SCIENTIFIC COMMITTEE
SIXTEENTH REGULAR SESSION

ELECTRONIC MEETING
12-19 August 2020

ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

WCPFC-SC16-AR/CCM-33

NICARAGUA

ADDENDUM TO ANNUAL REPORT PART 1

Specific information to be provided in Part 1 as required by CMMs[1]

13 March 2020

<table>
<tr><td>CMM 2019-03 [North Pacific Albacore], Para 3</td><td>All CCMs shall report annually to the WCPFC Commission all catches of albacore north of the equator and all fishing effort north of the equator in fisheries directed at albacore. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished using the template provided in Annex 1.
Annex 1:
Annex I: Average annual fishing effort for 2002-2004 and annual fishing effort for subsequent years for fisheries directed at North Pacific albacore in the North Pacific Ocean
<table><tr><th rowspan="2">CCM</th><th rowspan="2">Area[1]</th><th rowspan="2">Fishery</th><th colspan="2">2002-04 Average</th><th colspan="2">Year</th><th colspan="2">Year</th><th colspan="2">Year</th><th colspan="2">Year</th><th colspan="2">Year</th><th colspan="2">Year</th></tr><tr><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th><th>No. of vessels</th><th>Vessel days</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>
Nicaragua does not have fishing vessel in the WCPFC area.

* Note: WCPFC10 clarified that this reporting responsibility lies with the flag State</td></tr>
<tr><td>CMM 2006-04 [South West striped Marlin], Para 4</td><td>In accordance with paragraph 1, CCMs shall provide information to the Commission, by 1 July 2007, on the number of their vessels that have fished for striped marlin in the Convention area south of 15°S, during the period 2000 – 2004, and in doing so, nominate the maximum number of vessels that shall continue to be permitted to fish for striped marlin in the area south of 15°S. CCMs shall report annually to the Commission the catch levels of their fishing vessels that have taken striped marlin as a bycatch as well as the number and catch levels of vessels fishing for striped marlin in the Convention Area south of 15°S.
Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2009-03 [Swordfish], Para 8</td><td>CCMs shall report to the Commission the total number of vessels that fished for swordfish and the total catch of swordfish for the following:
a. vessels flying their flag anywhere in the Convention Area south of 20°S other than vessels operating under charter, lease or other similar mechanism as part of the domestic fishery of another CCM;
b. vessels operating under charter, lease or other similar mechanism as part of their domestic fishery south of 20°S; and
c. any other vessels fishing within their waters south of 20°S.
This information shall be provided in Part 1of each CCM’s annual report. Initially, this information will be provided in the template provided at Annex 2 for the period 2000-2009</td></tr>
</table>

[1] Reporting requirements requested by CMMs and decisions by the Commission, as of WCPFC16 (Dec 2019). First issued on 13 March 2020

<table>
<tr><td></td><td>and then updated annually.

Nicaragua does not have fishing vessel in the WCPFC area.

*Note: WCPFC11 confirmed a common understanding that “total catch” in this reporting requirement refers to both targeted and bycatch catches of swordfish.</td></tr>
<tr><td>CMM 2009-06 [Transshipment], Para 11 (ANNEX II)</td><td>CCMs shall report on all transhipment activities covered by this Measure (including transhipment activities that occur in ports or EEZs) as part of their Annual Report in accordance with the guidelines at Annex II. In doing so, CCMs shall take all reasonable steps to validate and where possible, correct information received from vessels undertaking transhipment using all available information such as catch and effort data, position data, observer reports and port monitoring data.

WCPFC15 Outcome document para 48: The Commission agreed to the TCC14 recommendation that the template provided in TCC14-2018-RP03 Annex 3 be used by all applicable CCMs for their future reporting in Annual Report Part 1, as per CMM 2009-06 paragraph 11 (Attachment O of WCPFC15).
Annex 3 of RP03: Transhipment information to be provided annually by CCMs as required by CMM 2009-06 paragraph 11 in accordance with the guidelines in Annex II of the measure.

Each CCM shall include in Part 1 of its Annual Report to the Commission:

(1) the total quantities, by weight, of highly migratory fish stocks covered by this measure that were transhipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by:
<table>
<tr><th>a) offloaded and received;</th><th>b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction</th><th>c) transhipped inside the Convention Area and transshipped outside the Convention Area;</th><th>d) caught inside the Convention Area and caught outside the Convention Area;</th><th>e) Species</th><th>f) Product Form</th><th>g) Fishing gear</th></tr>
<tr><td rowspan="3">offloaded</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">received</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
(2) the number of transhipments involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by:
<table>
<tr><th>a) offloaded and received</th><th>b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction</th><th>c) transhipped inside the Convention Area and transhipped outside the Convention Area</th><th>d) caught inside the Convention Area and caught outside the Convention Area</th><th>e) fishing gear</th></tr>
<tr><td rowspan="3">offloaded</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">received</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
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</table></td></tr>
</table>

	Nicaragua does not have fishing vessel in the WCPFC area. ANNEX II TRANSHIPMENT INFORMATION TO BE REPORTED ANNUALLY BY CCMs Each CCM shall include in Part 1 of its Annual Report to the Commission: (1) the total quantities, by weight, of highly migratory fish stocks covered by this measure that were transhipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by: a. offloaded and received; b. transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction; c. transhipped inside the Convention Area and transshipped outside the Convention Area; d. caught inside the Convention Area and caught outside the Convention Area; e. species; f. product form; and g. fishing gear used (2) the number of transhipments involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by: a. offloaded and received; b. transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction; c. transhipped inside the Convention Area and transhipped outside the Convention Area; d. caught inside the Convention Area and caught outside the Convention Area; and e. fishing gear.
CMM 2010-07 [Sharks], Para 4	Each CCM shall include key shark species*, as identified by the Scientific Committee, in their annual reporting to the Commission of annual catch and fishing effort statistics by gear type, including available historical data, in accordance with the WCPF Convention and agreed reporting procedures. CCMs shall also report annual retained and discarded catches in Part 2 of their annual report. CCMs shall as appropriate, support research and development of strategies for the avoidance of unwanted shark captures (e.g. chemical, magnetic and rare earth metal shark deterrents). *footnote 2: The key shark species are blue shark, silky shark, oceanic whitetip shark, mako sharks, and thresher sharks, porbeagle shark (south of 20°S, until biological data shows this or another geographic limit to be appropriate) and hammerhead sharks (winghead, scalloped, great, and smooth). **Note*; Whale Sharks (*Rhincodon typus*) was included as a key shark species by WCPFC9 (2012) **Nicaragua does not have fishing vessel in the WCPFC area.**
CMM 2011-03 [Impact of PS	CCMs shall include in their Part 1 Annual Report any instances in which cetaceans have been encircled by the purse seine nets of their flagged vessels, reported under paragraph

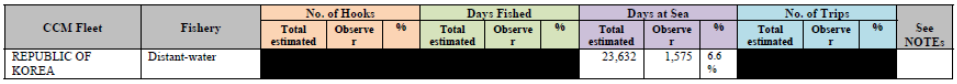
<table>
<tr><td>fishing on cetaceans], Para 5</td><td>2(b).

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2011-04 [Oceanic whitetip sharks], Para 3</td><td>CCMs shall estimate, through data collected from observer programs and other means, the number of releases of oceanic whitetip shark, including the status upon release (dead or alive), and report this information to the WCPFC in Part 1 of their Annual Reports.

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2012-04 [Whale sharks], Para 06</td><td>CCMs shall advise in their Part 1 Annual Report of any instances in which whale sharks have been encircled by the purse seine nets of their flagged vessels, including details required under paragraph 4(b).

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2013-08 [Silky sharks], Para 3</td><td>CCMs shall estimate, through data collected from observer programs and other means, the number of releases of silky shark caught in the Convention Area, including the status upon release (dead or alive), and report this information to the WCPFC in Part 1 of their Annual Reports.

