

South African National Report to the Extended Scientific Committee of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), 2017

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REPUBLIC OF SOUTH AFRICA

31st July 2017

1. Introduction

1.1 Summary of the Historical Developments in the Fishery - Longline

South Africa had a brief history targeting Southern Bluefin Tuna (SBT) in the early 1960s, along the west coast. During this period SBT was one of the most common species caught on longline. This fishery ceased by mid-1960s in favour of developing other more lucrative fisheries. Interest in longline fishing only resurfaced in the mid-1990s when joint operations with a Japanese vessel showed that tuna could be profitably exploited within South Africa's EEZ. Subsequently, 30 experimental longline permits were issued in 1997. The experimental fishery was finally closed in 2005 when 50 long-term fishing rights were made available for allocation.

The South African Large Pelagic Longline fishery was commercialized in 2005, with the issuing of 18 swordfish-directed and 26 tuna-directed fishing rights valid for 10 years. The fishery was restricted to 50 permits (one permit per vessel) through Total Allowable Effort (TAE) control. The large pelagic longline fishery was initially split into swordfish and tuna-directed sub-sectors due to the drastic declines in swordfish catch and CPUE experienced during the period of the experimental fishery from 1997 to 2005. South Africa amended its fishery policy in 2008 after only 9 swordfish-directed longline vessels operated in 2006, resulting in the lowest annual catch since 2001.

In 2014 the decision was taken to no longer refer to the fleet as two different fishing strategies, tuna-directed and swordfish-directed, since the fishing behaviour of the local fleet has been shifting from exclusive swordfish targeting to include tunas and sharks. The fishery is now referred to as the Large Pelagic Longline fishery and includes vessels that target tunas, swordfish and sharks as by-catch. The 10-year long-term rights granted in 2005 expired in February 2015. The new Large Pelagic Longline fishing rights were allocated in February 2017 for a period of 15 years. A total of 59 commercial fishing rights were granted (37 to new applicants), and a total of 34 vessels were authorized to fish in this fishery, however, these figures will can only be regarded as preliminary as the appeals process for the allocation has not been concluded. Previously, the fishery had been allowing an interim period for foreign vessels to charter in this sub-sector as a means of skills development and a means of acquiring suitable vessels. Foreign vessels, mainly from Japan and Chinese-Taipei, fished in South African waters through the issuing of bi-lateral agreements in the 1970s, and re-negotiated these agreements in the 1990s until 2002 (Sauer et al., 2003). Joint-venture agreements with Japan have been underway since 1995, whereby these foreign-flagged vessels are permitted to fish under a South African Rights Holder. The vessel is required to adhere to South African legislation, including but not limited to, the Marine Living Resources Act (Act No. 18 of 1998) and Regulations promulgated thereunder, including Large Pelagic Longline sector specific policy. Importantly, each foreign vessel is required to carry an observer onboard every trip. The catch from these vessels accrues to South Africa. According to the new (2017) regulations, foreign vessel owners in the tuna-directed sub-sector will be required to reflag their vessels and to transfer skills to South Africans.

1.2 Summary of the Historical Developments in the Fishery – Tuna Pole and Line (Baitboat)

Fishing for tunas using rod and reel and/or pole and line dates back to the 1970s in South Africa when they were caught in minimal quantities as bycatch in other fisheries, making this the oldest commercial fishery for tuna in South Africa. Interest sparked in 1979 when yellowfin tuna (*Thunnus albacares*) became available close inshore off Cape Point (Shannon, 1968). Operators from other sectors converted their vessels to ice vessels to fish for yellowfin using pole and line or purse-seine nets, resulting in catches of over 4 500 t (Penney and Punt, 1993). By 1980 the yellowfin tuna was no longer available close inshore, resulting in these vessels targeting albacore (*Thunnus alalunga*) instead on the Southwest and West coasts of South Africa. Albacore catches peaked at 6000 t in 1989, although these catches were under-reported and were probably closer to 10 000 t (Penney and Punt, 1993). The sector has continued to exploit juveniles and sub-adult albacore of between 2 and 3 years old (average of 86 cm FL) and larger yellowfin tuna (average of 133 cm FL). In addition to the tuniform target

species, vessels will augment catches opportunistically with snoek (*Thyrsites atun*) and yellowtail (*Seriola lalandi*) and Southern Bluefin Tuna (*Thunnus maccoyii*).

This sector is effort controlled, limiting the number of vessels and crew. Prior to 2006, the pole and line fishery was managed under the bracket of commercial linefishing. During the long-term rights allocation process in 2006, the commercial linefishery was divided into three separate sectors consisting of the traditional linefishery (452 vessels and 3 450 crew), the hake-handline sector (130 vessels and 785 crew) and the pole and line fishery (200 vessels and 3 600 crew) (Mann, 2013). Of the 200 vessels and 3 600 crew allocation available for 8 years, only 198 vessels and 2961 crew were allocated in 2006 (TAC/TAE, 2015). The reallocation of long-term rights in 2013 saw 130 rights (136 vessels) granted and 15% of the available effort reserved for possible allocation for appeals. Subsequent to the finalisation of the 2015 Appeals process, 34 new rights (41 vessels, 25 repeat and 15 unique) were added, resulting in a total vessel number of 151 (164 rights) which still remains. Since vessels are small and the nature of the operation requires the vessel to maximise on crew (who work in pairs to catch and haul albacore), scientific observers cannot be accommodated on the vessel and instead monitor catches in port during offloading. For the first time in 2016 the South African tuna pole-line sector starting targeting SBT. The sector has potential to expand its SBT catches, and was allocated a SBT TAC in 2017.

1.3 Overview of the most recent fishing season

A total allowable commercial catch TAC of 150 tons per annum was allocated to South Africa in April 2016. All catches of SBT occurred from April to November for 2016, with the majority occurring in June and July. According to skipper logbooks, the South African Large Pelagic longline fishery, which includes the domestic (ZAD) and foreign flagged chartered (ZAC) vessels, caught 637 SBT (ZAC = 147; ZAD = 490) in 2016 according. This amounted to an estimated round weight of 61.8 tons, of which 14.1 tons was caught by ZAC vessels and 47.7 tons by the ZAD vessels. In comparison, only a mere 3.7 tons of SBT was caught by the tuna pole and line sector, which exclusively caught SBT in Area 15 between May and July. In total, 20 longline vessels (ZAD = 17; ZAC = 3) landed SBT, while only seven out 93 active tuna pole and line vessels landed SBT. Spatial and temporal catch statistics for 2016 are provided below in Table 1.

Table 1. Spatial and temporal statistics of South African Large Pelagic longline fishery SBT catches for 2016.

