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

WCPFC-SC9-AR/CCM-14

NEW CALEDONIA

WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

NEW CALEDONIA - ANNUAL REPORT 2012

Part 1

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April 2013	YES

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.

This fleet operates in the New Caledonian EEZ, and rarely fishes in the adjacent high seas.

In 2012, each of the 19 licensed domestic longliners fished in the New Caledonian EEZ. Similarly to past years there were no foreign vessels licensed or chartered to operate in the New Caledonian EEZ.

There was a 3% decrease of the total catch reported last year compared to 2011. The annual catch of 2,710 mt was mainly composed of albacore which is the target species of all the vessels and accounts for 64% of the total (1,715 mt compared to 1,736 in 2011). Yellowfin was second with 573 mt (21%). Striped marlin and swordfish are bycatch of the fishery (57 mt and 10 tonnes respectively).

Catches of sharks have been decreasing since 2006, due to an increasing use of monofilament branchlines. Makos which are the only sharks species kept onboard to be sold on the local market (trunks), totalled 13 mt in 2012.

In 2012, observer activities carried out under the New Caledonia programme reached 6.5% coverage of the longline sets. The objectives of this activity are to collect information to be checked with the other sources of data, and to provide accurate data to the stock assessments (biological samples, size composition …).

During all the trips observed in 2012, no sea turtle interaction and only 3 seabird interactions (2 gulls, 1 unidentified species) were reported.

The incidental catch of shark and ray species, which are all discarded, except makos, was reported by the observer programme at 556 individuals in 2012. The corresponding tonnage estimated for the species of interest (blue shark, silky shark, oceanic white tip shark, thresher sharks, porbeagle shark south of 20° South and hammerhead sharks) is 11 mt.

Through the ZoNéCo programme New Caledonia continues to participate in the regional efforts to improve the knowledge of tuna behaviour, in particular the South Pacific albacore as the species of major interest for its fishery.

Catch statistics

As a counterpart to their licenses the New Caledonian fishing companies must provide logsheets which are collected at the end of the trips. The coverage rate of logsheets is considered as nearing 100%.

In accordance with the provision of scientific data to the Commission all the logsheets data are made available to the SPC/OFP. For year 2012 these data were provided electronically for the first time.

Effort and catch statistics in table 1 are extracted from these logsheets.

The total catch of 2,710 mt in 2012 represents a 3% decrease from the 2011 level.

As the target species of the New Caledonian tuna fisheries, the South Pacific albacore is the predominant species in the catch with 1,715 mt (63%). Albacore annual catch south of 20° South for the years 2006-2012 were 793 mt, 837 mt, 1,096 mt, 1,061 mt, 1,396 mt, 1,039 mt and 880 mt respectively.

In 2012, the average weight of albacore was 18 kg, which is very similar to the weights recorded in the previous years. With regard to yellowfin, 25 kg is 3 kg less than the average weight recorded in 2011 and the lowest average weight recorded since 2005.

No New Caledonian vessel targets bigeye, sharks, marlins or swordfish. Therefore, all the catch reported for these species are bycatch. In particular, only 57 mt of striped marlin and 10 mt of swordfish were landed in 2012, of which 7 mt were caught south of 20° South.

Makos are the only sharks retained and sold for meat consumption in New Caledonia (trunks), totaling 13 mt in 2012, 3 mt more than 2011. A new fishery regulation banning all shark catch in the EEZ as well as shark-finning, enters into effect in 2013.

Many species show seasonal patterns in their abundance around New Caledonia which induces similar fluctuations in the catch levels reported (see table 3 and figure 3).

Fleet structure and fishing activity

In 2012, 19 domestic tuna longliners were licensed to fish. All of them were active in 2012 but 4 vessels did not fish for 3 months or more. Similarly to past years there were no foreign vessels licensed or chartered to operate in the New Caledonian EEZ.

Table 2 shows that all active vessels in 2012 are less than 200 tons GRT. These vessels have limited cruising range. Although the larger longliners nearing 150 tons can stay at sea for two or more weeks the average trip length for the whole fleet is only 11 days of which 7 are fished.

