



CCSBT-ESC/2008/SBT Fisheries - Indonesia  
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# INDONESIA SOUTHERN BLUEFIN TUNA FISHERIES A NATIONAL REPORT 2019

Zulkarnaen Fahmi<sup>1)</sup>, Bram Setyadji<sup>1)</sup>, Satya Mardi<sup>2)</sup>, Ririk K  
Sulistyaningsih<sup>1)</sup>, Hety Hartaty<sup>1)</sup>

- 1) *Research Institute for Tuna Fisheries, MMAF*  
2) *Directorate of Fish Resources Management, MMAF*

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## SUMMARY

Southern bluefin tuna (*Thunnus maccoyii* Castelnau, 1872) is one of the tuna species seasonally caught by Indonesian longline tuna operating in the Indian Ocean. This report provides updated information on Indonesia national catch of SBT during calendar year 2019, extracted from Catch Documentation Scheme (CDS). Total number of active longline vessels recorded was 150 units. Total catch was 1,206 tons and/or about 12,834 individuals. Catch-at-size ranged from 55-217 cmFL (mean=163.05 cmFL) for area 1 and 46-194 cmFL (mean=154.70 cmFL) for area 2. A total of 9 scientific observer trips were deployed in 2019, covering at least 0.35% in area 1 and 0.89% in area 2 in term of total hooks.

## 1. INTRODUCTION

### 1.1. Background

This review report updates the scientific information on the Indonesia southern bluefin tuna (SBT) fishery for the 2019 calendar year, which was from 1 January 2019 to 31 December 2019.

### 1.2. Summary of Historical Development in the Fishery

Longlining was introduced to Indonesia by Japan in the 1930s (Sadiyah and Prisantoso, 2017), but the first commercial fishing commenced 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 longline fisheries targeting yellowfin since late-1970s (Farley et al., 2014) and bigeye since early 1980's 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 port sampling and scientific observer program. The first program initiated in mid-2002, but has long history as a collaboration project, which can be traced back from 1993 (Farley et al., 2014). On the other hand, the scientific observer program has been introduced since mid-2005 as an Indonesia-Australia collaboration, and after 2010 it has been fully funded and conducted by RITF.

### 1.3. Overview of the Most Recent Fishing Season

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, and it has been used as a basis for official catch data since 2015. SBT catch for the last four years increased steadily (~200 tons/year), whereas the excess catches compensated through carry over policy. Total catch in 2019 (1,206 tons) was 10% higher

compared to previous year, set a record for second highest catch after 2013 (1,863 tons) in period 2011-2019.

## **2. CATCH AND EFFORT**

### *2.1. Trends by Gear Type*

Since early days, longlining was and the only known gear capable of catching SBT. Therefore, this review report only compile catch trends from longline.

### *2.2. Trends by Area and Season*

Catch and effort of SBT in particular are monitored through 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. In general, the common fishing season for SBT is during September-April. On the other hand, November marked as the highest, while May and June were joint lowest (Table 1). For the last three years, all the SBT caught were declared only from CCSBT statistical area 1 and 2. The total catch in area 1 was 25% higher compared to last year's for around 1,015 tons. In contrast, total catch from area 2 was reduced around 40% for around 191 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 2019 was 1,206 ton, or equivalent to 12,835 individuals (Table 3). Total estimated effort in 2019 was 20% lower compared to previous year for around 24 million hooks. Most fishing operations (78%) were conducted in area 1 (Table 4).

## **3. Nominal CPUE**

### *3.1. Trends by Fleet*

All recorded SBT catch was obtained from domestic fleets, there were no authorization from foreign, ex-foreign or foreign charter fleet since the issuance of Ministerial Decree No. 10/PERMEN-KP/2015 which the extension of Ministerial Decree No. 56/PERMEN-KP/2014 concerning the moratorium on ex-foreign vessels business permit in Indonesia. And supported by regulation on the prohibition transshipment as declared in Ministerial decree No. 57/PERMEN-KP/2014.

