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PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

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TONGA

Fisheries Department

GOVERNMENT OF THE KINGDOM OF TONGA

WESTERN AND CENTRAL PACIFIC COMMISSION

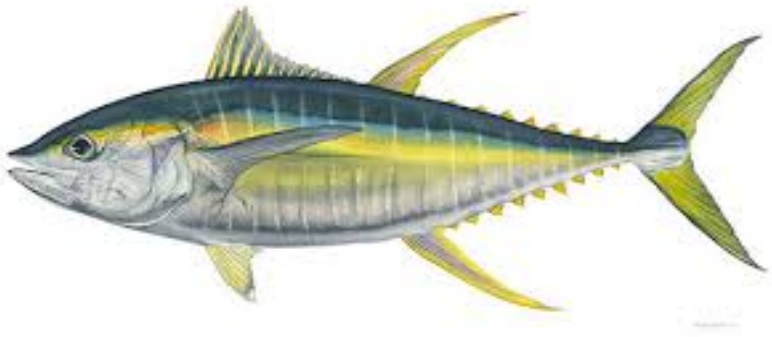
Twelth Regular Session of the Scientific Committee

3rd – 11th August, 2016

TONGA

Annual Fisheries Report to the Commission

Part 1: Information on Fisheries, Research and Statistics



Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30th April 2016	**YES**

1.0 ABSTRACT

Tonga National Fleets consisted of four Tonga flagged (Table 3) long-line vessels operated entirely within Tonga EEZ during the year 2015. The total estimated catch of primary species for the Tonga National long-line fleets was 465mt which is a considerable increased by 45% in comparison to 2014. Apart from National fleets, Tonga continues on licensing foreign fishing vessels to fish in its fisheries water under agreed conditions, since 2011. During the Tonga National Tuna Fisheries Management and Development Plan (2015 – 2017) has been approved and implemented in February, 2015 with new management limits for the total number of longline fishing vessel licenses (including local, locally-based and foreign licenses) issued will be restricted so that the total number of vessels that are licensed to fish at any given time does not exceed fifteen (15). Preference will be given to operators applying for a locally based license. Further, the number of foreign longline fishing vessel licenses will be restricted so that the total number of foreign vessels that are licensed to fish at any given time does not exceed six (6). The total estimated catch for tuna and tuna-like species for both National and foreign fleets for 2015 were estimated to 2,017mt.

For the National fleets, it is evident that the trend for the total CPUE was attributed to the increase in the CPUEs of the main tuna species; albacore, yellowfin and bigeye for the last 5 years. In 2015, yellowfin tuna dominated the catch composition of main tuna species with 64% followed by albacore with 6%. Catch composition indicated that the domestic longline vessel targeted bigeye and yellowfin tuna for fresh fish market. Mahimahi is the most dominated catch of non-target species totaling 163mt. Targeting of any sharks species is prohibited in Tonga according to the Term and Conditions for fishing licenses. According to the observer reports, Tonga's long-line fishery has no impacts on species of special interest (eg. turtle, marine mammals and seabirds).

Tonga Fisheries Department continues to work closely with the Offshore Fisheries Program (OFP) of SPC on issues regarding the status of tuna resources in the Tonga EEZ relative to the whole stock in the Western and Central Pacific Ocean (WCPO). The total tuna harvested by Tongan fleet in 2015 was still insignificant to pose any major impact on the whole stock in the region and the WCPO. Despite the ample room for improvement and development of tuna fleet in Tonga, high operation cost had restricted the operation of fishing vessels mainly to areas near the main fishing port, Nuku'alofa.

Tonga has no purse seine fisheries; therefore, some of the WCPFC measures regarding purse seine fisheries are not applicable to Tonga. But at the same time, Tonga has set a limit effort for Purse Seine fishing with in its EEZ per calendar year to be not exceeded 150-200 days. Therefore, the total number of days of Purse Seine fishing activity within Tonga EEZ for 2015 was two (2) days (*one fishing set and one searching*) and caught a total of 37.2mt SKJ; 26.3mt YFT; 0.01mt TRI and 0.03mt RRU.

Tonga has its National Observer Program and active domestic port sampling program for highly migratory species. Tonga National Observer Programme (TNOP) has been authorized since 2011 to provide ROP observer trips. The main improvement of Tonga National Observer Program was the completion of Part B and Part C of debriefer course by four (4) Debriefer. Therefore, Tonga has four certified Debriefer to debrief observer data which speed up observer data entry into TUBs database. Tonga continues to use the latest version (2014) of SPC/FFA regional forms for logsheets, port sampling, unloading and observer data collection. These forms have had a number of revisions over the years, some of which is to cater for the requirements of the WCPFC. For example, the identification to species level of seven key shark species. This is one of the areas identified by the Compliance and Monitoring Scheme where many of the SIDS such as Tonga requires assistance. The total observer coverage onboard foreign and domestic vessels for 2015 were 61% and 7% respectively. The port sampling and logsheets coverage were 100% in 2015. At the same time, Tonga continues to implement and monitor its obligation towards the Commission's Conservation and Management Measures and also the Resolutions and report back to the Commission annually (Appendix 1 – CMM Reporting).

2.0 BACKGROUND

Tongan commercial fisheries for high migratory species started in early 1970's with a second hand longliner and skipjack vessels from Japan. In early 1980's the Government put into investigation the commercial viability of tuna longline using a new long-liner, F.V.Lofa, donated by the Government of Japan. In 1991, the Government established a semi-Government company, namely the Sea Star Fishing Co Ltd, to operate F.V.Lofa commercially. The US Aid/Tonga Fisheries project in early 1990's tested the viability of medium size vessels for long lining targeting fresh fish for sashimi market. This was resulted with increase in number of domestic fleet targeting fresh tuna in the late 1990's and to peak in the early 2000's.

Currently, Tonga tuna fishery consists solely of longline fishing vessels targeting tuna and tuna-like species, with some artisanal and game fishing catches (from trolling) but still in its early stage of data collection by registration of small artisanal boats then continue on to recording of their catch. The majority of the activity is concentrated within Tonga EEZ except for foreign flagged vessels which can access high seas with permit from flag states. Tonga has approximately 700,000km^2 of undeclared EEZ that extends from Latitude 14 degrees south to 26 degrees south, offers a moderate potential for exploitation. The total catches from the Tonga EEZ have displayed a similar trend to effort. The total tuna catches for Tonga's National fleets from the EEZ increased from 320mt in 2013 to 465mt in 2015. This could be due to the increase in the effort in term of the number of vessels and hooks. A significant game-fishing sector also exists in Tonga. However, interactions with the commercial long-line fleets are likely to be relatively minor as the long-line fleets have significantly declined since 2003.

Tonga fisheries continue on registration of artisanal boats and data collection from these boats will be fully implemented when the registration process has completed. TufArts database system provided by SPC has already been installed into the Tonga Fisheries database server to cater for these data. The main artisanal tuna fishing activities concentrate on trolling around FADs and free schools associated with birds using outboard motor boats. Vertical lines (for tuna) and mini long-lines were also introduced to fishing associations and communities to encourage them to shift fishing pressure from inshore area to deeper waters.