Month	Area 9		Area 14		Area 15		Combined	
	kg	N	kg	N	kg	N	kg	N
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	293.4	3	0	0	2700	33	2993.4	36
5	216.8	2	95.45	1	1944	20	2256.3	23
6	140.4	1	2732.4	29	10017	93	12889.8	123
7	365.4	4	11953.6	124	11399.4	122	23718.4	250
8	3123	32	0	0	5355	66	8478	98
9	8341.2	80	0	0	0	0	8341.2	80
10	2862	25	0	0	0	0	2862	25
11	219.6	2	0	0	0	0	219.6	2
12	0	0	0	0	0	0	0	0
Total	15561.8	149	14781.4	154	31415.4	334	61758.6	637

2 Catch and Effort

2.1 Trends by gear type

“Targeted” SBT effort is calculated here as the total number of hooks of sets that retained at least one SBT. Since the commercialization of the fishery the SBT effort has fluctuated between 50 thousand to 600 thousand hooks. SBT Effort in the domestic fleet (ZAD) has been steadily increasing over the period 2006-2016, increasing from only 45 thousand hooks in 2006 to present levels of 208 – 230 thousands hooks between 2014 and 2016 (Figure 1). Where there was no effort chartered vessels (ZAC) due to a Departmental policy that did not allow any foreign fishing vessels to participate in the fishery in that year, ZAC effort peaked in the next year 2017, with close 600 thousand hooks of sets that encountered SBT (Figure 1). Subsequently, ZAC effort fluctuated widely between 6 and 326 thousand hooks. Following the relative low in 2014 of 85 thousand hooks, ZAC effort has slightly increased again to 134 thousand hooks in 2016.

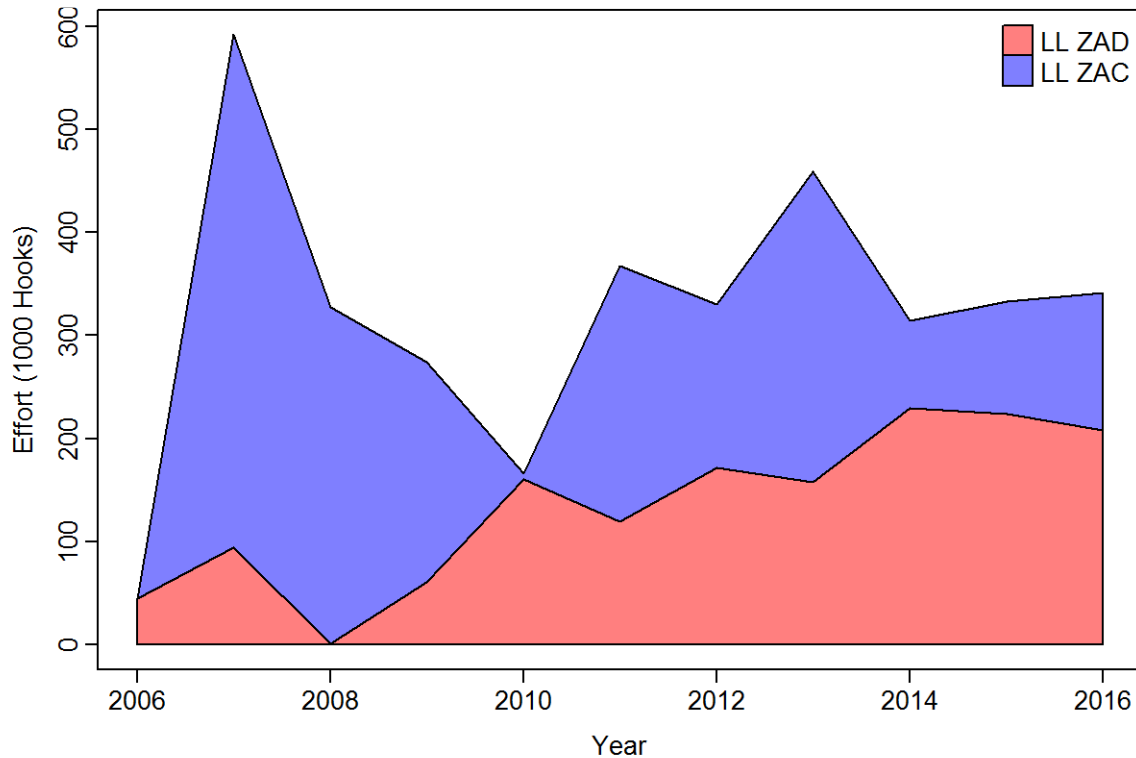


Figure 1. South African SBT directed domestic (ZAD) and chartered (ZAC) longline effort for the period 2006 – 2016. Effort is calculated as the total number of hooks in all sets that retained a SBT.

South African total annual SBT catch ranges from 15,197 tons in 2006 to 109,806 tons in 2012 (Figure 2). All total catch weights are upscaled to reflect round weight by correcting for the dressing method. With the exceptions of years 2007-2008, the domestic vessels accounted for the majority of South Africa’s SBT annual catch. In April 2016, quotas were for the first time allocated to the tuna pole and line sector, which contributed just over 3.5 tons (~ 5.5%) to total SBT catch.

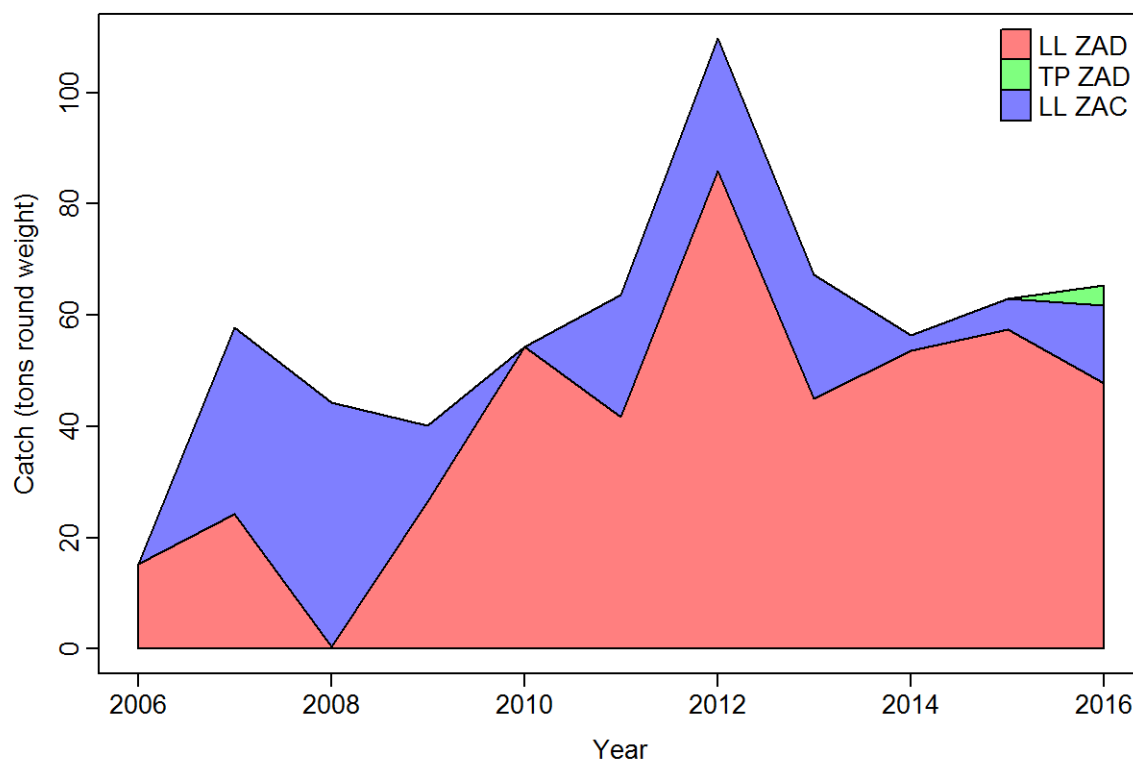


Figure 2. Total catches of SBT for South African longline (LL) vessels, domestic (ZAD) and chartered (ZAC), for the period 2006 – 2016; and the domestic tuna and line (TP) in 2016. Total catch weights are upscaled to reflect round weight using vessel-specific conversion factors for GGT and DRT.