There was no fishing activity north of the equator, nor south of 30° South.

Globally, 345 fishing trips were reported in 2012, totaling 3,854 days at sea and 2,612 days fished.

Monitoring activities

Observer activity has been carried out in New Caledonia for more than 20 years. After being operated under EU-funded programmes, this activity is now funded by the New Caledonia government.

Observer activity

In 2012, 22 trips were observed by 6 observers onboard 13 vessels of the domestic companies, representing 292 days at sea and almost 10 660 fish observed. Over this period of time the observer activity covered about 6.5 % of all the longline sets. The detailed data from this activity are provided in table 4 in annex.

During trips observed in 2012, no turtle interaction was reported and only 3 seabirds were incidentally captured.

Except makos, the incidental catch of shark and ray species, which are all discarded, was reported by the New Caledonia observer programme at 556 individuals in 2012. The corresponding tonnages estimated for the species of interest are the following:
- blue shark: 10 mt
- silky shark: less than 1 mt
- oceanic white tip shark: 1 mt
- thresher sharks: less than 1 mt
- porbeagle shark (south of 20° South): -
- hammerhead sharks: less than 1 mt

Port sampling activity

In 2012, due to funding limitation no port sampling was carried out.
No unloading or transhipment involving foreign vessels, carriers and bunkers, took place in the domestic ports.

Vessel Monitoring System

New Caledonia has been operating a Vessel Monitoring System in its EEZ since early 2005.

All licensed vessels must have transmitters on board. Due to safety regulations all of them are equipped with Inmarsat-C terminals but some vessels also have a dedicated Argos beacon on board.

The monitoring is carried out by the New Caledonia fisheries department, so as to help:

a. check the VMS data with the number of logsheets provided by the fishing companies
b. the French Navy survey the EEZ.

Since 2010 all the location data have been managed under a dedicated software which can accept various sources of VMS data and provide related statistics.

Scientific and technical research

The sustainable development of the New Caledonia tuna fisheries requires a better understanding of the drivers of catch rates that are subject to significant variations.

For years the ZoNéCo programme has been providing support to the New Caledonian longline fishery, undertaking studies on the optimization of fishing techniques as well as on the physical and biological environment of the targeted species. In 2007 the focus of the studies carried out by ZoNéCo moved to the South Pacific albacore behaviour in the New Caledonia EEZ so as to support the sustainable management of this important stock.

During the 2010-2012 period ZoNéCo worked together with IRD and SPC to carry out a multidisciplinary project which aimed at improving knowledge of the trophic levels and to better understand albacore behaviour in the EEZ. Several other scientific teams sampled, analyzed and studied the environment, preys and behaviour of albacore locally as well as in the South Pacific as a whole.

Two specific cruises, named NECTALIS 1 and 2, were conducted in summer and winter time which provided a lot of information still under analyze. First results show that chlorophyll in surface during summer does not reflect the structure of the sea surface temperature and subsurface ecosystem. Another important result is the validation of the 150 kHz ADCP current meter as an acoustic tool to estimate relative prey biomass of tuna. Acoustic data indicate a higher prey biomass in the southern part of the EEZ where the water is cooler, and a higher prey biomass west of the New Caledonia main island, in summer as well as in winter. These observations tend to validate the SEAPODYM model.

Study of the albacore diet showed that this species is an opportunistic predator that consumes a wide variety of preys less than 5 cm in length. Albacore tuna is a predator that consumes small quantities of preys frequently. It appears that it probably feeds mainly in the surface layer (0-200 m), however visiting deeper layers down to 500 meters. Albacore has a fairly balanced diet between three major categories of preys: fish (40 %), crustaceans (29%) and mollusks (27%). The large quantity of crustaceans in its diet is remarkable compared to other tuna species that consume larger proportion of fish. At sexual maturity (85 cm), when growth slows down, diet seems to change with a reduction in the quantities and consumption of different preys.