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>Observer coverage (WCPFC 11 decision – para 484(b)</td><td>CCMs are to compile and include in Annual Report Part 1 to be submitted from 2015 onwards, observer coverage for their longline fleet activity in the previous calendar year, noting that revisions can be provided at the annual TCC meeting.

A sample report format is provided as guidance to assist CCMs with reporting (WCPFC11 Summary Report Attachment L Table 4)
 
<table>
<tr><th rowspan="2">CCM Fleet</th><th rowspan="2">Fishery</th><th colspan="3">No. of Hooks</th><th colspan="3">Days Fished</th><th colspan="3">Days at Sea</th><th colspan="3">No. of Trips</th><th rowspan="2">See NOTEs</th></tr>
<tr><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th></tr>
<tr><td>REPUBLIC OF KOREA</td><td>Distant-water</td><td colspan="6"></td><td>23,632</td><td>1,575</td><td>6.6 %</td><td colspan="3"></td><td></td></tr>
</table>

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2015-02 [South Pacific Albacore] Para 4</td><td>CCMs shall report annually to the Commission the annual catch levels taken by each of their fishing vessels that has taken South Pacific albacore, as well as the number of vessels actively fishing for South Pacific albacore, in the Convention area south of 20°S. Catch by vessel shall be reported according to the following species groups: albacore tuna, bigeye tuna, yellowfin tuna, swordfish, other billfish, and sharks. Initially this information will be provided for the period 2006-2014 and then updated annually. CCMs are encouraged to provide data from periods prior to these dates.

Nicaragua does not have fishing vessel in the WCPFC area.</td></tr>
<tr><td>CMM 2018-03 [Seabirds] Para 13</td><td>CCMs shall annually provide to the Commission, in Part 1 of their annual reports, all available information on interactions with seabirds reported or collected by observers to enable the estimation of seabird mortality in all fisheries to which the Convention applies. (see Annex 2 for Part 1 reporting template guideline). These reports shall include information on:
1. the proportion of observed effort with specific mitigation measures used; and
2. observed and reported species specific seabird bycatch rates and numbers or statistically rigorous estimates of species- specific seabird interaction rates (for longline, interactions per 1,000 hooks) and total numbers.</td></tr>
</table>

	Nicaragua does not have fishing vessel in the WCPFC area.

CMM 2018-03: [Seabirds] Annex 2. Guidelines for reporting templates for Part 1 report

The following tables should be included in the annual Part 1 country reports, summarising the most recent five years.

Table x: Effort, observed and estimated seabird captures by fishing year for [*CCM*] [South of 30°S; 25°S-30°S; North of 23°N; or 23°N – 25°S[1]]. For each year, the table gives the total number of hooks; the number of observed hooks; observer coverage (the percentage of hooks that were observed); the number of observed captures (both dead and alive); and the capture rate (captures per thousand hooks).

Year	Fishing effort				Observed seabird captures	
	Number of vessels	Number of hooks	Observed hooks	% hooks observed	Number	Rate [2]
[year]						
[year]						
[year]						
[previous year e.g. 2017]						
[current year e.g. 2018]						

[1] Insert 'North of 23°N', 'South of 30°S', '25°S-30°S' or '23°N – 250°S'. For CCMs fishing in all areas, provide separate tables for each area.

[2] Provide data as captures per one thousand hooks.

Table y: Proportion of mitigation types[1] used by the fleet in [year].

	Combination of Mitigation Measures	Proportion of observed effort using mitigation measures					
		South of 30°S	25°S-30°S	25°S to 23°N	North of 23°N		
	No mitigation measures						
Options required south of 25°S	TL + NS						
	TL + WB						
	NS + WB						
	TL + WB + NS						
	HS						
Other options 25°S-30°S	WB						
	TL						
Other options north of 23°N	SS/BC/WB/DSLS						
	SS/BC/WB/(MOD or BDB)						
Provide any other combination of mitigation measures here							
	Totals (must equal 100%)						

[1] TL = tori line, NS = night setting, WB = weighted branch lines, SS = side setting, BC = bird curtain, BDB = blue dyed bait, DSLS = deep setting line shooter, MOD = management of offal discharge, HS = hook-shielding device.

Table z: Number of observed seabird captures in [*CCM*] longline fisheries, 2012, by species and area.

Species	**South of 30°S**	**25°S-30°S**	**North of 23°N**	**23°N –25°S**	**Total**
E.g. Antipodean albatross					
[species name]					
[species name]					
[species name]					
[species name]					
[species name]					
[species name]					
Total					

Ministry of Fisheries

GOVERNMENT OF THE KINGDOM OF TONGA

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

Scientific Committee

Sixteenth Regular Session

Online 11th – 20th August 2020

TONGA ANNUAL 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 2020**	**YES**

1.0 ABSTRACT

The tuna fishery in Tonga composed of a National (Flag State) and Foreign longline fleet (Coastal state). The total estimated catch for tuna and tuna-like species for both national and foreign fishing fleets for 2019 was estimated to 3,366 mt, a significant increase by 126 % from 1,487 mt in 2018. The Tonga National fleet consists of six National long-line vessels fished entirely in Tongan waters with an estimated total of 365 mt for primary species, which shows a slight increase by 0.8 % in comparison to 362 mt in 2018. The total estimated catch of all species for National fleets was 550 mt. The Foreign fleets consist of 10 longline vessels with a total estimated catch of 2,816 mt, shows a huge increase by 175 % compared to 1,023 mt in 2018.

The national fleets overall catch in 2019 was dominated by Yellowfin tuna with 187 mt and mahimahi dominated the catches for non-target species with 141 mt. The catch composition indicated that the National fleets targeted Bigeye and Yellowfin tuna for fresh fish market. The foreign fleets catch in 2019 was dominated by Albacore tuna of 1561 mt. Targeting of any shark's 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 reported interactions with Species of Special Interest (eg. turtle, marine mammals and seabirds).

The total tuna harvested by Tongan fleet in 2019 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 has been the main problem faced by the operators.

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 an effort limit for Purse Seine fishing with in its EEZ per calendar year to be not exceeded 150-200 days. There were no days recorded for any Purse seine fishing activity within Tonga EEZ in 2019.

Tonga has its National Observer Program and active domestic port sampling program for highly migratory species. These programs continue to work closely with the Offshore Fisheries Program (OFP) of South Pacific Communities (SPC) on data collection regarding the status of tuna resources in the Tonga EEZ.

Table 1. Annual catch (retained and discard, mt) and effort (hooks) estimated for the Tonga longline vessels, by primary species, for the WCPFC Convention Area, 2015 – 2019 (Source: TufMan2 Dorado Reports – RECON_Report #2.2.3 – "*National Fleet – LL – Key species in WCPFC Area raised with VMS"*)

WCPFC Key Species	2015		2016		2017		2018		2019	
	MT	%	MT	%	MT	%	MT	%	MT	%
ALBACORE	29	6%	42	8%	26	5%	23	6%	30	8%
BIGEYE TUNA	25	5%	27	5%	24	4%	34	9%	16	4%
PACIFIC BLUEFIN TUNA	0	0%	0	0%	0	0%	0	0%	0	0%
SKIPJACK TUNA	6	1%	6	1%	12	2%	4	1%	2	1%
YELLOWFIN TUNA	297	61%	325	60%	373	70%	201	53%	187	51%
BLACK MARLIN	13	3%	20	4%	13	2%	5	1%	4	1%
BLUE MARLIN	23	5%	43	8%	39	7%	17	4%	47	13%
STRIPED MARLIN	30	6%	12	2%	2	0%	11	3%	14	4%
SWORDFISH	42	9%	39	7%	32	6%	44	12%	35	10%
BLUE SHARK	0	0%	4	1%	0	0%	1	0%	2	1%
SILKY SHARK	0	0%	1	0%	0	0%	0	0%	10	3%
HAMMERHEAD SHARKS	0	0%	0	0%	0	0%	0	0%	0	0%
MAKO SHARKS	20	4%	20	4%	14	3%	35	9%	12	3%
OCEANIC WHITETIP SHARK	0	0%	0	0%	0	0%	3	1%	6	2%
PORBEABLE / SALMON SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
WHALE SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
THRESHER SHARKS	0	0%	0	0%	0	0%	0	0%	0	0%
Total catch	485		539		535		378		365	
Total effort (hhks)	11161		12348		15596		12253		12008	

