SCIENTIFIC COMMITTEE
THIRTEENTH REGULAR SESSION

Rarotonga, Cook Islands
9 – 17 August 2017

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

WCPFC-SC13-AR/CCM-28 Rev. 1
(19 September 2017)

VANUATU

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THE REPUBLIC OF VANUATU
FISHERIES DEPARTMENT

VANUATU

Scientific data was provided to the commission in accordance with the decision relating to the provision of scientific data to the commission by 30 April 2017	**YES**

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ABSTRACT

The major tuna species from the Foreign fishing vessels catch in the Vanuatu EEZ in 2016 was dominated by 74% of albacore, 15% of yellowfin, 3% of bigeye and lastly 8% for others species of the total catch. The decrease of catch in 2015 from 2014 was due to the shift of effort for the locally based foreign vessels to to the Solomon Islands however in 2016, vessels slowly moved back to Vanuatu waters and thus experienced an increase in catch records of 6,440.90Mt compared to 4,154.50 in 2015.

In the period 2013 – 2016 the annual catch estimates of the Vanuatu longline fleets in the WCPO have increased as did the fishing effort (sets) and number of fish per 100 hooks. This however is not the same for Purse seiners whose catch estimates have reduced as more of the Vanuatu Purse seine vessels reflagged to the US and PNG under the FSM arrangement, this is also evident through the reduction of Effort of the vessels.

For Purse seiners, there were more sets on unassociated than associated schools. The total catches for the purse seine fleets that fished in the WCPFC-CA decreased from to 20,514MT in 2014 to 8,433MT in 2015 and further reduced to 4,372MT in 2016. This has been the largest reduction since 2011. Purse seine catches in 2016 were dominated by skipjack (95%), then Yellowfin (5%) and lastly bigeye (0%).

Unraised and provisional 2016 data shows that catches of the main tuna species for Purse seines decreased from 7,972Mt of skipjack in 2015 to 3,903Mt in 2016. Longline vessels also experienced a decreased in catches from 6400Mt in 2015 to 4,817Mt in 2016 as compared to an increase in 2014 to 2015 levels. All other Tuna catches including Yellowfin and Bigeye for both the Purse seine and Longline fishery also experienced a reduction in catch levels from 2015 to 2016 levels.

Since 2010, Vanuatu accomplished 100% Observer coverage for the locally based foreign fishing vessels and 100% port sampling on all unloading of fresh fish and this 100% coverage also includes transshipment in port, however since 2014, there has been no Locally based vessels in operation thus port sampling and transshipment activities in port have ceased since, however with the commencement of the Fish processing plant in Port Vila, Chinese vessels who are licensed to fish in the VU EEZ will offload their catch in the Port Vila port and will then see the operation of port sampling and transshipment activities commencing again as of 2018.

ANNUAL FISHERIES INFORMATION

1. Background

The main commercial tuna and billfish species caught in the Vanuatu EEZ and by the Vanuatu fleet in the WCPFC consists of albacore (*Thunnus alalunga*), bigeye (*Thunnus obesus*), skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*), black marlin (*Makaira indica*), blue marlin (*Makaira nigricans*), striped marlin (*Tetrapturus audax*) and swordfish (*Xiphias gladius*).

As part of Vanuatu's obligation to report the WCPFC CMMS's for key shark species, data has also been compiled, some of which are now covered in the longline fleet tables, these are blue shark (*Prionace glauca*), silky shark (*Carcharhinus falciformis*), oceanic whitetip shark (*Carcharhinus longimanus*) and mako shark (*Isurus spp.*). Catches of other shark species are not covered explicitly, and discards are not considered however they have been reported by Observers. The main industrial fishing methods employed in the Vanuatu EEZ has been dominated by the longline gear outside 24 miles however few Artisanal fishers fishing within the 12 miles around FAD's catch Skipjack and Yellowfin. Individual fleets presented herein cover vessels with high

catch and effort data coverage and these are a few of Fiji and Taiwan vessels with the dominant flag being the Chinese flag vessels who are entirely based in Fiji and are fishing in Vanuatu under Foreign or Locally Based Foreign Licenses.

The report covers the fishing activities in the Vanuatu EEZ and operations of the Vanuatu flag vessels that were active in the WCPFC and other broad ocean area during the period 2012 to 2016. The report mainly focuses on the fleet structures, annual catch estimates and catch/effort distributions. The report also raises areas where new and further effort is required on the part of Vanuatu to enhance its role in contributing to the overall conservation and management of highly migratory stocks in the WCPFC area.
Most of the current presented data were obtained from the OFP-SPC DORADO database and which were originally collected and verified by the Vanuatu Fisheries Data Management Unit (VFDMU).

Vanuatu recognizes that there are critical data 'gaps' that need attention and focus on. Therefore, with the limitation of resources, the department has been working closely with SPC and FFA to collect as much information and data as possible to fill in these gaps. The delegation of designated ports for our Flagged Vessels have been established however are yet to be implemented and these will enable us to monitor landings of fish in foreign ports including those in Suva, Levuka and Pagopago which are currently the ports mainly being utilized.

FLAG-STATE REPORTING

2. Information on Flag-state Reporting

Vanuatu is currently a member of WCPFC, IATTC, SPRFMO, CCSBT, CCAMLR and has ratified the NPFC. The membership of Vanuatu in these RFMOs has enabled Vanuatu's fishing fleet to fish these RFMO's waters for tuna and other highly migratory fish species. The Vanuatu fleet consists of 3 purse seiners that are under Bilateral Fishing Agreements and 49 long-line fishing vessels which are active in WCPFC in 2016 which is a drop in the number of longliners active from 75 in 2015.

The Vanuatu fleet consists of purse seine and longline vessels fishing between the Pacific and Indian. Fishing inside the Exclusive Economic Zones (EEZ) of coastal states had been possible by way of Bilateral Fishing Access (BFA) agreements particularly for long liners and sub-regional arrangements (FSM Arrangement) for purse seiners. Vanuatu currently operates a vessel registry, the Vanuatu International Shipping Registry (VISR). The VISR has recorded over 100 vessel registrations since 2014, and currently there is a total of 105 vessels on the registry. It is a requirement by law that all Vanuatu fishing vessels acquire an International Authorization to Fish Certificate (IATF) to operate in the high seas within the Pacific ocean.

3. Catch and Effort Trends

The annual catch and effort estimates have been estimated for the Vanuatu fleet operating under bilateral arrangements with PNG and the FSM Arrangement, and the large scale longline vessels (LSLV) operating in the wider WCPFC Area. The general observation since 2014 was that there has been a variation in the 2015 annual catch and effort estimates for both the purse seine and the longline fleet.

The major tuna species for the Vanuatu longline fleet catch was dominated by albacore then bigeye and lastly yellowfin. Unraised and provisional estimates for the longline fleet in 2016 were 4,817.8 mt for albacore, 2,845.1 mt for bigeye and 1,454.4 mt for yellowfin respectively and these catch estimates were determined from logsheet data raised using information on actual vessel Activity (VMS data). During the period 2012-2016, the longline fleet recorded its highest total annual catch estimate as 15,963 MT in 2015 (Table 1(a)). The longline fishery

recorded the highest catches for albacore in 2010 being 12,293mt which is an increase from the 5,582mt in 2008 and 7,992mt in 2009.The highest catch for bigeye was in 2015 which is 6,018mt an increase from the 3,419mt in 2014. Yellowfin catches also showed an increase in catch from 2009 (514mt) and 2012 (2,229.9mt) but was reduced in 2013 (1,626.2mt) and again a slight decrease in 2015 to 2,006mt and then the largest reduction in 2016 which was 1,454mt. Albacore was the dominant species in the catch for 2016 followed by bigeye and yellowfin. Effort for the longline fishery has reduced evidently between the 2013 to 2014 and slightly increased from 2014 to 2015 and then reduced again from 2015-2016. This was measured by the number of hooks fished as can be seen in Figure 2)a)ii).