From the data it was not possible to determine the albacore migratory pattern but unique information on the vertical behaviour and preferential environment (depth / temperature) of albacore were acquired through tagging experiments. Albacore can swim throughout an area of 300 to 400 km^2 over a period ranging from two days to several weeks. It is also capable of traveling more than 1000 km in several weeks. This species can hardly bear temperatures below 14 °C which limits its vertical movements.

The analysis of a set of albacore CPUE data was made to try to understand the influence of ENSO on the dynamics of this species. This analysis showed a direct and immediate effect on CPUE which increases during El Niño and decreases during La Niña in the western Pacific. Simultaneously, the effect is opposite east of 180° West, which may be linked to a modification of the environment directly impacting the albacore distribution: in the western Pacific, habitats get close to the surface during El Niño, but expands deeper during La Niña.

Table 1: estimates of days fished and catch by species from New Caledonian longliners in the WCPFC area

Metric tonnes of	2005	2006	2007	2008	2009	2010	2011	2012 (*)
South Pacific Albacore	1590	1 358	1 324	1 506	1 649	1 939	1736	1715
Yellowfin	448	414	393	424	487	505	585	573
Bigeye	76	35	53	62	51	44	41	49
Striped Marlin	74	54	63	103	71	65	76	57
Black Marlin	28	24	35	39	34	42	55	66
Blue Marlin	21	13	12	8	9	10	23	
Swordfish	12	10	19	15	7	8	10	10
Mako shark	26	14	13	14	10	10	10	13
Others	197	187	210	216	228	236	260	228
TOTAL	**2472**	**2 109**	**2 122**	**2 387**	**2 546**	**2 859**	**2796**	**2710**
Days fished	2836	2 134	2 531	2 751	2 674	2 541	2536	2612

*: preliminary data

Figure 1: historical annual catch by the New Caledonia longliners (from logsheets / CES) in the WCPFC area

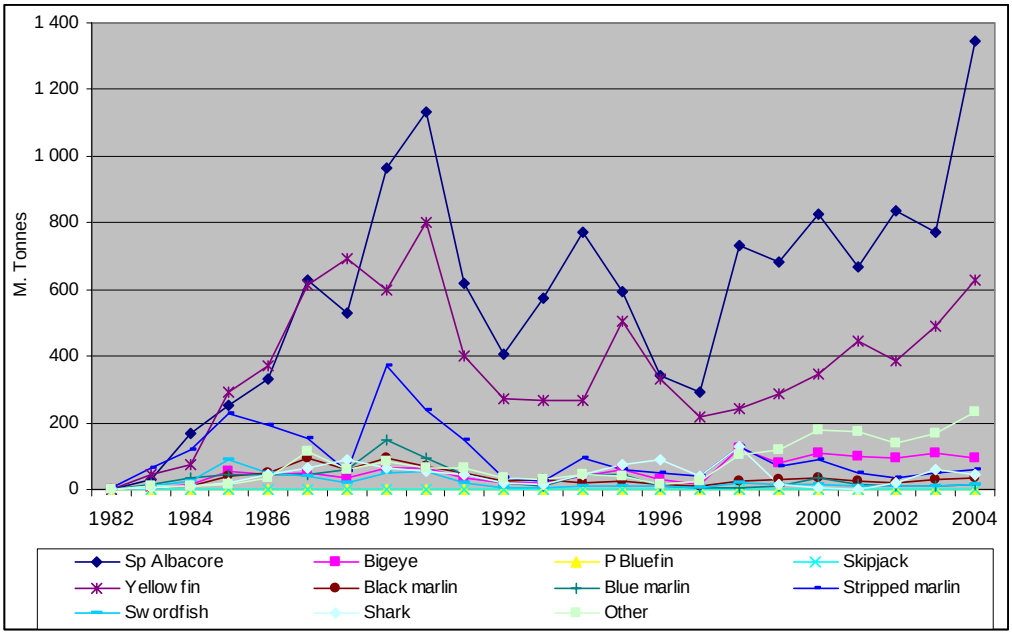

Table 2: number of domestic longliners active by GRT class

	0-50	51-200
2006	8	13
2007	8	15
2008	7	16
2009	6	15
2010	3	14
2011	2	17
2012	0	19

