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SOUTH PACIFIC ALBACORE FISHERY

WCPFC10-2013-IP02

Paper prepared by the Secretariat and SPC-OFP

Introduction

This paper was first prepared by the Secretariat for WCPFC8 in March 2012 following a request by Te Vaka Moana at TCC7.

> TCC7 Summary Report Para 20: *Several CCMs associated with the Te Vaka Moana (TVM) group expressed concern about the expansion of the South Pacific ALB fishery which is vital to the economic development of some members. These CCMs highlighted limits contained in CMM 2009-03 on the number of vessels fishing for albacore south of 20 degrees and noted that as of 2011 CCMs are required to report target and bycatch catch figures for this fishery. These CCMs considered that further strengthening of the CMM may be required. The Secretariat was requested to prepare a paper for WCPFC8 containing all available catch and transshipment data by flag and by zone for South Pacific ALB and highlighting trends since the year 2000 in this fishery.*

In September 2012, TCC8 recommended sufficient priority be accorded to the development of a revised CMM on south Pacific albacore at WCPFC9, and FFA members requested that this paper be updated.

> TCC8 Draft Summary Report Para 379: *FFA members requested that SPC update its analysis which was presented to WCPFC8, for WCPFC9 and then annually for TCC and Commission meetings. Ideally, this paper would include finer scale spatial and temporal information and the inclusion of additional fleets such as the troll fishery.*

At WCPFC9, in December 2012, further requests were made in relation to this document:

> WCPFC 9 Summary Report Para 328: *One CCM asked that the paper prepared by the Secretariat (WCPFC9-2012-IP/07) be updated for SC9, TCC9 and WCPFC10 to show i) by fleet the number of longline vessels actively fishing south of the equator separated as follows 0-10, 10-20, 20-30, 30+, annually from 2000 to 2012; ii) the tuna species*

proportions for each longline fleet in these areas; and iii) the seasonal distribution of the longline effort for each fleet south of the equator using Commission VMS data.

An updated paper which considered the requests made during WCPFC9 was presented at SC9 and TCC9, and has been further updated for WCPFC10.

Update

The text and descriptions of SPA fishery trends that follow are largely unchanged since the previous papers (latterly WCPFC-SC9-GN-IP-04, in August 2013). However, the time series are longer and currently available longline catch estimate data for SPA has been used to update tables and figures, and are reflected within the text. The tables and figures in this paper are based on information available to SPC as of 24 October 2013. Note that the distribution of catch amongst areas may change as more data become available. Catches and VMS effort in archipelagic waters have been excluded in this latest version of the paper, and as a consequence overall catch figures are lower, noting that trends do not appear to be significantly affected (this change is reflected in tables 1,2 and 3, and Attachment 1).

Estimated catch of SPA by troll fisheries from 2000 to 2012 is now also included. Incomplete catch data received for the current year are not included in this report.

Transhipment data cover the period from the inception of transhipment reporting (July 2010) to October 2013, noting however that transhipment is not fully reported for the most recent months.

Additional information by latitudinal zone, requested at WCPFC9, is complex, and may be interpreted in a variety of ways, hence for the members convenience, the data are posted as excel files annexed to this paper **(WCPFC10-2013-IP02a & WCPFC10-2013-IP02b).**

The 3rd request at WCPFC9 for additional analysis of VMS data may be possible, but is time consuming and is unlikely to be completed in time for this paper.

Data Presented

All data are for the WCPFC Convention Area south of the equator.

Tables 1 and 2 detail longline catch estimates of SPA from 2000 to 2012 by EEZ/High Seas and by flag respectively (data provided by SPC-OFP). Note that minor differences in the total annual catches between the two tables result from rounding errors.

Table 3 details longline catch estimates by EEZ/High Seas and flag combined from 2000 to 2012 (data provided by SPC-OFP).

Tables 4a and 4b detail estimated troll catches of SPA from 2000 to 2012 by EEZ/High Seas and by flag respectively (data provided by SPC-OFP).

Table 5 presents notification of high seas transshipments by month from July 2010 to current (data was provided by the Secretariat (WCPFC Transhipment Events Database)).

Attachment: 1 Examination of the time series of longliner VMS information in the South Pacific (SPC-OFP).

Discussion

Longline

The 2012 annual catch estimate of SPA within the Convention Area is 71,145mt. The average over the period 2000 to 2012 is 56,967 mt, ranging from a low of 32,351mt in 2000, to a recent high of 74,087 mt in 2010.

High seas catch estimates represent around a third to a half (29%-51%) of the total SPA annual catch, and range from 12,778 mt in 2000, to 28,071 mt in 2002, and 26,537 mt in 2012 (Table 1).

By flag, China and Chinese Taipei have the highest catch estimates of SPA in 2012 (24,810 mt and 11,742 mt respectively) (Table 2).

The Chinese catch is more than double last year's and is the highest annual catch by flag over the reporting period. Most of this increase is due to fishing on the high seas, where the 2012 estimated catch is 17,051 mt compared to 8,190 mt in 2011.

Chinese Taipei SPA catch estimate has dropped somewhat from 12,772 mt in 2011 to 11,742 mt in 2012. High seas catch estimates for Chinese Taipei dropped from 2011 4,322 mt to 2,488 mt in 2012, indicating that a higher proportion of their catch of SPA is taken within EEZs. We see the first reports (within the reporting period) for Chinese Taipei in the Tonga EEZ with an estimated catches of 7 and 1342 mt for 2011 and 2012 respectively.