### *3.2. Trends by Area and Season*

Catch-per-unit-of-effort was collected through scientific observer program from mid-2005 to 2019 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 3

years where the nominal CPUE were 2.14, 0.89 and 0.65 respectively. Area 2 traditionally possessed higher CPUE compared to Area 1 (Table 5). However, lack of temporal coverage in this area (mostly caused by retention from the industry regarding observer placement) may incur additional uncertainties. In addition, CPUE calculated from logbook data also presented in this report, for a period of 2017-2019 (Table 5). It is a direct consequence from quality improvement over the years, although, total coverage still around 10% from total catch. The CPUE are presented in kg/1000 hooks.

## **4. SIZE COMPOSITION**

### *4.1. Trends by Fleet*

Catch-at-size of SBT is regularly monitored through port sampling program, scientific observer program and Catch Documentation Scheme (CDS) report. In order to avoid any discrepancies, this review report uses size data obtained from CDS which provides a complete census of fish lengths for the fishery since 2011. All the data recorded and reported came from domestic fleet.

### *4.2. Trends by Area and Season*

During 2019 calendar year, a total of 12,835 specimens were measured and weighted to the nearest centimeter and kilogram. More than 80% of the fish declared from area 1 (10,683 individuals), while the rest (2,152 individuals) harvested from area 2. The length frequency distribution showed a consistent pattern in the last 4 years. Where the average size of SBT caught between 161-170 cmFL. Size distributed between 55-217 cmFL with an average of 163.0 cmFL (Figure 1). Smaller fishes measured from area 2, ranged from 46-194 cmFL (mean=154.7 cmFL). The average size of SBF caught in area 2 in slightly increasing (~7.5cmFL/year) in the last 3 years (Figure 2).

## **5. FLEET SIZE AND DISTRIBUTION**

### **5.1. Trends by Area and Season**

A total of 150 authorized tuna long line vessels were reportedly caught SBT in 2019. The total number of active vessels was slightly increase (~7%) compared to previous year (139 vessels). 120 vessels were operated mostly in the area 1 and the rest (30) were in the area 2 (Table 7).

## **6. RESEARCH AND MONITORING TO IMPROVE ESTIMATES OF ATTRIBUTABLE CATCH**

### *6.1. RELEASE AND/OR DISCARDS*

#### **6.1.1. Current status**

There is no regulation in place related to release and/or discards for southern bluefin tuna. The regulation only applies on some species of sharks and rays. Since all SBT were fully retained, there is no need for estimation on non-retained catches.

#### **6.1.2. Research**

There is currently no research in this area.

#### **6.1.3. Monitoring**

Monitoring for any possibility of SBT catches being release and/or discards conducted by fulfill information into logbook by skipper voluntary, report from observer officer deployed on board and random interview to crew/member of fishing vessel once their vessel landing their catch on port.

### *6.2. RECREATIONAL FISHING*

#### **6.2.1. Current status**

There are still no information and data related SBT catches from recreational fishing due to no regulation had been issued to permit recreational fishing association to catch SBT, consideration that the fact of fishing ground of SBT far from coastline of Indonesia territory and also recreational fishing association prefer to operate their vessel near shallow water targeting other small pelagic/demersal species.

#### **6.2.2. Research**

There is currently no research in this area.

#### **6.2.3. Monitoring**

Monitoring of compliance (for other species) with these requirements is conducted by self-reporting.

### *6.3. OTHER SOURCES (E.G. CUSTOMARY, TRADITIONAL AND/OR ARTISANAL FISHING)*

#### **6.3.1. Current status**

By definition, artisanal/small-scale fleet (30-60 GT) is categorized together with middle-scale (60-200 GT) and large-scale (>200 GT) fleets under Ministerial Regulations No. 30/PERMEN-KP/2012 and No. 36/PERMEN-KP/2015. Most vessel registered and eligible for catching SBT categorized in either small-scale and middle-scale fleet. Small-scale fleet responsible for 21.4% of total catch (257.56 tons), on the other hand, middle-scale longliners dominated the rest of the catch as much as 78.6% or equal with 948.47 tons.