Figure 2: New Caledonian longline vessels licensed

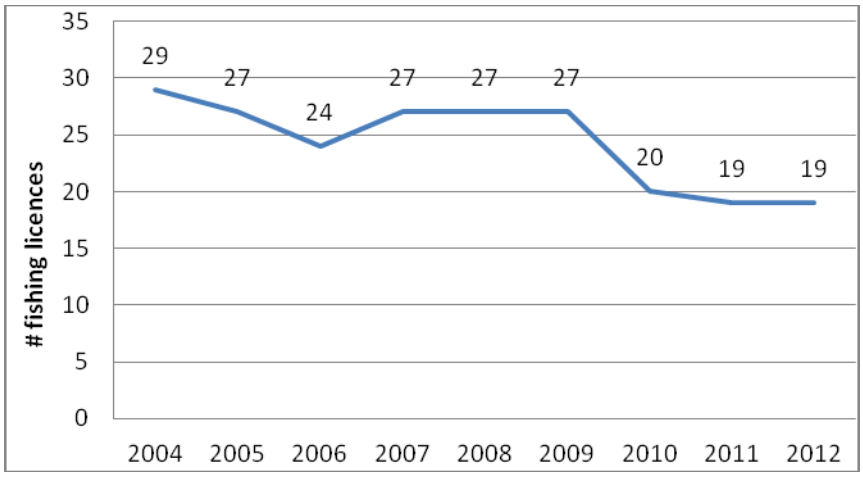

Table 3: number of fish caught per month in 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SP Albacore	9 122	6 959	3 479	4 061	5 864	5 498	6 784	9 996	8 399	10 323	13 980	13 437
Yellowfin	788	660	2 018	2 392	4 426	2 154	3 640	2 914	1 359	779	1 059	951
Bigeye	56	78	141	152	216	183	201	136	122	56	47	15
Striped marlin	48	18	11	12	74	55	92	90	93	88	142	155
Other marlins	107	108	58	51	44	30	28	26	32	51	73	83
Swordfish	12	15	7	12	25	9	11	13	12	6	9	9
Makos	26	12	10	21	18	21	29	63	81	46	24	12
Others	3 520	1 340	1 217	1 197	1 384	787	1 058	870	1 035	1 158	1 132	1 423
Total	**13 679**	**9 190**	**6 941**	**7 898**	**12 051**	**8 737**	**11 843**	**14 108**	**11 133**	**12 507**	**16 466**	**16 085**

Figure 3: yearly average weight of SP albacore and yellowfin (kg)

