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

WCPFC-SC20-AR/CCM-15 (Rev.01)

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 - 2023

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 2024	YES

Contents

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 2023, the New Caledonia government granted 16 licences to longline vessels.
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 2023, the total catch was lower (-14%) compared to 2022. The annual catches of 2,611 mt were mainly composed of albacore, the main target species of all the vessels, which accounted for 70% of the total catches (1,835 mt). Yellowfin was second with 422 mt (16% of the total catch). Striped marlin is the main bycatch of the fishery (137 mt; 5% 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 2023, observer activities carried out under the New Caledonia Observer Program reached a 8.8% 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 2023, there were 2 sea birds, 2 sea turtles and 1 marine mammal interactions. The incidental catches of shark and ray species were reported by the Observer Program at 917 individuals in 2023 (including 97 rays).

Finally, almost all observation campaigns were reported using OLLO, the application set up by SPC.

2. Background

Longline fishing was introduced to the Pacific and New Caledonia by the Japanese in the 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 2023, 16 licensed domestic longliners were active (**Figure 1** and **Table 1**).

All active vessels in 2023 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.

325 fishing trips with sets in 2023 were reported, totalling 3,976 days at sea (-13% compared to 2022), 2,674 fishing days (+3% compared to 2022) and 5.8 million hooks (+4.5% compared to 2022). These data indicate that the fishing strategy has changed to adapt to current constraints (fuel prices and depredation). The trend in 2023 is for fewer trips to the fishing areas but just as many, if not more, fishing days and hooks in order to maximise catches.

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

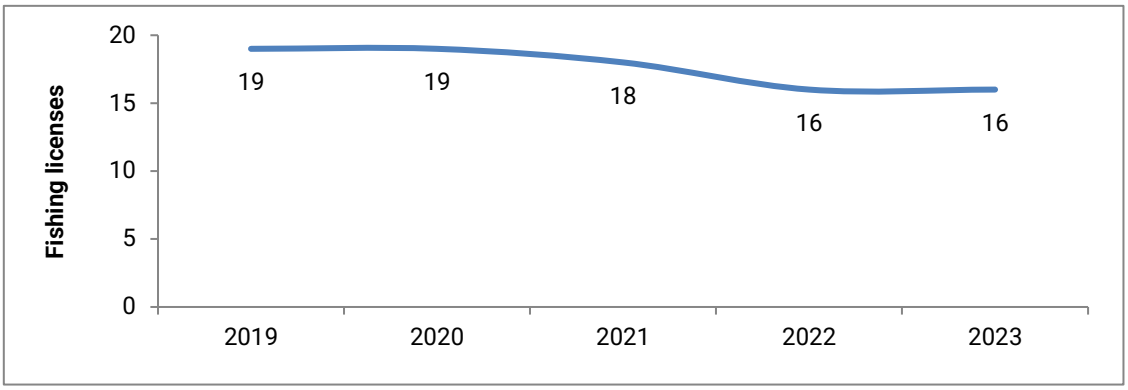


Figure 1 : Historical New Caledonian longline licensed vessels

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

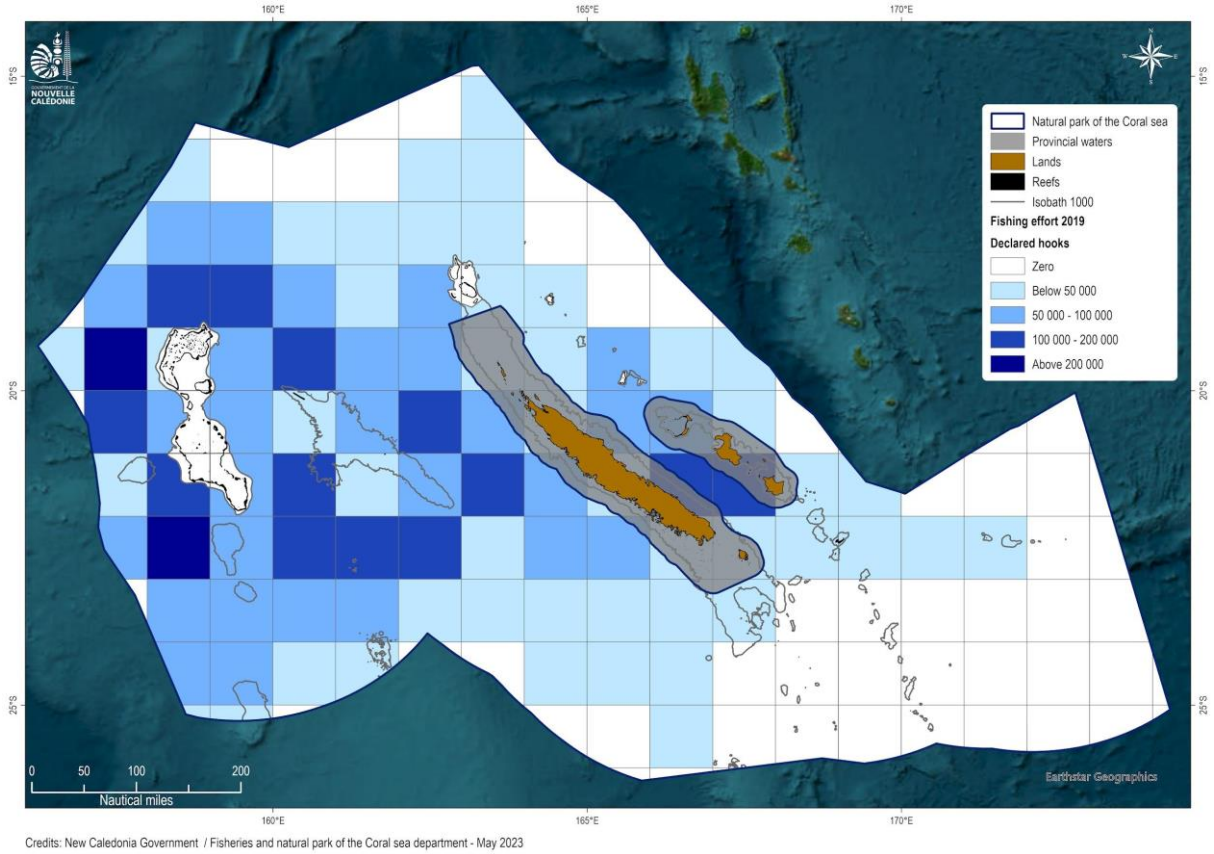
Vessel by GRT	0-50	51-200
2019	1	18
2020	1	18
2021	1	17
2022	0	16
2023	0	16

