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

WCPFC-SC17-AR/CCM-19

PAPUA NEW GUINEA

ANNUAL REPORT
To the
WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION (WCPFC)

Report: **PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS, 2020.**

Country: **PAPUA NEW GUINEA**

Prepared by: **National Fisheries Authority,**
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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 2021.	**Yes**

Revision Notes:

Contents

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 more than two decades, PNG opened its waters to the foreign longline vessels again. 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 which are under domestic charter arrangements to support onshore processing facilities in PNG.

The total estimated catch of target tuna species caught by the PNG purse seine vessels in 2020 was 180,513 mt. A total of 37 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 6,059 fishing days (*Table 1b & 2b*).

The estimated total catch for target tuna species in 2020 by the PNG longline vessels stands at 147 mt. A total of 6 national longline vessels were actively fishing inside the PNG national waters with an estimated effort of 574, 600 hooks (5,746 hundred hooks). Refer to *Table 1a & 2a* for more information.

Estimated catch by foreign vessels fishing in PNG waters under bilateral and multilateral access agreements in with an estimated effort of 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 2016-2020. Source: SPC

Year		2016	2017	2018	2019	2020 (Provisional)
Effort (HHooks)		*15,057*	*40,610*	*52,149*	*8,103*	*5,746*
Tuna Catch (mt)	Albacore	80	689	196	686	13
	Bigeye	86	47	87	243	5
	Skipjack	2	2	2	26	0
	Yellowfin	728	1,249	2070	947	129
	Total Tuna	**896**	**1,987**	**2355**	**1,902**	**147**
Billfish Catch (mt)	Black Marlin	39	65	83	2	10
	Blue Marlin	44	13	40	45	0
	Striped Marlin	0	11	5	9	3
	Swordfish	6	6	21	13	0
	Total Billfish	**89**	**95**	**149**	**69**	**13**
Shark Catch (mt)	Blue Shark	2	6	22	-	-
	Silky Shark	-	-	-	-	-
	Hamerhead Sharks	-	-	-	-	-
	Mako Shark	-	-	-	-	-
	Oceanic White Tip	-	-	-	-	-
	Thresher Sharks	-	-	-	-	-
	Total Sharks	**2**	**6**	22	-	-

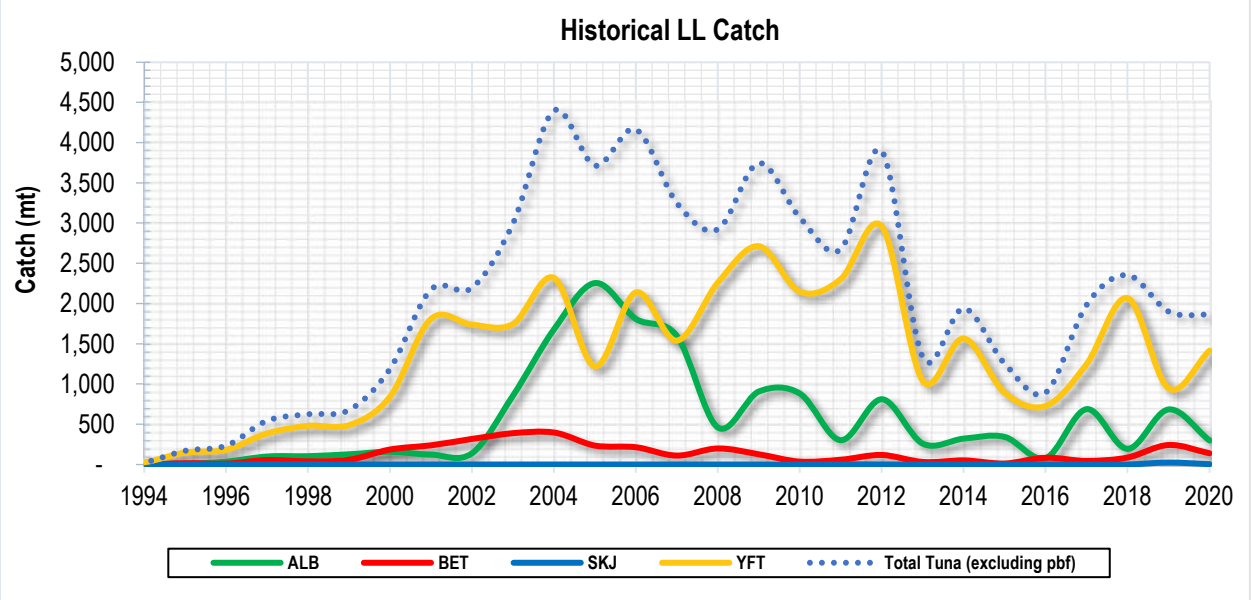


Figure 1 (a): Historical annual catch for the PNG longline fleet by primary species in the WCPFC Convention area.

Table 1(b): Annual catch and effort estimates for the PNG purse seine fleet by primary species for the WCPFC Convention Area for 2016-2020. Source: SPC

Year		2016	2017	2018	2019	2020 (Provisional)
Effort (fishing & searching days)		*5,283*	*7,380*	*7,797*	*4,365*	6,059
Catch (mt)	Albacore	10	10	17	-	5
	Bigeye	10,345	8523	7,174	3,880	483
	Pacific Bluefin	-	-	-	-	-
	Skipjack	201,161	179,124	209,631	195,213	109,191
	Yellowfin	90,280	118,847	94,694	66,296	70,839
	Total	**307,280**	**313,466**	**319,006**	**265,389**	**180,513**

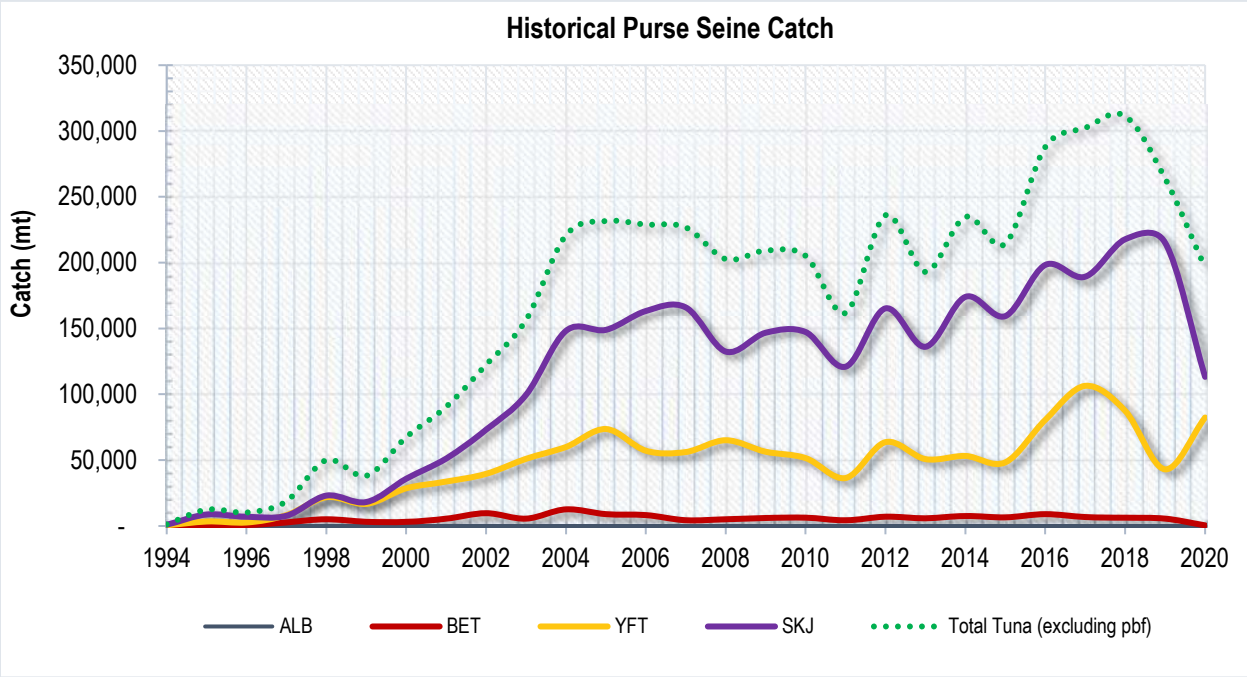


Figure 1 (b): Historical annual catch for the PNG purse seine fleet by primary species in the WCPFC Convention area.

