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PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

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PAPUA NEW GUINEA



ANNUAL REPORT TO THE COMMISSION

Report: **PART 1: INFORMATION ON FISHERIES,
RESEARCH AND STATISTICS, 2019.**

Country: **PAPUA NEW GUINEA**

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Port Moresby, Papua New Guinea.**

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the commission by the 30th April 2020.	Yes
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1. Summary

The Papua New Guinea (PNG) tuna fishery is made up of both the purse-seine and longline sectors. The domestic longline vessels fish exclusively in PNG waters and until recently after almost two decades, PNG opened its waters to the foreign longliners. The purse-seine sector is made up of a mixture of both domestic and foreign access vessels. The domestic sector comprises the PNG flag vessels and the PNG locally-based foreign (LBF) vessels under domestic charter arrangements that support onshore processing facilities in PNG.

The total estimated catch of target tuna species caught by the PNG purse seine vessels in 2019 was 264,066 mt. A total of 61 purse seine vessels in the PNG national fleet (both PNG Flag and LBF vessels) were active in the WCPFC Convention area with an estimated overall effort of 9,640 fishing days (*Table 1b & 2b*).

The estimated total catch for target tuna species in 2019 by the PNG longline vessels stands at 1,900 mt. A total of 15 national longline vessels were actively fishing in the WCPFC conventional area with an estimated effort of 10,075 hundred hooks (*Table 1a & 2a*).

Estimated catch by foreign vessels fishing in PNG waters under bilateral and multilateral access agreements in 2019 was 66,853 mt with an estimated effort of 3,491 fishing days (*Table 6*).

PNG is striving to build its domestic fishing industry and increase onshore investment. This approach has seen fishing licenses linked to domestic onshore investments, as the rights to fish in PNG are linked to onshore investment. The country is working towards processing all fish caught within its waters domestically and is expecting to see a continuous increase in the domestic tuna production.

2. Tabular Annual Fisheries Information

Table 1(a): Annual catch (mt) and effort estimates for the PNG tuna longline fleet by primary species for the WCPFC Convention Area for year 2015-2019. Source: SPC

Year		2015	2016	2017	2018	2019 (Provisional)
Effort (HHooks)		25,945	15,057	40,610	52,149	8,103
Tuna Catch (mt)	Albacore	345	80	689	196	686
	Bigeye	15	86	47	87	242
	Skipjack	1	2	2	2	26
	Yellowfin	891	728	1,249	2070	947
	Total Tuna	1,252	896	1,987	2355	1,900
Billfish Catch (mt)	Black Marlin	13	39	65	83	2
	Blue Marlin	11	44	13	40	44
	Striped Marlin	9		11	5	8
	Swordfish	2	6	6	21	12
	Total Billfish	35	89	95	149	66
Shark Catch (mt)	Blue Shark		1	3	22	
	Silky Shark					
	Hamerhead Sharks					
	Mako Shark			1	3	
	Oceanic White Tip	1				
	Thresher Sharks					
	Total Sharks	1	1	4	25	

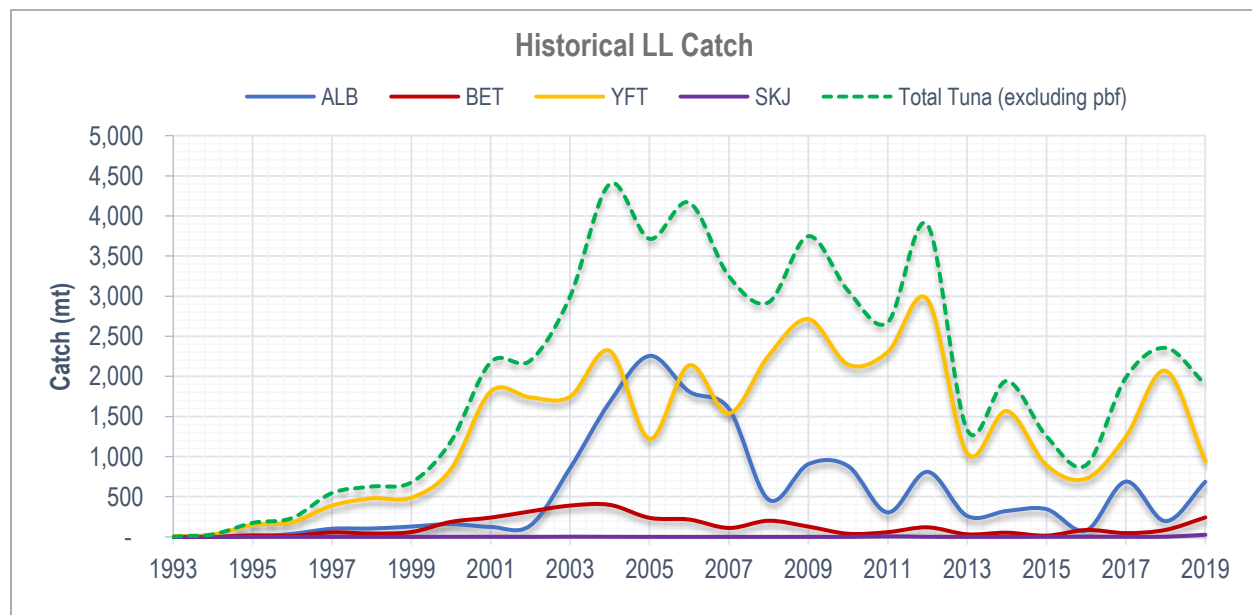


Figure 1 (a): Historical annual catch for the PNG longline fleet by primary species in the WCPFC Convention area.

Table 1(b): Annual catch and effort estimates for the PNG purse seine fleet by primary species for the WCPFC Convention Area for 2015-2019. Source: SPC

Year		2015	2016	2017	2018	2019
		(Provisional)				
Effort (Fishing Days)		5,629	5,484	6,992	7,647	9,640
Catch (mt)	Albacore		10	10	17	
	Bigeye	6,669	8,995	6,818	6,270	5,685
	Pacific Bluefin					
	Skipjack	159,528	198,387	189,286	217,746	215,276
	Yellowfin	48,315	80,694	106,377	87,482	43,105
	Total	220,141	293,570	309,453	319,005	264,066

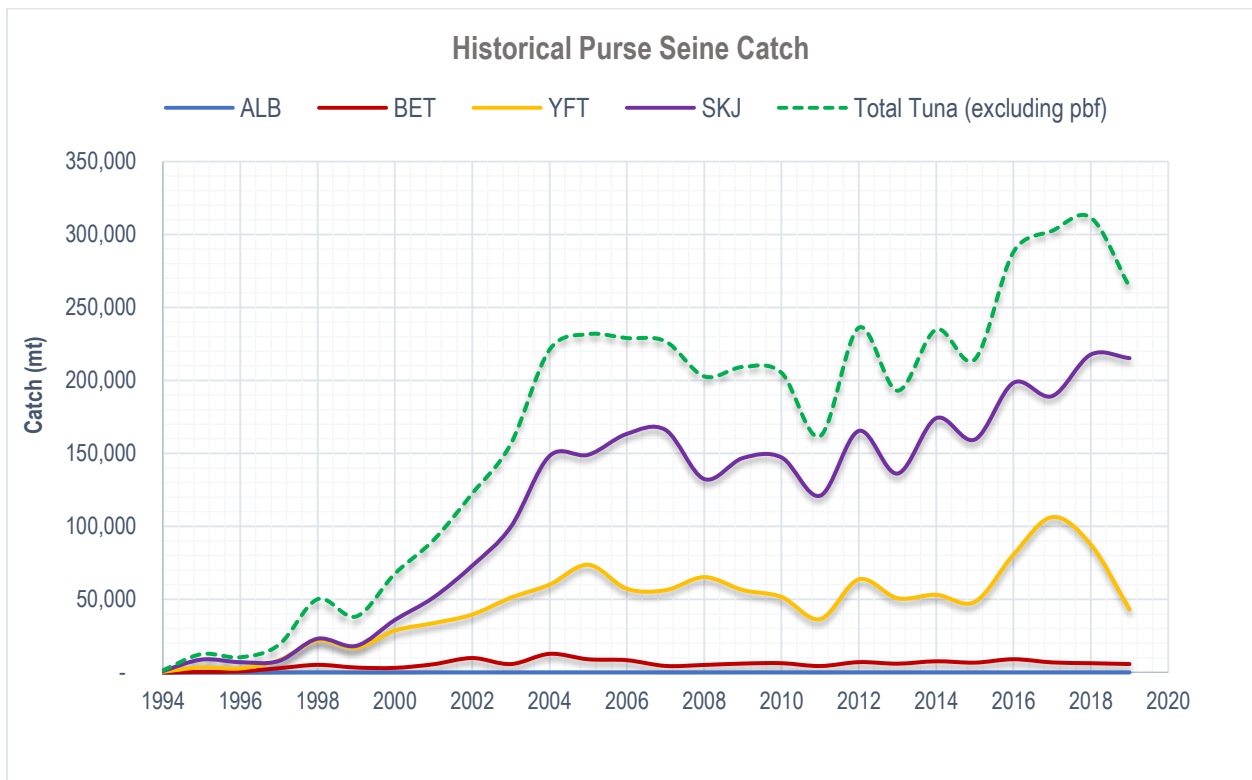


Figure 1 (b): Historical annual catch for the PNG purse seine fleet by primary species in the WCPFC Convention area.