3.0 FLAG STATE REPORTING

3.1 Status of the Fishery

3.1.1 Total annual catch, by primary species

The annual catch and effort estimated, by primary species for the national longline fleet fishing throughout the WCPF Convention Area for the years 2011 to 2015 are summarized in Table 1 with the historical estimates further provided in Figure 1. The total effort in the WCPFC-CA was approximately 10916 hundred hooks (Table 1) and it's all attributed to the Tonga EEZ. In further details, the annual catch estimates of primary species in 2015 were amounted to 465mt and it is about 45% increases from the previous year. The number of domestic vessels equipped Tonga National fleets still consists of four (4) vessels as of 2014. The significant rise in catch could be due to the active operation of domestic vessels throughout the year and also the increase in effort in terms of number of hooks which was increased by 33% from previous years (2014)(Table 1). In 2015, the catches for primary species were dominated by yellowfin (64 %) for main tuna species, followed by 6 % albacore and 5 % for bigeye tuna with only 1% of skipjack tuna. Swordfish occupied 9 % of the total catch of primary species followed by 6% and 5% each of stripe marlin and blue marlin respectively. In reference to the history of this fishery in Tongan waters; longline effort in terms of number of hooks, rapidly increased from the mid 1990s and peak at more than 10 million hooks during 2002 before a rapid decline in both hooks and number vessels in recent years. The huge reduction in fishing effort is attributed to the decline in catch rates and other various factors including economic issues and the diversion of fishing efforts. The annual CPUE (kg/100hks) estimated for the primary species, for the Tongan Longliners for the year 2011 to 2015 (Figure 2), shows that CPUEs for the main species increased in 2015 especially for yellowfin tuna with a total of 297mt in 2015.

***Table 1*. Annual catch (mt) and effort (hooks) estimates for the Tonga longline vessels, by primary species, for the WCPFC Convention Area, 2011 – 2015 (*Webreporting Tools*).**

YEAR	Effort	Catch (metric tonnes)									
	Total no. of hooks	Albacore	Bigeye	Yellowfin	Pacific Bluefin	Black Marlin	Blue Marlin	Stripe Marlin	Swordfish	Skipjack	Total
2011	701100	34	18	171	0	2	22	7	22	1	277
2012	977400	20	10	140	0	2	47	11	19	1	250
2013	778600	13	7	126	0	0	48	2	26	1	223
2014	823400	25	22	195	0.13	10	13	12	37	8	320
2015	**1091600**	**29**	**25**	**297**	**0**	**13**	**23**	**30**	**42**	**6**	**465**

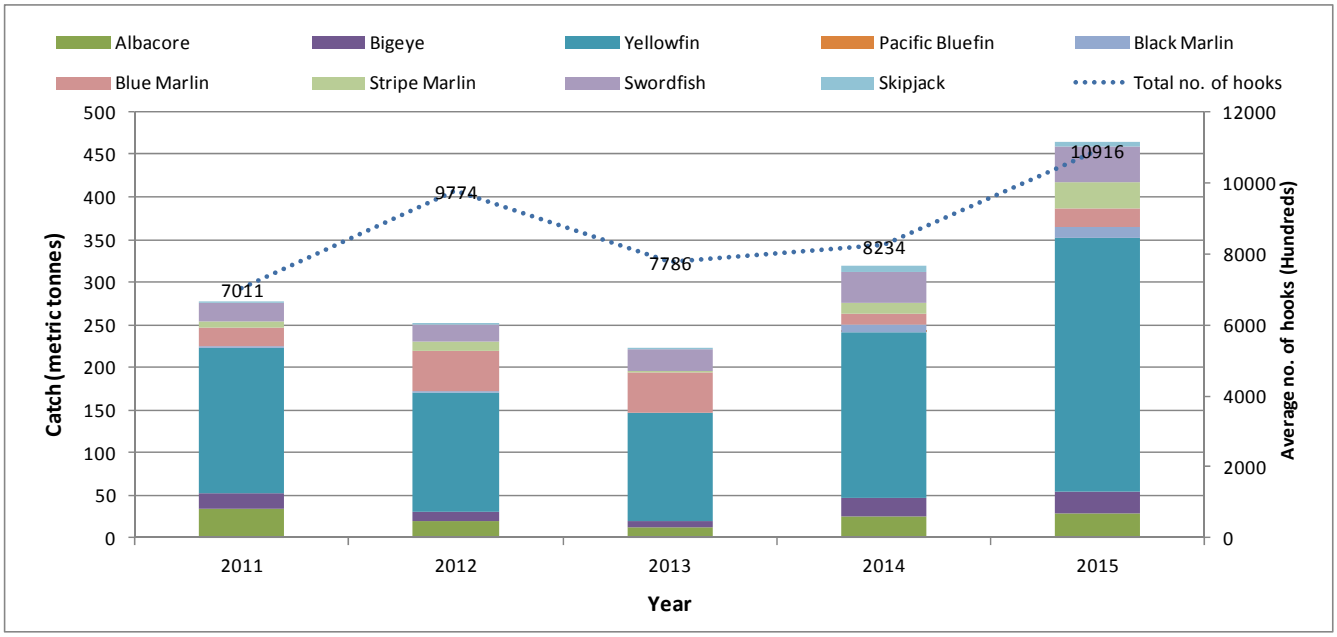


***Figure 1*. Historical annual Catch (mt) and Effort (no. of hooks), by primary species, for the Tongan longliners were active in the WCPFC Convention Area for the years 2011 to 2015**

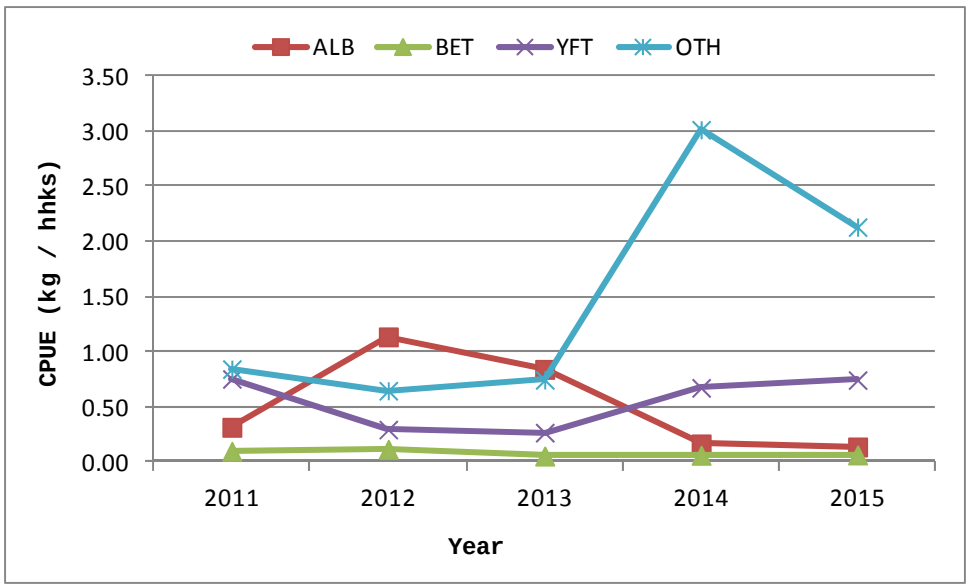


Figure 1. CPUE (kg per 100 hooks) of main tuna species and others for Tonga longliners were active in the WCPFC Convention Area for the years 2011 to 2015

3.1.2 Annual catch estimates of non-target, by-catch associated and dependent species

The provisional estimated total catch of non-target, associated and dependent species for the national longline fleets for the last five years are provided in Table 2. The species composition of the catch by weight in 2015 was dominated by Dolphin fish (*Mahimahi*) totaling 162mt followed by *Wahoo* with 17mt. Following the implementation of the Expanded Version SPC/FFA Regional Longline Logsheets to include specific shark records, the total un-raised shark catch for the National fleets (sources: logsheets only) within WCPFC-CA was 8.5mt dominated by *Mako* sharks (Table 2).