The purse seine fleet that operated under bilateral arrangements recorded a decrease in total catch from 2014 levels which was 20,514mt to 8,344Mt in 2015 and again from 2015 to 2016 which was 4,393.7mt (Table 1(b)). The effort in the total number of sets had also decreased from this period. This reduction was caused by the reflagging of vessels to PNG and US under the FSM arrangement. During this period, the main tuna species in the catch had decreased also with a reduction of 3,578.3mt from 2015 levels, this is also the same for the other two species Bigeye and Yellowfin.
The purse seine fleets were mainly operating within the 5 degrees N and 5 degrees S and between 150 degrees E and 175 degrees W. The effort in the purse seine fishery is measured as days fishing and searching, Figures 2)b)ii) shows the effort distributions of purse seine vessels that operated under the bilateral agreements.

The longline effort is given as 100s of hooks. The longline efforts are distributed between 40 degrees North and 40 degrees south. This implies that both the southern and northern albacore stocks were targeted. However, there was more effort experienced in the south i.e between 10 degrees S and 40 degrees S but this effort has reduced tremendously in 2016 from 2015 levels as cans be seen in the Figure 2)a)ii) where effort has evidently reduced for the north and south pacific region targeting Albacore and also evidently a reduction in Big eye estimates also in the equatorial region.

The catch and effort data coverage for the Vanuatu fleet are high, but the size data coverages are uncertain as most of these vessels are landing their catch elsewhere and this would mostly be corroborated by the observers and port samplers in whose jurisdictions catch may have been landed or transshipped. The inferences for high, medium, and low scores for the catch/effort, and size data coverage, are provided in Appendix II. A high score for catch or effort implies that more than 80% of the data had been covered and question marks indicate that there was no data coverage.

Estimated Annual total catches of non-target, associated and dependent species by the Vanuatu purse seine fleets and long-line fleets in 2012-2016 has been sought from the DORADO reporting web database as shown in Table 3 and 4 and as well as in Annex 1 where there is a summary table for all CMM's concerned.

Appendix 1 summary tables also provide information on the observed species of interest collected through observer reports for the year 2016 as most of the Observer records were collected by the PNG and FSM observers therefore Vanuatu in collaboration with PNG has been successful in meeting 100% observer coverage on its purse seine vessels that are fishing under the FSM Arrangement and Bilateral arrangements with PNG. SPC has confirmed that this information have been collected by observers in other jurisdictions on vessels that were operating in their waters and has been submitted to the WCPFC, SPC or FFA.

Table 1(a). 2016 Annual catch estimates for the Vanuatu Offshore Longline Fleet in the WCPFC Convention Area for Tuna and Billfish species.

Year	Albacore Catch (MT)	Yellowfin Catch (MT)	Bigeye Catch (MT)	Skipjack Catch (MT)	Pacific Bluefin Catch (MT)	Black Marlin Catch (MT)	Blue Marlin Catch (MT)	Striped Marlin Catch (MT)	Sword fish Catch (MT)	Total
2012	8300	2230	2151	309	0	18	437	71	177	13,693
2013	10446	1626	1989	166	0	19	545	105	345	15,241
2014	6581	1695	3419	134	0	27	493	77	368	12,794
2015	6,400	2,006	6,018	112.1	0.175	35.1	758.5	78.5	555.3	15,963
2016 – Retained	4,817	1,454	2,845	169.1	0.109	28.1	361.4	40.1	252.0	9,966
2016 - Discarded	0.642	0	0.041	0.525	0	0	0	0	0	1.21

Notes:

- *2012 catch estimates were taken from TUFMAN database system. Catch estimates were determined from logsheet data raised using information on actual vessel activity (e.g. VMS data).*
- *2013-2016 catch estimates were derived from the DORADO web tool; where logsheet coverage for 2016 is 100%.*

Table 1(b). 2016 Annual catch estimates for the National Purse seine Fleet in the WCPFC-CA for Tuna and Billfish species.

Year	Skipjack Catch (MT)	Yellowfin Catch (MT)	Bigeye Catch (MT)	Total (MT)
2012	17,876	6,151	806	24,853
2013	16,482	2,983	634	20,099
2014	19,285	896	333	20,514
2015	7,972	371.8	0	8,344
2016 - Retained	3,903	324	145	4,372
2016 - Discarded	21.6	0	0.1	21.7

Notes:

- *2012 catch estimates were determined from logsheet data raised using information on actual vessel activity (e.g. VMS data)*
- *2013-2016 catch estimates are based on estimates derived from the DORADO tool with logsheet coverage for 2016 is 100%*
- *Catches do not include Vanuatu-flagged vessels that fish the FSM Arrangement vessels with HOME PARTY = PNG*

Table 1(c) i). 2016 Annual catch estimates for the National (Offshore) Fleet in the WCPFC-CA for Shark species.

Species	2016 (MT)
BLUE SHARK	326.6
SILKY SHARK	4.13
MAKO SHARK	50.3

Note:

- *Catch estimates were derived from the DORADO web tool; where logsheet coverage for 2016 is 100%.*

Figure 1(a) Historical Annual Catch and Effort estimates for the National Longline Fleet within the WCPFC-CA

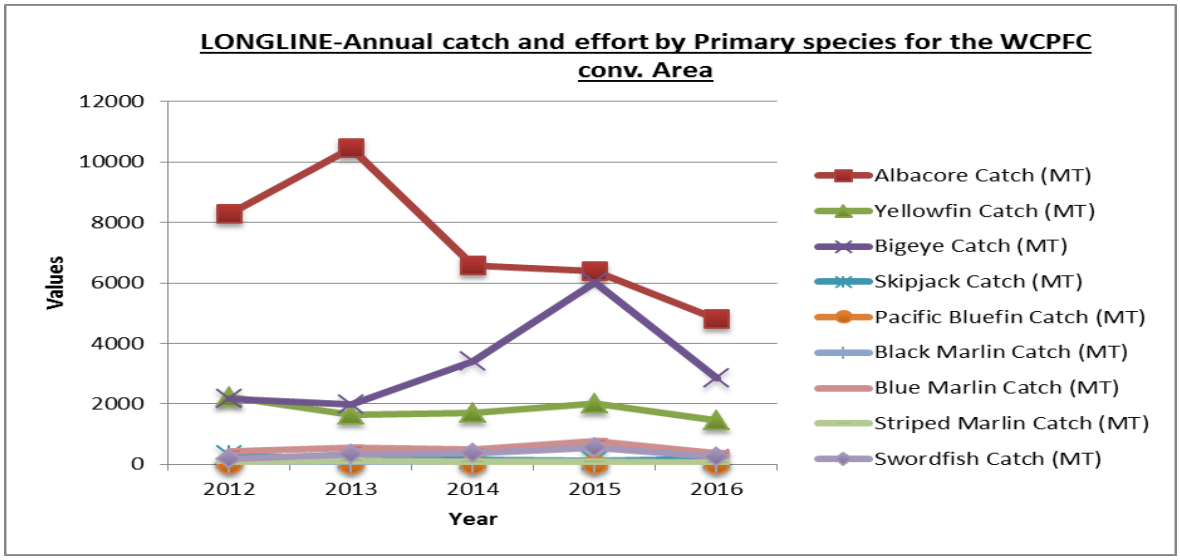


Figure 1(b) Historical Annual Catch and Effort estimates for the National Purse seine Fleet within the WCPFC-CA