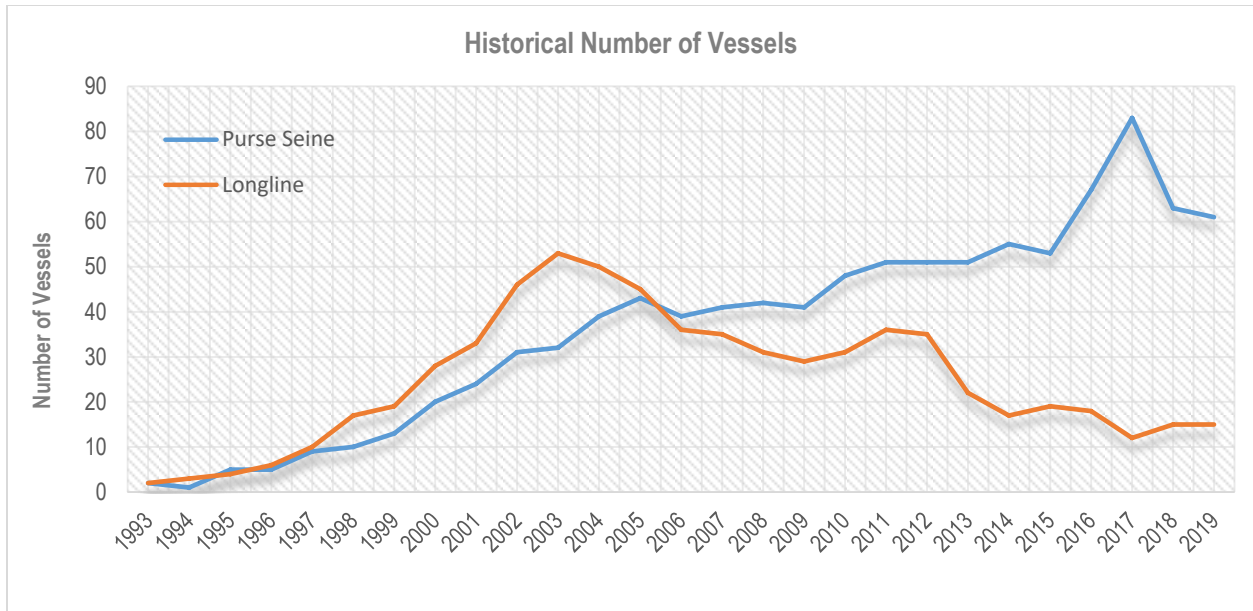


Figure 2: Historical annual vessel numbers for the PNG purse seine and longline fleet in the WCPFC Convention area.

Table 2(a). Number of PNG longline vessels by size category, active in the WCPFC Convention area for years 2015-2019.

Size class (GRT)	2015	2016	2017	2018	2019 (Provisional)
0-50	5	6	7	-	-
51-200	15	9	15	12	13
201-500	-	-	-	2	2
500+	-	-	-	-	-
Total	20	15	22	14	15

Table 2(b). Number of PNG purse seine vessels by size category, active in the WCPFC Convention area for years 2015- 2019

Size class (GRT)	2015	2016	2017	2018	2019 (Provisional)
0-500	3	7	7	4	5
501-1,000	8	14	14	10	12
1,001-1,500	30	37	37	33	37
1,500+	11	9	9	9	7
Unknown	1	-	-	-	-
Total	53	67	67	56	61

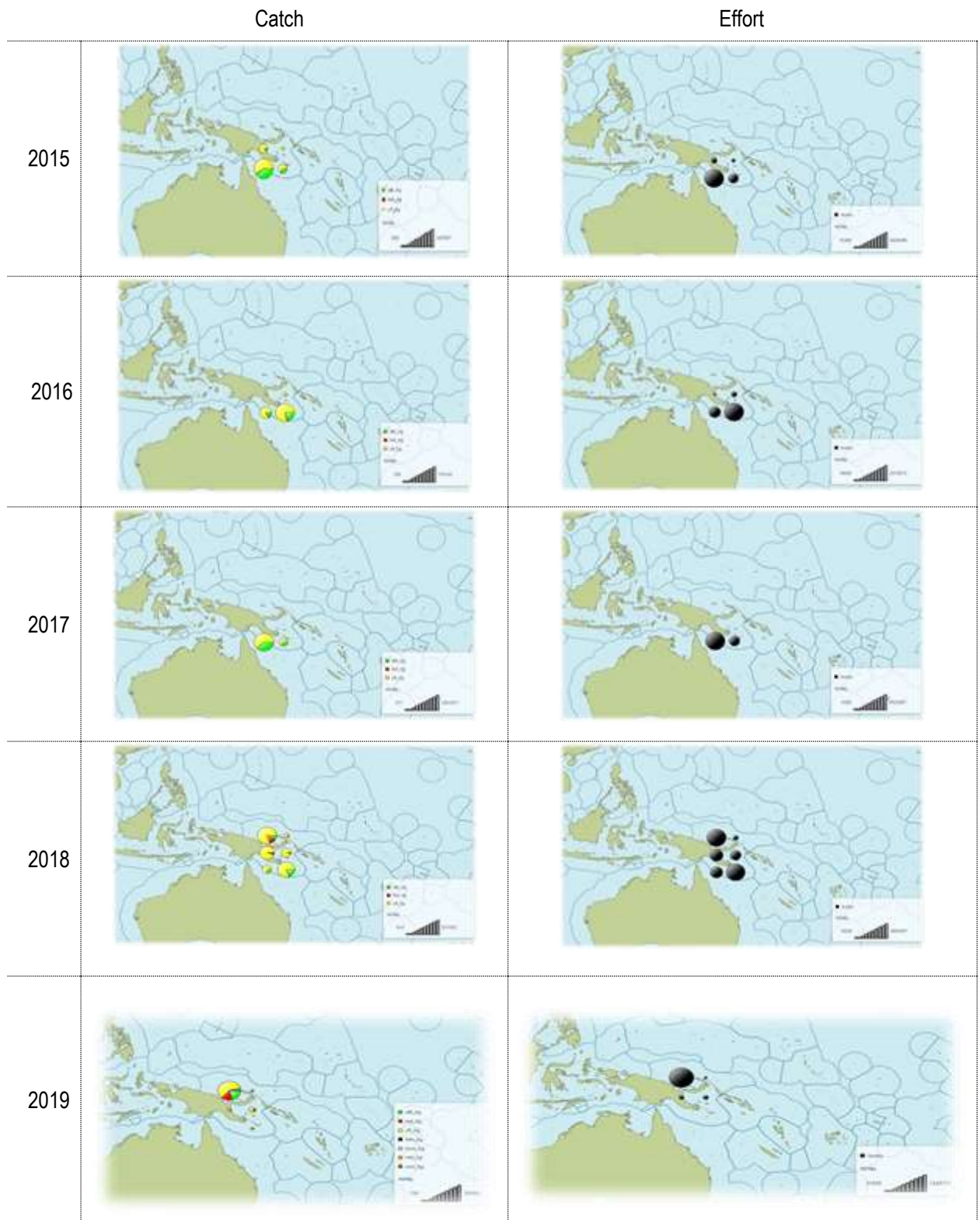


Figure 3(a). Annual distribution of target catch (ALB = “green”; BET = “red”; and YFT = “yellow”) and effort by the PNG longline fleet active in the WCPFC Convention area for year 2015-2019. Source: SPC

