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

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NEW CALEDONIA

GOUVERNEMENT DE LA NOUVELLE-CALÉDONIE

NOUVELLE-CALEDONIE Service du Parc Naturel de la Mer de Corail et de la Pêche SPNMCP

ANNUAL REPORT TO THE COMMISSION

PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

NEW CALEDONIA - 2021

Technical report written by the fisheries and natural park of the Coral sea department of the New Caledonian Government

Scientific data were provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission on the 30th April 2022	YES

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1. Summary

Fishing for tuna and associated species by New Caledonian vessels started in 1981 with pole-and-line (less than 3 vessels) which stopped very rapidly (1981: 228 mt; 1982: 998 mt; 1983: 492 mt).

Some domestic longliners started operating at the same time and it took almost 20 years before this domestic fleet had a significant activity.

The New Caledonian fleet operates in the New Caledonian EEZ exclusively.
In 2021, the New Caledonia government has granted 18 licences to longline vessels. One vessel exited the fishing fleet in June 2021 due to obsolescence.
All of these licensed domestic longliners were active. Similarly to past years there were no foreign vessels licensed or chartered to operate within the New Caledonian EEZ.

In 2021, the total catch was lower (-7%) compared to 2020. The annual catches of 2 626 mt were mainly composed of albacore, the main target species of all the vessels and accounted for 68% of the total catches (1 774 mt). Yellowfin was second with 624 mt (24% of the total catch). Striped marlin is the main bycatch of the fishery (98 mt; 4% of the total catch).

Catches of sharks have been decreasing since 2006, due to an increasing use of monofilament branch lines and the adoption of a regulation in April 2013 prohibiting the catch, the disturbance and the retention on-board of any shark or ray.

In 2021, observer activities carried out under the New Caledonia Observer Program punctually reached a 7.3% coverage rate of the longline hooks. The aim of this activity is to collect information on all the components of the fishery harvest to be checked with other sources of data and to provide accurate data for stock assessments (biological samples, size composition, estimates of incidental catch).

During all the trips observed in 2021, there were 2 sea turtles, 3 sea birds and 1 marine mammal interactions. The incidental catches of shark and ray species were reported by the Observer Program at 489 individuals in 2021 (including 71 rays).

Finally, a new observer joined the Program in July 2021 and carried out his first observation trips while a former observer left the Program in November.

2. Background

Longline fishing was introduced to the Pacific and New Caledonia by the Japanese in 1930s. After World War II, several fishing bases were established throughout the Pacific and the number of Japanese longliners operating increased to 200 vessels by the 1960s. Until then, the longliners targeted albacore tuna for canneries, but from 1970, the Japanese turned to fishing for tuna closer to the equator, such as yellowfin and bigeye tuna.

From 1978, the year of creation of the Exclusive Economic Zone (EEZ) of New Caledonia, foreign fishing was subject to the prior signature of bilateral agreements between the fishing countries and France. Successive Franco-Japanese agreements were signed until 2001, by which time Japanese fishing had almost disappeared from the New Caledonian EEZ.

The development of the domestic longline fleet started in 1983 and the early 2000s saw a significant increase in the number of longline vessels. However, from 2003 onwards, the lack of skilled manpower led to an under-utilisation of the vessels and several fishing companies stopped their activity.

The number of fishing vessels continued to decrease gradually until 2013, when the fleet stabilised at around 6 to 7 fishing companies and 16 to 18 active longliners per year.

3. Flag State Reporting

3.1. Fleet and activity

In 2021, 18 licensed domestic longliners were active. However, one of them had to stop its activity because of its obsolescence (Figure 1 and Table 1).

All active vessels in 2021 are less than 200 tons GRT (Table 1). These vessels have limited cruising range within the EEZ. The larger longliners nearing 150 tons can stay at sea for two or more weeks. Fishing campaigns last on average 12 days and fishing activity lasts on average 8 days.

347 fishing trips were reported in 2021, totalling 4,120 days at sea (-4.5% compared to 2020), 2,774 fishing days (-1.5% compared to 2020) and 5.9 million hooks (-2.5% compared to 2020). This decrease in fishing activity is mainly due to the cessation of activity of one of the fishing vessel of the fleet.

As previous years, no fishing activity by the New Caledonian fleet neither north of the equator, nor south of 30° South was reported.

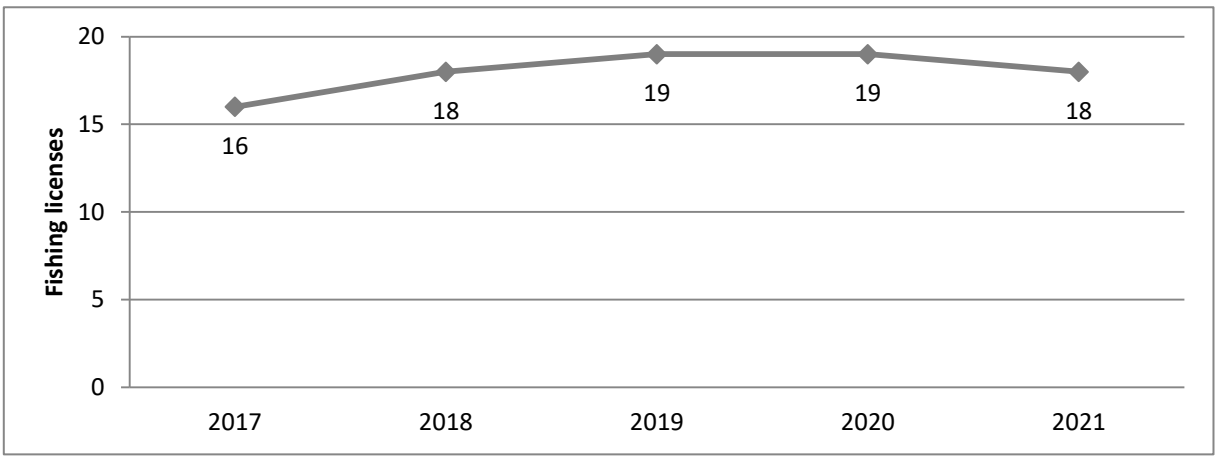


Figure 1: Historical New Caledonian longline licensed vessels

Table 1: Historical number of domestic active longliners by GRT class in New Caledonia