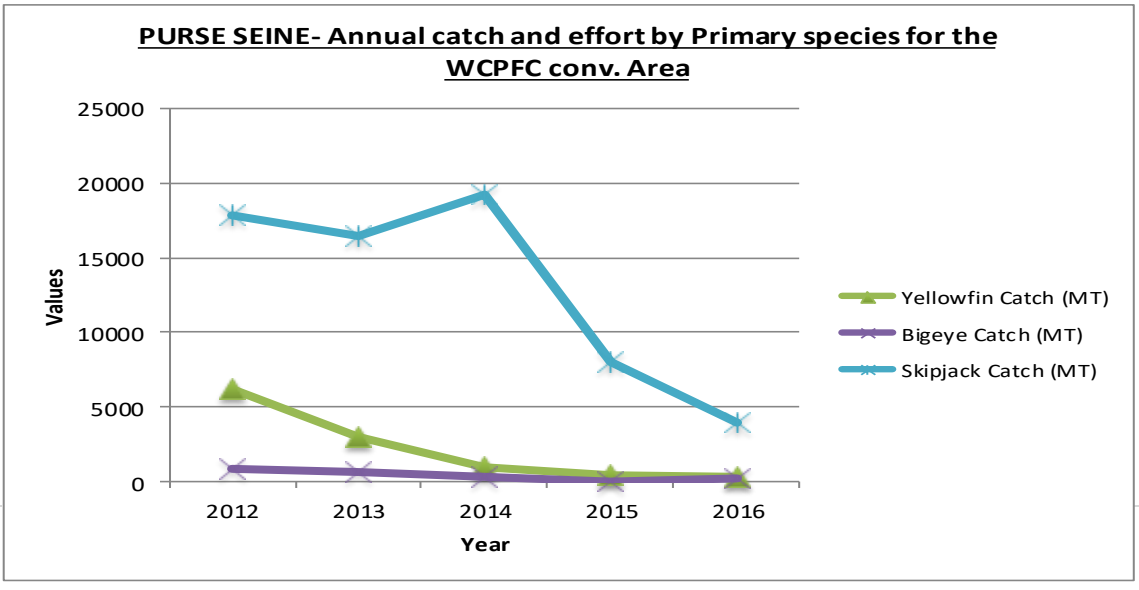


Table 2) Annual un-raised catch estimates for all Vanuatu longline vessels, for tuna and billfish by broad ocean areas

Area	Year	ALB	BET	YFT	SKJ	PBF	BUM	BLM	MLS	SWO
1. WCPFC Convention Area	2016	4,817.2	2,845.1	1,454.4	169.1	0	361.4	28.1	40.1	252.0
	2015	6,400.7	6,018.9	2,006.8	112.1	0.175	758.5	35.1	78.5	555.3
	2014	6,581	3,419	1,695	134	0	493	27	77	368
	2013	10,446.2	1,989.2	1,626.2	166.2	0	544.6	18.5	104.6	344.6
	2012	8,300.1	2,150.7	2,229.9	0.6	0	436.6	18.3	71.1	176.7
2.WCPFC Convention area (S of Equator)	2016	1,485.13	N/A	N/A	N/A	0	N/A	N/A	12.66	79.11
	2015	3,963.4	N/A	N/A	N/A	0.175	N/A	N/A	61.5	369.5
	2014	4,157	N/A	N/A	N/A	0	N/A	N/A	54	286
	2013	6,486.2	N/A	N/A	N/A	0	N/A	N/A	33.8	135.4
	2012	5,615.3	N/A	N/A	N/A	0	N/A	N/A	36.6	130
3.WCPFC Convention Area (N of Equator)	2016	697.26	NA	N/A	N/A	0.109	N/A	N/A	11.46	74.63
	2015	2,437.3	N/A	N/A	N/A	0	N/A	N/A	16.9	185.8
	2014	2,426	N/A	N/A	N/A	0	N/A	N/A	24	81
	2013	1,361.5	N/A	N/A	N/A	0	N/A	N/A	9.2	18.5
	2012	2,684.8	N/A	N/A	N/A	0	N/A	N/A	34.5	44.7
4. WCPO	2016	1,860.4	1,448.2	585.72	N/A	N/A	N/A	NA	20.2	120.2
	2015	5,704.4	4,959.5	1,716.8	N/A	N/A	N/A	N/A	52.3	445.3
	2014	5,559	3,028	1,601	N/A	N/A	N/A	N/A	57	328
	2013	7,409.2	1,380	1,507.7	N/A	N/A	N/A	N/A	32.3	109.2
	2012	7,191.3	1,943.5	2,191.3	N/A	N/A	N/A	N/A	58.9	158.4
7. North Pacific Ocean	2016	726.1	N/A	N/A	N/A	0.109	N/A	N/A	14.69	92.05
	2015	2,629.3	N/A	N/A	N/A	0	N/A	N/A	19.6	215.4
	2014	2,426	N/A	N/A	N/A	0	N/A	N/A	24	81
	2013	1,801.5	N/A	N/A	N/A	0	N/A	N/A	15.4	40
	2012	2,843.2	N/A	N/A	N/A	0	N/A	N/A	38.6	60.9
8. South Pacific Ocean	2016	2,335.9	N/A	N/A	N/A	0	N/A	N/A	39.76	308.4
	2015	7,921.5	N/A	N/A	N/A	0.25	N/A	N/A	166.5	805.5
	2014	3,134	N/A	N/A	N/A	0	N/A	N/A	32	247
	2013	8,636.9	N/A	N/A	N/A	0	N/A	N/A	87.7	303.1
	2012	9,096.2	N/A	N/A	N/A	0	N/A	N/A	87.3	211.2

Note: *N/A in the table refers to data that is not a WCPFC requirement to record. Only the species in the areas reflected in the accepted stock boundaries stated are reported for each broad ocean area.*

Figure 2(a)i). Annual Catch distribution (1°x1°) of tuna species for National Longline Fleet within the WCPFC-CA

2015 **2016**

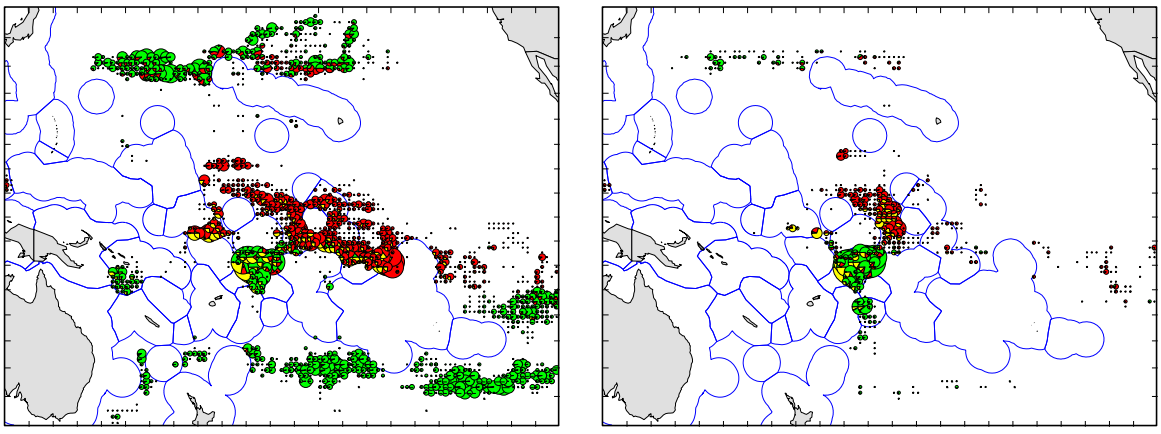


Figure 2(a)ii). Annual Effort distribution (1°x1°) of tuna species for National Longline Fleet within the WCPFC-CA