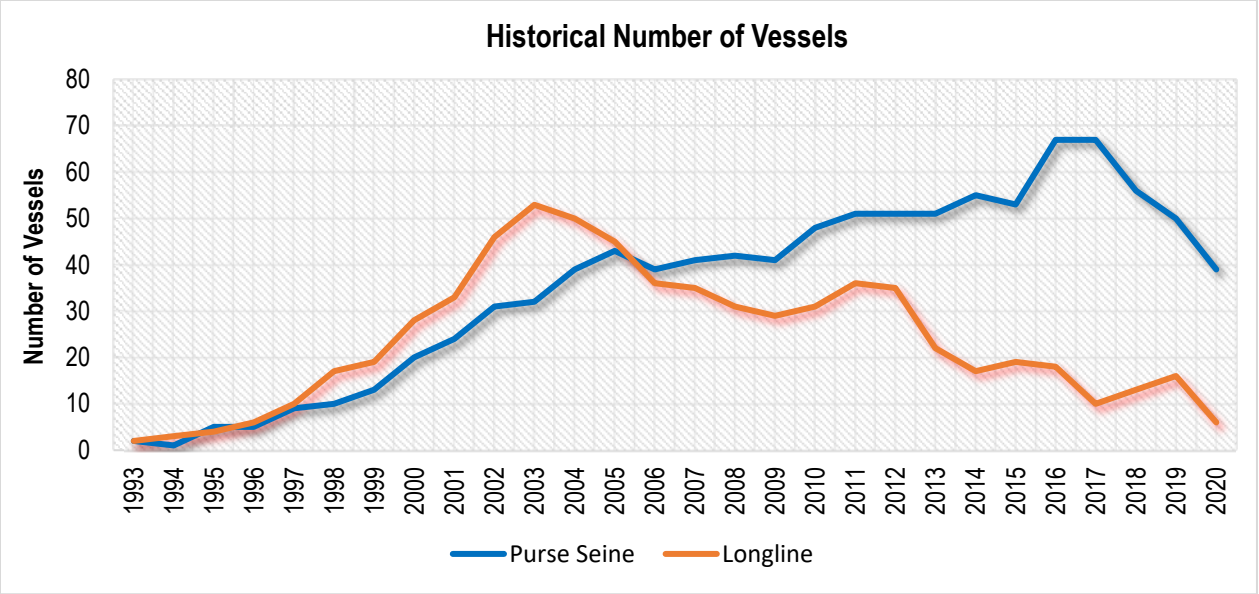


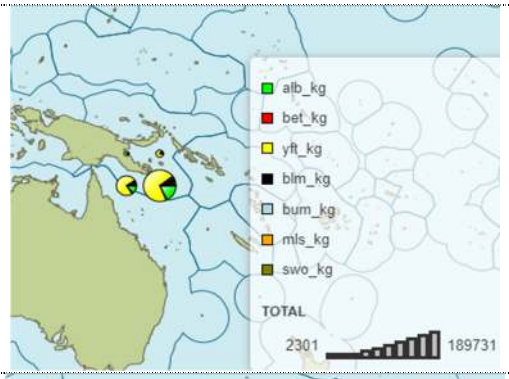
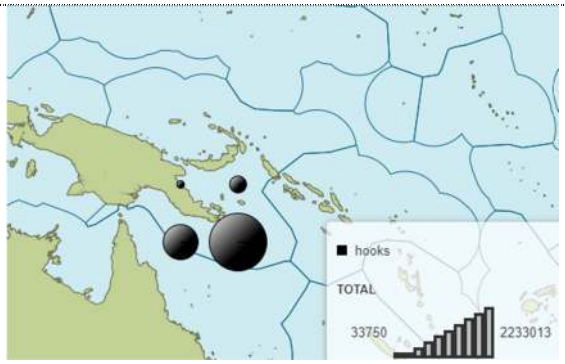
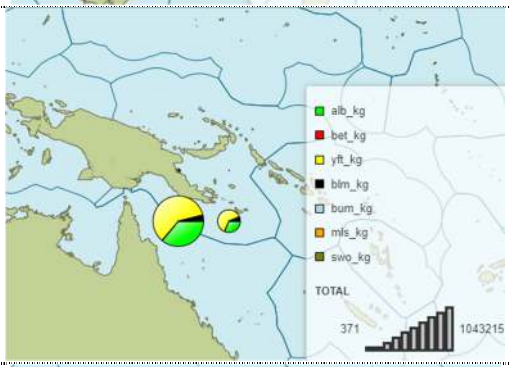
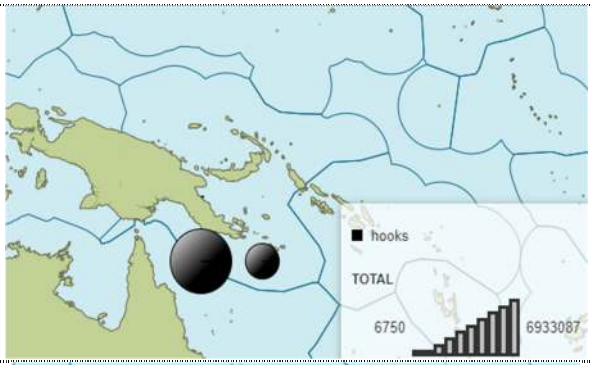
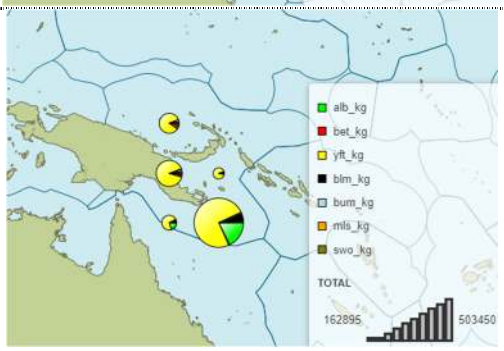
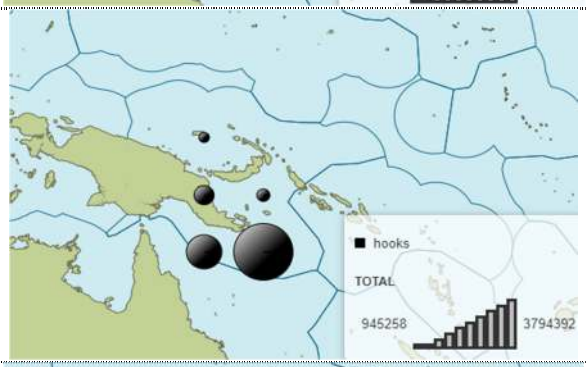
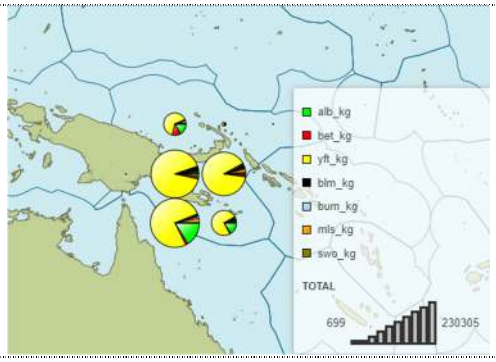
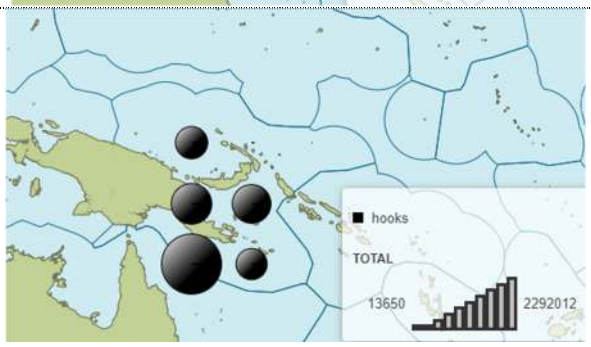
Figure 2: Historical annual vessel numbers for the PNG purse seine and longline fleet in the WCPFC Convention area.

Table 2(a). Number of PNG longline vessels by size category, active in the WCPFC Convention area for years 2016-2020.