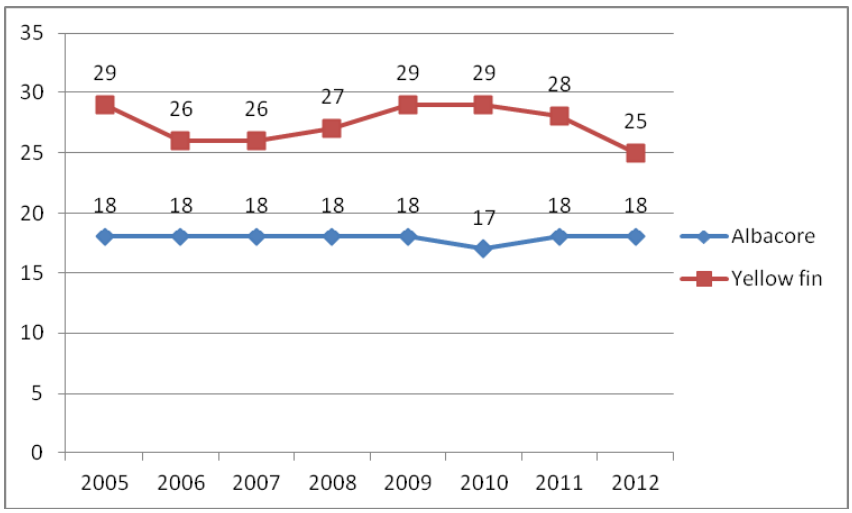

Table 4: number of observed species in 2012

Code	Species	Nb	% Observed
ALB	ALBACORE	6 131	57.51%
ALO	SHORTSNOUTED LANCETFISH	1	0.01%
ALS	SILVERTIP SHARK	5	0.05%
ALV	COMMON THESHER	7	0.07%
ALX	LONGSNOUTED LANCETFISH	819	7.68%
AML	GREY REEF SHARK	3	0.03%
BAB	BLACKFIN BARRACUDA	4	0.04%
BET	BIGEYE	89	0.83%
BIZ	SEA BIRD	1	0.01%
BLM	BLACK MARLIN	31	0.29%
BRZ	POMFRETS AND OCEAN BREAMS	6	0.06%
BSH	BLUE SHARK	264	2.48%
BUM	BLUE MARLIN	13	0.12%
CCE	BULL SHARK	1	0.01%
CCP	SANDBAR SHARK	3	0.03%
COM	NARROW-BARRED SPANICH MACKEREL	1	0.01%
DOL	MAHI MAHI / DOLPHINFISH / DORADO	627	5.88%
FAL	SILKY SHARK	8	0.08%
FUGU	FUGU	7	0.07%
GBA	GREAT BARRACUDA	151	1.42%
GEM	SYLVER GEMFISH	3	0.03%
GES	SNAKE MACKEREL	14	0.13%
ISB	COOKIE CUTTER SHARK	1	0.01%
LAG	OPAH (MOONFISH)	103	0.97%
LEC	ESCOLAR	57	0.53%
LMA	LONGFIN MAKO	65	0.61%
LRD	GULLS	2	0.02%
MLS	STRIPED MARLIN	58	0.54%
MOX	OCEAN SUNFISH	2	0.02%
OCS	OCEANIC WHITETIP SHARK	13	0.12%
PLS	PELAGIC STING-RAY	123	1.15%
PTH	PELAGIC THRESHER	11	0.10%
RZV	SLENDER SUNFISH	15	0.14%
SFA	SAILFISH (INDO-PACIFIC)	11	0.10%
SKJ	SKIPJACK	359	3.37%
SMA	SHORT FINNED MAKO	48	0.45%
SPZ	SMOOTH HAMMERHEAD	1	0.01%
SSP	SHORT-BILLED SPEARFISH	40	0.38%
SWO	SWORDFISH	12	0.11%
SXH	BLACK MACKEREL	3	0.03%
TIG	TIGER SHARK	3	0.03%
TST	SICKLE POMFRET	2	0.02%
WAH	WAHOO	125	1.17%
YFT	YELLOWFIN	1 417	13.29%
Total		**10 660**	**100.00%**

Figure 4: breakdown of shark and ray species recorded by observers in 2012

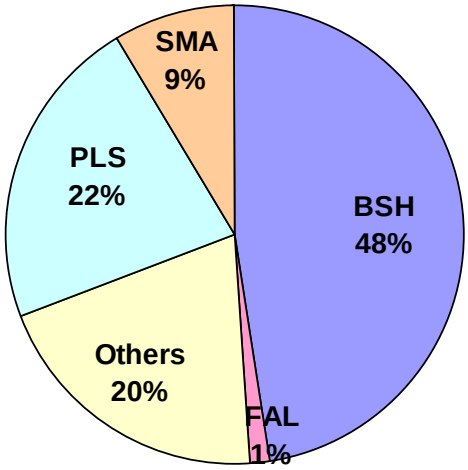

Table 5: number of fish observed in 2012 (commercial species)

	Tuna			Billfishes				
Species	ALB	BET	YFT	BLM	BUM	MLS	SFA	SSP
Number of fish observed	6 131	89	1 417	31	13	58	11	40

	Other commercial species					
Species	SWO	BRZ	DOL	LAG	SMA	WAH
Number of fish observed	12	6	627	103	48	125