2015 **2016**

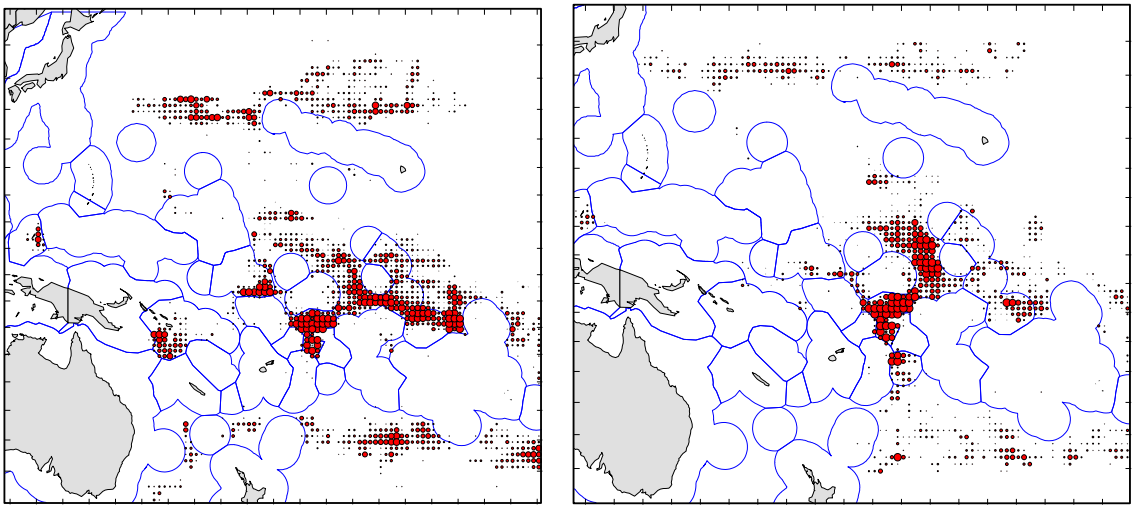
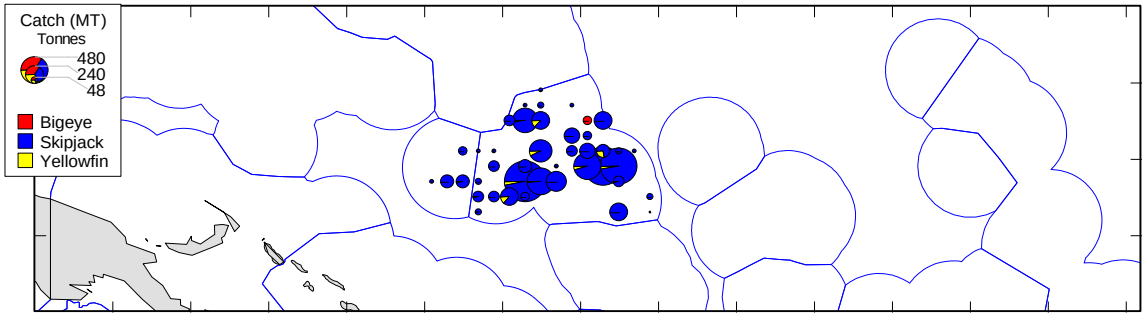


Figure 2(b)i). Annual Catch distribution (1°x1°) of tuna species for Purse Seine Fleet within the WCPFC-CA

2015



2016

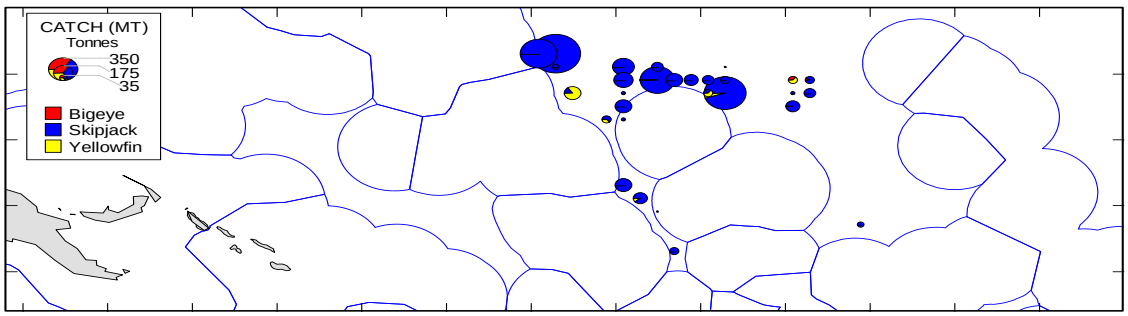
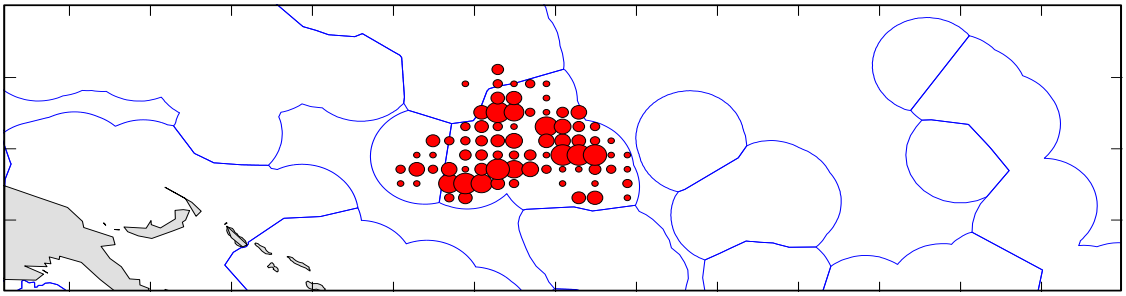


Figure 2(b)ii). Annual Effort distribution (1°x1°) of tuna species for National Purse seine Fleet within the WCPFC-CA

2015



2016

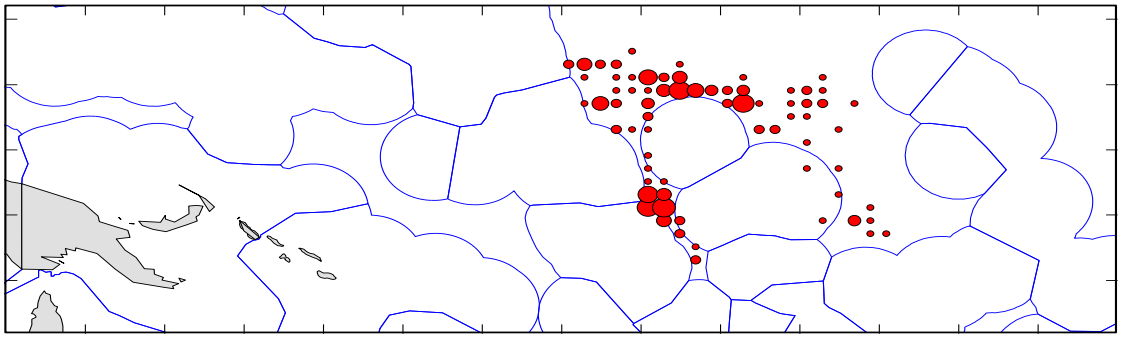


Table 3. Observed annual estimated catches of Special interest (seabird, turtle and marine mammals) by gear for the National fleet in the WCPFC area.

