

INDONESIA SOUTHERN BLUEFIN TUNA FISHERIES¹

A National Report Year 2018

Prepared by

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SUMMARY

Southern bluefin tuna (*Thunnus maccoyii* Castelnau, 1872) is one of the tuna species seasonally caught by Indonesian tuna longliner operating in Indian Ocean. This report provides updated information of research activity national Southern Bluefin Tuna during the harvesting year of 2018. Based on 2018 Catch Documentation Scheme (CDS), number of active longline vessels were reported 139 units, meanwhile caught around 1,087 tons or equal to 10,941 individuals of SBT. Catch-at-size ranged from 67-220 cmFL (mean=170.2 cmFL) for area 1 and 100-198 cmFL (mean=148.2 cmFL) for area 2. A total of 6 scientific observer trips were deployed in 2018, covered 4.31% in term of total active fleets.

1. Introduction

Longlining was introduced to Indonesia by Japan in the 1930s (Sadiyah and Prisantoso, 2017), but the first commercial fishing could only be implemented in 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 yellowfin and bigeye longline fisheries since late-1970s (Farley et al., 2014) after deep-longlining was introduced (Sadiyah et al., 2011). Among the tuna fishing ports, SBT mainly landed in Benoa. The catch is regularly monitored by Research Institute for Tuna Fisheries (RITF) through port monitoring and scientific observer program. The port monitoring program firstly initiated in 2002, but as a project it can be traced back since 1993 (Farley et al., 2014). On the other hand, the scientific observer program has been conducted since mid-2005 as an Indonesia-Australia collaboration (Project FIS/2002/074 of Australian Centre for International Agricultural Research), and after 2010 it has been fully conducted by RITF. Indonesia officially became a full member of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) in 2008. Ever since, Indonesia reserved the right to have total allowable catch (TAC) around 1,023 tons for a period 2018-2020. In order to establish a reliable catch data, DGCF introduced catch documentation scheme (CDS) in 2010 under CCSBT framework as complementary beside the capture fisheries statistical as official national data. And it has been used as a basis for total catch of SBT since 2015. SBT catch in the last four years increased steadily as more quota were given. Total catch in 2018 (1,087 tons) was 30% higher compared to previous year, similar to the catch of 2014 (1,063 tons) and maximized both the quota given in 2018 (1,023,000 kg) and carry over from 2017 quota (64,732 kg).

2. Catch and Effort

Catch and effort of SBT are monitoring through various ways, i.e. daily port sampling program, scientific observer program, catch documentation scheme and logbook data. As for

the later, improvement has been made since the introduction of e-logbook program in 2017. Overall, the common season for SBT is during September-April. In 2018, January-February were recorded as joint highest, by contrast, June-July were the lowest (Table 1). For the last two years, all the SBT caught were from CCSBT statistical area 1 and 2. The total catch in area 1 was similar to last year's for around 773 tons. In addition, total catch from area 2 was doubled compared to previous year for around 313 tons (Table 2). Since the largest market for SBT was Japan, Indonesia also processed all the SBT caught in GGT (Gilled and Gutted, tail retained) condition. Therefore, the total SBT catch in weight was produced using the conversion factors "1.15" from the processed weight. The total catch weight in 2018 was 1,087 t, and the total number of individuals was 10,946 (Table 3). Estimation of total effort was conducted only for 2017-2018, as calculation for previous years is still under validation process. The estimated effort in 2018 was 30% higher than 2017 for around 35 million hooks. Most fishing (82%) were conducted in area 1 (Table 4).