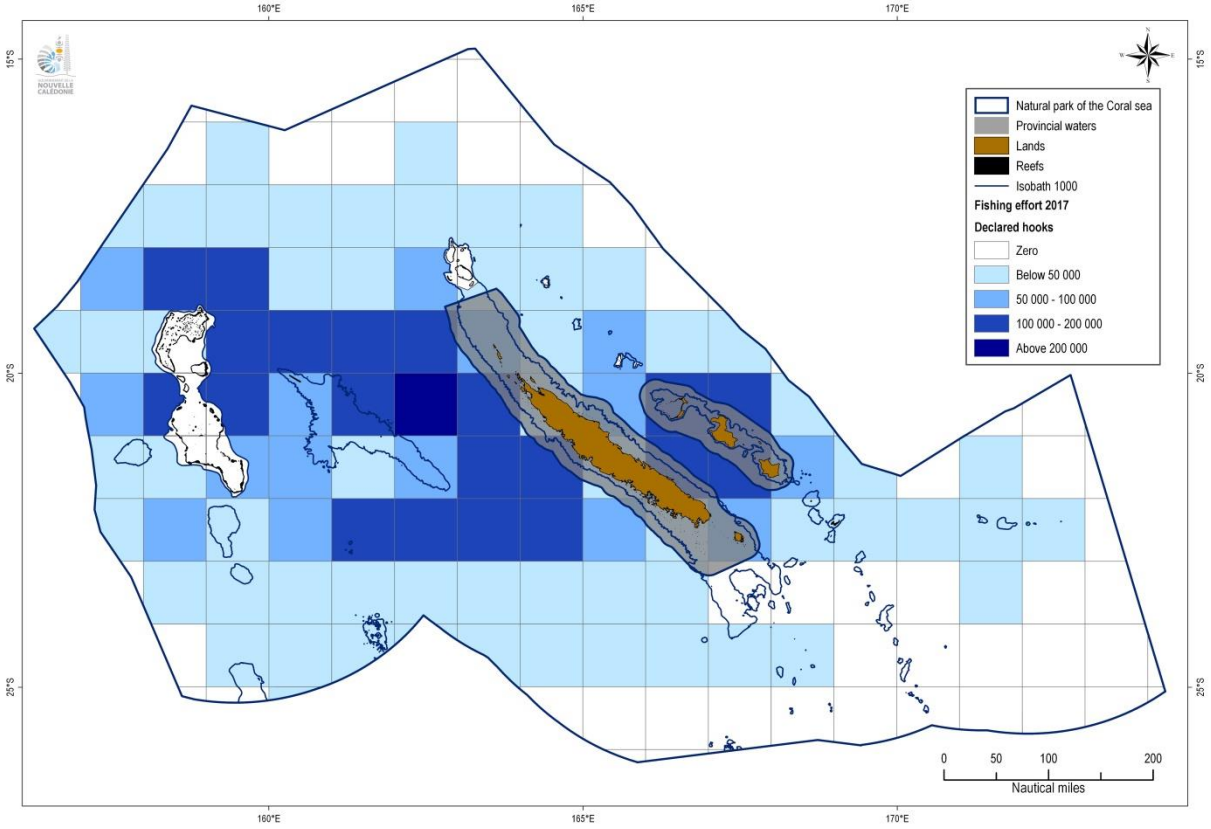
Vessel by GRT	0-50	51-200
2017	1	15
2018	1	17
2019	1	18
2020	1	18
2021	1	17

3.2. Fishing patterns

Fishing patterns vary with season and catches of targeted species. With catches of albacore tuna declining each year during the months of March to May and September to November in New Caledonian waters, fishing companies target yellowfin tuna around the reefs of the EEZ during these months.

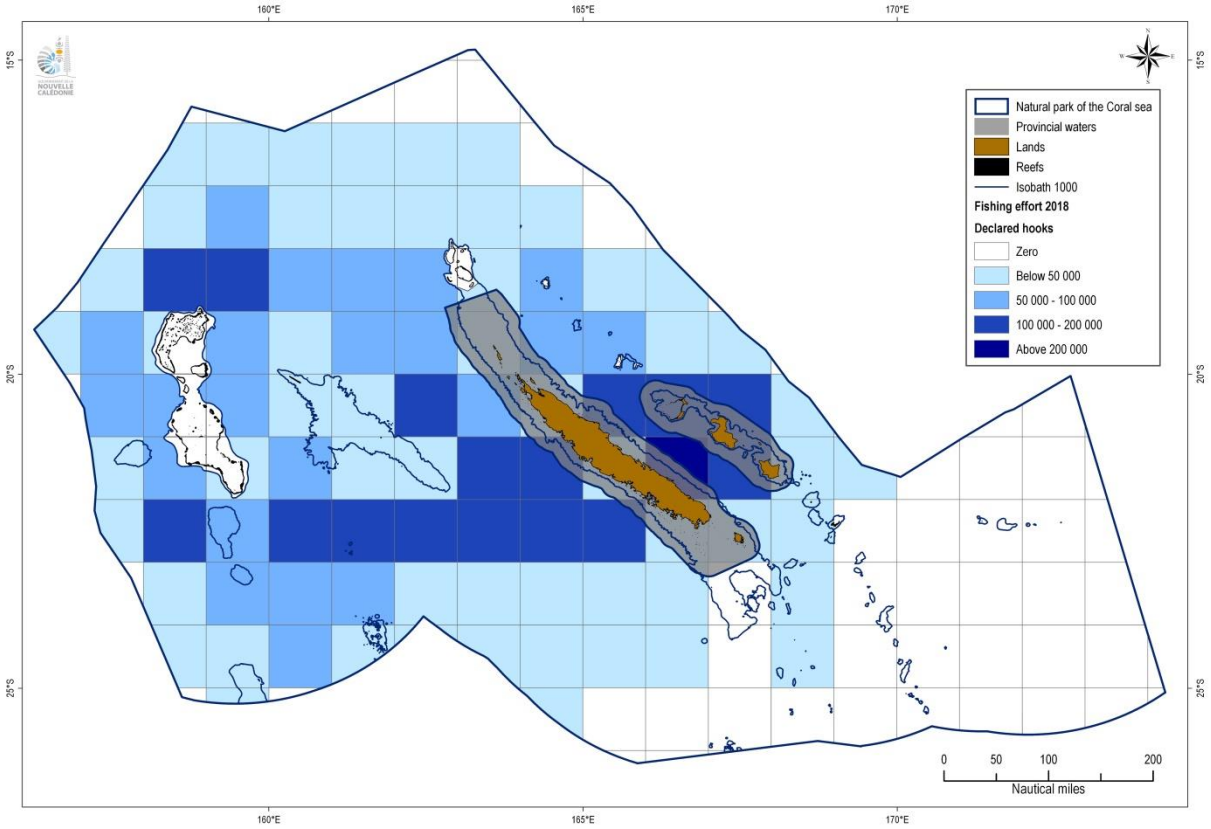
Figure 2 (a-e) below show the annual fishing effort of domestic longliners in New Caledonia EEZ from 2017 to 2021.

