 Olive Ridley turtle caught by longliner and release alive. While update from 10 observer of WWF-Indonesia during 2012-2013 there were recorded 25 tuna longline bycatch of sea turtle from 638 setting (20.988 hooks). From total 25 of sea turtle there were released to the sea in life 14 and 11 dead as presented in table 2.

Table 4. Bycatch of sea turtle from tuna longliners operated in Indian ocean from WWF Indonesia observer (2012-2013)

Sea Turtle	Condition				Handling Success	Percentage (%)
	Catch		Release			
	Life	Dead	Life	Dead		
<i>Leatherback Turtle</i>	3		2	1	2	12.5
<i>Green Turtle</i>		1		1	0	0
<i>Olive Ridley Turtle</i>	11	8	10	9	10	62.5
<i>Loggerhead Turtle</i>	2		2		2	12.5
Total	16	9	14	11	14	87.5

Currently Indonesia does not have NPOA for marine turtles in Indonesia but progressing to have one under Directorate General of Coastal and Small Islands-MMAF

## 5.4 Bill fish

Based on RITF observer data the catch proportion of billfishes contribute 6.3 % from the total catch of tuna Longliner. Six species of billfishes were caught by longline vessels in Benoa Port from 2005 to 2012 i.e.: 973 swordfish (*X. gladius*) range: 50-280 cm; mean±SE: 128±1.48 cm, 310 black marlin (*I. indica*) range: 60-307 cm; mean±SE: 184±1.92 cm, 252 shortbill spearfish (*T. angustirostris*) range: 82-221 cm; mean±SE: 151±1.05 cm, 222 blue marlin (*M. mazara*) range: 110-298 cm; mean±SE: 192±2.39 cm, 109 striped marlin (*K. audax*) range: 69-270 cm; mean±SE: 177±3.23 cm and 94 sailfish (*I. platypterus*) range: 98-259 cm; mean±SE: 165±3.51 cm, (Jatmiko *et al* 2013). Swordfish 49,67 % was a dominant by catch followed by (15,82 %) black marlin

(*I. indica*), (12,86 %) shortbill spearfish (11,31 %) blue marlin (*M. mazara*), (5,54 %) striped marlin (*K. audax*) and 94 (4,8 %) sailfish (*I. platypterus*) Figure 6:

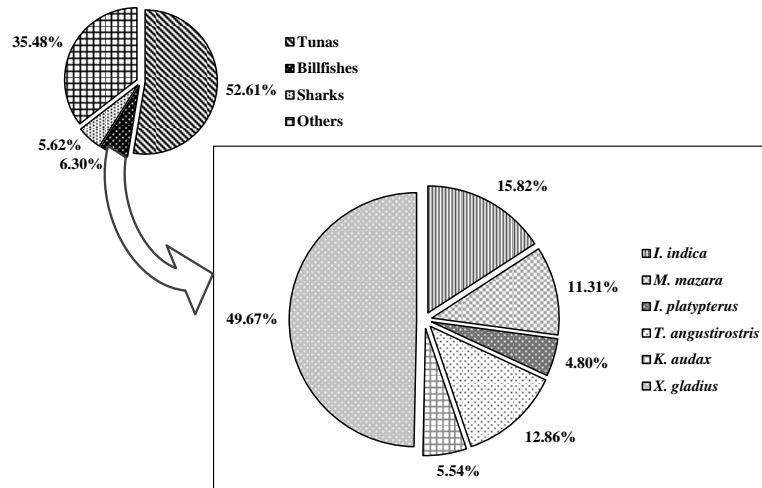


Figure 6. Catch proportion of Bill fishes caught by tuna longliner observed by RITF observer (as presented in Jatmiko *et al* 2013)

### 5.5 Albacore Tuna

Recent workshop related to the Indonesia catch estimation of albacore was held on 21 June 2013 in Bogor and continue on 24-25 June 2013 in Jakarta, The objectives of the WS were to revise the catch series of albacore within Indonesia fisheries that operated within the IOTC Area of Competence. There was revision of albacore catch since 2002 to 2012 and adopted by the workshop, among those albacore catch in 2009-2011 was 14.570 t, 13.030 t, 11,483 t, respectively with preliminary estimate in 2012 was 11,537t (table 5) , complete information could be found in the Workshop Report (IOTC Technical Report. No. 2013/01. 40 pp).