Size class (GRT)	2016	2017	2018	2019	2020 (Provisional)
0–50	6	6	-	-	-
51–200	9	9	12	12	6
201–500	-	-	2	2	-
500+	-	-	-	-	-
Total	15	15	14	14	6

Table 2(b). Number of PNG purse seine vessels by size category, active in the WCPFC Convention area for years 2016- 2020

Size class (GRT)	2016	2017	2018	2019	2020 (Provisional)
0–500	7	7	4	6	6
501–1,000	14	14	10	9	7
1,001–1,500	37	37	33	29	21
1,500+	9	9	9	6	2
Unknown	-	-	-	-	1
Total	67	67	56	50	37

	Catch	Effort
2016		
2017		
2018		
2019		

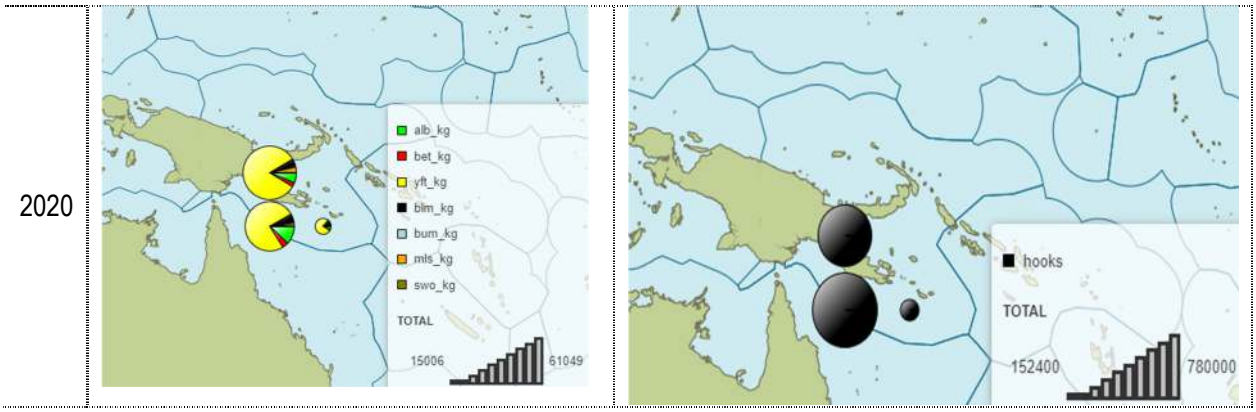
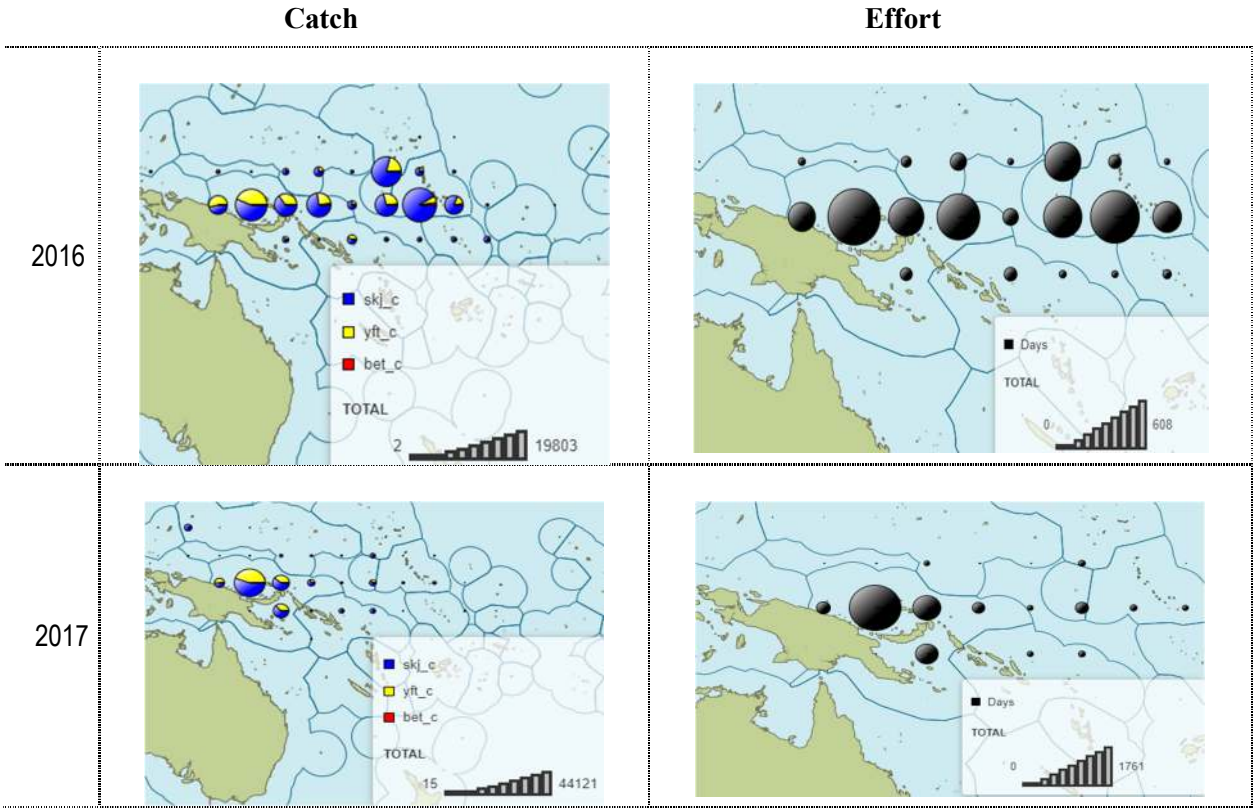


Figure 3(a). Annual distribution of target catch (ALB = "green"; BET = "red"; and YFT = "yellow") and effort by the PNG longline fleet active in the WCPFC Convention area for year 2016-2020. Source: SPC