3.2. Fishing patterns

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

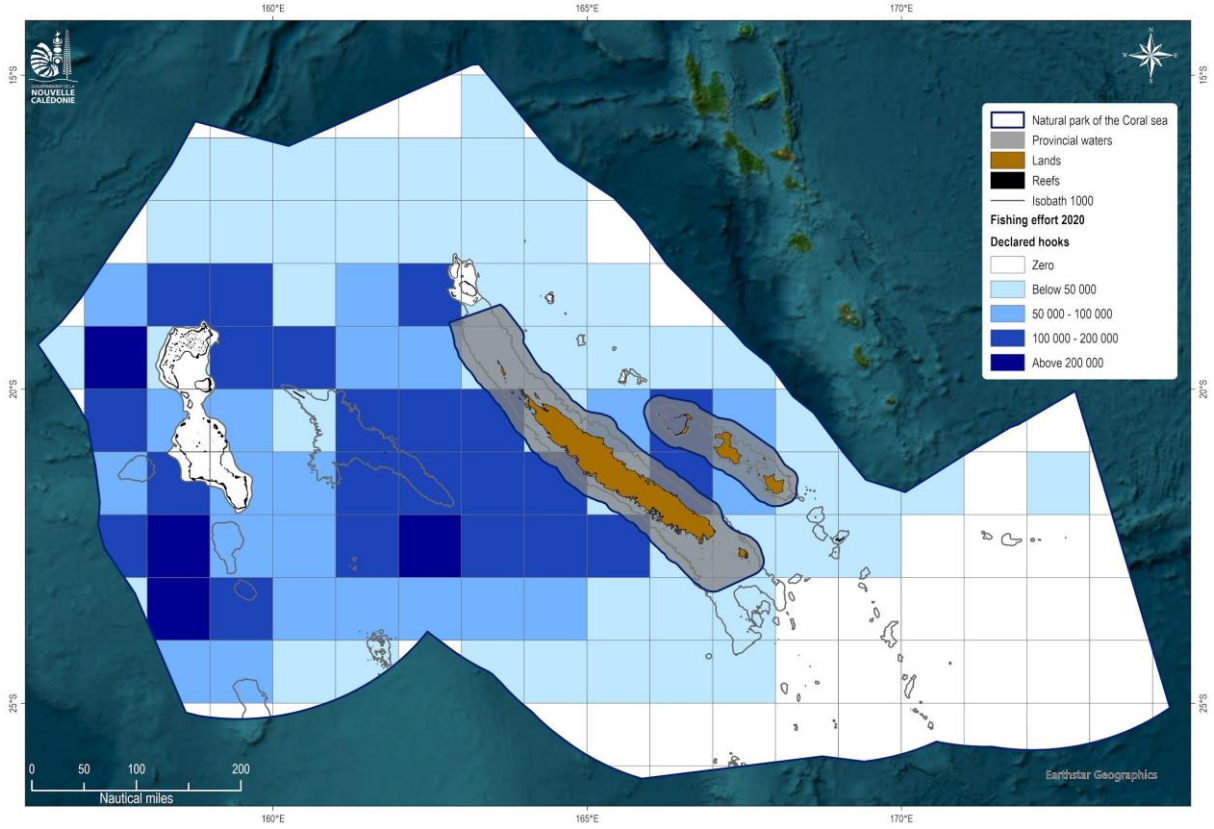
Figure 2 (a-e) below shows the annual fishing effort of domestic longliners in New Caledonia EEZ from 2019 to 2023.

a) - 2019



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

b) - 2020



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

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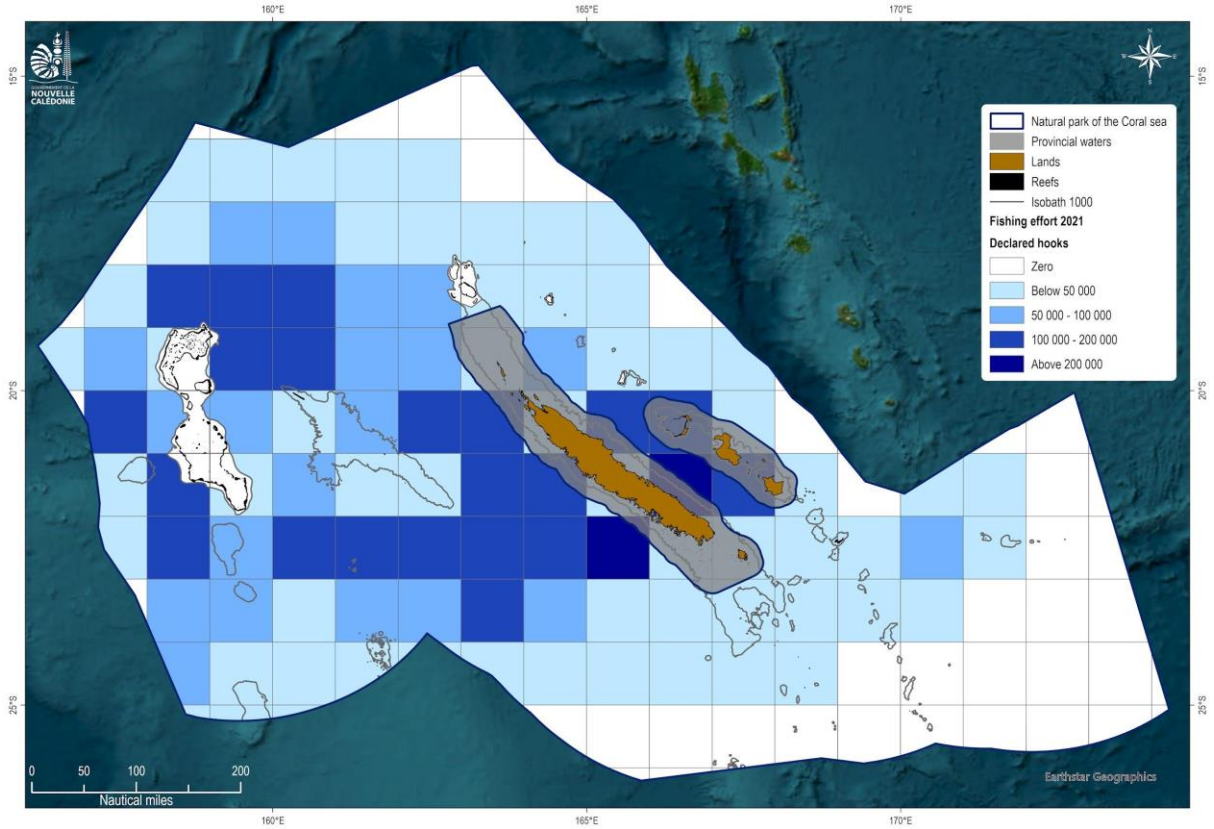
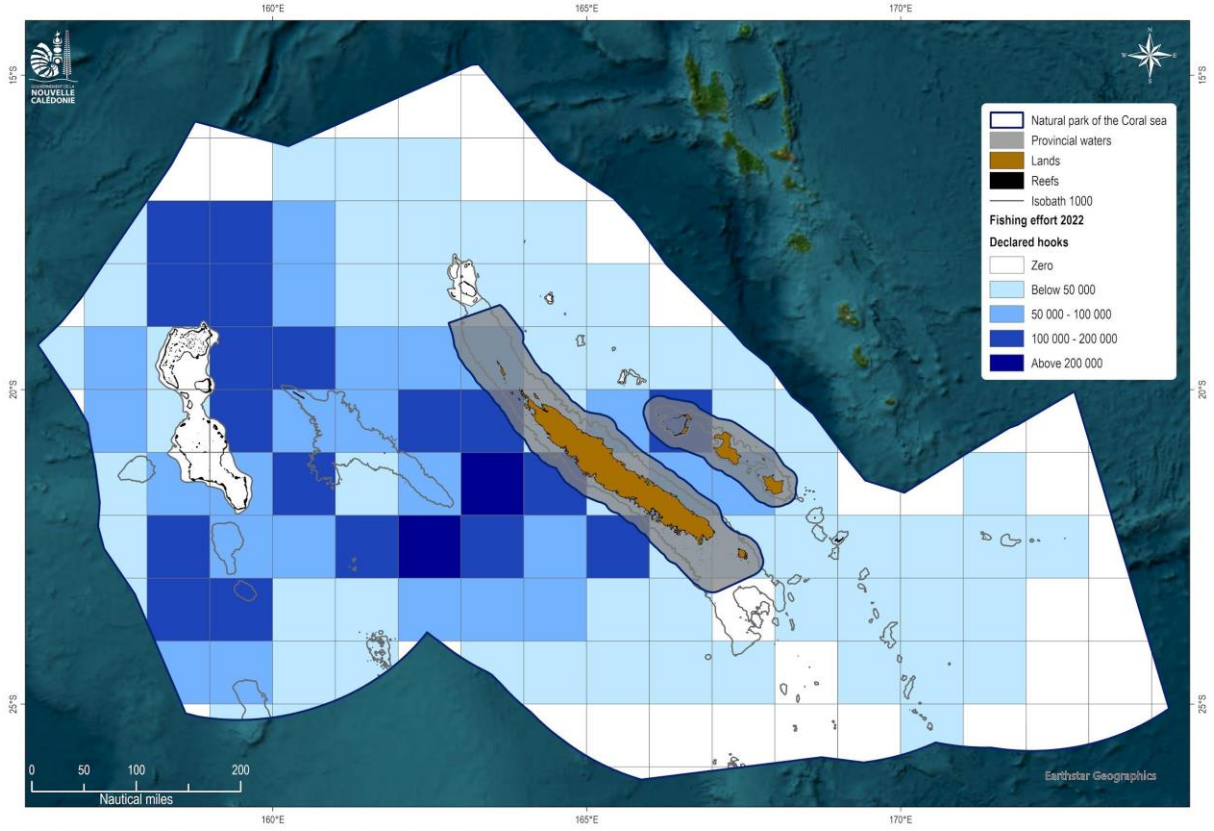