2.2 Trends by area and season

The longline fishery operates mostly within South Africa’s EEZ from April to November; however the majority of SBT catch is taken over a three month period; June, July and August (Figure 3). Average monthly catches of the ZAD and ZAC longline fishery peaked in July. Catches in the tuna pole and line sector peaked one month with 3078 tons of the 3665 ton 2016 catch caught in June (Figure 3)

There are notable differences in the distribution of catch and effort between the domestic (ZAD) and chartered (ZAC) longline vessels (Figures 4 & 5), with the latter predominantly operating east of Cape Agulhas (>20° Longitude). In contrast, the domestic fleet operates off both the East and West coast of South Africa, with effort distribution clearly associated with proximity to the two main fishing harbour locations (Cape Town on the West coast and Richards Bay on the East coast). The ZAC fleet shows a strong range contraction from formally widespread effort in Area 9, including the High Seas, to predominantly fishing South Africa’s EEZ of Area 14 in recent years. The area in which SBT catches were historically the highest lies along the southern part of South corresponds to CCSBT Statistical Area 9. In contrast, since 2014 an increasingly large of SBT catch in the domestic fleet (ZAD) has been derived from the West coast of South Africa, or CCSBT Statistical Area 15.

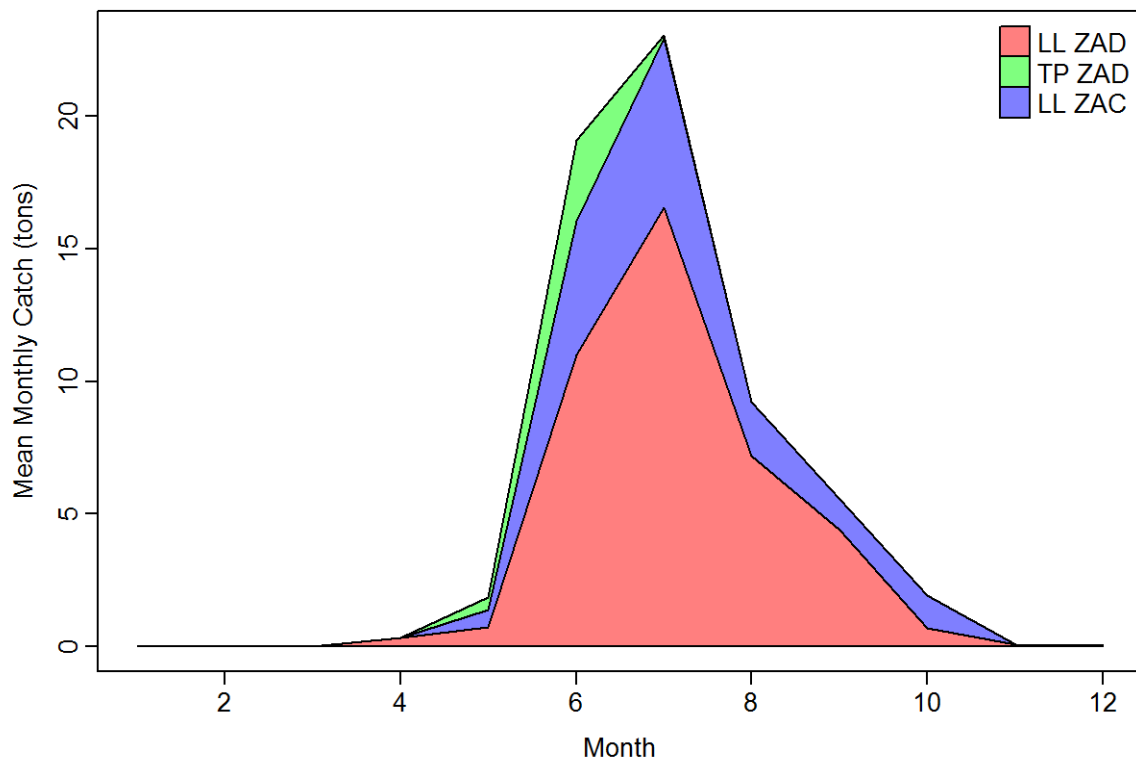


Figure 3. Mean monthly SBT catch (in tons) for the Large Pelagic fishery of South Africa. The catch statistics are derived from the domestic longline (LL ZAD), chartered longline (LL ZAC) and the tuna pole and line (TP ZAD) sector.