Year	gear	Category	species	Number	Alive	Dead
2016	L	MARINE MAMMALS	FALSE KILLER WHALE	1	1	0
	L	MARINE REPTILES	GREEN TURTLE	1	0	1
	L	MARINE REPTILES	HAWKSBILL TURTLE	1	0	1
	L	MARINE REPTILES	OLIVE RIDLEY TURTLE	1	0	1
2015	L	MARINE MAMMALS	FALSE KILLER WHALE	1	1	0
	L	MARINE REPTILES	GREEN TURTLE	2	1	1
	L	MARINE REPTILES	HAWKSBILL TURTLE	1	0	1
	L	MARINE REPTILES	LEATHERBACK TURTLE (NEW FAO)	1	0	1
	L	MARINE REPTILES	OLIVE RIDLEY TURTLE (NEW FAO)	28	10	18
2014	S	MARINE MAMMALS	BOTTLENOSE DOLPHIN	3	0	0

	S	MARINE REPTILES	LOGGERHEAD TURTLE	1	0	0
	L	MARINE REPTILES	OLIVE RIDLEY TURTLE (NEW FAO)	3	1	2
2013	S	WHALE SHARK	WHALE SHARK	3	0	0
	S	MARINE MAMMALS	COMMON DOLPHIN	2	0	0
	S	MARINE MAMMALS	SPINNER DOLPHIN	3	0	0
	S	MARINE MAMMALS	Rough-toothed dolphin	1	0	0
	S	MARINE MAMMALS	FALSE KILLER WHALE	1	0	0
	S	MARINE REPTILES	HAWKSBILL TURTLE	3	0	0
	S	MARINE MAMMALS	RISSO'S DOLPHIN	2	0	0
	L	MARINE MAMMALS	FALSE KILLER WHALE	1	1	0
	L	MARINE MAMMALS	RISSO'S DOLPHIN	1	1	0
	L	BIRDS	ALBATROSS	1	0	1
2012	S	WHALE SHARK	WHALE SHARK	8	0	0
	S	MARINE MAMMALS	FALSE KILLER WHALE	5	0	0
	S	MARINE REPTILES	OLIVE RIDLEY TURTLE (NEW FAO)	2	0	0
	S	MARINE REPTILES	HAWKSBILL TURTLE	1	0	0
	S	MARINE MAMMALS	FALSE KILLER WHALE	1	0	0
	S	MARINE REPTILES	HAWKSBILL TURTLE	6	0	0
	S	MARINE REPTILES	LOGGERHEAD TURTLE	3	0	0
	L	MARINE MAMMALS	FALSE KILLER WHALE	1	1	0
	L	MARINE REPTILES	LEATHERBACK TURTLE (NEW FAO)	1	1	0

NOTES:

- *Observed annual estimated catches of species of special interests have been determined by Observer data*
- *As an interim measure, species composition data obtained from observers for this fleet in adjacent years have therefore been used to produce estimates of these species of special interests.*
- *The observer data coverage rate is considered low ~ 5% to produce estimates of species of special interests for the reported years.*

Table 4. Annual Estimated catches of Non-target, Associated and Dependent species including Sharks caught by Vanuatu Longline Vessels

Species	2012	2013	2014	2015	2016
BLUE MARLIN	436.6	544.6	493	758.5	361.4
BLACK MARLIN	18.3	18.5	27	35.1	28.1
PACIFIC BLUEFIN	0	0	0	0.175	0.109
STRIPED MARLIN	71.1	104.6	77	78.5	40.1
SWORDFISH	176.7	344.6	368	555.3	252
BLUE SHARK	9.7	73.5	659.3	776.654	326.6
SILKY SHARK	2.3	34.3	49.03	23.178	4.13
OCEANIC WHITETIP SHARK	0.1	0.5	0.06	0	0
MAKO SHARK	8.2	18.9	121.9	102.49	50.3

4. Licensing and Fleet Structure

Table 5). Annual Vessel Numbers for the National Fleet active in the WCPFC Convention Area by Gear and Size Category

(a) Longline Distant Water and Offshore

Size class (GRT)	2012	2013	2014	2015	2016
0–10	0	0	0	0	0
10–50	0	0	0	2	2
50–200	38	35	55	32	31
200–500	24	17	15	18	3
500+	22	9	12	23	13
TOTAL	84	61	82	75	49

Note: *Fleet cover is based on DORADO reporting of only vessels who are active (ie, submitted logsheets in Tufman)*

(b) Purse Seine -Bilateral Access

Size class (GRT)	2012	2013	2014	2015	2016
0–500	3	0	0	0	0
500–1,000	0	0	0	0	0

1,000–1,500	**13**	**11**	**0**	**0**	**0**
1,500+	**6**	**5**	**3**	**3**	**3**
TOTAL	**22**	**16**	**3**	**3**	**3**

Note: *The vessel number is only subjected to vessels that are under BA and Do not include vessels under the FSM Arrangement*

Figure 3) a) Annual vessel numbers for the National Longline fleet in the WCPFC-CA

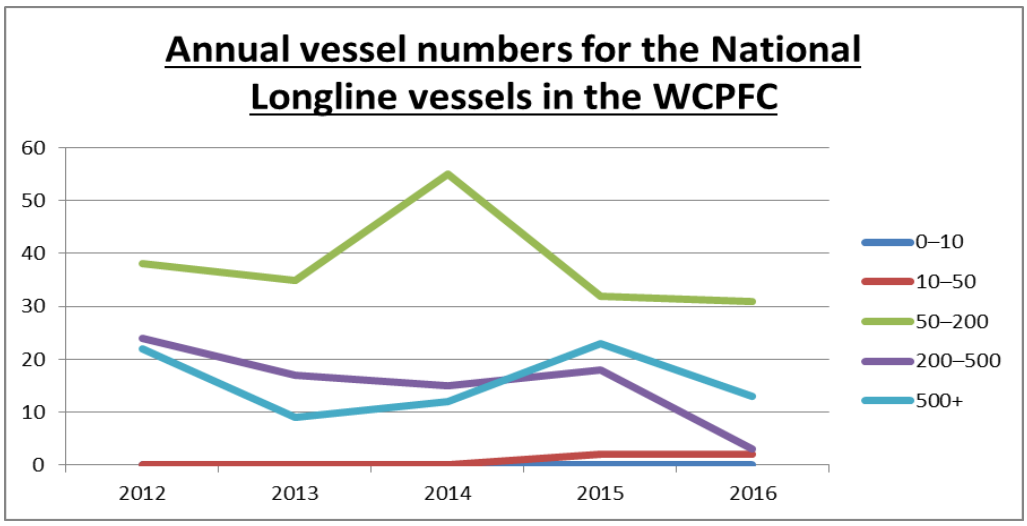
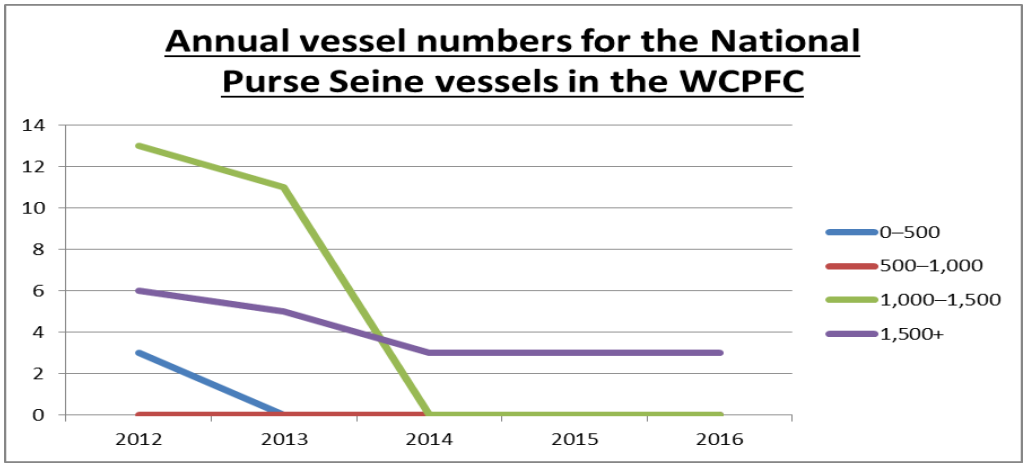


Figure 3) b) Annual vessel numbers for the National Purse seine fleet in the WCPFC-CA



COASTAL STATE REPORTING

5. Information on Coastal State Reporting

The Vanuatu Exclusive Economic Zone (EEZ) is approximately 690,000 square kilometers and includes over 80 islands and an area of archipelagic waters. Commercial tuna fishing commenced in Vanuatu in 1957 with the establishment of the Japanese South Pacific Fishing Company Limited (SPFC) longline transhipment base at Palekula, Espiritu Santo Island. The base, consisting of a wharf and cold storage facilities, was substantially upgraded in 1974. After handling annual landings of between 4-15,000 tonnes since 1969, SPFC closed its operations in the late 1980s and the facility was turned over to the Government of the Republic of Vanuatu. US purse-seiners, licensed under the US Treaty fished on four occasions in Vanuatu waters in1999 with very small catches.