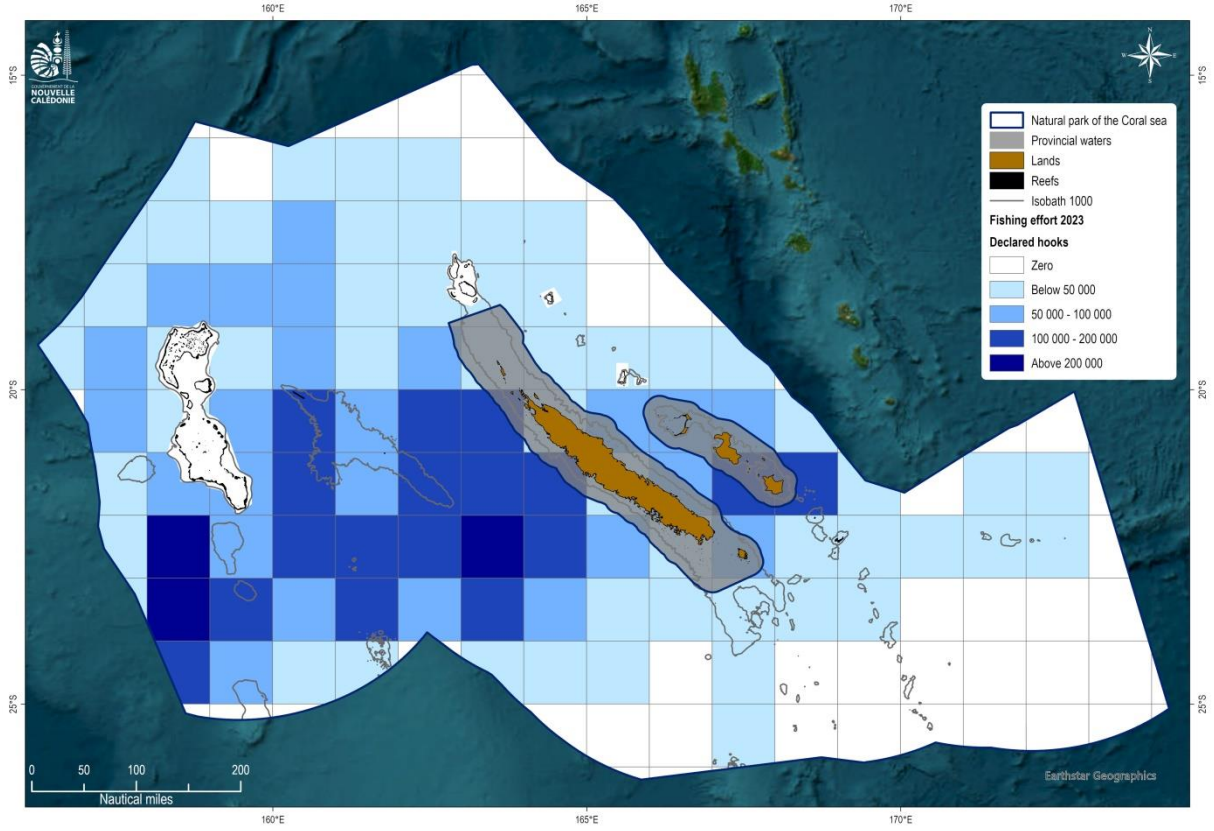
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

d) - 2022



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

e) - 2023



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - March 2024

Figure 2: Historical annual fishing effort (by hooks), of the New Caledonia longliners from 2019 to 2023. *Hooks have been aggregated into 1 degree squares and the colour varies according to the number of hooks deployed.*

3.3. Catch statistics

In 2023, the catch level estimate of WCPFC key species is 2,611 mt. The main tuna species estimated catch is 2,302 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 1,835 mt (70%) and 422 mt (16%) in 2023 (**Table 2** and **Figure 3**). The average weight of albacore is 18 kg and that of yellowfin tuna is 25 kg, the latter is slightly lower than last year.

No New Caledonian vessel targets bigeye, marlins or swordfish. Therefore, all reported catches for these species are bycatch. In 2023, 39 mt of bigeye, 137 mt of striped marlin (south of 15° South) and 11 mt of swordfish were caught (**Table 2** and **Figure 3**).

Fishing activity occurred south of 25° South in 2023. Two vessels fished 2.4 mt including 1.2 mt of albacore tuna during 4 fishing days. Unfortunately, the coverage rate of the observer program in this area is zero. No seabird interaction has been reported south of 25° South during these sets.

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, whatever their condition. In 2023, data from the observer program indicates that out of all the sharks observed, 92.5% were 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	**2019**	**2020**	**2021**	**2022**	**2023**
Days fished	2,460	2,797	2,754	2,604	2,674[1]
Hooks	5,158,200	6,022,982	5,885,350	5,600,574	5,854,872
Catch (mt)	**2,828**	**2,611**	**2,626**	**3,107**	**2,611**
Albacore	1,965	1,903	1,774	2,158	1,835
Bigeye	37	51	59	67	39
Black marlin	29	32	34	36	27
Blue marlin	11	10	16	20	14
Pacific Bluefin tuna	1	0	0	0	0
Skipjack	11	8	11	92	7
Striped marlin	84	81	97	133	137
Swordfish	8	9	10	13	11
Yellowfin	664	515	624	588	422