By-catches are obtained from logsheets and also from observer records as well as port sampling data. Observer records are important for estimating catches of the less valuable species that are less likely to be retained or recorded. Observers have reported high retention rates of target tunas, including those that are discarded due to shark damages. Wahoo, mahimahi, moonfish and billfishes also had high retention rates as these are also have valuable components for the fishery especially the local market.

Based on available data, there was no interaction of Tonga flagged longliners with species of special conservation interest (eg. Marine turtle, marine mammal and sea birds) recorded by observers (*Appendix 1*).

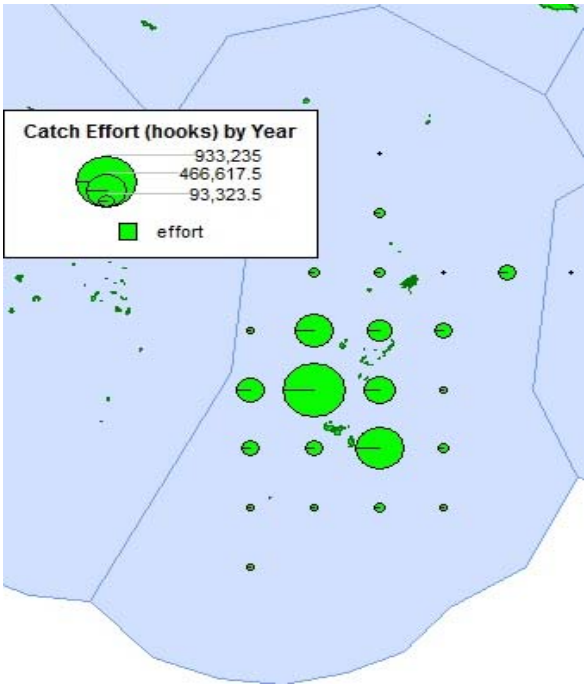
Table 2. Annual estimated catches (mt) of non-target and by-catch species, including sharks, by the National longline Fleets, in the WCPFC Convention Area, for years 2011 to 2015. (Source: Tufman Reports – unraised longline logsheets)

Non Target Species	2011	2012	2013	2014	2015
Wahoo	8.8	6.3	3.0	9.7	**17.4**
Short-Billed Spearfish	3.1	1.0	2.6	4.1	**7.9**
Mako Sharks			1.0	8.4	**8.5**
Hammerhead Sharks				0.03	**0**
Oceanic Whitetip Sharks				0.0	**0.0**
Silky Sharks				0.0	**0.0**
Thresher Sharks				0.0	**0.0**
Blue Sharks				0.0	**0.0**
Sharks (Unidentified)	14.2	130.0	13.2	4.5	**0.0**
Sailfish (Indo Pacific)	2.5	0.8	2.1	4.0	**14.4**
Dolphin fish	30.9	39.0	53.3	190.1	**162.6**
Opah/Moonfish	3.4	0.5	0.0	0.3	**0.1**
Others	4.3	8.5	32.2	6.5	**7.1**
Total	67.2	186.0	107.4	227.5	**218.0**

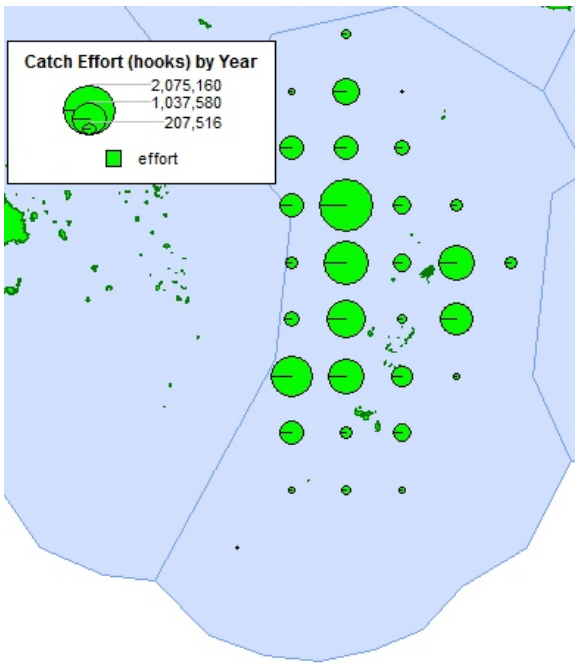
3.2 Fishing Patterns – National Fleets only

Figures 2a & 2b provide an illustration of the annual distribution of effort and catch for the national longline fleets over the past five years. All vessels (National fleets) were based in Tonga for boarding and unloading. In 2015, 100% of the fishing effort of the National longline fleet took place within Tonga EEZ and there was a hotspot of increased effort in the Central area of the EEZ.

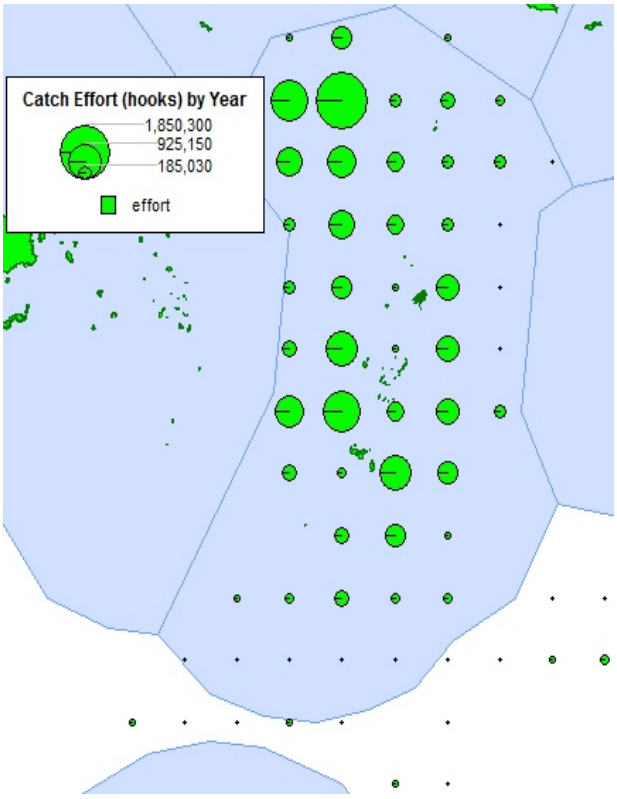
The albacore catch rates from the Tonga EEZ are generally reported during the cool season of the year (April – August), with a smaller peak at the end of the year. Catch rates were relatively high in the central area of the EEZ during the second and the third quarter of the year (2015). Unfortunately, the national fleets were not targeting albacore as they concentrate targeting yellowfin and bigeye tuna for sashimi market. Yellowfin tuna dominated the annual catch distribution for the last five (5) years, and both yellowfin and bigeye were highly reported from the central to the south of EEZ.