a) – 2017



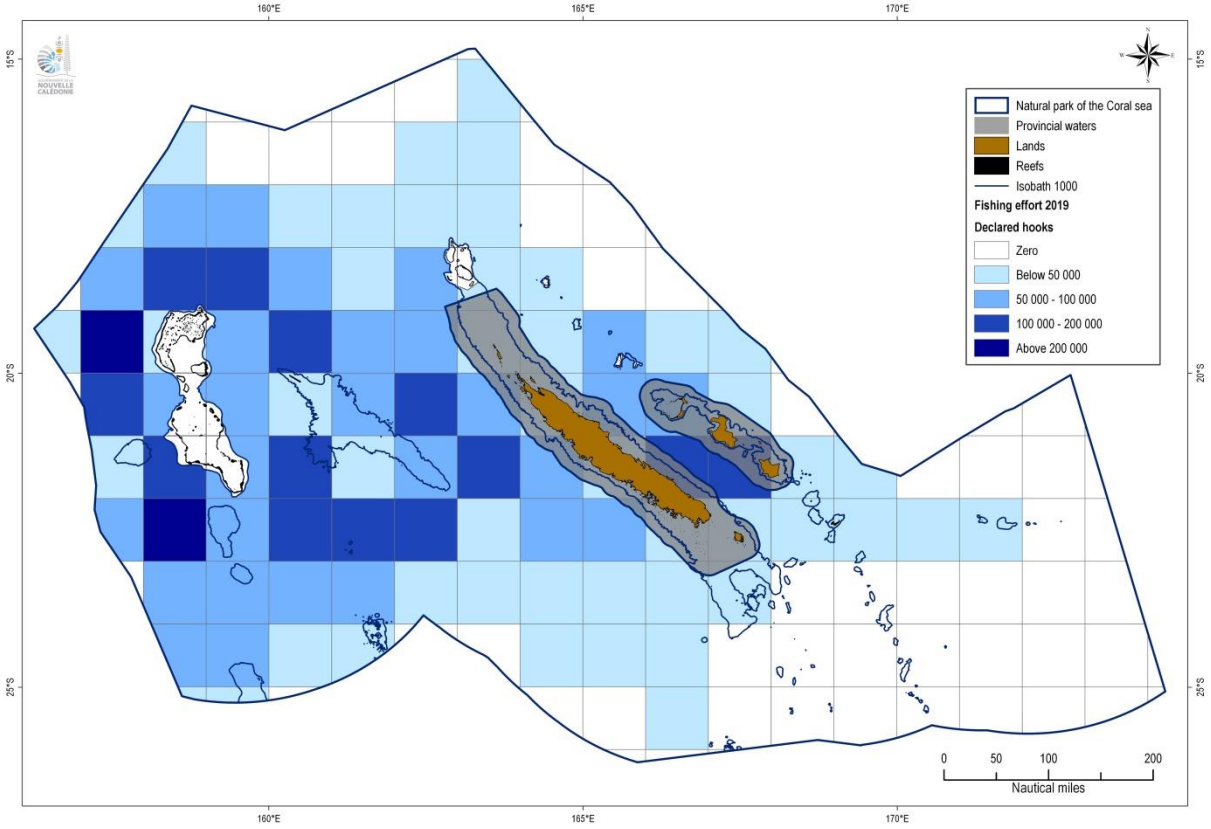
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

b) – 2018



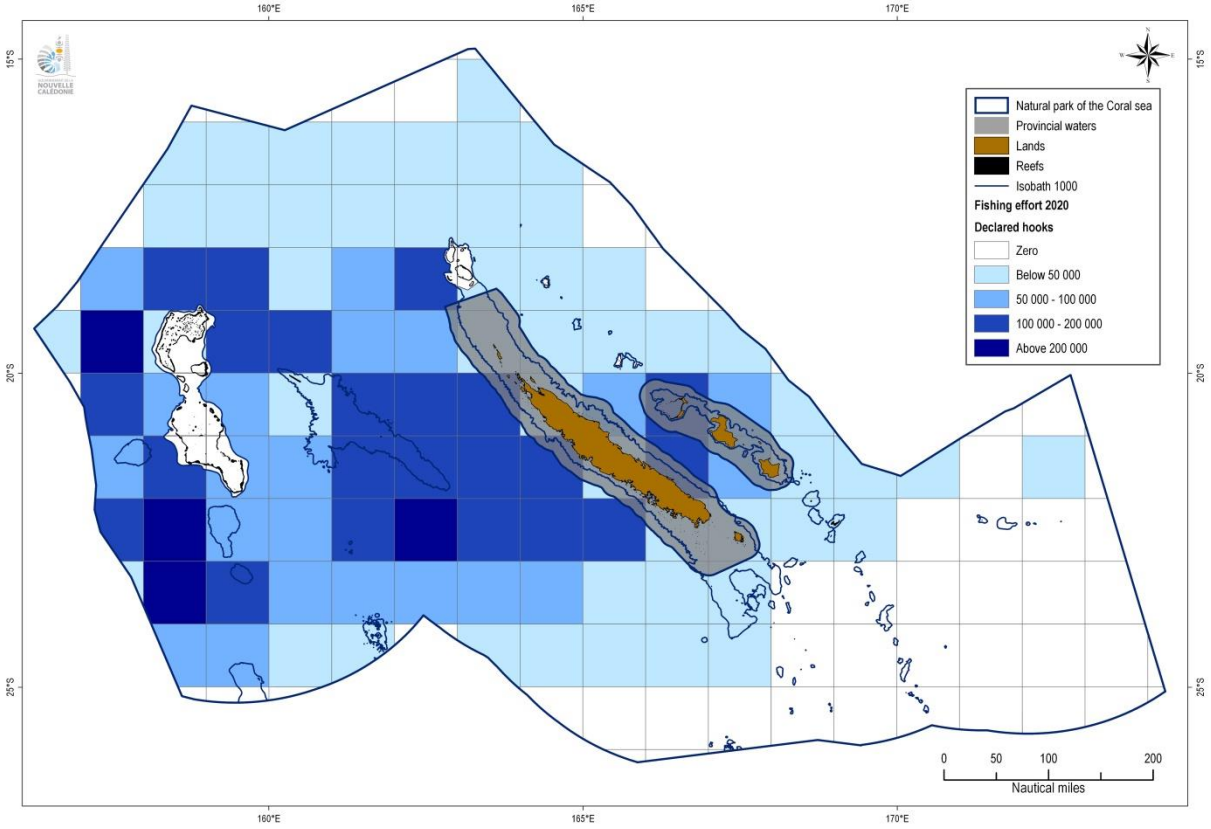
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