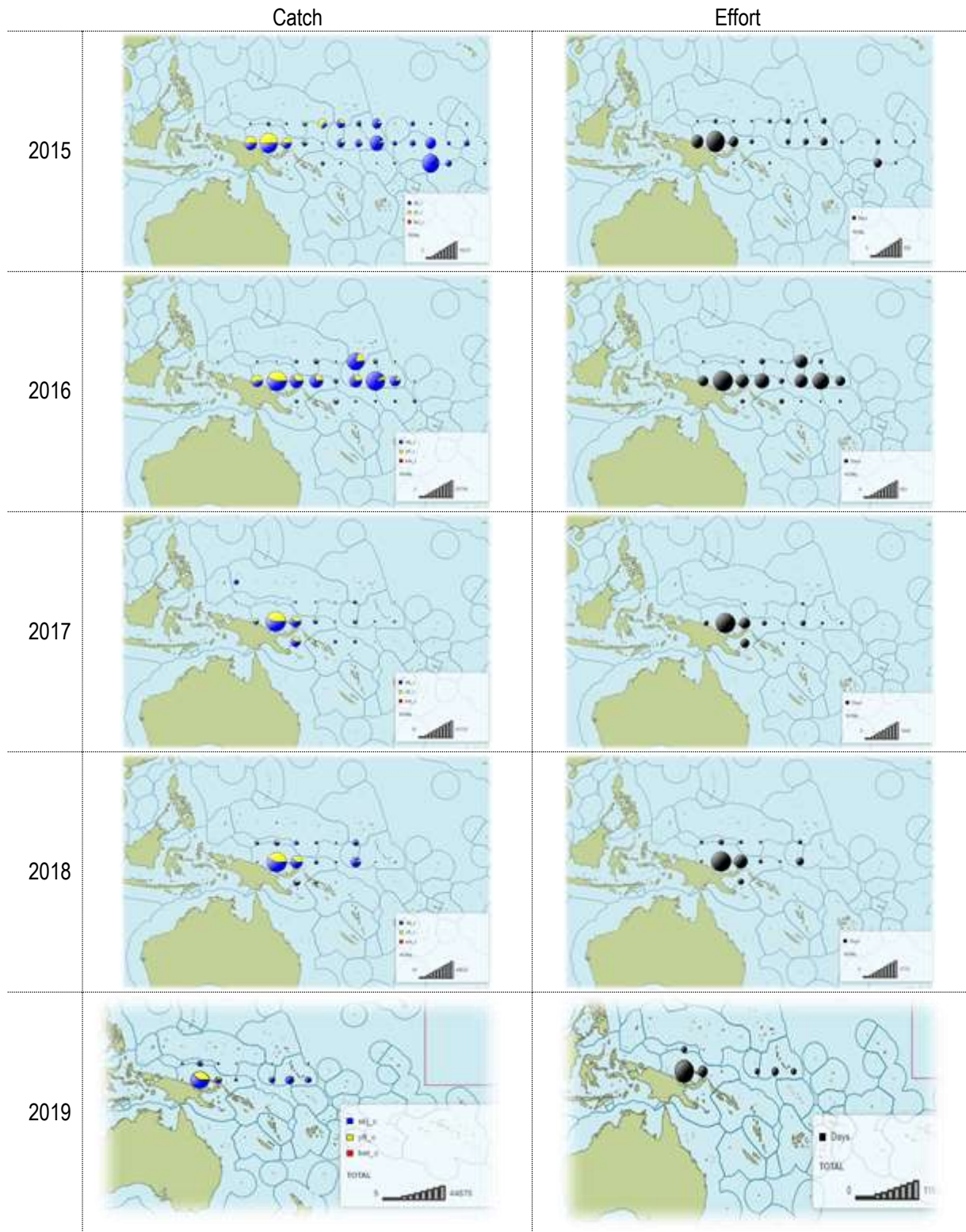


Figure 3(b). Annual distribution of target catch (SKJ = Blue; YFT = yellow; and BET = red) and effort by the PNG purse seine fleet active in the WCPFC Convention area for year 2015-2019. Source: SPC

Table 3. Observed annual estimated catches of species of special interest (seabirds, turtles and marine mammals) by PNG vessels, in the WCPFC Convention Area for years 2015-2019. Source SPC.

Species	Number of Individuals				
	2015	2016	2017	2018	2019
AQUATIC MAMMALS NEI					3
BALEEN WHALES NEI	2			3	2
BEAKED WHALES NEI		2	7	8	
BIRD (UNIDENTIFIED)					
BLACK-FOOTED ALBATROSS			30		
BLUE WHALE		1		1	2
BOOBIES AND GANNETS NEI			26		
BOTTLENOSE DOLPHIN		68	60	114	11
BRYDE'S WHALE	13	47	21	8	17
COMMON DOLPHIN		32	8		1
CUVIER'S BEAKED WHALE				1	
DOLPHINS NEI					
FALSE KILLER WHALE	292	411	324	167	55
FIN WHALE				5	
FLATBACK TURTLE	2		3	3	
GINKGO-TOOTHED BEAKED WHALE		2	2		
GREEN TURTLE	13	11	9	15	3
HAWKSBILL TURTLE	7	1	504	7	1
HUMPBACK WHALE					
INDO-PACIF. BOTTLENOSE DOLPHIN	3	35	23	8	4
LEATHERBACK TURTLE		3	2	1	
LOGGERHEAD TURTLE	6	4	4	10	
LONG-BEAKED COMMON DOLPHIN			7		
LONG-FINNED PILOT WHALE		3			
MELON-HEADED WHALE	9	13	11	1	
MINKE WHALE	5	5	1	1	
OLIVE RIDLEY TURTLE	16	10	9	10	6
PACIFIC WHITE-SIDED DOLPHIN		15			
PANTROPICAL SPOTTED DOLPHIN		-	13	5	4
PYGMY KILLER WHALE		11		6	
PYGMY SPERM WHALE				3	
RISSO'S DOLPHIN	4	16	82	7	3
ROUGH-TOOTHED DOLPHIN	95		11	8	
SEI WHALE	8	5	22	26	3
SHORT-FINNED PILOT WHALE	49	106	13	30	14
SPERM WHALE	1			2	
SPINNER DOLPHIN	10	8	48	28	

STRIPED DOLPHIN			5	75	4
WHALE SHARK	89	55	80	79	63
Grand Total	624	864	1325	632	195

Table 4(a). Annual estimated catches of non-target, associated and dependent species, including sharks, by the PNG purse seine vessels in the WCPFC Convention Area, for years 2015-2019.

Source: SPC

Species	Catch (mt)				
	2015	2016	2017	2018	2019
BALEEN WHALES NEI					20
BARRACUDAS NEI	0.1	0.1	0.1	0.1	
BATFISHES	0	0	0.1		
BIGEYE SCAD		0.2			
BIGEYE THRESHER SHARK			0.1		
BIGEYE TREVALLY	0	0.2	0	0.2	0.3
BIG-SCALE POMFRET			0.1		
BLACK MARLIN	8.9	6.2	12.2	8.2	15
BLACKTIP SHARK	0.2		0	1.9	
BLUE MARLIN	18.5	15.7	25	21.8	15.2
BLUE SEA CHUB		1.5	0	0.5	0
BLUE SHARK				0	
BLUE WHALE					9
BOTTLENOSE DOLPHIN	0.1			0.4	0
BRONZE WHALER SHARK		2.4	0.8	0.2	
BRYDE'S WHALE			0.1	0	11
BULL SHARK			0.2		
BULLET TUNA	7.3	0.6	1.8	11.3	0.1
COMMON DOLPHIN			0.2		0.8
COMMON DOLPHINFISH	11.7	4	8.1	7.9	4.4
DOLPHINS NEI	0.6	0.1	0.1		0.1
EASTERN PACIFIC BONITO		2.7	2.1	18.4	30.3
FALSE KILLER WHALE	0.4	0.1	0.4	5.5	10.1
FRIGATE TUNA	11.1	3.3	4.4	34.7	4.5
GIANT MANTA	4.1	3.5	5.5	28.1	12.9
GOLDEN TREVALLY		0	0.2	0	
GREAT BARRACUDA	0.6	0.6	1.7	0.5	0.2
GREAT HAMMERHEAD	1		0.1	0.1	0.1
GREEN TURTLE			0	0.1	0
GREY REEF SHARK		0	0.1		
HAWKSBILL TURTLE	0	0	0	0.1	0

INDO-PACIF. BOTTLENOSE DOLPHIN	0.2			0.1	0
INDO-PACIFIC SAILFISH	0.1	0.6	1.1	0.8	0.1
KAWAKAWA	0.1	0.8	3.9	3	1.5
LEATHERBACK TURTLE		0.1		0	
LOGGERHEAD TURTLE			0.1	0.1	0.1
LONG-BEAKED COMMON DOLPHIN					0
LONGFIN BATFISH		0.1	0	0.1	0
MACKEREL SCAD	32	95.8	54.7	44.2	16.1
MACKERELS NEI					
MANTAS DEVIL RAYS NEI	1.3	1.5	3.5	3.5	4
MARINE TURTLES NEI	0	0.1	0		
MELON-HEADED WHALE			0.5		
MINKE WHALE					3
MOBULA	1.2	2	5.1	10.3	5.3
OCEAN SUNFISH	0.4	0.1	0.1	0.1	0.1
OCEAN TRIGGERFISH (SPOTTED)	3.8	19.6	22.7	12.4	6.8
OCEANIC WHITETIP SHARK	0.1	2	0.4	1.6	0.9
OILFISH		0.5			
OLIVE RIDLEY TURTLE					0
OTHER FISH	187.3	78.7	15.9	3.9	1.3
PANTROPICAL SPOTTED DOLPHIN		0.1			
PELAGIC STINGRAY	0.1	0.3	0.2	0	0
PELAGIC THRESHER SHARK			0.1	0	
PICKHANDLE BARRACUDA					0
PYGMY KILLER WHALE			0.5		
RAINBOW RUNNER	105.9	273.3	91	92.5	54.9
ROUGH-TOOTHED DOLPHIN	0.6			0.2	
SEI WHALE					0.5
SHARKS RAYS SKATES ETC. NEI				0.1	
SHARKS (UNIDENTIFIED)	8.8		1	2.1	0.4
SHARPTAIL MOLA	0.1	0	0.2	0.1	
SHORTBILL SPEARFISH	0.1	0.1	0.1		0.1
SILKY SHARK	69.9	127.6	309.5	342.7	449.5
SILVERTIP SHARK		0.1		0	
SLENDER SUNFISH	0.1	0.1	0		
STINGRAYS BUTTERFLY RAYS NEI			0	0	0.1
STRIPED MARLIN	1.8	0.7	0.7	1.8	0.5
SWORDFISH	0	1.2	0.3	0.1	0.3
TIGER SHARK				0.6	
TRIGGERFISHES DURGONS NEI	7.5	16.2	4.1	3.3	4
TUNAS NEI	346.2	243.2	332.5	202.4	8

UNICORN LEATHERJACKET FILEFISH	0		0.1	0.2	0
UNSPECIFIED	1	0.1	2	2.1	
WAHOO	0.4	0.9	2.6	1.4	0.1
WHALE (UNIDENTIFIED)	1.2	2	0.3	20	
WHALE SHARK	60.3	3.2	56.8	89.9	171.1
Total	895.1	912.2	973.4	979.6	862.7