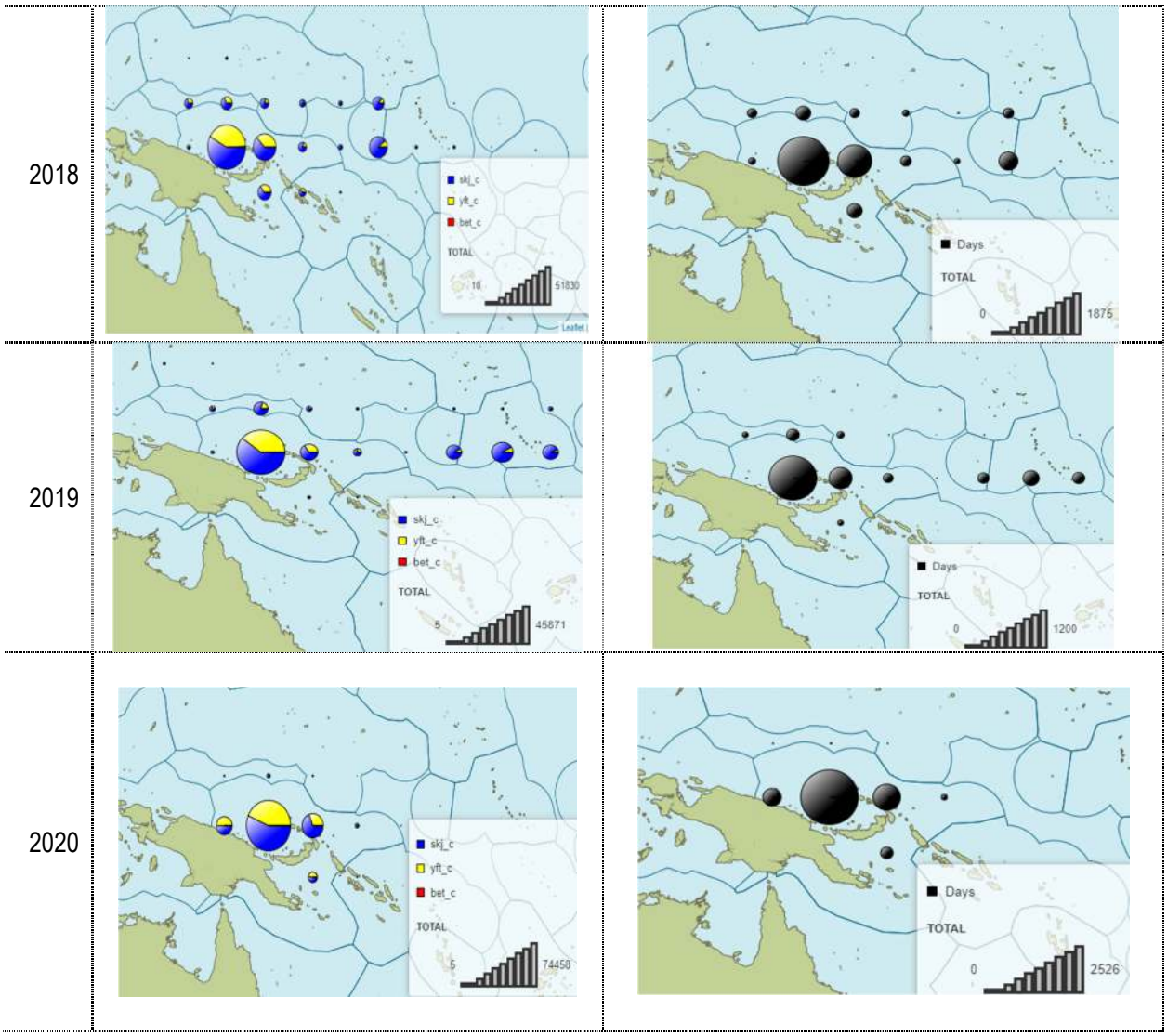


Figure 3(b). Annual distribution of target catch (SKJ = Blue; YFT = yellow; and BET = red and effort by the PNG purse seine fleet active in the WCPFC Convention area for year 2016-2020. Source: SPC

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 2016-2020. Source SPC.

Species	Number of Individuals				
	2016	2017	2018	2019	2020
ALBATROSSES NEI		1			
AQUATIC MAMMALS NEI				3	
BALEEN WHALES NEI		3	3	7	5
BEAKED WHALES NEI	2	11	8	8	7
BIRD (UNIDENTIFIED)	1				
BLUE WHALE	1		1	1	1

BOTTLENOSE DOLPHIN	65	61	153	21	
BRYDE'S WHALE	47	29	13	27	18
COMMON DOLPHIN	12	14		11	8
CUVIER'S BEAKED WHALE			1		
DOLPHINS NEI					4
DWARF SPERM WHALE				2	
FALSE KILLER WHALE	135	325	220	107	49
FIN WHALE		2	6		
FLATBACK TURTLE		3	3		
GINKGO-TOOTHED BEAKED WHALE	2	2		3	
GREEN TURTLE	12	10	26	6	4
HAWKSBILL TURTLE	2	506	8	5	
HUMPBACK WHALE		3			
INDO-PACIF. BOTTLENOSE DOLPHIN	15	38	12	4	7
KILLER WHALE				1	
LEATHERBACK TURTLE	3	2	1		
LOGGERHEAD TURTLE	4	4	12	4	
LONG-BEAKED COMMON DOLPHIN		7			
MARINE TURTLES NEI				3	
MELON-HEADED WHALE	3	5	7		
MINKE WHALE	5	5	2		
OLIVE RIDLEY TURTLE	10	13	12	7	4
PANTROPICAL SPOTTED DOLPHIN		13	10	4	
PYGMY KILLER WHALE	11		6	4	1
PYGMY SPERM WHALE			4	5	
RISSO'S DOLPHIN	11	106	9	4	6
ROUGH-TOOTHED DOLPHIN		11	16		
SEI WHALE	5	30	29	14	13
SHORT-FINNED PILOT WHALE	36	21	33	14	
SPERM WHALE		1	4		
SPINNER DOLPHIN	8	48	48		7
STRIPED DOLPHIN		5	77	4	4
WHALE SHARK	54	104	131	109	45
Grand Total	**444**	**1,383**	**855**	**378**	**183**

Table 4(a). Annual estimated catches (mt) of non-target, associated and dependent species, including sharks, by the PNG purse seine vessels in the WCPFC Convention Area, for years 2016-2020. Data Source; SPC

Species	2016	2017	2018	2019	2020
BALEEN WHALES NEI				20	1.5
BARRACUDAS NEI	0.1	0.1	0.1	0	0.2

BATFISHES	0	0.1			
BIGEYE SCAD	0.2				
BIGEYE THRESHER SHARK		0.1			0.1
BIGEYE TREVALLY	0.2	0	0.2	0.3	
BIG-SCALE POMFRET		0.1			
BLACK MARLIN	5.5	11.3	8.3	15	6.9
BLACKTIP SHARK		0	1.9		
BLAINVILLE'S BEAKED WHALE					2
BLUE MARLIN	15.7	25.6	21.9	15.6	11.1
BLUE SEA CHUB / SNUBNOSE CHUB / TOPSAIL DRUMMER	1.5	0	0.5	0	
BLUE WHALE				9	
BOTTLENOSE DOLPHIN			0.5	0	0.8
BRONZE WHALER SHARK	2.4	0.8	0.2		
BRYDE'S WHALE		0.1	0	11	
BULL SHARK		0.2			
BULLET TUNA	0.6	2.6	11.3	0.1	19.3
COMMON DOLPHIN		0.2		0.8	
COMMON DOLPHINFISH	3.9	8.7	7.9	4.4	0.9
DOLPHINS NEI	0.1	0.1		0.1	0.1
EASTERN PACIFIC BONITO	2.7	2.1	18.6	30.3	65.8
FALSE KILLER WHALE	0.1	3.4	5.5	10.1	
FRIGATE TUNA	3.3	10.1	35.5	4.5	56.3
GIANT MANTA	3.5	5.7	28.2	13.1	21.8
GOLDEN TREVALLY	0	0.2	0		0.1
GREAT BARRACUDA	0.6	1.8	0.5	0.2	0.6
GREAT HAMMERHEAD		0.1	0.1	0.1	0.1
GREEN TURTLE		0	0.2	0	0
GREY REEF SHARK	0	0.1			
HAWKSBILL TURTLE	0	0	0.1	0	
INDO-PACIF. BOTTLENOSE DOLPHIN			0.1	0	
INDO-PACIFIC SAILFISH	0.6	1.3	0.8	0.1	0.3
KAWAKAWA	0.8	3.9	3	1.5	28.9
LEATHERBACK TURTLE	0.1		0		
LOGGERHEAD TURTLE		0.1	0.1	0.1	
LONGFIN BATFISH	0.1	0	0.1	0	
LONGFIN MAKO				0.1	
MACKEREL SCAD	95.7	61.9	44	16.7	19.2
MANTAS DEVIL RAYS NEI	1.5	4	3.5	4	4.7
MARINE TURTLES NEI	0.1	0			
MELON-HEADED WHALE		0.5			
MINKE WHALE				3	

MOBULA	2	5.2	10.4	5.5	9
NARROW-BARRED SPANISH MACKEREL			0.3		
OCEAN SUNFISH	0.1	0.1	0.1	0.1	0
OCEAN TRIGGERFISH (SPOTTED)	19.6	26.3	12.4	6.9	2.1
OCEANIC WHITETIP SHARK	2	0.4	1.6	0.9	0.1
OILFISH	0.5				
OLIVE RIDLEY TURTLE	0	0	0	0	0
OTHER FISH	78.7	19.6	3.9	1.3	5.9
PACIFIC BLUEFIN TUNA		0.5			
PANTROPICAL SPOTTED DOLPHIN	0.1			0.1	
PELAGIC STINGRAY	0.3	0.2	0	0	
PELAGIC THRESHER SHARK		0.1	0		
PYGMY KILLER WHALE		0.4			
RAINBOW RUNNER	270.5	105	93	55.8	22.5
ROUGH-TOOTHED DOLPHIN			0.2		
SEI WHALE				0.5	
SHARKS RAYS SKATES ETC. NEI			0.1		
SHARKS (UNIDENTIFIED)		1	2.1	0.4	1.4
SHARPTAIL MOLA	0	0.2	0.1		
SHORTBILL SPEARFISH	0.1	0.1		0.1	
SILKY SHARK	120.5	324.5	363.6	464.9	259
SILVERTIP SHARK	0.1		0		
SLENDER SUNFISH	0.1	0			
SPERM WHALE					0.4
SPOTFIN DRAGONET					0.1
STINGRAYS BUTTERFLY RAYS NEI		0	0	0.1	
STRIPED MARLIN	0.7	0.7	1.8	0.5	0.2
SWORDFISH	1.2	0.3	0.1	0.3	0.2
TIGER SHARK			0.6		
TRIGGERFISHES DURGONS NEI	16.2	6.1	3.4	4.7	2.4
TUNAS NEI	242.3	332.5	202.4	8	25
UNICORN LEATHERJACKET FILEFISH		0.1	0.2	0	
UNSPECIFIED	0.1	2	2.1	0.3	0.2
WAHOO	0.9	2.7	1.4	0.1	0.1
WHALE (UNIDENTIFIED)	2	0.3	20		
WHALE SHARK	3.2	91.1	104.9	200.1	57.8
WINGHEAD SHARK			1		
Grand Total	**900.5**	**1064.6**	**1018.8**	**910.7**	**627.1**