c) – 2019



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

d) – 2020



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

e) – 2021

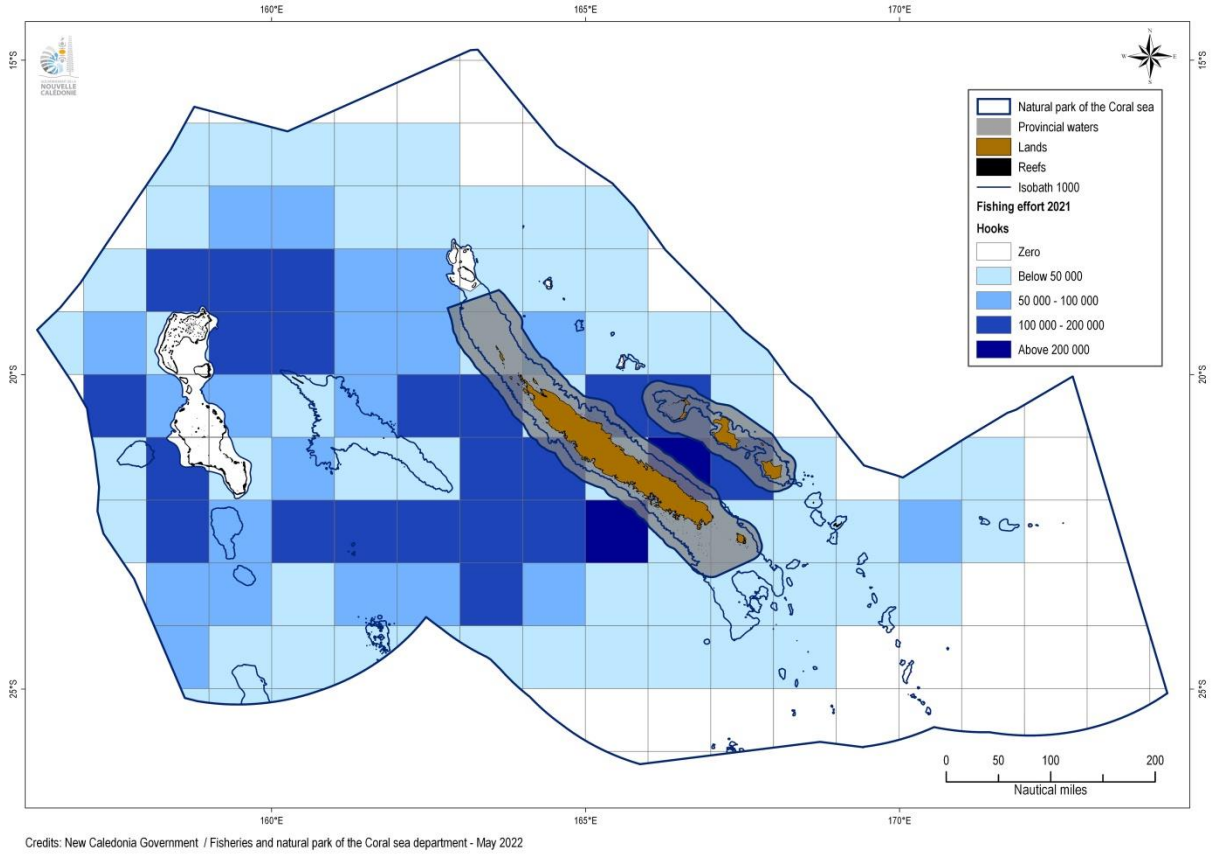


Figure 2 (a-e): Historical annual fishing effort (by hooks), of the New Caledonia longliners from 2017 to 2021. Hooks have been aggregated into 1 degree squares and the colour varies according to the number of hooks deployed.

3.3. Catch statistics

In 2021, the catch level estimate of WCPFC key species is 2,626 mt. The main tuna species estimated catch is 2,398 mt (**Table 2** and **Figure 3**).

As the target species of the New Caledonian fishery, the South Pacific albacore and yellowfin tunas are predominant in the catches with respectively 1,774 mt (68%) and 624 mt (24%) in 2021 (**Table 2** and **Figure 3**). The average weight of albacore is 18 kg and that of yellowfin tuna is 29 kg, similar to the previous year.

No New Caledonian vessel targets bigeye, marlins or swordfish. Therefore, all reported catches for these species are bycatch. In 2021, 59 mt of bigeye, 97 mt of striped marlin (south of 15° South) and 10 mt of swordfish were caught (**Table 2** and **Figure 3**).

Fishing activity occurred south of 25° South in 2021. Two vessels fished 7.1 mt including 6.2 mt of albacore tuna during 5 fishing days. The coverage rate of the observer program is above average in this area, exceeding 20%. No seabird interaction have been reported south of 25° South in 2021, neither by observers nor by fishermen.

Since the adoption of the regulation for the conservation of sharks in April 2013, which prohibits the catch, the disturbance and the retention of any sharks and rays, all the sharks caught are not boarded and must be released. This year, data from the observer program indicates that out of all the sharks observed, 91% are released alive.

No New Caledonian vessel takes part in transhipment activities in the WCPFC area.

Table 2: Historical annual fishing effort and catch estimates by species from New Caledonia longliners in the WCPFC area

Effort	2017	2018	2019	2020	2021
Days fished	2,386	2,463	2,460	2,797	2,754[1]
Hooks	4,811,570	5,121,700	5,158,200	6,022,982	5,885,350
Catch (mt)	**2,581**	**2,382**	**2,828**	**2,611**	**2,626**
Albacore	1,734	1,752	1,965	1,903	1,774
Bigeye	48	46	37	51	59
Black marlin	65	28	29	32	34
Blue marlin	34	13	11	10	16
Pacific Bluefin tuna	1	1	1	0	0
Skipjack	41	15	11	8	11
Striped marlin	77	52	84	81	97
Swordfish	22	8	8	9	10
Yellowfin	559	467	664	515	624

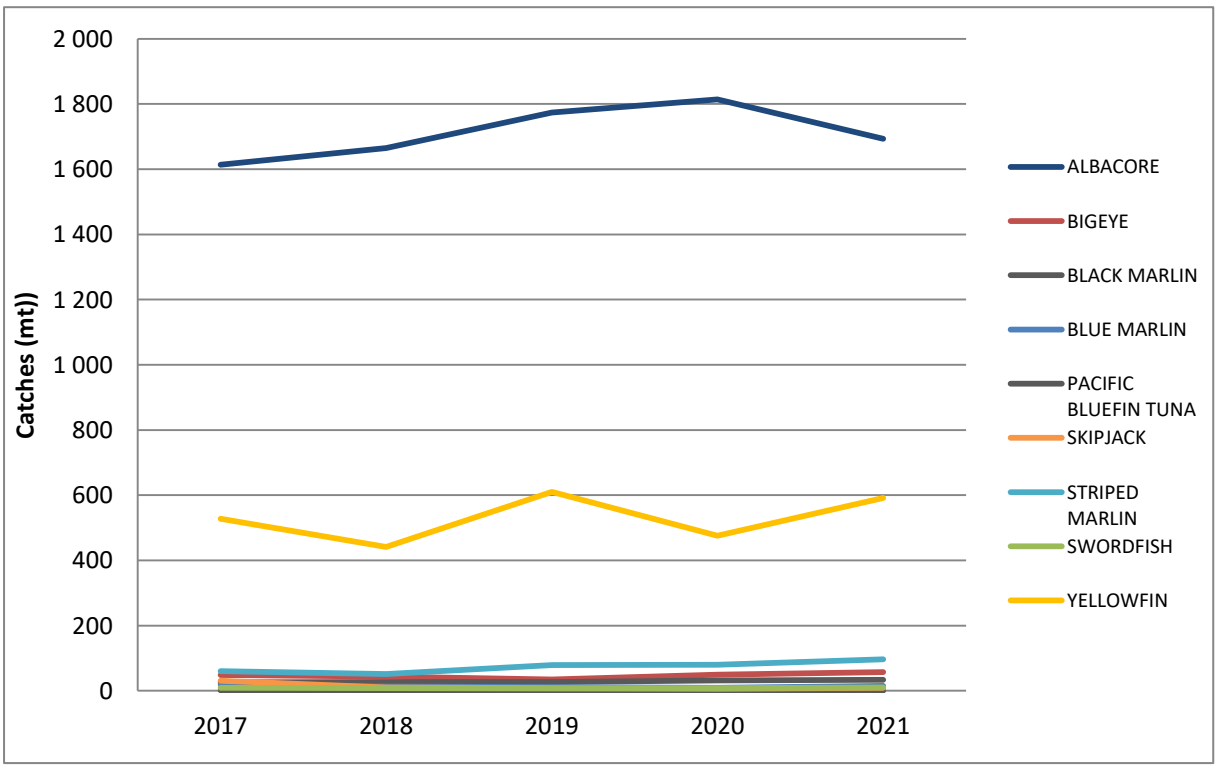


Figure 3: Historical annual catch or primary species by the New Caledonia longliners