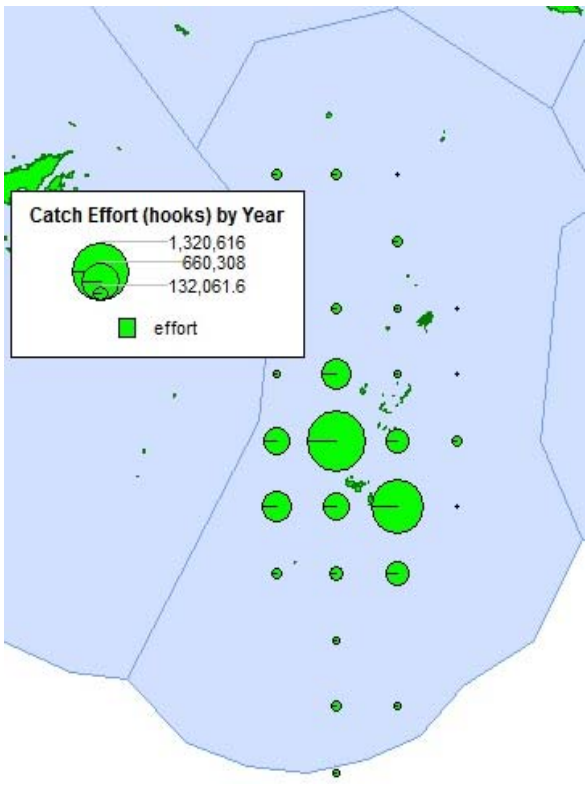
(i) 2011



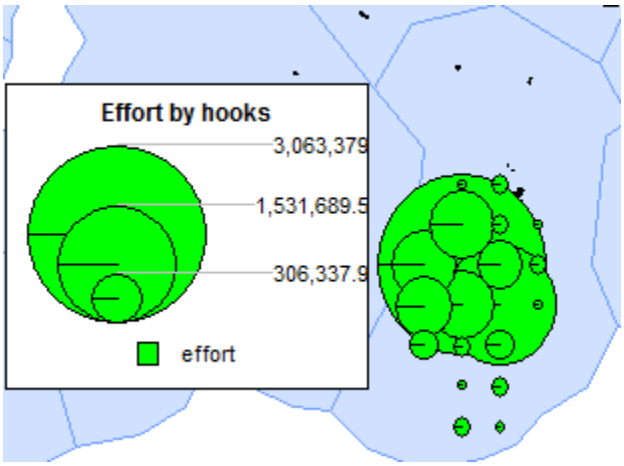
(ii) 2012



(iii) 2013

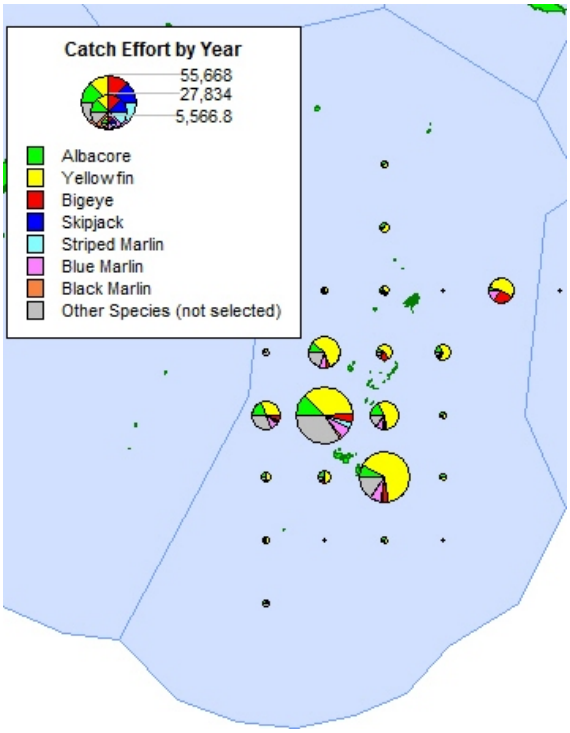


(iv) 2014

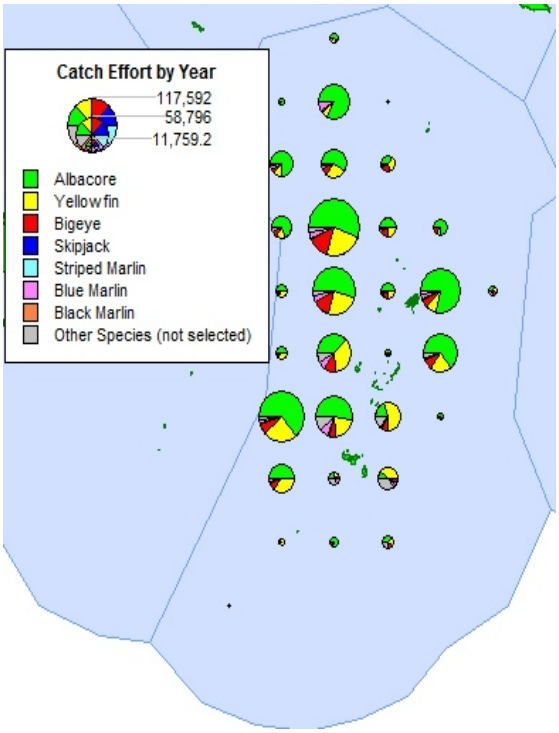


(v) 2015

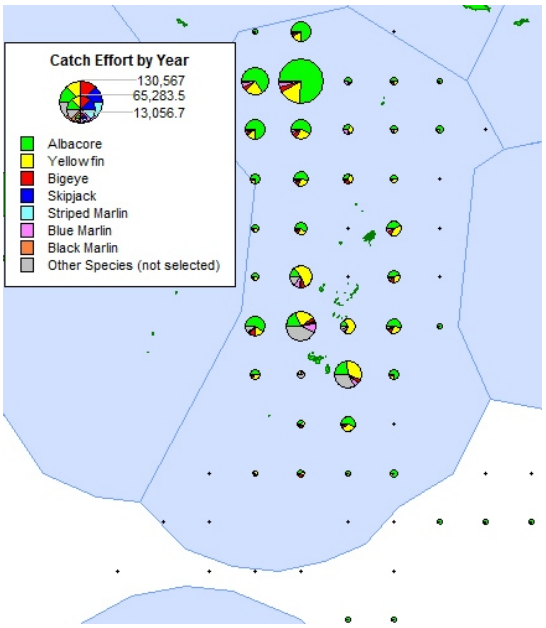
Figure 2a (i-v). **Annual Distribution of effort (hooks) by the National Longline Fleets active in the WCPFC Convention Area, for the year 2011 to 2015.**