Table 4(b). Annual estimated catches of non-target, associated and dependent species, including sharks, by the PNG longline vessels in the WCPFC Convention Area, for years 2015-2019. Source: SPC

Species	2015	2016	2017	2018	2019
BARRACUDAS NEI	2.771	0.444	2.868	3.798	
BLACK MARLIN					0.78
BLUE MARLIN					9.733
BLUE SHARK					6.831
COMMON DOLPHINFISH	0.855	0.008	0.944	0.824	0.436
INDO-PACIFIC SAILFISH	10.253	8.405	25.994	30.719	2.774
MACKEREL SCAD	0.086				
MACKERELS NEI	0.081	0.099			
MAKO SHARKS					1.954
MOONFISH			0.293	0.188	
OILFISH	5.125	7.612	12.162	16.126	1.579
OPAH	2.463	2.516	5.239	1.442	4.766
OTHER FISH	0.016			5.297	0.054
PORBEAGLE SHARK	0.01				
SHARKS (UNIDENTIFIED)	4.412	0.121	0.425		
SHORTBILL SPEARFISH	1.377				
SILKY SHARK					
STRIPED MARLIN					1.971
SWORDFISH					5.506
UNSPECIFIED	0.153		0.02		
WAHOO	13.412	29.077	52.361	32.023	1.485
Total	41.014	48.282	100.306	90.417	37.869

Table 5. Estimated annual coverage of operational catch/effort, observer and port sampling data for the PNG vessels by gear, active in the WCPFC Convention Area, for years 2015-2019. Source: SPC & NFA.

Year	Gear	Logsheets Coverage	Observer Coverage		Port Sampling Coverage
			Trip	Days	
2015	LL	100%	0%	0%	0%

	PS	76%	81%	67%	≈ 20%
2016	LL	100%	12%	19%	0%
	PS	77%	88%	65%	≈ 20%
2017	LL	100%	0%	0%	0%
	PS	79%	98%	45%	≈ 20%
2018	LL	100%	8%	16%	0%
	PS	80%	90%	87%	≈ 20%
2019 (provisional)	LL	100%	4%	1%	0%
	PS	56%	34%	30%	0%

3. Background

Tuna in the Papua New Guinea (PNG) national waters are caught by two main fishing methods, namely purse-seine and longline. Most of the catch (99%) is attributed to the purse-seine fishery. Purse-seining started in PNG waters in the early 1980s and has since intensified, with the 2010 catch being the highest on record at 702,969 mt. The longline fishery started even earlier than the purse-seine fishery, originally by foreign fleets under access arrangements. But in the mid-1990s, a policy on domestication enabled the longline fishery to be a national activity only, hence doing away with access by foreign fleets. However, in 2015, under a trial longline fishery arrangement to determine longline catch rate, a total of 5 foreign flag ultra-low longline vessels were given access to PNG waters.

The tuna fishery in PNG represents a balance of both domestic industry development and foreign distant water fishing nations (DWFN) access agreements. Domestic industry development is pursued by using a model whereby a fishing licence is granted on the condition that the vessels catch fish for processing facilities in-country. Vessels under this scheme are either re-flagged to PNG or are given incentives by way of reduced licence fees and allowing them to fish within archipelagic waters (AW) or sponsoring them to fish under the Federated States of Micronesia Arrangement (FSMA).

The fishery is guided by the National Tuna Fishery Management and Development Plan (NTFMDP) which establishes an overall management structure, and an application framework for all tuna fisheries. This include catch and effort controls, gear restrictions, the use of Fish Aggregating Devices (FAD) and other management tools for the purpose of tuna resource conservation and management as well as combating illegal, unregulated and unreported fishing activities (IUU). The plan is updated where necessary to conform to the country's development plans as well as regional and international obligations and agreements.

The purse-seine fishery operates within the guidelines of important regional and sub-regional arrangements such as the Parties to the Nauru Agreement (PNA), whose requirements are incorporated in the National Tuna Management and Development Plan.

4. Flag State Reporting

This section reports activities by the national fleet in waters of the Western and Central Pacific Fisheries Commission (WCPFC) convention area including PNG's Exclusive Economic Zone (EEZ). The national fleet comprises of longline and purse seine vessels which includes vessels under charter arrangements with domestic companies.

4.1 Domestic Tuna Longline

The target catches by domestic tuna longline vessels are dominated by yellowfin tuna followed by albacore and bigeye. Since the introduction of the domestication policy in the mid 90's, catches have generally been increasing with the highest estimated catch of bigeye tuna of around 400 mt observed in 2004; highest estimated catch of albacore of 2,256 mt was observed in 2005; and yellowfin with 2,961 mt observed in 2012 (*Figure 1a*). Decline in overall catches was related to vessels pulling out of the fishery from 53 active vessels in 2003 to 22 vessels in 2013 (*Figure 2*). This was due to the high cost of operation since most of the vessels' operations were engaged to supplying the Japanese Sashimi market through airfreighted exports.

PNG still maintains a small number of active national longline fleet operating exclusively in the PNG waters. In 2019, the estimated catch of yellowfin was 947 mt, a decrease of 1,123 mt from the 2018 catch estimate of 2070 mt. The 2019 catch estimate of bigeye tuna was recorded at 242 mt, an increase of 155 mt from the 2018 catch estimate of 87 mt. Estimated catch of albacore tuna in 2019 was 686 mt, an increase of 490 mt from the 2018 catch estimate of 196 mt. Total estimated catch of primary billfish species (black marlin, blue marlin, striped marlin and swordfish) in 2019 was 66 mt while primary shark species landed was 0 mt (*Table 1a*). Billfishes and sharks are caught by the tuna longline fishery as bycatch.

Catch and effort by the national longline fleet were distributed mostly to the south of the EEZ to waters below south of 10°S before 2018. This was mainly due to operational reasons where the few longline companies operating out of Port Moresby and targeting the desired fishing grounds in the south. However, this trend of catch and effort distribution changed in 2018 and 2019 as catch and effort shifted towards the northern part of the country when six (6) foreign flag longline vessels were given access to the PNG waters through domestic charter arrangement. (*Figure 3a*).

4.2 Purse Seine

PNG manages a purse seine fleet made up of two categories; Domestic PNG flagged vessels and Locally-Based Foreign (LBF). LBF vessels are foreign flagged and whose activities are governed under charter arrangements with locally based companies. These vessels support onshore processing plants in the country.

Catches comprise mostly of skipjack with the highest composition, followed by yellowfin and bigeye tuna. Although, skipjack is the main target species in this fishery, yellowfin and bigeye are also commercially important. Catches by the PNG domestic fleet have generally been increasing (*Figure 1b*) as the number of vessels associated to onshore processors increased (*Figure 2*). In 2019 a total catch estimate of 215,276 mt of skipjack, 43,105 mt of yellowfin and 5,685 mt of bigeye tuna was caught in the WCPFC convention area (*Table 1b*).

PNG purse seine vessels fish in the PNG waters as well as waters of other PNA member countries under the FSM Arrangement. During the peak El Nino condition in late 2015 to early 2016, vessels activities moved to more favorable fishing grounds towards the East as observed in the annual distribution of catch and effort in *Figure 3(b)*.

5. Coastal State Reporting

This section reports on activities in the national waters by foreign fleets which comprise of tuna purse seine vessels and the recently introduced foreign longline vessels. Activities of the now banned domestic shark longline fishery and a very small handline fishery are also reported in this section since all their activities are inside PNG waters.

5.1 Purse Seine - Foreign Vessels

Foreign purse seine vessels that fish in PNG waters are licensed under the conditions of access agreements between PNG and their company, fishing association or home party state and also include foreign vessels fishing under the terms of the US Treaty and FSM Arrangement. In the last five years, catches by foreign vessels fishing in PNG waters has averaged around 98,148 mt. Table 6 shows the annual catch and effort estimates for the years 2015-2019.

Table 6: Catch and effort estimates for foreign purse seiners fishing in PNG waters from 2015-2019.

Year	Fishing Days	Catch (mt) / Species			
		SKJ	YFT	BET	Total
2015	3,219	49,827	23,872	1,884	75,583
2016	3,201	75,173	26,840	1,436	103,449
2017	3,647	85,645	30,597	1,636	117,878
2018	3,337	78,257	16,389	1,036.36	95,682
2019 (provisional)	3,491	55,098	11,000	755	66,853
Average	3,379	68,800	21,740	1,349	98,148

5.2 Shark Longline

The shark longline fishery was managed under a separate management plan from the tuna longline fishery. The fishery was limited to 9 vessels, setting 1,200 hooks per day with a total

allowable catch of 2,000 mt dressed weight per year. All vessels in this fishery fished only in PNG waters.

The shark fishery was closed in the first quarter of 2014 in response to the CMM 2011-04 and CMM 2013-08 which prohibited landings of Oceanic White-Tip and Silky Shark respectively. Figure 4a and 4b shows the recorded catch, number of vessels and effort (hundred hooks) since 2009. Considerable amount of tuna (mainly yellowfin) and billfishes are also caught in this fishery as bycatch. The average estimated catch in 2010-2015 was 1,344.26 mt with 1,011.47 mt being shark catches alone (*Table 7*).

Table 7: Annual catch estimates (mt) of shark species and effort estimate (hundred hooks) for PNG domestic shark longline fleet in waters under national jurisdiction. Data source: NFA.