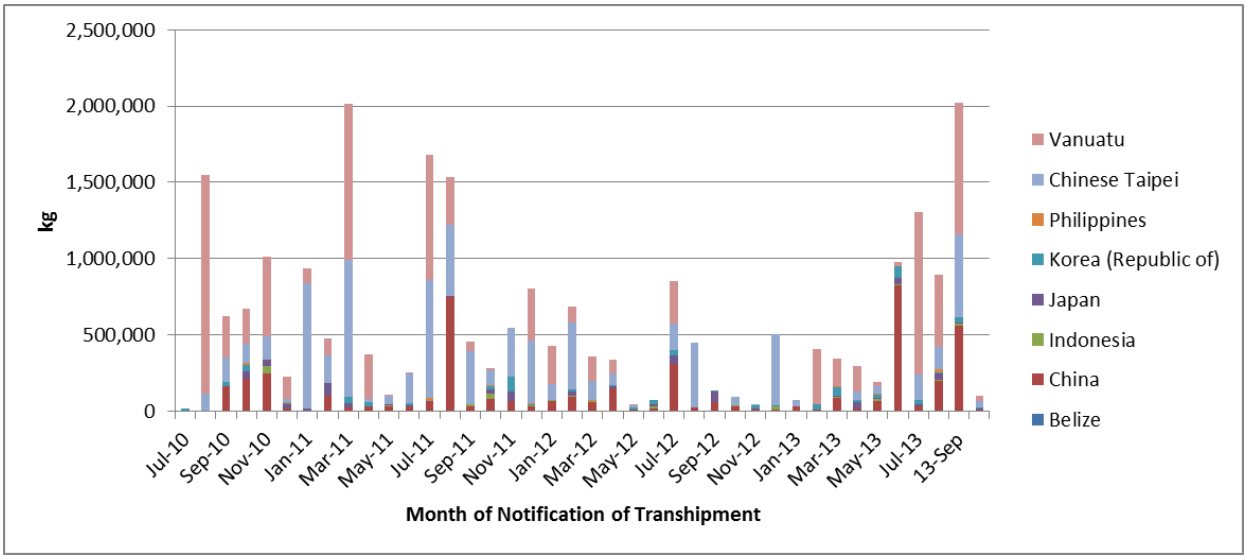
As noted in earlier reports, the trends in the SPA annual catch estimates for China and Chinese Taipei vessels over the past decade may be influenced by changes in targeting from bigeye tuna to albacore tuna, and vice-a-versa.

The catch estimate for SPA in the Cook Islands EEZ has increased steadily over the reporting period, with a large increase from 2011 to 2012 from 6,549 mt to 10,739 mt. This is the highest catch in an EEZ for 2012, closely followed by the Solomon Islands EEZ catch estimate of 10,195 mt. The Solomon's Islands EEZ catch has been declining in recent years, from 20,862 and 15,464 mt in 2010 and 2011, respectively. The estimated catches in these two EEZs represent around 30% of the total annual estimated catch of SPA in 2012.

The transhipment data cover the period July 2010 to date and in general represents high seas transshipments only – however ambiguity in the regulations has resulted in some in-zone transhipment being reported to the Commission. Fluctuation in reported transshipments may reflect logistical/operational factors rather than fishing activity. It is noted that historically SPA

would have been offloaded directly to canneries (e.g. Pago Pago, American Samoa, or Levuka, Fiji) rather than being transshipped. Recent data shows a spike in September 2012 of 2,022 mt, primarily due to high reported transshipments by China (563mt), Chinese Taipei (541mt) and Vanuatu (865mt).[1]

Figure 1: Reported transhipment by flag and month (July 2010 to date)



Source: WCPFC Transhipment Events Database (16 October 2013)

Over the past decade, SPA annual catch estimates have increased for some Pacific Island fleets through domestication/joint ventures (e.g. Tuvalu flagged vessels reported catches of SPA for the first time in 2011, and Kiribati flagged vessels reported their first catches of SPA in 2010 and 2011).

Trolling

Two flag states report trolling throughout the period 2000 to 2012, namely the USA and New Zealand. Since 2005 this activity has been reported only in the New Zealand EEZ and on the high seas (Table 4a). Average catch estimates for the period 2005 to 2012 for the high seas and the New Zealand EEZ are 383 mt and 2,391 mt respectively, and the latest catch estimates (2012) are 198 mt for the high seas and 2,727 mt for the New Zealand EEZ.

[1] Transhipment data held by the WPCFC Secretariat is continually being improved, and significant updates are anticipated over time.