[1] Source : Annual Catch Estimates 2021

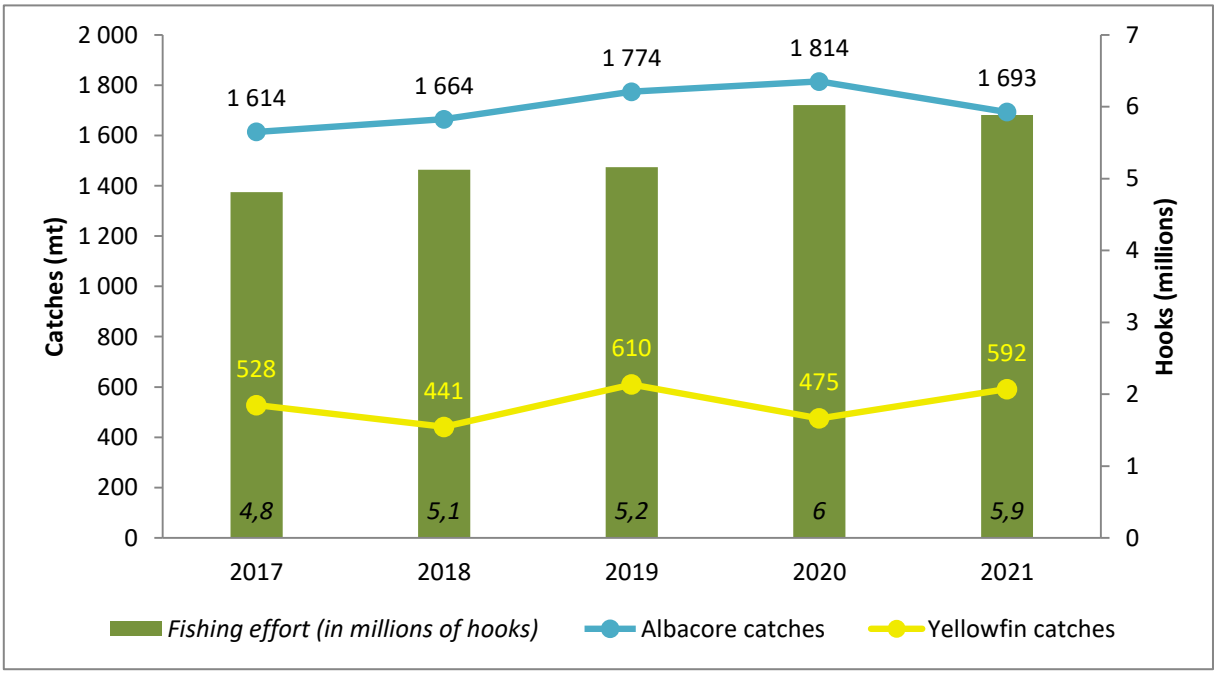
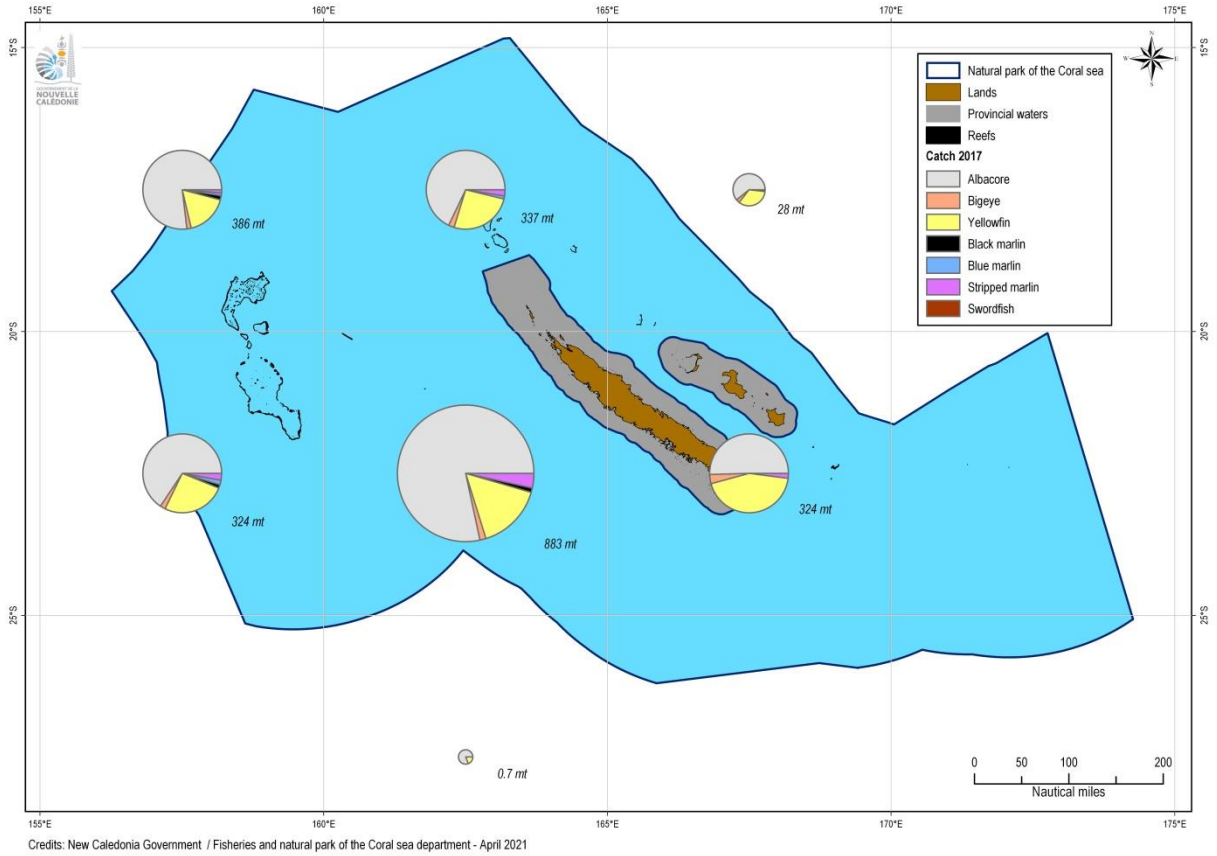
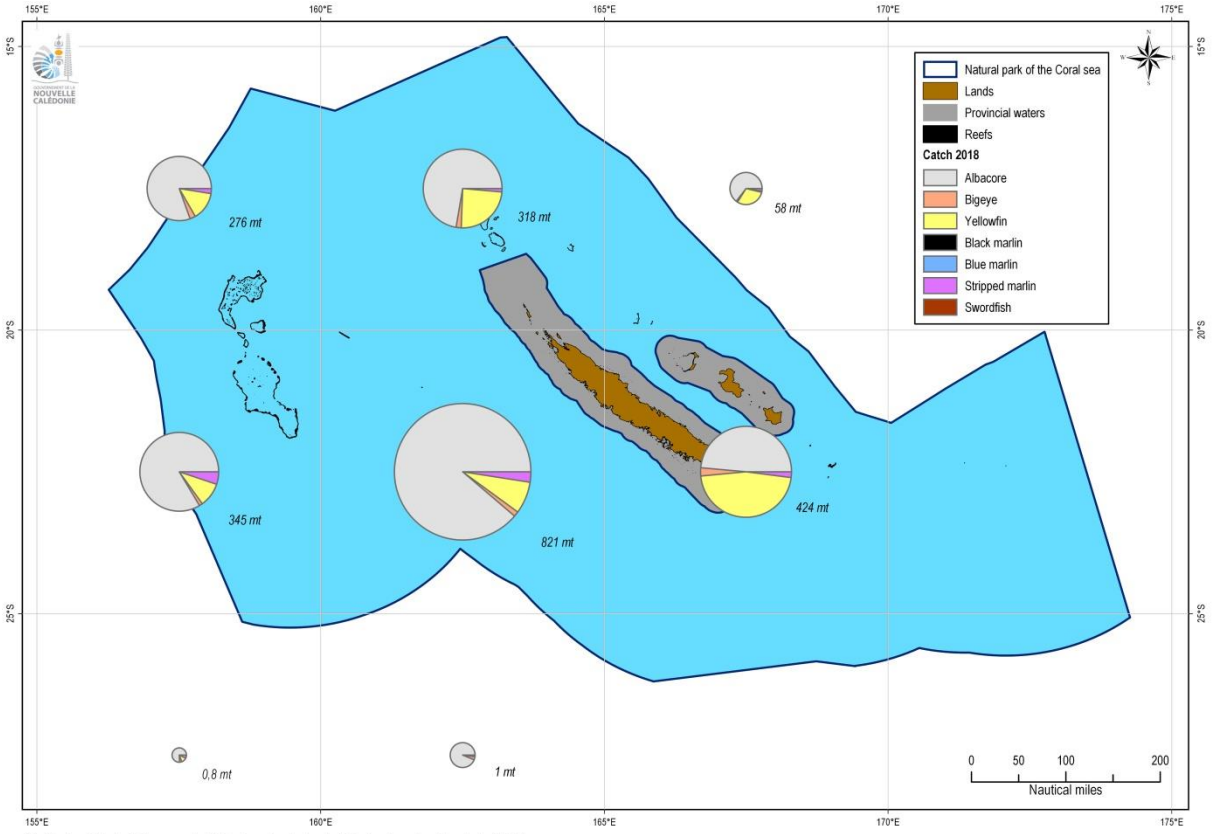


