



**CCSBT-ERS/2203/Annual Report - Indonesia
(ERSWG Agenda Item 2.1)**

**INDONESIA ANNUAL REPORT TO THE ECOLOGICALLY
RELATED SPECIES WORKING GROUP (ERSWG)**

Prepared for the 14th Meeting of the Ecologically Related Species Working Group (ERSWG)
of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
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1. Introduction

Southern bluefin tuna (*Thunnus maccoyii*) considered as bycatch from Indonesia tuna longline vessel targeting bigeye tuna and yellowfin tuna in the Indian Ocean. Indonesia became the member of the Commission on Conservation of Southern Bluefin Tuna (CCSBT) on April, 2008 with a membership allocation of annual catch limits of 1,122.8 tons for a period 2021-2022. Based on 2020 catch documentation scheme (CDS), as reported, SBT catch of Indonesian tuna longline fishery was 1,298 tons, derived from 155 authorized vessels. This report contains information on Ecologically Related Species (ERS) of Indonesia tuna longline fisheries collected by scientific observers on-board updated to 2010-2020.

2. Review of SBT Fisheries

Tuna longliner was introduced to Indonesia by Japan in the 1930s (Ishida et al., 1994), but the first commercial fishing commenced in the early 1960s, almost three decades later (Proctor et al., 2003). Southern Bluefin Tuna (*Thunnus maccoyii*, SBT) has been historically caught as a by-catch from longline fisheries targeting yellowfin since the late-1970s (Farley et al., 2014) and bigeye since the early 1980s after deep-longlining was introduced (Sadiyah et al., 2011). Among the tuna fishing ports, SBT mainly landed in Benoa. Landing activities are regularly monitored by Research Institute for Tuna Fisheries (RITF) through scientific port sampling and scientific observer programs. The first program was initiated in mid-2002 but had a long history as a collaboration project, traced back to 1993 (Farley et al., 2014). On the other hand, the scientific observer program has been introduced since mid-2005 as an Indonesia-Australia collaboration (Project FIS/2002/074 of Australian Centre for International Agricultural Research). After 2010 the activities were conducted by RITF with support from the state budget.

Indonesia officially became a full member of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) in 2008. Therefore, Indonesia reserved the right to have a total allowable catch (TAC) of around 1,023 tons for 2018-2020. To establish reliable catch data, the Directorate General of Capture Fisheries (DGCF) introduced a catch documentation scheme (CDS) in 2010 under the CCSBT framework. It has been fully implemented as a basis for official catch data since 2015. SBT catch for the last four years increased steadily (~150 tons/year), whereas the excess catches compensated through carrying over policy. The total catch in 2020 (1,298 tons) was slightly higher than the previous year, set a record for the second-highest catch after 2013 (1,383 tons).

The fishing ground extends from 70-125°E and 0-35°S. Mean observed hook rate ranged from 0.016-3.419 (SBT/1000 hooks) (Table 1). Higher CPUE were obtained below 25°S. Fishing season starts from September to April, high catch usually occurred between October to February and low catch between June to August. The number of active Indonesian tuna longline vessels in CCSBT is shown in the Table 2.

3. Fisheries Monitoring for each fleet

Indonesian scientific observer program first established in 2005. It carries out task in accordance with the template/guideline adopted by IOTC and CCSBT. A total of two scientific observers were deployed in 2020, involved in 2 trips, lasted for 108 days at sea (54 days/trip on average) with 86,845 hooks observed. The number of observed efforts (hooks or trips) was substantially lower than in previous years due to restrictions during the Covid-19 outbreak (Table 3). During the trip, they observed and collected data based on the template provided. Number of catches, discard/release (dead or live), species composition, gear type, catch and effort including biological data are among the data which mandatory collected. Catch and effort data was recorded daily in the fishing logbook and reported to the principal of base-port.

In order to increase data collection by observer on-board as required by RFMO such IOTC and CCSBT, since 2013 Directorate General of Capture Fisheries has established National Observer Program. However, the recent data collection is waiting for validation by the scientists from Research Center of Fisheries Management and Conservation, particularly in species identification such as sharks, ray as well as another species.

4. Seabirds

No interactions were reported in the area below 25°S during longline operation in 2020. It was due to the absence of observation in that particular region. However, in the low latitude (5-10°S), two observed accidental catches of flesh-footed shearwater. Total numbers, CPUE and mortality of seabirds by species incidentally caught by Indonesian longline fishery are shown in Table 4.

5. Other non-target species (sharks and rays)

Blue shark (*Prionace glauca*) and crocodile shark (*Pseudocarcharias kamoharai*) dominated the incidental catch for sharks during 2015-2020. While most blue sharks were retained, crocodile sharks were usually discarded dead. In the other hand, pelagic stingray (*Pteroplatytrygon violacea*) was the only ray species to be found. Total numbers, CPUE and

mortality of sharks and rays incidentally caught by Indonesian longline fishery are shown in Table 5.