[1] Source : Annual Catch Estimates 2023

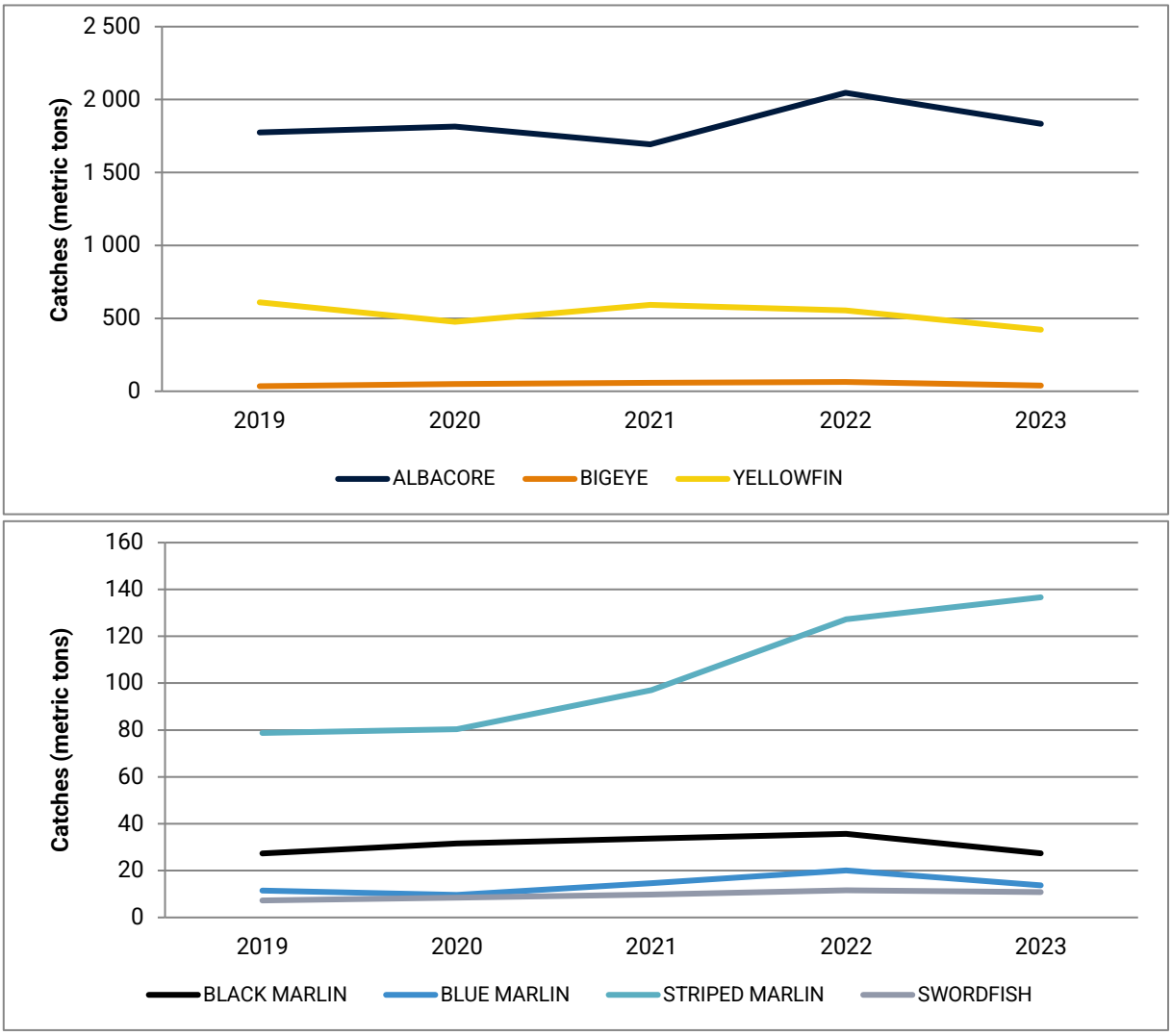
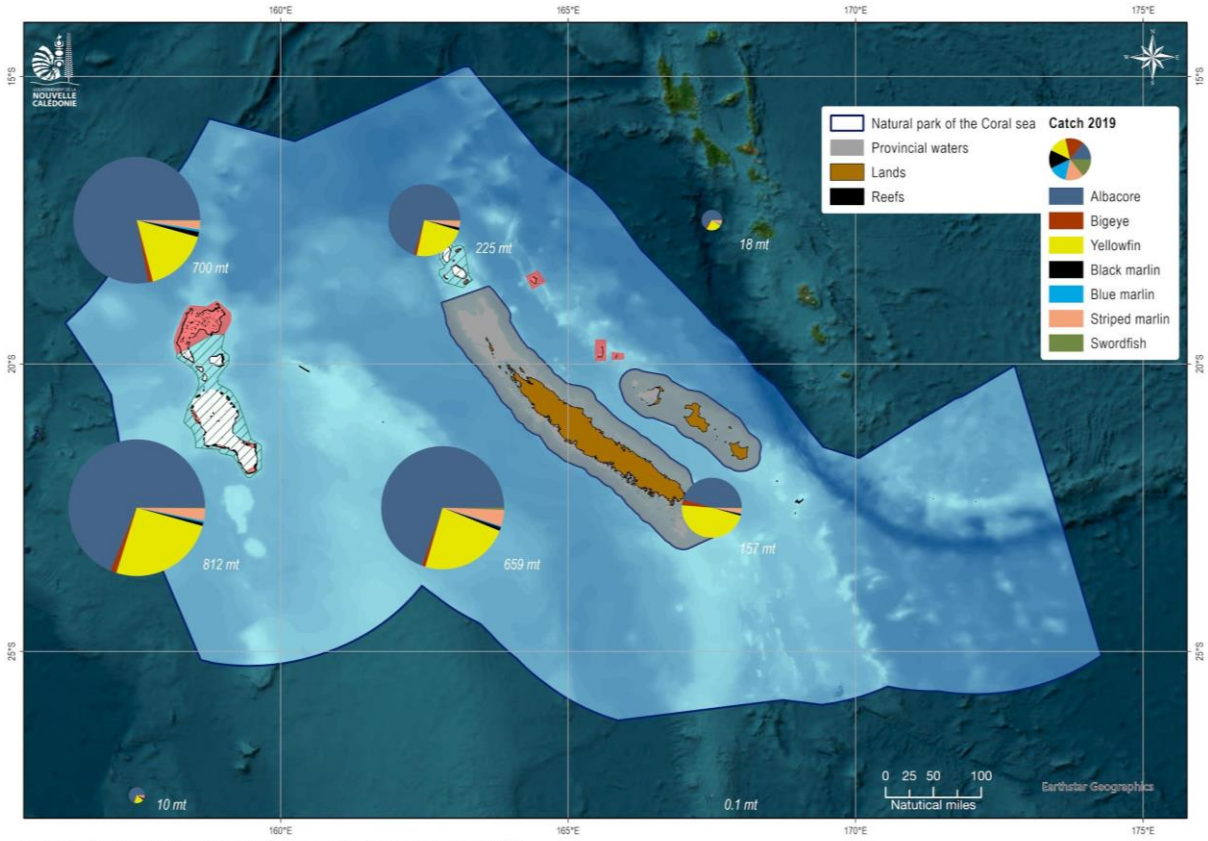


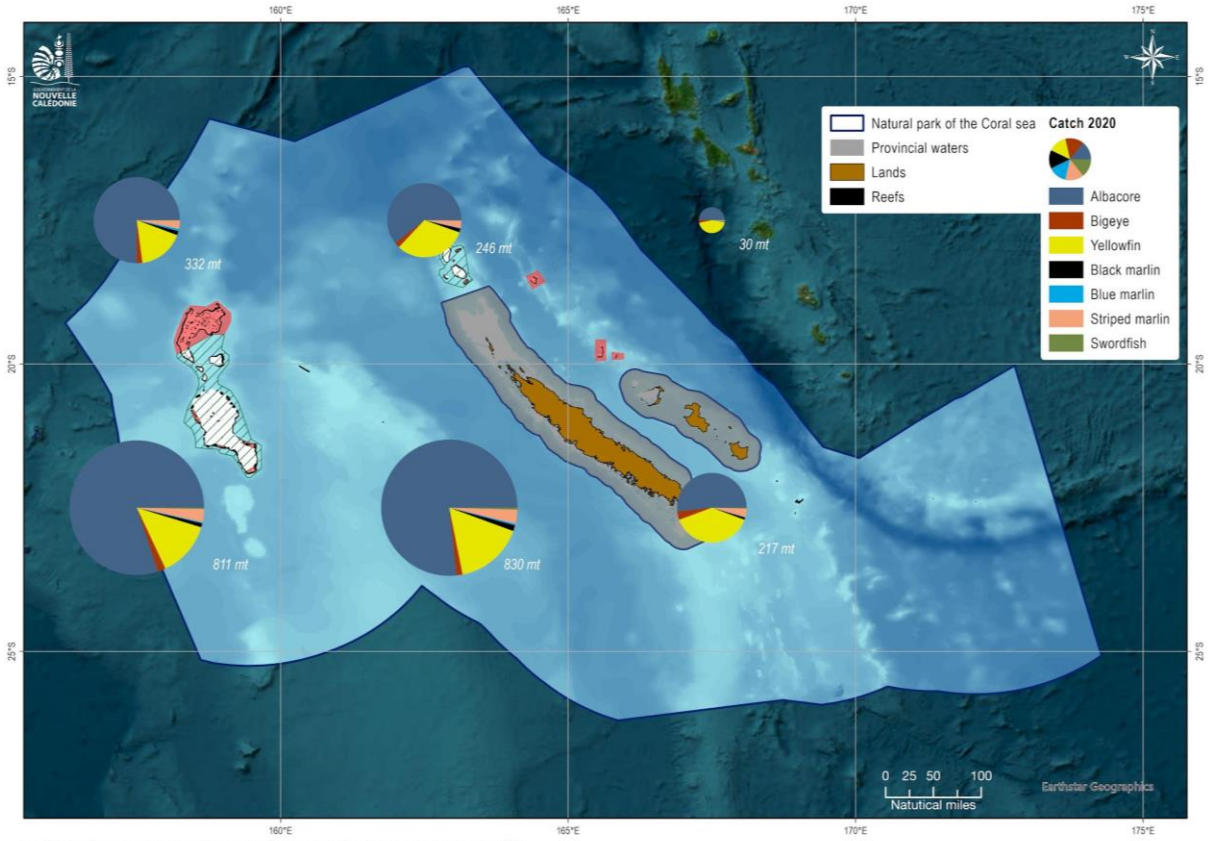
Figure 3: Historical annual catch of primary species by the New Caledonia longliners