Year		2010	2011	2012	2013	2014	Average
Effort (HHooks)		22,790	27,934	20,817	16,367	6,129	18,808
Catch (mt)	Blacktip Shark	18.93	2.81	1.31	5.59	7.45	9.22
	Blacktipped Reef Shark	19.75	43.98	36.53	11.17	12.79	24.85
	Blue Shark	10.21	18.93	16.08	16.59	9.38	14.24
	Galapagos Shark	0.99	0.29	0.06	2.89	2.69	1.38
	Grey Reef Shark	23.87	8.42	2.59	4.68	2.1	8.33
	Hammerhead Shark	39.15	22.34	18.64	31.06	15.09	25.26
	Oceanic White Tip	12.9	7.15	3.74	7.42	7.66	7.77
	Silky Shark	907.26	1,292.90	902.46	796.12	399.27	859.6
	Silvertip Shark	6.37	0.45	0.39	0.38	0.3	1.58
	Tiger Shark	8.76	2.15	1.21	2.16	0.16	2.89
	Shark Unidentified	71.72	80.25	52.65	54.61	22.6	56.37
	SHARK TOTAL	1,119.90	1,479.66	1,045.64	932.65	479.48	1,011.47
	Albacore	1.46	7.32	9.68	1.37	0.23	4.01
	Bigeye	3.66	2.37	10.69	18.96	15.56	10.25
	Yellowfin	140.03	173.98	205.34	112.84	25.58	131.55
	Black Marlin	10.85	4.38	3.51	9.12	2.79	6.13
	Blue Marlin	53.92	113.04	65.63	64.83	16.32	62.75
	Sailfish	43.85	65.9	35.16	28.69	9.98	36.72
	Striped Marlin	0.99	1.23	1.69	1.13	0.65	1.14
	Swordfish	49.3	77.57	86.61	56.39	21.71	58.31
Other	36.75	21.79	20.53	26.37	4.28	21.94	
OVERALL TOTAL	1,460.72	1,947.22	1,484.46	1,252.35	576.57	1,344.26	

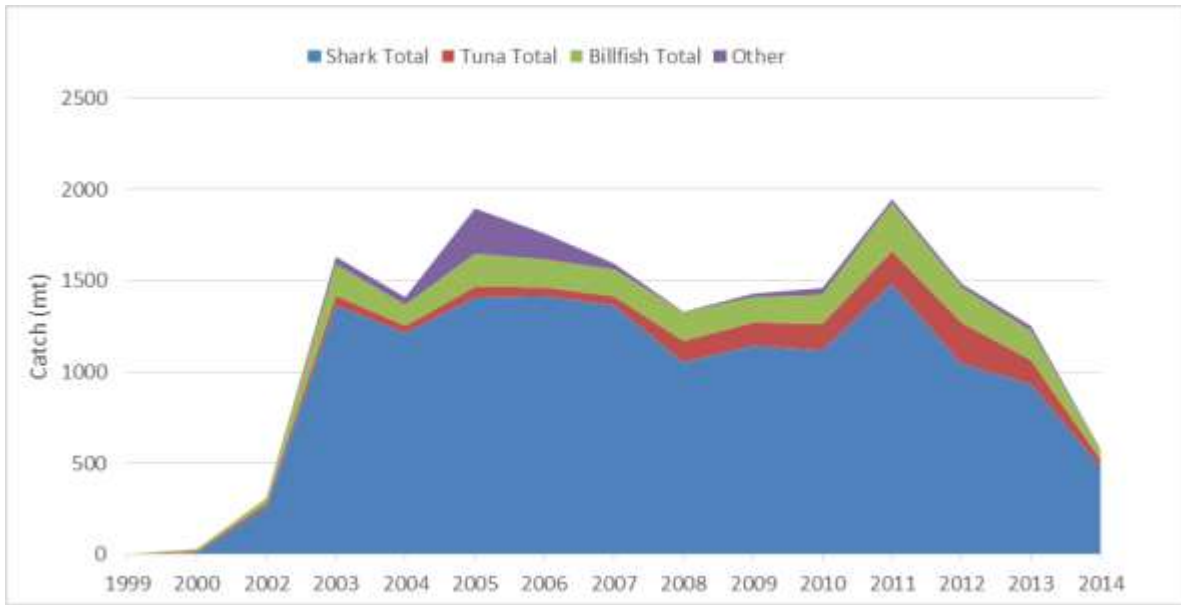


Figure 4a: Catch estimate by shark longline vessels. Data source: NFA

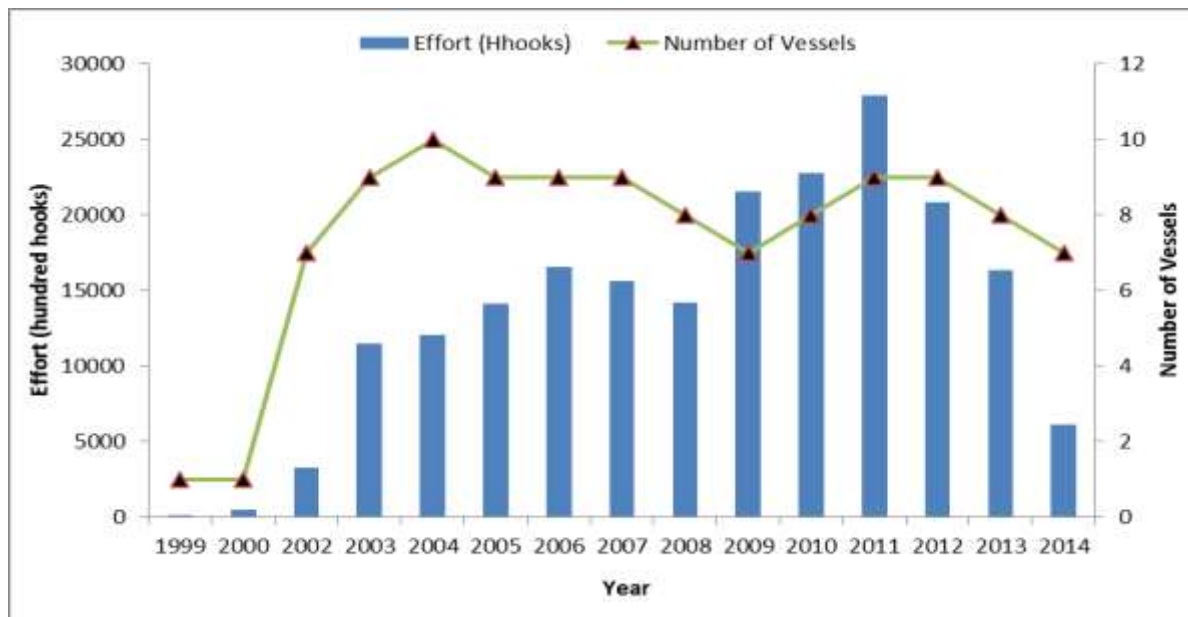


Figure 4b: Effort estimates (hhooks) and the number of shark longline vessels. Data source: NFA

5.3 Handline

Since the trial of handline fishery in 2005, the number of pumpboats reduced from 10 to 5 vessels in 2009. Although there was some growth potential for this fishery, most of the vessels failed to continue fishing mainly due to lack of proper business management, and the high operational cost for artisanal operators during its inception. The vessels were solely owned and

operated by local fishermen. Catch by these vessels, which do not normally exceed 10 mt (estimate) per year, were sold to processing companies as well as local supermarkets. There are no pumpboats operating in PNG at the moment.

6. Socio – Economic

Papua New Guinea is focused on building its domestic tuna industry to an extent where the generated revenue can offset that currently obtained from bilateral access fees. The government's main objective is to maximize the benefits from tuna resource to citizens and promote the involvement of nationals in the industry. The government had realized that adding value to the tuna resources is one of the ingredients in encouraging positive growth in the domestic tuna industry, increase in employment opportunities, increased foreign exchange earnings for the country, and increase direct and indirect spin-off benefits among other benefits. Currently, the industry supports around 7,000 people in direct employment and almost 2,000 indirect employments in the country of over 8 million people. New commitments and investments would triple these figures.

7. Exports

The quantity of processed products exported from the domestic industry has been steadily increasing since the 90's to over 100,000 mt commencing 2012. The highest quantity exported stood at around 200,000 mt in 2014, earning revenue of about USD 440 million. The production dropped in 2015 to 100, 000 mt due to decreased catch in the national waters as a result of the El Nino southern oscillation effect, however production picked up again in 2016 at around 170, 000 mt. In 2019 about 190, 000 mt of processed tuna products were exported, earning total revenue of around USD 398 million (*Figure 6a*). This growth is in line with the country's industry development aspirations.

Most of the export products are canned and processed frozen tuna (*Figure 6b*). The quantity of canned tuna exports have been increasing with more fish processed onshore and the trend is likely to continue as more processing facilities are developed in the country.