Table 1. Nominal catch by month (in tons)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
2011	69	61	97	78	62	17	67	70	79	117	48	77	842
2012	68	75	53	44	12	20	49	110	147	128	99	105	910
2013	156	245	232	114	18	21	28	93	126	105	134	110	1,383
2014	86	119	102	54	26	35	30	84	86	127	148	167	1,063
2015	83	92	129	59	5	1	3	6	37	64	39	74	593
2016	75	131	95	56	33	24	30	28	49	39	12	29	601
2017	82	98	104	68	14	0	3	46	98	119	134	68	835
2018	241	243	191	95	12	3	4	28	60	82	79	48	1,087

Table 2. Nominal catch by statistical area (in tons)

Year	Area1	Area2	Area8	Area9	Area14	All
2011	616	30	175	17	4	842
2012	676	218	10	6	0	910
2013	1,061	241	74	6	0	1,383
2014	802	121	140	0	0	1,063
2015	593	0	0	0	0	593
2016	601	0	0	0	0	601
2017	700	135	0	0	0	835
2018	773	313	0	0	0	1,087

Table 3. Annual catches of SBT (in tons)

Year	Nr. Of Landing	Nr. Of Active Vessel	Catch Estimate
2004	2,922	-	613
2005	2,439	-	1,690
2006	1,664	-	558
2007	1,916	-	1,077
2008	1,965	-	905
2009	1,850	-	641
2010	1,099	-	580

Year	Nr. Of Landing	Nr. Of Active Vessel	Catch Estimate
2011	921	185	769
2012	775	141	817
2013	753	158	722
2014	858	190	1,187
2015	699	112	593
2016	720	107	601
2017	483	109	835
2018	434	139	1,087

Table 4. Total estimated effort by statistical area

Calendar Year	Fishery		CCSBT Statistical Area	Total & Observed Effort		
	Gear Code	Fleet Code		Total Effort*	Total Observed Effort	Observer Coverage (percentage)
2010	LL	IDD	1	na	189,086	na
2011	LL	IDD	1	na	110,384	na
2012	LL	IDD	1	na	98,916	na
2012	LL	IDD	2	na	154,074	na
2013	LL	IDD	1	na	244,383	na
2014	LL	IDD	1	na	141,428	na
2015	LL	IDD	1	na	147,526	na
2016	LL	IDD	1	na	95,167	na
2017	LL	IDD	1	19,919,900	32,212	0.162
2017	LL	IDD	2	2,991,300	63,960	2.138
2018	LL	IDD	1	29,142,750	160,686	0.551
2018	LL	IDD	2	5,995,275	19,890	0.332

3. Nominal CPUE

Catch-per-unit-of-effort was collected through scientific observer program from mid-2005 to 2018 conducted by Research Institute for Tuna Fisheries (RITF). In general, the nominal CPUE for SBT from mid-2005 never exceed 0.5/1000 hooks, except for the last 2 years where the nominal CPUE were 2.14 and 0.89 respectively. Higher CPUE were obtained in the area 2 compared to area 1 (Table 5). Inconsistent CPUE trend, especially in area 2 was caused by retention from the industry related to observer placement. In addition, CPUE obtained from logbook also presented in this report, for a period of 2017-2018 (Table 5). Overall, there is an increasing abundance reported, as it is still on early step of verification process, the annual CPUE from logbook were presented in kg/1000 hooks instead.

Table 5. Nominal CPUE by statistical area. Source: scientific observer program

Year	Scientific Observer (No/1000 hooks)			Logbook (kg/1000 hooks)		
	Area 1	Area 2	Combined	Area 1	Area 2	Combined
2005	0.04	na	0.04	na	na	na
2006	0.07	0.66	0.25	na	na	na
2007	0.03	0.30	0.10	na	na	na
2008	0.02	0.00	0.02	na	na	na
2009	0.09	na	0.09	na	na	na
2010	0.02	na	0.02	na	na	na
2011	0.05	na	0.05	na	na	na
2012	0.22	0.03	0.11	na	na	na
2013	0.12	na	0.12	na	na	na
2014	0.09	na	0.09	na	na	na
2015	0.08	na	0.08	na	na	na
2016	0.04	na	0.04	na	na	na
2017	0.00	3.22	2.14	13.21	28.79	21.00
2018	0.57	3.42	0.89	56.87	152.34	104.60