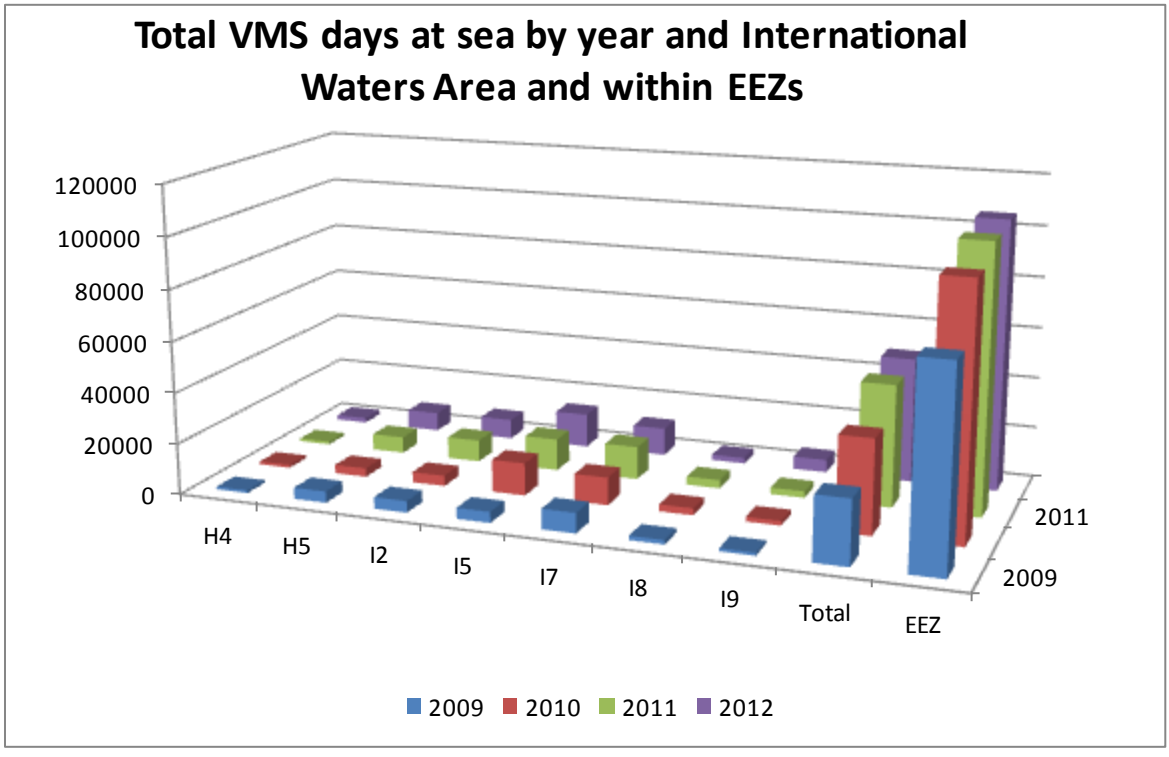
VMS

Longline VMS data analysed by SPC (Attachment 1) shows a clear increase in longliner activity within EEZs and on the high seas from 2009 - 2012. As indicated in the explanatory text, the data and analysis is subject to a number of caveats. For example the large increase of longline VMS activity within EEZs from 2009-2012 is partly attributable to longline activity in the tropical areas of EEZs that is not targeted at South Pacific albacore.

Table A1 of Attachment 1 shows an increase in longliner VMS days both in EEZs and in international waters, with a greater rate of increase in international waters. The proportion of longliner VMS days in international waters versus EEZs increased from 25% in 2009 to 32% in 2012.

Figure 2 below visualizes the data for international waters presented in Table A2 of Attachment 1. It presents increases in the number of longliner VMS days at sea by international waters area and for comparative purposes the total VMS days at sea by year and within EEZs is included. Reduced activity in 2012, compared to 2011, is seen in areas I2, I7 and I8, all other areas and international waters show an increase in activity, with the greatest activity shown in area I5 (see Fig A2 Attachment 1 for a map of the international waters areas). A marked increase occurs in 2012 in area H4 with a reported 1901 VMS days; this area did see not more than 1200 VMS days per annum for each the previous three years. Similarly activity has increased considerably in Area I9, almost doubling the 2011 figure of 2604 VMS days to 5030 VMS days in 2012.

Figure 2: Total VMS days at sea by year and International Waters Area and within EEZs



Source: Attachment 1, Tables A1 and A2 (provided by SPC-OFP)

Table 1: Annual south Pacific ALBACORE longline catch estimates by EEZ and High Seas, 2000–2012

Notes: Available operational and aggregate logsheet data raised to annual catch estimates. "EEZ" are approximate 200-mile boundaries; "High seas" is the high seas in the WCPFC Convention Area, south of the equator. Allocation of FLAG catch to EEZ may be approximate due to the lack of operational logsheet data in some cases.

EEZ/ High Seas	ANNUAL SOUTH PACIFIC ALBACORE LONGLINE CATCH ESTIMATES BY EEZ AND HIGH SEAS												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
American Samoa	625	3191	5173	3102	1905	2849	4078	4428	2827	3159	2890	1959	2488
Australia	358	553	503	389	579	616	2525	1866	1256	1471	706	627	529
Cook Islands	NA	9	1092	1840	2156	2282	1986	3634	2607	5697	5905	6549	10739
Fiji	4524	7294	6218	4035	6113	5596	5735	3667	4523	5590	3759	3353	4333
High Seas	12778	22189	28071	25722	23989	22719	18405	15264	20865	27836	23997	18071	26537
Jarvis (USA)	NA	NA	NA	51	NA	NA	NA	NA	NA	NA	NA	NA	0
Kiribati	268	741	758	644	833	241	303	776	254	721	978	542	1059
Non-attributed non-high seas area	4	4	1	19	11	13	4	5	2	24	6	2	9
New Caledonia	885	1015	1160	1087	1367	1579	1348	1312	1484	1611	1923	1732	1700
Norfolk Island	2	1	1	3	8	6	1	0	NA	0	0	NA	NA
Niue	0	3	40	9	7	55	259	217	337	238	220	NA	NA
New Zealand	1334	2593	2522	2937	1246	602	496	277	382	422	460	418	267
French Polynesia	3463	4261	4555	3813	2210	2255	2849	3924	3064	3560	3482	3223	3590
Papua New Guinea	105	72	82	645	1530	2182	1789	1920	509	865	806	309	803
Solomon Islands	339	170	1073	931	2227	2999	6947	4882	8424	11605	20862	15464	10195
Tokelau	NA	18	190	98	128	31	NA	252	144	26	35	121	111
Tonga	858	1074	846	319	197	256	405	354	221	124	57	41	1389
Tuvalu	224	117	186	52	237	299	8	317	159	313	186	343	738
Vanuatu	2516	2759	2626	2799	3682	6913	8303	5663	6416	6160	5279	7897	4619
Wallis et Futuna	NA	1	NA	NA	NA	34	NA	NA	NA	2	NA	3	NA
Western Samoa	4068	4824	4207	2278	1235	1263	2113	3126	2345	2823	2536	1420	2039
Totals	32351	50889	59304	50773	49660	52790	57554	51884	55819	72247	74087	62074	71145