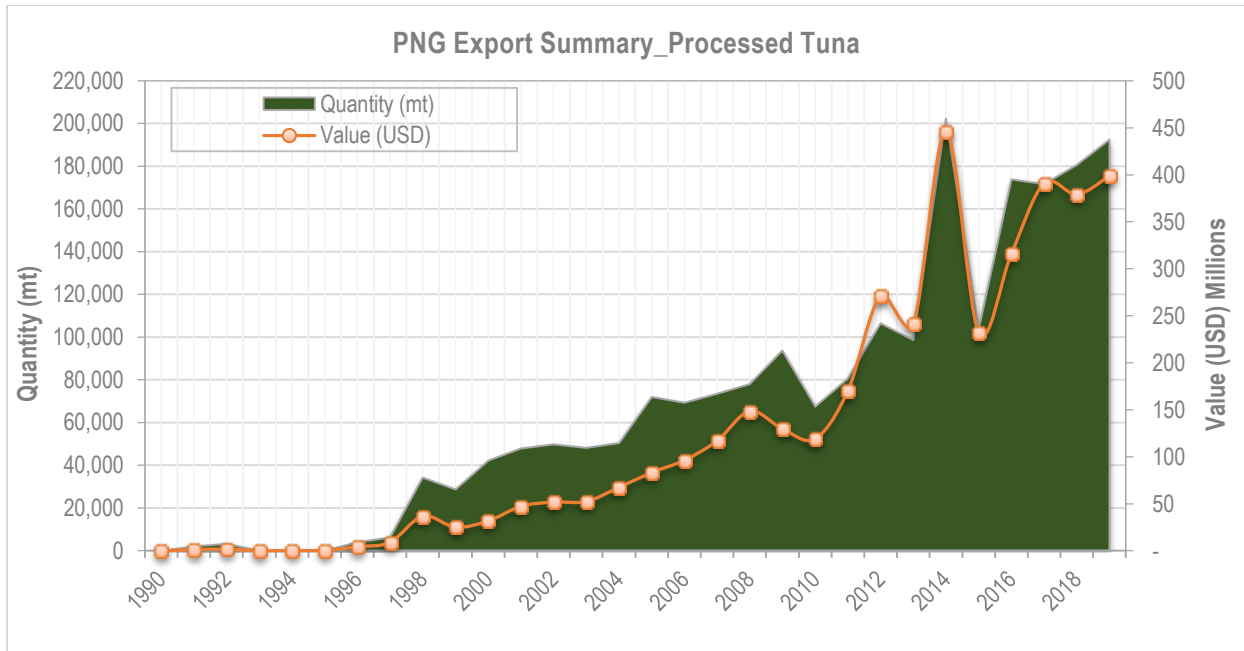


Figure 6a: Quantity (mt) and value (USD) of processed tuna export products by domestic companies. Data source: NFA

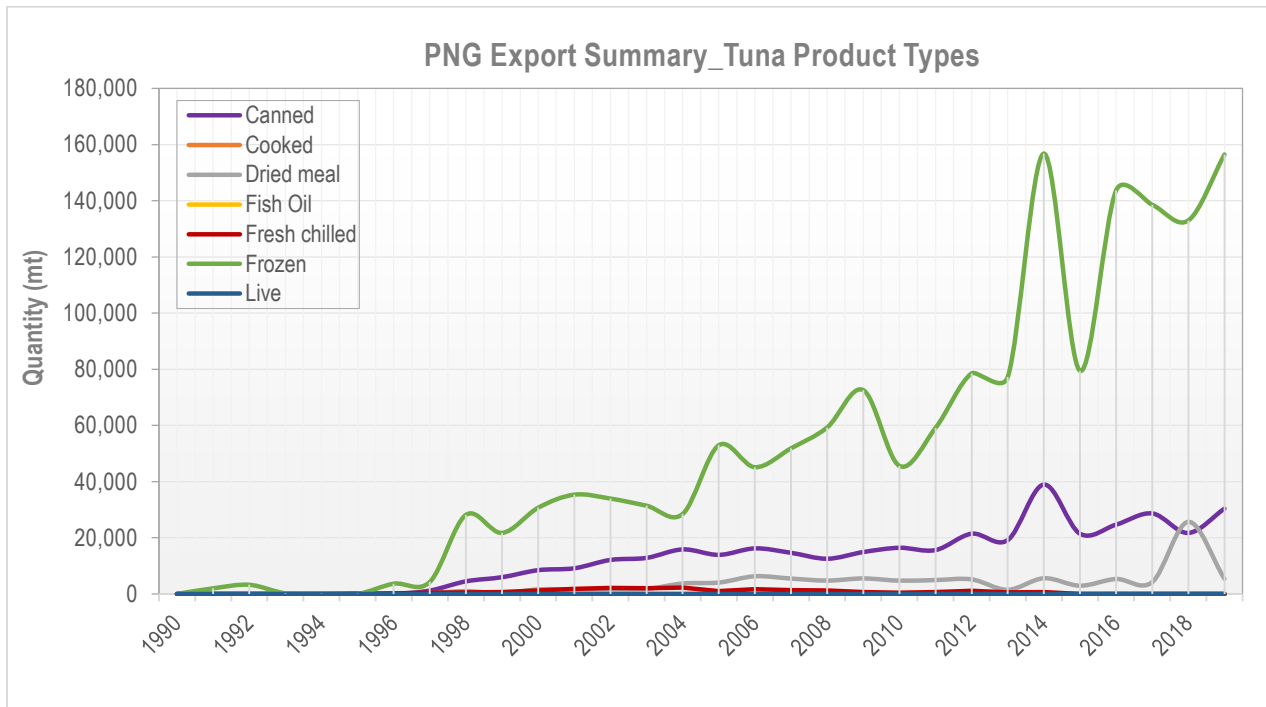


Figure 6b: Quantity of exports by processed product type. Data source: NFA

ADDENDUM – CMM REPORTING

Specific information as required by CMMs.

<p>CMM 2019-03 [North Pacific Albacore], Para 3</p>	<p>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.</p> <p>Annex 1: Annex 1: 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</p> <table border="1" data-bbox="468 760 1436 870"> <thead> <tr> <th rowspan="2">CCM</th> <th rowspan="2">Area¹</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> </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> </tr> </thead> <tbody> <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> </tr> </tbody> </table> <p><i>* Note: WCPFC10 clarified that this reporting responsibility lies with the flag State</i></p>	CCM	Area ¹	Fishery	2002-04 Average		Year		Year		Year		Year		Year		No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days																<p>There were no catch and effort directed at albacore north of the equator by PNG vessels in 2019.</p>
CCM	Area ¹				Fishery	2002-04 Average		Year		Year		Year		Year		Year																												
		No. of vessels	Vessel days	No. of vessels		Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days	No. of vessels	Vessel days																														
<p>CMM 2006-04 [South West striped Marlin], Para 4</p>	<p>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.</p>	<p>Not applicable. There were no PNG flagged vessels fishing at 15°S.</p>																																										
<p>CMM 2009-03 [Swordfish], Para 8</p>	<p>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</p>	<p>Not applicable. There were no PNG flagged vessels fishing south of 20°S.</p>																																										

	<p>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 1 of each CCM’s annual report. Initially, this information will be provided in the template provided at Annex 2 for the period 2000-2009 and then updated annually.</p> <p><i>*Note: WCPFC11 confirmed a common understanding that “total catch” in this reporting requirement refers to both targeted and bycatch catches of swordfish.</i></p>	
<p>CMM 2009-06 [Transshipment], Para 11 (ANNEX II)</p>	<p>CCMs shall report on all transshipment activities covered by this Measure (including transshipment 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 transshipment using all available information such as catch and effort data, position data, observer reports and port monitoring data.</p> <p>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).</p> <p>Annex 3 of RP03: Transshipment 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.</p> <p>Each CCM shall include in Part 1 of its Annual Report to the Commission:</p> <p>(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:</p>	<p>There had been reports of Transshipment and unloading activities by PNG National Fleet inside the Convention Area in 2019. Refer to Table A1 & A2.</p>

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;	e) Species	f) Product Form	g) Fishing gear
offloaded						
received						

(2) the **number of transshipments** 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	e) fishing gear
offloaded				
received				

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

	<p>measure that were transshipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by:</p> <ol style="list-style-type: none"> a. offloaded and received; b. transshipped in port, transshipped at sea in areas of national jurisdiction, and transshipped beyond areas of national jurisdiction; c. transshipped 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 <p>(2) the number of transshipments involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by:</p> <ol style="list-style-type: none"> a. offloaded and received; b. transshipped in port, transshipped at sea in areas of national jurisdiction, and transshipped beyond areas of national jurisdiction; c. transshipped inside the Convention Area and transshipped outside the Convention Area; d. caught inside the Convention Area and caught outside the Convention Area; and e. fishing gear. 	
<p>CMM 2010-07 [Sharks], Para 4</p>	<p>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 <u>annual retained and discarded catches in Part 2</u> 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).</p> <p>*footnote 2: The key shark species are blue shark, silky shark, oceanic whitetip</p>	<p>A total of 7 confirmed species of sharks had been estimated to be caught by PNG National Fleet in 2019. Refer to Table A3 for more information.</p>

	<p>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).</p> <p><i>*Note; Whale Sharks (<i>Rhincodon typus</i>) was included as a key shark species by WCPFC9 (2012)</i></p>	
<p>CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5</p>	<p>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 2(b).</p>	<p>A total of 73 counts of cetaceans from 11 species had been reported as either interacted or landed in purse seine fishing operation in 2019. Refer to Table A4 for more information.</p>
<p>CMM 2011-04 [Oceanic whitetip sharks], Para 3</p>	<p>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.</p>	<p>A total of 18 oceanic whitetip sharks were discarded alive, 6 discarded dead while 40 discarded with conditions unknown. Refer to Table A5 for more information.</p>
<p>CMM 2012-04 [Whale sharks], Para 06</p>	<p>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).</p>	<p>A total of 45 whale sharks reported as interacted or landed by PNG fleet in 2019. Refer to Table A6 for more information.</p>
<p>CMM 2013-08 [Silky sharks], Para 3</p>	<p>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.</p>	<p>A total of 840 silky sharks had been recorded as discarded either dead or alive by PNG fleet in 2019. Refer to Table A7 for more information.</p>