#### **6.3.2. Research**

Research activity conducted regularly through port sampling activity along with monitoring for industrial scale since all SBT activity centralized in same fishing port. Research program currently continued to collect any various sample particularly for otolith, genetic and reproductive samples of SBT.

#### **6.3.3. Monitoring**

Monitoring for any possibility of SBT catches from other fisheries which did not yet manage into CDS system conducted by collecting all information related SBT catches from all fishing port along coastline in Indian Ocean. Currently there are still no source data and information SBT catches reported from other traditional/artisanal fishing, therefore all catches were recorded dan documented in CDS system.

## **7. DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAM**

### **7.1. Observer training**

Indonesia developed scientific observer program since mid-2005, which was initially a collaboration program between Indonesia's Ministry of Marine Affairs through Research Center for Capture Fisheries (RCCF) and CSIRO Marine and Atmospheric Research, Australia (Sadiyah et al., 2012). The program continued by Research Institute for Tuna Fisheries (RITF) since 2011 with the support from the government. Directorate General of Capture Fisheries (DGCF) is the governing body which responsible for the recruitment and training of Fisheries Observers. 15 scientific observers were recruited and trained in 2014, through a week long program. Currently there are six active scientific observers in RITF. In addition to scientific observer, a national observer program was established in 2013 in accordance with the issuance of Ministerial Regulation No. 01/PERMEN-KP/2013. It is a positive progress to secure government budget for observer program in the future. Since the

ban of transshipment, the ROP function just as ROS, however, it mostly covers small-scale and surface/coastal fisheries.

## **7.2. Scientific observer program design and coverage**

A total of 5 scientific observer were deployed in 2019, involved in 9 trips, lasted for 328 days-at-sea (36 days/trip in average) with 221,786 hooks observed. The number of hooks observed slightly lower (18.5%), but the number of trips was higher (33.3%) compared to previous years. A model that will be developed in the future, in order to increase both spatial and temporal coverage (Table 8). In term of spatial coverage, the observations were distributed equally (~30%) for each area i.e. EEZ, Area 1 and Area 2 (Table 9).

## **7.3. Observer data collected**

List of observer data collected against the agreed range of data set out in Attachment 1.

*Catch data:* Amount of catch observed of SBT and other species (if collected), by area and season, and % observed out of total estimated SBT catch by area and calendar year.

See **Tables 4 and 5**.

*Effort data:* Amount of effort observed (hooks), by area and calendar year and % observed out of total by area and seasons

See **Tables 4 and 5**.

*Length frequency data:* Number of fish measured per species, by area and calendar year. Not presented in this report.

*Biological data:* Type and quantity of other biological data or samples (otoliths, sex, maturity, Gonosomatic index, etc.) collected per species.

Not presented in this report.

## **7.4. Tag return monitoring**

One dart tag was captured during observer trips in 2018, and none in 2019.

## **7.5. Problems experienced**

Retention from some fishing company is still the major stumble in scientific observer deployment. A concern about the leaking of crucial information, like specific geo-location of the fishing ground is likely the main reason.

## **8. OTHER RELEVANT INFORMATION**

There is no information at the moment.

## **9. ACKNOWLEDGEMENTS**

We acknowledge contribution of all active enumerators and observers in Research Institute for Tuna Fisheries, Bali for their significant research works and data contribution during this preparation. We also thanks to ACIAR, CSIRO that shared significant role and contribution on strengthening on research activities through improving port sampling and scientific observer. A significant contribution of the Directorate Fish Resource - Directorate General for Capture Fisheries regarding national and CDS data are also significantly supporting this national report. We also thanks Directorate Monitoring and Infrastructure Development, Directorate General of Marine Fisheries Surveillance (DGMFS) for their continuing support.