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 2016 -2020. Data Source; SPC

Species	2016	2017	2018	2019	2020
BARRACUDAS NEI	0.444	2.868	3.798	1.165	0.02
BLACK MARLIN	25.721	66.439	61.78	25.909	10.612
BLACKFIN BARRACUDA				0.16	
BLUE MARLIN	3.693	1.285	33.26	14.763	0.977
BLUE SHARK				14.078	
COMMON DOLPHINFISH			0.583	0.085	
INDO-PACIFIC SAILFISH	8.405	22.227	27.469	17.918	9.509
MACKERELS NEI	0.099				
OILFISH	6.377	7.844	12.816	6.297	1.231
OPAH			0.823	4.464	0.04
OTHER FISH			1.521	3.875	
SHARKS (UNIDENTIFIED)	0.121	0.425			
SKIPJACK TUNA	0.126	0.72	0.863	3.248	0.21
STRIPED MARLIN	8.367	9.493	3.769	16.723	3.606
SWORDFISH	1.244	3.151	18.515	8.163	0.18
UNSPECIFIED		0.02			
WAHOO	29.056	46.921	28.114	14.73	5.673
Grand Total	**83.653**	**161.393**	**193.311**	**131.578**	**32.058**

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 2016-2020. Source: SPC & NFA.

Year	Gear	Logsheet Coverage	Observer Coverage		Port Sampling Coverage
			Trip	Days	
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	LL	100%	4%	1%	0%
	PS	100%	77%	51%	0%
2020 (Provisional)	LL	100%	3%	1%	0%
	PS	100%	39.%	35%	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 the PNG waters. This marks the re-introduction of foreign longline vessels into PNG waters once again.

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 includes 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 regional and sub-regional arrangements such as the Implementation Arrangements of the Parties to the Nauru Agreement (PNA) and the Harmonized Minimum Terms and Conditions adopted by the Forum Fisheries Agencies (FFA) whose requirements are incorporated into 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 Convention Area (WCPFC CA) including PNG's Exclusive Economic Zone (EEZ). The national fleet comprises of longline and purse seine vessels under PNG flag and those 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 2020, the estimated catch of yellowfin tuna was 129 mt, bigeye tuna 5 mt and albacore tuna 13 mt. Total estimated catch of primary billfish species (black marlin, blue marlin, striped marlin and swordfish) in 2019 was 147 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^{o}S. 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. *(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) vessels. LBF vessels are foreign flagged and whose activities are governed under charter arrangements with locally based companies. These vessels support onshore processing plants in PNG.

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 2020 a total catch estimate of 109,191 mt of skipjack, 70,839 mt of yellowfin and 483 mt of bigeye tuna were caught by the PNG purse fleet 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 activities of the purse seine vessels under the PNG national fleet shifted towards the East. In 2016, vessels catch and effort were almost equally distributed between the West and the East. *Figure 3(b).* In 2017 onwards

the fishing activities of the purse seine vessels under the PNG national fleet was more concentrated towards the west.

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 98,473 mt.

There was an increase in the catch and effort of foreign purse seine vessel in the PNG EEZ in 2020. The total tuna catches by these foreign flag purse seine vessels stood at 136,336 mt with an estimated effort of 3,407 fishing day (Table 6).

Table 6: Catch and effort estimates for foreign purse seiners fishing in PNG waters from 2016-2020.

Year	*Fishing Days*	Catch (mt) / Species			
		SKJ	YFT	BET	Total
2016	*2,815*	67,808	26,356	1,689	95,853
2017	*3,050*	68,592	17,778	1,186	87,556
2018	*2,625*	76,520	15,806	1,020	93,346
2019	*2,081*	64,616	13,683	973	79,272
2020 (Provisional)	*3,407*	111,606	23,035	1,695	136,336

5.2 Longline - Foreign Vessels

Foreign Bilateral Longline 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. In the last five years, catches by foreign vessels fishing in PNG waters has averaged around 2,650 mt (Table 7).

Foreign Bilateral Longline vessels were re-introduced into PNG waters in 2015 after non-access for more than two decades. The government's plan to domesticate longline fishing activities for local participation has resulted in the ban in foreign bilateral longline fishing activities inside PNG waters commencing 1996. Change in the government policy in 2014 and 2015 has seen this category of longline vessels given access once again into the PNG national waters.

Table 7: Catch and effort estimates for foreign purse seiners fishing in PNG waters from 2016-2020.

Year	*Effort (HHooks)*	Catch (mt) / Species			
		ALB	YFT	BET	Total
2016	*95*	0	1	7	8
2017	*7,295*	17	333	203	553
2018	*11,429*	45	402	2,548	2,995
2019	*67,994*	647	1,339	7,704	9,690
2020 (Provisional)	*96*	1	0	4	6

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 8*).