6. Marine mammal and marine reptile

Olive-ridley turtle was the dominant species which incidentally caught during longline operation. In 2020 there was no marine turtle observed as the incidental catch from the tuna longline fleet. Total numbers, CPUE and mortality of non-target species incidentally caught by Indonesian longline fishery are shown in Table 6.

7. Mitigation measures to minimize seabird and other by-catch species

In accordance with Ministerial Regulation No. 12/2002, it is mandatory for each tuna longline vessel to implement mitigation measure to seabirds when they are fishing in south of 25°S. The option of night setting, seabirds scaling line and weight line has become a requirement. In relation to mitigation measure on marine turtle, it is a requirement for tuna longline vessel to carry on-board a necessary equipment to appropriate release of marine turtle caught incidentally, such as de-hooker, line-cutting and scope net.

8. Public Relations and Education Activities

Awareness building activity to protect ERS and bycatch such as marine turtle, seabirds and sharks, has been developed in form of printing material such as poster and leaflet. This material has been widely distributed to all stakeholders of tuna fisheries, particularly in Bali and Jakarta where SBT is commonly landed. Education on by-catch mitigation is actively proposed, i.e., observers training of trainers, basic safety training, legislation board members visitation, etc. Indonesia currently also exchanges by-catch data with IOTC and International NGO (Birdlife foundation).

9. Information on other ERS (non-bycatch) such as prey and predator species

Nothing

10. Others

Nothing

11. Implementation of the IPOA-Seabirds and IPOA-Sharks

In response to the mandate for the establishment of an international plan of action in terms of conservation and management of sharks and rays by the member of United Nations through Fisheries and Agricultural Organization (FAO), as well as increasing global concern towards sharks and rays sustainability, Indonesia issued the first National Plan of Action (NPOA) for sharks and rays for 2010-2014. The document outlines a strategy and action plan for the sustainability of the entire sharks and rays species. The extension for the period 2016-2020 is currently running and being updated. In addition, as work is still in progress, whale sharks will be put as fully protected species in the upcoming action plan. In addition, seabirds' mitigation measure is regulated through Ministerial Decree 58/PERMEN-KP/2020 and 10/PERMEN-KP/2021 related to mitigation for ecologically related species, in which the tori line is obligatory for every vessel operated beyond 25°S. Indonesia already developed NPOA for Seabird back in 2016 and has been reviewed by Birdlife South Africa, with full compliance remarks and obtained the green status.

12. Reference

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13. Appendix

Table 1. Mean observed hook rates of SBT caught by Indonesian tuna longline fisheries based on scientific observer data 2010-2020.

Year	Observed hook rate (SBT/1000 hooks)	
	Area 1	Area 2
2010	0.016	N/A
2011	0.045	N/A
2012	0.223	0.032
2013	0.116	N/A
2014	0.087	N/A
2015	0.080	N/A
2016	0.042	N/A
2017	0.000	3.221
2018	0.573	3.419
2019	0.240	1.060
2020	0.100	0.090

Note: N/A means No observations

Table 2. Annual catch of SBT in the CCSBT convention area, 2010-2020

Year	Number of active vessels	Total Catch (tons)
2010	186	580
2011	187	769
2012	145	817
2013	158	722
2014	191	1,187
2015	112	593
2016	107	601
2017	109	835
2018	139	1,087
2019	150	1,206
2020	155	1,298

Table 3. Coverage percentage from the Indonesian observer program, 2010-2020

Year	Trips Observed	Observed effort (X1,000)	Total estimated effort (X1,000)	Coverage (%)
2010	8	220.302	N/A	N/A
2011	6	131.644	N/A	N/A
2012	7	282.147	N/A	N/A
2013	3	251.774	N/A	N/A
2014	6	216.641	N/A	N/A
2015	5	172.463	N/A	N/A
2016	3	175.868	N/A	N/A
2017	5	192.188	20,972.575	0.92
2018	6	262.856	29,241.984	0.90
2019	9	216.836	26,573.553	0.82
2020	2	86.845	28,554.500	0.30

Table 4. Estimation of total seabirds caught incidentally by Indonesian tuna longline fleets from 2016-2020