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## 11. APPENDIX – Tables

**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
2019	139	123	81	29	19	22	46	79	169	173	203	123	1,206

**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
2019	1,015	191	0	0	0	1,206

**Table 3.** Annual catches of SBT (in tons)

Year	Reported to CCSBT	National Fisheries Statistics	Catch estimate/CDS
2011	842	842	769
2012	910	910	817
2013	1,383	1,383	722
2014	1,063	1,063	1,187
2015	593	593	593
2016	601	601	601
2017	835	835	835
2018	1,087	1,087	1,087
2019	1,206	1,206	1,206

**Table 4.** Total estimated effort by statistical area

Country / Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Total & Observed Effort		
		Gear Code	Fleet Code		Total Effort*	Total Observed Effort	Observer Coverage (percentage)
ID	2011	LL	IDD	1	NA	110,384	NA
ID	2012	LL	IDD	1	NA	98,916	NA
ID	2012	LL	IDD	2	NA	154,074	NA
ID	2013	LL	IDD	1	NA	244,383	NA
ID	2014	LL	IDD	1	NA	141,428	NA
ID	2015	LL	IDD	1	NA	147,526	NA
ID	2016	LL	IDD	1	NA	95,167	NA
ID	2017	LL	IDD	1	17,312,208	32,212	0.19
ID	2017	LL	IDD	2	3,660,367	63,960	1.75
ID	2018	LL	IDD	1	22,198,042	160,686	0.72
ID	2018	LL	IDD	2	7,043,942	19,890	0.28
ID	2019	LL	IDD	1	18,510,529	84,947	0.46
ID	2019	LL	IDD	2	8,063,024	63,850	0.79

**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
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
2019	0.24	1.06	0.65	24.73	225.07	124.90

**Table 7.** Number of active vessels recorded by statistical area

Year	Area 1	Area 2	Area 8	Area 9	Area 14	Total
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
2019	120	30	0	0	0	150