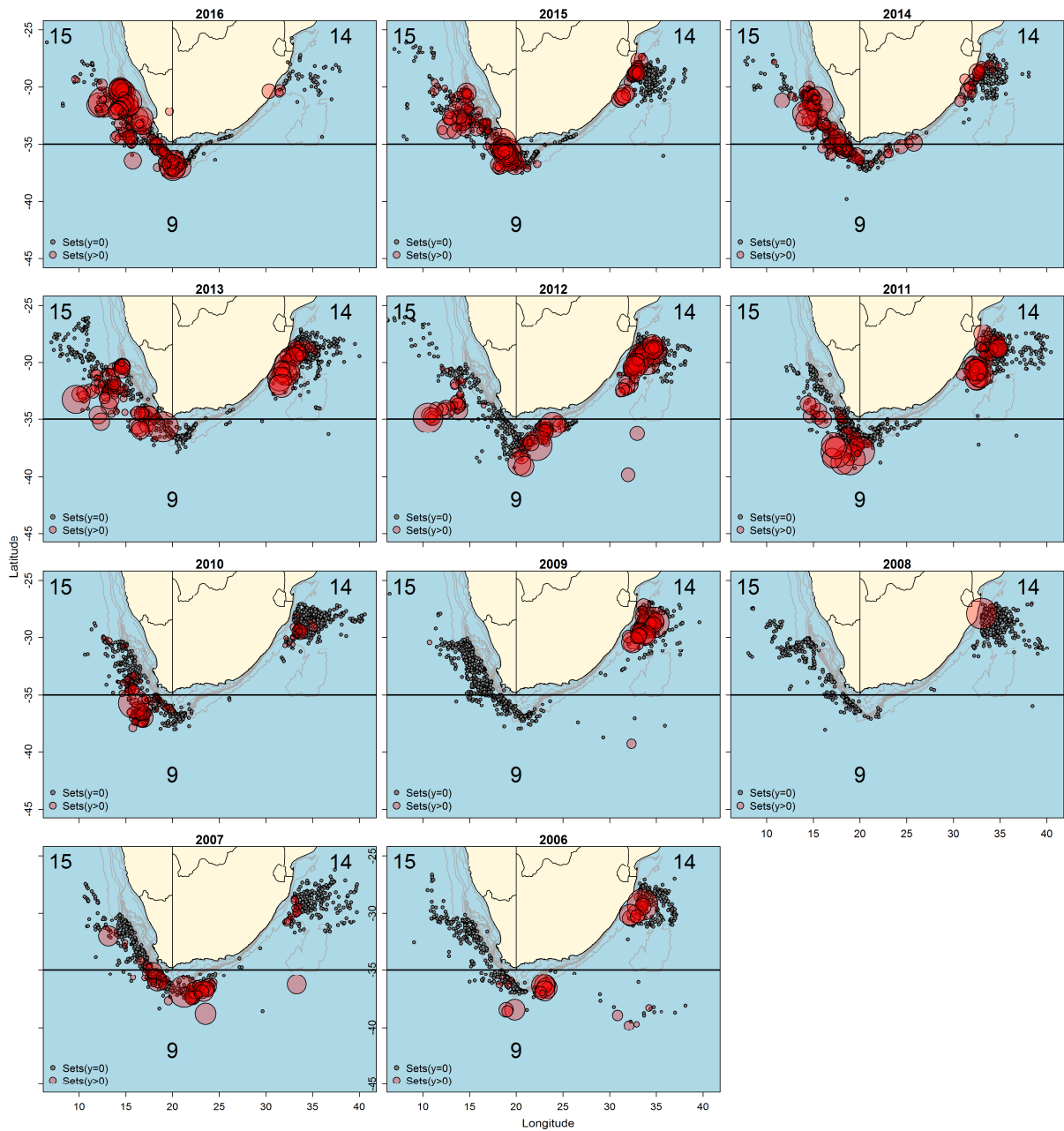


Figure 4. Annual distribution (2006 - 2016) of longline sets for the South African domestic vessels fleet (ZAD). The size of the bubble indicates the relative SBT catch per set in kg per 1000 hooks.

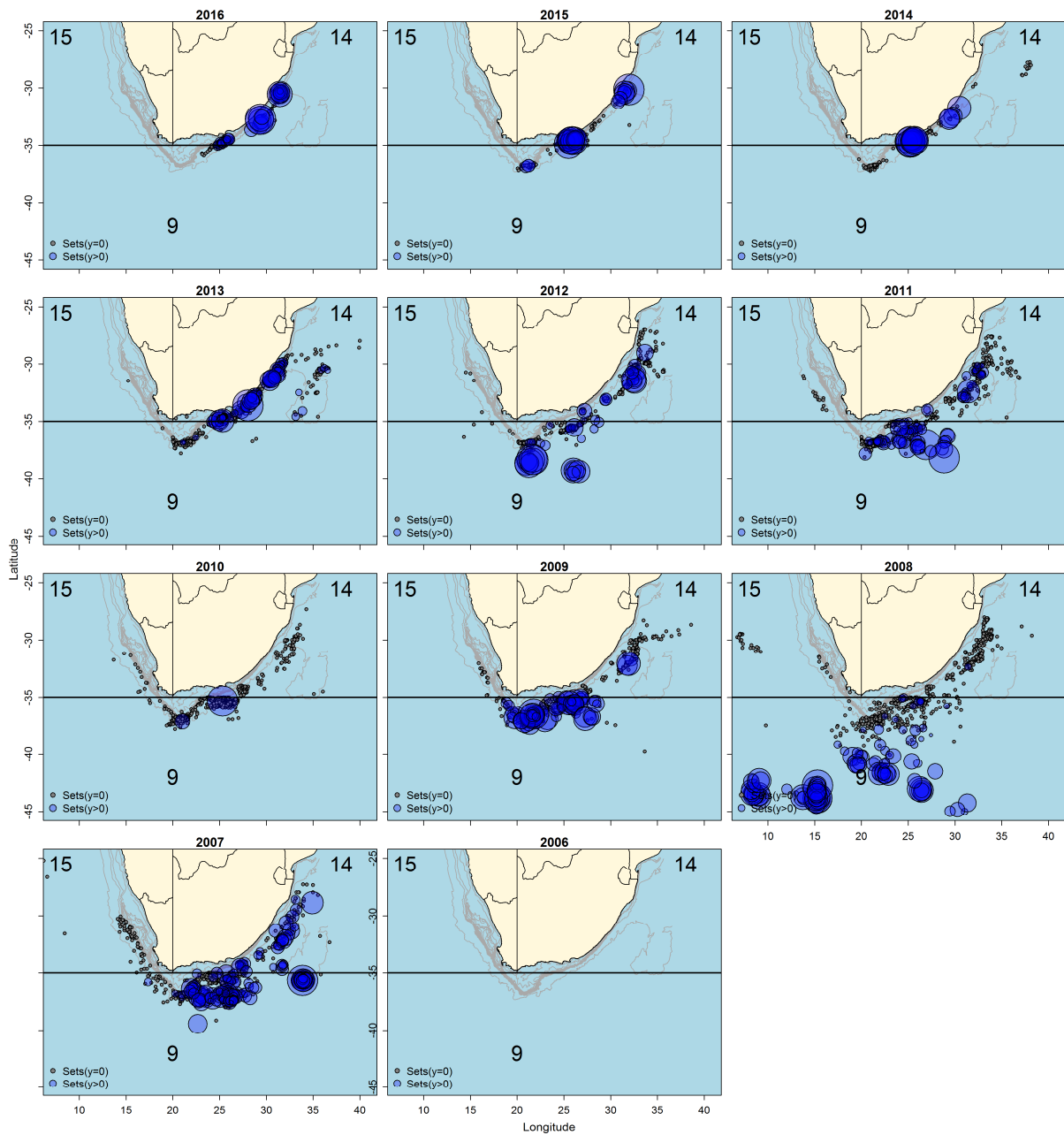


Figure 5. Annual distribution (2006 - 2016) of longline sets for the South African chartered (foreign flagged) vessels (ZAC). The size of the bubble indicates the relative SBT catch per set in kg per 1000 hooks.

3 Nominal CPUE

Nominal CPUE for the longline fleet sector was calculated as kg of SBT round weight per 1000 hooks. The nominal CPUE only includes sets that caught at least one SBT, which is consistent with the definition of “targeted” effort used throughout this report. In the absence of a direct SBT target fishery and given the historically small quota of 40 tons, the South African longline CPUE can therefore not be seen as an index of relative abundance. The trends CPUE in Areas 9 and 14 were variable, generally peaked around 2012, but showed overall no clearly discernible trend for both ZAD and ZAC vessels (Figure 6). By contrast, there was a notable increase in CPUE since 2008 in Area 15, which remained at fairly stable levels following the peak in 2012 (Figure 6).