Table 5. New Estimate of a,bacore catches in Indian ocean adopted by the workshop (as presented in IOTC technical Report No 2013/01)

Year	ALBACORE INDIAN OCEAN						TUX INDIAN OCEAN			
	Adopted	Alternative 1	Alternative 2	Alternative 3	Previous IOTC	Previous DGCF	ISSF	DGCF TUN*	DGCF TUS**	DKP Bali TUX***
2002	5,137				5,137	2,826				17,763
2003	8,278				8,278	5,907				14,472
2004	11,243	8,074	11,243	11,972	11,646	11,646		270,702	79,305	12,237
2005	9,285	7,067	9,285	12,590	10,902	10,902		223,556	83,398	10,712
2006	7,950	6,552	7,950	7,240	7,177	2,383		191,419	47,961	9,930
2007	9,367	12,299	9,367	9,151	12,893	12,893		225,540	60,616	18,642
2008	9,194	12,151	9,194	6,729	16,639	8,838		221,362	44,574	18,417
2009	14,570	14,570	10,720	8,598	16,101	5,924	12,185	258,103	56,958	19,825
2010	13,030				14,072	13,030	10,649	262,905	81,615	20,818
2011	11,483				12,080	11,483	9,852	285,716	74,419	16,335
2012	11,537*				13,725	11,537*	10,387	251,807	68,496	14,321

\*Preliminary estimates

+ TUN: albacore and southern bluefin tuna, yellowfin, bigeye and skipjack tunas, bullet, frigate and longtail tunas, and kawakawa

++ TUS: albacore, yellowfin tuna, southern bluefin tuna, and bigeye tuna

+++ TUX: includes all tuna and tuna-like species for export, including all TUN species plus swordfish and other billfish

## 5.6 Neritic Tuna

Six neritic tuna (and maclerel) species bullet tuna (*Auxis rochei*), frigate tuna (*Auxis thazard*), kawakawa (*Euthynnus affinis*), longtail tuna (*Thunnus tonggol*), Indo-Pacific king mackerel (*Scomberomus guttatus*), narrow-barred Spanish mackerel (*Scomberomus comerson*) in Indonesia waters were caught by various of fishing gears including, Pelagic danish seine, Purse seine, surface handline, drifting gillnet and landed in various fishing port in along coastal of west Sumatera (Banda Aceh, Pariaman, Bungus/Padang and Painan) as well as south Java, Bali and Nusatenggara (Muarabaru/Jakarta, Pelabuhanratu, Cilacap, Kedonganan, Bena). six papers authors by Indonesia scientists were presented during the 3<sup>rd</sup> Working Party on Neritic Tuna in , reflecting an active participation Indonesia scientist. It is realized that data collection of this six neritic tuna species required to be strengthen to reduce its uncertainty in the stock assessment context.

## 5.7 Southern Bluefin Tuna

The number of registered tuna longliners in the port of Bena (Bali) was 757. Indonesia tuna longliners authorized by CCSBT in 2012 increased 52% from 209 (2011) to 317 (2012). In fact the active fishing vessels decreased 27% from 172 to 125<sup>1</sup>. Those tuna fishing boats were vary in size from 22-589 GT, mainly based in Bena port Bali and about 85% of Indonesia's catch of SBT is landed in the port of Bena. DGFC reported that total catch of SBT from CDS Bali and Jakarta in 2012 was 778,7 mt. The annual catch estimate from sampling on landing data in Bena of SBT was 879 mt. The catch monitoring activities on