a) – 2019



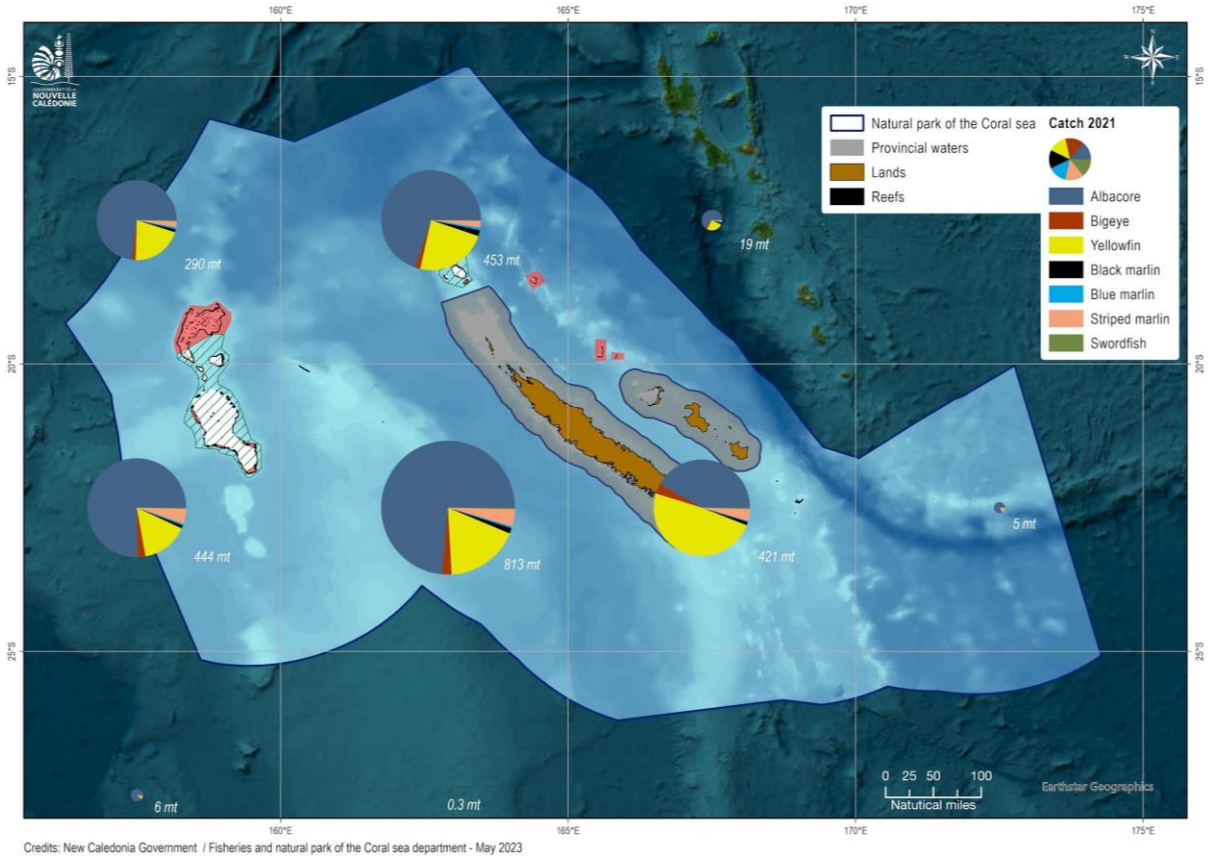
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

b) – 2020



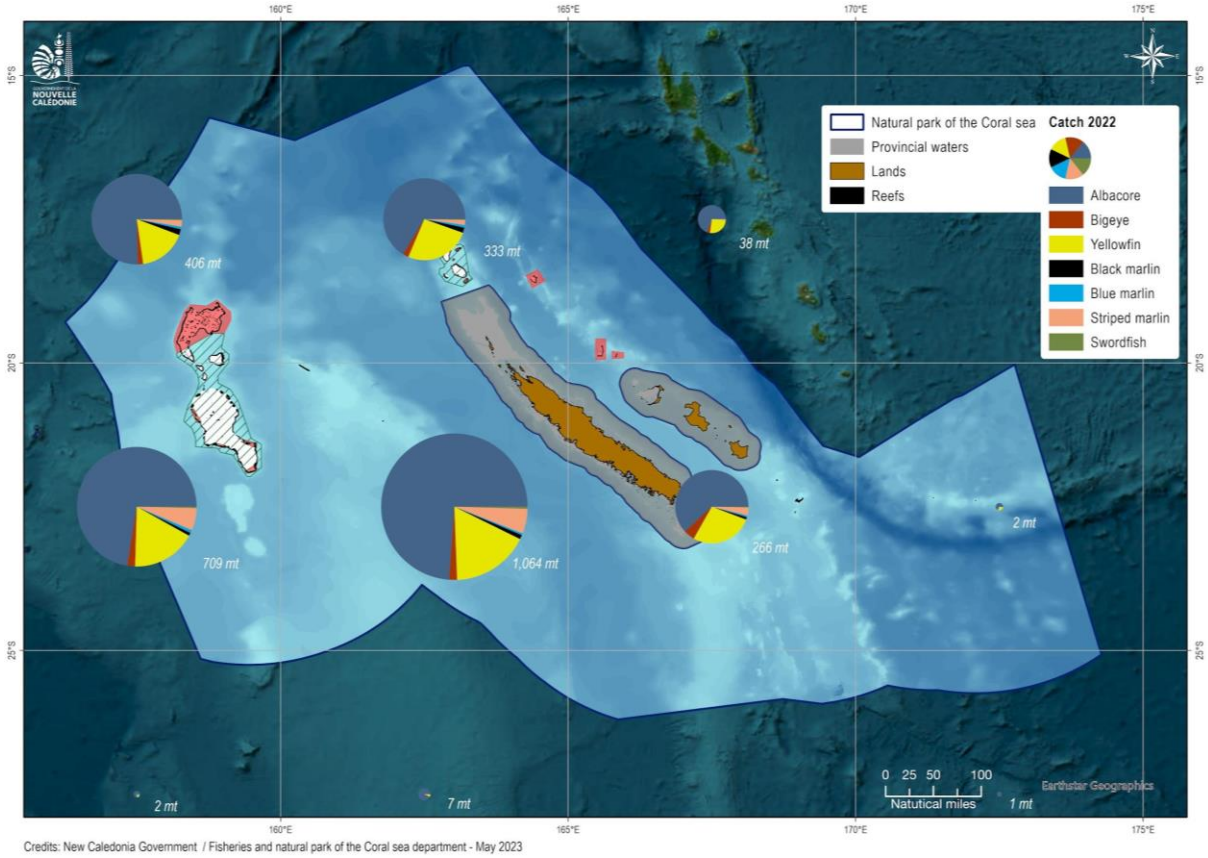
Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