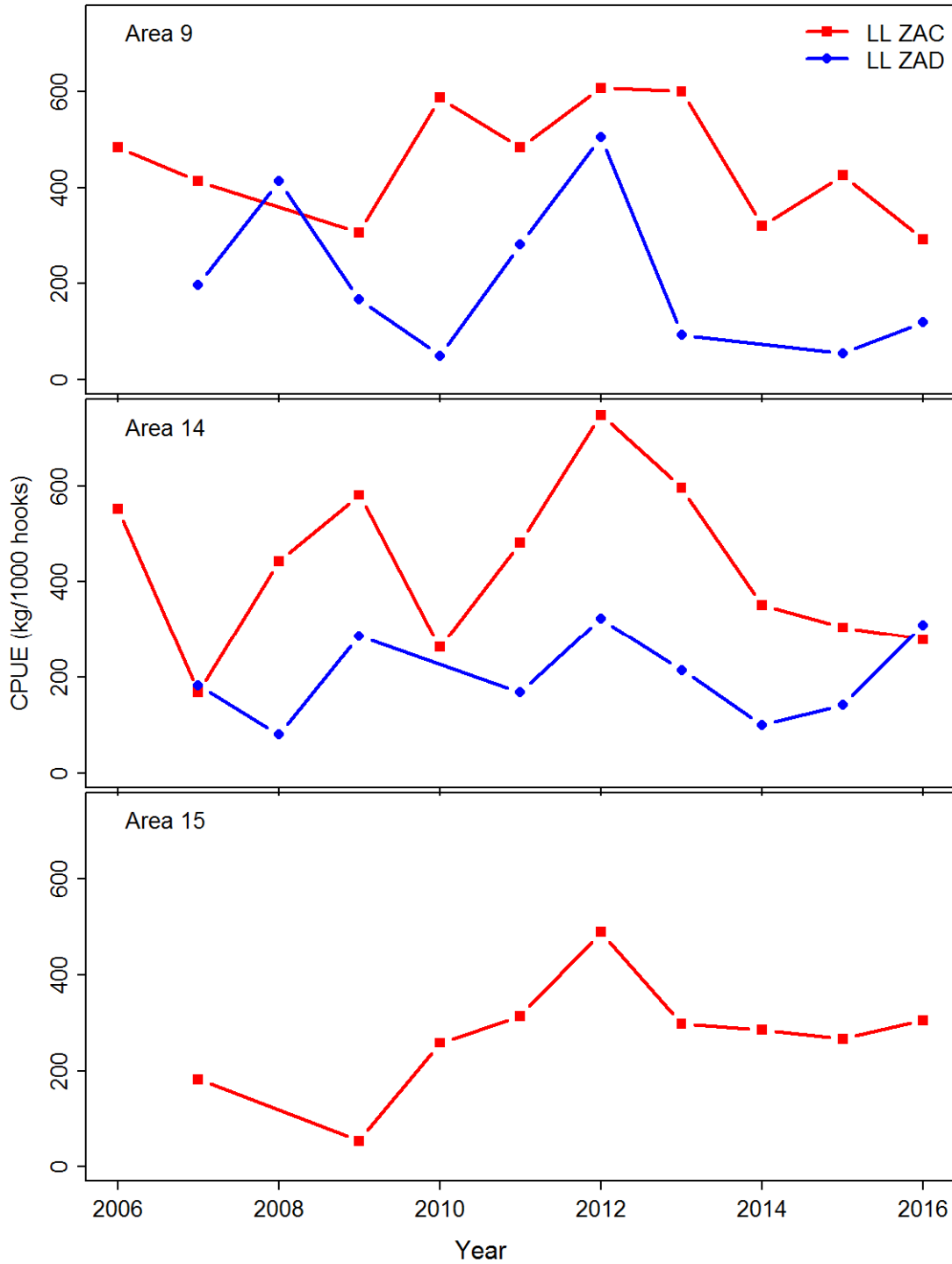


Figure 6. Trends in Nominal CPUE (kg/1000 hooks) by area and fleet segments of domestic and chartered vessels for SBT over the period 2006-2016. Effort is calculated as the total number of hooks in all sets that retained at least one SBT.

4 Size composition

Size composition data (mm Fork Length) were compiled from the on-board scientific observer programme and CDS data for the period 2012-2016. The South African CDS are currently undergoing an internal review and checking process, so that the here presented results should be seen as preliminary. There are notable differences CDS length frequency distributions between Areas (Figure 7). Area 9 consistently comprised a relatively large proportion of fish smaller than 150 mm FL, with an overall mean 135 mm FL. Area 14 comprised predominantly of SBT larger than 150 mm FL, with an overall of 176 mm FL, followed by Area 15 with a mean of 156 mm FL (Figure 7).