<sup>1</sup> Source : [www.ccsbt.org](http://www.ccsbt.org)

fish size landed in Benoa revealed that size distribution of SBT was range from 82 to 214 cm FL, the mean length of SBT in 2010-2012 has fluctuated between 162 and 171 cm FL with tend of smaller size of specimens occurred in 2012. The nominal CPUE 2005-2012 showed higher catch rates in the temperate regions. The average hook rate was 0.1 per 1000 hooks. A higher hook rate of SBT in 2012 occurred on October, November for 0,1-0,3 per 1000 hooks. Lower hook rate occurred on April to August 0-0,01 per 1000 hooks. Indonesia and Australia (CSIRO) is continuing to work together to provide age composition data (based on direct ageing using otoliths) and close kin analysis. Scientific observer program activities in 2012 cover 496 days at sea with 9 observer for longliners and 1 observer for purse seiner (as presented in Satria et al 2013)

## 6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

### 6.1 Logsheet data collection and verification

Template of Indonesia fishing logbook was developed under the collaboration with IOTC, WCPFC, CCSBT and OFCF Japan. There are three (3) kind of logbook template such as longline/handline; purse-seine/pole and line and other gear. For implementation of this logbook program, Ministry of Marine Affairs and Fisheries has released Regulation Number 18 Year 2010 of 5 October 2010. It is stipulated that logbook report has to be submitted to port authority prior to catch landing and mandatory to vessels above 5 GT. 60 % of fishing vessels within IOTC competence area were handed over logbook to DGCF up to July 2013 (217 of 355 of vessel with log book), among those however a serious effort should take into consideration to improve the coverage and quality of logbook. For effective implementation of this program, it is necessary to increase efforts to introduce this program and capacity both to fishers as well as port officers.

### 6.2. Vessel Monitoring System

VMS for fishing vessels has been started to be implemented in Indonesia since 2003. Currently, through Ministerial Regulation No.10/2013, all fishing vessel above 30 GT mandatory to be equipped by VMS transmitter. Without VMS transmitter on board, the fishing vessel will not get permission to leave the fishing port for their fishing operations. Fishing monitoring center (FMC) for Indonesia's VMS is base in Jakarta. In order to combat of illegal, unreported and unregulated (IUU) Fishing, Indonesia has started to implement Database Sharing Systems for Fisheries Management. The system is developed to integrate a number of databases, including the licensing, logbook and VMS databases. The Launching of the system application has recently been made by the Minister of Marine and Fisheries on 19 November 2013 in Jakarta that will be



applied to 45 fishing ports of Indonesia. fisheries Information and services for Indonesia VMS is provided and could be accessed at <http://dkpvms.dkp.go.id>.

### 6.3. Observer programme

Indonesia fishing vessels have joined Regional Observer Programme for Transshipment at Sea since 2009 under resolution IOTC No. 08/02, which has been superseded by Resolution 11/05 and Resolution 12/05 concerning on establishing a programme for transshipment by large-scale fishing vessels stated that “*Each CPC shall ensure that all carrier vessels transhipping at sea have on board an IOTC observer.*” Scientific observer program in Benoa Bali was initially a collaboration program between Indonesia’s Ministry of Marine Affairs through research center for capture fisheries and CSIRO Marine and Atmospheric Research (Australia), in 2005 (see sadiyah *et al* 2011). Later, in 2011 a new research institution namely Research Institute for Tuna Fisheries (RITF) with full funded by Indonesian government is established that basically conduct continuation of port sampling and scientific observer program for tuna fisheries in the Indian Ocean. The number of scientific observer involved in 2012 was 7 observers. In 2013 the observer was also include Purse seiner to be observed onboard (Table 5). The Observer Program data set is currently the most detailed and most reliable data available from the fishery, in providing catch and effort information. Recently ministerial regulation of MMAF no 01 year 2013 formally regulate an observer onboard for fishing and carrier vessel, a positive progress to secure government budget for observer program in the future.