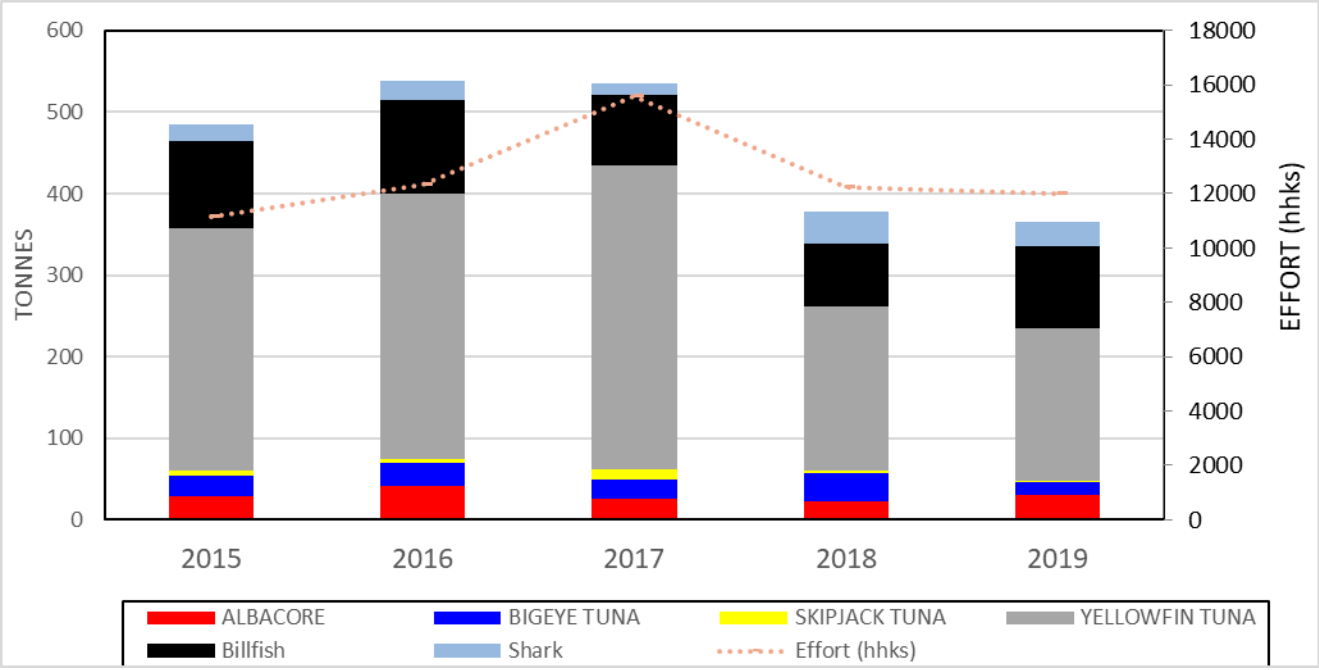


***Figure 1*: Historical annual Catch (mt) and Effort (no. of hooks), by primary species, for the Tongan longliners (National Fleets) were active in the WCPFC Convention Area for the years 2015 to 2019**

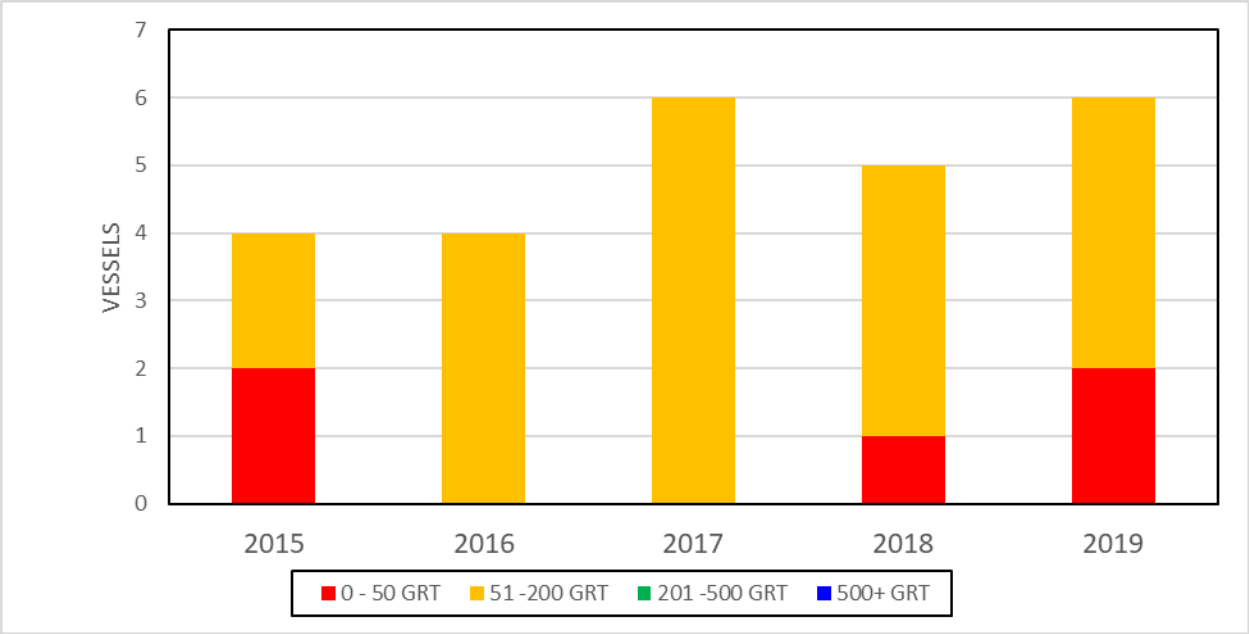
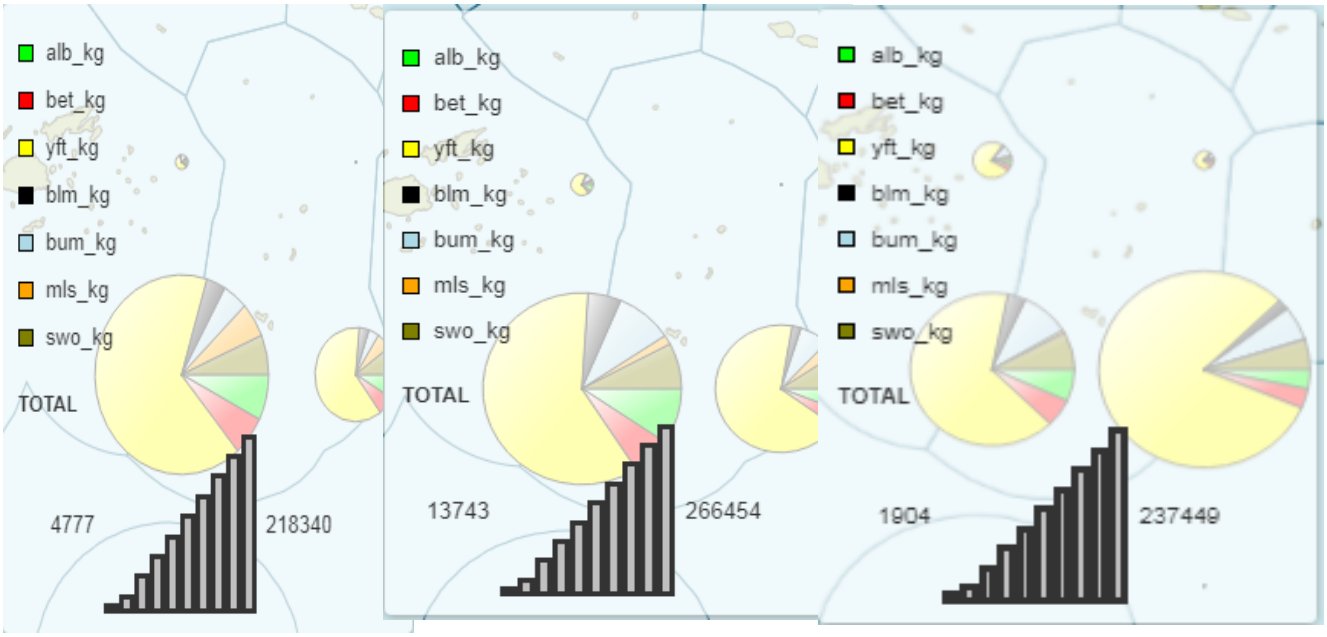