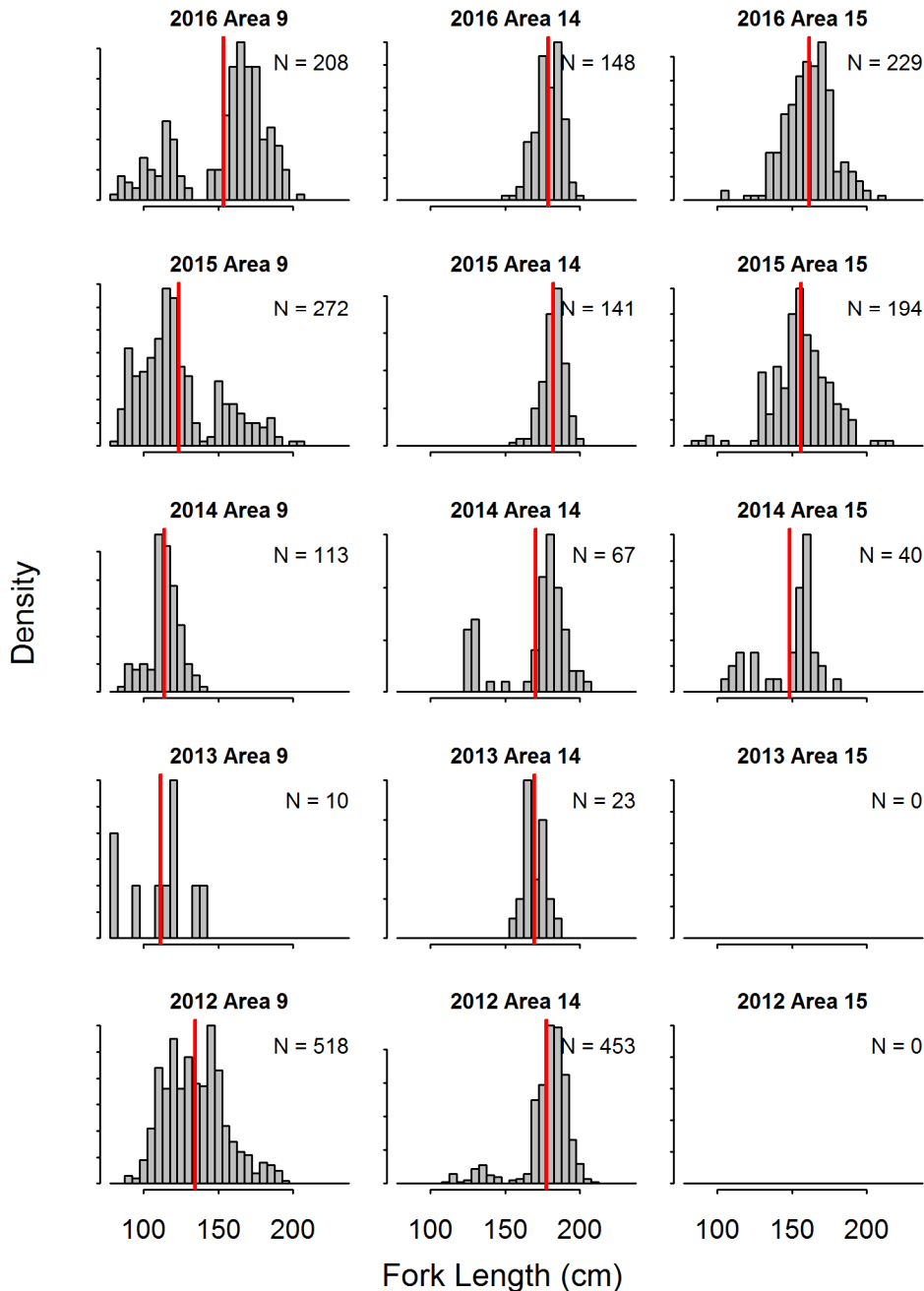


Figure 7. Length frequency distribution (in mm FL) of SBT by area based on CDS long-line data from 2012-2016, with red line denoting the mean length and N the sample size.

The observer size data originate predominantly from ZAC vessels, which mostly operated in Area 14 in recent years (Figures 5 & 8). The observer length frequencies for Area 14 generally confirm the relatively large proportion of SBT larger than 150 mm FL, resulting in the same mean length of 175 mm FL as the CDS data. Area 9 and 15 largely lack observer length measurement data. However, the fairly representative length sample (N = 139) from Area 9 in 2012 with a mean of again 137 mm FL, generally corroborates the prevalence of relatively smaller fish in this area.

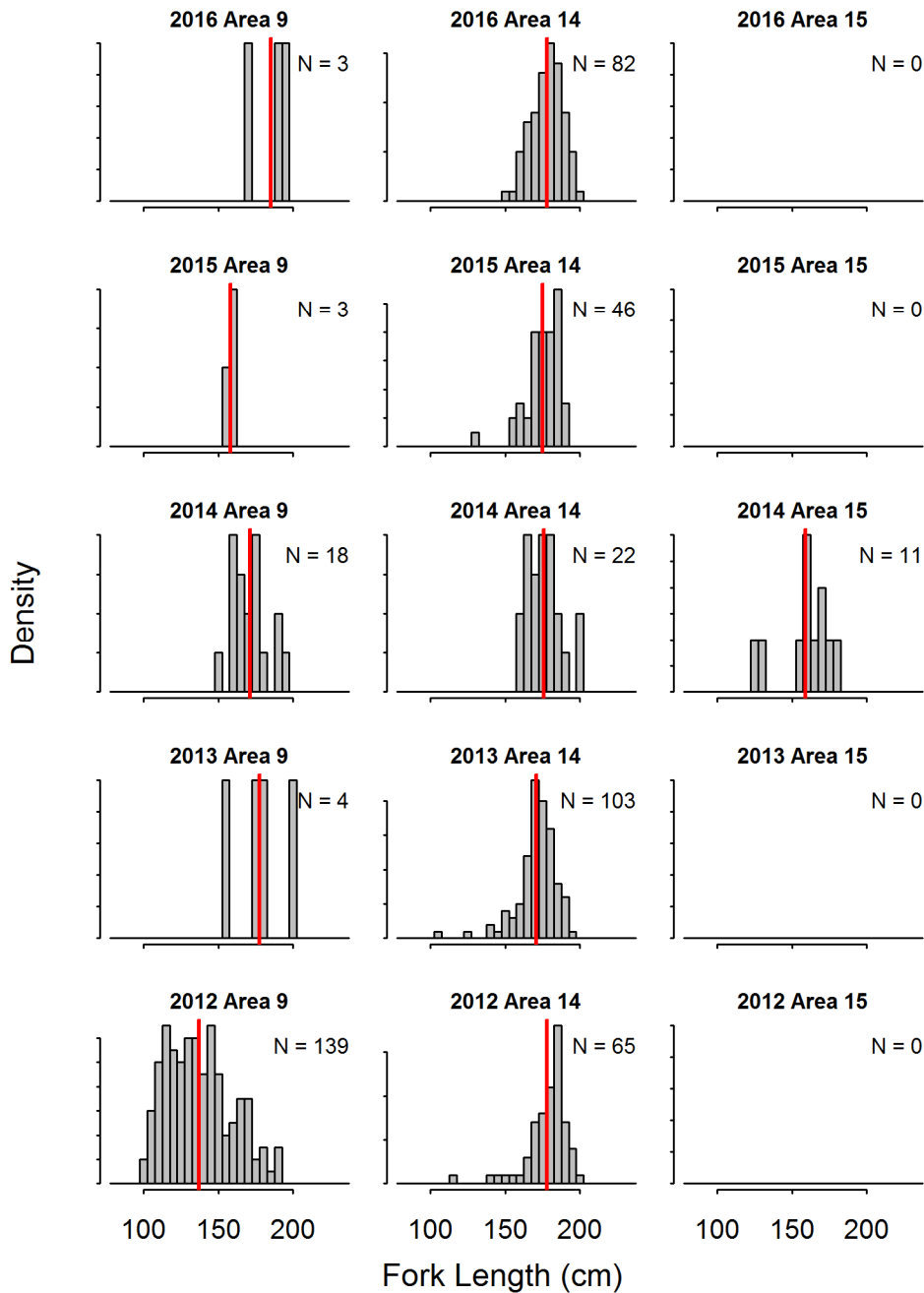


Figure 8. Length frequency distribution (in mm FL) of SBT by area based on on-board observer long-line data from 2012-2016, with red line denoting the mean length and N the sample size.

5 Fleet size and distribution

All active ZAC vessels typically report at least one SBT per year, so that this fleet segment is fully represented here. The number ZAC vessels have declined from 12 in 2006 to only three in 2016 (Table X). The activity of the ZAC fleet segment has notably shifted from Area 9 (2007-2010) to Area 14 (2013-2016). ZAD vessels reporting at least on SBT has increased from only in 2006 to ten in 2016. In contrast to the ZAC fleet, SBT activity appears to have decreased in Area 14 and increased in Areas 9 and 15 (Table 2).