4. Size composition

Catch-at-size of SBT monitored by port sampling program, scientific observer program and CDS data. In order to avoid any discrepancies, this report uses size data obtained from CDS. During 2018 fishing season, a total of 10,941 specimens were measured and weighted to the nearest kilograms. Two-third of the fish came from area 1 (7,517 individuals), while the other (3,424 individuals) harvested from area 2. The length frequency distribution showed a slightly different pattern compared to the previous year. Bigger fishes were more likely caught in the area 1 during 2018. Size distributed between 67-220 cmFL with an average of 170.2 cmFL (Figure 1). On the other hand, most of the fish measured from area 2 were smaller compared to area 1. The number of SBT measured only 3,424 individuals, ranged from 100-198 cmFL with mean 148.2 cmFL (Figure 2).

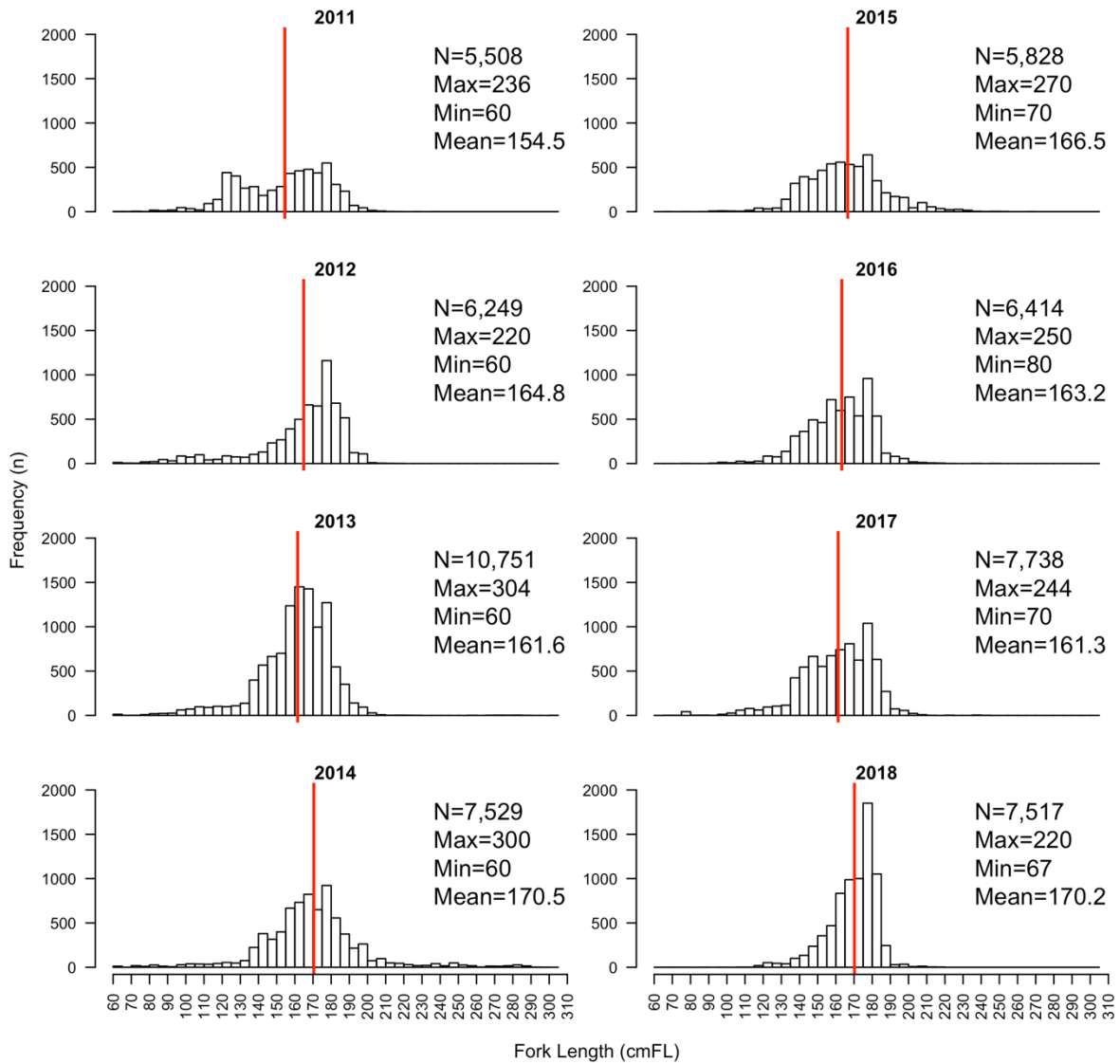


Figure 1. Length frequency distribution of all individual SBT from area 1 based on CDS data 2011-2018 (remarks= red line is mean length).