Table 6 Activity summary of observer based at Benoa Fishing Port (RITF) 2005 and 2013 (July)

Year	No. Of Obs	No. Of Trips	No. Of Company	Total Day at Sea	Days/Trip	Avg (d/trip)
2005	6	6	1	251	19 - 22	20
2006	6	19	5	758	7 – 99	39
2007	6	14	5	648	21 – 108	34
2008	5	15	7	481	23 – 66	30
2009	5	14	8	535	15 – 59	38
2010	5	8	4	240	40 – 50	50
2011	5	6	3	210	30 - 50	40
2012	6	7	5	496	12 - 90	82.7
2013*	9	6	3	484	48-60	80.7
2013 PS*	1	2	2	21	9-12	10.5



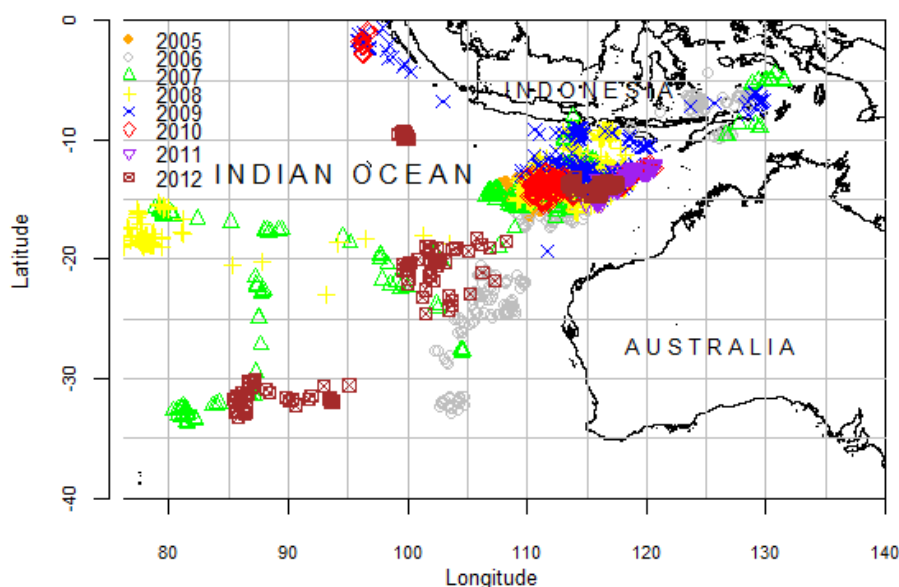


Figure 7. Spatial distribution of the observed sets from 2005 to 2012 (source: Observer Program data).

The observed longline sets from 2005 to 2012 covered the Eastern Indian Ocean between latitudes 0° and 34°S and longitudes 75° and 132°E, but also the Banda Sea (Figure 7). The observed sets mostly occurred within the area between 10° - 20°S and 105° - 120°E. The furthest distance of these sets occurred in 2006, 2007 and 2012. Smaller area was covered by the observed longline sets in 2011. The observed sets in 2005 and between 2009 - 2011 have never extended to south of 20°S.

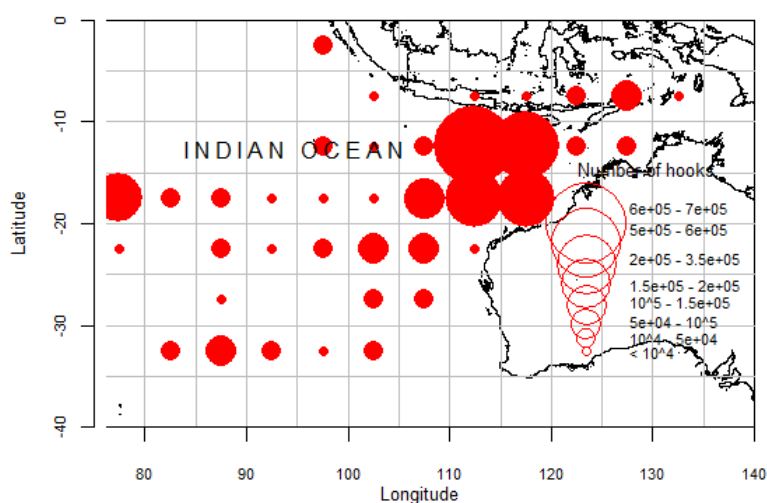


Figure 8. Spatial distribution of observed longline effort (hooks) by 5-degree blocks, aggregated from 2005 to 2012 (source: RITF Observer Program data).

The spatial distribution of observed effort is presented by 5-degree blocks (5° latitude x 5° longitude) (Figure 8). More than 50% of the total number of hooks recorded were concentrated between 110° and 120°E and 10° and 20° (Figure 8). South of 20°S (the temperate area of the Indian Ocean) and in the Banda Sea, the effort recorded in any 5-degree block never exceeded 100,000 hooks.