Table 2: Annual south Pacific ALBACORE longline catch estimates by Vessel Nation, 2000–2012

Notes: Available operational and aggregate logsheet data raised to annual catch estimates.

By Flag	ANNUAL SOUTH PACIFIC ALBACORE LONGLINE CATCH ESTIMATES BY FLAG												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Australia	381	591	553	490	667	743	2591	1925	1277	1523	745	653	572
Belize	194	4050	1472	885	353	7	0	164	7	26	10	105	32
Cook Islands	0	2	490	1358	1869	2371	2223	2644	2224	1551	2423	2182	2614
China	2030	2495	2704	6003	5828	4026	7115	5424	15059	20100	12951	11872	24810
Spain	0	0	0	0	2	2	0	0	33	35	6	3	2
Fiji	5363	7230	7282	6341	10937	11105	11477	6984	9265	12097	8745	7722	9558
Federated States of Micronesia	0	0	0	0	0	0	0	0	0	0	1	1	34
Japan	2254	3358	2637	3147	4010	4652	3371	2806	2435	2880	2464	2136	2194
Kiribati	0	0	0	0	0	0	0	0	0	0	66	177	43
Korea	591	1728	2850	1394	743	2167	786	1035	1135	1141	907	443	830
New Caledonia	895	1020	1165	1111	1468	1590	1358	1324	1506	1649	1939	1736	1715
Niue	0	0	0	0	0	55	213	216	337	154	97	0	0
New Zealand	1344	2614	2545	2971	1248	602	496	357	382	422	460	418	266
French Polynesia	3473	4261	4557	3846	2218	2426	2918	3957	3068	3560	3483	3225	3594
Papua New Guinea	105	72	82	645	1530	2182	1740	1556	438	807	791	245	693
Portugal	0	0	0	0	0	0	0	0	0	0	0	4	1
Solomon Islands	224	54	121	95	207	0	0	0	0	0	9391	9391	0
Tonga	862	1268	1189	611	182	283	414	390	220	124	57	34	20
Tuvalu	0	0	0	0	0	0	0	0	0	0	0	168	168
Chinese Taipei	9502	12800	16057	12187	8313	8610	8590	8597	7577	11469	13741	12772	11742
United States of America	1070	3872	6104	4258	2614	3058	4146	5298	3690	3937	4081	2752	3469
Vanuatu	0	655	5275	3180	6237	7648	8001	6091	4825	7956	9199	4621	6751
Wallis et Futuna	0	0	0	0	0	0	0	0	0	0	0	3	0
Western Samoa	4067	4820	4223	2253	1233	1263	2113	3113	2342	2816	2529	1415	2038
Totals	**32352**	**50890**	**59306**	**50775**	**49659**	**52790**	**57552**	**51881**	**55820**	**72247**	**74086**	**62078**	**71145**

Table 3. Annual south Pacific ALBACORE longline catch estimates by EEZ and Vessel Nation, 2000–2012

Notes: Available operational and aggregate logsheet data raised to annual catch estimates. "EEZ" are approximate 200-mile boundaries; "High seas" is the high seas in the WCPFC Convention Area, south of the equator. Allocation of FLAG catch to EEZ may be approximate due to the lack of operational logsheet data in some cases.

EEZ/high seas	Flag	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
American Samoa	US	625	3191	5173	3102	1905	2849	4078	4428	2827	3159	2890	1959	2488
Australia	AU	358	553	503	389	579	616	2525	1866	1256	1471	706	627	529
Cook Islands	BZ				70									
	CK		2	490	1344	1866	2266	1986	2380	1918	1363	2207	2178	2583
	CN												147	2970
	FJ											105	308	305
	FM													34
	KI												129	32
	PF				14									
	CT			6	0	0		0	966	205	1784	791	1069	784
	US		7	578	397	280	16		288	484	585	871	549	554
	VU				15	9					1966	1931	2170	3478
	WS			18										
Fiji	CK						15							
	CN			77	10	92	108	36	78	149	376	108	299	429
	FJ	4278	6578	5506	3816	5948	5470	5693	3501	4361	5206	3639	2939	3903
	KR											11	69	
	NZ								80					
	CT	246	529	331	90	39	2	1	9	11	8	0	5	
	US						1							
	VU		187	304	119	33	1	6		2		1	42	1
High Seas	AU	22	37	48	99	80	121	65	58	21	52	39	26	43
	BZ	31	2800	1472	805	2	7	0	19	0	2			
	CK			0	14	3	6	81	158	180	30	61	4	23
	CN	2029	2413	2509	5652	5365	2582	5176	4468	12450	15062	9722	8190	17051
	ES					2	2	0	0	33	35	6	3	2
	FJ	363	221	721	1287	2186	2263	2135	1042	1348	2126	1611	1872	2632
	FM	0	0		0	0	0	0	0	0	0	1	1	0
	JP	2069	3170	2466	2911	3983	4531	2086	1764	1455	1648	951	1673	1379
	KI												30	2
	KR	284	1070	1837	1095	444	1787	308	452	419	580	531	246	477
	NC	8	1	4	23	94	10	8	12	22	38	16	4	14
	NU							2						
	NZ	10	21	23	35	2	0	0	0	0	0	0		
	PF	36		2	20	8	138	69	33	4		1	2	4
	PT												4	1
	TO	4	194	344	293	3	27	9	36					
	CT	7479	11339	14433	11355	6723	5345	3214	2565	1437	3039	4194	4322	2488
	US	444	648	153	573	291	161	68	317	263	157	278	192	402
	VU		276	4058	1563	4803	5740	5183	4339	3233	5065	6586	1504	2018
	WS													1
Jarvis	US				51									
Kiribati	BZ					351								32
	CN	1	82		48	9	0	0	0	1	93	134	190	261
	FJ												12	36
	JP	42	83	44	40	27	11	2			10	1	13	17
	KI	0	0		0					0		66	18	4
	KR	224	576	692	262	234	134	131	186	124	144	248	97	232
	CT	1	0	22	64	116	28	14	354	48	66	19	153	401
	US					1								2
	VU				230	96	69	156	236	82	408	511	52	73