Table 2. Total number of active domestic (ZAD) and chartered joint-venture (ZAC) vessels that have landed at least one SBT per year and the percentage (%) of those vessels that reported a SBT from a specific CCSBT area.

Year	ZAC			ZAD			Total N
	Area 9	Area 14	Total N	Area 9	Area 14	Area 15	
2016	33.3%	100.0%	3	90.0%	20.0%	80.0%	10
2015	50.0%	100.0%	4	70.0%	30.0%	70.0%	10
2014	0.0%	100.0%	4	54.5%	27.3%	81.8%	11
2013	22.2%	100.0%	9	36.4%	27.3%	63.6%	11
2012	77.8%	77.8%	9	66.7%	44.4%	33.3%	9
2011	81.8%	45.5%	11	55.6%	55.6%	44.4%	9
2010	100.0%	0.0%	2	44.4%	33.3%	66.7%	9
2009	100.0%	12.5%	8	25.0%	75.0%	25.0%	4
2008	100.0%	11.1%	9	0.0%	100.0%	0.0%	1
2007	100.0%	50.0%	12	77.8%	11.1%	44.4%	9
2006				100.0%	50.0%	0.0%	2

6 Development and implementation of scientific observer programs

6.1 Observer Training

Observer selection and screening is largely an administrative process. As observers occupy a “position of trust” background checks, interviews, and verification of references are an important processes in selection. Candidates that pass the screening are selected for training. Although academic qualifications are considered, with attention given to tertiary and post graduate qualifications, individuals are selected on their ability to do the required job without discrimination to culture, race, disability and gender. All labour regulations and other legal requirements in terms of South African law are strictly adhered to. Observers begin their careers doing short trips outside of the large pelagics sector in order to evaluate their reliability and allow for upskilling of each observer before deployment in the large pelagic sector.

Recruitment

Recruitment and selection of candidates for observer training takes into account that observers must work safely, respectfully and competently with fishermen and be able to effectively complete their duties onboard without undue interference in the fishing operations. The candidates must be self-motivated and have the ability to work independently without direct supervision under stressful conditions. Prior to being accepted for training candidates should provide proof that they are medically fit. A list of current observers is provided in Table X.

The observer training can be split into two components;

- In-house training
- Out-sourced specialised training

Table 3. List of current observers and their experience expressed in number of sea days.

Name	Surname	Experience in sea-days
Marius	Arendse	762.5
Philippus	Augustyn	1296.5
Ryan	Aylward	765
Rudian Alphonse	Baily	2558.5
Michael Matthys	Basson	2053.5
Johann	Beets	265.5
Jerry	Buirski	2062
Alistair	Burls	614.5
Julian Francis	Cooke	189
Hennie	Crous	2486
Anton Tonchev	Dimitriov	2413
Dwight Reece	Dreyer	1268
Jennilee Udine	Goliath	947
Schalk	Hendricks	2108.5
Hentie	Heyns	1999.5
Edmund Fred	Higgins	1537
Marius	Kapp	1813.5
Llewellyn Sylvester	Lewis	1466.5
Siyabulela	Lumkwana	1024
Jermaine	Markus	1263
Sivuyile Elvis	Mbambalala	839.5
Victor Sihle	Ngcongo	1916.5
Keith	Paterson	3239.5
Elcimo John	Pool	2683
Andries Dawid	Potgieter	1552
Phillip	Robyn	2747.5
Brandon	Scott	417.5
Mzwandile	Silekwa	1693.5
John	Simons	931.5
Andy	Smith	616
Jano	Van Heerden	2978
Zamokwakhe Basil	Vilakazi	2388.5
Johannes	Visagie	2700.5
Schalk	Visagie	2872
Knowledge Nyameko	Xuba	909
Total		57377.5

In-house Training

In-house training follows a curriculum close to the outline of the observer manual. This training usually takes five to ten days to complete. A number of delivery mechanisms used to encompass both the theoretical and practical aspects of the training program. Theoretical and background subjects are usually covered by lectures using PowerPoint presentations, video material and practical workshop such as visiting an operational pelagic longline in port during the offloading and obtaining unprocessed tuna for biological training are used to for the practical components such as sampling techniques.

The other important component is data entry and capturing, this part of the training which is always conducted towards the end of the training. This includes case studies to allow the observers to conduct data entries on the hard copy forms. This training component goes hand in hand with the electronic data entry practical on the Access database. The observers are then trained on data validation tools designed on the program to eliminate data capturing errors.

At the end of the training period candidates are given a final examination on all the components covered during the training, which consists of a set of questions and practical exercises.

Selective outsourced training

Out-sourced training is divided into compulsory safety training to meet international standards and additional specialised courses that will assist the observer both in the event of emergencies and the professional execution of their duties. This training is outsourced to accredited organisations that conform to “The International Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW). Subjects that are outsourced are;

- Personal Survival Techniques (PST)
- Practical First Aid
- Fire Fighting
- GMDSS

All Observers have to attend Personal Survival and Safety Training; *(In accordance with the Merchant Shipping (Training & Certification) Regulation 1999 & the Code of Maritime Qualifications and the STCW₉₅ Convention Code A-VI/1-1.)*. This training is usually outsourced to internationally accredited safety training institutions, which include;

- Cape Peninsula University of Technology Survival Centre; Cape Town
- Irvin & Johnson Survival Training Centre; Cape Town
- Project Maritime Survival Training; Saldanha Bay
- STC survival training centre; Cape Town

It is also compulsory for all Observers to pass a valid SAMSA approved seafarer’s medical certificate (STCW95 compliant). These are renewed annually and have to be valid at the time of boarding for the expected duration of the trip.

It is recommended that observers operating on the high seas also complete a first aid course to “level one” that includes a competency certificate in CPR. Practical First Aid course and CPR training, (STCW 95 compliant).

Optional training components that enhances the professionalism of the observer includes

- Fire Fighting; -This course is intended to give all candidates basic knowledge of fire safety, fire prevention and an understanding of the hazards of fire. Candidates will understand the need for prompt, safe and correct action to be taken on the outbreak of a fire including the use of basic breathing apparatus and the use of extinguishers on live fires.
- GMDSS; - Training in Global Maritime Distress and Safety System (GMDSS), provides the communication support needed to implement the search and rescue in emergency situations and will assist the observer in the operational aspects of the advanced satellite communication systems that are now compulsory on all vessels operating on the high seas. This training assists in the sending and receiving communications while onboard and can overcome communication issues when language differences exist.

Trip briefing and Debriefing

Trip briefing and Debriefing is considered an essential component of on-going training. Attention given to pre briefing observers prior to sailing, covering data requirements and sampling strategies to be followed a comprehensive debriefing process is followed at the end of each trip to verify data and identify any shortcomings in the observer's knowledge of the work.