Figure 2: Historical annual longline vessels number for Tonga, for the WCPFC Convention Area, 2015 - 2019

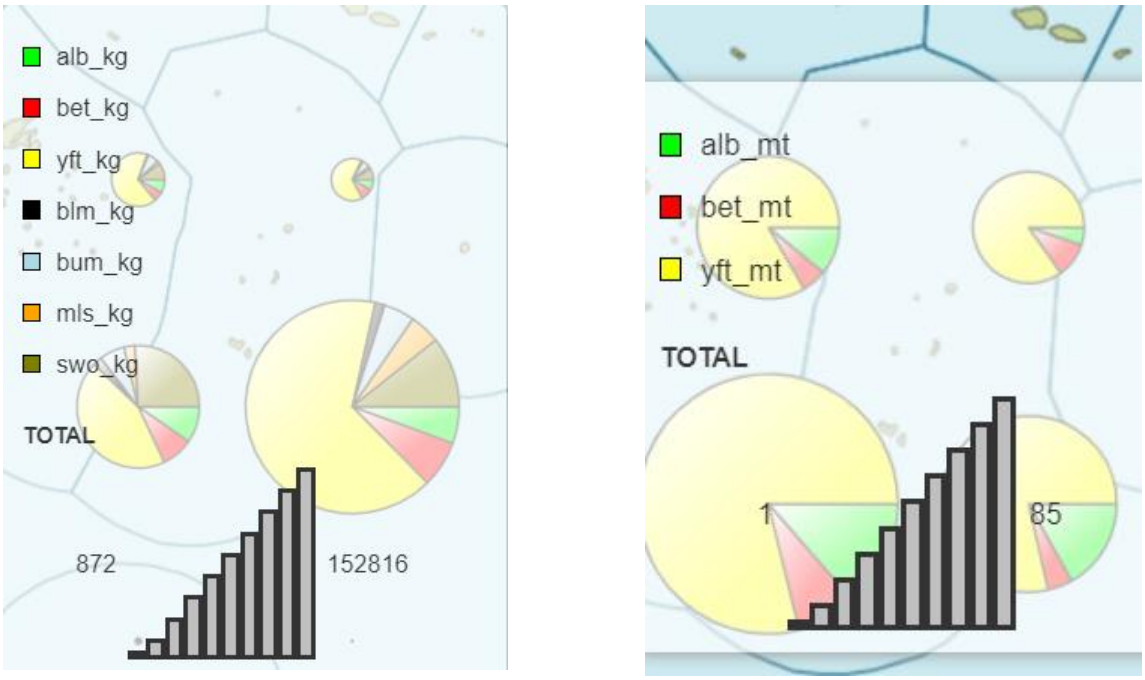
Table 2. Number of fishing vessels active in tuna fisheries in WCPFC Convention Area by gear and size class.

Gear	**LONGLINE**
Fleet	National Fleets

Vessel category	2015		2016		2017		2018		2019	
	No.	%	No.	%	No.	%	No.	%	No.	%
0 - 50 GRT	2	50%	0	0%	0	0%	1	20%	2	33%
51 -200 GRT	2	50%	4	100%	6	100%	4	80%	4	67%
201 -500 GRT	0	0%	0	0%	0	0%	0	0%	0	0%
500+ GRT	0	0%	0	0%	0	0%	0	0%	0	0%
Total	4		4		6		5		6	