EEZ/high seas	Flag	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
New Caledonia	NC	885	1015	1160	1087	1367	1579	1348	1312	1484	1611	1923	1732	1700
Norfolk Island	AU	2	1	1	3	8	6	1						
Niue	CK							47			84	122		
	NU						55	211	216	337	154	97		
	TW			34										
	US		3	6	9	7			1			1		
Non-attributed non-high seas area	FJ	2			17	4	11	2	3	2	10	6	2	7
	NC	2	4	1	1	7	0	2						1
	VU				1		2	0	3	0	14			
New Zealand	NZ	1334	2593	2522	2936	1246	602	496	277	382	422	460	418	266
	US				1									1
French Polynesia	KR	27												
	PF	3437	4261	4555	3813	2210	2255	2849	3924	3064	3560	3482	3223	3590
Papua New Guinea	PG	105	72	82	645	1530	2182	1740	1556	438	807	791	245	693
	CT							49	363	71	58	15	64	110
Western Samoa	US	1	4	2	25	2			13	3	7	7	5	2
	WS	4067	4820	4205	2253	1233	1263	2113	3113	2342	2816	2529	1415	2037
Solomon Islands	BZ				10	0			145	7	24	10	105	
	CK							45		12	16			5
	CN			17	102	157	426	866	307	1315	2378	1285	772	1518
	FJ	10	2	160	59	364	229	673	571	1267	2714	1427	932	1325
	JP	103	69	126	193		110	1276	1042	980	1223	1469	450	797
	KR		0	76	16	24	83	320	226	463	299	34	27	108
	SB	224	54	121	95	207	0					9391	9391	
	CT	2	44	266	150	718	1638	2713	2185	3807	4638	7147	3596	5683
	VU			307	306	757	513	1055	407	574	313	98	191	759
Tokelau	CK									33				
	FJ												58	91
	KI													4
	CT												17	
	US		18	190	98	128	31		252	111	26	35	46	16
Tonga	FJ					18								25
	TO	858	1074	845	318	179	256	405	354	220	124	57	34	20
	CT												7	1342
	US			1	1					1				3
Tuvalu	CK								52	20	54	23		3
	CN												22	
	FJ				31	192	122	1	2	15	124	28	124	503
	JP	41	36	2	3	0		0				43		
	KI													1
	KR	55	82	184	18	41	162	6	171	123	119	83	4	13
	TV												168	168
	CT	128	0		0	4	15	0		1		2	1	
	US			1										1
	VU							0	91		16	8	24	49
Vanuatu	BZ	163	1251											
	CK						84	63	54	62	3	11		
	CN			100	190	205	911	1038	571	1144	2190	1702	2246	2581
	FJ	709	428	896	1131	2226	3012	2973	1866	2272	1917	1930	1474	730
	JP							7						
	KR			62	4			21		7				
	CT	1647	888	964	528	713	1583	2599	2156	1997	1876	1573	3539	935
	VU		192	605	946	537	1323	1601	1016	933	173	64	638	373
Wallis et Futuna	PF						34							
	US		1								2			
	WF												3	

Table 4a. Annual south Pacific ALBACORE troll catch estimates by EEZ, 2000–2012

Notes: Available operational and aggregate logsheet data raised to annual catch estimates. "EEZ" are approximate 200-mile boundaries; "High seas" is the high seas in the WCPFC Convention Area, south of the equator.