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6.2 Scientific Observer Program Design and Coverage

The South African Pelagic Longline Observer Programme was established in 1998, at the start of the experimental phase of the pelagic longline fishery, and a minimum 20% observer coverage was stipulated. The Offshore Resources Observer Programme (OROP) began in March 2002 and to date it still requires 100% observer coverage on foreign-flagged vessels. Up until March 2011, 11- 20% observer coverage was achieved on local vessels per year based on the total effort (number of hooks) deployed. The observer programme contract expired in March 2011, and the Department is in the process of re-establishing the programme, for implementation in the near future. The observer programme for joint-venture (Japanese-flagged) vessels has continued with 100% of fishing trips observed. Furthermore, increased inspections and sampling of pole-line vessels is conducted during offloading in port by South Africa Fisheries Compliance Officers and Fisheries Monitors.

Observer Data Collected

The observers collect all operational, catch (retained and discard), effort and length frequency data, and as well as biological material when required. The observers record data on the following forms:

- Form 1: Vessel and trip information sheet
- Form 2D: Pelagic longline gear and operation information
- Form 3D: Fishing effort pelagic long-line
- Form 4: Marine mammal, sea turtle, and seabird incidental take form
- Form 6: Depredation
- Form 7: Fish biological sampling

In 2016 a total of 270 lines and 697,529 hooks were set, of which 370,133 hooks were observed (Table 4). The observers were required to collect length data on all tuna and bycatch species caught for at least 80 % of the line. Additional data collected when possible includes sex and product. A total of 90% of the Southern Bluefin tuna retained were samples for length. The total number of bycatch species that have observed, released or retained is in 2016 in presented in Table

Table 4. Total fishing and observed effort² for South Africa in 2016 in the pelagic longline fishery

Country/Fishing Entity	Calendar Year	Fishery		CCSBT Statistical Area	Total effort	Total observed effort	Observer coverage (%)	Proportion of observed effort with specific mitigation measures				
		Gear code	Fleet code					TP + NS	TP + WB	NS + WB	TP + WB + NS	NIL
ZA	2016	LL	ZAD	15	132367	0	0.00	0	0	0	1	0
ZA	2016	LL	ZAD	14	4280	0	0.00	0	0	0	1	0
ZA	2016	LL	ZAD	9	71380	1323	0.02	0	0	0	1	0
JP	2016	LL	ZAC	14	131326	82269	0.63	0	0	0	1	0
JP	2016	LL	ZAC	9	2255	895	0.40	0	0	0	1	0

² Number of observed hooks per set for shots that caught at least one SBT

Table 5. Observed and estimated captures/mortalities for each species for South Africa pelagic longline sets that caught at least one SBT.

Country/Fishing entity	Calendar year	Fishery		CCSBT Statistical Area	Species code	Scientific name	Common name	Observed captures	Observed capture rate (capture/1000 hooks)	Observed Mortalities	Observed mortality rate (mortality/1000 hooks)	Observed live releases	Estimated total number of mortalities
		Gear code	Fleet code										
ZAF	2016	LL	ZAC	14	ALV	<i>Alopias vulpinus</i>	Thresher sharks	2	0.024	0	0	2	0
ZAF	2016	LL	ZAC	14	ALX	<i>Alepisaurus ferrox</i>	Long snouted lancetfish	10	0.122	6	0.073	4	10
ZAF	2016	LL	ZAC	14	BSH	<i>Prionace glauca</i>	Blue shark	369	4.485	170	2.066	199	271
ZAF	2016	LL	ZAC	14	DCR	<i>Thalassarche chlororhynchus</i>	Atlant. yellow-nosed albatross	1	0.012	0	0	1	0
ZAF	2016	LL	ZAC	14	DOL	<i>Coryphaena hippurus</i>	Common dolphinfish	33	0.401	33	0.401	0	53
ZAF	2016	LL	ZAC	14	PLS	<i>Dasyatis violacea</i>	Pelagic stingray	75	0.912	0	0	75	0
ZAF	2016	LL	ZAC	14	PSK	<i>Pseudocarcharias kamoharai</i>	Crocodile shark	24	0.292	0	0	24	0
ZAF	2016	LL	ZAC	14	SMA	<i>Isurus oxyrinchus</i>	Shortfin mako	159	1.933	102	1.24	57	163
ZAF	2016	LL	ZAC	14	SPL	<i>Sphyrna lewini</i>	Scalloped hammerhead	1	0.012	0	0	1	0
ZAF	2016	LL	ZAC	14	THR	<i>Alopias spp</i>	Thresher sharks nei	9	0.109	0	0	9	0
ZAF	2016	LL	ZAC	14	TTX	<i>Testudinata</i>	Marine turtles nei	2	0.024	0	0	2	0
ZAF	2016	LL	ZAC	9	BSH	<i>Prionace glauca</i>	Blue shark	39	43.575	28	31.285	11	*
ZAF	2016	LL	ZAC	9	DOL	<i>Coryphaena hippurus</i>	Common dolphinfish	3	3.352	3	3.352	0	*
ZAF	2016	LL	ZAC	9	PLS	<i>Dasyatis violacea</i>	Pelagic stingray	6	6.704	0	0	6	*
ZAF	2016	LL	ZAC	9	SMA	<i>Isurus oxyrinchus</i>	Shortfin mako	27	30.168	18	20.112	9	*
ZAF	2016	LL	ZAD	9	BSH	<i>Prionace glauca</i>	Blue shark	1	0.756	0	0	1	*
ZAF	2016	LL	ZAD	9	SMA	<i>Isurus oxyrinchus</i>	Shortfin mako	12	9.070	12	9.07	0	*

* Insufficient observer coverage or effort to estimate total mortality

Logsheet data collection and verification

Vessels in the Large Pelagic Longline fishery and Tuna Pole-line fishery have been required to complete daily logs of catches since 1997 and 1985, respectively. The data are verified by comparing logs of catches with landing declarations that are overseen by South African Fisheries Compliance Officers and Fisheries Monitors. Rights Holders are required to submit these logsheets on a monthly basis. Records of by-catch are required in the skipper logbooks.

Vessel Monitoring System

The Vessel Monitoring System (VMS) was implemented in 1998 for Large Pelagic Longline vessels and was subsequently followed by the Tuna Pole-line vessels. All longline and pole-line vessels are required to have a functional VMS system on board that transmits directly to the Department's VMS OPS Room. It is the Permit Holder's responsibility to ensure that the VMS transmits data continuously and uninterrupted prior to and throughout the duration of the trip.

Unloading/Transshipment

Unloading or discharging of fish from a longline vessel can only be undertaken in the presence of a monitor or a South African Fisheries Control Officer. Transshipment of fish is not permitted at sea. Transshipments of fish in

port requires pre-authorisation. South Africa is striving towards 100% monitoring of tuna pole-line discharges in port. These measures have been in place since 1998.

Tag Return Monitoring

A high percentage of all fish landed are monitored and to-date the observers have recovered and submitted 11 tags returns from Southern Bluefin tuna in this fishery

8. Other relevant information

South Africa is currently in the process of reviewing the appropriateness of the conventionally used DRT conversion of 1.8 for current dressing methods for domestically caught SBT. There are first indications that the current dressing factor could result in over-estimates of the round weight, which is of particular relevance for SBT caught by the ZAD fleet segment.

9. Literature cited

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