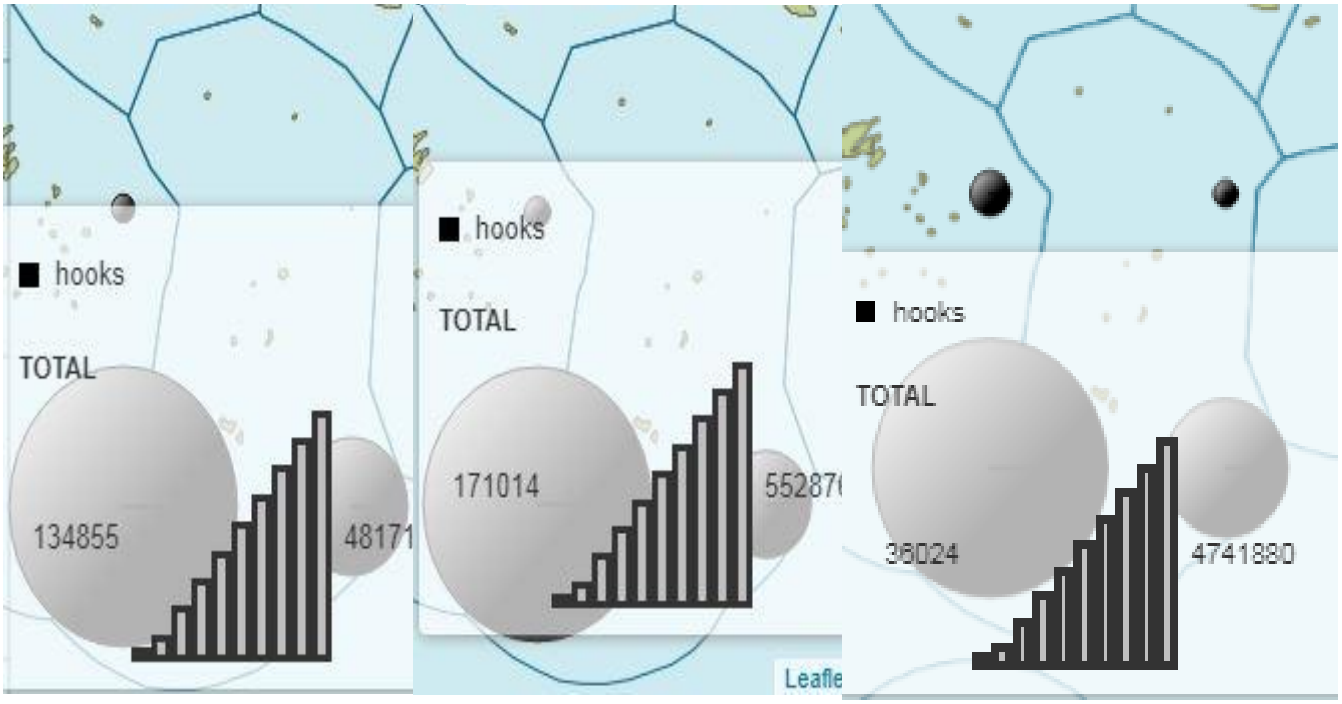


(i) 2015 (ii) 2016 (iii) 2017

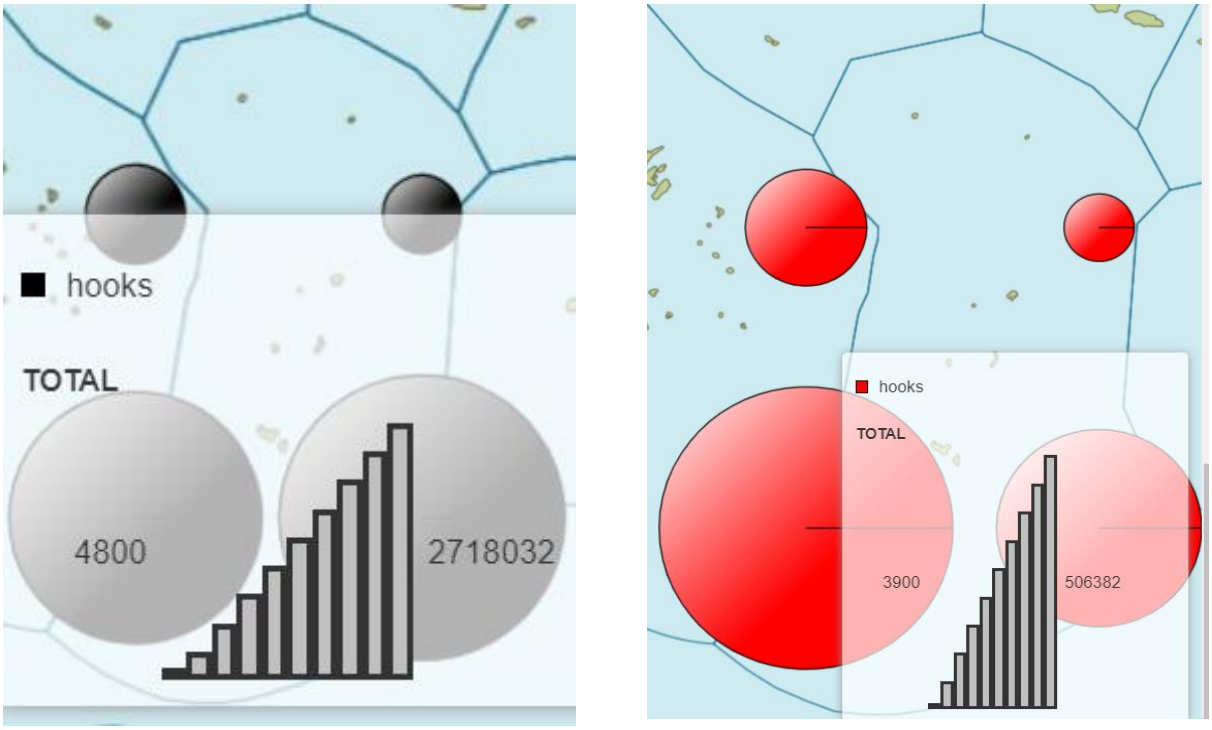


(iv) 2018 (v) 2019

Figure 3a (i-v). Annual distribution of Longline National Fleet catches by target tuna species (in kilograms) in the WCPF Convention Area for the year 2015 to 2019.



(i) 2015 (ii) 2016 (iii) 2017



(iv) 2018 (v) 2019

Figure 3b (i-v): Annual distribution of Longline National Fleet Longline National Fleet effort (in hooks) in the WCPF Convention Area, for the year 2015 to 2019.

Table 3: Annual RETAINED catch by key species in the WCPFC Convention Area for 2015 – 2019 (Source: TufMan2 Dorado Reports – RECON_Report #2.2.3 – "*National Fleet – LL – Key species in WCPFC Area raised with VMS"*)

WCPFC Key Species	2015		2016		2017		2018		2019	
	MT	%	MT	%	MT	%	MT	%	MT	%
ALBACORE	29	6%	42	8%	26	5%	23	7%	29	9%
BIGEYE TUNA	25	5%	27	5%	24	5%	23	7%	16	5%
PACIFIC BLUEFIN TUNA	0	0%	0	0%	0	0%	0	0%	0	0%
SKIPJACK TUNA	6	1%	6	1%	12	2%	4	1%	2	1%
YELLOWFIN TUNA	297	61%	322	61%	370	70%	188	54%	183	54%
BLACK MARLIN	13	3%	20	4%	13	2%	5	1%	4	1%
BLUE MARLIN	23	5%	43	8%	39	7%	17	5%	47	14%
STRIPED MARLIN	30	6%	12	2%	2	0%	11	3%	14	4%
SWORDFISH	42	9%	39	7%	31	6%	44	13%	30	9%
BLUE SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
SILKY SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
HAMMERHEAD SHARKS	0	0%	0	0%	0	0%	0	0%	0	0%
MAKO SHARKS	20	4%	20	4%	14	3%	35	10%	11	3%
OCEANIC WHITETIP SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
PORBEABLE / SALMON SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
WHALE SHARK	0	0%	0	0%	0	0%	0	0%	0	0%
THRESHER SHARKS	0	0%	0	0%	0	0%	0	0%	0	0%
Total	485		531		531		350		336	

Table 4: Annual DISCARDED catch by key species in the WCPFC Convention Area for 2015 – 2019 (Source: TufMan2 Dorado Reports – RECON_Report #2.2.3 – "*National Fleet – LL – Key species in WCPFC Area raised with VMS"*)

WCPFC Key Species	2015		2016		2017		2018		2019	
	MT	%	MT	%	MT	%	MT	%	MT	%
ALBACORE	0		0	0%	0	0%	0	0%	1	3%
BIGEYE TUNA	0		0	0%	0	0%	11	39%	0	0%
PACIFIC BLUEFIN TUNA	0		0	0%	0	0%	0	0%	0	0%
SKIPJACK TUNA	0		0	0%	0	0%	0	0%	0	0%
YELLOWFIN TUNA	0		3	38%	3	75%	13	46%	4	14%
BLACK MARLIN	0		0	0%	0	0%	0	0%	0	0%
BLUE MARLIN	0		0	0%	0	0%	0	0%	0	0%
STRIPED MARLIN	0		0	0%	0	0%	0	0%	0	0%
SWORDFISH	0		0	0%	1	25%	0	0%	5	17%
BLUE SHARK	0		4	50%	0	0%	1	4%	2	7%
SILKY SHARK	0		1	13%	0	0%	0	0%	10	34%
HAMMERHEAD SHARKS	0		0	0%	0	0%	0	0%	0	0%
MAKO SHARKS	0		0	0%	0	0%	0	0%	1	3%
OCEANIC WHITETIP SHARK	0		0	0%	0	0%	3	11%	6	21%
PORBEABLE / SALMON SHARK	0		0	0%	0	0%	0	0%	0	0%
WHALE SHARK	0		0	0%	0	0%	0	0%	0	0%
THRESHER SHARKS	0		0	0%	0	0%	0	0%	0	0%

Table 5. Annual estimated catches (mt) of non-target, associated and dependent species, by the Tongan Longliners (National Fleets), in the WCPFC Convention Area, for years 2015 to 2019. (Source: Dorado – TufMan2 Longline Reports #2 – "*National Fleet – LL – All species catch and effort in the WCPFC area*

Non-Target Species	2015	2016	2017	2018	2019
Wahoo	17	16	13	8	9
Sailfish (Indo Pacific)	14	11	6	6	20
Dolphin fish	163	126	121	107	141
Opah/Moonfish	0	0	0	0	0
Others	7	10	9	4	15
Total	**202**	**163**	**149**	**125**	**185**

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 longlines 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 fleets targeting fresh tuna in the late 1990's and to peak in the early 2000's.

Tonga is a small island development state in the WCPFC and has continued to develop its Tuna Fishery capacities. The current focus for Tonga is to strengthen the capacities for development and domestication of Tuna fishery. Currently, Tonga tuna fishery consists solely of longline fishing vessels targeting tuna and tuna-like species, with a very small artisanal fleet, include small fishing vessels with outboard engine and game fishing vessels which used trolling fishing method. Most 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 only one flagged vessel with permit to fish in high seas, but she has no fishing activity in high seas for the year 2019.

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 catches for Tonga's National fleets from the EEZ have increased from 463 mt in 2018 to 550 mt in 2019. This is due to the increase in fishing efforts (number of vessels) during the year. A significant game-fishing sector also exists in Tonga with minor interactions with the commercial long-line fleets.

Artisanal data has been continued on using TAIL application module on Tufman 2 for online data entry although data collection from these fleet is still in its early stage. Tonga will continue to extend artisanal tuna data collection to outer and remote islands.