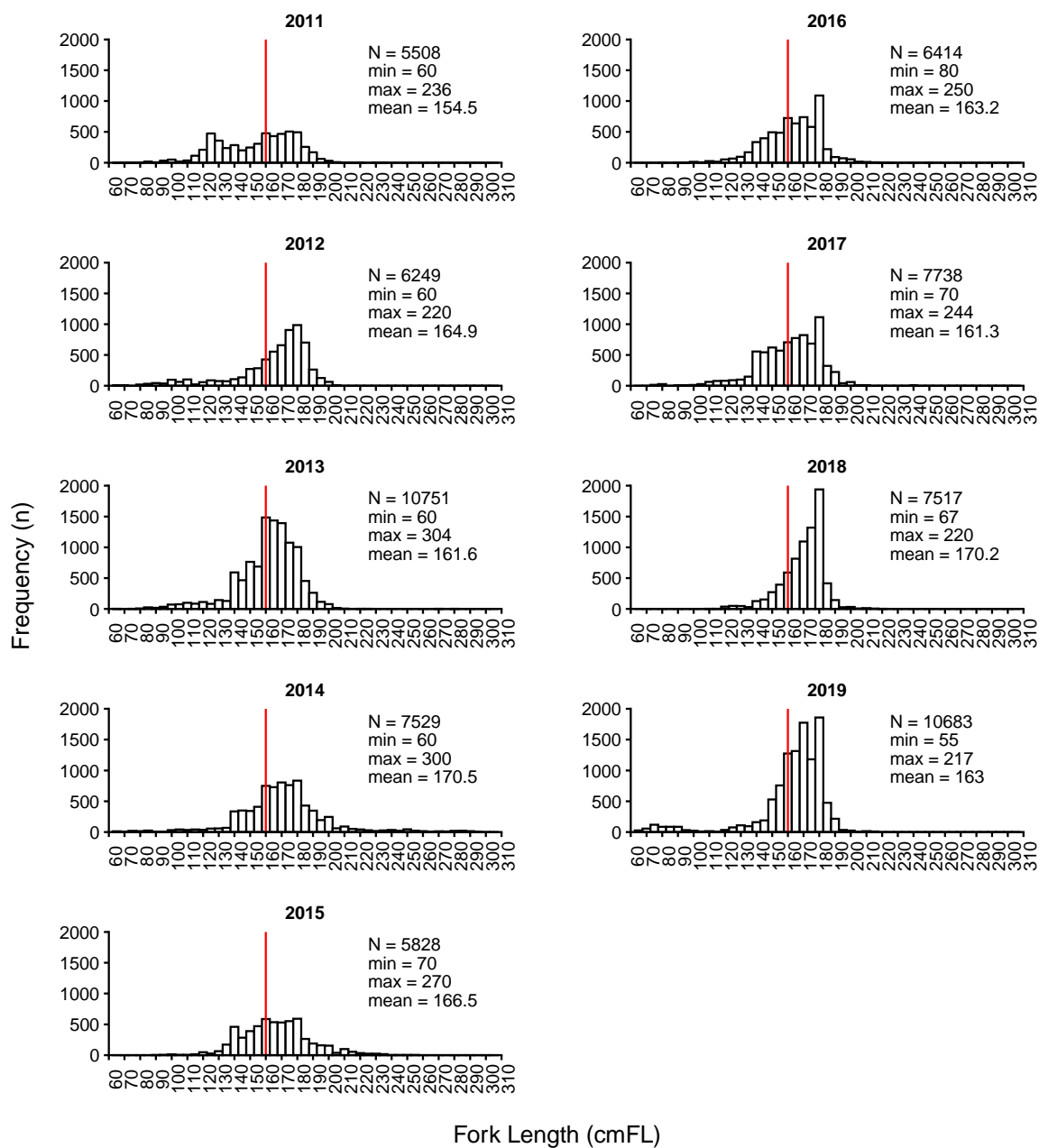
**Table 8.** Summary of scientific observer activities of a period 2005-2019.

Year	No. Of Obs	No. Of Trips	No. Of Company	Number of Hooks	Total Day at Sea (DAS)	Range DAS	Mean DAS
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
2019	5	9	4	221,786	328	15-104	36