Table 8: 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**

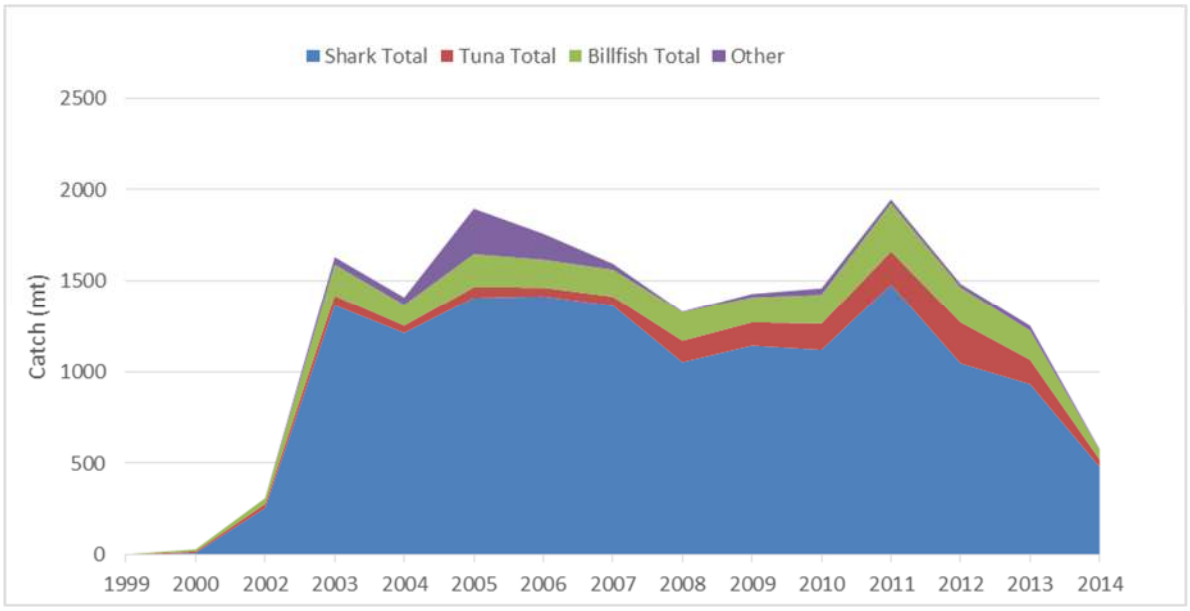


Figure 4a: Catch estimate by shark longline vessels. Data source: NFA

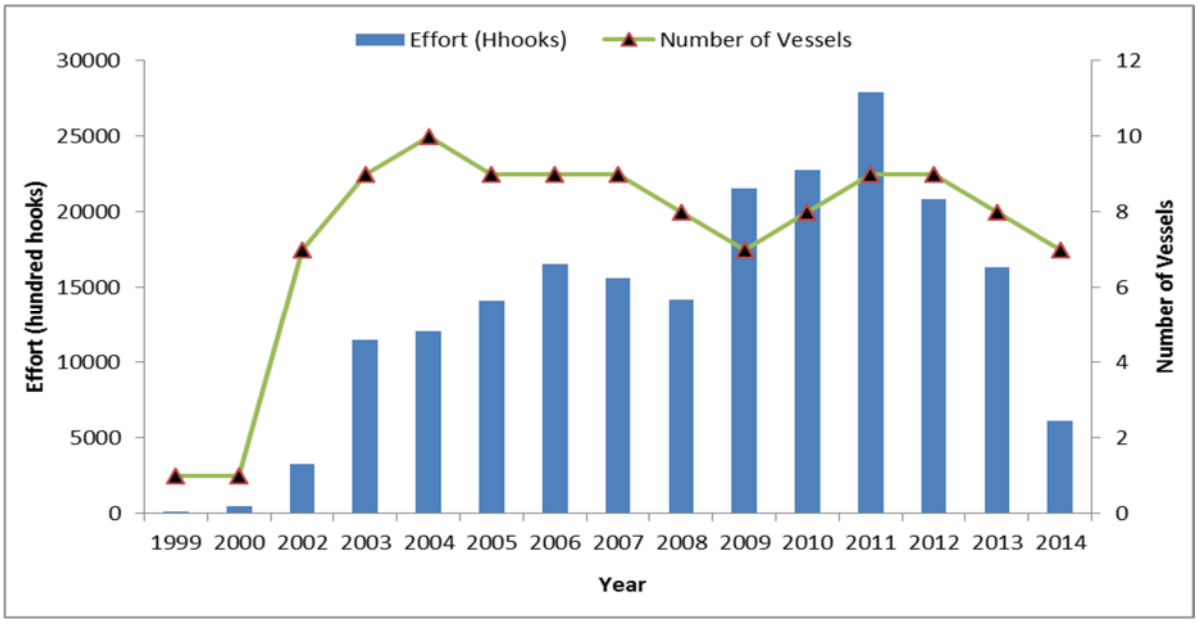


Figure 4b: Effort estimates (hhooks) and the number of shark longline vessels. Data source: NFA

5.3 Handline

The trial on handline fishery commenced in 2005 with 10 pump-boats. In 2009, the number of pump-boats declined to 5 vessels. 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 is no handline fishery existing in PNG at the moment and no pump-boats operating in the waters of PNG to date.

6. Socio – Economic Factors

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 11,114 people in direct employment in the country of over 8 million people. New commitments and investments would triple these figures.

7. Exports

The quantity of processed products tuna 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 2020 about 201,000 tons of processed tuna products were exported earning a total revenue of around USD 424 million. This was an increase of 9,000 tons exported products and additional USD 26 million revenue earned from the 2019 export quantity of 192,000 tons and export revenue of USD 398 million (*Figure 5a*). This growth is in line with the country's industry development aspirations.

Most of the export products are canned and processed frozen tuna (*Figure 5b*). The quantity of canned tuna exports has been increasing with more tuna processed onshore and the trend is likely to continue as the industry expands in the country.

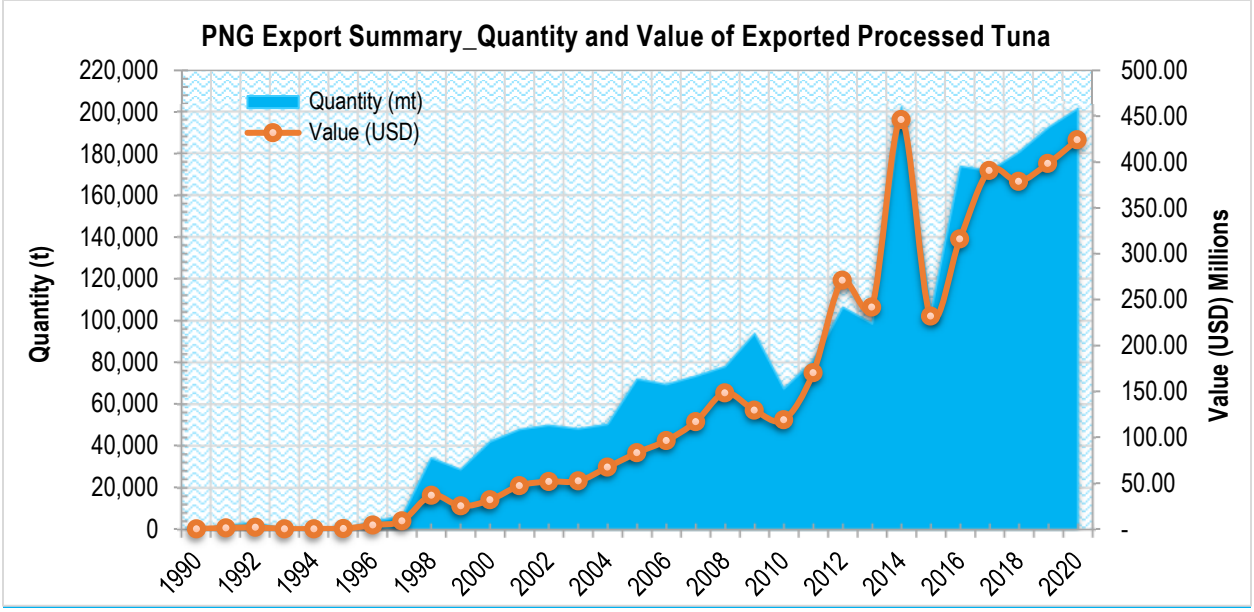


Figure 5a: Quantity (tons) and value (USD) of processed tuna export products by domestic companies. Data source; NFA