Country / Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Species/ Species Group Code	English	Observed Captures					Mortality Rate	Estimate
		Gear Code	Fleet Code				Captures (number)	Capture Rate	Fate (numbers)				
									Retained (dead)	Discarded (dead)	Released (live)		
ID	2016*	LL	IDD	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ID	2017	LL	IDD	2	DCU	<i>Thalassarche cauta</i>	1	0.031	0	0	1	0.000	N/A
ID	2017	LL	IDD	2	PDM	<i>Pterodroma macroptera</i>	18	0.559	2	16	0	0.559	N/A
ID	2017	LL	IDD	2	PHU	<i>Phoebetria fusca</i>	1	0.031	0	1	0	0.031	N/A
ID	2018	LL	IDD	1	PFC	<i>Puffinus carneipes</i>	6	0.037	0	6	0	0.094	N/A
ID	2018	LL	IDD	2	PFC	<i>Puffinus carneipes</i>	1	0.050	0	1	0	0.050	N/A
ID	2018	LL	IDD	2	PDM	<i>Pterodroma macroptera</i>	1	0.050	0	1	0	0.050	N/A
ID	2019	LL	IDD	1	PTZ	<i>Procellaria spp</i>	5	0.058	0	5	0	0.058	N/A
ID	2020	LL	IDD	2	PFC	<i>Puffinus carneipes</i>	2	0.095	0	2	0	0.095	N/A

Note: *) No interactions

Table 5. Observed of total sharks and rays caught incidentally by Indonesian tuna longline fleets from 2016-2020

Country / Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Species/ Species Group Code	English	Observed Captures					Mortality Rate	Estimate
		Gear Code	Fleet Code				Captures (number)	Capture Rate	Fate (numbers)				
									Retained (dead)	Discarded (dead)	Released (live)		
ID	2016	LL	IDD	1	BSH	<i>Prionace glauca</i>	77	0.809	77	0	0	0.809	N/A
ID	2016	LL	IDD	1	CCB	<i>Carcharhinus brevipinna</i>	2	0.021	2	0	0	0.021	N/A
ID	2016	LL	IDD	1	PSK	<i>Pseudocarcharias kamoharai</i>	174	1.828	6	168	0	1.828	N/A
ID	2016	LL	IDD	1	PLS	<i>Dasyatis violacea</i>	155	1.629	0	155	0	1.629	N/A
ID	2016	LL	IDD	1	MAK	<i>Isurus spp</i>	3	0.032	3	0	0	0.032	N/A
ID	2016	LL	IDD	1	OCS	<i>Carcharhinus longimanus</i>	5	0.053	5	0	0	0.053	N/A
ID	2016	LL	IDD	1	SMA	<i>Isurus oxyrinchus</i>	1	0.011	1	0	0	0.011	N/A
ID	2016	LL	IDD	1	TSK	<i>Scylliogaleus queketti</i>	2	0.021	2	0	0	0.021	N/A
ID	2017	LL	IDD	1	BSH	<i>Prionace glauca</i>	23	0.714	4	19	0	0.714	N/A
ID	2017	LL	IDD	1	PLS	<i>Dasyatis violacea</i>	23	0.714	0	23	0	0.714	N/A
ID	2017	LL	IDD	1	FAL	<i>Carcharhinus falciformis</i>	1	0.031	0	1	0	0.031	N/A
ID	2017	LL	IDD	1	ISB	<i>Isistius brasiliensis</i>	4	0.124	0	4	0	0.124	N/A
ID	2017	LL	IDD	1	MAK	<i>Isurus spp</i>	2	0.062	0	2	0	0.062	N/A
ID	2017	LL	IDD	1	OCS	<i>Carcharhinus longimanus</i>	1	0.031	1	0	0	0.031	N/A
ID	2017	LL	IDD	1	PSK	<i>Pseudocarcharias kamoharai</i>	35	1.087	1	34	0	1.087	N/A