In the Vanuatu EEZ fishing has been through Bilateral Fishing Agreements (BFA) particularly with Fiji and Solomon Island based companies. These catch proportions were similar to the historical tuna catch compositions. The recent tuna fishery in Vanuatu has generally seen a rapid expansion of fishing effort since 2006 but slowing decreasing since 2013. It is estimated that recent effort exceeded 25 million hooks per year based on unraised data but it is likely that the actual estimate may have exceeded 40 million hooks per year if the data were raised. It is noted that high catches were usually obtained with high effort.

6. Catch and Effort Trends

During the period 2012 to 2016, the total annual catch for all the foreign fleets in Vanuatu EEZ had decreased from 6,780.17MT in 2013 to 6,440.896MT in 2016. There has been a variation in the catch for these years and this was a result of the effort decline that took place also for this period as the vessels shifted their operations to Solomon Islands. The catch was largely attributed to the Chinese fleet which recorded over 80% of the total catch for the 2012-2015 and which dominated the entire catch in 2016. Fishing effort continued to decrease from 2014 to 2015 from 65 vessels to 49 vessels but increase to 72 vessels in 2016. The reduction in the last few years was due to the shift towards the eastern pacific where fishing was believed to be very good and after 2015 vessels started coming back to fish in the VU EEZ. Unraised and provisional estimates for this licensed fleet in 2016 were 4,799.527Mt, 973.15Mt and 190.722Mt for albacore, yellowfin and bigeye respectively and these catch estimates were determined from logsheet data raised using information on actual vessel activity (VMS data) by using the eRECAP logsheet/VMS reconciliation web tool. The annual estimated tuna catch composition by weight for 2016, was again dominated by albacore (85%), yellowfin (22%) and minor bigeye (3%).

In the period 2012 to 2016, the total annual catch for the foreign longline fleets in Vanuatu EEZ decreased from 6,780.2MT to 6,440.896MT (2016). This catch reduction was a result of the effort decline that resulted in a shift to the Solomon Island EEZ. Catch from these fleets were largely attributed to the Chinese fleet which recorded over 80% of the total catch for the 2012-2015 periods followed by the Fijian and Taiwanese fleet contributing only 11%. In 2016, Catch rates however improved compared to 2015 levels due to the increase in effort which is recorded as the number of fishing vessels fishing as well as the number of hooks used. Logsheet coverage for 2016 is averaged at ~58% therefore figure is sure to increase once logsheet coverage for the vessels is improved from its current level as can be seen in Table 6.

The annual longline estimated tuna catch composition by weight for 2016, was again dominated by albacore (85%), yellowfin (22%), and minor bigeye (3%). These catch proportions were similar to the historical tuna catch compositions.

The recent tuna fishery in Vanuatu has seen a general decline in both fishing effort and catch estimates respectively. It is estimated that the recent effort exceeded 91thousand hooks per year based on unraised data but it is likely that the actual estimate may exceed 180 thousand hooks per year if the data were raised. It is noted that low catches were usually obtained with low effort. SPC also provided estimates based on raised logsheet data that have been submitted by Fiji and Pagopago for the Fiji based fleet.

Data regarding the fishing operations of the Vanuatu fleet have been provided by the various members in whose jurisdictions the vessels may have operated, and also by various established fishing agents in Vanuatu.

Table 6. Annual Catch and Effort estimates for Each Foreign Fleet by Gear and Primary species in the National EEZ

Year	FLAG	Vessels	Trips	ALB Catch (MT)	BET Catch (MT)	YFT Catch (MT)	OTHER Catch (MT)	TOTAL Catch (MT)
2013	CN	48	241	3792.393	92.407	638.672	564.148	5,087.62
	FJ	7	28	595.586	31.398	108.676	80.911	816.57
	TW	10	62	341.271	22.825	87.092	59.548	510.74
	VU	12	74	228.946	16.921	81.861	37.513	365.24
	Total	**77**	**405**	**4958.196**	**163.551**	**916.301**	**742.12**	**6,780.17**

Year	FLAG	Vessels	Trips	ALB Catch (MT)	BET Catch (MT)	YFT Catch (MT)	OTHER Catch (MT)	TOTAL Catch (MT)
2014	CN	51	247	4338.997	138.831	886.111	636.948	6,000.89
	FJ	3	10	110.953	3.581	13.428	23.077	151.04
	TW	5	11	77.925	3.451	22.307	11.547	115.23
	VU	6	9	26.998	1.153	5.778	2.911	36.84
	Total	**65**	**277**	**4554.873**	**147.016**	**927.624**	**674.483**	**6,304.00**

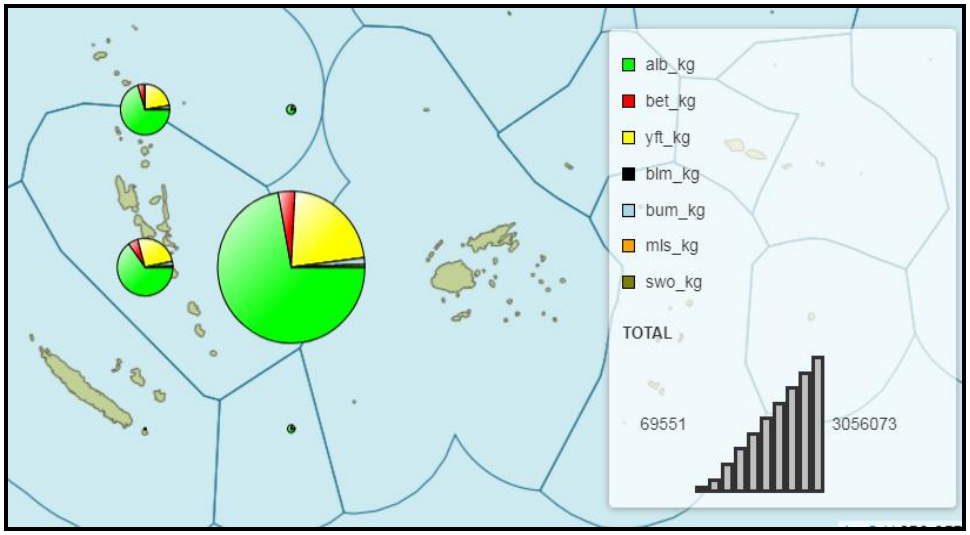
Year	FLAG	Vessels	Trips	ALB Catch (MT)	BET Catch (MT)	YFT Catch (MT)	OTHER Catch (MT)	TOTAL Catch (MT)
2015	CN	48	210	2759.957	123.718	801.014	361.254	4,045.94
	FJ	1	6	77.24	2.355	12.525	16.436	108.56
	Total	**49**	**216**	**2837.197**	**126.073**	**813.539**	**377.69**	**4,154.50**

Year	FLAG	Vessels	Trips	ALB Catch (MT)	BET Catch (MT)	YFT Catch (MT)	OTHER Catch (MT)	TOTAL Catch (MT)
2016	CN	72	264	4,799.527	190.722	896.239	700.137	6,440.896
	TOTAL	**72**	**264**	**4,799.527**	**190.722**	**896.239**	**700.137**	**6,440.896**