c) – 2021



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

d) – 2022



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - May 2023

e) – 2023

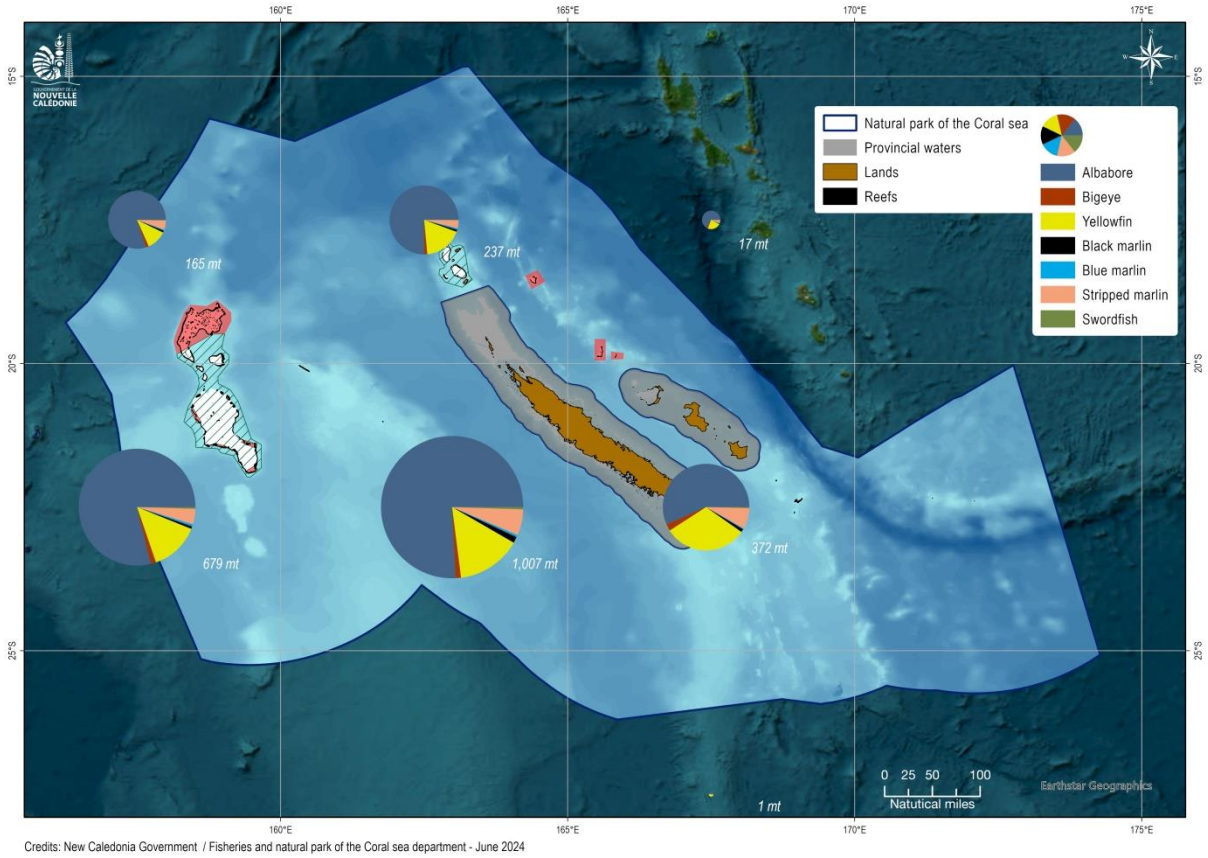


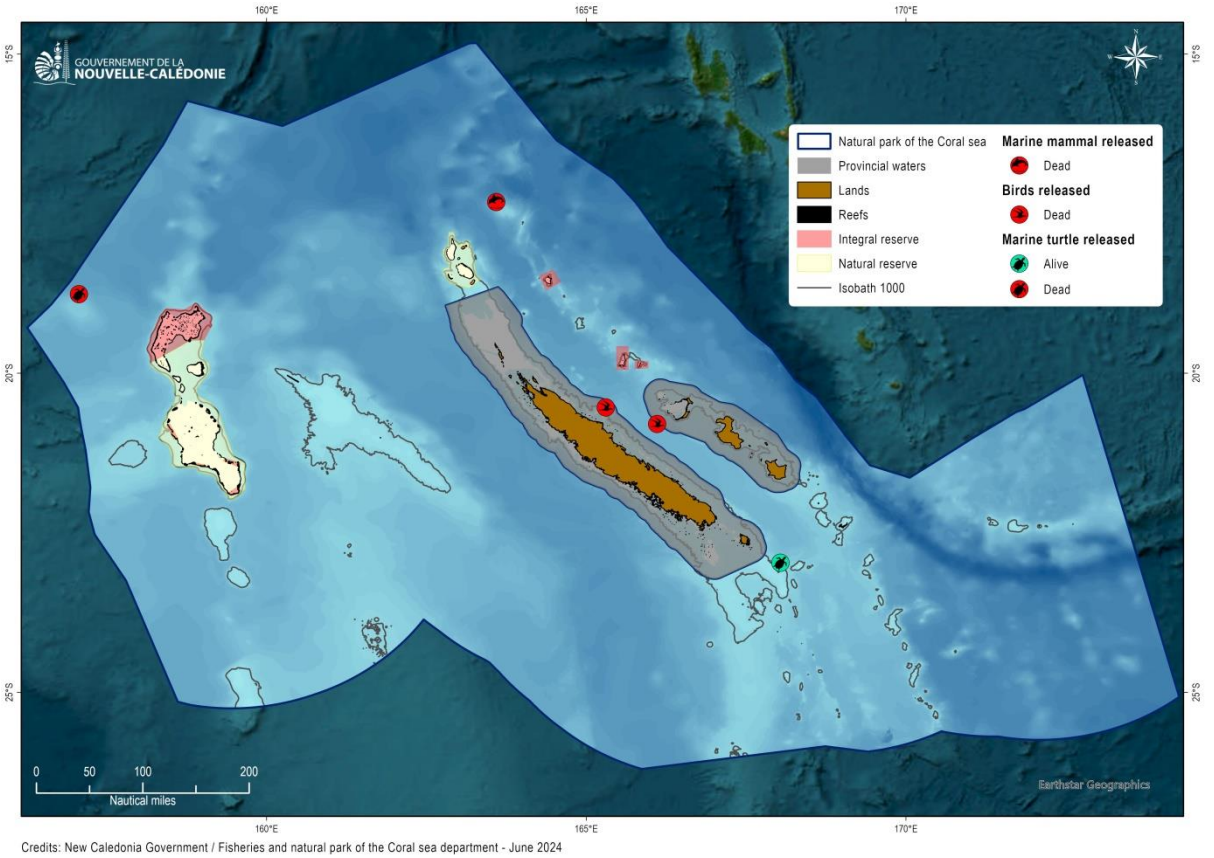
Figure 4: Annual distribution of primary species caught by the New Caledonian longliners fleet from 2019 to 2023. *The catches are aggregated by 5 degrees squares and the diameter of each pie chart varies according to total tonnage of each square*

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 2023, interactions with the fishing gear were observed for 2 seabirds, 2 sea turtles and 1 marine mammal (**Table 3**). Except one of the two marine turtles, which was released alive, the individuals mentioned were all released dead (**Figure 5**).

Table 3: Observed annual catches of species of special interest

Species of special interest	Seabird	Sea turtle	Marine mammal
2019	3	1	2
2020	2	2	0
2021	3	2	1
2022	4	0	2
2023	2	2	1



Credits: New Caledonia Government / Fisheries and natural park of the Coral sea department - June 2024

Figure 5: Catches of species of interest observed in 2023 by the New Caledonia Observer Program

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)
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
2022	16	5,600,574	451,934	8.1	4	0.0089
2023	16	5,854,872	516,140	8.8	2	0.0039

Table 5: Number of observed seabirds captures in New Caledonia longline fishery in 2023 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	2	2
Total	0	0	0	2	**2**

In 2023, 820 sharks of at least 19 different species (**Table 7**) were observed and 92.3% of them were released alive.

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

Sharks observed (number)	2019	2020	2021	2022	2023
Bigeye thresher shark	9	3	1	6	4
Bignose shark	0	0	0	4	1
Blacktip reef shark	0	0	0	2	0
Blacktip shark	2	0	1	7	0
Blue shark	549	476	277	594	642
Bronze whaler shark	3	1	1	10	1
Bull shark	3	11	3	1	0
Crocodile shark	0	0	0	1	1
Galapagos shark	0	0	0	1	0
Great hammerhead	2	1	0	0	1
Great white shark	0	0	1	0	0
Grey reef shark	6	1	1	1	1
Hammerhead sharks nei	0	0	0	1	0
Longfin mako	24	11	16	2	10
Mako sharks	0	0	0	0	0
Oceanic whitetip shark	40	33	11	40	47
Pelagic thresher shark	14	7	0	2	5
Sandbar shark	1	2	2	4	6
Scalloped hammerhead	0	0	0	2	1
Shortfin mako	35	18	26	26	16
Silky shark	33	53	10	75	39
Silver-tip shark	0	0	0	1	0
Smooth hammerhead	1	0	0	0	2
Thresher shark (vulpinus)	0	1	1	4	6
Thresher sharks nei	0	0	0	1	0

Tiger shark	8	6	5	11	5
Various sharks nei	173	97	62	2	30
Whitetip reef shark	0	0	0	2	2

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

Catch estimates (mt)	2019	2020	2021	2022	2023
	Discarded	Discarded	Discarded	Discarded	Discarded
Blue shark	8	49	155	285	346
Silky shark	2	2	5	7	14
Hammerhead shark	0	0	1	1	1
Short finned mako shark	5	0	8	22	9
Oceanic white-tip shark	2	2	3	10	22
Porbeable shark	0	0	0	0	0
Whale shark	0	0	0	0	0
Thresher shark	0	1	0	5	4

4. Coastal state reporting

Since 2001, no foreign vessels licensed or chartered operates in the New Caledonia EEZ.