Tonga National Observer Programme (TNOP) has been authorized since 2011 to provide ROP observer trips. Tonga has four certified Debriefer to debrief observer data which speed up observer data entry into TUFMAN 2 database. Tonga continues to use the latest version (2014) of SPC/FFA regional forms for logsheets, port sampling and unloading. For observer data collection Tonga is using the latest version (2016). These forms have had several 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 including Tonga that requires assistance. The total observer coverage onboard foreign and domestic vessels for 2019 were 44 % and 5.21 % respectively. The port sampling and logsheets coverage were 100% in 2019. 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).**

Tonga Ministry of Fisheries continues to work closely with the Oceanic Fisheries Program (OFP) of SPC on issues regarding the status of tuna stock in the Tonga EEZ relative to the whole stock within the Western and Central Pacific Ocean (WCPO).

Despite the ample room for improvement and development of tuna fleet in Tonga, there are challenges identified including the high operation cost had restricted the operation of fishing vessels mainly to areas near the main fishing port, Nuku'alofa. Decline catch rates within the EEZ also a factor that hindered the fishing effort in term of vessel number especially foreign fleets. Fortunately, 2019 catch rates was slightly increase and attract more foreign vessels to license and fished entirely within Tonga EEZ.

Tonga continues to develop and build sustainable fisheries through better management decision that will allow the people of Tonga to continue benefiting from now and in the future.

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 2015 to 2019 are summarized in Table 1 with the historical estimates further provided in Figure 1. The total effort in the WCPF-CA was approximately 12008 hundred hooks (Table 1) a 2 % decrease from 2018, and it's all attributed to the Tonga EEZ. In further details, the annual catch estimates of primary species, (Table 1) in 2019 were 365 mt shows a slight increased by 0.8 % from the previous year.

The increase in catch estimates does not show any significant difference in YFT CPUE compare to previous years. In 2019, the catches for primary species were dominated by yellowfin (51 %) for main tuna species, followed by albacore and bigeye with 8% and 4% respectively, then skipjack tuna with 1%. For billfish species, blue marlin occupied 13 % of the total catch of primary species followed by swordfish with 10 % and with lesser percentage of stripe and black marlin with 4 % and 1 % respectively. In reference to the history of this fishery in Tongan waters. For shark's species catch and retained was dominated by Mako sharks with 3%. Other shark's species caught and recorded by observers was blue sharks, silky and oceanic whitetip with 1%, 3% and 2% respectively; and there were all discarded.

The annual CPUE (kg/100hks) estimated for main tuna species caught by the Tongan Longliners during the reporting period (2015 to 2019) shows in Figure 4 below. The trends being stable for bigeye and albacore while a slight decline on the CPUE of yellowfin since 2016. This is due to some environmental factor such as El-Nino and La Nina during the reporting period which has an impact on catch rate that leads to a decrease in fishing efforts in terms of the number of hooks that put in the water.

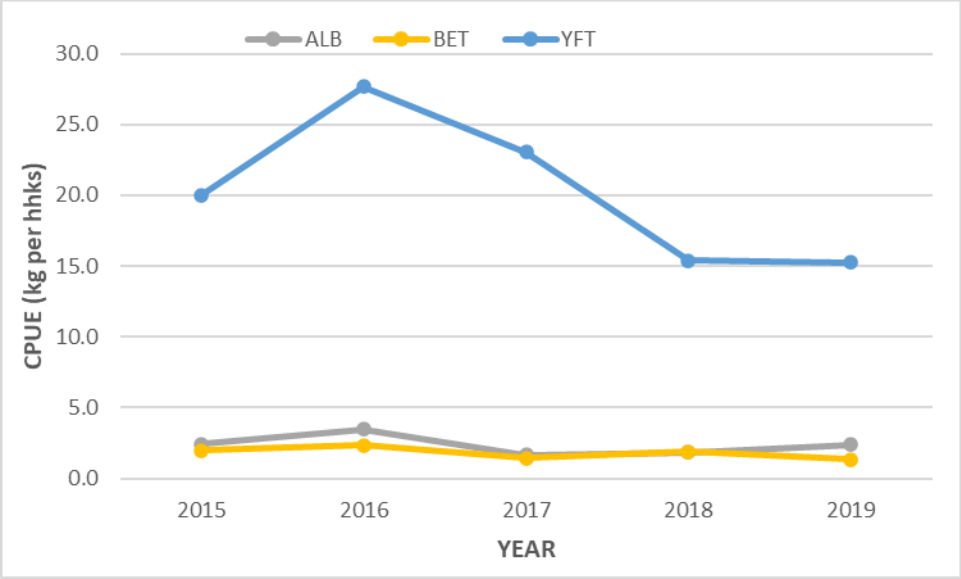


Figure 4. CPUE (kg per 100 hooks) of main tuna species for Tonga longliners were active in the WCPF Convention Area for the years 2015 to 2019

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

The estimated total catch of non-target associated and dependent species for the national longline fleets for the last five years are provided in Table 5. The species composition of the catch by weight in 2019 was dominated by Dolphin fish (*Mahimahi*) totaling 141 mt followed by *Sailfish* and *wahoo* with 20 mt and 9 mt respectively. The total shark catches for the National fleets within WCPF-CA dominated by *Mako* sharks with 12 mt (11 mt retained and 1mt were discarded, *Table 3*). There was **no retention** record for other key shark species even though there were record of blue shark, oceanic whitetip and silky sharks were caught on the line but they were all discarded as described on *Table 4*.

By-catches are obtained from logsheets and 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 different condition (*Table 1)*. Wahoo, mahimahi, moonfish and billfishes also had high retention rates as they are also having 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*). To reduce sea turtle mortality in fishing operations, Tonga National longline fleets used circle hooks and fish baits with less squid bait in longline fishing operation.

3.2 Fishing Patterns – National Fleets in the WCPF Convention Area

Figures 3a & 3b provide an illustration of the pattern of catch and effort for the national longline fleets over the past five years in the WCPF Convention Area. In 2019, more than 70% of the catch and effort of the National longline fleet was widely distributed in the central and southern part of the Tonga EEZ.

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**, none of the six flagged vessels specifically targeted striped marlin and all catch was taken as by-catch. A total of 14 mt of stripe marlin was caught as bycatch in south of 15^0S of the Convention area. For the **CMM 2009-03**, there were six vessels caught a total of 24.6 mt of swordfish as bycatch in the Convention Area South of 20^oS. There were no vessels operating under charter, lease or other similar mechanism as part of domestic fishery. Ten foreign flagged vessels caught 25.2 mt of swordfish as bycatch in the area south of 20^oS.

For Shark species (CMM2010-07), six domestic vessels recorded an annual catch of 11.3 mt of whole Mako sharks were caught and retained. There were no Hammered Sharks, Whale Sharks or Porbeagle sharks were recorded. Observers recorded 1 Bigeye thresher sharks, 21 blue shark, 2 Longfin mako, 22 oceanic whitetip, 1 pelagic thresher, 10 shortfin mako and 18 silky sharks were recorded by observers and released all species except for mako sharks were retained whole body. For CMM 2011-04 (Oceanic whitetip sharks) and CMM 2013-08 (Silky sharks) a raised estimated were 422 Oceanic whitetip and 345 silky sharks based on observer coverage. Most of them were released alive with some released with unknown condition. More of the CMM reports and details are attached to this report as ***Appendix 1.***

3.3 Fleet Structure

In 2019, the Tonga National fleets consist of six (6) domestically based longline vessels that operate within the WCPF-CA. All these vessels are Tonga flagged vessels and authorized to fish within the Tonga EEZ only. Among these, one vessel listed on the WCPFC Record of Fishing vessels (RFV) and there was no high seas permit issued during 2019 and the vessel did not fish in high seas.

4.0 COASTAL STATE REPORTING

In 2019, there were ten (10) foreign flagged longline vessels licensed to fish in Tonga EEZ compared to five (5) in 2018 (Table 6 and 7). The increase in number of foreign vessels licensed to fish in Tonga was mainly due to the revised Tuna Development and Management Plan 2018 – 2022 that increase the number of foreign vessels allowed to fished in Tonga water from six to ten vessels.