Figure 4: Annual distribution of target species catch and effort by the New Caledonian longliners

a) – 2017

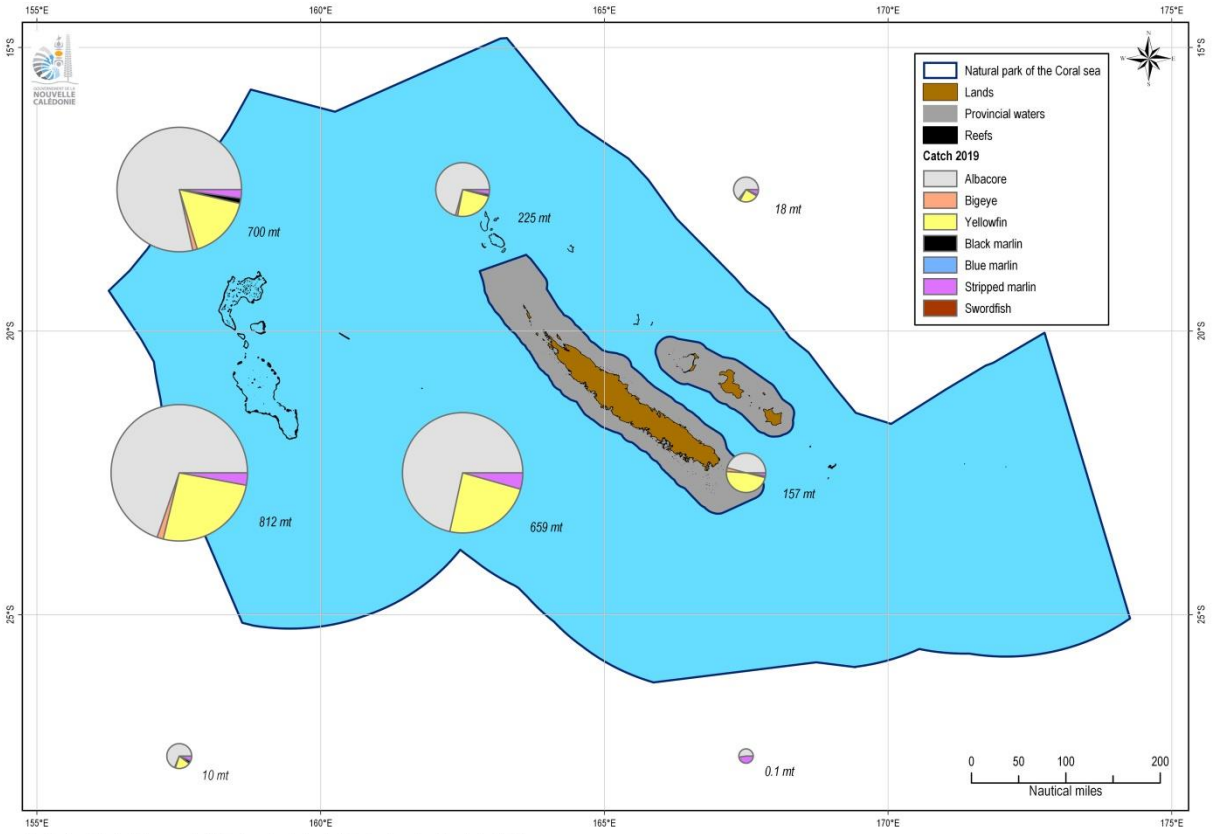


b) – 2018



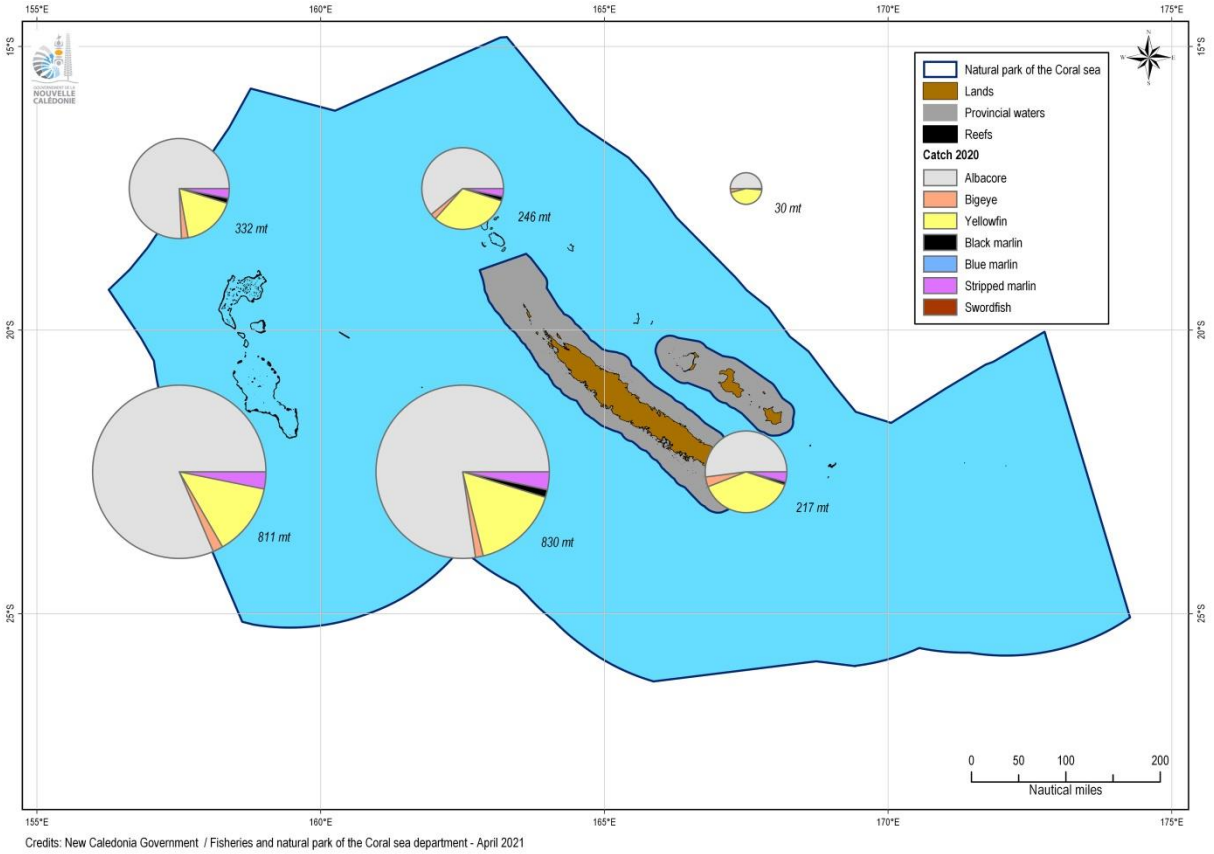
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