By EEZ	ANNUAL SOUTH PACIFIC ALBACORE TROLL CATCH ESTIMATES BY EEZ AND HIGH SEAS												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
High Seas	2768	2309	1503	2262	1336	665	708	325	151	237	307	471	198
New Zealand	3336	2736	3012	3721	3212	2855	2043	1736	3352	1794	1832	2787	2727
Total	6104	5047	4517	5984	4551	3520	2751	2061	3503	2031	2139	3258	2925

Table 4b. Annual south Pacific ALBACORE troll catch estimates by Flag, 2000–2012

By flag	ANNUAL SOUTH PACIFIC ALBACORE TROLL CATCH ESTIMATES BY FLAG												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
AU	0	2	2	1	3								
CK	335	202	166	688	376	89	121	53					
NZ	3336	2736	3012	3721	3212	2855	2043	1736	3352	1794	1832	2787	2727
US	2433	2107	1337	1574	960	576	587	272	151	237	307	471	198
Total	6104	5047	4517	5984	4551	3520	2751	2061	3503	2031	2139	3258	2925

Table 5. High Seas transshipment data for SPA, by flag and month from July 2010

Notes:

1. The requirement to report (within 15 days of transshipment) high seas transshipment commenced in July 2010,

2. The data refer to high seas transshipments, but a proportion of the catches will likely have been caught within EEZs.

3. Weights are in kg.

Flag	2010					
	Jul	Aug	Sep	Oct	Nov	Dec
Belize					2,837	
China			166,000	210,668	247,192	17,091
Indonesia					44,170	869
Japan		900		53,543	45,937	30,000
Korea (Republic of)	16,984		22,303	41,890		6,389
Philippines				7,500		4,848
Chinese Taipei		115,000	165,552	125,298	147,809	20,582
Vanuatu		1,435,000	270,600	232,293	521,630	148,835
Total	**16,984**	**1,550,900**	**624,455**	**671,192**	**1,009,575**	**228,614**

Flag	2011											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Belize							710					
China	5,073	101,989	24,854	31,588	31,987	29,524	61,905	748,608	34,656	82,198	63,458	28,013
Indonesia				794	8,277				8,322	29,668		7,220
Japan	10,850	79,731	30,354		1,850	5,777	822	5,800		32,364	62,036	4,687
Korea (Republic of)	4,660	3,017	38,109	29,416	5,622	16,595	3,678		1,225	18,124	98,599	6,276
Philippines				400		500	17,303	2,284		10,346		6,723
Chinese Taipei	818,356	182,858	898,650	17,416	52,060	194,711	778,188	465,695	346,645	94,959	320,851	406,940
Vanuatu	100,000	110,000	1,020,165	290,970	597	700	816,794	313,038	62,000	12,857		341,175
Total	**938,939**	**477,595**	**2,012,132**	**370,584**	**100,393**	**247,807**	**1,679,400**	**1,535,425**	**452,848**	**280,516**	**544,944**	**801,034**

Flag	2012											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Belize							841					
China	67,701	95,807	61,927	149,477	8,602	20,149	305,884	22,450	56,467	29,221	12,940	11,276
Indonesia	1,894	4,820	1,900			11,505				9,000		21,770
Japan		31,016	1,774	12,999	1,575	13,449	61,858	2,597	72,544		1,771	
Korea (Republic of)	3,777	9,539	496	5,454	12,710	28,564	28,912		2,557		23,146	6,723
Philippines			4,684									
Chinese Taipei	101,051	438,492	127,178	80,921	12,089		176,644	422,852		52,845	3,131	461,336
Vanuatu	256,233	108,000	161,242	90,280	1,657		279,900					
Total	**430,656**	**687,674**	**359,201**	**339,131**	**36,633**	**73,667**	**854,039**	**447,899**	**131,568**	**91,066**	**40,988**	**501,105**

Flag	2013									
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
China	33,297	7,376	84,850	20,242	68,622	827,151	30,428	201,377	563,025	11,775
Indonesia			6,891	286	12,201	4,300		4,400	12,054	
Japan			9,481	38,422	3,100	39,089	15,437	42,460	2,581	2,600
Korea (Republic of)		38,746	54,721	10,978	22,026	78,852	29,593	8,624	38,269	12,317
Philippines			4,959		7,982			15,527		
Chinese Taipei	37,723		5,000	59,423	52,168	1,500	163,103	149,223	540,830	39,331
Vanuatu		361,951	175,489	165,000	28,228	28,496	1,062,757	471,754	864,995	36,017
Total	**71,020**	**408,073**	**341,391**	**294,351**	**194,327**	**979,388**	**1,301,318**	**893,365**	**2,021,754**	**102,040**