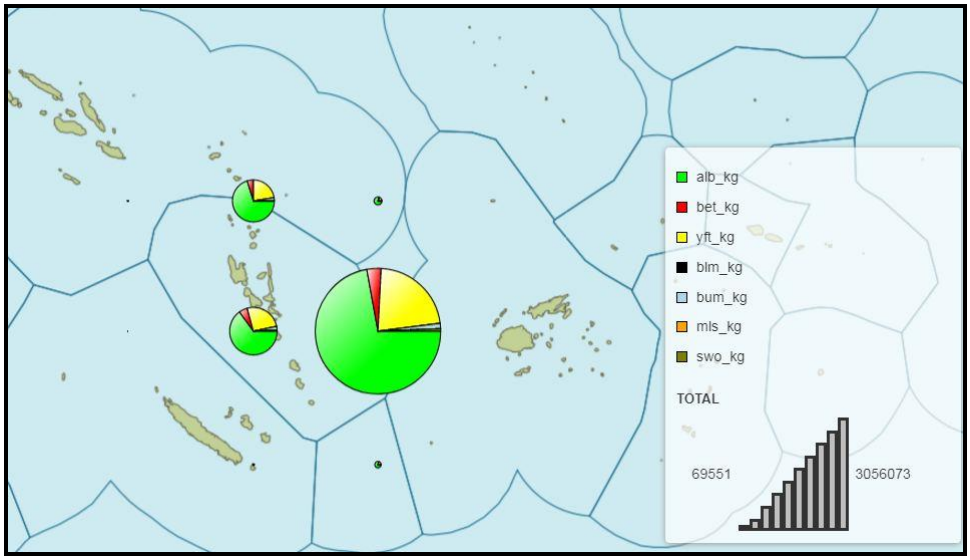
Nt: Logsheet coverage for 2016 is ~58% so estimates should be higher if raised

Figure 4). Annual Catch distribution of target tuna species by Major foreign Longline fleets in Vanuatu EEZ.

2015



2016



7. Socio-economic Factors

Since 2013 the number of Foreign and locally based Foreign license has dropped as most vessels were moving to the Solomon Islands EEZ and towards the eastern pacific where fishing was reported to be very good. Vessels that were offloading their catch in the Vanuatu EEZ through transshipment were also reporting low catches towards the end of 2013 to early 2014 thus Transshipment in port was not as regular as before and towards the end of 2014 Transshipment in port has ceased.

For local artisanal fisherman, fishing in FADs have recently become a priority with the sudden reduction in fuel costs as more Artisanal fisherman target FAD's only to catch skipjack for Baitfish.

The TUFMAN2 database has been fully utilized since July 2016 after the shift from TUFMAN 1 which is now only used for licensing. The TAILS system has also been trailed out in Vanuatu and has been successfully set up to 16 communities who are actively sending in coastal data via Tablets into the TUFMAN2 online system. The RIMF FFA database has been utilized to cater for all Artisanal vessel registration activities as well as the recording of Landing and Unloading data from operators. Fishers including small skiffs and motorized canoes are also registered within the TAILS system with the objective of enhancing the capacity to collect data for coastal, deep bottom and pelagic fisheries.

8. Onshore Developments

The processing plant (Tuna Fishing Vanuatu Limited) in Port Vila harbor seized operations in February 2014 due to movement of the fleet to the Solomon Islands. The Chinese fishing Base is currently under renovation and is part of the Governments 100 day plan to develop fishery operation. This will allow the licensed Chinese vessels currently fishing the VU EEZ to offload their catch in the Vila port and facilitate for the export of the catch to the Export countries including US and China. The process of development of a new wharf is also part of the plan to allow for the vessels to harbor in Port Vila to carry out their activities and this process has began as of early this year.

9. Future Prospects of Fishery

Vanuatu has maintained its position to limit the number of license to 75 Foreign License and 40 Locally Based Foreign license however the license fee has been increased by 50% of the current fee.

RESEARCH AND STATISTICS

10. Estimated data coverage

Coverage of logsheets from foreign fleets fishing in the Vanuatu EEZ extends back as far as the 1970s and has been low and variable among years. The only recent high coverage catch and effort rates are those from the Vanuatu and Fiji fleet. There has also been significant missing data throughout the years thus the difficulty in estimating coverage rates for some years. Because of the uncertainty of the estimated catch, effort, and size data coverage amongst the fleets that operate in Vanuatu, the catch and effort levels for Vanuatu have been difficult to estimate. It is understood however, that most of these fleets have been unloading their catch in the ports of Pagopago in American Samoa and Levuka and Suva in Fiji.

Vanuatu is looking into strict measures in terms of estimating catch and effort data, since most of our licensed vessels are currently offloading all or part of their catches overseas, either to the factory or on the carrier vessel in port. One of the major steps for Vanuatu in 2016 was to move to the TUFMAN 2 database which allows for the sharing of logsheet data between countries to which licensed vessels operated. This sharing has allowed access to view Logsheets from vessels who are license to operate in our waters with other members sharing the same interests.

Most of the current presented data were obtained from the OFP/SPC database, and were originally collected and supplied by Vanuatu and other member countries.

Apart from biological samples that Vanuatu observers have collected from the Deep Bottom snapper fishery in 2014, there has never been any research on the deep bottom snapper fishery or the tuna fishery as yet, however Vanuatu is looking at developing a harvest strategy for the deep bottom snapper as well as carrying out an economic analysis for the species in the coming years.

11. Status of Tuna Fisheries Data Collection Systems

(a) Logsheet Data collection and Verification

There has been vast improvements with the collection of logsheet data since it has become one of the special licensing conditions; which has forced vessel owners to keep up with the submission of logsheet data. For the licensed vessels the logheet coverage based on VMS Data was low for 2016 at ~38% but likely to improve before the end of the year. Whereas for the Vanuatu flag vessels the coverage for 2015 ~87% which has improved to 100% for both the longline and the purse seine fishery in 2016. This is the first time this record has been reached. Vanuatu is currently rolling out E reporting to 3 of its vessels and hopes to fulfill a100% coverage of all fleets by 2018.

Assistance from trainings held by SPC on data verification has assisted in allowing data verification to be done nationally by officers as a means of improving data quality and compliance.

(b) Observer and Port Sampling Programme

The Vanuatu Observer program established in 2008 and now has 35 regional certified PIRFO observers who observe on Purse Seiners, Long Liners and Fish Carriers that are operating in the WCPFC area.
Since its establishment in 2008, Fisheries Observers have been heavily involved in Long liners and Purse seiner vessel operations and later covering fish carrier vessels in the effort to collect more information on carrier vessels at sea.

Sharing of observing on a vessel in another country's EEZ remain a challenge as Sharing of coverage between observers program. MOU's are needed with other national observer programs for sharing and placing observers on Flag and License vessels and which are yet to be signed. Vanuatu's observer coverage still stands as a issue in reaching the 5% coverage and Vanuatu is looking at means of stricter measures to achieve this.

Vanuatu National Observer Program is yet to establish a system for observer cost recovery to meet national aspirations incorporates direct placement costs, traveling's, debriefings, trainings, and equipment's and data management.

(c) Unloading and Transshipment

Unloading and Transshipment in Vanuatu port has been by way of locally based foreign vessels fishing in Vanuatu EEZ. Since 2009 there has been 100% port sampling for all unloading and transshipment activity in Vanuatu EEZ. Transshipment has been constantly carried out within the harbour mostly targeting albacore for canning (e.g. Fiji and Solomon) or other species such as sharks (mainly fins), Marlins, wahoo, Sword fish and other relevant by-catch including low grade yellow fin and big eye. Transshipment is 100% sampled in measurement and estimated

capacity weight of each fish well; all fish for transshipment are stored frozen in blast freezers. Transshipment often occurs once a month until 2014 when there were only 4 transshipments in the Vanuatu port. As of then, transshipment activities has since ceased as vessels have move out until a trail unloading took place in mid 2016 as a way of showcasing and promoting Vanuatu's capacity of having its vessels resume unloading activities in Vanuatu.

(d) Disposal of Catch

Fresh Tuna previously landed in Vanuatu by Locally Based Foreign vessels were exported by air to Japan as well as USA, Australia and New Zealand, while fresh Opah was exported to Hawaii. The frozen catch however usually transferred to fish carriers and exported to canneries in Fiji. The Foreign fleets that have been licensed to fish in Vanuatu EEZ unload 100% of their catch (both their fresh and frozen) either, in Pagopago or Fiji which are either moved to canneries or exported to Japan.