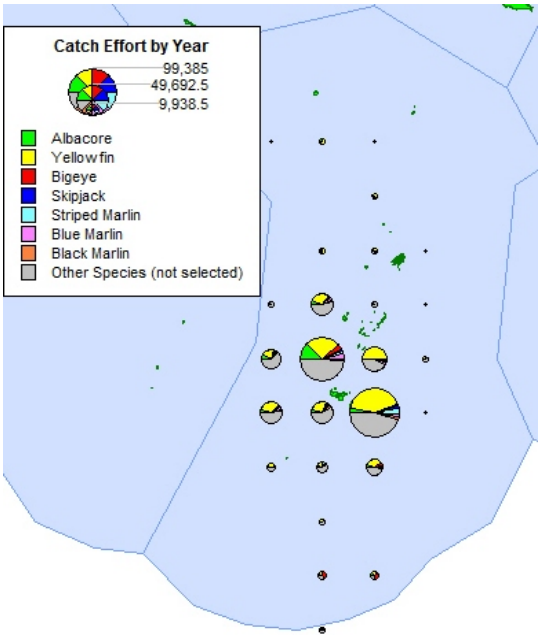
(i) 2011



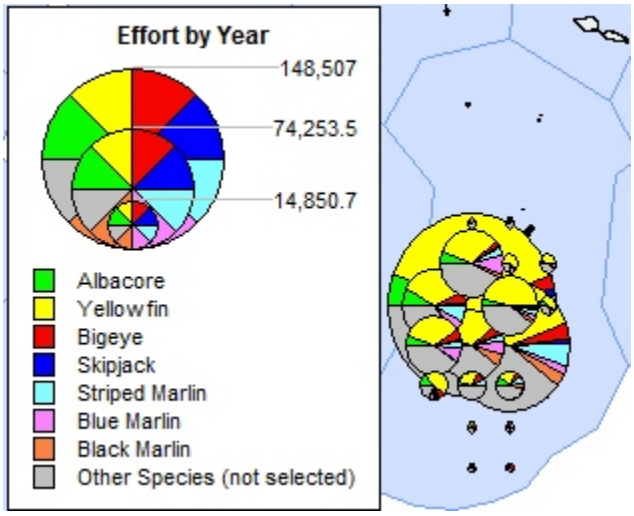
(ii) 2012



(iii) 2013



(iv) 2014



(v) 2015

Figure 2b (i-v): Annual Distribution of target species catches (in kilogram) by the National Longline Fleets active in the WCPFC Convention Area, for the year 2011 to 2015.

The reporting requirements stipulated under the conservation and management measures adopted by the Commission are demonstrated in appendix 1. In accordance to CMM 2006-04, no vessels specifically targeted striped marlin and all catch was taken as by-catch. A total of 21mt of stripe marlin was caught as bycatch in the Convention Area below 15^0S in 2015. CMM 2010-05, four vessels fished for albacore as bycatch in 2015 with a total of 24mt within the Convention Area around the south of

20°S. CMM 2009-03, a total of 24mt of Swordfish caught by four flagged vessels within the Convention area of the south of 20° S and there were no vessels operates under charter, lease or similar mechanism as part of domestic fleets, and five (5) foreign vessels caught 5.2mt of SP SWO as bycatch within south of 20° S. For Shark species (CMM2010-07), 8.5 mt (1% of the annual catch estimates for national fleets) of *Mako* sharks were recorded with 8 and 2 individual *silky* and *blue* sharks were both discarded alive respectively. *Mako* sharks were retained all parts excepting the heads and guts, for local consumption (sold to fish and chips shops etc). The total estimation for silky sharks was approximately 113 individuals. More of the CMM report is attached to this report as Appendix 1.

3.3 Fleet Structure

Following the development of the domestic longline fishery and the opening of the fishery for the chartering vessels, locally-based Foreign Fishing Vessel (LBFFV) in the late 1990s the tuna fleet increased to peak in 2002 and 2003 but has subsequently declined due to poor catch rate and high operational costs. In 2004, a moratorium was placed on licensing Locally Based Foreign Fishing Vessels (LBFFV) causative to their relocation to other countries. However, in 2011, Tonga lifted the moratorium allowing again foreign fishing vessels as part of its programme to develop tuna fishing production. This program started in October 2011 with one locally based vessel which includes in the national fleet.

In 2015, the Tonga National fleets consist of four (4) domestically-based longline vessels that operate within the WCPFC-CA. All these vessels are Tonga flagged vessels and authorized to fish within the national jurisdiction only. Among these, only one active vessel listed on the WCPFC Record of Fishing (RFV) vessel but no high seas permit has been issued during 2015. .

Table 3. The number of National Fleets vessels, by size category, active in the WCPFC Convention Area, 2011 - 2015.

Gear	Longline				
Fleets	National Fleets				
Source	Number of Licenses Vessels (TufMan)				
Size Category (GRT	2011	2012	2013	2014	2015
0 - 100MT	4	4	3	2	2
100 - 200MT	0	0	0	2	2
200+	0	0	0	0	0

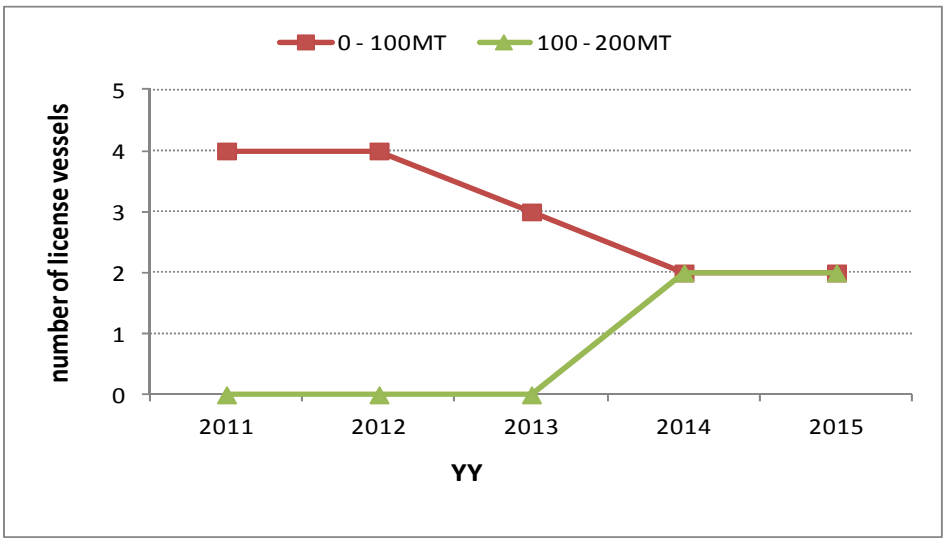


***Figure 3*: Historical annual longline vessels number for Tonga, for the WCPFC Convention Area, 2011 - 2015**

4.0 COASTAL STATE REPORTING

Tables 4 and 5 provide description of foreign-flagged vessels licensed to fish in Tongan water over the past five (5) years since the moratorium for locally-based and foreign fishing vessels lifted in 2011. Foreign fishing vessels have been re-allowed to fish in Tonga water as part of Tonga's programme to increase tuna fisheries production. In 2015, only six (6) foreign flagged longline vessels were license to fish in Tonga EEZ compared to nineteen (19) with valid license in 2014. This is a huge decrease in number of foreign vessels license to fish in Tonga and it is due to the revised of Tuna Development and Management Plan 2015 – 2017. The total number of longline fishing vessel licenses (including local, locally-based and foreign licenses) issued will be restricted so that the total number of vessels that are licensed to fish at any given time does not exceed fifteen (15). Further, the number of foreign longline fishing vessel licenses will be restricted so that the total number of foreign vessels that are licensed to fish at any given time does not exceed six (6). In issuing licenses preference shall be given to local and then locally-based foreign vessels. All licensed fishing vessels shall offload all catch in the authorized ports of Tonga. Therefore, among these six (6) foreign fishing vessels, 5 Taiwanese and 1 Chinese flagged were active and operated throughout the year within Tonga EEZ.