Table 6. 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 (RIMF License)				
Size Category (GRT)	2015	2016	2017	2018	2019
0 - 100MT	13	5	8	3	7
101 - 200MT	0	0	0	2	3
201+	0	0	0	0	0

Table 7. 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
2015	1	5	0	6
2016	0	8	0	8
2017	0	7	0	9
2018	0	3	2	5
2019	0	7	3	10

Annual catch for foreign flagged vessels in 2019 is given in Table 8 and are similar in species composition of the catches to that of Tonga National fleets. Those catches by foreign vessels contributed to Tonga National Catch of tuna and tuna-like species within Tonga jurisdiction waters. The total catch for 2019 was 2815.9 mt, an enormous increase by 175 % compared to 1023 mt in 2018.

Table 8. **Annual foreign Longline catch and effort estimates by foreign flagged vessels licensed to fish with Tonga EEZ (national waters) in 2019.** ***Operational logsheet data raised using VMS eRecap Application Tools. (Dorado report 12)***

			SPECIES_WT (mt)																	
Flag	YEAR	GEAR	ALB	YFT	BET	SKJ	BUM	BLM	MLS	SWO	SFA	DOL	FAL	BSH	OCS	THR	MAK	HAM	POR	OTH	Total
FJ	2019	LL	565.6	175.1	26.9	8.8	13.2	3.2	3.4	3.3	2.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5	827.6
TW	2019	LL	995.4	499.9	76.5	17.8	57.5	0.7	42.4	27.7	4.5	25.9	0.0	69.5	0.0	0.0	18.0	0.0	0.0	152.5	1988.2
TOTAL			**1561.0**	**675.0**	**103.4**	**26.6**	**70.7**	**3.9**	**45.8**	**31.0**	**7.2**	**30.7**	**0.0**	**69.5**	**0.0**	**0.0**	**18.0**	**0.0**	**0.0**	**173.0**	**2815.9**

4.0 SOCIO-ECONOMIC FACTOR

Export of Tuna catches in 2019 from Tonga continued. The tuna fleets contribute a large portion of fish exported from Tonga in comparison to other fishery such as snapper fishery and aquarium trades. Fortunately, there was a significant increase in the export quantity of longline catch in 2019 in comparison to 2018 and this due to the increase in catch rates force from the increase in fishing effort in terms of hooks and number of vessels. The total catch exported were recorded to be 2,287mt which is a vast increase compared to 632 mt exported in 2017. The total estimated FOB revenue collected from fish exported during 2019 were recorded to be TOP$12,358,782.00. This is a 240% increase from TOP$3,628,489.00 during 2018. Apart from export value, the local market continues the supply of fish to local people for domestic consumption. Licensing of fishing vessels (domestic & foreign) and resources rent from landing and export catches continue to provide an additional revenue stream to the domestic fisheries sector. All catches by foreign vessels were unloaded in port Nuku'alofa then repacked into a shipping container and exported to overseas market with a portion of their catch were sold at the local market and retail store.

5.0 DISPOSAL OF CATCH

5.1 Marketing

Tonga regulates that all longline vessels license to fished in Tonga water shall 100 % discharge in designated port in Tonga before disposed to respective market destination whether to overseas or domestic market. The foreign fishing vessels unloaded all catch in Nuku'alofa and repack the export fish into a cargo container and send to overseas market while local fish sold locally. The Ministry of Fisheries has been starting a new fish selling program with an agreement with foreign vessel's agency as part of fish consumption promotion to fight against NCDs. This is due to the high cost of fish in the domestic market which hindered people from buying fish for their daily meal. So, on every trip of the foreign vessels, they will provide at least

2 mt of fish to the Ministry to sell it out at a lower price. This program is being successful and allows local people to consume more fish.

Tonga's main export markets for its fresh chilled tuna (Yellowfin and Bigeye) were Japan, US (Los Angeles, Hawaii) with less portion for New Zealand and Australian market. The frozen tuna and tuna-like species with another bycatch were mainly exported to Thailand, Taiwan and Vietnam. In 2019, foreign vessels continue exporting of frozen tuna (Bigeye and Yellowfin) to Japanese market. 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 the weight of longline catch export for Tonga in 2019. Frozen fish dominates the total export volume longline vessels catch landed in 2019. The biggest portion of the total export volume was Thailand with 37% followed by Taiwan and Vietnam with 27% and 20% respectively. These market destinations received frozen fish only. Japan market gains 5% of the total export volume but it is a combination of frozen and fresh chilled yellowfin and bigeye tuna. Fiji, Honolulu and Pagopago contributes with 3% on each market destination and lesser portion of the export were send to Australia and New Zealand.

Albacore tuna dominated the exported of individual species with 59% of the total volume, followed by yellowfin with 23% and lesser percent of bigeye, mahimahi, marlin, shark and Others with 4%, 4%, 3%, 3%, 4% respectively. Export of bycatch species described as "Others" (OTH) were mainly frozen fish exported mainly to Taiwan which includes barracuda, escolar, oilfish, sailfish, spearfish, and wahoo. Other species export to US market were mainly mahimahi and wahoo send to Hawaii.

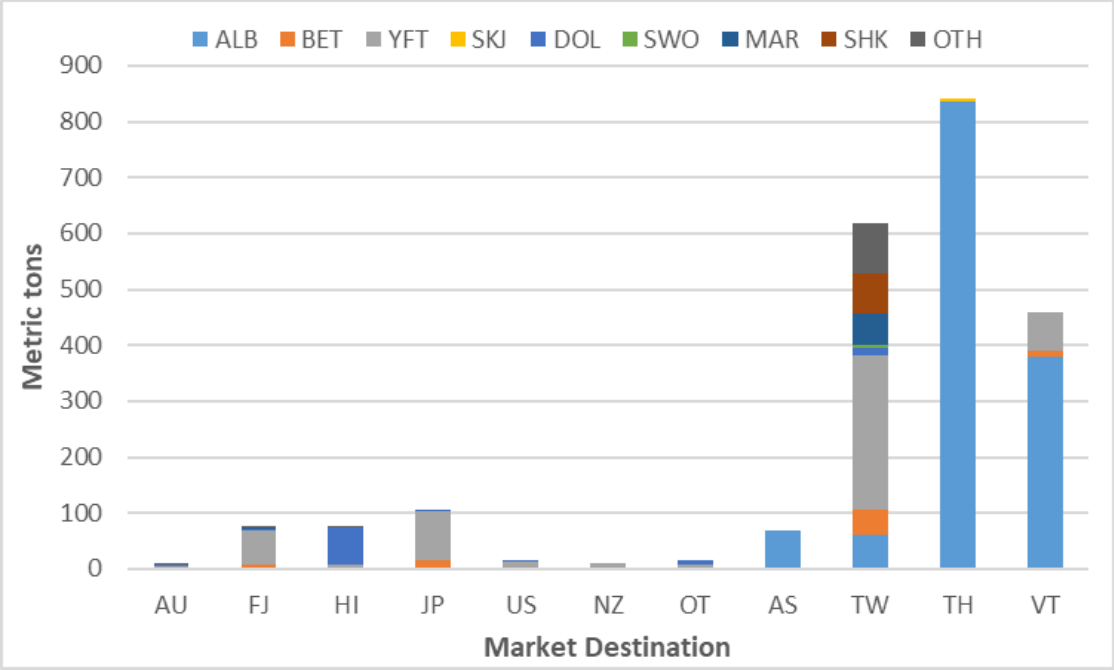


***Figure 5*. Longline catch (MT) export and Destinations for Tonga, 2019**

6.0 ONSHORE DEVELOPMENT AND FUTURE PROSPECTS OF FISHERY

Tonga commercial longline fishery is currently limited by a cap on the number of longline vessels authorized to fish within the EEZ to only 20 licenses (*Revised Tonga Tuna Management & Development Plan 2018 - 2022*). Unfortunately, high operating costs and a lack of adequate infrastructure has restricted the development of a locally based fleet.