5. Socio-economic factors

The latest available economic data for the fishery for highly migratory species is for 2022 (to date, analyses for 2023 have not yet been conducted).

In 2022, the turnover of the fishing sector was around 1.7 billion CFP francs, higher to that of the previous year, due to an increase in production. In 2022, the expected results are better thanks to this 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 market destinations in 2022, according to the last available data.

Table 8: Destination of New Caledonia fishery production in 2022 (last economic data available)

	Tuna			Billfish				Other		
Market	Domestic	Export		Domestic		Export		Domestic		Export
%	70%	30%		80%		20%		99.7%		0.3%
Condition	Fresh	Fresh	Frozen	Fresh	Frozen	Fresh	Frozen	Fresh	Frozen	Fresh
%	100%	46%	54%	nd	nd	92%	8%	nd	nd	100%
Metric tonnes	1 754	753		118		28	2	141		0.4

7. Onshore developments

Nothing to report.

8. 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 and this master plan was presented at the "Assises de la pêche" fisheries conference in November 2022. This master plan, finalised in January 2023 outlines strategic objectives on 3 major themes: social issues, economic development, sustainable management of resources and activities, also covering cross-cutting themes such as the regulatory framework for the exercise of the profession. Its action plan was planned to be finalised mid-2024.

9. Status of tuna fisheries data collection systems

9.1. Logsheet data collection and verification

As a counterpart to their fishing licences the New Caledonian fishing companies must provide logsheets which are collected by the New Caledonia fisheries authority at the end of each trip. In 2023, the coverage rate of collected logsheets is 100%.

In 2023, 52% of the fishing logsheets were received in electronic format. Indeed, 14 of the 16 vessels have sent at least one electronic logsheet, via the Onboard application developed by SPC.

In accordance with the provision of scientific data to the WCPFC all the logsheets data are made available to the SPC/OFP through the TUFMAN2 software. All the data presented in this report were both extracted from the TUFMAN REPORT system operated by SPC (which contains data from the NC Observer Program and the fishing logsheets) and from the Annual Catch Estimates module developed by SPC and presented during the Tuna Data Workshop carried out in April 2024.

9.2. Observer program

In 2023, 28 fishing trips were observed by 3 observers on-board 15 of the 16 vessels of the fleet (93%), representing 384 days at sea, 238 fishing days, 516,140 hooks and 13,212 fish observed (**Table 9**).

The observer activity covered about 8.8% of the fishing activity (in number of hooks).

Table 9: Summary of the longline observer coverage for 2023 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)	5,854,872	516,140	8.8	2,667	238	8.9	3,976	347	8.7	325	28	8.6

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

Year	Catch/effort annual coverage (%)	Hooks observed	Hooks deployed	Rate (%)
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
2022	100	451,934	5,600,574	8.1
2023	100	516,140	5,854,873	8.8

Through collaboration with SPC, the New Caledonia Observer Program continued its on-board biological sampling activities this year.

In 2023, biological samplings were collected during 2 of the 28 observed fishing campaigns. The observers collected 352 samples from 44 fishes: 35 albacore, 8 yellowfin and 1 bigeye.

9.3. Port sampling program

In 2023, the New Caledonia Observer Program did not carry out any port sampling.

However, SPC locally carried out this type of sampling on 4.4% of caught fishes (see **10. Research activities** below).

9.4. Unloading/Transhipment

Nothing to report.

10. Research activities

- *Characterisation of the depredation phenomenon in New Caledonia*

Large marine predators feeding on fish caught on fishing gear, referred to as 'depredation', occur in a wide range of fisheries worldwide. Depredation can result in negative ecological and socio-economic impacts, leading to conflict between fishermen and depredating species. However, depredation remains understudied in many fisheries, and this hampers the development of effective mitigation solutions. In this study, 21 years of fishing data (2002–2022) were used to assess shark and odontocete depredation in the pelagic tuna longline fishery of New Caledonia. Using generalized linear models, the year, season, effort, soaking time, and vessel were identified as variables significantly influencing the probability of depredation to occur. Results showed that while shark depredation occurred more frequently than odontocete depredation (58.5% vs. 9.2% of the longline sets), they

damaged a lower proportion of fish (3.9% vs. 12.3%) over the study period. Unlike sharks, odontocetes selectively depredate tuna, with their highest occurrence during periods of high tuna catch rates, suggesting a co-occurrence with fishing activities. Together, these results indicate that depredation in the New Caledonian fishery is high compared to other regions and provide essential information on the dynamics and impacts of the issue as a basis for considering management and mitigation options.

Margaux Mollier, Camille Mazé, François Prioul, Paul Hamer, Malo Hosken, Sam McKechnie, Paul Tixier, Shark and odontocete depredation on the catch of the tuna longline fishery in New Caledonia (South Pacific Ocean), ICES Journal of Marine Science, Volume 81, Issue 3, April 2024, Pages 491–504, https://doi.org/10.1093/icesjms/fsae014

- *Shark mitigation device trial for the development of Fishtek Marine's SharkGuard*

In 2023, the Fisheries department of the government of New Caledonia was approached by Fishtek Marine, a company specialised in technology to reduce the impact of fishing on the marine environment. Fishtek Marine wanted to trial its under development shark mitigation device, called SharkGuard, in a tuna fishery in the Pacific that interacts with sharks.

The SharkGuard project involves developing a shark bycatch mitigation device that can be deployed on the leaders of longlines. The device, placed at a good distance from the hook, creates a powerful, short-range, pulsed electric field designed to overstimulate sharks electroreceptors (ampullae of Lorenzini) to reduce frequency of hook interaction. In 2022, the first trials were carried out in France by Fishtek Marine in the Mediterranean bluefin tuna fishery.

In New Caledonia, the aim was to test the shark mitigation device under other fishing conditions with a bigger shark pressure. The aim was also to measure the impact of the device on tuna catches rates targeted by the fishery.

In July and August 2023, Fishtek Marine engineers, in partnership with local fishermen and with the support of the Fisheries department of New Caledonia, carried out sea trials. Two fishing vessels from the New Caledonian fleet took part in the trials, with a total of more than 37,700 hooks fitted. A fisheries observer was present at each test campaign.

Initial analyses indicate that the active SharkGuard device had a positive impact on reducing shark catches (59% reduction in shark catches) without reducing catches of targeted species. It also highlighted the need to further develop the device to fit with technical and handling specificities of the fishery.

SPC research activities

- *Biological sampling at port*

In addition to the work conducted by the observers from New Caledonia authorities, SPC is also conducting biological sampling at Noumea port in collaboration with the fishing companies to contribute to the Pacific Marine Specimen Bank. In 2023, a total of 336 fish were sampled for gonads, liver, muscle, spine, otoliths and stomachs gathering a total of 1385 tissue samples. Albacore and yellowfin were the main species sampled.

- *Albacore connectivity project*

The first results from the study on mixing of south Pacific albacore tuna between the eastern and western WCPO are now available. Analyses of tissue samples and otoliths collected in late 2022 by fisheries observers and the tuna fishing industry in New Caledonia and French Polynesia are now complete, revealing strong evidence of east-west population structure based on both genetics and otolith shape markers. These results were presented to SPC members at the pre-assessment workshop (PAW) in March 2024 and will form the basis of an information paper to SC20. An

expansion of the sampling programme to include additional locations across the WCPO and EPO is planned during 2025.