Table 4. Number of foreign longline vessels with valid licenses to fish in the Tonga EEZ by year and size category (GRT).

Gear	Longline				
Fleets	FFV				
Source	Number of Licenses vessel (TufMan)				
Size Category (GRT	2011	2012	2013	2014	2015
0 - 100MT	1	19	19	13	5
100 - 200MT	0	2	6	5	1
200+	0	1	1	1	0

Table 5. Number of foreign longline vessels with valid licensed to fish in the Tonga EEZ by flag and year.

	Flag			
Year	CHINA	CH-TAIPEI	FIJI	Total
2011		1		1
2012	1	20	1	22
2013	3	20	3	26
2014	3	14	2	19
2015	1	5	0	6

Annual catch for foreign flagged vessels in 2015 are given in Table 6 and are similar in species composition of the catches to that of Tonga National fleets. Those catches by foreign vessels contribute to Tonga National Catch of tuna and tuna-like species within Tonga jurisdiction waters. The total catches by foreign fishing vessels were 91% caught by Taiwanese vessels and 9% by Chinese vessel. Again, Albacore tuna was the highest caught species in zone with 675mt (46% of total catch) followed by yellowfin with 490mt (33%) with lesser percentage of 7% of bigeye tuna. There was a considerable increase by 92% of the total catch of foreign flagged vessel in 2015 (1465mt) compared to 2014 which totaling 765mt. This increase of catch by foreign vessels was due to the increase in effort in terms of hooks to 2,927,400 hooks compared to 1,868,000 in 2014 and also the revised of Tuna Management Plan which allow no foreign vessels to unloaded in any other ports but to offload all catch in the authorized port in Tonga

All foreign vessels were managed and operated through a locally-based agent, *The Ngatai Marine Enterprise.* The fishing effort was widely distributed throughout the zone and also occurs more to the northern sides.

Table 6. **Annual Longline catch and effort estimates by foreign flagged vessels licensed to fish with Tonga Home EEZ (national waters) in 2015.** ***Operational logsheet data raised using VMS eRecap Application Tools.***

FLAG	YEAR	GEAR	ALB	YFT	BET	SKJ	BUM	BLM	MLS	SWO	SFA	FAL	BSH	OCS	THR	MAK	HAM	POR	OTH	Total
CHINA	2015	LL	57.5	56.0	7.7	3.0	0.9	0.0	3.9	0.8	0.0	0.0		0.0	0.0	0.0	0.0	0.0	6.0	**135.9**
CHINESE TAIPEI	2015	LL	617.6	433.9	95.0	6.2	36.1	1.1	13.3	9.0	7.3	0.0	36.6	0.0	0.0	10.6	0.0	0.0	62.5	**1329.3**
TOTAL			**675.1**	**489.9**	**102.7**	**9.2**	**37.0**	**1.1**	**17.2**	**9.8**	**7.3**	**0.0**	**36.6**	**0.0**	**0.0**	**10.6**	**0.0**	**0.0**	**68.6**	**1465.2**

4.0 SOCIO-ECONOMIC FACTOR

Exportation of catches from Tonga continued in 2015. The national fleets contributes in large portion into total fish has been exported from Tonga in 2015. This is due to the increase in effort which drives into 45% increased in catch compared to 2014. Foreign vessels continue to provide additional revenue stream to the domestic fisheries sector in Tonga from their license fees and also the resources rent from all catches that landed in Tonga. All catches by foreign vessels were unloaded in port Nuku'alofa then repacked into shipping container and exported to overseas market with a portion of their catch were sold at local market and retail store. The new FOB values were charged by species to the total catch species in spite of export or sold locally were TOP$6 for Bigeye and Yellowfin tuna; then TOP$5 for the rest of the catch. The FOB value calculated according to the average prices of fish being sold out at the local markets, which is well-known to be lower than the true value of export prices in overseas market. The total estimated FOB revenue collected from fish exported during 2015 was increased by 146% from TOP$3,137,045.00 in 2014 into TOP$7,726,996.00 during 2015.

5.0 DISPOSAL OF CATCH

5.1 Marketing

Tonga's main markets for its fresh chilled tuna exports were Japan, US (Los Angeles, Hawaii), New Zealand and Australia. Taiwan and PagoPago used to be a target market for frozen albacore. In 2015, foreign vessels commence exported of frozen tuna (Bigeye and Yellowfin tuna) to Japan market. Frozen bycatch also send to Taiwan, Hongkong, Thailand and China. At present, fresh chilled albacore and some of the bycatch (frozen and fresh) are sold locally.

Figure 5 describes the main markets destination with respect to weight of longline catch export for Tonga in 2015. The biggest portion; 31% of the total export volume was exported to Pagopago (frozen albacore for cannery) followed by 30% to Japan; 17% to Taiwan; 7% to Honolulu; 5% to Thailand and 4% to US Mainland. Other important markets are New Zealand and Australia (for fresh chilled tuna)

but in a low portion of both 3% respectively. A significant increase in export volume to Japan's sashimi market was due to the increase in catch and effort by domestic fleets with 4 vessels operated in 2015 and the domestic fleets' targeted fresh tuna for sashimi market. The foreign vessels dominated the export of frozen fish to cannery in Pagopago and Taiwan with small portion to Japanese market.

Albacore tuna dominated the exported of individual species with 38% of the total volume, followed by yellowfin with 35% and lesser percent of bigeye and mahimahi with 8% and 7% respectively. Export of bycatch species described as "Others" (OTH) were mainly frozen fish exported (frozen) mainly to Taiwanese and Thailand markets and they consisted of marlins species, sailfish, oilfish, shortbill spearfish, wahoo and escolar; and it's only 5% of the total volume of export fish. Foreign vessels also provide more fish to be sold locally and it continues contribute to a drop in fish price compared to previous years.