<p>Observer coverage (WCPFC 11 decision – para 484(b))</p>	<p>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.</p> <p>A sample report format is provided as guidance to assist CCMs with reporting (WCPFC11 Summary Report Attachment L Table 4)</p> <table border="1" data-bbox="485 456 1430 532"> <thead> <tr> <th rowspan="2">CCM Year</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 Trawl</th> <th rowspan="2">See NOTES</th> </tr> <tr> <th>Total estimated</th> <th>Observed</th> <th>%</th> <th>Total estimated</th> <th>Observed</th> <th>%</th> <th>Total estimated</th> <th>Observed</th> <th>%</th> <th>Total estimated</th> <th>Observed</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>REPUBLIC OF KOREA</td> <td>Distant-water</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>23,652</td> <td>1,575</td> <td>6.8 %</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	CCM Year	Fishery	No. of Hooks			Days Fished			Days at Sea			No. of Trawl			See NOTES	Total estimated	Observed	%	Total estimated	Observed	%	Total estimated	Observed	%	Total estimated	Observed	%	REPUBLIC OF KOREA	Distant-water							23,652	1,575	6.8 %					<p>Activities of the PNG longline vessels is exclusive to national waters, therefore no ROP trips were done.</p>
CCM Year	Fishery			No. of Hooks			Days Fished			Days at Sea			No. of Trawl				See NOTES																											
		Total estimated	Observed	%	Total estimated	Observed	%	Total estimated	Observed	%	Total estimated	Observed	%																															
REPUBLIC OF KOREA	Distant-water							23,652	1,575	6.8 %																																		
<p>CMM 2015-02 [South Pacific Albacore] Para 4</p>	<p>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.</p>	<p>Not applicable. There were no PNG flag vessels fishing south of 20° during the period 2006 to 2019.</p>																																										
<p>CMM 2018-03 [Seabirds] Para 13</p>	<p>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:</p> <ol style="list-style-type: none"> 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. 	<p>There were no reports of sea bird interactions with the PNG national longline vessels in 2019. Refer to Table A8 for more information.</p>																																										

Table A1. Estimated quantity (mt) of tuna transshipped by National Fleet in 2019. Report from Catch Documentation Scheme (CDS).

a) Offloaded and received;	b) Transshipped in domestic port (quantity in metric tons)	c) Transshipped in pacific island port inside the Convention Area (quantity in metric tons);	d) Tuna caught inside the Convention Area	e) Species	f) Product Form	g) Fishing gear
offloaded	119,556.53	12,066.92	Reefer to Table 1b	SKJ	Frozen	PS
	42,464.74	1,579.50	Reefer to Table 1b	YFT	Frozen	PS
	517.11	16	Reefer to Table 1b	BET	Frozen	PS

Note: There was no record of LL transshipment in 2019

Table A2. Estimated number of transshipments by PNG National Fleet in 2019. Report from Catch Documents Scheme (CDS).

Offloaded	No. of transshipment in domestic port	No. of transshipped in pacific island country ports inside the convention area	Caught inside the convention area	Fishing gear
Offloaded	302	16	Refer to Table 1b	PS
Offloaded	-	-	-	LL

Table A3. Estimates of shark catches by PNG National Fleet by gear and species in 2019. Report from Observer data.

Gear	Species	Number	Retained	Discarded	Finned and trunk Retained	Finned but Trunk Discarded
S	GALAPAGOS SHARK	1	0	1	0	0
S	GREAT HAMMERHEAD	1	0	1	0	0
S	LONGFIN MAKO	1	0	1	0	0
S	OCEANIC WHITETIP SHARK	64	0	61	0	0
S	SCALLOPED HAMMERHEAD	1	0	1	0	0
S	SILKY SHARK	6597	0	6595	0	0
S	WHALE SHARK	53	0	49	0	0
L	VARIOUS SHARKS NEI	30	0	30	0	0

Table A4. Estimated number and species of cetacean interacted with purse seine gear in 2019. Report from observer data.

Gear	Flag	Species	Date	Latitude	Longitude	EEZ	FATE	Interaction desc	Type	# of Individuals
S	PG	BLUE WHALE	02-03-19	0056.951S	16749.341E	NR	DPA	Broke through net	INTERACTION	1
S	PG	BOTTLENOSE DOLPHIN	04-03-19	0056.652S	16803.029E	NR	DPD	Crew released from net	INTERACTION	4
S	PG	BOTTLENOSE DOLPHIN	19-02-19	0151.681S	17043.332E	GL	DPD	Crew released from net	INTERACTION	5
S	PG	BRYDE'S WHALE	01-09-19	0021.906S	14921.648E	PG	DPA	Crew released from net	INTERACTION	1
S	PG	BRYDE'S WHALE	02-09-19	0038.194S	14918.287E	PG	DPA	Crew released from net	INTERACTION	2
S	PG	BRYDE'S WHALE	18-11-19	0200.165S	17325.396E	GL	DPA	Broke through net	INTERACTION	4
S	PG	BRYDE'S WHALE	20-11-19	0230.991S	17323.437E	GL	DPA	Jump out over net	INTERACTION	1
S	PG	COMMON DOLPHIN	10-03-19	0218.740S	16757.645E	NR	DPA	Crew released from net	INTERACTION	1
S	PG	FALSE KILLER WHALE	02-09-19	0036.389S	14904.210E	PG	DPA	Other	INTERACTION	3
S	PG	FALSE KILLER WHALE	06-02-19	0210.696S	16044.121E	PG	DPA	Other	INTERACTION	6
S	PG	FALSE KILLER WHALE	08-02-19	0228.196S	15955.938E	PG	DPA	Other	INTERACTION	3
S	PG	FALSE KILLER WHALE	10-07-19	0013.720N	14636.481E	PG	DPD	Other	INTERACTION	1
S	PG	FALSE KILLER WHALE	16-11-19	0444.640S	17508.940E	TV	DPA	Crew released from net	INTERACTION	2
S	PG	FALSE KILLER WHALE	17-03-19	0152.317S	16435.674E	NR	DUS	Other	INTERACTION	6
S	PG	FALSE KILLER WHALE	17-03-19	0216.366S	16540.190E	NR	DPA	Roped pulled from net	INTERACTION	1
S	PG	FALSE KILLER WHALE	23-01-19	0133.659S	14839.809E	PG	DPA	Crew released from net	INTERACTION	4
S	PG	INDO-PACIF. BOTTLENOSE DOLPHIN	01-04-19	0014.110N	16656.341E	NR	DPD	Crew released from net	INTERACTION	4
S	PG	PANTROPICAL SPOTTED DOLPHIN	07-04-19	0137.163S	16716.242E	NR	DPD	-	LANDED	4
S	PG	RISSO'S DOLPHIN	04-03-19	0106.352S	16838.495E	GL	DPA	Crew released from net	INTERACTION	3
S	PG	SEI WHALE	16-03-19	0149.19S	16759.707E	NR	DPD	Crew released from net	INTERACTION	1
S	PG	SHORT-FINNED PILOT WHALE	29-01-19	0105.235N	15023.240E	PG	UUU	Broke through net	INTERACTION	12
S	PG	STRIPED DOLPHIN	29-11-19	0038.148S	17201.780E	GL	DPD	-	LANDED	4

Table A5. Estimated number of Oceanic White Tip Sharks released dead or alive by gear type in 2019. Report from Observer data.

Gear	Flag	Species	Date	Latitude	Longitude	EEZ	FATE	Caught condition	Discard condition	# of Individuals
S	PG	OCEANIC WHITETIP SHARK	02-03-19	0031.660S	15014.203E	PG	DPA	A2	A2	1
S	PG	OCEANIC WHITETIP SHARK	02-11-19	0057.075N	16846.482E	GL	DUS	-	-	20
S	PG	OCEANIC WHITETIP SHARK	04-03-19	0056.652S	16803.029E	NR	DPA	A1	A0	1
S	PG	OCEANIC WHITETIP SHARK	04-05-19	0123.078S	17156.811E	GL	DPA	A0	A0	1
S	PG	OCEANIC WHITETIP SHARK	05-04-19	0108.936S	17123.208E	GL	DPA	A1	A1	2
S	PG	OCEANIC WHITETIP SHARK	07-04-19	0118.591S	17112.011E	GL	DPA	A1	A1	1
S	PG	OCEANIC WHITETIP SHARK	07-05-19	0052.941S	17115.453E	GL	DPA	A0	A0	2
S	PG	OCEANIC WHITETIP SHARK	07-10-19	0027.875S	17655.729E	GL	DPA	A1	A1	3
S	PG	OCEANIC WHITETIP SHARK	08-03-19	0357.841S	15626.051E	PG	DPA	-	-	1
S	PG	OCEANIC WHITETIP SHARK	08-08-19	0134.689N	15705.173E	FM	DPD	A3	D	1
S	PG	OCEANIC WHITETIP SHARK	09-05-19	0024.038S	17117.649E	GL	DPA	A0	A0	1
S	PG	OCEANIC WHITETIP SHARK	11-05-19	0050.989N	17141.568E	GL	DPD	D	D	1
S	PG	OCEANIC WHITETIP SHARK	14-05-19	0129.020S	17104.350E	GL	8	-	-	3
S	PG	OCEANIC WHITETIP SHARK	14-06-19	0143.974S	16942.184E	GL	DPD	A2	D	1
S	PG	OCEANIC WHITETIP SHARK	15-08-19	0051.488S	15714.152E	FM	DPU	A3	U	15
S	PG	OCEANIC WHITETIP SHARK	16-08-19	0042.126S	15710.764E	FM	DPA	A3	A3	1
S	PG	OCEANIC WHITETIP SHARK	19-03-19	0150.533S	16439.434E	NR	DPA	A2	A2	1
S	PG	OCEANIC WHITETIP SHARK	19-04-19	0215.845S	16807.667E	GL	DPD	A0	D	1
S	PG	OCEANIC WHITETIP SHARK	21-04-19	0106.258S	17300.115E	GL	DPD	D	D	1
S	PG	OCEANIC WHITETIP SHARK	22-04-19	0149.750S	16808.012E	GL	DPA	A1	A0	2
S	PG	OCEANIC WHITETIP SHARK	23-11-19	0003.840S	17152.920E	GL	DPD	-	-	1
S	PG	OCEANIC WHITETIP SHARK	28-02-19	0413.412S	15615.554E	PG	DPU	A2	A3	1
S	PG	OCEANIC WHITETIP SHARK	28-04-19	0141.913S	17321.328E	GL	DPA	A2	A3	1
S	PG	OCEANIC WHITETIP SHARK	30-04-19	0026.272N	17546.904E	GL	DPD	D	D	1