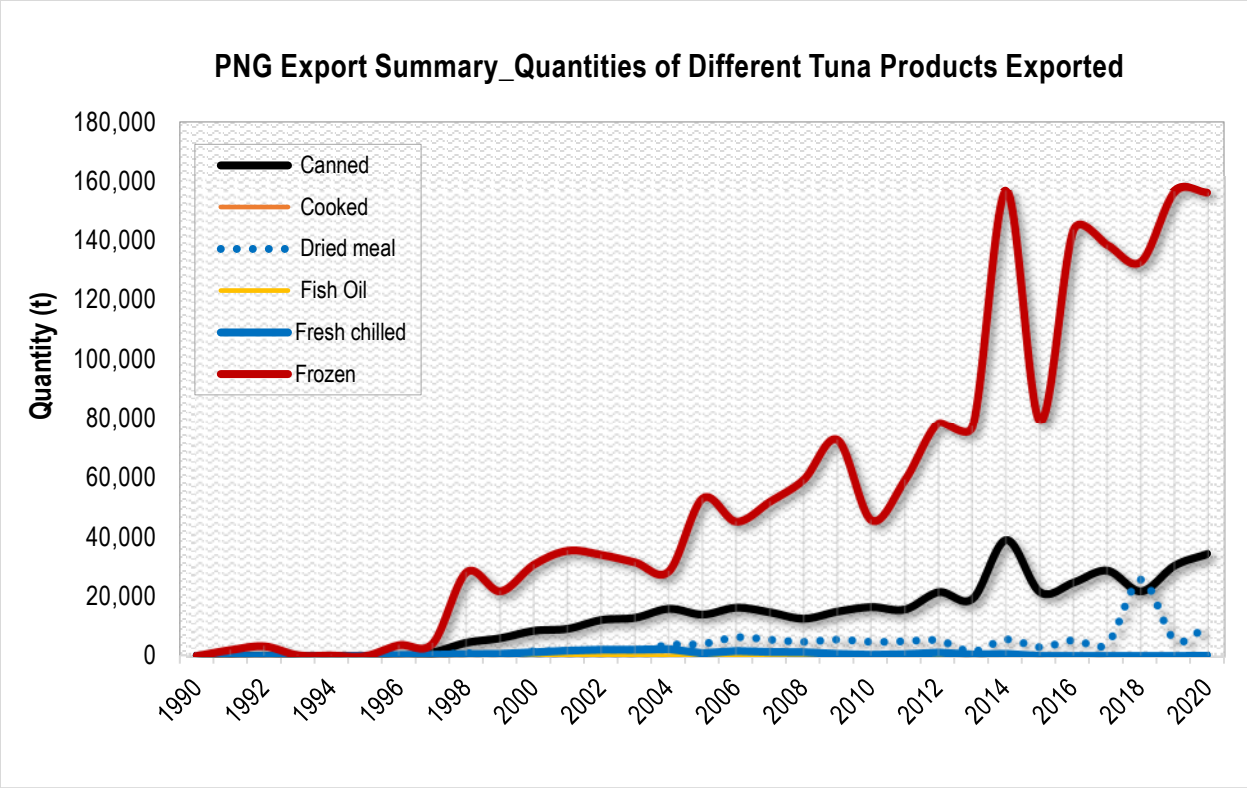


Figure 5b: Quantity of exports by processed product type. Data source; NFA

ADDENDUM – CMM REPORTING

ADDENDUM TO ANNUAL REPORT PART 1

<u>SECTION A:</u> SPECIFIC INFORMATION TO BE PROVIDED IN ANNUAL REPORT PART 1 AS REQUIRED BY CMMS AND OTHER DECISIONS OF THE COMMISSION.

CMM 2009-03 [Swordfish], Para 8	CCMs shall report to the Commission the total number of vessels that fished for swordfish and the total catch of swordfish for the following: a. vessels flying their flag anywhere in the Convention Area south of 20°S other than vessels operating under charter, lease or other similar mechanism as part of the domestic fishery of another CCM; b. vessels operating under charter, lease or other similar mechanism as part of their domestic fishery south of 20°S; and c. any other vessels fishing within their waters south of 20°S. This information shall be provided in Part 1of each CCM's annual report. Initially, this information will be provided in the template provided at Annex 2 for the period 2000-2009 and then updated annually. **Note: WCPFC11 confirmed a common understanding that "total catch" in this reporting requirement refers to both targeted and bycatch catches of swordfish.*	There was no fishing operation carried out by the PNG National Fleets south of 20^0S. Thus, there were no catch and effort directed on swordfish or any other by-catch south of 20^0S.

<table>
<tr>
<td>Observer coverage (WCPFC 11 decision – para 484(b)</td>
<td>CCMs are to compile and include in Annual Report Part 1 to be submitted from 2015 onwards, observer coverage for their longline fleet activity in the previous calendar year, noting that revisions can be provided at the annual TCC meeting.

A sample report format is provided as guidance to assist CCMs with reporting (WCPFC11 Summary Report Attachment L Table 4)
<table>
<tr><th rowspan="2">CCM Fleet</th><th rowspan="2">Fishery</th><th colspan="3">No. of Hooks</th><th colspan="3">Days Fished</th><th colspan="3">Days at Sea</th><th colspan="3">No. of Trips</th><th rowspan="2">See NOTEs</th></tr>
<tr><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th><th>Total estimated</th><th>Observer</th><th>%</th></tr>
<tr><td>REPUBLIC OF KOREA</td><td>Distant-water</td><td colspan="6"></td><td>23,632</td><td>1,575</td><td>6.6 %</td><td colspan="3"></td><td></td></tr>
</table>
</td>
<td>Activities of the PNG longline vessels is exclusive to national waters. No ROP trips were therefore implemented.</td>
</tr>
<tr>
<td>CMM 2009-06 [Transshipment], Para 11 (ANNEX II)</td>
<td>CCMs shall report on all transhipment activities covered by this Measure (including transhipment activities that occur in ports or EEZs) as part of their Annual Report in accordance with the guidelines at Annex II. In doing so, CCMs shall take all reasonable steps to validate and where possible, correct information received from vessels undertaking transhipment using all available information such as catch and effort data, position data, observer reports and port monitoring data.

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

(1) the total quantities, by weight, of highly migratory fish stocks covered by this measure that were transhipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by:
<table>
<tr><th>a) offloaded and received;</th><th>b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction</th><th>c) transhipped inside the Convention Area and transshipped outside the Convention Area;</th><th>d) caught inside the Convention Area and caught outside the Convention Area;</th><th>e) Species</th><th>f) Product Form</th><th>g) Fishing gear</th></tr>
</table>
</td>
<td>There were transshipment activities by PNG National Fleets (PNG flag and chartered vessels) and Foreign Bilateral Vessels inside PNG ports in 2020.

Refer to Table A1 & A2 for details.</td>
</tr>
</table>

offloaded						
received						

(2) the **number of transhipments** involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by:

a) offloaded and received	b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction	c) transhipped inside the Convention Area and transhipped outside the Convention Area	d) caught inside the Convention Area and caught outside the Convention Area	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 measure that were transhipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by:
   a. offloaded and received;
   b. transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction;
   c. transhipped inside the Convention Area and transshipped outside the Convention Area;
   d. caught inside the Convention Area and caught outside the Convention Area;
   e. species;
   f. product form; and
   g. fishing gear used

	(2) the number of transhipments involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by: a. offloaded and received; b. transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction; c. transhipped inside the Convention Area and transhipped outside the Convention Area; d. caught inside the Convention Area and caught outside the Convention Area; and e. fishing gear.	
CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5	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).	A total of 113 counts of cetaceans from 13 species had been reported as either interacted or landed in the purse seine fishing operation in 2020. Refer to Table A3 for more information.
CMM 2018-03 [Seabirds] Para 13	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 below for Part 1 reporting template guideline). These reports shall include information on: 1. the proportion of observed effort with specific mitigation measures used; and 2. observed and reported species specific seabird bycatch rates and numbers or statistically rigorous estimates of species- specific seabird interaction rates (for longline, interactions per 1,000 hooks) and total numbers.	No ROP monitoring on PNG longline fleet in 2020 as the operation of PNG longline fleet in 2020 was within PNG national waters only.

<u>SECTION B:</u> ADDITIONAL ANNUAL REPORTING REQUIREMENTS THAT COULD BE INCLUDED IN ANNUAL REPORT PART 1, IF NOT OTHERWISE REPORTED ANNUALLY TO WCPFC

CMM 2006-04 [South West striped Marlin], Para 4	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.	Not applicable. There were no PNG flagged vessels fishing at south of 15°S.
CMM 2015-02 **[South Pacific Albacore] Para 4**	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.	Not applicable. There were no PNG flag vessels fishing south of 20° S during the period 2007 to 2020.

CMM 2019-03 [North Pacific Albacore], Para 3	All CCMs shall report annually to the WCPFC Commission all catches of albacore north of the equator and all fishing effort north of the equator in fisheries directed at albacore. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished using the template provided in Annex 1. Annex 1: **Annex I: Average annual fishing effort for 2002-2004 and annual fishing effort for subsequent years for fisheries directed at North Pacific albacore in the North Pacific Ocean** CCM | Area[1] | Fishery | 2002-04 Average (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) | Year (No. of vessels, Vessel days) ** Note: WCPFC10 clarified that this reporting responsibility lies with the flag State*	Not applicable. There was no fishing operation carried out by vessels under PNG National Fleets North of the equator. Thus, there were no catch and effort directed on albacore or any by-catch north of the equator.

Table A1. Estimated quantity (mt) of tuna transshipped by National Fleet (PNG flag & chartered vessels) inside PNG ports in 2020. Report from the national 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	61,631	Nill	Reefer to Table 1b	SKJ	Frozen	PS
	51,617	Nill	Reefer to Table 1b	YFT	Frozen	PS
	365	Nill	Reefer to Table 1b	BET	Frozen	PS
	105	Nill	Reefer to Table 1b	ALB	Frozen	PS

Note: There was no record of LL transshipment in 2020

Table A2. Estimated number of transshipments by PNG National Fleet in 2019. Report from national 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	247	-	Refer to Table 1b	PS
Offloaded	-	-	-	LL

Table A3. Estimated number and species of cetacean interacted with purse seine gear in 2020. Report from observer data.