#### 6.4 Port sampling programme

Port sampling program at three major Indonesian ports, Nizam Zahman Jakarta fishing port, Benoa-Bali fishing port and Cilacap fishing port central of Java was initially commenced in the mid 2002. This was a collaborative research program between Indonesia's Research Centre for Capture Fisheries/Research Institute for Marine Fisheries (RCCF/RIMF) and Directorate General for Capture Fisheries (DGCF), CSIRO Marine and Atmospheric Research, Australia's Department of Agriculture of Fisheries and Forestry (DAFF), Australian Centre for International Agricultural Research (ACIAR), Indian Ocean Tuna Commission (IOTC) and Overseas Fisheries Cooperation Foundation of Japan (OFCF) (see Sadiyah *et al* 2011) The aim of this port sampling program was to monitor the catches of all tuna species landed, and also to record the number of landings by Benoa-based longline vessel (Proctor *et al.*, 2006). Port sampling program at two sampling sites (Nizam Zahman and Cilacap fishing ports) have been undertaken by DGCF since 2007, and Benoa sampling port also covered by DGCF since 2010. In February 2010, the RIMF commenced to undertake the sampling, collecting and monitoring activities (Nugroho *et al.*, 2010). RITF continue tuna catch monitoring program at Benoa Fishing Port with a minimum 30% coverage of landings at each processing plant as a target coverage, as reported in previous year the coverage of port sampling in 2009-2011 was above 35 %, continuing in 2012 the monthly monitoring of ports sampling were range from 49 – 64 % coverage (Table 6).

Table 7. Summary of RITF Monitoring activities at Benoa during 2012

Month	Number landing	Number Sample	% covered	Number of weight recorded	Number of length weight measured
January	69	42	60,87	4833	573
February	55	33	60	9800	729
March	71	41	57,75	11940	683
April	71	35	49,3	8338	591
May	54	34	62,96	8018	895
June	46	26	56,52	20514	1375
July	73	43	58,9	30251	890
August	80	46	57,5	10198	973
September	58	33	56,9	19788	1032
October	71	46	64,79	20421	1596
November	62	36	58,06	11061	1322
December	65	37	56,92	9675	1359

## 6.5 Catch Documentation scheme (CDS)-SBT

Catch Documentation scheme (CDS) has been implemented by Indonesia since 1 January 2010 in two fishing ports i.e. Benoa Port, Bali and Nizam Zachman Oceanic Fishing Port, Jakarta. All activities in both export and import of SBT shall complete three forms Catch Tagging Form, Catch Monitoring Form, Re-Export/Export after Landing of Domestic Product Form and submitted to DGCF-DRFM. DFRM will compile CDS data and submitted to CCSBT secretariat in spreadsheet format. During three years implementation of CDS we found that the validation and supervision in filling the CDS forms should regularly monitor in order to minimize the possible error. Information on Indonesia CDS could be found in (Satria *et all* 2013)

## 7. NATIONAL RESEARCH PROGRAMS

1. Project title: Indian Ocean Pelagic fisheries research through Port sampling and observer program, Project Duration: 2010-2013  
Objectives: Continuation of port sampling and observer, Research on Conversion of Processed Southern Bluefin Tuna (Gill and Gutted) to Live Weight of The Fish (Whole), Selctivity  
Implementing unit: RITF Benoa
2. Project title: Developing capacity for management of Indonesias pelagic fisheries resources , Planned Project Duration : 2012-2015 .  
Objectives: To improve Indonesia's capacity to assess and manage its tuna fisheries to improve Indonesia's pelagic fisheries research capacity. The project also address population structure of Bigeye tuna and yellowfin tuna through genetic and parasites analysis  
Implementing Unit : RCFMC – ACIAR  
Recent progress: Field trip and survey to collect samples have been performed and still continuing.

## 8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.



Indonesia participates in several IOTC SC working parties. Scientific observer and port sampling program are continuing to monitor catch and effort of tuna and other ecologically related species in order to implement scientific Committee Recommendation.

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