c) – 2019



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - April 2021

d) – 2020



e) – 2021

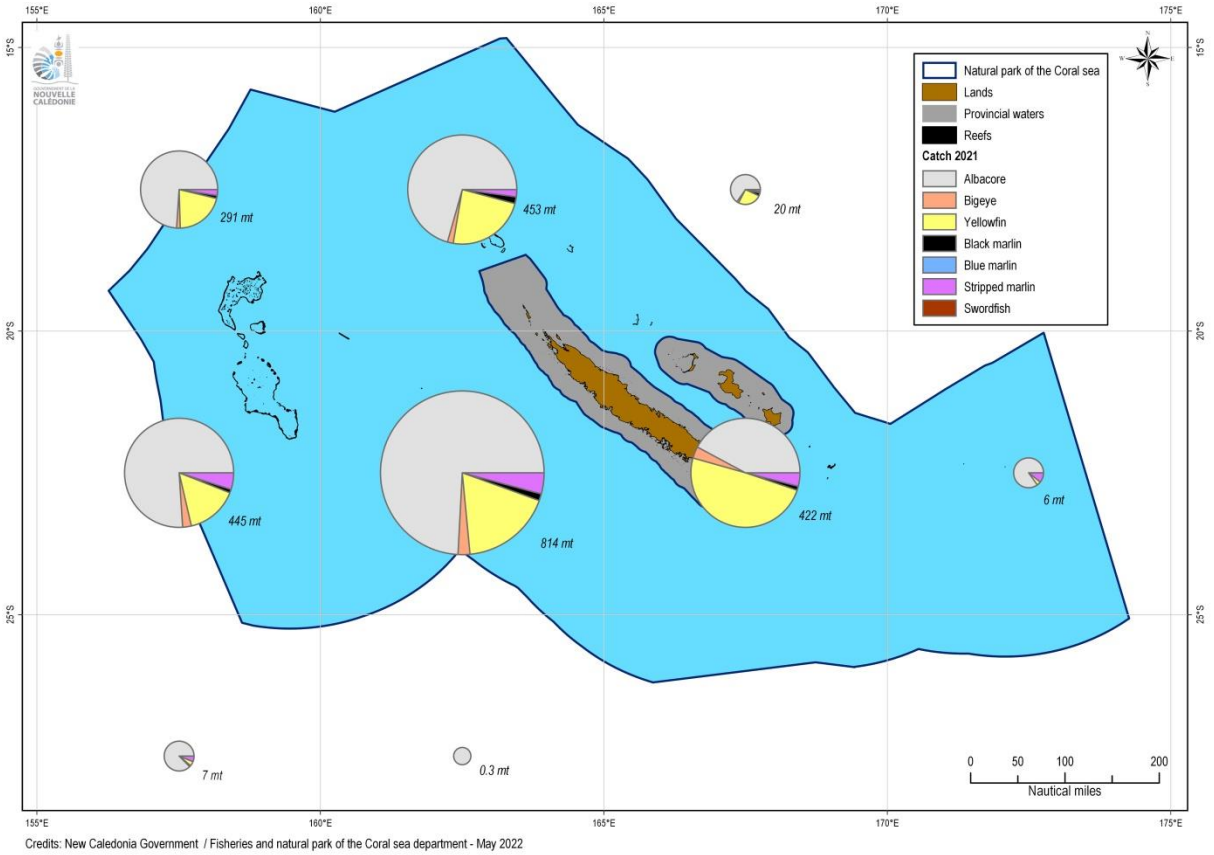


Figure 5 (a-e): Annual distributions of primary species catch by the New Caledonian longliners fleet from 2017 to 2021. The catches are aggregated by 5 degrees squares and the diameter of each pie chart varies according to total tonnage of each square

3.4. Species of special interest

Interactions between seabirds, sea turtles and marine mammals are recorded by observers of the New Caledonia Observer Program (NCOB). In 2021, interactions with the fishing gear were observed with 3 seabirds, 2 sea turtles and 1 marine mammal (Table 3). Sea turtles were released respectively alive and dead, seabirds were released dead and the marine mammal was released alive.

Table 3: Observed annual catches of species of special interest

Species of special interest	Seabird	Sea turtle	Marine mammal
2017	1	4	3
2018	9	2	1
2019	3	1	2
2020	2	2	0
2021	3	2	1

Table 4: Historical effort, observed and estimated seabird captures from New Caledonia longliners

Year	Fishing effort				Observed seabird captures 23°N – 30°S	
	Number of active vessels	Number of hooks	Observed hooks	% hooks observed	Number	Rate (per thousand hooks)
2017	16	4,811,540	406,000	8.4	1	0.0025
2018	18	5,121,700	523,332	10.2	7	0.0134
2019	18	5,158,200	466,824	9	3	0.0064
2020	19	6,003,782	437,731	7.3	2	0.0046
2021	18	5,885,350	430,278	7.3	3	0.0070

Table 5: Number of observed seabirds captures in New Caledonia longline fishery in 2021 by species and area

Species	South of 30°S	25°S-30°S	North of 23°N	23°N-25°S	Total
Petrels and Shearwaters Nei	0	0	0	3	3
Total	0	0	0	3	**3**

In 2021, 418 sharks of at least 15 different species were observed and 91% of them were released alive.

Table 6: Historical annual shark catches observed by New Caledonia observers on longliners

Sharks observed (number)	2017	2018	2019	2020	2021
Bigeye thresher shark	4	13	9	3	1
Bignose shark	0	0	0	0	0
Blacktip shark	1	0	2	0	1
Blue shark	422	388	549	476	277
Bronze whaler shark	0	3	3	1	1
Bull shark	0	1	3	11	3
Great hammerhead	0	0	2	1	0
Great white shark	0	0	0	0	1
Grey reef shark	10	6	6	1	1
Longfin mako	10	45	24	11	16
Mako sharks	3	2	0	0	0
Oceanic whitetip shark	17	16	40	33	11
Pelagic thresher shark	8	12	14	7	0
Sandbar shark	1	6	1	2	2
Scalloped hammerhead	0	2	0	0	0
Shortfin mako	41	61	35	18	26
Silky shark	74	53	33	53	10
Silver-tip shark	1	2	0	0	0
Smooth hammerhead	1	0	1	0	0
Thresher shark (*Vulpinus*)	1	0	0	1	1
Tiger shark	10	10	8	6	5
Various sharks NEI	98	122	173	97	62

Table 7: Historical annual estimated catches of non-target, associated and dependent species by New Caledonian longliners in the WCPFC area

Catch estimates (mt)	2017	2018	2019	2020	2021
	Discarded	Discarded	Discarded	Discarded	Discarded
Blue shark	7	6	8	49	155
Silky shark	10	2	2	2	5
Hammerhead shark	0	1	0	0	1
Short finned mako shark	7	24	5	0	8
Oceanic white-tip shark	3	3	2	2	3
Porbeable shark	0	0	0	0	0
Whale shark	0	0	0	0	0
Thresher shark	0	1	0	1	0

4. Coastal state reporting

Since 2001, when last Franco-Japanese agreements were signed, there are no foreign vessels licensed or chartered to operate in the New Caledonia EEZ.