- *How ENSO impacts tuna and mahi mahi distribution and catchability*

Mounting evidence suggests that the longitudinal distribution of tropical tunas and important bycatch species can be impacted by ENSO. However, we know less about how ENSO impacts their vertical distribution, and whether fishers are aware of vertical shifts so as to remain productive under intensified ENSO conditions. Juan Wang, a PhD student at the University of Melbourne, Australia, has been working to fill this knowledge gap, in collaboration with SPC, the Fisheries department of government of New Caledonia and the Cook Islands Ministry of Marine Resources. Using data from the New Caledonian longline fleet and longline vessels operating in the Cook Islands' EEZ, Juan has reconstructed catch depth for albacore and yellowfin tuna and mahi mahi based on the longline gear's geometric nature, using statistical models to quantify the impacts of ENSO on the vertical distribution of these species. In tandem, Juan has analysed whether fishers showed adaptation to each species' vertical distribution shifts through time by adjusting their target fishing depth to track the depth layer where the fish was most abundant. The results suggests that large pelagic fishes' vertical distribution and total abundance in the WCPO were strongly impacted by ENSO, and that the impact was dependent on the species' general environmental preference (tropical vs. temperate). Initial results indicate that fishers were not always operating at optimal depths to maximise catch rates, but the generality of this finding requires some further investigation.

- *HI-FAD Project in New Caledonia*

The New Zealand funded Highly Instrumented Fish Aggregating Devices project has undertaken activities in New Caledonia. These have involved trialling a number of satellite linked smart buoys on coastal FADs, in collaboration with the *Province Sud*, the *Association des Pêcheurs Plaisanciers de La Foa* and *Société d'Exploitation des Eaux de Bourail*. These technologies have provided real-time positional, oceanographic and echo-sounder data have been shared with the coastal and recreational fishing communities, to trial their utility, cost-benefit and durability in a coastal, anchored FAD context. In parallel, a small-scale series of electronic tagging experiments have begun around these instrumented FADs in New Caledonia, to support validation of transmitted echo-sounder data and its ability to identify aggregations of fish at inshore FADs. The findings of these trials will be collated with other regional trials in SPC member countries to provide recommendations for the instrumenting of anchored FADs.

- *Contaminants: microplastics and POP persistent organic pollutants (TIPTOP project)*

The French Institute of Research for Sustainable Development (IRD), the French Research Institute on the Exploitation of the Sea (IFREMER) and SPC developed the TIPTOP project funded by the French Pacific Funds. This project aims at examining the contamination levels of microplastics, plastic additives, persistent organic pollutants (POP) such as pesticides, mercury into skipjack and yellowfin stomach and flesh but also the content of beneficial fatty acids. Sampling was conducted in 2021-2022 in New Caledonia and Papua New Guinea to compare those two areas, and laboratory analyses were conducted in 2022-2023.

Results show:

- There is evidence of POP contamination in tuna in both New Caledonia and Papua New Guinea, which is part of the global distribution of POPs, even in areas far from sources of pollution in the northern hemisphere
- Levels of POP contamination in tuna remain low and consumption of these fish currently poses no health risk in relation to these substances.
- The stomachs of 6 tuna out of 20 contained plastic fragments or fibres >2mm, and these synthetic materials were mainly polypropylene and polyester
- Two plastic additives in particular were detected in the tuna, at levels comparable to those found in Spain. There are no health standards for these substances.

- Mercury concentrations are higher in New Caledonia than in Papua New Guinea, and surprisingly in New Caledonia the values are higher in skipjack than in yellowfin tuna.
- Consumption of both species of tuna in both areas provides a wide range of fatty acids, including omega-3s, which are beneficial to health. Portions of 200-280g of skipjack or yellowfin tuna can provide the recommended daily dose of omega 3.

- *Contaminants: mercury*

One scientific paper and one newsletter article were published by SPC and collaborators (IRD) on mercury content in tuna at the global level, including samples from New Caledonia withdrawn from the Pacific Marine Specimen Bank.

The study showed the strong inter-annual variability of tuna mercury concentrations at the global scale (*Medieu et al 2024a, 2024b*). Increasing mercury concentrations was found in skipjack in the late 1990s in the northwestern Pacific, likely resulting from concomitant increasing Asian mercury emissions. Elsewhere, stable long-term trends of tuna mercury concentrations contrast with an overall decline in global anthropogenic mercury emissions and deposition since the 1970s. Modeling suggests that this limited response observed in tunas likely reflects the inertia of surface ocean mercury with respect to declining emissions, as it is supplied by legacy mercury that accumulated in the subsurface ocean over centuries. To achieve measurable declines in mercury concentrations in highly consumed pelagic fish in the near future, aggressive emission reductions and long-term and continuous mercury monitoring in marine biota are needed.

- *Assessment of tuna prey (micronekton)*

Two scientific papers were published by SPC and collaborators on tuna prey (micronecton) using acoustic data collected in New Caledonia waters by SPC and IRD. One study compared the micronecton quantities assessed from acoustics and from trawls and it suggested that biomass estimates from trawl are underestimated (*Barbin et al 2024*). The other study is at the global scale including data from New Caledonia waters, and it demonstrated that the positive impact of eddies on marine fauna, often described as an oasis effect when enhancing marine production, is actually rare for micronecton as only 6% of the eddies show higher micronecton biomass than surrounding waters (*Receveur et al 2024*).

- *Close-Kin Mark Recapture (CKMR)*

Close-Kin Mark-Recapture takes advantage of modern genotyping methods to identify pairs of close relatives (e.g. parent-offspring, half-brother/sister) among large collections of tissue samples (i.e. biopsies). The number of kin-pairs found, and the way they are distributed in space and time, can be embedded into a population dynamics model and used to estimate important demographic parameters such as absolute adult abundance, mortality rates, and connectivity. The application of CKMR methods to WCPFC stocks aims to reduce the uncertainty in stock assessments.

The CKMR assessment of South Pacific albacore began in 2022 (first samples collected in 2023), and plans are being developed for additional species pending a positive outcome of the albacore project. Sampling is conducted across the whole Pacific and it started in New Caledonia in July 2024 focusing first on albacore, but it is expected to extend to yellowfin and bigeye during 2024 and in the following years.

- *Stranded FADs record and retrieval*

Despite the fact that no purse seine activity is conducted in New Caledonia waters, the presence of Fish Aggregating Devices (FADs) has been observed in the waters of New Caledonia, as well as stranded on the coast. New Caledonia contributes to the initiative developed by Pacific Island Countries and Territories (PICTs) and in collaboration with the Pacific Community, local organisations, and/or Non Governmental Organisations, to collect data on lost/abandoned FADs reaching coastal waters and/or becoming stranded, as well as the potential impacts of these events on coastal environments. The data collected feeds a regional database which has four objectives defined: (i) quantify and characterize stranding events using data collected directly in-situ; ii) evaluate number of

entanglements and area of habitat impacted; (iii) assess the design and materials of FADs found stranded; (iv) highlight any origins areas of FADs found stranded in relation to areas of deployment and owner fleets.

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ADDENDUM TO ANNUAL REPORT PART 1

SECTION A: 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

No vessel targeted for swordfish south of 20°S in 2023.
However, catch reported on logsheet is 10 tonnes for 16 vessels.

Observer coverage (WCPFC 11 decision – para 484(b)

Observer coverage is 8.8% (number of hooks) in 2023.

CCM fleet	Fishery	N°. Of hooks		
		Total	Observed	%
New-Caledonia	Domestic	5,854,872	516,140	8.8

CMM 2009-06 [Transshipment], Para 11 (ANNEX II)

No NC flagged vessels transhipped in 2023.

CMM 2011-03 [Impact of PS fishing on cetaceans], Para 5

New-Caledonia has no flagged purse seine vessels.

CMM 2018-03 [Seabirds] Para 13

Fishing activities are only in the EEZ of New-Caledonia, there is no mitigation measure in New-Caledonia.
The two birds accidently caught in 2023 in the NC-EEZ were released dead.

Tables have been added to Annual Report part 1.

SECTION B: 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

No vessel targeted for striped marlin south of 15°S in 2023.
However, catch reported on logsheet is 137 tonnes for 16 vessels.

CMM 2015-02 [South Pacific Albacore] Para 4

Addressed through the regular provision of operational catch/effort logsheet data to SPC, who automatically include these data in the WCPFC databases, as per our authorization.

CMM 2019-03 [North Pacific Albacore], Para 3

New Caledonia has no fishing activity north of the equator.

CMM 2022-02 [North Pacific Swordfish], para 4

New Caledonia has no fishing activity north of the equator.