Species	Date	Latitude	Longitude	EEZ	FATE	Interaction desc	Type	# of Individuals
BALEEN WHALES NEI	09/05/2020	0043.38S	15033.42E	PG	DPA	Other	INTERACTION	1
BALEEN WHALES NEI	19/01/2020	0904.08S	15451.274E	PG	DPA	Broke through net	INTERACTION	1
BALEEN WHALES NEI	21/05/2020	0008.40S	14921.00E	PG	DPA	Broke through net	INTERACTION	1
BALEEN WHALES NEI	24/05/2020	0002.10N	14709.12E	PG	DPA	Broke through net	INTERACTION	1
BALEEN WHALES NEI	26/05/2020	0013.20N	14739.48E	PG	DPA	Broke through net	INTERACTION	1
BEAKED WHALES NEI	04/02/2020	0414.28S	14821.270E	PG	DPA	Broke through net	INTERACTION	2
BEAKED WHALES NEI	20/01/2020	0127.925N	15311.355E	FM	DPA	Broke through net	INTERACTION	1
BEAKED WHALES NEI	29/01/2020	0354.126S	14821.748E	PG	DPA	Other	INTERACTION	4
BLUE WHALE	19/04/2020	0158.372N	14511.734E	PG	DPA	Broke through net	INTERACTION	1
BRYDE'S WHALE	01/07/2020	0343.020S	14938.940E	PG	DPA	Broke through net	INTERACTION	1
BRYDE'S WHALE	12/01/2020	0344.996S	14937.633E	PG	DPA	Broke through net	INTERACTION	1
BRYDE'S WHALE	13/02/2020	0234.480S	14906.790E	PG	DPA	Other	INTERACTION	1
BRYDE'S WHALE	13/02/2020	0234.480S	14906.790E	PG	DPA	Broke through net	INTERACTION	1
BRYDE'S WHALE	15/02/2020	0314.34S	14936.72E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	20/02/2020	0251.780S	14855.260E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	20/04/2020	0156.40S	14458.74E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	20/04/2020	0156.40S	14458.74E	PG	DPA	Jump out over net	INTERACTION	1

BRYDE'S WHALE	21/01/2020	0152.149N	15244.825E	FM	DPA	Other	INTERACTION	1
BRYDE'S WHALE	21/03/2020	0303.42S	14554.78E	PG	DPA	Other	INTERACTION	1
BRYDE'S WHALE	21/12/2020	0335.353S	15118.420E	PG	DPA	Broke through net	INTERACTION	2
BRYDE'S WHALE	23/10/2020	0419.687S	15103.18E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	25/10/2020	0417.476S	15106.18E	PG	DPA	Broke through net	INTERACTION	1
BRYDE'S WHALE	25/10/2020	0417.476S	15106.18E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	26/08/2020	0141.22S	14839.00E	PG	DPA	Jump out over net	INTERACTION	1
BRYDE'S WHALE	30/10/2020	0350.518S	15118.48E	PG	DPA	Crew released from net	INTERACTION	1
BRYDE'S WHALE	31/05/2020	0044.04S	15013.20E	PG	DPA	Broke through net	INTERACTION	1
COMMON DOLPHIN	30/11/2020	0450.608S	15028.560E	PG	DPD	-	LANDED	8
DOLPHINS NEI	15/07/2020	0155.68S	14854.60E	PG	DPA	Crew released from net	INTERACTION	4
FALSE KILLER WHALE	02/02/2020	0259.94S	15021.90E	PG	DPA	Crew released from net	INTERACTION	1
FALSE KILLER WHALE	04/02/2020	0433.78S	15042.90E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	05/02/2020	0335.28S	15104.02E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	05/02/2020	0349.26S	15134.08E	PG	DPA	Other	INTERACTION	2
FALSE KILLER WHALE	07/11/2020	0346.99S	14707.98E	PG	DPA	Entangled in gear	INTERACTION	3
FALSE KILLER WHALE	11/11/2020	0245.343S	15316.38E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	11/11/2020	0256.604S	15315.60E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	11/11/2020	0259.319S	15316.32E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	12/08/2020	0332.88S	14631.44E	PG	DPA	Crew released from net	INTERACTION	4
FALSE KILLER WHALE	13/01/2020	0327.00S	15120.94E	PG	DPA	Crew released from net	INTERACTION	2
FALSE KILLER WHALE	13/05/2020	0109.951N	14853.578E	PG	DPA	Crew released from net	INTERACTION	4
FALSE KILLER WHALE	13/05/2020	0109.951N	14853.578E	PG	DPD	Entangled in gear	INTERACTION	3
FALSE KILLER WHALE	15/11/2020	0340.822S	15345.12E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	15/11/2020	0345.216S	15346.68E	PG	DPA	Other	INTERACTION	1
FALSE KILLER WHALE	18/11/2020	0320.71S	15504.86E	PG	DPA	Crew released from net	INTERACTION	2
FALSE KILLER WHALE	19/01/2020	0747.28S	15338.64E	PG	DPD	Other	INTERACTION	1
FALSE KILLER WHALE	19/11/2020	0248.361S	15513.70E	PG	DPA	Entangled in gear	INTERACTION	2
FALSE KILLER WHALE	20/10/2020	0356.439S	15030.84E	PG	DPD	Entangled in gear	INTERACTION	1
FALSE KILLER WHALE	21/09/2020	0141.389S	14700.18E	PG	DPA	Broke through net	INTERACTION	1

FALSE KILLER WHALE	21/11/2020	0500.14S	15639.78E	PG	DPA	Crew released from net	INTERACTION	1
FALSE KILLER WHALE	24/02/2020	0444.220S	15040.320E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	24/04/2020	0250.94S	14414.46E	PG	DPA	Crew released from net	INTERACTION	1
FALSE KILLER WHALE	25/03/2020	0356.28S	14636.78E	PG	DPA	Other	INTERACTION	6
FALSE KILLER WHALE	26/02/2020	0615.600S	15205.220E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	27/02/2020	0602.520S	15153.700E	PG	DPA	Crew released from net	INTERACTION	1
FALSE KILLER WHALE	27/02/2020	0603.600S	15155.500E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	27/09/2020	0400.78S	15014.22E	PG	DPA	Crew released from net	INTERACTION	1
FALSE KILLER WHALE	28/09/2020	0245.505S	14916.20E	PG	DPA	Broke through net	INTERACTION	1
FALSE KILLER WHALE	29/06/2020	0412.420S	14947.400E	PG	DPU	Broke through net	INTERACTION	1
FALSE KILLER WHALE	30/01/2020	0418.18S	14626.88E	PG	DPA	Broke through net	INTERACTION	1
INDO-PACIF. BOTTLENOSE DOLPHIN	09/04/2020	0054.900S	14606.420E	PG	DPA	Other	INTERACTION	3
INDO-PACIF. BOTTLENOSE DOLPHIN	19/08/2020	0108.116S	14521.72E	PG	DPA	Crew released from net	INTERACTION	4
PYGMY KILLER WHALE	22/03/2020	0347.040S	14528.440E	PG	DPA	Broke through net	INTERACTION	1
RISSO'S DOLPHIN	04/01/2020	1007.283S	15309.769E	PG	DPA	Crew released from net	INTERACTION	5
RISSO'S DOLPHIN	25/03/2020	0359.160S	14636.000E	PG	DPA	Crew released from net	INTERACTION	1
SEI WHALE	01/04/2020	0020.88N	14106.48E	PG	DPA	Crew released from net	INTERACTION	1
SEI WHALE	06/01/2020	0815.120S	15457.000E	SB	UUU	-	LANDED	7
SEI WHALE	12/04/2020	0156.58S	14447.52E	PG	DPA	Crew released from net	INTERACTION	1
SEI WHALE	18/04/2020	0214.04S	14208.88E	PG	DPA	Broke through net	INTERACTION	1
SEI WHALE	18/10/2020	0356.704S	15020.22E	PG	DPA	Broke through net	INTERACTION	1
SEI WHALE	23/11/2020	0302.145S	14303.840E	PG	DPA	Broke through net	INTERACTION	1
SEI WHALE	25/05/2020	0041.068N	14744.82E	PG	DPA	Crew released from net	INTERACTION	1
SPINNER DOLPHIN	22/07/2020	0320.88S	14858.80E	PG	DPA	Crew released from net	INTERACTION	7
STRIPED DOLPHIN	16/10/2020	0308.703S	14915.84E	PG	DPD	Entangled in gear	INTERACTION	4