Table A6. Number of instances of Whale Sharks interaction with purse seine gear in 2019 by PNG National Fleet. Report from Observer.

Flag	Vessel	Date	Latitude	Longitude	EEZ	FATE	Type	# of Individuals	Metric tons	Est	Alive healthy	Alive injured	Alive unknown	Dead	Unknown
PG	ATUN KALAP	18/05/2019	0009.342S	17851.213E	GL	DPA	INTERACTION	1	60	1	0	0	0	0	1
PG	TOBIAS MIGUEL	2/09/2019	0024.702S	14916.336E	PG	DPA	INTERACTION	1	8	1	0	1	0	0	0
PG	TOBIAS MIGUEL	8/09/2019	0033.068S	15111.864E	PG	DPA	INTERACTION	1	6	1	0	1	0	0	0
PG	TOBIAS MIGUEL	21/11/2019	0317.507S	17331.869E	GL	DPA	INTERACTION	1	5	1	0	1	0	0	0
PG	TOBIAS MIGUEL	18/11/2019	0200.165S	17325.396E	GL	DPA	INTERACTION	1	5	1	1	0	0	0	0
PG	DOLORES 859	13/01/2019	0044.504N	14217.756E	PG	DPA	INTERACTION	1	15	1	0	1	0	0	0
PG	ATUN STA	27/07/2019	0014.156S	17712.562E	GL	DPA	LANDED	1	0.01	1	1	0	0	0	0
PG	ATUN STA	10/07/2019	0047.141S	17103.020E	GL	DPA	INTERACTION	1	2	1	1	0	0	0	0
PG	ATUN STA	23/07/2019	0203.787S	16850.554W	PX	DPA	INTERACTION	1	1.3	1	1	0	0	0	0
PG	NUPLA KANU	1/03/2019	0032.910S	15020.187E	PG	DUS	INTERACTION	1	10	1	0	1	0	0	0
PG	NUPLA KUMUL	4/06/2019	0149.744S	16814.848E	GL	DPD	INTERACTION	1	0	1	0	0	0	1	0
PG	NUPLA KUMUL	4/06/2019	0149.744S	16814.848E	GL	DOR	LANDED	0	0.4	3	0	0	0	3	0
PG	NUPLA KUMUL	10/03/2019	0418.774S	15637.496E	PG	DPA	INTERACTION	1	10	1	0	1	0	0	0
PG	PRINCESS JANICE 168	6/05/2019	0002.640S	14319.980E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	PRINCESS JANICE 168	6/05/2019	0001.740S	14319.740E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	FENG XIANG 818	9/05/2019	0024.038S	17117.649E	GL	DPA	LANDED	1	3.5	1	0	0	1	0	0
PG	FENG XIANG 818	11/05/2019	0047.108N	17138.671E	GL	UUU	INTERACTION	1	8	1	0	0	1	0	0
PG	FENG XIANG 818	4/05/2019	0134.667S	17202.899E	GL	UUU	INTERACTION	1	10	1	0	1	0	0	0
PG	FENG XIANG 818	11/05/2019	0050.989N	17141.568E	GL	UUU	INTERACTION	1	9	1	0	0	1	0	0
PG	MARTINA MARIE	11/01/2019	0028.201N	14350.161E	PG	DPA	INTERACTION	1	6	1	0	1	0	0	0
PG	MARTINA MARIE	14/01/2019	0027.515N	14247.391E	PG	DPA	INTERACTION	2	16	2	0	2	0	0	0
PG	GABRIELLE LT	8/11/2019	0313.469S	17517.804E	GL	DUS	INTERACTION	1	1.5	1	0	1	0	0	0
PG	SOPHIA MARTINA	11/06/2019	0125.210N	14524.880E	PG	DPA	INTERACTION	1	0	1	1	0	0	0	0
PG	DISCOVERY 105	8/01/2019	0000.513S	14416.615E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	DISCOVERY 105	9/01/2019	0006.71N	14322.519E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	DISCOVERY 105	17/01/2019	0008.596N	14827.343E	PG	DPA	INTERACTION	1	1	1	0	1	0	0	0

PG	DISCOVERY 105	11/01/2019	0017.447N	14305.497E	PG	DPA	INTERACTION	1	0.5	1	0	1	0	0	0
PG	DISCOVERY 105	14/01/2019	0026.696N	14254.273E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	DISCOVERY 105	8/01/2019	0001.627N	14416.432E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	DISCOVERY 105	9/01/2019	0003.153S	14325.503E	PG	DPA	INTERACTION	1	1	1	0	1	0	0	0
PG	DISCOVERY 105	18/01/2019	0018.810S	14705.197E	PG	DPA	INTERACTION	1	1	1	0	1	0	0	0
PG	DOLORES 865	14/01/2019	0032.022N	14302.406E	PG	UUU	INTERACTION	1	6	1	0	0	1	0	0
PG	DOLORES 870	15/11/2019	0554.396S	15334.786E	PG	DPA	INTERACTION	1	2	1	0	1	0	0	0
PG	DOLORES 872	8/01/2019	0004.536N	14748.628E	PG	DPA	INTERACTION	1	0	1	0	1	0	0	0
PG	DOLORES 872	21/01/2019	0003.360S	14633.585E	PG	DPA	INTERACTION	0	1	5	0	5	0	0	0
PG	LAUREN MARIE TAYLOR	24/01/2019	0030.868N	14806.410E	PG	DPA	INTERACTION	1	0	1	0	1	0	0	0
PG	LAUREN MARIE TAYLOR	11/01/2019	0116.578N	14232.336E	PG	DPA	INTERACTION	1	0	1	0	1	0	0	0
PG	GLORY PACIFIC 101	17/02/2019	0016.871S	14955.970E	PG	DPA	LANDED	1	1.5	1	1	0	0	0	0
PG	ATUN PLANTI	9/02/2019	0210.094S	16716.202E	NR	DPA	INTERACTION	1	0.2	1	1	0	0	0	0
PG	MALVA 888	26/01/2019	0030.715N	15054.104E	PG	DPA	INTERACTION	1	3	1	0	0	1	0	0
PG	MARITA 88	12/05/2019	0924.985N	14215.318E	FM	DPA	INTERACTION	1	3	1	1	0	0	0	0
PG	NUPLA SOLWARA	11/11/2019	0348.418S	17430.367E	GL	DPA	INTERACTION	1	1	1	1	0	0	0	0
PG	SIMBUN 88	10/02/2019	0139.581S	14724.120E	PG	DPA	LANDED	1	2	1	0	0	1	0	0
PG	SIMBUN 88	10/02/2019	0142.783S	14719.264E	PG	DPA	LANDED	1	2	1	0	0	1	0	0
PG	DOLORES 858	7/04/2019	0048.996S	14603.930E	PG	DPA	INTERACTION	1	0	1	0	1	0	0	0
PG	DOLORES 858	6/04/2019	0036.465S	14606.106E	PG	DPA	INTERACTION	1	0	1	0	1	0	0	0

Table A7. Estimated number of silky sharks released by PNG National Fleet in 2015-2019.

Year	Gear	Alive	Dead	Unknown	Total
2015	PS	2241	2998	177	5416
2016	PS	1717	5620	0	7337
2017	PS	234	449	55	738
2018	LL	-	-	15	15
2018	PS	2,683	6,185	1,558	11,641

2019	PS	378	400	62	840
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Table A8. Effort, observed and estimated seabird captures by fishing year for PNG [23°N – 25°S¹]. 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	No. of Vessels	Total Hooks	Hooks Observed	% Hooks Observed	No. of Birds	Capture Rate
2015	20	2,594,500	-	0%	0	0
2016	15	1,505,700	33,500	2%	0	0
2017	22	4,061,000	-	0%	0	0
2018	14	4,974,400	113,266	2%	0	0
2019 Provisional)	15	810,328	-	0%	0	0