12. Research Activities

There were no major research activities carried out in 2016.

APPENDIX I-CMM Report

Table 1 Summary Table

CMM Reference	Description	Response
CMM 05-03	North Pacific Albacore	This is one of the Target Species by Vanuatu long liners where a total of 64,545 albacore weighing 726.1 MT was reported in 2016 by 44 vessels for 1,995 fishing days. There were no albacore recorded north of the equator for Purse seine activities.
CMM 06-04	SW Striped Marlin	Striped marlin is caught as a by-catch. In 2016, 24 VU flag vessels caught 380 striped marlin, weighing 16.82MT in the area South of 15 degrees South.
CMM 08-03	Marine Turtles	In 2016, there were a total of 3 turtle interactions with Longline vessels reported from TUBS. From this figure, 1 was a Green turtles which was discarded Dead, 1 was a Hawksbill turble which was also discarded Dead and 1 was an Olive Ridley turtle which was also discarded Dead. There were no interactions recorded by Purse seine vessels in 2016.
CMM 09-03	SP Swordfish	Swordfish is caught as a bycatch. In 2016, 20 VU flag vessels caught 837 swordfish, weighing 46.646MT in the area South of 20 South.
CMM 09-06	Transhipments	See below for details.
CMM 10-07	Sharks	Sharks catch estimates based on observer data for 2016 was approximately 1008 in total weighing 381.325MT. The catch composed of Blue Sharks, Mako Sharks, Silky Sharks and Hammerhead Sharks. Details of catch were:

Species	Fate	Catch (n)	Catch (mt)
HAMMERHEAD	Retained		0.276

		SHARKS			
		MAKO SHARKS	Discarded/Released	6	0.112
		BLUE SHARK	Discarded/Released	290	0.475
		BLUE SHARK	Retained	675	326.085
		MAKO SHARKS	Retained	35	52.124
		SILKY SHARK	Retained	2	4.13
		All these were caught by Longline vessels. Observer data reported a total of 743 sharks in total of which 35 were retained while 700 was discarded. From the retained 16 had their fin and trunk retained. 49 sharks from this 743 was caught by Purse seine vessels while the other 694 were from Longline vessels.			
CMM 11-03	Cetaceans	Based on Observer data there was only 1interaction with a False Killer Whale in 2016 and this was from a Longline vessel inside the KI EEZ.			
CMM 11-04	Oceanic White-Tip Shark	Based on Observer data, there was a total of 15 Oceanic White tips shark interactions in 2016 by Longline vessels. 9 of which were alive and released while 5 were dead and discarded with 1 having an unknown condition. There were no interactions by Purse seine vessels in 2016.			
CMM 12-04	Whale Sharks	In 2016 according to observer data, there were no interactions with Whale sharks in both the Purse seine fishery and longline fishery.			
CMM 12-07	Seabirds	There were no interactions with seabirds by both LL and PS vessels in 2016.			
CMM 13-01	Discard reporting–by National Fleet	According to observer data, in 2016 there was a total of 13.075MT of discards by the National fleet vessels all of which are Purse seine vessels. From this number 13.035MT were Skipjack, 0.005MT were Yellowfin and 0.035Mt were Bigeye. 85% of the discards were done for the reason of Gear Damage and the rest for reasons of fish being too small.			
CMM 13-08	Silky Sharks	An estimated 1,307 silky sharks were caught from the Longline vessels weighing 23.178MT and all were discarded/released, except for observer reports of 7 individuals retained [currently being investigated]. An estimated 23% of the released silky shark were alive. An estimated 243 Silky shark were caught from purse seine vessels. All were discarded and all were estimated as being dead on discard.1			
CMM 15-02	South Pacific Albacore	Addressed through the regular provision of operational catch/effort logsheet data to SPC, who automatically include these data to the WCPFC databases, as per our authorisation.			
WCPFC 11 decision-para 484 (b)	Observer Coverage	In 2016, the Observer coverage for LL vessels was measured using the number of days fished that was observed by the Observers. There were only 4 observed trips in 2016 with a total observed days of 207. The total number of sea days for Vanuatu longline vessels is 10,442 days therefore, from this figure Vanuatu's observer coverage based on days observed on its LL vessels in 2016 was 2%. The minimum 5%			

		coverage has not been reached as an additional 300 days was needed to make up the 5%. For Purse seine vessels, the Observer coverage is 80% for 2016.

CMM 09-06 – Transshipments

Annex II (1)

(1) Total quantities, by weight, of highly migratory fish stocks that were transshipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken as below:	
(a) Offloaded and Received	
Year	2016
Offloaded	7,475.60
Received	37,600.90
*** - Figures in metric tonnes**	
(b) Transshiped in Port, At Sea, and ABNJ	
Year	2016
High Seas	24,039.60
Within a EEZ	643.2
Port	21,585.90
Outside convention area	15.4
	2,994.60
*** - Figures in metric tonnes**	
(c) Transshipped Inside and Outside CA	
Year	2016
Inside CA	46,268.60
Outside CA	15.4
*** - Figures in metric tonnes**	
(d) Caught Inside and Outside CA	
Year	2016
Inside CA	42,426.50
Outside CA	6,852.10
*** - Figures in metric tonnes**	
(e) Species	
Year	2016
SKIPJACK TUNA	19,966.90
BIGEYE TUNA	11,007.30
ALBACORE TUNA	7,565.10
YELLOWFIN TUNA	6,737.70
SWORDFISH	1,559.50
OTHERS	796.7
BLUE MARLIN	525.8
STRIPED MARLIN	325.1

SHARK	297.6
BLACK MARLIN	201.7
WAHOO	68.1
LEC	64.8
BLUE SHARK	56.6
SOUTHERN BLUEFIN TUNA	27
SHORT FIN MAKO	24.1
MARLIN UNSPECIFIED	21
OILFISH	13.3
LAG	12
SAIL FISH	7.7
BLUEFIN TUNA	0.4
MAHIMAHI	0.2
*** - Figures in metric tonnes**	
(f) Product Form	
Year	2016
Whole	31,757.10
Gilled and Gutted	7,308.40
Gilled, gutted and tailed	6,348.90
Gutted, Headed and Tailed	1,282.20
Dressed	719.7
Other	548.6
Gilled, headed and tailed	542.2
Head Off	266.9
Round (RD)	164
Gilled and headed	130.1
Gutted and headed	103.7
Filleted	91.7
Gutted only	14.9
Shark Fins	0.1
*** - Figures in metric tonnes**	

Annex II (2)

(2) Number of transhipments by fishing vessels:	
(a) Offloaded and Received	
Year	2016
Offloaded	161
Received	326
*** - Figures denote the number of transhipments.**	
(b) Number of Transhipments in Port, At Sea, and ABNJ	
Year	2016
High Seas	442

Within a EEZ	10
Port	40
Outside convention area	1
	18
*** - Figures denote the number of transhipments.**	
(c) Number of Transhipment Inside and Outside CA	
Year	2016
Inside CA	492
Outside CA	1
*** - Figures denote the number of transhipments.**	
(d) Number of Transhipment Caught Inside and Outside CA	
Year	2016
Inside CA	479
Outside CA	143
*** - Figures denote the number of transhipments.**	

APPENDIX II

Table showing Categories of coverage for catch, effort and size data.

Category	Catch/Effort data Coverage	Size data coverage
HIGH	>80%	>80%
MEDIUM	50-80%	50-80%
LOW	0-50%	0-5%
-	No data	No data

LEGEND*: "Catch/Effort data coverage" is determined by the comparing the annual catch from operational (logsheet) data to the total annual catch, as determined by unloading or other types of data/information. "Size data coverage" is determined by comparing the number of trips covered by port sampling and observers (collecting size data) with the estimated number of actual trips undertaken by this fleet during that* year.