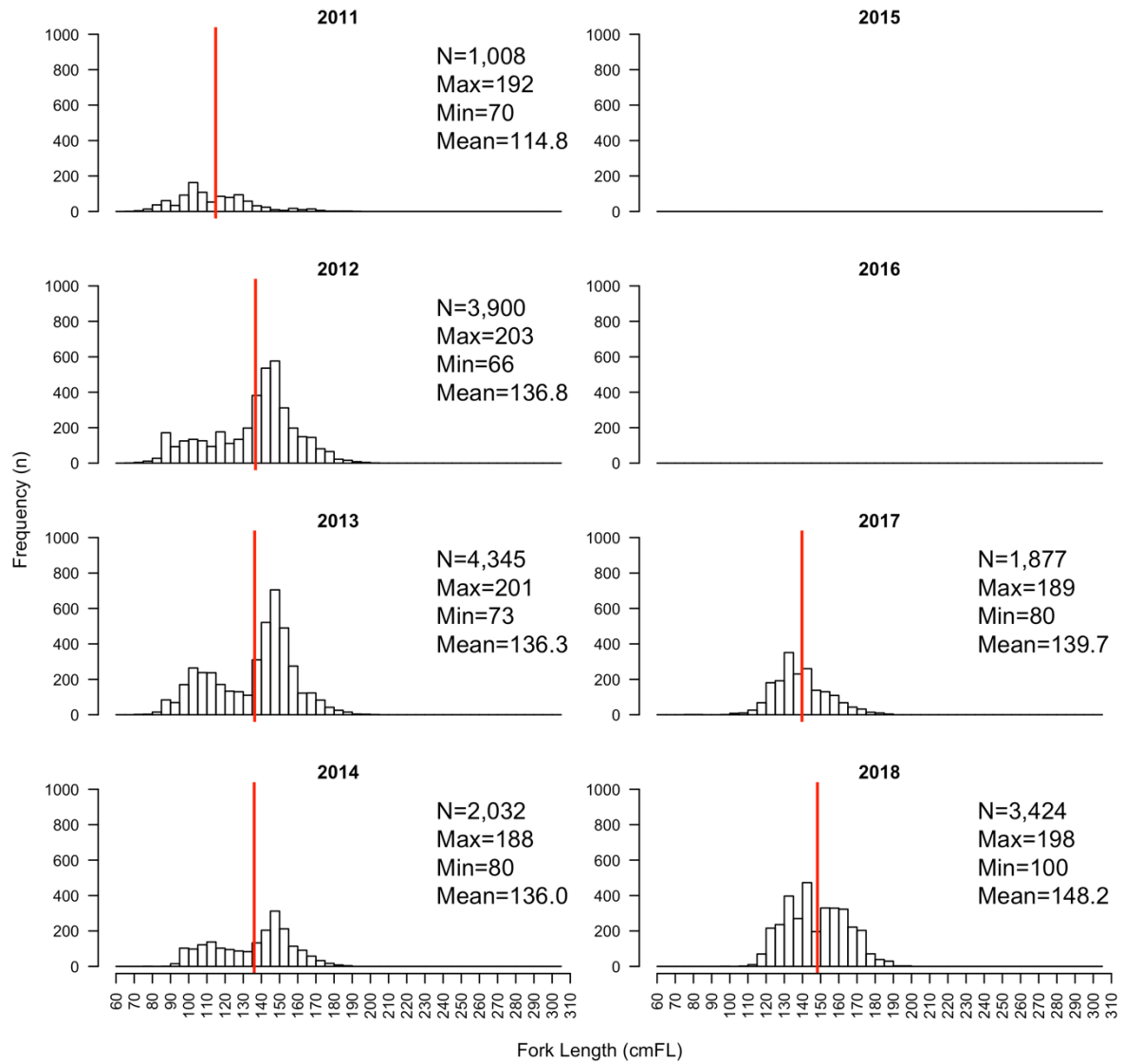


Figure 2. Length frequency distribution of all individual SBT from area 2 based on CDS data 2011-2018 (remarks= red line is mean length).

5. Fleet size and distribution

A total of 139 authorized tuna long line vessels were reported caught SBT in 2018. The number of current active vessels was 25% higher compared to previous year (109 vessels). Most of the vessels (85%) as much as 119 were operated in the area 1, and another 15% (22) were operated in the area 2 (Table 7).

Table 7. Number of active vessels recorded by statistical area

Year	Area 1	Area 2	Area 8	Area 9	Area 14	Total
2010	180	5	0	1	0	186
2011	166	15	4	1	1	187
2012	135	3	6	1	0	145
2013	153	2	2	1	0	158
2014	188	1	2	0	0	191
2015	112	0	0	0	0	112
2016	107	0	0	0	0	107
2017	108	1	0	0	0	109
2018	119	20	0	0	0	139

6. Research and monitoring to improve estimates of attributable catch

Some annual research projects to strengthen scientific and technical basis of data base on tuna fisheries are activities that has been regularly improved since 2013. The project are as follows:

- Improvement on catch estimation from landing data was carried out since last year to reduce any over/underestimate.
- Collecting SBT otolith in spawning ground is still the major activity to provide data base. This regular activity under supervised by CSIRO scientist.
- Collecting sample to support close kin analysis in collaboration with CSIRO-Australia were regularly carried out.
- Research activity on ERS catch still continued especially related shark catch monitoring and seabird catch monitoring.