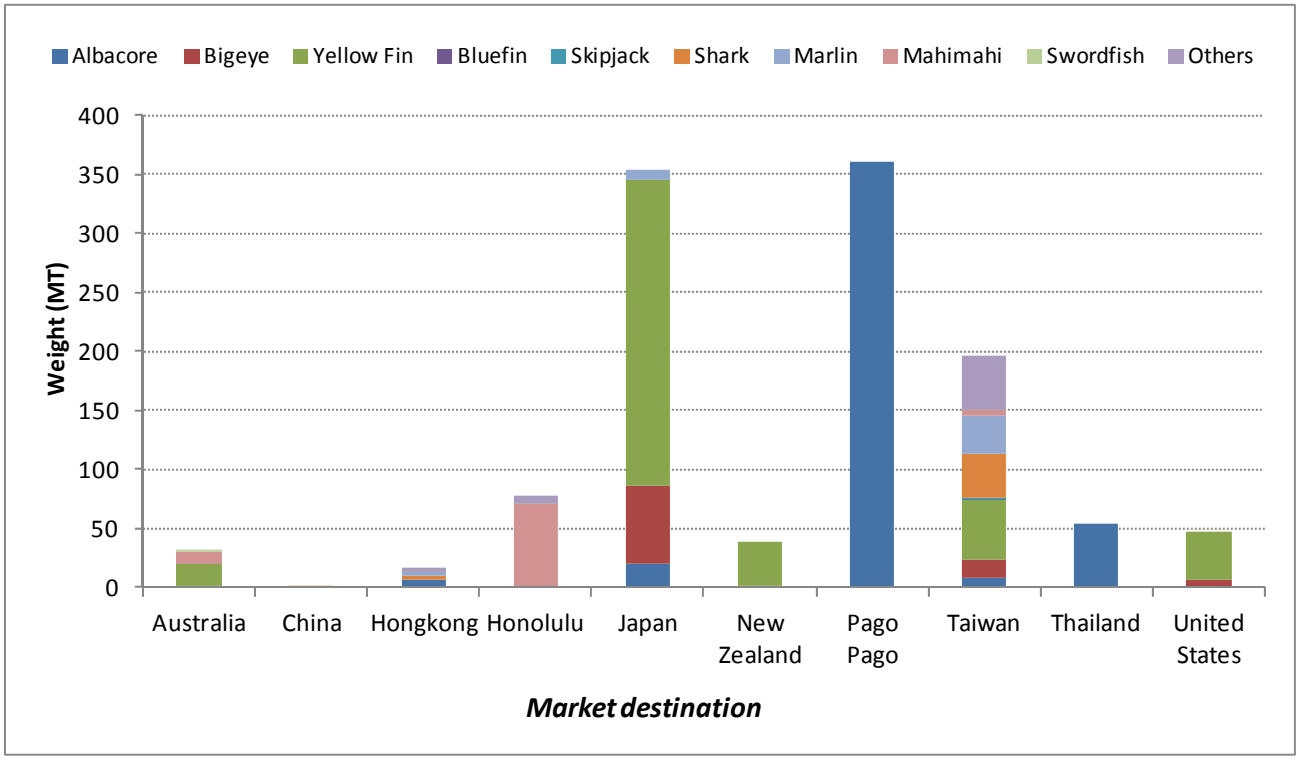


***Figure 5*. Longline catch (MT) export and Destinations for Tonga, 2015**

6.0 ONSHORE DEVELOPMENT AND FUTURE PROSPECTS OF FISHERY

The Tonga commercial longline fishery is currently limited by a cap on the number of longline vessels authorized to fish with in the EEZ to only 15 licenses (*Revised Tonga Tuna Management & Development Plan*). Unfortunately, high operating costs and a lack of adequate infrastructure has restricted the development of a locally based fleet.

The domestic tuna fishing companies, *Atlantis Fisheries* and *Fuko Fishing* continue to operate with viable production outputs in exporting of fresh chilled tuna to sashimi markets especially to Japan, Australia, Honolulu and New Zealand. Also entailing in provides employment for local people in crewing their vessels, and also their processing and retailing plant. They also plan to extend their services to operate more longline vessels and a better processing unit.

The National Fisheries Council (NFC) continues on partnership with Fisheries department and respective stakeholders in developing fisheries sector including Tuna fishery. Within this partnership, the NFC planned to deal with many challenges especially the infrastructure such as the development of fisheries wharf, packing facilities that provide low fees for fishermen and equipment such as vessels, fishing gears etc. For future development, it is expected that more domestic vessels to be operated and lessen the foreign fishing vessels.

In 2015, Tonga continued to participate in the regional Tuna Data and Stock Assessment Workshop which are conducted on an annual basis for SPC member countries. Data Workshop was aimed to improve member countries' scientific tuna monitoring and data management capacity, and satisfy their data reporting obligations to the Western and Central Pacific Fisheries Commission (WCPFC). The improvement of database system especially TUFMAN and TUBs allows speedy in extracting and analyzing of data for the scientific report. Tonga also on the list to upgrade Tuna Database from Tufman1 to Tufman2 by SPC-OPF database team. TufArts database has been installing into Tonga Fisheries database system and start registration of artisanal boats prior to catch and effort data collections.

The Stock Assessment Workshop was recognized as an important program in capacity building for fisheries officers and managers in the region. In this workshop, for the first time, participants were introduced to the Tuna Management Simulator (TUMAS) a new software tool developed by the OFP that allows fishery managers and advisors to evaluate the performance of different management options. Seapodym model were also introduced and it is very supportive especially the status of the stock in related to fishing activities and climate change.

7.0 RESEARCH ACTIVITIES AND STATUS OF TUNA FISHERY DATA COLLECTION

7.1 Logsheets and Unloading data collection

Expanded format of SPC/FFA Regional Longline Logsheets (2014) has been used by longline vessels in 2015. Unfortunately, a very small portion of the trips was filled in 2009 version. One of the main improvements in data collection was the revised of Tonga National Tuna Management and Development Plan 2015 – 2017 and all foreign vessel shall offload all of their catch in authorize ports in Tonga which is Nuku'alofa ports. In this case, 100% coverage of logsheets, unloading and port sampling data were achieved from both National and foreign vessels licenses to fish in Tonga. Unloading forms were submitted together with logsheets in timely manner.

7.2 Observer Programme

The Tonga National Observer Programme (TNOP) has attempted to deploy observers' onboard domestic and foreign longline vessels operated with in Tonga EEZ, and also place observers on US purse seiner vessels under Multilateral Treaty arrangement. The observer coverage for TNOP was 61% onboard foreign fishing vessels license to fish in Tonga EEZ and 7% onboard Tonga flagged vessels. All those observer trips are non-ROP trips.

TNOP is aimed to collect information on fish catch, fish handling techniques, fishing technology, by-catch and discards and all other activities that the vessel conducted for the duration of the trip. All these data will analyze and it will be very useful for stock assessment and management purposes. Fishing vessels' compliance with fisheries legislation is also an integral part of this program.

7.3 Port sampling Programme

Tonga Fisheries Department continues to employ dedicated port samplers which covering 100% of the longline unloading in port Nuku'alofa. The Department is also obliged to maintain this high percentage coverage of port sampling to ensure the fulfillment of its obligation to the Commission. Collated data are also being sent to SPC/OFP on a regular basis for further analysis and also store second copy of the data through TUFMAN database system. SPC/OFP has been involved such activities as successful integration and regular updates of the TUFMAN database and the installation of TufArts database in Tonga.