Pacific Sunrise Fishing Co. was the only domestic tuna fishing company operated at the beginning of the year and was joined by a newly local company, the *Big Kahuna Fishing Co* later in the year. The domestic fleets concentrate on exporting of fresh chilled tuna to sashimi markets especially to Japan, US, Australia, Honolulu, and New Zealand. Also entailing in provides employment for local people in crewing their vessels, and its processing and retailing plant. The year 2019 is not a very good fishing year for the company but it shows a slight increase in overall catch by 19% compared to 2018. Even though the catch was low, but the still six vessels still operate to encourage the domestication of tuna fishery in Tonga.

The National Fisheries Council (NFC) continues the partnership with the Ministry of Fisheries and respective stakeholders in developing different 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 2019, Tonga continued to participate in the regional Tuna Data and Stock Assessment Workshop which is conducted on an annual basis for SPC member countries. Tuna Data Workshop is 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).

TUFMAN 2 and its recent developments such as e-Reporting tool through ONBOARD applications allows sea captains to submit their logsheets data online. Tonga has been benefitted from these new developments through trialing the applications and provided with tablets for the trial. The online data entry feature of TUFMAN 2 database allows timely submissions of the logsheets data resulted in data extraction more easily and speedy especially analyzing of data for the scientific report. Artisanal data collection through TAILS is still ongoing.

The Stock Assessment Workshop was recognized as an important program in capacity building for fisheries officers and managers in the region. In this workshop, participants were introduced to various stock assessment models that assist officers in providing scientific advice to managers and policy-makers base on the best models used. Not only that but participants were also 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 was 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

Tonga continues to use the expanded format of SPC/FFA Regional Longline Logsheets (2014) for data collection in 2019. 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) continues to deploy observers' onboard domestic and foreign longline vessels operated within Tonga EEZ, and place observers onboard US purse seiner vessels under Multilateral Treaty arrangement. The observer coverage for TNOP was 44 % onboard foreign fishing vessels licensed to fish in Tonga EEZ and 5.21 % onboard Tonga flagged vessels. All those observer trips are non-ROP trips.

TOB 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

The Ministry of Fisheries continues to employ dedicated port samplers which covering 100% of the longline unloading in Nuku'alofa port. The Ministry is also obliged to maintain this high percentage coverage of port sampling to ensure the fulfillment of its obligation to the Commission. Data types collected are logsheets, unloading and port sampling data. The logsheets and the unloading forms are collected and entered TUFMAN 2. The port sampling forms are then scanned and sent to SPC/OFP on a regular basis for data entry and further analysis.

The ONBOARD application developed by SPC was trialed and operated from two (2) domestic longline vessels since 2018. This application replaces the e-Tunalog smart pdf form manually filled of logsheets by captains and submit to national authorities and fishing companies. The application was installed on tablets which was also provided by SPC.

The National Observer and Port sampling programme warmly extend our sincere gratitude and 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 as well as training of new observers for the Observer program. Tonga has been blessed with the kind assistance of these financial donors and technical support for almost a decade. Furthermore, the implementation of both program and the completion of this scientific report would not have been possible if we did not have your support in all approach. !!! ***Malo 'aupito***

ADDENDUM TO ANNUAL REPORT PART 1

Specific information to be provided in Part 1 as required by CMMs[1]

13 March 2020

CMM 2019-03 [North Pacific Albacore], Para 3	**NOT APPLICABLE** No flagged vessels fished North of the equator ** Note: WCPFC10 clarified that this reporting responsibility lies with the flag State*
CMM 2006-04 [South West striped Marlin], Para 4	**2019 – 6 LL vessels** caught a total of **14mt** of SW_MLS as bycatch south of 15°S of the Convention area. No flagged vessel target MLS south of 15°S
CMM 2009-03 [Swordfish], Para 8	a) **2019 – 6 domestic flagged LL vessels** fished and caught a total of **24.6mt of SP_SWO as by catch** within South of 20°S of the convention Area b) There were NO vessels operating under charter, lease or other similar mechanisms as part of domestic fishery c) 2019 – 10 foreign flagged LL vessels fished and caught **25.2mt** of SP_SWO as bycatch within South 0f 20°S of the Convention Area **Note: WCPFC11 confirmed a common understanding that "total catch" in this reporting requirement refers to both targeted and bycatch catches of swordfish.*
CMM 2009-06 [Transshipment], Para 11 (ANNEX II)	**NOT APPLICABLE** **No TO flag vessels conduct transshipment anywhere in the Convention Area in 2019** Not an Issue as Transshipments is prohibited in Tonga Fisheries Waters. However, Regulation 19 of the Fisheries (Fishing Vessels Licensing) Regulations 2016 provides that transshipment is only allowed pursuant to written Authorization from the Minister.
CMM 2010-07 [Sharks],	(Source: Dorado – TUFMAN Reports – Regional Reporting – Report #26 – "CMM 10-

[1] Reporting requirements requested by CMMs and decisions by the Commission, as of WCPFC16 (Dec 2019). First issued on 13 March 2020

Para 4	07 Shark catches by National Fleets summary") • **2019 – 6 LL vessels recorded an annual catch of:** o 11.3mt Mako Sharks (Source: Dorado – TUBs Reports – Regional Reporting – Report #8 – "CMM 10-07 Shark catches by National Fleets" • **Observed number of sharks by Tonga Observer Program** o 1 Bigeye Thresher Shark was caught and was discarded o 21 Blue sharks were caught and were all discarded o 2 Longfin Mako sharks were caught and were Finned but Trunk discarded o 22 Oceanic Whitetip Sharks were caught and 22 were all discarded o 1 Pelagic Thresher Shark was caught and was discarded o 10 Shortfin Mako Sharks were caught and 7 were finned and trunk retained o 18 Silky shark were caught and 18were discarded There were NO record of other shark species; Hammerhead shark and Porbeagle shark were caught by these 6 LL vessels in 2019.
CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5	**NOT APPLICABLE** Tonga does not have purse seine fleets
CMM 2011-04 [Oceanic whitetip sharks], Para 3	• 22 Oceanic Whitetip sharks were record and 18 were discarded alive and 4 were discarded with unknown condition • **Raised estimate**d should be **422 Oceanic whitetip sharks** based on observer coverage. 345 were discarded alive and 77 were discarded with unknown condition
CMM 2012-04 [Whale sharks], Para 06	**NOT APPLICABLE** • Tonga does not have purse seine fleets
CMM 2013-08 [Silky sharks], Para 3	• 18 were caught and 10 were released alive and 8 were released with unknown condition • **Raised estimated** should be **345 Silky Sharks** based on observer coverage. 191 **were released alive** and **154 were released with unknown condition**
Observer coverage (WCPFC 11 decision – para 484(b)	• Total of **56 observer fishing days** observed by Tonga Observer Program in 2019 • **5.21% Observer (days)** coverage on board domestic longliners • All flagged vessels observer trips are Non-ROP trips
CMM 2015-02 **[South Pacific Albacore]**	Data has been submitted to SPC Addressed through the regular provision of operational catch/effort logsheet data to SPC, who automatically include these data in the WCPFC databases, as per our

Para 4	authorization
CMM 2018-03 [Seabirds] Para 13	There is NO interaction with seabirds by Tonga longline vessels

Appendix 2 – The provision of shark species catches estimates

Flag	Year	Observer Data		Target tuna catch estimate	Shark species estimate (t)							See Note
		Available?	Coverage		BSH	FAL	MAK	OCS	POR	SPN	THR	
TO	2013	N	0%	146	25.1	3.9	13.4	12.9	0	0.3	0.4	2
TO	2014	N	2.0%	250	0	0	8.4	0	0	0	0	2
TO	2015	Y	90.0%	357	0	0	19.8	0	0	0	0	1
TO	2016	Y	8.8%	397	0	0	19.6	0	0	0	0	1
TO	2017	Y	8.5%	429	0.2	0	14	0	0	0	0	1
TO	2018	Y	2.2%	213	0.2	0	13	0	0	0	0	1
TO	2019	Y	5.07%	228	0	0	24	0	0	0	0	1

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 toproduce 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.