5. Socio-economic factors

The latest available economic data for the fishery for highly migratory species is for 2020 (to date, analyses for 2021 have not yet been conducted).

In 2020, the turnover of the fishing sector was around one billion CFP francs, similar to that of the previous year, with a slight decrease in production. In 2021, the expected results are better thanks to the increase of the production.

6. Disposal of catch

More than 80% of pelagic species production is destined to the local market. The rest is exported to Europe, Japan and the United States.

Table 8 below details the different markets destination in 2020, according to the last available data.

Table 8 : Destination of New Caledonia fishery production in 2020 (last economic data available)

	Tuna			Billfish			Other		
Market	Domestic	Export		Domestic		Export	Domestic		Export
%	80%	20%		94%		6%	100%		0%
Condition	Fresh	Fresh	Frozen	Fresh	Frozen	Fresh	Fresh	Frozen	Fresh
%	100%	51%	49%	n/a[2]	n/a	100%	n/a	n/a	-
Metric tonnes	1,755 mt	447 mt		109 mt		6 mt	123 mt		-

7. Onshore developments

Nothing to report.

8. Future prospects for the fisheries

Offshore fishing is an asset for New Caledonia and in 2021, the actors of this sector have been examining the obstacles and levers for its development. The local fishery has undergone some difficulties in recent years and the objective is to make it an autonomous and sustainable sector. In order to ensure the future of the offshore sector, the Government of New Caledonia has commissioned the drafting of a master plan. The government's fisheries department has been working on this project since the end of 2021 with the ambition of presenting this master plan during the fisheries conference scheduled for the end of 2022. This master plan will propose strategic objectives and an action plan on 4 major themes: social issues, economic development, sustainable management of resources and activities, and the regulatory framework for the exercise of the profession.

9. Status of tuna fisheries data collection systems

9.1. Logsheet data collection and verification

As a counterpart to their fishing licenses the New Caledonian fishing companies must provide logsheets which are collected by the New Caledonia fisheries authority at the end of each trip. In 2021, the coverage rate of collected logsheets is 100%.

In accordance with the provision of scientific data to the WCPFC all the logsheets data are made available to the SPC/OFP by the TUFMAN2 software. Before 2019, the data presented in this report were extracted by the DORADO system operated by SPC. Since 2019, the data presented are both extracted from the DORADO system (now renamed TUFMAN REPORT), provided by the New Caledonia Observer Program, and from the Annual Catch Estimates document produced during the Tuna Data Workshop, carried out by SPC each year.

[2] n/a : not available

9.2. Observer program

In 2021, 24 fishing trips were observed by 4 observers (including a new one, trained in 2020) on-board 14 of the 18 vessels of the fleet (78%), representing 324 days at sea, 203 fishing days, 430,278 hooks and 13,231 fish observed (Table 9).

The observer activity covered about 7.3% of the fishing activity (in number of hooks).

Table 9: Summary of the longline observer coverage for 2021 in New Caledonia

CCM fleet	Fishery	Hooks			Days fished			Days at sea			Trips		
		Total	Obs.	%	Total	Obs.	%	Total	Obs.	%	Total	Obs.	%
New Caledonia	Domestic (longline)	5,885,350	430,278	7.3	2,774[3]	203	7.3	4,120	324	7.8	347	24	6.9

Table 10: Historical estimated annual coverage of operational catch/effort and observer data

Year	Catch/effort annual coverage (%)	Hooks observed	Hooks deployed	Rate (%)
2017	100	406,000	4,811,540	8.4
2018	100	523,332	5,121,700	10.2
2019	100	460,218	5,158,200	8.9
2020	100	437,466	6,022,982	7.3
2021	100	430,278	5,885,350	7.3

Through collaboration with SPC, the New Caledonia Observer Program expanded its biological sampling to support specific research project on various themes in the biology and ecology of marine species in the Pacific region: mercury (on billfish), fatty acids (on tunas and billfish), genetic (tunas), plastics and POP (tunas and billfish). To carry out these samplings, the program team was trained in data collection protocols at SPC before boarding.

In 2021, biological samplings were collected during 5 of the 24 observed fishing campaigns. The observers collected 411 sampling from 198 fishes (159 albacore, 11 yellowfin, 3 bigeye, 10 skipjack, 5 stripped marlins, 6 blue marlins, 2 black marlins, 1 shortbill spearfish and 1 ocean sunfish) and 2 marine birds.

9.3. Port sampling program

In 2021, the New Caledonia Observer Program did not carry out any port sampling.

However, SPC locally carried out this type of sampling on 3.7% of caught fishes.

[3] Source : fishing logsheets 2021 (includes fishing campaigns overlapping 2020 and 2021)

9.4. Unloading/Transhipment

Nothing to report.

10. Research activities

- *WARMALIS 1 oceanographic campaign*

The first campaign to cross the Western Pacific Ocean from south to north, the WARMALIS 1 campaign was conducted in September 2021. Following is the abstract of the campaign report.

"Our project will study the mid-trophic levels (zooplankton and micronekton) of the large pelagic ecosystems of the Pacific where more than 50% of the global tuna catches are produced. Zooplankton and micronekton are components linking the physical/chemical factors, which influence their distribution and abundance, with the megafauna (e.g. tuna, marine mammals, seabirds) which are their predators. The aim of our project is to fill the important gap in knowledge on the large pelagic ecosystems of the Pacific. Our goal is to bring scientific knowledge for a sustainable management of the pelagic resources by understanding the functioning of the pelagic ecosystems (from physics to intermediate levels) and by collecting observations to validate and improve ecosystem models used to analyse the tuna resources (SEAPODYM).
We propose a series of multidisciplinary cruise to collect seawater physical and chemical data as well as data on zooplankton and micronekton. The cruises will cover 2 north-south transects (163°E, 150°W) and one east-west transect (5°S) crossing the large pelagic ecosystems of the western and central Pacific in rich and poor areas in terms of tuna catches. To characterise physico-chemical conditions and primary production, we will measure temperature, salinity, oxygen, fluorescence, light, currents, nutrients, photosynthetic pigments, phytoplankton abundance, primary production, phytoplanktonic communities. Secondary production (zooplankton, micronekton) will be measured with acoustic (TAPS, S-ADCP, EK60) and net sampling of zooplankton and micronekton. A standardised sampling strategy has been established to collect micronekton (same depths and time at each station) to properly compare the various ecosystems crossed and avoid differences linked to day or night sampling or at different depths. Depth and time of the day are primordial parameters influencing micronekton biomass and diversity.
Specialists in dynamic, acoustic, biogeochemistry, oceanography, biology and fisheries coming from different research institutions will collect, analyse and model observations on the mid-trophic levels. This cruise will be complemented by physical, chemical and biogeochemical modelling and by modelling of the pelagic ecosystem to include physico-chemical data, plankton and micronekton. Moreover, those observation data of micronecton will be analysed to validate the SEAPODYM ecosystem model with the objective of assimilating the observations to improve the model."

Key-words: micronekton, zooplankton, acoustic,primary production, chemistry, physical oceanography

Pacific Community (SPC), Fisheries, Aquaculture and Marine Ecosystem, Valérie Allain