Country / Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Species/Species Group Code	English	Observed Captures					Estimate	
		Gear Code	Fleet Code				Captures (number)	Capture Rate	Fate (numbers)			Mortality Rate	Estimated total mortalities (number)
									Retained (dead)	Discarded (dead)	Released (live)		
ID	2017	LL	IDD	2	BSH	<i>Prionace glauca</i>	135	4.191	135	0	0	4.191	N/A
ID	2017	LL	IDD	2	PSK	<i>Pseudocarcharias kamoharai</i>	24	0.375	0	24	0	0.745	N/A
ID	2017	LL	IDD	2	PTH	<i>Alopias pelagicus</i>	2	0.031	2	0	0	0.062	N/A
ID	2017	LL	IDD	2	SMA	<i>Isurus oxyrinchus</i>	35	0.547	7	27	1	1.056	N/A
ID	2018	LL	IDD	1	BSH	<i>Prionace glauca</i>	187	1.143	90	93	4	2.861	N/A
ID	2018	LL	IDD	1	BTH	<i>Alopias superciliosus</i>	3	0.018	1	2	0	0.047	N/A
ID	2018	LL	IDD	1	DUS	<i>Carcharhinus obscurus</i>	2	0.012	2	0	0	0.031	N/A
ID	2018	LL	IDD	1	FAL	<i>Carcharhinus falciformis</i>	9	0.055	9	0	0	0.141	N/A
ID	2018	LL	IDD	1	ISB	<i>Isistius brasiliensis</i>	3	0.018	0	3	0	0.047	N/A
ID	2018	LL	IDD	1	LMA	<i>Isurus paucus</i>	5	0.031	0	5	0	0.078	N/A
ID	2018	LL	IDD	1	OCS	<i>Carcharhinus longimanus</i>	7	0.043	5	0	2	0.078	N/A
ID	2018	LL	IDD	1	PLS	<i>Dasyatis violacea</i>	138	0.843	0	110	28	1.720	N/A
ID	2018	LL	IDD	1	PSK	<i>Pseudocarcharias kamoharai</i>	143	0.874	2	141	0	2.236	N/A
ID	2018	LL	IDD	1	PTH	<i>Alopias pelagicus</i>	2	0.012	0	1	1	0.016	N/A
ID	2018	LL	IDD	1	SMA	<i>Isurus oxyrinchus</i>	5	0.031	1	4	0	0.078	N/A
ID	2018	LL	IDD	1	TIG	<i>Galeocerdo cuvier</i>	3	0.018	2	1	0	0.047	N/A
ID	2018	LL	IDD	2	BSH	<i>Prionace glauca</i>	19	0.955	14	5	0	0.116	N/A
ID	2018	LL	IDD	2	PSK	<i>Pseudocarcharias kamoharai</i>	3	0.151	0	3	0	0.018	N/A
ID	2019	LL	IDD	1	BSH	<i>Prionace glauca</i>	87	1.024	29	58	0	1.024	N/A
ID	2019	LL	IDD	1	BTH	<i>Alopias superciliosus</i>	2	0.024	1	1	0	0.024	N/A
ID	2019	LL	IDD	1	CCL	<i>Carcharhinus limbatus</i>	3	0.035	3	0	0	0.035	N/A
ID	2019	LL	IDD	1	FAL	<i>Carcharhinus falciformis</i>	3	0.035	3	0	0	0.035	N/A
ID	2019	LL	IDD	1	LMA	<i>Isurus paucus</i>	1	0.012	0	1	0	0.012	N/A
ID	2019	LL	IDD	1	OCS	<i>Carcharhinus longimanus</i>	3	0.035	2	1	0	0.035	N/A
ID	2019	LL	IDD	1	PLS	<i>Pteroplatytrygon violacea</i>	79	0.930	2	77	0	0.930	N/A
ID	2019	LL	IDD	1	PSK	<i>Pseudocarcharias kamoharai</i>	60	0.706	4	56	0	0.706	N/A
ID	2019	LL	IDD	1	PTH	<i>Alopias pelagicus</i>	2	0.024	1	1	0	0.024	N/A
ID	2019	LL	IDD	1	SMA	<i>Isurus oxyrinchus</i>	2	0.024	2	0	0	0.024	N/A
ID	2020	LL	IDD	1	BSH	<i>Prionace glauca</i>	119	1.805	26	93	0	1.805	N/A
ID	2020	LL	IDD	1	BTH	<i>Alopias superciliosus</i>	12	0.182	1	11	0	0.182	N/A
ID	2020	LL	IDD	1	CCL	<i>Carcharhinus limbatus</i>	2	0.030	0	2	0	0.030	N/A
ID	2020	LL	IDD	1	OCS	<i>Carcharhinus longimanus</i>	2	0.030	0	2	0	0.030	N/A
ID	2020	LL	IDD	1	PLS	<i>Pteroplatytrygon violacea</i>	50	0.759	1	27	22	0.425	N/A
ID	2020	LL	IDD	1	PSK	<i>Pseudocarcharias kamoharai</i>	25	0.379	0	14	11	0.212	N/A
ID	2020	LL	IDD	1	SMA	<i>Isurus oxyrinchus</i>	2	0.030	0	2	0	0.030	N/A
ID	2020	LL	IDD	1	SPY	<i>Sphyrnidae</i>	1	0.015	0	1	0	0.015	N/A

Table 6. Estimation of total sea turtles caught incidentally by Indonesian tuna longline fleets from 2016-2020

Country / Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Species/ Species Group Code	English	Observed Captures					Estimate	
		Gear Code	Fleet Code				Captures (number)	Capture Rate	Fate (numbers)			Mortality Rate	Estimated total mortalities (number)
									Retained (dead)	Discarded (dead)	Released (live)		
ID	2016	LL	IDD	1	LKV	<i>Lepidochelys olivacea</i>	12	0.126	0	11	1	0.116	N/A
ID	2017*	LL	IDD	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ID	2018	LL	IDD	1	LKV	<i>Lepidochelys olivacea</i>	4	0.024	0	3	1	0.047	N/A
ID	2019	LL	IDD	1	LKV	<i>Lepidochelys olivacea</i>	1	0.012	0	1	0	0.012	N/A
ID	2020*	LL	IDD	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: *) No interactions