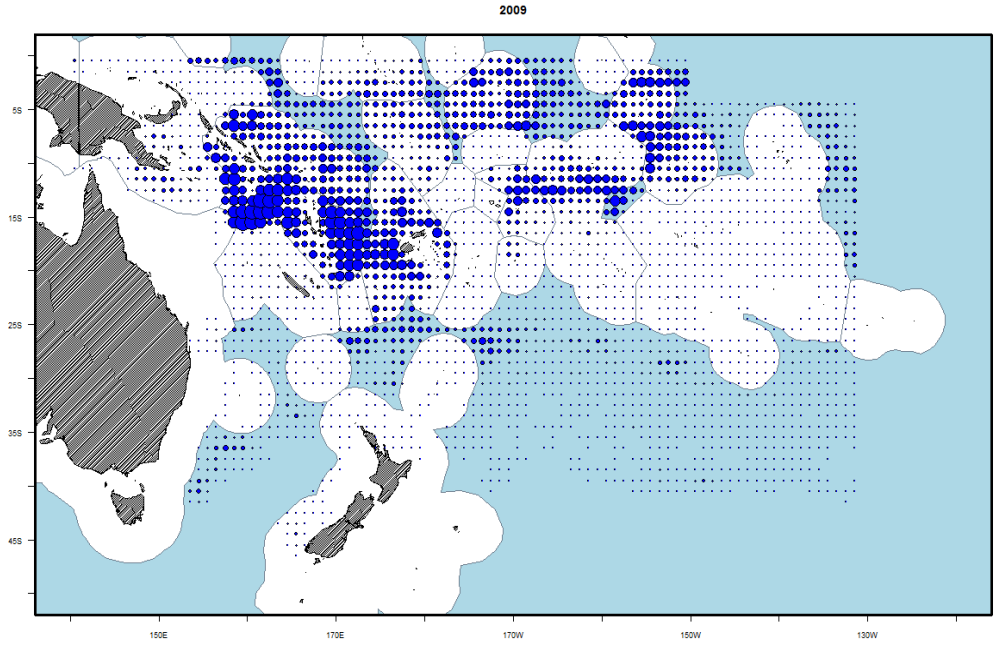
Attachment 1

Examination of the time series of longliner VMS information in the South Pacific

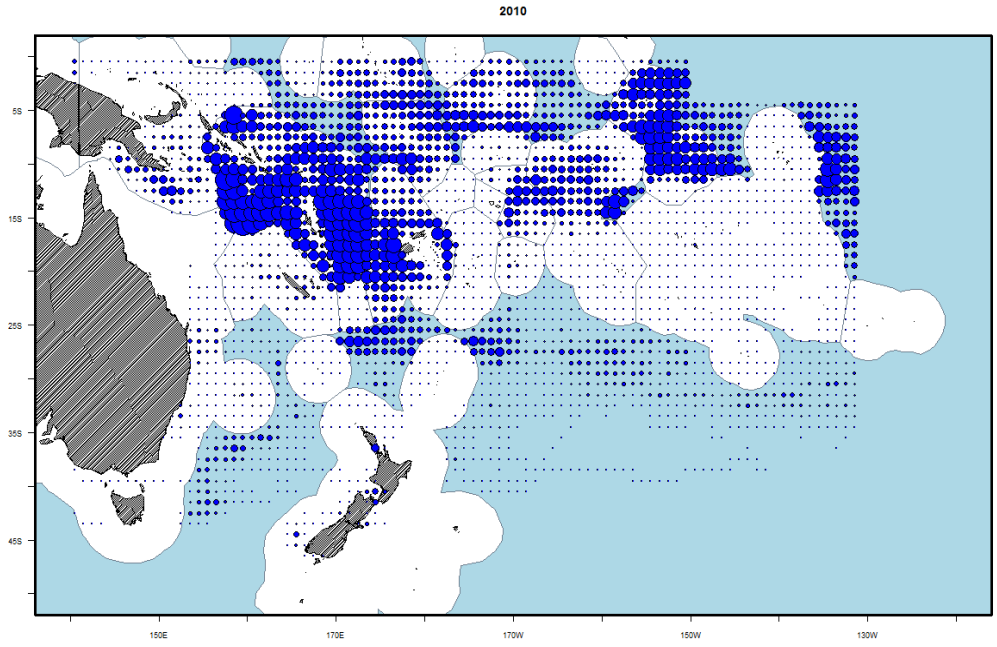
This analysis summarises the longline VMS information available to SPC through the FFA and WCPFC over the period 2009-2012, by geographic region of the South Pacific. Effort in that database corresponds to days at sea (i.e. includes fishing and transiting). Please note:

- This analysis uses annual VMS data available up to and including December 2012;
- Effort represents total longline effort, not just that targeted at South Pacific albacore;
- VMS effort presented for EEZs includes that in archipelagic waters;
- Effort data for some countries (e.g. those with domestic longliners not on FFA VMS) will not be included within EEZ patterns;
- Effort for some countries (e.g. New Caledonia; French Polynesia) may be incomplete;
- Some trends may result from improved VMS coverage of vessels over time;
- EEZ effort excludes the Indonesian EEZ;
- High seas areas for the South Pacific areas are (Figure A2):
    - H4 = International waters between Tuvalu, Phoenix and Tokelau
    - H5 = International waters between Phoenix and Line groups
    - I2 = Doughnut hole between FSM, Solomon Islands, Kiribati, RMI, Nauru and Tuvalu
    - I5 = International waters between Phoenix and Line groups
    - I7 = high seas area to the east of Australia and New Zealand
    - I8 = high seas pocket between Fiji and Vanuatu
    - I9 = high seas pocket between the Cook Islands and French Polynesia