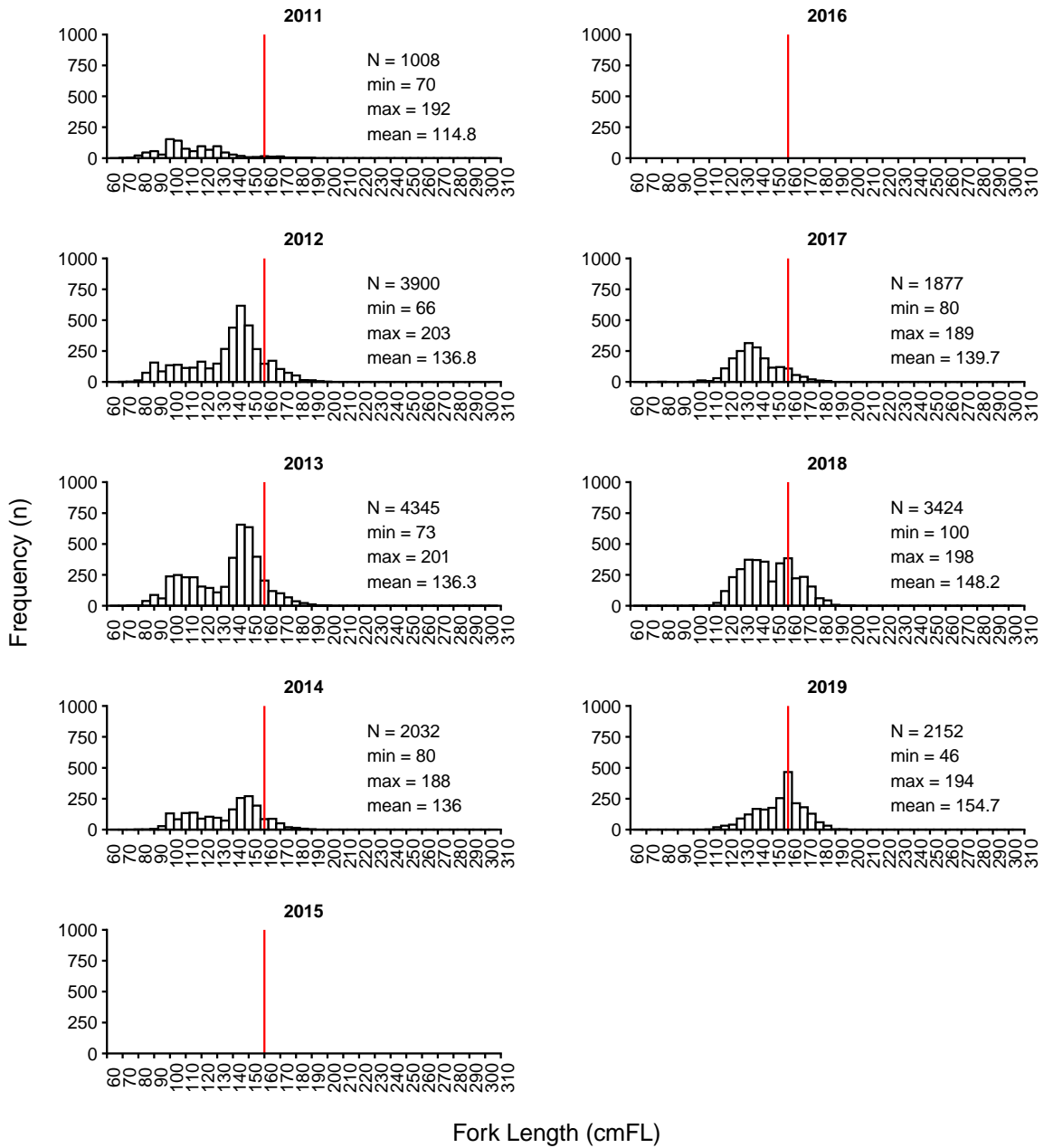
**Table 9.** Summary of scientific observer activities in 2019.

No.	Trip ID	Day at sea	No of Setting	No of Hooks	No of SBF	HR(x103)	CCSBT Statistical Area
1	Trip 1	39	21	26330	0	0.000	1
2	Trip 2	104	10	15375	9	0.585	1
3	Trip 2	104	42	59625	66	1.107	2
4	Trip 3	36	12	17290	3	0.174	1
5	Trip 3	36	3	4225	2	0.473	2
6	Trip 4	32	10	11154	0	0.000	EEZ
7	Trip 4	32	6	6592	0	0.000	1
8	Trip 5	22	3	3850	0	0.000	EEZ
9	Trip 5	22	4	4950	0	0.000	1
10	Trip 6	18	14	19250	0	0.000	EEZ
11	Trip 7	15	9	11895	0	0.000	EEZ
12	Trip 7	15	2	2585	0	0.000	1
13	Trip 8	32	16	17930	0	0.000	EEZ
14	Trip 9	31	8	8910	1	0.112	EEZ
15	Trip 9	31	8	11825	8	0.677	1

## 12. APPENDIX – Figures



**Figure 1.** Length frequency distribution of all individual SBF from area 1 based on CDS data 2011-2019 (remarks= red line is threshold for small SBT).



**Figure 2.** Length frequency distribution of all individual SBF from area 2 based on CDS data 2011-2019 (remarks= red line is threshold for small SBT).