7. Scientific Observer

A total of 6 scientific observer were deployed, for as long as 321 days-at-sea (53 days/trip in average) and 262,856 hooks observed during a period in 2018. The number of hooks observed increased 36.77% compared to previous years, a courtesy of some fishing companies based in Cilacap and Benoa (Table 8). Most of the observed belong to area 1, which around 61%, followed by EEZ and area 2 for around 31% and 8%, respectively (Table 9). SBT caught in between area 1 and area 2 during January-May 2018.

Table 8. Summary of scientific observer activities of a period 2005-2018.

Year	No. Of Obs	No. Of Trips	No. Of Company	Number of Hooks	Total Day at Sea	Days/Trip	Avg (d/trip)
2005	6	6	1	140,406	251	19-22	20
2006	6	19	5	667,479	758	7-99	39
2007	6	14	5	396,952	648	21-108	34
2008	5	15	7	523,627	481	23-66	30
2009	5	14	8	321,591	535	15-59	38
2010	5	8	4	220,302	240	40-50	50
2011	5	6	3	131,644	210	30-50	40
2012	6	7	5	282,147	496	11-93	83
2013	5	3	3	251,774	170	52-60	57
2014	8	6	4	216,641	371	29-90	62
2015	4	5	5	172,463	241	31-61	48
2016	3	3	3	175,868	170	32-86	57
2017	5	5	5	192,188	241	31-61	48
2018	6	6	6	262,856	321	26-83	53

Table 9. Summary of scientific observer activities in 2018.

Trip	Day at sea	No of Settings	No of Hooks	No of SBT	HR (x10 ³)	CCSBT Statistical Area
1	26	11	16,770	65	3.875	2
2	60	40	44,960	0	0.000	1
3	41	30	35,530	3	0.084	1
4	56	27	31,605	0	0.000	EEZ
5	56	35	50,675	0	0.000	EEZ
6	83	52	79,916	89	1.113	1
		2	3,120	3	0.961	2

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