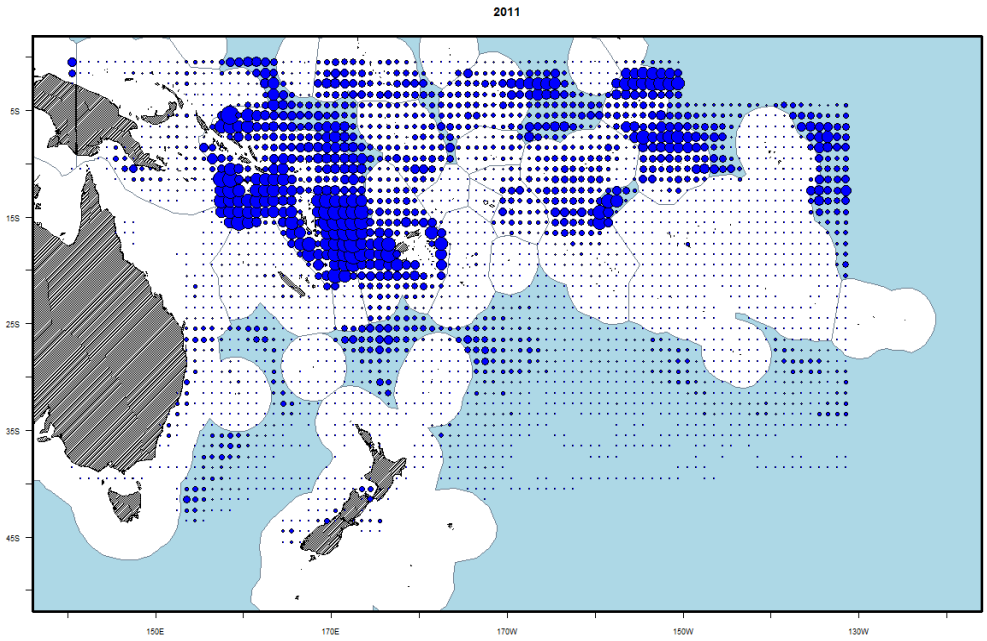
2009


2009
5S
15S
25S
35S
45S
150E
170E
170W
150W
130W

2010


2010
5S
15S
25S
35S
45S
150E
170E
170W
150W
130W

2011



2012

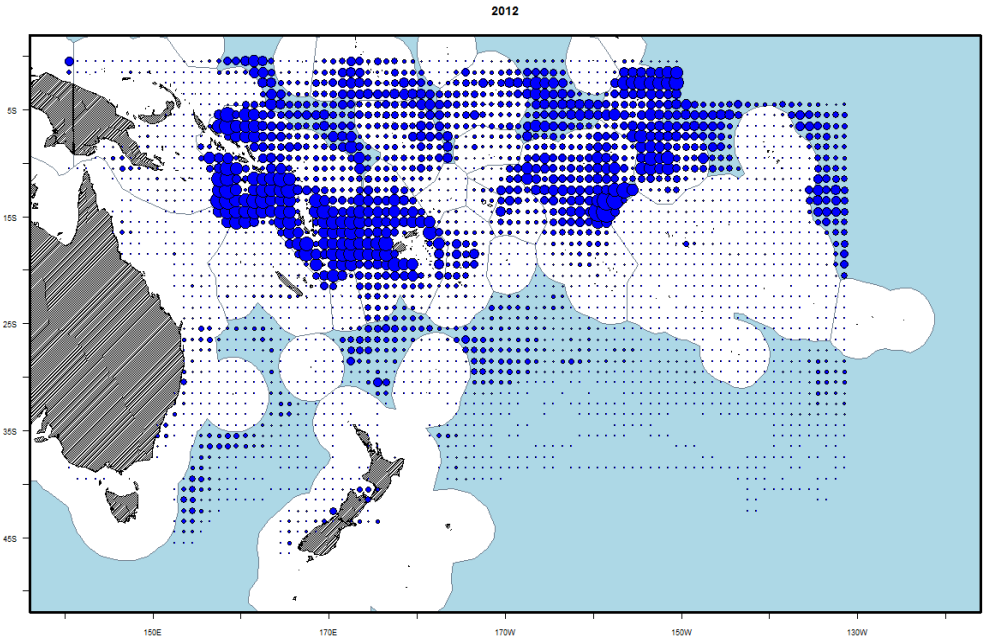


Figure A1. Distribution of longline VMS days at sea in south Pacific EEZs and International Waters at 1°x1°. Max circle size = 963 days.

Table A1. Total VMS days at sea by year and geographic area

	2009	2010	2011	2012
EEZ	77027	97854	104137	105848
International waters	25012	36837	47655	49107
Total	102039	134690	151793	154955
% EEZ	75.5	72.7	68.6	68.3
%IW	24.5	27.3	31.4	31.7

Table A2. Total VMS days at sea by year and International Waters area (see Figure A2 for details)

International Waters Code	2009	2010	2011	2012
H4	1055	1172	1109	1901
H5	4432	3392	6438	7486
I2	4550	4123	8641	7896
I5	4281	12798	12583	13567
I7	7886	10873	13007	11012
I8	1654	2700	3273	2215
I9	1154	1778	2604	5030
TOTAL	25012	36837	47655	49107

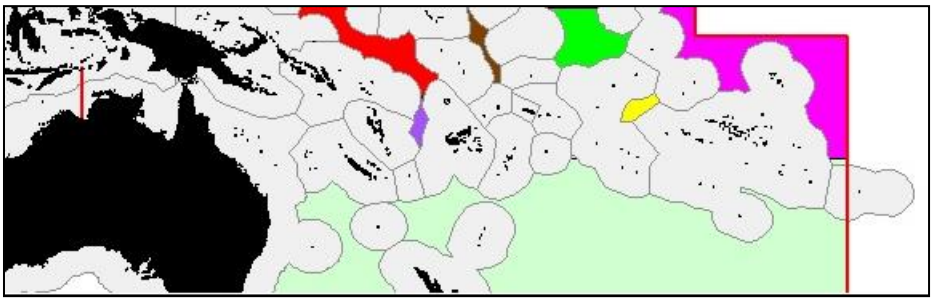


Figure A2. Map of International Waters in the southerly WCPFC-CA

Key:

Code	Area	Colour
H4	International waters between Tuvalu, Phoenix and Tokelau	Brown
H5	International waters between Phoenix and Line groups	Bright green
I2	Doughnut hole between FSM, Solomon Islands, Kiribati, RMI, Nauru and Tuvalu	Red
I5	International waters between Phoenix and Line groups and east of Line group	Pink
I7	High seas area to the east of Australia and New Zealand	Light green
I8	High seas pocket between Fiji and Vanuatu	Purple
I9	High seas pocket between the Cook Islands and French Polynesia	Yellow