The National Observer and port sampling program warmly extend appreciation to the overseas donor (JTF fund) and regional organization (FFA & SPC) for their great financial and technical support in developing our tuna data collection and analysis. This scientific report completed with all your great effort in different approach!!! ***Malo 'aupito***

Appendix 1 – CMM Reporting

Summary for each CMM

CMM Reference	Response
CMM 2005-03 North Pacific Albacore], Para 4	NOT APPLICABLE • No flagged vessel active in North of the equator
CMM 2006-04 [South West striped Marlin], Para 4	*Sources: Web Reporting tools* • 2015 – 4 LL vessels caught a total of 30mt of SW_MLS *as a bycatch,* 21mt of the total catch were caught in south of 15°S of the Convention area.
CMM 2009-03 [Swordfish], Para 8	*Sources: Web Reporting Tools* • a) 2015 – 4 flagged LL vessels caught a total of 42mt of SP_SWO as *bycatch,* 24mt of the total catch were caught in the Convention Area south of 20°S • b) there were NO vessels operating under charter, lease or other similar mechanism as part of domestic fishery • c) 2015 – 5 foreign LL vessels caught 5.2mt of SP_SWO as a *bycatch* in south of 20°S
CMM 2009-06 [Transshipment], Para 11(ANNEX II)	NOT APPICABLE • Not an Issue as Transshipments is prohibited in Tonga Fisheries Waters
CMM 2010-05 [South Pacific albacore], Para 4/ / CMM 2012-05 [SP albacore] para 4	*Source: Web Reporting Tools* • 2015 – 4 LL vessels caught a total of 29mt of SP_ALB *as bycatch,* 24mt of the total catch were caught in the Convention area south of 20°S.
CMM 2010-07 [Sharks], Para 4	*Source: Web Reporting Tools* • 2015 - 4 LL vessels caught; – *Mako sharks*; total 8.5mt of Mako sharks were caught as bycatch. Mako sharks were retained its all parts excepting the head and guts. – *Silky sharks*; 8 individual caught and all

CMM Reference	Response
	discarded – *Blue sharks*; 2 individual were caught and all discarded • No catch of other key shark species were reported
CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5	Not Applicable Tonga does not have a purse seine fleet
CMM 2011-04 [Oceanic white-tip sharks], Para 3	*Sources: Web reporting Tools* • No catches of Oceanic White tip has been reported on logsheets and observer data. Logsheet data were 100% coverage •
CMM 2012-04 [Whale sharks], Para 06	• Not applicable as Tonga does not have purse seine fleet
CMM 2012-07 [Seabirds], Para 9	*Source: Web reporting Tools* • There is no interaction with seabirds by longline fisheries
CMM 2013-08 [Silky sharks], Para 3	*Sources: Web Reporting Tools* • There were total of 8 Silky Shark has been reported by observer to be caught and all were discarded alive. • Based on the 8 silky sharks observed and the total number of trips taken in 2015, it is estimated that a total of 113 silky sharks would have been caught and discarded alive
Observer coverage(WCPFC 11 decision – para 484(b)	Observer Coverage: • 61% onboard Foreign Fishing vessels license to fished in Tonga EEZ • 7% onboard National Fleets (domestic longliner) • all Tonga-flag longline vessel trips are all **Non-ROP** trips

Appendix 2 – The provision of shark species catch estimates

Flag	Year	Observer Data		Target tuna catch estimate	Shark species catch estimate (t.)							See Note
		Available ?	Coverage		BSH	FAL	MAK	OCS	POR	SPN	THR	
TO	1982	N	0.00000%	205.0	35.2	5.5	18.8	18.1	0.0	0.4	0.5	2
TO	1983	N	0.00000%	208.0	35.7	5.6	19.0	18.4	0.0	0.4	0.6	2
TO	1984	N	0.00000%	218.0	37.5	5.9	20.0	19.3	0.0	0.5	0.6	2
TO	1985	N	0.00000%	233.0	40.0	6.3	21.3	20.6	0.0	0.5	0.6	2
TO	1986	N	0.00000%	251.0	43.1	6.8	23.0	22.2	0.0	0.5	0.7	2
TO	1987	N	0.00000%	298.0	51.2	8.0	27.3	26.3	0.0	0.6	0.8	2
TO	1988	N	0.00000%	274.0	47.1	7.4	25.1	24.2	0.0	0.6	0.7	2
TO	1989	N	0.00000%	234.0	40.2	6.3	21.4	20.7	0.0	0.5	0.6	2
TO	1990	N	0.00000%	190.0	32.6	5.1	17.4	16.8	0.0	0.4	0.5	2
TO	1991	N	0.00000%	195.0	33.5	5.3	17.8	17.2	0.0	0.4	0.5	2
TO	1992	N	0.00000%	223.0	38.3	6.0	20.4	19.7	0.0	0.5	0.6	2
TO	1993	N	0.00000%	329.0	56.5	8.9	30.1	29.1	0.0	0.7	0.9	2
TO	1994	N	0.00000%	408.0	70.1	11.0	37.3	36.1	0.0	0.9	1.1	2
TO	1995	N	0.00000%	461.0	79.2	12.4	42.2	40.7	0.0	1.0	1.2	2
TO	1996	Y	10.22434%	20.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1
TO	1997	N	0.00000%	662.0	113.8	17.9	60.6	58.5	0.0	1.4	1.8	2
TO	1998	Y	5.69883%	825.7	277.2	0.9	127.0	115.6	0.0	1.0	2.5	1
TO	1999	Y	1.21928%	1,080.8	74.5	12.9	72.2	51.7	0.0	0.0	1.0	1
TO	2000	Y	1.05440%	1,158.4	253.8	24.8	55.6	76.1	0.0	0.0	5.6	1
TO	2001	N	0.00000%	1,718.0	295.2	46.3	157.2	151.8	0.0	3.7	4.6	2
TO	2002	N	0.00000%	1,667.0	286.4	45.0	152.6	147.3	0.0	3.6	4.5	2
TO	2003	N	0.00000%	968.0	166.3	26.1	88.6	85.5	0.0	2.1	2.6	2
TO	2004	Y	8.18220%	472.5	74.1	26.8	83.7	116.9	0.0	4.1	0.7	1
TO	2005	Y	1.28110%	628.1	114.3	8.2	91.6	44.7	0.0	0.0	0.0	1
TO	2006	Y	9.98872%	757.7	94.5	37.2	44.1	72.2	0.0	0.6	1.7	1
TO	2007	Y	4.21774%	859.4	118.5	42.1	81.1	59.8	0.0	6.7	4.8	1
TO	2008	Y	9.17434%	591.8	88.0	6.3	40.5	40.0	0.0	1.9	0.0	1
TO	2009	Y	4.79004%	271.3	50.6	20.7	14.3	12.0	0.0	0.0	1.5	1
TO	2010	Y	0.14406%	127.7	21.9	3.4	11.7	11.3	0.0	0.3	0.3	3
TO	2011	N	0.00000%	223.0	38.3	6.0	20.4	19.7	0.0	0.5	0.6	2
TO	2012	N	0.00000%	170.0	29.2	4.6	15.6	15.0	0.0	0.4	0.5	2
TO	2013	N	0.00000%	146.0	25.1	3.9	13.4	12.9	0.0	0.3	0.4	2

NOTES

1. Shark species catch estimates have been determined by raising the nominal observed catch by the coverage rate (observed target tuna catch to annual catch estimates of target tuna). Observer data with coverage rates > 0.8% have only been considered.

2. There are currently no observer data available (for this year) to estimate shark species catches. As an interim measure, Shark species composition data obtained from observers for this fleet in adjacent years have therefore been used to produce estimates of shark species catch. For recent years, processed observer data may become available and will therefore contribute to a more reliable estimate in the future.

3. The observer data coverage rate is considered too low (< 0.8%) to produce estimates of shark species catches for this year. As an interim measure, Shark species composition data obtained from observers for this fleet in adjacent years have therefore been used to produce estimates of shark species catch. For recent years, processed observer data may become available and will therefore contribute to a more reliable estimate in the future.